National Seminar on

Physical Education and Sports for Promoting Integrity Ethics and Performance

20th & 21st February 2025



Dr. T. JAYABAL

Dr. V. BALAMURUGAN

Sri Ramakrishna Mission Vidyalaya
Maruthi College of Physical Education
An Autonomous College Recognized by NCTE
Affiliated to the Tamil Nadu Physical Education and Sports University
Re-accredited by NAAC with 'A+' Grade
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National Seminar on
Physical Education and Sports for Promoting Integrity Ethics and Performance

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SRI RAMAKRISHNA MISSION VIDYALAYA
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SRKV Post, Periyanaickenpalayam, Coimbatore, Tamil Nadu - 641 020

'NATIONAL SEMINAR ON PHYSICAL EDUCATION AND SPORTS FOR PROMOTING INTEGRITY ETHICS AND PERFORMANCE'

Dr. T. Jayabal, Principal

Dr. V. Balamurugan, Assistant Professor

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MESSAGE

I am pleased to note that our Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education is organising a national seminar on, 'Physical Education and Sports for Promoting Integrity and Performance'.

Throughout human history, sports have consistently served as instruments of integrity, embodying values that nations and peoples must uphold. In a world long ravaged by wars, sports offered a path toward peace, fostering friendship between nations and continents while promoting integrity.

At this important juncture, it is essential for us to reflect on these ideas. Our Ramakrishna Mission Vidyalaya institutions play a crucial role in advancing sports activities and promoting the values of integrity within the realm of sports.

Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education has made significant contributions to the promotion of integrity, ethics, and performance in physical education sports. This national seminar is yet another milestone in its ongoing efforts to contribute to the development of physical education and sports in our country.

I wish this national seminar great success.

Yours in the service of the Lord

Secretary

Place : Periyanaickenpalayam
Date : 13.02.2025

Swami Virahananda
Secretary
Sri Ramakrishna Mission Vidyalaya
Maruthi College of Physical Education
Periyanaickenpalayam, SRKV (Post)
Coimbatore – 641020



MESSAGE

I am delighted that we are conducting a national seminar on, 'Physical Education and Sports for Promoting Integrity, Ethics, and Performance'.

Sports have become an essential aspect of life, contributing significantly to our well-being and overall health. We cannot imagine human life on earth without sports. It is not just a pastime but also a remedy for discouragement and frustration. Sports have made tremendous contributions to health and medicine over time.

We firmly believe that nations must be built on the foundation of honesty, a principle that has been tested throughout history. Yet, thanks to the efforts of great individuals, the flame of honesty has been preserved.

This seminar, one of many we have organised, focuses specifically on the importance of integrity, ethics and performance in physical education and sports. I believe that by participating in the sessions conducted by eminent scholars and professors, we will do justice to the seminar's theme.

I hope that our students will be the ultimate beneficiaries of this seminar, and I extend my gratitude to all the faculty members who continue to be a great source of encouragement to them.

Sincerely,
Swami Virahananda

Place : Periyanaickenpalayam
Date : 13.02.2025

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Dr. T. JAYABAL, B.Com., M.P.Ed., P.G.D.Y., Ph.D.,
Principal



PREFACE

It is my great pleasure to extend a warm greeting to all as our college is organizing a National Seminar on, 'Physical Education and Sports for Promoting Integrity, Ethics, and Performance'.

Sports and physical education go beyond mere physical activity; they are powerful tools for character-building, discipline, teamwork, and leadership.

In today's dynamic world, where ethical considerations are often overshadowed by competition, it is essential to reinforce the values of honesty, respect, and fairness in physical education and sports. By instilling these principles in young minds, we contribute to the development of a society that values integrity and excellence.

Moreover, enhancing performance should not come at the cost of ethical compromises; rather, true excellence is achieved through dedication, hard work, and adherence to ethical principles.

With the firm support of our management, stakeholders, faculty, and students, this seminar, we hope, will be a resounding success. Our collective efforts and commitment to promoting integrity and excellence in physical education and sports have been instrumental in the deliberations and accomplishments of the past seminars and we believe this seminar will also follow course.

We are confident that the proceedings of the seminar will serve as a valuable resource for educators, students, and professionals in the field of physical education and sports.

Wishing you all continued success in promoting integrity and excellence in physical education and sports.

Sincerely

Periyanaickenpalayam
24.02.2024

Dr. T. Jayabal

Avinashilingam Institute for Home Science and Higher Education for Women
Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD
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Coimbatore - 641 043, Tamil Nadu, India

Dr. P. Vanithamani, M.P.Ed., M.Com., M.Sc. (Y&N), Ph.D.
Associate Professor & Head
Department of Physical Education

Date :.....



MESSAGE

It is my immense pleasure to present for The National Seminar on Physical Education and Sports for Promoting Integrity, Ethics, and Performance, organized by Sri Ramakrishna Mission Vidhyalaya Maruthi College of Physical Education, stands as a testament to the institution's commitment to the development of ethical values, integrity, and excellence in the field of physical education and sports. Established in 1956, the college has been at the forefront of providing quality training for future educators and coaches, blending rigorous academic training with practical, field-based experiences.

The seminar also addressed practical approaches to maintaining the integrity of competitive sports, emphasizing the need for ethical leadership from coaches and administrators, as well as the importance of promoting a sports culture that prioritizes respect, sportsmanship, and the well-being of athletes.

We hope that the insights shared and the ideas discussed during this seminar will inspire all stakeholders in the field of physical education and sports to continue their efforts in promoting integrity, ethics, and performance, not only within the confines of the sporting arena but in every aspect of life and serves as a call to action to maintain and strengthen the ethical framework in sports, ensuring that athletes, coaches, and administrators work together to uphold the highest standards of integrity and performance for a better and more equitable future in sports.

We extend our heartfelt thanks to all the participants, speakers, and organizers who made this seminar a success. Their contributions have enriched our understanding of the intersection between ethics, integrity, and performance in the world of physical education and sports.

Dr.P.Vanithamani

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ANALYSIS OF PSYCHOLOGICAL VARIABLES AMONG SOUTH ZONE INTER-UNIVERSITY HOCKEY PLAYERS

1

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ABSTRACT

This study investigates psychological variables sports achievement motivation and trait anxiety among 180 hockey players participating in the South Zone Inter-University Tournament at Bharathidasan University, Trichy. Utilizing a randomized group design, players were selected from ten institutes, with ten players from each team. The investigator conducted a thorough explanation of the test procedures before administering a standardized questionnaire to assess the psychological variables. Data were collected, scored, and analyzed using Analysis of Variance (ANOVA) with a significance level set at 0.05. The statistical analysis was performed using SPSS version 16.0. The ANOVA results indicated significant differences in psychological variables among the ten groups of players, leading to post hoc analyses for pairwise comparisons where applicable. This research provides valuable insights into the psychological profiles of inter-university hockey players, highlighting areas for targeted interventions to enhance athlete performance and well-being.

INTRODUCTION

Field hockey is played by teams on grass, synthetic turf, or indoor courts, with eleven players, including a goalkeeper. The goal is to score by hitting a small ball into the opposing net using curved sticks. The field is about 91.4 meters long and 55 meters wide, with matches typically consisting of two halves of 35 or 40 minutes each. Players must use only the flat side of their sticks and cannot raise them above shoulder height. Violations can lead to penalties, including free hits or penalty strokes. Governed by the International Hockey Federation (FIH), field hockey is popular worldwide, especially in Europe, Australia, India, Pakistan, and Argentina, known for its fast pace and strategic play in competitions like the Hockey World Cup and the Olympics (FIH, n.d.).

Psychology, often regarded as the science of behavior and mental processes, offers a captivating exploration of the depth of the human mind. Rooted in empirical inquiry and theoretical frameworks, psychology seeks to uncover the underlying mechanisms that shape human thought, emotions, and behavior. It is a discipline that encompasses a diverse array of topics, from the study of basic cognitive processes to the complexities of personality, social interaction, and psychopathology· (Brown, R., & Johnson, S., 2023)

The domain of sports psychology has experienced a surge in popularity, leading researchers to investigate intricate psychological factors that impact athlete performance. This trend is particularly evident in the competitive realm of South Zone Inter-University Hockey, where psychological variables, such as anxiety, achievement motivation, resilience, and depression, significantly influence success. These factors have a profound impact on athletes' mindsets, ultimately shaping their performance outcomes (Smith & Jones, 2023).

2. METHODOLOGY

2.1 Selection of Subjects

This research aimed to evaluate specific psychological factors among players in the South Zone inter-university hockey tournament at Bharathidasan University, Trichy. The researcher selected participants from the tournament and provided a comprehensive description of the study and their roles.

2.2 Selection of Variables

Table-1

Sl. No	Variables	Test used
1	Trait Anxiety	Sports Competitive Anxiety Index (SCAI)
2	Achievement Motivation	Sports Achievement Motivation Test

2.3 Research Design

In this research, a random group design was used to select 180 hockey players from various institutes participating in the south zone inter-university tournament at Bharathidasan University, Trichy. Each team consisted of 18 players, totaling 10 teams. The investigator obtained prior permission from the team authorities to assemble the subjects in the match arena and explained the test procedures. The subjects then filled out questionnaires to measure psychological variables such as sports achievement motivation and trait anxiety. The filled questionnaires were collected and scored according to the author's guidelines. Statistical analysis was conducted using Analysis of Variance (ANOVA) to test for significance at the 0.05 level.

2.4 Statistical Technique

The psychological variables among south zone inter-university hockey players were analyzed using SPSS version 16.0. Ten groups of hockey players were compared using Analysis of Variance (ANOVA). If the obtained F value was greater than the required table F value, post hoc analysis was conducted to compare paired means of the groups.

3. RESULTS OF THE STUDY

Table-2

Computation of one way analysis of variance for sports achievement motivation among south zone inter-university field hockey players.

Source of Variance	Sum of Squares	df	Means Squares	F	T.F
Between Groups	111.47	9	12.38	10.31*	1.93
Within groups	1448.278	170	8.51		

The table 2 shows the one way analysis of variance of sports achievement motivation levels among south zone inter-university field hockey players. From the table 2, it was very clear that the obtained F-ratio was 10.31 and table F-ratio was 1.93. As the obtained F-ratio was greater than the table F-ratio, the study was significant at 0.05 level of confidence for the degree of freedom 9 and 170.

Table-3

Schefee's post hoc test of variance for sports achievement motivation among south zone inter-university field hockey players.

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Difference	C.I	sig
13.55	11.50									2.06	3.25	insig
13.55	-	15.33								1.78	3.25	insig
13.55			11.11							2.44	3.25	insig
13.55				16.44						2.89	3.25	insig
13.55					15.00					1.44	3.25	insig
13.55						15.88				2.33	3.25	insig
13.55							13.11			0.44	3.25	insig
13.55								14.27		0.72	3.25	insig
13.55									13.38	0.17	3.25	insig
	11.50	15.33								3.83*	3.25	sig
	11.50		11.11							0.39	3.25	insig
	11.50			16.44						4.94*	3.25	sig
	11.50				15.00					3.50*	3.25	.sig
	11.50					15.88				4.38*	3.25	sig
	11.50						13.11			1.61	3.25	insig
	11.50							14.27		2.78	3.25	insig
	11.50								13.38	1.89	3.25	insig
		15.33	11.11							4.22*	3.25	sig
		15.33		16.44						1.11	3.25	insig
		15.33			15.00					0.33	3.25	insig

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Difference	C.I	sig
		15.33				15.88				0.56	3.25	insig
		15.33					13.11			2.22	3.25	insig
		15.33						14.27		1.06	3.25	insig
		15.33							13.38	1.94	3.25	insig
			11.11	16.44						5.33*	3.25	sig
			11.11		15.00					3.88*	3.25	sig
			11.11			15.88				4.77*	3.25	sig
			11.11				13.11			2.00	3.25	insig
			11.11					14.27		3.17	3.25	insig
			11.11						13.38	2.28	3.25	insig
				16.44	15.00					1.44	3.25	insig
				16.44		15.88				0.56	3.25	insig
				16.44			13.11			3.33*	3.25	sig
				16.44				14.27		2.17	3.25	insig
				16.44					13.38	3.06	3.25	insig
					15.00	15.88				0.89	3.25	insig
					15.00		13.11			1.89	3.25	insig
					15.00			14.27		0.72	3.25	insig
					15.00				13.38	1.61	3.25	insig
						15.88	13.11			2.78	3.25	insig
						15.88		14.27		1.61	3.25	insig

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Difference	C.I	sig
						15.88			13.38	2.50	3.25	insig
							13.11	14.27		1.17	3.25	insig
							13.11		13.38	0.28	3.25	insig
								14.27	13.38	0.89	3.25	insig

** Significant at 0.05 level of confidence.*

The mean differences in sports achievement motivation among universities were as follows: 2.06, 1.78, 2.44, 2.89, 1.44, 2.33, 0.44, 0.72, 0.17, 3.83, 0.39, 4.94, 3.50, 4.38, 1.61, 2.78, 1.89, 4.22, 1.11, 0.33, 0.56, 2.22, 1.06, 1.94, 5.33, 3.88, 4.77, 2.00, 3.17, 2.28, 1.44, 0.56, 3.33, 2.17, 3.06, 0.89, 1.89, 0.72, 1.61, 2.78, 1.61, 2.50, 1.17, 0.28, and 0.89. The required confidence interval was 3.25.

Mean differences between Pondicherry University and Andhra University, University of Kerala, Bharathidasan University, Sri Krishna Devaraya University, and Madurai Kamaraj University exceeded this interval. Bharathidasan University showed the highest sports achievement motivation, while Pondicherry University lagged significantly.

Figure-1

Bar diagram showing the mean of sports achievement motivation among south zone inter-university Field hockey players.

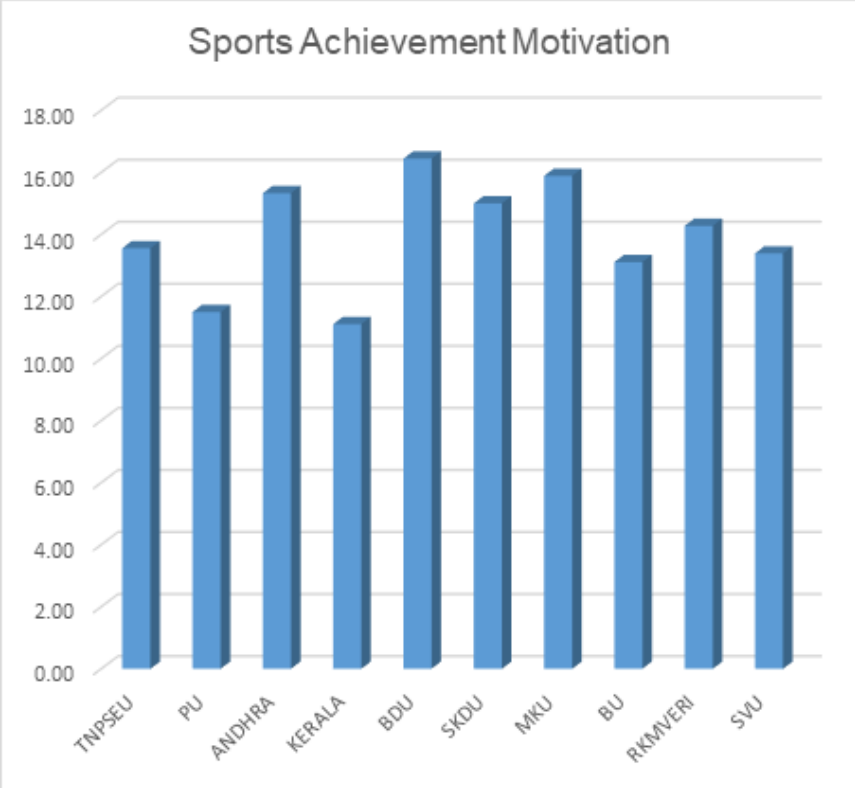


Table-4

Computation of one way analysis of variance for trait anxiety among south zone inter-university field hockey players.

Source of Variance	Sum of Squares	df	Means Squares	F	T.F
Between Groups	12276.31	9	1364.03	48.59*	1.93
Within groups	4771.88	170	28.07		

The table 4 shows the one way analysis of variance of trait anxiety levels among south zone inter-university field hockey players. From the table 4, it was very clear that the obtained F-ratio was 48.59 and table F-ratio was 1.93. As the obtained F-ratio was greater than the table F-ratio, the study was significant at 0.05 level of confidence for the degree of freedom 9 and 170.

Table-5

Schefee's post hoc test of variance for trait anxiety among south zone inter-university field hockey players.

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Differene	C.I	sig
62.50	43.28									**19.22***	**7.37**	**sig**

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TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Differene	C.I	sig
62.50		61.44								1.06	7.37	insig
62.50			43.00							**19.50***	**7.37**	**sig**
62.50				61.72						0.78	7.37	insig
62.50					63.17					0.67	7.37	insig
62.50						60.17				2.33	7.37	insig
62.50							42.61			**19.88***	**7.37**	**sig**
62.50								51.44		**11.05***	**7.37**	**sig**
62.50									53.00	**9.50***	**7.37**	**sig**
	43.28	61.44								18.17*	7.37	sig
	43.28		43.00							0.28	7.37	insig
	43.28			61.72						18.44*	7.37	sig
	43.28				63.17					19.89*	7.37	sig
	43.28					60.17				16.89*	7.37	sig
	43.28						42.61			0.67	7.37	insig
	43.28							51.44		8.17*	7.37	sig
	43.28								53.00	**9.72***	**7.37**	**sig**
		61.44	43.00							18.44*	7.37	sig
		61.44		61.72						0.28	7.37	insig
		61.44			63.17					1.72	7.37	insig
		61.44				60.17				1.28	7.37	insig
		61.44					42.61			18.83*	7.37	sig

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Differene	C.I	sig
		61.44						51.44		10.00*	7.37	sig
		61.44							53.00	**8.44***	**7.37**	**sig**
			43.00	61.72						18.72*	7.37	sig
			43.00		63.17					20.17*	7.37	sig
			43.00			60.17				17.17*	7.37	sig
			43.00				42.61			0.39	7.37	insig
			43.00					51.44		8.44*	7.37	sig
			43.00						53.00	**10.00***	**7.37**	**sig**
				61.72	63.17					1.44	7.37	insig
				61.72		60.17				1.56	7.37	insig
				61.72			42.61			19.11*	7.37	sig
				61.72				51.44		10.28*	7.37	sig
				61.72					53.00	**8.72***	**7.37**	**sig**
					63.17	60.17				3.00	7.37	insig
					63.17		42.61			20.56*	7.37	sig
					63.17			51.44		11.72*	7.37	sig
					63.17				53.00	**10.17***	**7.37**	**sig**
						60.17	42.61			17.56*	7.37	sig
						60.17		51.44		8.72*	7.37	sig
						60.17			53.00	7.17	7.37	insig
							42.61	51.44		8.83*	7.37	sig

TNPSEU	PU	ANDHRA	KERALA	BDU	SKDU	MKU	BU	RKMVERI	SVU	Mean Differene	C.I	sig
							42.61		53.00	**10.39***	**7.37**	**sig**
								51.44	53.00	1.56	7.37	insig

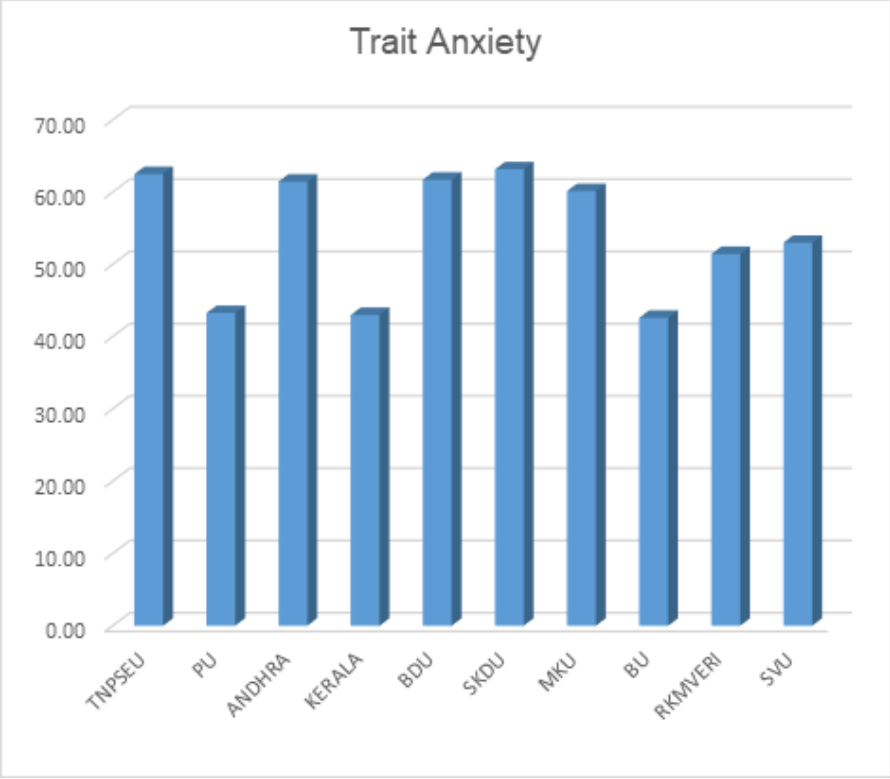
** Significant at 0.05 level of confidence.*

The mean differences in trait anxiety among universities were as follows: 19.22, 1.06, 19.50, 0.78, 0.67, 2.33, 19.88, 11.05, 9.50, 18.17, 0.28, 18.44, 19.89, 16.89, 0.67, 8.17, 9.72, 18.44, 0.28, 1.72, 1.28, 18.83, 10.00, 8.44, 18.72, 20.17, 17.17, 0.39, 8.44, 10.00, 1.44, 1.56, 19.11, 10.28, 8.72, 3.00, 20.56, 11.72, 10.17, 17.56, 8.72, 7.17, 8.83, 10.39, and 1.56. The required confidence interval was 7.37.

Bharathiar University, the University of Kerala, and Pondicherry University exhibited low average trait anxiety, while SKDU and TNPESU had the highest levels of anxiety.

Figure-2

Bar diagram showing the mean of trait anxiety among south zone inter-university field hockey players.



4.DISCUSSION ON THE RESULTS

The study revealed a significant difference in sports achievement motivation among South Zone inter-university field hockey players, leading to the acceptance of the first hypothesis. Additionally,

there was a notable difference in trait anxiety within this group, resulting in the acceptance of the second hypothesis as well.

5.CONCLUSION

The study found significant differences in sports achievement motivation among South Zone inter-university field hockey players, with Bharathidasan University demonstrating the highest levels, while Pondicherry University lagged significantly behind. Additionally, there were notable variations in trait anxiety, where Bharathiar University, the University of Kerala, and Pondicherry University exhibited relatively low levels of anxiety compared to other institutions, whereas SKDU and TNPESU recorded the highest levels of trait anxiety.

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EFFICACY OF ANAEROBIC TRAINING ON STRIDE LENGTH AND STRIDE FREQUENCY OF COLLEGE MEN

2

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ABSTRACT

To achieve the purpose of the study, thirty (N=30) subjects were selected from the SRMV Maruthi College of Physical Education, Periyanaickenpalayam, Tamil Nadu. The participants, aged 23 to 25 years, were divided into two groups: Experimental Group-I, consisting of fifteen male subjects who underwent anaerobic training workouts for 12 weeks (5 days per week, from 4:00 PM to 5:00 PM), and Control Group-II, also consisting of fifteen male subjects who continued with their regular routines without additional training. The selected variables for the study were stride frequency, measured using 50 m distance number of steps and stride length assessed using 50 m distance. After completing twelve weeks of training, post-test data were collected, and both pre-test and post-test scores were analyzed using the dependent t-test to determine if there had been a significant improvement the level of confidence set at 0.05. The results revealed that the experimental group showed a significant improvement in stride length and stride frequency to the anaerobic training program. However, no significant changes were observed in the control group for the selected variables.

Keywords *:- Anaerobic Training, stride frequency and stride length.*

INTRODUCTION

Sports training is a fundamental component of a sportsperson's preparation forincreased performance through physical activity. Based on scientific principles, it aims toincrease learning and performance, overall health and biological processes, as well as thestrength and stability of the musculoskeletal system. The goal of sports training also includesthe development of motor skills. Sports activities involve motor movement and action, andhow well they are executed is a key factor in how successful they are. Techniques for trainingand increasing tactical effectiveness are essential to the training process **(Singh, 1991)**.

The word "anaerobic" means "without oxygen." In anaerobic work, which involvesmaximum effort, the body is working so hard that the demands for oxygen outweigh the rateof supply, forcing the muscles to rely on the fuel reserves that have been previously saved.Lactic acid is by far the most prevalent waste product in this situation. The bodies enter acondition called as oxygen debt when the muscles are depleted of oxygen. As soon as thebody's reserves of fuel are depleted, activity stops painfully.

Exercise routines frequently include periods of intense effort. Increasing anaerobiccapacity has been associated with a number of health benefits, including enhanced sportsperformance and a quicker metabolism.

It is a well-known and established kind of conditioning, and it can typically beincorporated into any athlete's training regimen, whether they are preparing for a generalcompetition or a specific one. Training in this manner is particularly advantageous because ofits flexibility, improving lactate threshold, as well as both aerobic and anaerobic capacities.Repeated exercise to build short-term, high-intensity performance is known asanaerobic training. "Without oxygen" is what anaerobic

means. This kind of energy system isused during exercises like jumping, sprinting, and weightlifting. In contrast, continuous low-intensity exercise activates the aerobic system.

Through vigorous muscular exercise, anaerobic training is utilised to build strengthand power. Lactic acid is created when glucose is converted into muscle energy. However,due to the demanding nature of the task and the fact that oxygen is Athletes who do anaerobicexercise develop their bodies' capacity to produce fast energy from the ATP-PC (adenosinetriphosphate-phosphocreatine) and the lactic acid systems.Stride frequency is the number of strides taken per unit of time. The average stridefrequency was calculated by dividing the number of strides taken by the time to run 50meters. Stride length is measured as the distance taken from toe to toe. The average stridelength was calculated by dividing the 50 meters by the number of strides taken to cover 50meters.

METHODOLOGY

To achieve the purpose of the study, thirty (N=30) subjects were selected from the SRMV Maruthi College of Physical Education, Periyanaickenpalayam, Tamil Nadu. The participants, aged 23 to 25 years, were divided into two groups: **Experimental Group-I**, consisting of fifteen male subjects who underwent anaerobic training workouts for 12 weeks (5 days per week, from 4:00 PM to 5:00 PM), and **Control Group-II**, also consisting of fifteen male subjects who continued with their regular routines without additional training. The selected variables for the study were **stride frequency,** measured using 50 m distance number of steps and stride length assessed using 50 m distance. After completing twelve weeks of training, post-test data were collected, and both pre-test and post-test scores were analyzed using the dependent *t*-test to determine if there had been a significant improvement the level of confidence set at 0.05.

RESULTS

TABLE -I

ANAEROBIC TRAINING GROUP PRE-TEST, POST-TEST MEANS AND "t" RESULTS ON STRIDE LENGTH AND STRIDE FREQUENCY OF COLLEGE MEN

Variables	Pre-Test		Post Test		M.D	σDM	't'
	Mean	S.D(±)	Mean	S.D(±)			
Stride length	1.59	0.057	1.67	0.017	0.08	0.02	4.00*
Stride Frequency	3.88	0.03	5.77	0.04	1.89	0.018	105.0*

**Significant withdf 14 table value 2.14*

Table -I results show the pre-test and post-test stride length and stride frequency of the anaerobic training group. The pre-test mean values for stride length and stride frequency were 1.59 ± 0.057 and 3.88 ± 0.03, while the post-test mean values for stride length and stride frequency were 1.67 ± 0.017 and 5.77 ± 0.04, respectively. The 't' values were 4.0 and 105.00The table value required for a significant difference at the .05 level with 14 degrees of freedom is 2.14. Since the obtained "t" ratio value for the anaerobic training group is greater than the table value, it can be concluded that the anaerobic training group showed a significant improvement in stride length and stride frequency among college men.

FIGURE-I

MEAN VALUES OF PRE AND POST TEST OF STRIDE LENGTH AND STRIDE FREQUENCY OF ANAEROBIC TRAINING AND COLLEGE MEN

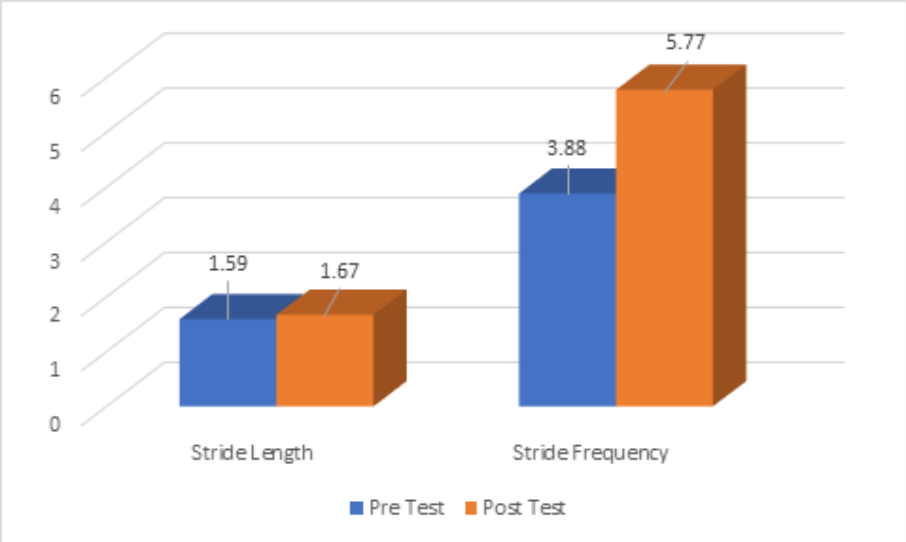


TABLE – II

CONTROL GROUP PRE-TEST, POST-TEST MEANS AND "t" RESULTS ON STRIDE LENGTH AND STRIDE FREQUENCY OF COLLEGE MEN

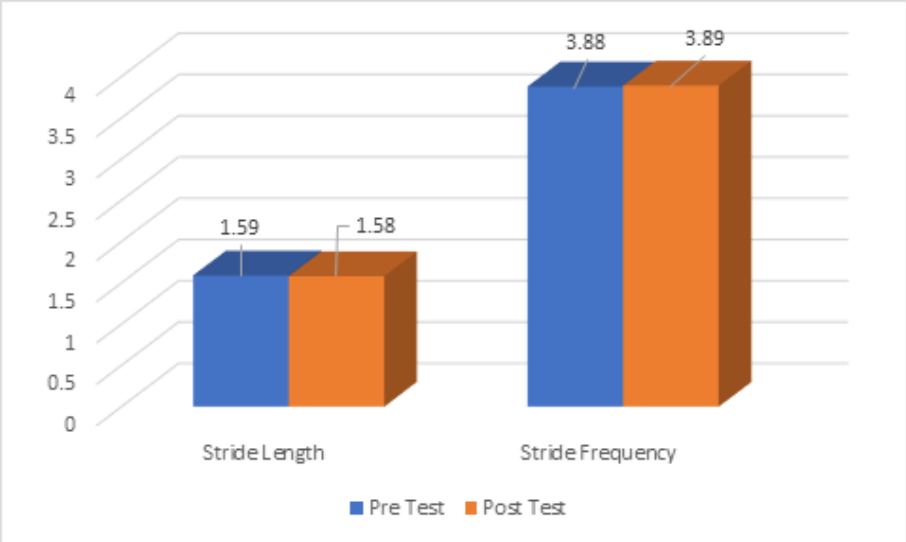
Variables	Pre Test		Post Test		M.D	σDM	't'
	Mean	S.D(±)	Mean	S.D(±)			
Stride length	1.59	0.05	1.58	0.04	0.01	0.006	1.66
Stride Frequency	3.88	0.03	3.89	0.04	0.01	0.007	1.42

No significant withdf 14 table **value 2.14**

Table -II results show the pre-test and post-test stride length and stride frequency of the anaerobic training group. The pre-test mean values for stride length and stride frequency were 1.59 ± 0.05 and 3.88 ± 0.03, while the post-test mean values for stride length and stride frequency were 1.58 ± 0.04 and 3.89 ± 0.04, respectively. The 't' values were 1.66 and 1.42 The table value required for a significant difference at the .05 level with 14 degrees of freedom is 2.14. Since the obtained "t" ratio value for the anaerobic training group is lesser than the table value, it can be concluded that the control group showed a no significant improvement in stride length and stride frequency among college men.

FIGURE-I

MEAN VALUES OF PRE AND POST TEST OF STRIDE LENGTH AND STRIDE FREQUENCY OF CONTROL GROUP AND COLLEGE MEN



DISCUSSION ON FINDINGS

The results of the study has been revealed that the experimental groupnamely the anaerobic training group has significantly improved the stride length and stride frequency of college men as compared to Control group. The training involves various work outs and repeated sprints that leads to enhances the criterion variables. Effects of cycling on subsequent running performance, stride length, and muscle oxygen saturation in triathletes**(Olcina et al., 2019)**. And Regulation of stride length during the approach run in the 400-m hurdles**(Ozaki, et al., 2019)**

CONCLUSIONS

The anaerobic training group had significantly improved stride length and stride frequency of college men due to effect of anaerobic training programme. The control group did not improve on selected variables.

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PHYSICAL EDUCATION AND SPORTS: AN ABSOLUTE HOLISTIC AND MULTIDISCIPLINARY DOMAIN ALIGNING WITH THE VISION OF NEP

3

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ABSTRACT

Physical Education (PE) and sports have progressed into a comprehensive, multidisciplinary field that encompasses various disciplines, including physiology, psychology, biomechanics, pedagogy, and sports management. The National Education Policy (NEP) underscores the importance of holistic education, acknowledging the role of PE and sports in facilitating cognitive, physical, and emotional development. This paper examines the multidisciplinary nature of PE and its alignment with the NEP's vision for integrated and skill-based learning.This study elucidates the contributions of diverse disciplines to PE and sports. Exercise physiology and sports science aim to optimize performance and injury prevention. Conversely, sports psychology enhances mental fortitude and motivation among athletes. The field of biomechanics is dedicated to improving movement efficiency, thus minimizing injury risks. Furthermore, effective pedagogy and curriculum design ensure inclusive and impactful teaching methods, while sociology and sports management address the socio-economic and organizational dimensions of sports. Additional disciplines such as sports nutrition, sports medicine, and research methodologies play a significant role in promoting athlete health and enhancing performance. Technological advancements, including big data analytics, artificial intelligence, and machine learning, are transforming sports training, injury prevention, and strategic game development.PE and sports also make a substantial contribution to value education, fostering essential life skills such as teamwork, discipline, perseverance, and respect. These values resonate with the NEP's objective of cultivating responsible and ethical individuals. Furthermore, the NEP advocates for an interdisciplinary educational approach, breaking down traditional subject barriers to create a well-rounded educational experience. The global acknowledgment of PE and sports highlights their importance in academic curricula, with international organizations such as UNESCO endorsing their role in lifelong fitness and social advancement.In conclusion, Physical Education and Sports embody a holistic educational model that aligns with the NEP's vision of integrated learning. Acknowledging the multidisciplinary nature of PE will enhance its impact on education, research, and professional development. By integrating scientific, technological, and ethical frameworks, PE and sports serve as a vital foundation for developing competent and well-rounded individuals who are prepared to face future challenges.

INTRODUCTION

Physical education (PE) and sports have evolved into a multidisciplinary domain that integrates various fields, including physiology, psychology, biomechanics, pedagogy, and sports management. The National Education Policy (NEP) emphasizes the holistic development of students, recognizing PE and sports as essential components of education. This article explores the multidisciplinary nature of physical education and sports, comparing it to the National Interdisciplinary Policy (NIP), which promotes integrated learning approaches across various academic disciplines.

Holistic and Multidisciplinary Domain in Physical Education and Sports

Physiology and Sports Science: Physical education involves an in-depth understanding of human physiology, exercise science, and sports medicine. Research in sports science contributes to

optimizing performance, preventing injuries, and ensuring overall well-being. Physiological studies help in designing effective training programs and nutritional strategies for athletes (McArdle, Katch, &Katch, 2015).

Psychology and Mental Well-being: Sports psychology is a crucial element of PE, focusing on motivation, concentration, resilience, and stress management. Studies highlight the role of sports in reducing anxiety, improving self-esteem, and fostering teamwork (Weinberg & Gould, 2018). Integrating psychological principles into sports enhances performance and mental health, much like how NEP promotes psychological principles across disciplines.

Biomechanics and Movement Analysis: Biomechanics applies principles of physics to human movement, optimizing techniques and preventing injuries. It plays a critical role in refining skills across various sports, similar to how NEP integrates scientific principles into broader educational contexts (Bartlett, 2007).

Pedagogy and Curriculum Design: Educational theories guide PE teaching methods, incorporating strategies for different learning styles and abilities. The alignment of PE pedagogy with broader educational policies ensures that students benefit from holistic learning experiences, akin to the interdisciplinary approach promoted by NEP (Siedentop, 2009).

Sociology and Sports Management: Sports are deeply rooted in cultural and societal structures. The study of sports sociology examines the impact of race, gender, and socioeconomic factors on participation in physical activities. Furthermore, sports management involves event planning, administration, and marketing, making PE a multidisciplinary field on par with NEP (Coakley, 2017).

Sports Nutrition: Sports Nutrition is a vital component of athletic performance, focusing on dietary strategies to enhance endurance, strength, and recovery. Proper nutrition ensures that athletes receive adequate macronutrients and micronutrients to optimize their performance (Burke & Deakin, 2015).

Sports Medicine: Sports Medicine integrates medical expertise to diagnose, treat, and prevent sports-related injuries. It encompasses rehabilitation techniques, injury prevention strategies, and overall athlete health management (Brukner& Khan, 2019).

Research Methodology: Research Methodology in sports enables the systematic study of training techniques, injury prevention, and performance enhancement. It involves qualitative and quantitative analysis to develop evidence-based practices in sports science (Thomas, Nelson, & Silverman, 2015).

Sports Training: Sports Training focuses on the systematic development of athletes through scientifically designed programs. It includes periodization, skill development, conditioning, and psychological preparation to optimize performance (Bompa&Haff, 2009).

Sports Marketing: Sports Marketing plays a pivotal role in promoting athletes, events, and organizations. It involves sponsorship, branding, and strategic communication to enhance the commercial aspect of sports (Shank &Lyberger, 2014).

Sports Journalism: Sports Journalism bridges the gap between sports and the audience, providing insights, analyses, and reports on various sporting events. It ensures the dissemination of sports-related information through various media channels (Boyle, 2006).

Sports Technology: The advancement of Sports Technology has revolutionized training, equipment, and performance analysis. Wearable technology, video analysis, and virtual reality applications enhance coaching and athlete development (Bartlett, 2006).

Sports Management: Sports Management focuses on the administration and organization of sports institutions, events, and teams. It integrates business, leadership, and legal principles to ensure the efficient management of sports entities (Pedersen & Thibault, 2018).

Sports Engineering: Sports Engineering applies engineering principles to enhance sports equipment and facility design. It contributes to safety, performance enhancement, and innovation in sports gear and infrastructure (Haake, 2018).

Statistics in Sports: Statistics in Sports are essential for performance analysis, game strategy, and predictive modelling. It enables teams and athletes to refine their techniques and strategies based on empirical data (Albert, 2006).

Entrepreneurship in Sports: Entrepreneurship in Sports is a growing field that encourages innovation in sports business models, startups, and product development. It aligns with NEP's emphasis on skill development and economic growth through sports-related ventures (Ratten, 2011).

Big Data, Machine Learning, and Artificial Intelligence in Physical Education and Sports: The integration of Big Data, Machine Learning (ML), and Artificial Intelligence (AI) in sports has transformed how athletes train, compete, and recover. Big Data analytics help in performance tracking, injury prevention, and game strategy development by processing vast amounts of real-time data. Machine Learning algorithms analyze patterns in player movements, predict injuries, and customize training regimens (Jordan & Mitchell, 2015). AI-powered systems enhance decision-making for coaches and referees by providing precise real-time analysis (Kaplan &Haenlein, 2019). Wearable technology and AI-driven applications ensure data-driven decisions to improve athletic performance (Rudin, McCormick, & Madigan, 2021).

Value Education in Physical Education and Sports: Value education in physical education and sports plays a significant role in shaping individuals' character, behaviour, and ethics. It not only fosters physical fitness but also instils essential life values such as teamwork, discipline, perseverance, respect, and fair play. Through active participation in sports, individuals learn essential life skills that help them become productive members of society. Educators and coaches play a crucial role in fostering these values, ensuring that sports serve as a medium for both physical and moral growth. These values contribute to the holistic development of individuals and help them become responsible members of society.

ALIGNMENT WITH NEP

The principles of the NEP are to develop good human beings capable of rational thought and action, possessing compassion and empathy, courage and resilience, scientific temper andcreative imagination, with sound ethical moorings and values. It aims at producing engaged,productive, and contributing citizens for building an equitable, inclusive, and plural society asenvisaged by our Constitution.

The National Education Policy (NEP) advocates for breaking down traditional subject barriers to encourage a comprehensive learning experience. Similarly, modern Physical Education programs and Sports integrate multiple disciplines, including health sciences, psychology, technology, value

education, etc,. Both frameworks aim to create well-rounded individuals prepared for diverse professional and personal challenges.

GLOBAL RECOGNITION AND REFORMS

Countries worldwide recognize the importance of PE and sports in academic curricula. The United Nations Educational, Scientific and Cultural Organization (UNESCO) underscores the role of PE in fostering lifelong fitness habits and social development (UNESCO, 2015). The incorporation of interdisciplinary learning in sports aligns with NEP's objective of fostering skill-based education.

CONCLUSION

Physical Education and Sports embody a multidisciplinary approach, integrating various fields such as exercise physiology, biomechanics, nutrition, and sports management. The NEP underscores the importance of sports in education, fostering a holistic development approach that nurtures talent, promotes research, and ensures the well-being of individuals through sports sciences.PE promotes a holistic educational experience that prepares individuals for diverse career paths and personal development. Recognizing its significance in academic and professional spheres will further reinforce its status as a critical discipline in modern education.

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THE ROLE OF SPORTS IN PROMOTING GLOBAL PEACE

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4

ABSTRACT

Sports have long served as a universal language, fostering unity, mutual respect, and cooperation among individuals and nations. Beyond competition, sports provide a platform for diplomacy, conflict resolution, and social integration. International events such as the Olympics and the FIFA World Cup bring together diverse cultures, promoting cross-border friendships and reducing tensions. Additionally, sports initiatives in conflict zones and marginalized communities encourage social cohesion, empower youth, and promote dialogue between divided groups. This paper explores the power of sports as a tool for global peacebuilding, highlighting historical examples, policy initiatives, and grassroots efforts that have leveraged sports to bridge divides and foster a more harmonious world.

INTRODUCTION

Sports have long been recognized as a powerful tool for fostering unity, promoting cultural understanding, and bridging divides among people of different backgrounds. Whether at the local, national, or international level, sports provide a platform for individuals and nations to come together in a spirit of fair play, teamwork, and mutual respect. In a world often plagued by conflict and division, the role of sports in promoting global peace cannot be overstated.

SPORTS AS A UNIFYING FORCE

One of the most significant contributions of sports to global peace is their ability to unite people across geographical, political, and cultural boundaries. International sporting events such as the Olympic Games, FIFA World Cup, and Paralympics serve as platforms for athletes from different nations to compete in an environment that emphasizes sportsmanship over rivalry. These events encourage dialogue and foster friendships among athletes and spectators alike, demonstrating that cooperation and respect can exist despite differences.

Additionally, sports have played a crucial role in conflict resolution and post-conflict recovery. Programs such as the United Nations' "Sports for Development and Peace" initiative use sports to promote social inclusion and rebuild communities affected by war. By bringing individuals together in a shared activity, sports create opportunities for reconciliation, healing, and understanding.

PROMOTING CULTURAL EXCHANGE AND UNDERSTANDING

Sports provide a means of cultural exchange, allowing individuals to learn about different traditions and lifestyles in a non-threatening and enjoyable setting. International sports competitions and tournaments enable participants to appreciate diverse cultures, fostering respect and reducing prejudices. This cultural exchange helps break down stereotypes and builds bridges between communities, promoting global harmony.

For example, cricket has played a crucial role in improving relations between India and Pakistan, two nations historically involved in conflict. Despite political tensions, cricket matches between these countries have provided opportunities for diplomacy and people-to-people connections, demonstrating how sports can serve as a catalyst for peace.

ENCOURAGING YOUTH ENGAGEMENT AND DEVELOPMENT

Youth engagement in sports is another vital aspect of promoting global peace. Sports provide young people with a sense of purpose, discipline, and teamwork, helping them develop life skills that contribute to peaceful coexistence. By engaging in sports, youth from different backgrounds learn the values of respect, tolerance, and fair play—qualities essential for fostering a peaceful society.

Organizations worldwide use sports as a tool for youth development, particularly in regions affected by violence and instability. Programs such as "Football for Peace" and "Right to Play" focus on using sports to teach young people conflict resolution skills, leadership, and teamwork, helping them become positive contributors to society.

THE ROLE OF ATHLETES AS PEACE AMBASSADORS

Athletes often serve as role models and ambassadors of peace, using their platforms to promote unity and social causes. Prominent athletes such as Muhammad Ali, Nelson Mandela (through his association with rugby), and Didier Drogba have used sports to advocate for peace and reconciliation in their respective communities. By promoting messages of peace and inclusivity, these athletes inspire millions of fans worldwide to embrace values that contribute to global harmony.

Furthermore, sports organizations and governing bodies have implemented policies that promote inclusivity and non-discrimination. Campaigns such as FIFA's "Say No to Racism" and the International Olympic Committee's initiatives to include refugee athletes highlight the role of sports in promoting social justice and equality, which are crucial for sustaining peace.

CONCLUSION

In an era where conflicts and divisions persist, sports offer a unique and effective way to promote global peace. By uniting people across borders, fostering cultural exchange, engaging youth, and empowering athletes as peace ambassadors, sports contribute significantly to building a more harmonious world. As nations continue to leverage sports for diplomatic and social purposes, the role of sports in promoting global peace will only continue to grow. It is essential for governments, organizations, and individuals to support and invest in sports initiatives that enhance global unity, tolerance, and cooperation.

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DIGITAL TECHNOLOGIES IN YOUTH SPORTS TALENT IDENTIFICATION AND DEVELOPMENT: ETHICAL CONSIDERATIONS AND PERFORMANCE ENHANCEMENT

5

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ABSTRACT

The identification and nurturing of youth talent in sports are essential for the development of elite athletes and sustainable sports programs. This research explores comprehensive strategies for identifying and nurturing young talents while emphasizing the promotion of integrity, ethics, and performance. The role of digital technology in sports science is critically examined, showcasing its impact on talent scouting, training, and performance monitoring. The integration of ethical considerations ensures that youth development in sports adheres to principles of fairness, inclusivity, and transparency. This study highlights best practices, including data-driven decision-making, wearable technology, AI-powered analytics, and virtual reality training. Moreover, the ethical implications of digital tools in sports training and athlete development are discussed, underscoring the necessity for responsible use. The findings contribute to the growing field of sports science by providing actionable insights for coaches, sports organizations, and policymakers.

Keywords: *Youth Talent Identification, Sports Ethics, Digital Technology, Performance Enhancement, Sports Science, Wearable Technology, Data Analytics.*

INTRODUCTION

The identification and nurturing of youth sports talent require structured approaches integrating ethical standards, advanced training methodologies, and technological innovations. Digital technology has transformed how athletes are scouted, trained, and monitored, enabling data-driven insights to optimize performance while ensuring fairness and integrity. This study delves into various strategies to identify and develop young sports talents, emphasizing ethical considerations and digital advancements.

REVIEW OF LITERATURE

Several studies have explored the role of digital technology in sports talent identification and development. **Bailey and Collins (2013)** discuss the foundational aspects of sports science in talent development, emphasizing the importance of integrating technology with traditional assessment methods. Similarly, **Balyi, Way, and Higgs (2013)** propose the Long-Term Athlete Development (LTAD) model, which highlights the necessity of early identification and structured training to optimize performance trajectories.

The psychological aspects of talent development have also been explored extensively. **Collins, Martindale, and Button (2016)** provide a framework for understanding psychological readiness in young athletes, stressing the importance of resilience and motivation. **Côté and Lidor (2013)**

emphasize that talent development is influenced by environmental and social factors, making ethical considerations crucial for inclusivity and fairness.

In recent years, advancements in wearable technology and AI-driven analytics have revolutionized athlete monitoring. **Lieberman and Wang (2018)** highlight the benefits of wearable technology in reducing injury risks and improving performance. Additionally, **Peltier (2019)** describes AI as a game-changer in sports, enabling precise performance analysis and scouting efficiency. However, **Smith and Jones (2020)** warn about ethical concerns related to data privacy and fairness in AI-driven decision-making.

Furthermore, **Williams and Reilly (2022)** examine the role of big data analytics in developing elite performers, illustrating how predictive modeling can enhance scouting and training programs. **Hughes and Franks (2015)** stress the importance of performance analysis in sports science, supporting the integration of digital tools for objective assessments.

YOUTH TALENT IDENTIFICATION IN SPORTS

Identifying sports talent at an early stage involves recognizing potential through systematic assessments, scouting programs, and performance analytics. Traditional talent identification strategies include:

- **Physical and Physiological Assessments:** Measuring strength, agility, endurance, and motor skills through standardized testing protocols **(Bailey & Collins, 2013).**
- **Skill-Based Evaluations:** Observing technical abilities relevant to specific sports using video analysis and expert evaluations **(Hughes & Franks, 2015).**
- **Psychological Assessments:** Understanding motivation, resilience, mental preparedness, and stress management techniques **(Collins et al., 2016)**.
- **Game Intelligence and Decision-Making:** Assessing an athlete's ability to make quick, effective decisions under pressure using cognitive training tools **(Williams & Reilly, 2022).**

With the advancement of digital tools, talent identification has become more precise. AI-driven scouting platforms, motion analysis software, and predictive analytics enhance data-driven evaluations, ensuring an unbiased and systematic approach **(Peltier, 2019).**

NURTURING YOUTH TALENT: TRAINING AND DEVELOPMENT

Once identified, young athletes require structured training programs tailored to their individual needs. Effective nurturing strategies include:

- **Personalized Training Regimens:** AI-based coaching systems customize workouts based on real-time biometric and physiological data **(Smith & Jones, 2020).**
- **Sports Science Support:** Collaboration with physiotherapists, nutritionists, and sports psychologists to ensure holistic athlete development **(Balyi et al., 2013).**
- **Injury Prevention and Recovery:** Wearable sensors track biomechanics, reducing injury risks and optimizing rehabilitation **(Lieberman & Wang, 2018).**
- **Mental and Emotional Development:** Psychological resilience training, mindfulness techniques, and stress management practices foster long-term success **(Collins et al., 2016).**

- **Tactical Awareness Training:** Augmented reality (AR) and virtual reality (VR) simulations enhance situational awareness and decision-making in game scenarios **(Peltier, 2019).**

PROMOTING INTEGRITY AND ETHICS IN SPORTS TALENT DEVELOPMENT

Ethical considerations are vital to ensuring that youth sports development remains fair and inclusive. Key aspects include:

- **Transparency in Talent Identification:** Avoiding biases and favoritism in scouting and selection by using AI-driven unbiased analysis **(Smith & Jones, 2020).**
- **Fair Play and Anti-Doping Measures:** Educating young athletes about ethical responsibilities and compliance with anti-doping regulations **(Côté & Lidor, 2013).**
- **Inclusivity and Equal Opportunities:** Promoting diversity in sports participation through targeted programs and scholarships **(Bailey & Collins, 2013).**
- **Data Privacy and Athlete Welfare:** Ensuring that personal athlete data is protected from misuse and unauthorized access **(Williams & Reilly, 2022).**

CHALLENGES AND ETHICAL CONSIDERATIONS IN DIGITAL TECHNOLOGY ADOPTION

While digital technology enhances sports development, challenges include:

- **Data Privacy Concerns:** Ensuring athlete information is securely stored and protected **(Smith & Jones, 2020).**
- **Reliability of AI-Driven Decisions:** Validating AI-based scouting and training recommendations for accuracy and fairness **(Peltier, 2019).**
- **Economic Disparities:** Addressing accessibility issues in developing regions where digital resources may be limited **(Hughes & Franks, 2015).**
- **Ethical Use of Performance-Enhancing Technologies:** Preventing unfair advantages in sports through the misuse of technology **(Lieberman & Wang, 2018).**

CONCLUSION

The integration of digital technology in sports science has revolutionized youth talent identification and nurturing while ensuring ethical standards and performance enhancement. By adopting AI-driven analytics, wearable devices, and data-driven training methods, sports organizations can optimize athlete development. However, ethical considerations must remain a priority to maintain fairness, transparency, and inclusivity. Future research should focus on refining digital tools and creating policies that support responsible technology use in sports talent development.

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PLYOMETRIC TRAINING ON MUSCLE ACTIVATION AND VERTICAL JUMP PERFORMANCE FOR SPORTS PERSONS

6

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INTRODUCTION

Plyometric training is a form of exercise that focuses on developing explosive muscle power by utilizing the stretch-shortening cycle, where muscles are rapidly stretched and then immediately contracted, leading to enhanced performance in activities requiring quick bursts of force like jumping and sprinting; essentially, it aims to improve muscle elasticity and power output through exercises like box jumps, squat jumps, and depth jumps, making it a valuable tool for athletes in various sports.

Plyometric training, also known as "jump training," involves exercises that focus on explosive movements designed to improve strength, power, and overall performance. When applied to vertical jump performance, plyometrics targets the muscles and neural systems responsible for jumping ability. Here's an in-depth look at how plyometric training impacts vertical jump performance and muscle activation:

PLYOMETRIC TRAINING AND VERTICAL JUMP PERFORMANCE

Plyometric exercises improve vertical jump performance by enhancing the body's ability to generate quick, explosive force, which is key to increasing jump height. These exercises target fast-twitch muscle fibers, which are the primary muscles used for rapid, powerful movements like jumping. The main benefits of plyometric training for vertical jump performance include:

- **Increased Power Output:** Plyometric exercises enhance the ability to produce force rapidly, which directly correlates to improving vertical jump height.
- **Improved Reactive Strength:** Plyometric training helps the body develop the ability to react quickly to changes in direction and ground contact, which is essential for effective jumping.
- **Enhanced Stretch-Shortening Cycle (SSC):** This refers to the muscle's ability to lengthen and then rapidly shorten (eccentric to concentric movement) to generate force, a critical component for explosive jumps.

KEY PLYOMETRIC EXERCISES FOR VERTICAL JUMP

Some of the most common plyometric exercises that enhance vertical jump performance include:

- **Jump Squats:** A bodyweight squat followed by an explosive jump upward.
- **Depth Jumps:** Stepping off a platform and then immediately jumping upon hitting the ground.
- **Bounding:** A form of exaggerated running, focusing on long, powerful strides that mimic a jumping motion.
- **Box Jumps:** Jumping onto and off of a platform or box, targeting the lower body and improving vertical height.

- **Lateral Bounds:** Jumping side-to-side, which improves power, agility, and coordination.

MUSCLE ACTIVATION DURING PLYOMETRIC TRAINING

Plyometric exercises recruit a variety of muscle groups, with a primary focus on the lower body muscles responsible for generating force during a jump. Key muscles activated include:

- **Quadriceps:** The front thigh muscles that help extend the knee and generate upward thrust during a jump.
- **Hamstrings:** The muscles at the back of the thighs assist in bending the knees and controlling the downward phase of the jump.
- **Glutes:** The gluteus maximus provides powerful extension at the hips and assists in generating the force needed for upward motion.
- **Calves (Gastrocnemius and Soleus):** These muscles help push off the ground, contributing to the explosive push during the takeoff phase.
- **Core Muscles:** A strong core (abdominals, obliques, and lower back) helps stabilize the torso and maintain balance while performing plyometric movements.

NEURAL ADAPTATIONS AND MUSCLE ACTIVATION

Plyometric training can trigger a number of beneficial neural adaptations, such as:

- **Increased Motor Unit Recruitment:** Plyometrics train the nervous system to recruit more motor units (muscle fibers) during explosive movements, enhancing overall power and strength.
- **Improved Rate of Force Development (RFD):** Plyometric training enhances the speed at which force is developed, which is crucial for powerful, explosive jumps.
- **Enhanced Proprioception:** Plyometrics help develop better body awareness in space, improving the ability to control muscle movements during dynamic actions like jumping.

EFFECTIVENESS AND PROGRAMMING

Plyometric training is most effective when performed in a structured and periodized manner. Overtraining or improper programming can lead to injury, especially considering the high-impact nature of many plyometric exercises. Typical recommendations for plyometric training include:

- **Frequency:** 2–3 times per week to allow proper recovery and muscle adaptation.
- **Intensity:** Varying the intensity based on the individual's experience and fitness level, progressing from bodyweight exercises to more advanced loaded or explosive movements.
- **Volume and Recovery:** A higher number of sets and repetitions (with enough rest between sets) allows for optimal power output. Recovery is critical to avoid fatigue and injury.

SCIENTIFIC EVIDENCE ON PLYOMETRICS AND VERTICAL JUMP PERFORMANCE

Numerous studies have supported the effectiveness of plyometric training in enhancing vertical jump performance. Some key findings include:

- **Muscle Activation:** Research shows that exercises like depth jumps and squat jumps significantly activate the lower body muscles, especially the quadriceps, glutes, and calves.

- **Vertical Jump Improvement:** Several studies demonstrate that consistent plyometric training can lead to an increase in vertical jump height by improving muscle power and reaction time.
- **Neuromuscular Adaptations:** Plyometric training has been shown to induce neuromuscular changes, enhancing coordination, muscle fiber recruitment, and the efficiency of the SSC.

CONCLUSION

Plyometric training is a highly effective way to improve vertical jump performance by enhancing the body's ability to generate power, strength, and coordination. It primarily activates the muscles in the lower body, particularly the quadriceps, glutes, hamstrings, and calves, while also stimulating important neuromuscular adaptations. Properly integrating plyometric exercises into a well-balanced training program can lead to significant improvements in vertical jump height, athletic performance, and overall explosiveness.

RECOMMENDATION

Plyometric training can be very useful for various sports persons, such as athletes in basketball, handball, football, kabaddi, volleyball, and especially jumpers in athletics.

If you're considering starting plyometric training, make sure to ease into the exercises and gradually increase intensity to avoid overtraining or injury, and consider consulting a coach or trainer for personalized guidance.

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SILAMBAM AS A HOLISTIC ART FOR PROMOTING INTEGRITY AND DISCIPLINE

7

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INTRODUCTION

Silambam, an ancient martial art originating from Tamil Nadu, India, is much more than a physical activity. Its structured practices and philosophical underpinnings offer a path toward holistic development, making it a powerful tool for nurturing integrity and discipline. Rooted in a history that spans over two millennia, Silambam continues to thrive as a symbol of cultural pride and a medium for character-building. This article explores how Silambam fosters physical fitness, mental clarity, and ethical growth, contributing to the overall development of individuals.

HISTORICAL CONTEXT OF SILAMBAM

Silambam's origins can be traced back to the Sangam period in ancient Tamil Nadu. Historically, it was practiced by warriors as a method of combat training and self-defense. Over time, it evolved into a cultural tradition passed down through generations, encompassing lessons in discipline, focus, and respect. According to Raja and Selvi (2022), Silambam has transcended its martial roots to become a vehicle for promoting life skills and values among practitioners.

THE ROLE OF SILAMBAM IN CHARACTER DEVELOPMENT

One of Silambam's defining features is its emphasis on character development. The art integrates moral teachings with physical training, enabling practitioners to develop values such as self-discipline, integrity, and humility. These attributes are cultivated through rigorous practice, adherence to traditions, and the respect required for instructors and fellow practitioners.

DISCIPLINE THROUGH PRACTICE

The structured routines in Silambam—such as mastering weapon techniques and footwork patterns—require consistent effort and dedication. This instills self-discipline, which extends beyond the practice arena into academics, personal relationships, and professional life. Kumaravel and Raghavan (2018) highlight how regular Silambam training builds perseverance and time management skills, both essential for success in any domain.

PROMOTING INTEGRITY

Silambam's teachings emphasize honesty, fairness, and respect for opponents. By adhering to these principles during practice and competition, students internalize the importance of ethical decision-making. This alignment with core values not only benefits individuals but also creates a culture of integrity within communities. Practitioners learn that winning is secondary to playing fairly and respecting the art.

BUILDING SOCIAL SKILLS

Silambam's group activities encourage teamwork, communication, and mutual respect. Practitioners often collaborate in pairs or teams, fostering a sense of camaraderie and cooperation.

This collaborative spirit is especially valuable for young learners, as it teaches them the importance of empathy and collective effort.

PHYSICAL AND MENTAL BENEFITS

Beyond its ethical and moral aspects, Silambam offers substantial physical and mental health benefits. Regular practice enhances flexibility, strength, and endurance. The art's dynamic movements improve reflexes and coordination, making it a full-body workout.

PHYSICAL HEALTH

Research by **Subramaniam** *et al.,* **(2020)** found that Silambam practitioners exhibited improved cardiovascular health, better posture, and increased muscle tone. These benefits are particularly important in today's sedentary lifestyles, as they promote overall well-being and reduce the risk of chronic illnesses.

MENTAL HEALTH

Silambam's focus on precision and rhythmic movement fosters mindfulness. The practice requires concentration, helping individuals develop mental clarity and reduce stress. This is especially beneficial for students and professionals juggling multiple responsibilities. Additionally, the meditative aspects of Silambam contribute to emotional stability and resilience.

SILAMBAM IN MODERN PHYSICAL EDUCATION

Incorporating Silambam into educational curriculums can significantly enhance the holistic development of students. Its blend of physical activity and moral instruction aligns well with the goals of modern physical education systems, which prioritize character-building alongside academic achievement.

CULTURAL AND ETHICAL OF PHYSICAL EDUCATION

As a culturally rich art form, Silambam connects students with their heritage, fostering a sense of pride and identity. By learning the art's history and traditions, students gain a deeper appreciation for their cultural roots. **Raja** *et al.,* **(2022)** argue that this cultural awareness strengthens ethical foundations, promoting responsible citizenship.

PRACTICAL IMPLEMENTATION

Schools and colleges can introduce Silambam as part of physical education programs or extracurricular activities. Workshops and demonstrations can engage students and encourage participation. The structured environment of Silambam classes provides an ideal platform for teaching discipline, teamwork, and respect.

SILAMBAM'S GLOBAL APPEAL

While deeply rooted in Indian culture, Silambam's principles have universal relevance. Its focus on integrity, discipline, and holistic growth resonates with diverse audiences worldwide. Efforts to promote Silambam internationally through cultural exchanges and competitions have increased its popularity, showcasing its potential as a global tool for personal development.

CONCLUSION

Silambam is not just a martial art; it is a way of life that nurtures physical, mental, and ethical growth. By promoting integrity and discipline, it equips practitioners with the tools needed to navigate life's challenges effectively. Integrating Silambam into educational and personal development programs can foster well-rounded individuals who value fairness, respect, and perseverance. As the world recognizes the need for holistic education, Silambam stands out as a timeless art with the power to shape character and transform lives.

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EFFECT OF RESISTANCE TRAINING PROGRAM ON AGILITY AND CARDIO RESPIRATORY ENDURANCE OF KABADDI PLAYERS

8

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ABSTRACT

This study was designed to effect of resistance training program on agility and cardio respiratory endurance of kabaddi players. To achieve the purpose of the study 30 kabaddi players were selected from Bharathiar University Affiliated colleges. Their age ranged between 21 and 25 years and they were divided into two equal groups consists of 15 each. Group I underwent the resistance training program and Group II acted as control group. The training was given to the experimental group for 3 days per week for the period of 12 weeks. The control group was not given any sort of training except their routine work. The data were collected from the subjects and it was statistically analyzed with dependent 't' test to find out significant improvement if any at 0.05 level of confidence. The results speculated that the agility and cardio respiratory endurance of kabaddi players improved significantly due to the influence of resistance training program with the limitations.

Key words: *Resistance training program, agility and cardio respiratory endurance.*

INTRODUCTION

Every player has a dream to play Kabaddi and some players pursue their dreams and anticipate achieving them through renewed hard work and fidelity. A scientific analysis of the player's performance with respect to their chops might help in a much more positive way. Training is a pedagogical process that makes possible the achievement of high-standard performance without any physical or internal damage, through the planned methodical development of certain specific chops, physical capabilities, and the adaption of the organism. Kabaddi, introductory chops like holding, riding, blocking, and breath-holding are largely demanded. It's true that these chops are introductory capacities for all Kabaddi players, but the performance implicit depends on specific variables.

Kabaddi is a contact team sport which is originated for man Indian city Tamil Nadu subcontinent. It is one of the popular games in South Asia and is the state game of the Indian states of TamilNadu, Maharashtra, Bihar, Andhra Pradesh, Telangana and other most of districts of Punjab. Kabaddi is the national sport of Bangladesh(Sharma HB, Kailashiya J., 2017).Two teams compete, each with occupying its own half of the court. Turn by turn they take their number by sending a "raider" into the opposing team's half and earn points if the raider manages to touch opposing team members and return to their home half, all while with a single breath. If, however the raider is tackled and prevented from returning, point is awarded to the opposing team(Negra Y, et al, 2017).Itis a team contact sport demanding high levels of endurance, explosive power, strength, agility, reaction time, spatial awareness, as well as speed. Plyometric and calisthenic exercises are essential for improvement of explosive power, agility, aerobic capacity, trunk and lower-extremity muscle strength/power, and flexibility(Miller MG, et al., 2006). The present study hypothesized that plyometric and calisthenics training integrated with conventional Kabaddi

training would enhance explosive power, agility, trunk/lower-extremity strength, balance, and aerobic performance among male Kabaddi players of Punjab, Pakistan

Training at an elite level requires a sophisticated understanding of physical fitness in order to achieve the best possible results. Training effect report provides insight into the actual effects of training on kabaddi players. Whether training for a solo sport such as weight lifting or a team sport such as soccer, individualized workouts are required to address personal capabilities and current physical state of the participants. Different training techniques and exercises produce different results with goal-oriented regimens.

Resistance training is a common type of strength training for developing the strength and size of cadaverous muscles Sabag, 2018. It utilizes the force of graveness in the form of weighted bars, dumbbells, or weight heaps in order to oppose the force generated by muscle through concentric or eccentric compression. Isometric exercise provides a maximum quantum of resistance grounded on the force affair of the muscle, or muscles levelled against one another Paoli, 2012. This maximum force maximally strengthens the muscles over all of the common angles at which the isometric exercise occurs Tsitkanou, 2017. The joint's range of motion is trained only maximally at one angle a lower increase in physical strength at other angles from the original through terminating common angle as compared with isometric exercise.

METHODOLOGY

Purpose of the study was to find out the effect of resistance training program on agility and cardio respiratory endurance of kabaddi players. To achieve the purpose of the study 30 kabaddi players were selected from Bharathiar University Affiliated colleges. Their age ranged between 21 and 25 years and they were divided into two equal groups consists of 15 each. Group I underwent the resistance training program and Group II acted as control group. The training was given to the experimental group for 3 days per week for the period of 12 weeks. The control group was not given any sort of training except their routine work. The data were collected from the subjects and it was statistically analyzed with dependent 't' test to find out significant improvement if any at 0.05 level of confidence. In all cases the criterion for statistical significance was set 0.05 level of confidence.

TRAINING PROGRAMME

During the training period of the experimental groups underwent their respective training programme in addition to their daily regular activities as per the schedule. Experimental group underwent resistance training program on three alternate days per week (Tuesday, Thursday and Saturday 6.30 am to 7.30 am) for twelve weeks. The experimental training Programme was designed based on the resources collected from books, periodicals, e-materials and discussions with the experts. The duration of experimental training were planned for 60 minutes. All the subjects involved in this study were carefully monitored throughout the training programme, none of the reported with tear and muscle soreness.

TABLE - I

ANALYSIS OF 'T' RATIO FOR AGILITY AND CARDIO RESPIRATORY ENDURANCE

Variables	Group	Test	Mean	SD	DM	t-ratio
AGILITY	Experimental Group	Pre test	14.68	0.46	0.55	10.96*
		Post test	14.16	0.47		
	Control Group	Pre test	14.72	0.78	0.05	1.97
		Post test	14.78	0.82		
CARDIO RESPIRATORY ENDURANCE	Experimental Group	Pre test	2279.46	232.97	128.16	8.76*
		Post test	2407.62	185.14		
	Control Group	Pre test	2252.44	218.16	1.66	1.51
		Post test	2250.78	218.63		

(Significance at 0.05 level of confidence for df of 14 is 2.14)

Table I shows that the pre test mean values of experimental group and control group 14.68, 2279.46 and 14.72, 2252.44 respectively and the post test mean values are 14.16, 2407.62 and 14.78, 2250.78 respectively. The obtained dependent t-test between the pre and post test means on agility and cardio respiratory endurance of experimental group and control group are 10.96, 8.76 and 1.97, 1.51 respectively. The table value required for significant difference with degrees of freedom 14 at 0.05 level of confidence is 2.14. The obtained 't' test value of experimental group was greater than the table value. The results clearly indicated that the agility and cardio respiratory endurance of the experimental group improved due to the resistance training program of kabaddi players.

FIGURE –I

BAR DIAGRAM SHOWS THE MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP ON AGILITY

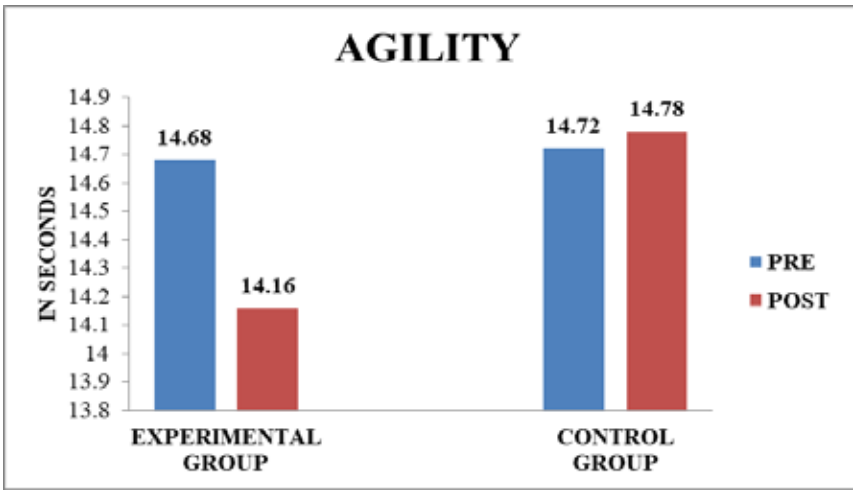
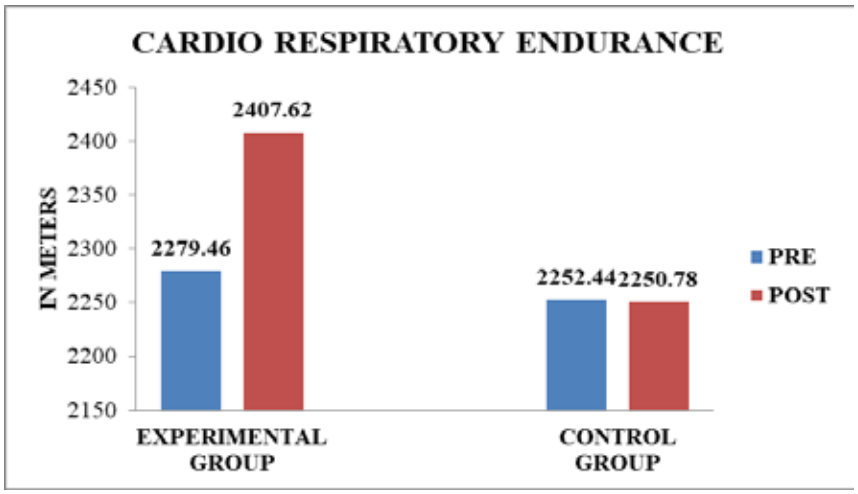


FIGURE-II

BAR DIAGRAM SHOWS THE MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP ON CARDIA RESPIRATORY ENDURANCE



DISCUSSIONS ON FINDINGS

The results of the study on selected agility and cardio respiratory endurance indicates experimental group (resistance training program) caused significant improvement after the resistance training program. supported the mean , the experimental group was found in better increasing on agility (**Hajam et al.,(2018)**) and cardio respiratory endurance (**Marwat et al.,(2021)**) when compared to the control group.

CONCLUSION

- The result of the study indicates that the resistance training program group had significant improvement on agility when compared to the control group.
- The result of the study indicates that the resistance training program group had significant improvement on cardio respiratory endurance when compared to the control group.

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THE IMPACT OF YOGA ON PHYSICAL FITNESS AND OVER-ALL HEALTH

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ABSTRACT

Yoga is a holistic practice that has been shown to promote overall well-being by enhancing physical, mental, and emotional health. This ancient discipline, which combines physical postures (asanas), breathing techniques (pranayama), and meditation, offers numerous benefits for individuals of all ages and fitness levels. Research has demonstrated that yoga improves flexibility, strength, balance, and posture, while also reducing stress, anxiety, and symptoms of depression. Additionally, yoga plays a significant role in enhancing cardiovascular health, boosting immune function, and promoting better sleep. The practice of mindfulness within yoga encourages self-awareness and emotional regulation, which contributes to improved mental clarity and emotional resilience. This review explores the multifaceted benefits of yoga, highlighting its effectiveness in fostering a sense of well-being, improving quality of life, and supporting overall health. Given its broad range of benefits, yoga is increasingly recognized as an essential practice for maintaining both physical and mental health in modern society.

INTRODUCTION

Yoga, an ancient practice that originated in India over 5,000 years ago, is widely recognized for its physical, mental, and spiritual benefits (Iyengar, 2001). Traditionally rooted in spiritual traditions like Hinduism and Buddhism, yoga has evolved into a global phenomenon, practiced by millions for its health and fitness advantages (Feuerstein, 2003). Yoga involves a combination of physical postures (asanas), breathing techniques (pranayama), and meditation (dhyana), which together contribute to overall well-being. Studies have shown that regular yoga practice enhances flexibility, strength, and cardiovascular endurance while reducing stress and anxiety (Cramer et al., 2013). Additionally, yoga has been linked to improvements in immune function, mental clarity, and emotional stability (Ross & Thomas, 2010). Modern research supports yoga as an effective intervention for managing chronic conditions such as hypertension, diabetes, and obesity. A meta-analysis conducted by Innes and Vincent (2007) found that yoga significantly reduces risk factors associated with metabolic syndrome and cardiovascular diseases. Moreover, yoga has been integrated into fitness regimens, with styles like Power Yoga and Vinyasa Flow emphasizing strength and endurance (Singh et al., 2016). As a holistic approach to health and fitness, yoga continues to gain scientific validation and acceptance across various medical and wellness communities.

YOGA ENHANCES OVERALL WELL-BEING

The Role of Yoga in Building Strength, Improving Flexibility and Posture, Protecting Joints, and Supporting Spinal Health

Yoga for Strength Building

Yoga strengthens the body by utilizing body weight as resistance. Postures such as Plank (Phalakasana), Warrior (Virabhadrasana), and Chair Pose (Utkatasana) engage major muscle groups, enhancing endurance and muscular stability (Salmon et al., 2009). Research has shown that regular yoga practice improves muscular strength, particularly in the lower body, core, and upper body (Tracy & Hart, 2013). Additionally, yoga supports bone health by improving bone density, making it beneficial for osteoporosis prevention (Sinaki, 2012).

Yoga and body posture

Proper posture is crucial for musculoskeletal health, and yoga plays a key role in correcting postural imbalances by enhancing body awareness and alignment. Poor posture, often resulting from prolonged sitting or sedentary lifestyles, can lead to musculoskeletal pain and dysfunction (Penman et al., 2012). Yoga poses like Mountain Pose (Tadasana) and Cobra Pose (Bhujangasana) promote spinal elongation and proper alignment, helping to alleviate strain on the neck, shoulders, and lower back (Ray et al., 2011). Studies show that yoga significantly improves postural alignment, reducing the risk of chronic pain and postural deviations (Berkovich et al., 2013).

Yoga and Flexibility

Yoga enhances flexibility, which is vital for mobility, injury prevention, and overall musculoskeletal health. By incorporating various stretching postures (asanas), yoga improves flexibility across all age groups and fitness levels (Bertolla et al., 2007). Unlike static stretching, yoga integrates movement, breath control, and mindfulness, deepening muscle elongation and increasing range of motion (Tracy & Hart, 2013). Research has shown that yoga enhances flexibility in areas like the hamstrings, lower back, spine, and hips (Cowen & Adams, 2005; Lim et al., 2011). Through sustained stretching and parasympathetic activation, yoga reduces muscle stiffness, benefiting athletes, older adults, and people of all activity levels (Goni et al., 2018).

Joint Protection and Prevention of Breakdown

Yoga supports joint health by increasing circulation, reducing inflammation, and maintaining mobility. Unlike high-impact exercises that may cause wear and tear, yoga promotes smooth joint movements through low-impact, weight-bearing postures (Kelley & Kelley, 2018). A study by Tran et al. (2001) demonstrated that yoga enhances joint flexibility and reduces stiffness, particularly in individuals with arthritis. The fluid movement in yoga helps lubricate joints, preventing degeneration and reducing the risk of osteoarthritis (Brennan et al., 2017). Additionally, the practice strengthens the muscles surrounding joints, providing better support and stability.

Spinal Health and Protection

The spine plays a vital role in overall movement and posture, and yoga helps protect spinal integrity by promoting flexibility, strength, and proper alignment. Spinal compression, caused by poor posture or prolonged sitting, can contribute to back pain and degenerative conditions (Cramer et al., 2013). Yoga postures such as Cat-Cow (Marjaryasana-Bitilasana) and Downward Dog (Adho Mukha Svanasana) encourage spinal decompression and enhance mobility (Ross et al., 2010). Research suggests that yoga can alleviate chronic lower back pain by strengthening core muscles and improving spinal stability (Sherman et al., 2011). Moreover, controlled breathing (pranayama)

in yoga improves oxygen flow to spinal tissues, supporting overall spinal health (Innes & Vincent, 2007).

MENTAL HEALTH ADVANTAGES OF PRACTICING YOGA

Stress Reduction and Anxiety Management

Yoga has been shown to significantly reduce stress levels by decreasing cortisol, the primary stress hormone (Pascoe & Bauer, 2015). Regular yoga practice activates the parasympathetic nervous system, inducing a relaxation response and reducing physiological markers of stress (Sengupta, 2012). Studies have demonstrated that individuals who practice yoga experience lower levels of perceived stress and anxiety compared to non-practitioners (Smith et al., 2007). Additionally, mindfulness-based yoga interventions have been effective in treating generalized anxiety disorder (GAD) and social anxiety disorder (SAD) (Goldstein et al., 2020).

Alleviation of Depression and Mood Enhancement

Yoga is increasingly recognized as an effective complementary therapy for depression. Research suggests that yoga increases levels of gamma-aminobutyric acid (GABA), a neurotransmitter associated with mood regulation, leading to reductions in depressive symptoms (Streeter et al., 2010). A meta-analysis by Cramer et al. (2013) found that yoga interventions significantly improved symptoms of major depressive disorder (MDD) and were comparable to conventional psychological treatments. Furthermore, yoga's emphasis on breath control (pranayama) has been shown to enhance emotional regulation by reducing activity in the amygdala, the brain's stress center (Brown & Gerbarg, 2005).

Cognitive Function and Mental Clarity

Yoga has been linked to improved cognitive performance, including enhanced attention, memory, and executive function (Gothe et al., 2019). Studies indicate that regular yoga practice increases brain-derived neurotrophic factor (BDNF), a protein essential for neuroplasticity and cognitive health (Eyre et al., 2016). Kundalini and Hatha yoga practices, which incorporate meditation and focused breathing, have been found to enhance working memory and cognitive flexibility (Gard et al., 2014). Moreover, yoga has been explored as a potential intervention for age-related cognitive decline and neurodegenerative disorders such as Alzheimer's disease (Eyre et al., 2017).

Emotional Resilience and Psychological Well-Being

Yoga fosters emotional resilience by promoting mindfulness, self-awareness, and acceptance. A study by Impett et al. (2006) found that yoga practitioners demonstrated greater emotional regulation and lower reactivity to negative stimuli. The practice of yoga nidra, a guided meditation technique, has been shown to reduce symptoms of PTSD and improve emotional processing in trauma survivors (van der Kolk, 2014). Additionally, yoga enhances overall well-being by increasing levels of serotonin and dopamine, neurotransmitters associated with happiness and relaxation (Sharma et al., 2017).

Sleep Quality and Relaxation

Yoga has been widely recognized for its role in improving sleep quality and treating insomnia. Studies have shown that yoga enhances melatonin production, which regulates sleep-wake cycles (Hariprasad et al., 2013). A randomized controlled trial by Manjunath and Telles (2005) found that participants who practiced yoga experienced longer sleep duration and improved sleep efficiency.

The relaxation response induced by yoga helps reduce nighttime cortisol levels, facilitating restful sleep and reducing symptoms of sleep disorders (Wang et al., 2020).

Yoga increases several aspects of physical and mental well-being, including:

Physical Benefits:

- **Flexibility** – Improves range of motion in muscles and joints.
- **Strength** – Builds core, upper, and lower body strength.
- **Balance & Coordination** – Enhances stability and body control.
- **Endurance** – Boosts stamina, especially in dynamic yoga styles.
- **Respiratory Efficiency** – Increases lung capacity through breathwork (pranayama).

Mental & Emotional Benefits:

- **Stress Reduction** – Lowers cortisol levels, promoting relaxation.
- **Focus & Concentration** – Enhances cognitive function and mental clarity.
- **Emotional Regulation** – Helps manage anxiety and depression.
- **Mind-Body Awareness** – Improves proprioception and mindfulness.

Athletic & Sports Performance:

- **Injury Prevention** – Reduces the risk of strains and overuse injuries.
- **Faster Recovery** – Supports muscle recovery post-training.
- **Psycho-Physical Control** – Enhances performance under pressure (useful for handball and other sports).

CONCLUSION

In conclusion, yoga is a holistic practice that offers extensive physical and psychological benefits, making it a valuable tool for overall well-being. Its ability to enhance strength, posture, joint protection, and spinal health, combined with its effectiveness in reducing stress, regulating emotions, and improving cognitive function, highlights its therapeutic potential. As a scientifically supported intervention, yoga serves as both a preventive and rehabilitative approach to musculoskeletal and mental health. With growing recognition in medical and wellness communities, further research is needed to deepen our understanding of yoga's neural mechanisms and optimize its integration into conventional healthcare and mental health treatment plans.

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AN OVERVIEW OF INTEGRITY IN SPORTS

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ABSTRACT

Integrity in sports have over the past decade been a topical issue in sport literature and integrity scholars these is predominantly as a result of increased media and public attention to sports players, institutions, leagues, organizations and stakeholders in both on-field play and off-field player behaviour contexts. In the past few years, these have included issues related to: match fixing, corruption and doping. It has been described by many, including high profile sporting figures, sport administrators and governing bodies, as a greater threat to the integrity of sport than doping. This threat is match-fixing. The aims of this study were to explicate the concept of integrity of sports highlights integrity issues in sport, the role integrity plays in sport and provide some strategies and suggestions for integrity in sport. In conclusion, the key principles of sports ethics – fair play, respect for opponents and officials, and integrity and honesty – are essential for maintaining the integrity and spirit of sports in today's games. By adhering to these principles, individuals can ensure that sports remain a positive and enriching experience for all involved.

KEY WORDS: *Integrity, Sports and Ethics.*

INTRODUCTION

Integrity in Sports

Sport is increasingly big business and, crucially, associated with big business, thus providing opportunity and motivation for corrupt practices. Integrity is a complex term that takes on different meanings in different sporting environments: amateur, elite or professional sport, sporting levels, age groups: and according to different **(Sipes, 1976)**.

Integrity is generally viewed as critical area in today‟s world, and the sport environment is really no different and reasons for integrity behavior in sport and its allied support mechanisms are attributed to many factors, some of these factors are match fixing, corruption and doping, others reasons are overemphasis on winning, seeking prestige or financial rewards, bending the rules, cheating, coach aggression, disrespect, and player aggression; Lack of practical understanding of sportsmanship and difference between gamesmanship and sportsmanship, Winning at all costs; verbal abuse, negative coaching behaviors and practices, athletes being pushed too hard by coaches or parents, negative administrative behaviors and practices and negative officiating behaviors and practices; Negative coaching behaviors and practices are perhaps some main reasons for many instances of misconduct by individuals **(Howman, 2013)**.

Integrity in sport is largely addressed in research through concepts of fair play, respect for the game, sportsmanship, positive personal values of responsibility, compassion for the other, and honesty in adhering to rules **(Lumpkin, Stoll, & Beller, 2003; Keating 2007; Gould and Carson 2008; Bolter 2010; Festini 2011;)**

Integrity issues in Sports

Sport not only reflects a society's ethical standards but also contains its own moral qualities that influence societal structures and institutions. Corruption, doping and match-fixing damage public perceptions of the integrity of sport as an arena for competition, from grass-roots competitions to international mega-events; corruption and athletes transgressing the ideals of fair play gives the public a cause for concern as to the validity of competition, fair play and enforcement. Proving that officials accepted kickbacks, athletes used banned substances or matches were fixed can have a dramatic effect on the public‟s opinion of sport. Such findings call into question every aspect of the sporting relationship, from the highest levels of governing organizations all the way to individual athletes. Corrupt practices are therefore parasitic, because they undermine and destroy the ideals of fair play ideals are integral to the continued success and growth of sport. The overemphasis on winning, seeking prestige or financial rewards, and persistent social discrimination such as racism and sexism are perhaps some main reasons for many instances of misconduct by individuals **(Atkin, 1998).**

What Role Does Integrity Play in Sports?

There are five primary rationales for integrity in competitive sports:

- 1. for sports managers, officials and coaches to serve sports in the best interest of those that they represent;
- 2. for the athlete, the discipline and values of sports can contribute to personal development reinforcing performance excellence;
- 3. for the sports environment the ceremonies and competition of sports can contribute to proliferation of sports participants and loyalty;
- 4. For the age group/sporting level, sports can broaden positive interest in and public support for sponsorship.
- 5. For Sporting institutions, the ability to provide check and balance recurrence of scandals taking place in a certain number of competitions provides a preview of the magnitude of the phenomenon and preoccupying public opinion and competent authorities beyond the sporting world.

Integrity in sports refers to the commitment to fair play, ethical behavior, and honesty in all aspects of athletic endeavors. This includes adherence to rules and regulations, promoting values of respect, and ensuring a level playing field for all participants. It's a crucial element that upholds the spirit of competition and ensures that sports remain an enjoyable and rewarding experience for everyone involved.

Sports ethics refer to the moral principles and values that govern the behavior of athletes, coaches, officials, and fans in the world of sports. It involves fair play, integrity, respect, and honesty in all aspects of the game.

The concept of **sports integrity involves several important aspects:**

- Fairness: Ensuring equal opportunities for all participants and adhering to the rules.
- Honesty: Being truthful about one›s abilities and actions.

- Respect: Showing consideration for competitors, officials, and fans.
- Accountability: Taking responsibility for one›s actions and decisions.

Evolution of sports ethics

Sports ethics have evolved over time, with a focus on promoting sportsmanship and upholding the spirit of competition. The emphasis has shifted from winning at all costs to valuing fairness and respect for opponents.

Importance of sports ethics in sportsmanship

Sports ethics play a crucial role in shaping the character of athletes and promoting a culture of fair play. It helps in fostering mutual respect among competitors, encouraging teamwork, and enhancing the overall integrity of the game. By following ethical guidelines, athletes can uphold the values of sportsmanship and inspire others to do the same.

Key Principles of Sports Ethics

In today's sports landscape, the importance of ethics and integrity cannot be overstated. Sports ethics are the moral principles that govern the conduct of athletes, coaches, and officials in the world of sports. By adhering to these principles, individuals can ensure fair play, respect for opponents and officials, and honesty in all aspects of the game.

Fair play and sportsmanship

Fair play is a fundamental principle of sports ethics. It involves playing by the rules, competing to the best of one's ability, and respecting the integrity of the game. Sportsmanship goes hand in hand with fair play, emphasizing respect for one's opponents, graciousness in victory and defeat, and a commitment to upholding the spirit of sportsmanship at all times.

Respect for opponents and officials

Respect for opponents and officials is another key principle of sports ethics. Athletes must treat their opponents with dignity and respect, recognizing their talent and hard work. Additionally, athletes must show respect for officials by accepting their decisions with grace and refraining from any form of disrespect or dissent.

Integrity and honesty in sports

Integrity and honesty are essential components of sports ethics. Athletes, coaches, and officials must uphold the highest standards of integrity, acting with honesty and transparency in all aspects of the game. This includes refraining from cheating, doping, or any other form of dishonest behavior that could compromise the integrity of the sport.

In conclusion, the key principles of sports ethics – fair play, respect for opponents and officials, and integrity and honesty – are essential for maintaining the integrity and spirit of sports in today's games. By adhering to these principles, individuals can ensure that sports remain a positive and enriching experience for all involved.

ACCOUNTABILITY AND RESPECT

Accountability implies that everyone involved in sports - from athletes to coaches - is responsible for their actions. Respect is equally vital, as it fosters an environment where participants appreciate each other's efforts, skills, and contributions.

- Own up to our actions, whether on-field errors or off-field decisions.
- Acknowledge the role of team members and opponents alike.
- Recognize the authority of referees and officials, respecting their decisions.

Ethical Leadership

Leaders in sports, including coaches and team captains, hold a significant influence on team dynamics. By setting an example of ethical behavior and insisting on sticking to the principles of honesty and fairness, they establish an environment conducive to integrity

Challenges to Sports Ethics

In today's sports landscape, there are several challenges that threaten the ethics and integrity of the games we love. These challenges can undermine the values of fair play, honesty, and respect that are essential to the spirit of competition.

SIGNIFICANCE OF ETHICAL CONDUCT IN SPORTS

Ethical conduct in sports is vital for various reasons:

- **Integrity: Upholding ethics ensures that competitions are conducted fairly, maintaining trust in the sport.**
- **Inclusivity: It promotes an environment where all members, regardless of background, feel respected and valued.**
- **Role Models: Athletes are often viewed as role models, and ethical** behavior reinforces positive values in society.

Sports Science: Role in Promoting Sports Integrity

Sports science plays a pivotal role in maintaining and promoting **sports integrity**. By integrating principles of fair play and ethical standards, sports science ensures that athletic practices are carried out with honesty and respect. The study of physical performance, alongside psychological factors, helps athletes and coaches navigate ethical dilemmas, promoting a culture of integrity across varying sports disciplines.

Doping and performance-enhancing drugs

One of the most prevalent challenges to sports ethics is the use of doping and performance-enhancing drugs by athletes. This unethical practice not only gives competitors an unfair advantage but also poses serious health risks to those who partake in it. Doping scandals have tarnished the reputations of numerous athletes and sports organizations, highlighting the need for stricter regulations and testing protocols to ensure a level playing field for all.

Match-fixing and corruption

Another significant challenge to sports ethics is the issue of match-fixing and corruption. When athletes, coaches, or officials engage in these illicit activities, they undermine the integrity of the game and erode the trust of fans and stakeholders. Match-fixing scandals have rocked the world of sports, leading to suspensions, bans, and legal consequences for those involved. It is crucial for sports organizations to implement stringent anti-corruption measures and enforce strict penalties to deter individuals from engaging in these unethical behaviors.

Violence and unsportsmanlike behavior

Violence and unsportsmanlike behavior are also challenges that can compromise the ethics of sports. Whether it's on the field, court, or in the stands, acts of aggression, intimidation, or disrespect have no place in sports. Such behavior not only detracts from the spirit of fair competition but also sets a negative example for fans, especially impressionable youth. Sports organizations must promote a culture of respect, sportsmanship, and integrity to ensure that athletes and spectators uphold the values of fair play and ethical conduct.

Role of Ethics Committees in Sports Organizations

Ethics committees play a crucial role in upholding the values of sports ethics and integrity in today's games. These committees are responsible for setting and enforcing ethical standards, as well as investigating and addressing any violations that may occur within the organization.

Functions of ethics committees

Ethics committees are tasked with developing and implementing codes of conduct for athletes, coaches, and other stakeholders within the sports organization. These codes outline the expected behavior and values that should be upheld in order to maintain the integrity of the sport. Additionally, ethics committees provide education and training programs to ensure that all members are aware of their ethical responsibilities.

Enforcement of ethical standards

Ethics committees are responsible for monitoring and enforcing ethical standards within the organization. This may involve conducting investigations into alleged violations, imposing sanctions on individuals who have breached the code of conduct, and implementing measures to prevent future ethical lapses. By holding members accountable for their actions, ethics committees help to maintain a culture of integrity and fair play within the sports organization.

Sports Ethics Examples in Real Life

Real-life examples of sports ethics demonstrate how athletes apply integrity within competitive environments:

- Refusing Doping: Athletes choose to remain clean despite pressures, upholding the essence of fair competition.
- Returning the Trophy: A team voluntarily returns a trophy after realizing they unknowingly used an ineligible player.
- Acknowledgement of Mistakes: A football player admits to having touched the ball with their hand during a goal, leading to a fair decision by the referee.

- The responsibility of the coach to teach, the athlete to perform,
- The officials to govern the contest,
- The spectators to cheer and
- The athletic director to conduct event management

CONCLUSION

In conclusion, ethics committees play a vital role in promoting sports ethics and integrity in today's games. By setting and enforcing ethical standards, investigating violations, and educating members on their responsibilities, ethics committees help to ensure that sports are played fairly and with the highest level of integrity.

The importance of sports ethics and integrity in today's games cannot be overstated. It is essential for players, coaches, and administrators.

It is clear that integrity and sports presents unique challenges for players, spectators, coaches, sports managers, governing bodies and sports Association because of the organizational pressures involved in the organization and management of sport competitions

• Match fixing, corruption and doping damage public perceptions of the integrity of sport as an arena for competition, from grass-roots competitions to international mega-events. This is alarming, particularly because international sporting institutions increasingly face allegations of corruption.

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EFFECTS OF PLYOMETRIC TRAINING ON SELECTED ON MOTOR FITNESS INTER COLLEGIATE FOOTBALL PLAYERS

11

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ABSTRACT

Plyometric Training (PT) is a method designed to enhance strength and explosiveness through exercises that involve rapid muscle elongation followed by immediate shortening, a process known as stretch-shortening contractions. During these exercises, elastic energy is stored during the stretching phase and released during the shortening phase. PT has been widely recognized for improving vertical jump performance, acceleration, leg strength, muscular power, joint awareness, and sport-specific skills. Originally popular among martial artists, sprinters, and high jumpers, PT has now gained popularity among athletes across a variety of sports. While PT has shown to improve performance in many athletic disciplines, there is limited scientific research on its effectiveness in soccer. Soccer requires dynamic movements, such as rapid acceleration and deceleration, changes of direction, jumping, endurance, speed, and power for kicking and tackling. This review examines the impact of PT on soccer players, considering factors such as gender and age.

Keywords: *Plyometric Training, Leg explosive power*

INTRODUCTION

Plyometric Training (PT) has become a widely used method to improve athletic performance, particularly in sports that demand explosive movements. PT involves exercises that capitalize on the stretch-shortening cycle of muscles, where a rapid muscle stretch is followed by an immediate contraction, resulting in enhanced force production. This type of training helps to increase strength, power, agility, and overall performance by utilizing the elastic energy stored in muscles during the stretching phase. Traditionally, PT has been employed by athletes in sports such as track and field, martial arts, and basketball, where maximal explosiveness and jumping ability are crucial. Over time, the benefits of PT have been recognized across a broader range of sports, making it a popular tool for athletes seeking to improve their performance.

METHODOLOGY

This review aims to examine the effects of Plyometric Training (PT) on soccer players, with a focus on variables such as gender, age, and performance outcomes. To gather relevant data, a comprehensive literature search was conducted using databases such as PubMed, Google Scholar, and Science Direct. The search terms included “Plyometric Training,” “soccer,” “athletic performance,” “strength,” “explosiveness,” and “dynamic movements.” Studies published in peer-reviewed journals, theses, and relevant books were considered for inclusion. The review was limited to studies published in the last 20 years to ensure the inclusion of the most recent findings.

SAMPLE SELECTION

The study included intercollegiate male softball players who were actively competing at the collegiate level. Participants were selected based on the

TRAINING PROGRAMME

Plyometric training is typically implemented as part of a broader strength and conditioning program, with sessions occurring 2–3 times per week to allow for adequate recovery. Start with lower-intensity plyometric exercises (e.g., squat jumps, standing broad jump)and progress to more advanced (box jumps, depth jumps, bounds).

PRE AND POST TRAINING

To evaluate the effectiveness of the six-week speed and acceleration training program, pre- and post-training assessments should be conducted. These tests will measure improvements in sprint speed, agility, and explosive power.

STATISTICAL ANALYSIS

To evaluate the effectiveness of different starting stances and the impact of the six-week speed training program, the following statistical methods will be used: The primary statistical tool used was the t-test for large paired samples, which allowed for the comparison of pre- and post-training endurance scores.

TABLE-I

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF SPEED EXPERIMENTAL AND CONTROL GROUP

S.No	Variables	Pre test Mean (± SD)	Post test Mean (± SD)	DM	σDM	't' ratio
PLYOMETRIC TRAINING GROUP						
1	Cardio Respiratory Endurance	2243 ± 344.37	2530 ± 213.64	2.87	91.62	3.13*
CONTROL GROUP						
2	Cardio Respiratory Endurance	2253 ± 343.54	2263 ± 326.48	1.00	10.00	1.00

**significant at 0.05 level ('t' value 2.14) with df 14*

Table-I shows that the pre and post mean values of experimental and control group of speed. The obtained't' value of 5.28 core strength with game specific training package group is greater than table the value of 2.14 with df 14. The explosive strength game specific training group of obtained't' value of 5.99 which is greater than table value 2.14 with df 14. The obtained't' value of the control group is 0.06 lesser than which is the table value of 2.14 and is insignificant.

CONCLUSION

In summary, plyometric is an indispensable part of strength and conditioning programs for football players, offering not only immediate improvements in athletic performance but also helping athletes achieve greater overall fitness and injury resilience. When implemented correctly, it provides a competitive edge that can make a significant difference in a football player's ability to perform at

their best during crucial moments of the game. This structured approach allows for safe, progressive, and effective plyometric training, enhancing the football player's explosive power, agility, and overall athleticism.

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THE IMPACT OF CROSS TRAINING AND WITHOUT INTERVAL TRAINING ON SELECTED MOTOR FITNESS VARIABLES OF SCHOOL BASKETBALL PLAYERS

12

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ABSTRACT

The purpose of the study was to find out the impact of cross training with and without interval training on selected motor fitness variables of high school basketball players. To achieve the purpose of this study, sixty district level school basketball players were selected from, P S G Sarvajana Higher Secondary School, Peelamedu, Shri. K K Naidu Higher Secondary School Peelamedu, and Perks Metric Higher Secondary School, Singanallur, Coimbatore District, Tamilnadu. The subject's age ranged from 15 to 17 years and they were divided into three equal groups namely cross training group, cross with interval training group and control group. The cross training group, cross with interval training group underwent training programme for the period of ten weeks, and control group has not under gone any type of training. The data were collected before and after the training programme. The selected data was statistically analyzed by using analysis of co-variance (ANCOVA). The result of the study reveals that cross training group and cross with interval training group was better than the control group and also cross with interval training group is better than the cross training group on speed and agility of motor fitness variables.

Key words: *speed, agility.*

INTRODUCTION

BASKETBALL

Basketball is a team sport in which two teams, most commonly of five players each, opposing one another on a rectangular court, compete with the primary objective of shooting a basketball through the defender's hoop, while preventing the opposing team from shooting through their own hoop.

A field goal is worth two points, unless made from behind the three-point line, when it is worth three. After a foul, timed play stops and the player fouled or designated to shoot a technical foul is given one, two or three one-point free throws. The team with the most points at the end of the game wins, but if regulation play expires with the score tied, an additional period of play is mandated.

CROSS TRAINING

Cross-training is defined as an exercise protocol that utilizes several modes of training that are outside the athlete's main sport to develop a specific component of fitness. While originally popularized by runners, cross-training is now a common practice amongst cyclists, swimmers, triathletes, and a number of other athletes. In most cases, athletes incorporate cross-training more heavily during their off-season, when sport–specific training volume is down.

Another popular reason for implementing cross-training is due to weather changes with the seasons. When the weather is less favorable for outdoor sports, some athletes may choose indoor variations.

INTERVAL TRAINING

Interval training programs manipulate the intensity and duration of the work intervals, and the length of the rest periods, to create the desired training responses. A complete interval training program usually comprises several short, alternating periods of both higher and lower intensity exercises.

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the study is to find out the impact of cross training with and without interval training on selected motor fitness variables of school basketball players. To achieve the purpose of the study, sixty school basketball players were selected from P S G Sarvajana Higher Secondary School, Peelamedu. Shri. K K Naidu Higher Secondary School, Peelamedu and PERKS Metric Higher Secondary School, Singanallur, Coimbatore District, Tamilnadu. The age of the subjects was ranged between 15 to 17 years. Subjects were selected randomly and divided into three equal groups namely cross training group, cross with interval training and Control group. Thus, each group consisted of twenty subjects.

TABLE - I

SELECTION OF THE VARIABLES AND TEST ITEMS

Variables	Name of the test	Unit of Measures
1.Speed	50 meters dash	Seconds
2.Agility	4x10Mtrs Shuttle run	Seconds

TRAINING PROGRAMME

The selected subjects were divided into three equal groups' namely cross training group, cross with interval training group and control group. The cross training group and the cross with interval training group underwent the specific training programme in the following manner:

- Cross training group - Three days per week (Monday, Wednesday and Friday)
- Cross with interval training group - Three days per week (Tuesday, Thursday and Saturday).
- Daily 60 minutes from 4.30pm to 5.30pm
- Total duration of the training programme was ten weeks.
- The control group was not involved in the whole specific training.

SPEED

The attained data on speed of experimental groups and control group have been evaluated and the results are presented in the following table.

TABLE-II

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRETEST AND POSTTEST OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON SPEED

Group	Pretest Mean (±SD)	Posttest Mean (±SD)	MD	SE	't' ratio
Cross Training Group	7.93(0.38)	7.61(0.35)	0.32	0.03	10.66*
Cross with Interval Training Group	7.96(0.37)	7.29(0.30)	0.67	0.05	13.40*
Control Group	7.96(0.40)	8.03(0.40)	0.07	0.05	1.40

**Significance at 0.05 level ('t' value 2.09) with df 19*

Table-II shows that the pretest and posttest mean values of cross training group on speed is 7.93 and 7.61 respectively. The obtained 't' value of cross training group on speed is 10.66. It is greater than the required table value of 2.09 with df19. Hence, it is proved that there is a significant difference between pretest and posttest of cross training group.

The pretest and posttest mean values of cross with interval training group on speed is 7.96 and 7.29 respectively. The obtained 't' value of cross with interval training group on speed is 13.40. It is greater than the required table value of 2.09 with df 19. Hence, it is proved that there is a significant difference between the pretest and posttest of cross with interval training group.

The pretest and posttest mean values of control group on speed is 7.96 and 8.03 respectively. The obtained 't' value of the control group on speed is 1.40. It is lesser than the required table value of 2.09 with df 19. Hence, it is proved that there is no significant difference between pretest and posttest of control group.

The mean value of pretest and posttest on speed of cross training group and cross with interval training group and control group are graphically represented in Figure- 1.

FIGURE-1

BAR DIAGRAM SHOWING THE PRE TEST AND POST TEST MEAN VALUE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON SPEED

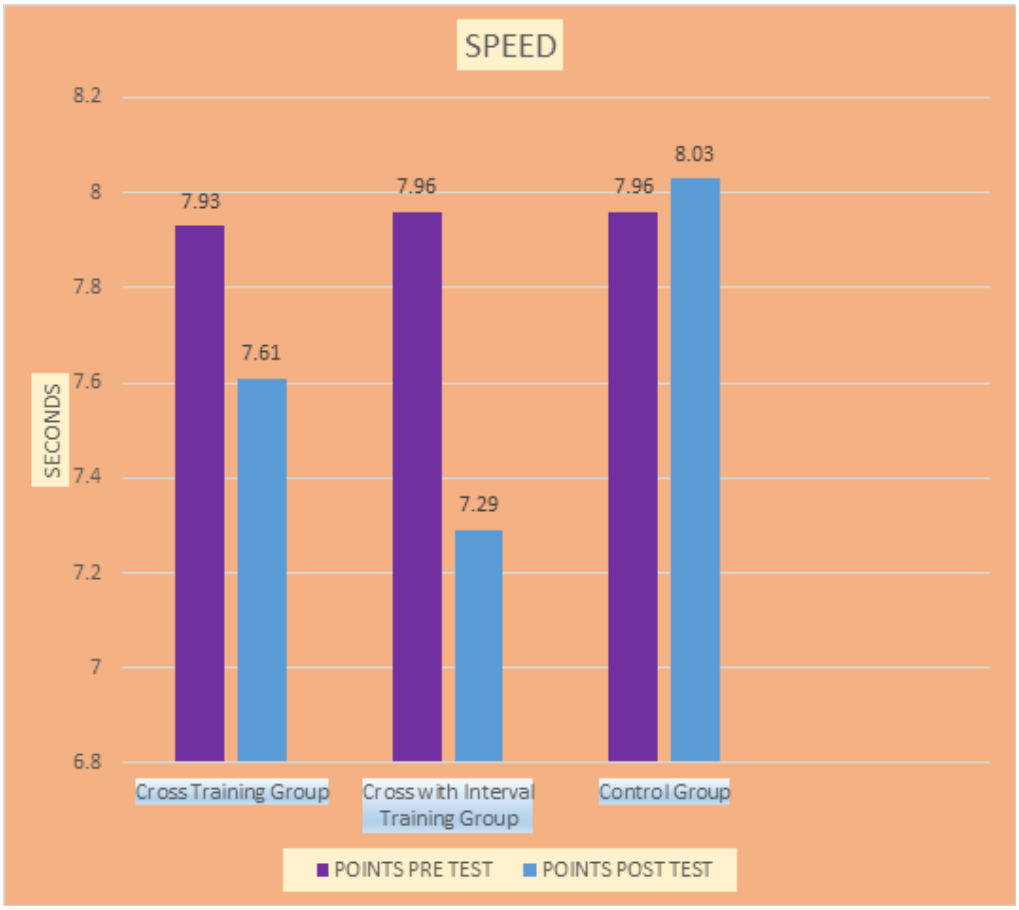


TABLE – III

ANALYSIS OF COVARIANCE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON SPEED

Test	Cross Training Group	Cross with Interval Training Group	Control Group	Source of Variances	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pretest Mean	7.93	7.96	7.96	Between	0.11	2	0.006	0.03
SD	0.37	0.37	0.40	Within	8.45	57	0.15	
Posttest Mean	7.61	7.29	8.03	Between	5.52	2	2.76	21.65*
SD	0.35	0.30	0.40	Within	7.29	57	0.12	
Adjusted Post test Mean	7.63	7.28	8.02	Between	5.47	2	2.73	82.57*
				Within	1.85	56	0.03	

** Significant at 0.05 level. Table value at 0.05 level of confidence for 2 & 56 and 2 & 57 degree of freedom = 3.19*

Table-III shows that the pretest mean values of cross training group, cross with interval training group and control group on speed are 7.93, 7.96, and 7.96 respectively. The obtained 'F' ratio value for pretest mean of cross training group, cross with interval training group and control group on speed is 0.03 which is lesser than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence. It is proved that all the three groups were randomly equal.

The posttest mean value of cross training group, cross with interval training group and control group on speed are 7.61, 7.29 and 8.03 respectively. The obtained 'F' ratio value for posttest mean of cross training group, cross with interval training group and control group on speed is 21.65 which is greater than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence.

The adjusted posttest mean value of cross training group, cross with interval training group and control group on speed are 7.63, 7.28 and 8.02 respectively. The obtained 'F' ratio value for adjusted posttest mean of cross training group, cross with interval training group and control group on speed is 82.57 which is greater than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence.

The above statistical analysis proved that there is a significant difference among the groups on speed due to the training programme. Further to determine which of the paired means has a significant difference, the Scheffe's post hoc test was applied. The result of the follow-up test has been presented in table-IV

TABLE-IV

SCHEFFE'S POST HOC TEST FOR PAIRED MEAN DIFFERENCES AMONG THE THREE GROUPS ON SPEED

Adjusted Post-Test Means			Mean Difference	Confidence Interval
Cross Training Group	Cross With Interval Training Group	Control Group		
7.63	7.28	-	0.35*	0.12
7.63	-	8.02	0.39*	
	7.28	8.02	0.74*	

**Significant at 0.05 level of confidence*

Table-IV shows that the adjusted posttest mean difference on speed between cross training group and cross with interval training group, cross training and control group, cross with cross training group and control group are 0.35, 0.39 and 0.74 respectively, which are greater than the confidence interval value of 0.12 at 0.05 level of confidence.

The result of the above table indicates that the cross training group and cross with interval training group have significantly improved on speed when compared with the control group. cross with interval training group is better than the cross training group on speed.

The mean value of pretest, posttest and adjusted posttest on speed of cross training and cross with interval training group and control group have been graphically represented in Figure-2

FIGURE-2

BAR DIAGRAM SHOWING THE PRE TEST POST TEST AND ADJUSTED POST TEST MEAN VALUE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON SPEED

AGILITY

The attained data on agility of experimental groups and control group have been evaluated and the results are presented in the following table.

TABLE-V

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST MEAN VALUE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON AGILITY

Group	Pretest Mean (±SD)	Posttest Mean (±SD)	MD	SE	't' ratio
Cross Training Group	11.21(0.44)	10.41(0.55)	0.80	0.06	13.33*
Cross with Interval Training Group	11.10(0.61)	9.94(0.71)	1.16	0.10	11.60*
Control Group	11.18(0.56)	11.30(0.50)	0.12	0.07	1.71

**Significance at 0.05 level ('t' value 2.09) with d. f. 19*

Table-V shows that the pretest and posttest mean values of cross training group on Agility is 11.21 and 10.41 respectively. The obtained 't' value of cross training group on agility is 13.33. It is greater than the required table value of 2.09 with df 19. Hence, it is proved that there is a significant difference between pretest and posttest of cross training group on agility.

The pretest and posttest mean values of cross with interval training group on agility is 11.10 and 9.94 respectively. The obtained 't' value of cross with interval training group on agility is 11.60. It is greater than the required table value of 2.09 with df 19. Hence, it is proved that there is a significant difference between the pretest and posttest of cross with interval training group on agility.

The pretest and posttest mean values of control group on agility is 11.18 and 11.30 respectively. The obtained 't' value of the control group on agility is 1.71. It is lesser than the required table value of 2.09 with df 19. Hence, it is proved that there is no significant difference between pretest and posttest of control group on agility.

The mean value of pretest and posttest on agility of cross training group and cross with interval training group and control group are graphically represented in Figure- 3.

FIGURE-11I

BAR DIAGRAM SHOWING THE PRE TEST AND POST TEST MEAN VALUE OF CROSS TRAINING GROUP CROSSWITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON AGILITY



TABLE – VI

ANALYSIS OF COVARIANCE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON AGILITY

Test	Cross Training Group	Cross With Interval Training Group	Control Group	Source of Variances	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre test Mean	11.21	11.10	11.18	Between	0.15	2	0.07	0.24
SD	0.44	0.61	0.56	Within	16.96	57	0.29	
Post test Mean	10.41	9.94	11.30	Between	19.24	2	9.62	24.68*
SD	0.55	0.77	0.50	Within	22.22	57	0.39	
Adjusted Post test Mean	10.36	10.00	11.29	Between	17.53	2	8.76	62.57*
				Within	7.83	56	0.14	

** Significant at 0.05 level value at 0.05 level of confidence for 2 & 56 and 2 & 57 degree of freedom = 3.19*

Table VI, shows that the pretest means values of cross training group, cross with interval training group and control group on agility are 11.21, 11.10, and 11.18 respectively. The obtained value 'F'

ratio for pre-test mean of cross training group, cross with interval training group and control group on agility is 0.24 which is lesser than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence. It is proved that all the three group were randomly equal.

The posttest mean value of cross training group, cross with interval training group and control group on agility are 10.41, 9.94 and 11.30 respectively. The obtained 'F' ratio value for posttest mean of cross training group, cross with interval training group and control group on agility is 24.68 which are greater than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence.

The adjusted posttest mean value of cross training group, cross with interval training group and control group on agility are 10.36, 10.00 and 11.29 respectively. The obtained 'F' ratio value for adjusted posttest mean of cross training group, cross with interval training group and control group on agility is 62.57 which are greater than the required table value of 3.19 for significance with df 2 and 57 at 0.05 level of confidence.

The above statistical analysis proved that there is a significant difference among the groups on agility due to the training programme. Further to determine which of the paired means has a significant difference, the Scheffe's post hoc test was applied. The result of the follow-up test has been presented in table –VII.

TABLE-VII

SCHEFFE'S POST HOC TEST FOR THE DIFFERENCE BETWEEN ADJUSTED POST-TEST MEAN OF AGILITY

Adjusted Post-Test Means			Mean Difference	Confidence Interval
Cross Training Group	Cross With Interval Training Group	Control Group		
10.36	10.00		0.36*	0.27
10.36		11.29	0.93*	
	10.00	11.29	1.29*	

**Significant at 0.05 level of confidence*

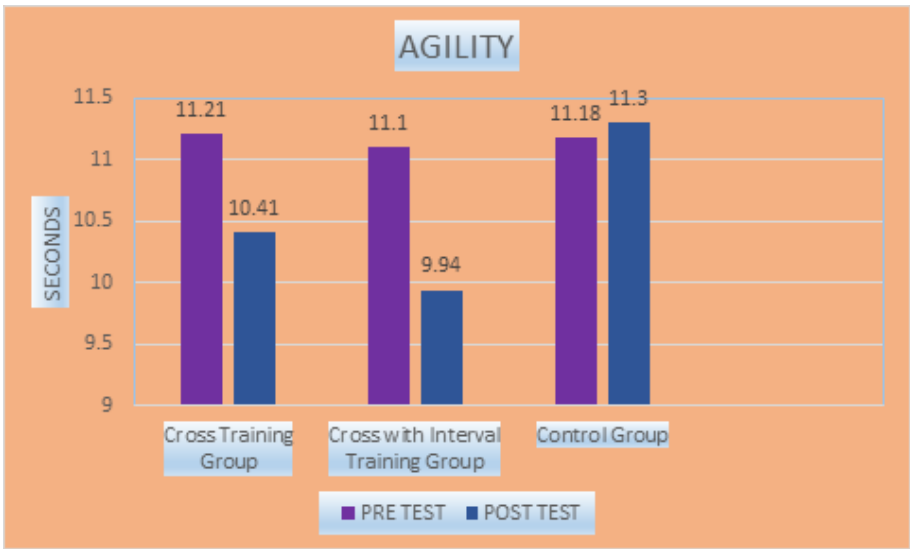
Table – VII shows that the adjusted posttest mean difference on agility between cross training group and cross with interval training group, cross training and control group, cross with interval training group and control group are 0.36, 0.93 and 1.29 respectively, which are greater than the confidence interval value of 0.27 at 0.05 level of confidence.

The result of the above table indicates that the cross training group and cross with interval training group have significantly improved on agility when compared with the control group. cross with interval training group is better than the cross training group on agility.

The mean value of pretest, posttest and adjusted posttest on agility of cross training and cross with interval training group and control group have been graphically represented in Figure-4.

FIGURE-4

BAR DIAGRAM SHOWING THE PRE TEST POST TEST AND ADJUSTED POST TEST MEAN VALUE OF CROSS TRAINING GROUP CROSS WITH INTERVAL TRAINING GROUP AND CONTROL GROUP ON AGILITY



DISCUSSION ON FINDINGS

The purpose of the study was to find out the effect of cross training with and without interval training on selected motor fitness variables of high school basketball players.

- It was concluded that the cross training group had significant improvement on selected dependent variables such as motor fitness components (speed, agility) of school basketball players.
- It was concluded that the cross with interval training group had significant improvement on selected dependent variables such as motor fitness components (speed, agility) of school basketball players.

CONCLUSIONS

- It was concluded that the cross training group and cross with interval training group are better than the control group on speed because of the respective training programme. Further, the cross with interval training group is better than the cross training group on speed.
- It was concluded that the cross training group and cross with interval training group are better than the control group on agility because of the respective training programme. Further, the cross with interval training group is better than the cross training group on agility.

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EFFECTS OF STARTING STANCE ON BASE RUNNING SPRINT SPEED IN SOFTBALL PLAYERS

13

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ABSTRACT

Speed plays a crucial role in softball, often determining the outcome of a game. Base stealing is a key strategy for scoring runs, but the optimal starting stance for maximizing acceleration and speed remains debated. This study examined the impact of different starting stances on acceleration and sprint performance in collegiate softball players. The decrease in time for front foot on the base was probably the result of using the base to push against, like a sprinter's block, to produce greater horizontal force to accelerate faster and reach a greater top speed. Coaches should teach their softball athletes to stand with their front foot on the base when base running.The purpose of the study was to find out the effects of starting stance on base running sprint speed in softball players. Intercollegiate male softball players (age: 19-25 years) voluntarily participated in this study. The participants underwent a 6-week speed training program designed to enhance agility. Pre- and post-training assessments were conducted to measure shuttle run tests. The results indicated a significant improvement in agility after the speed intervention. The findings suggest that speed training are an effective training modality for enhancing agility in softball players, potentially improving their performance in game situations that require explosive movements such as striking andstealing. Further research is recommended to examine the long-term benefits of speed training on softball players.

Keywords: *Base stealing and agility*

INTRODUCTION

Speed is a critical factor in softball, influencing both offensive and defensive success. One key aspect of speed in the game is base running, particularly base stealing, which can create scoring opportunities and impact game outcomes. An essential component of effective base running is the initial acceleration phase, as reaching the next base as quickly as possible can be the difference between being safe or out.Softball players use different starting stances when attempting to steal a base, but there is ongoing debate about which stance provides the greatest advantage in terms of acceleration and speed. The ability to generate forward momentum efficiently depends on the mechanics of the starting position, which can influence the athlete's push-off force, stride length, and overall sprint performance.

METHODOLOGY

Intercollegiate male softball players (age: 19-25 years) voluntarily participated in this study. All participants were healthy, free from injury, and actively competing at the collegiate level. Prior to participation, each athlete provided informed consent. This methodology ensures a controlled and systematic approach to assessing the impact of different starting stances on base running sprint speed in softball players. All participants read and signed an informed consent prior to participation.

4X10 MT SHUTTLE RUN




SAMPLE SELECTION

The study included Intercollegiate male softball players who were actively competing at the collegiate level. Participants were selected based on the performance .

TRAINING PROGRAMME

This six-week training program is designed to improve agility in softball players, specifically for base running and defensive movements. The program includes sprint drills and agility exercises to enhance explosiveness and quick directional changes.

PRE AND POST TRAINING

To evaluate the effectiveness of the six-week speed and acceleration training program, pre- and post-training assessments should be conducted. These tests was measure improvements in agility.

STATISTICAL TECHNIQUES

To evaluate the effectiveness of different starting stances and the impact of the six-week speed training program, the following statistical methods will be used The primary statistical tool used was the t-test for large paired samples, which allowed for the comparison of pre- and post-training endurance scores.

RESULTS AND DISCUSSION

TABLE-I

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF AGILITY EXPERIMENTAL AND CONTROL GROUP

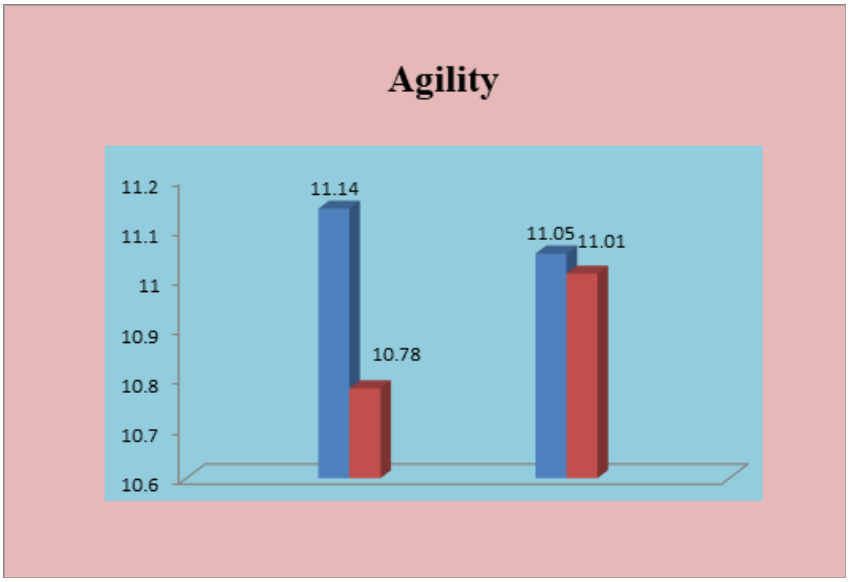
S.No	Variables	Pre-test Mean (± SD)	Post-test Mean (± SD)	DM	σDM	't' ratio
SPEED TRAINING GROUP						
1	Agility	11.14 ± 0.85	10.78 ± 0.82	0.35	0.16	2.24*
CONTROL GROUP						
2	Agility	11.05 ± 0.89	11.01 ± 0.88	0.04	0.04	1.00

**significant at 0.05 level ('t' value 2.14) with df 14*

Table-I shows that the pre and post mean values of experimental and control group of speed. The obtained‘ t’ value of 2.24 speed training group is greater than table the value of 2.14 with df 14. The obtained ‘t’ value of the control group is 1.00 lesser than which is the table value of 2.14 and is insignificant.

FIGURE - I

BAR DIAGRAM SHOWING THE MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF EXPERIMENTAL AND CONTROL GROUPAGILTIY



CONCLUSION

This study examined the effects of different starting stances agility in Intercollegiate men softball players. The results indicated that the front foot on the base stance produced significantly faster sprint times compared to the back foot on the base and crossover stance. The improved performance is likely due to the ability to generate greater horizontal force by pushing off the base, similar to a sprinter’s starting block.

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IMPACT OF FOUR-WEEK ENDURANCE TRAINING ON INTER COLLEGIATE LEVEL KABADDI PLAYERS

14

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ABSTRACT

Kabaddi, a dynamic and physically demanding team sport, requires athletes to exhibit a high level of strength. The intensity of the game places significant demands on the body, particularly on the shoulders and upper body muscles. As a result, improving muscular strength is essential for enhancing performance and reducing the risk of injury in kabaddi players. The primary goal of this research was to assess the impact of four-week endurance training on the levels of intercollegiate Kabaddi players. The study focused on the effects of a programmed Kabaddi training regimen conducted over a four-week preparation period, consisting of 44 training sessions. The sample included 30 Kabaddi players, all under the age of 18 to 25. To evaluate shoulder muscular strength, pull-up test was used. For statistical analysis, a t-test for large paired samples was employed to compare pre- and post-Strength training. The findings indicate that such a training program is highly effective in improving the strength of Kabaddi players during the preparation period. These results can contribute to the development of innovative training plans and programs that are tailored to meet the needs of this specific group.

Key words*: Endurance training and Shoulder Muscular Strength*

INTRODUCTION

Kabaddi, a dynamic and physically demanding team sport, requires athletes to exhibit a high level of strength. The intensity of the game places significant demands on the body, particularly on the shoulders and upper body muscles. As a result, improving muscular shoulder strength is essential for enhancing performance and reducing the risk of injury in kabaddi players. Training programs designed to improve endurance are vital components of athletes' preparation, especially during a focused preparation period. The role of a structured training regime in improving endurance levels has been well-documented across various sports, but the specific impact of such training on kabaddi players is less explored. Given the unique physical demands of kabaddi, understanding how targeted endurance training influences the performance of athletes is crucial for optimizing their preparation. This research aims to investigate the effects of a four-week programmed training period on the Shoulder muscular strength of intercollegiate kabaddi players. The area of performance in kabaddi, the study seeks to provide insights into the potential benefits of structured training programs. Through a statistical analysis of the endurance levels before and after the training, the findings will contribute to the development of more effective training strategies for kabaddi players, with the ultimate goal of enhancing their athletic performance.

METHODOLOGY

This study was designed to examine the impact of a four-week programmed training period on the endurance levels of intercollegiate level kabaddi players. The research aimed to measure changes

in shoulder muscular endurance before and after the training program using a comparative statistical approach. The methodology employed to achieve these objectives is outlined below:

PULL- UPS TEST




SAMPLE SELECTION

A total of 30 intercollegiate level kabaddi players, all under the age of 18 to 25yeras, participated in the study. These players were selected based on their involvement in intercollegiate level kabaddi competitions and their availability to participate in the training program. All participants were informed of the study's purpose and provided their consent to take part in the research.

TRAINING PROGRAM

The training program consisted of 44 training units over a four-week period, with sessions conducted three to four times per week. Each session was designed to target shoulder muscular strength , with exercises that focused on strength, stamina, and recovery. The program included a mix of resistance training, bodyweight exercises, and sport-specific drills aimed at improving strength for kabaddi players.

PRE- AND POST-TRAINING ASSESSMENTS

To evaluate the effectiveness of the training program, shoulder muscular strength was measured at two points: before the training program began (pre-test) and immediately after the completion of the training period (post-test). Endurance was assessed using a standardized endurance test that measured the duration and intensity at which participants could maintain specific shoulder exercises.

STATISTICAL TECHNIQUES

The collected data was analyzed using a comparative statistical method. The primary statistical tool used was the t-test for large paired samples, which allowed for the comparison of pre- and post-training endurance scores. This parametric procedure was selected due to its ability to assess the significance of the difference between two related groups.

RESULTS AND DISCUSSION

TABLE - I

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF SHOULDER MUSCULAR STRENGTH EXPERIMENTAL AND CONTROL GROUP

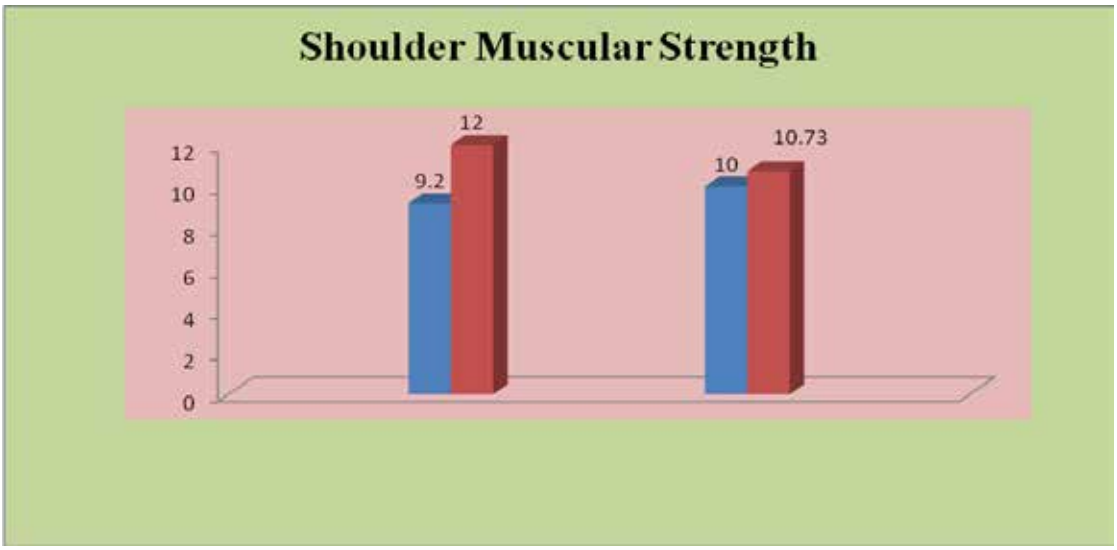
S. No	Variables	Pre-test Mean (± SD)	Post-test Mean (± SD)	DM	σDM	't' ratio
ENDURANCE TRAINING GROUP						
1	Shoulder Muscular Strength	9.20 ± 2.30	12.00 ± 2.13	2.80	0.83	3.35*
CONTROL GROUP						
2	Shoulder Muscular Strength	10.00 ± 2.36	10.73 ± 1.75	0.73	0.53	1.36

**significant at 0.05 level ('t' value 2.14) with df 14*

Table-I shows that the pre and post mean values of experimental and control group of speed. The obtained 't' value of 3.35 endurance training group is greater than table the value of 2.14 with df 14. The obtained 't' value of the control group is 1.36 lesser than which is the table value of 2.14 and is insignificant.

FIGURE – I

BAR DIAGRAM SHOWING THE MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP SHOULDER MUSCULAR STRENGTH



CONCLUSION

This methodology provides a comprehensive framework for investigating the impact of a endurance training program on the levels of kabaddi players. The findings from this research will contribute valuable insights into how endurance training programs can be tailored for the specific needs of kabaddi athletes, potentially improving their overall performance in competitive settings.

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EFFECT OF FREE HAND EXERCISES ON SELECTED PHYSICAL FITNESS VARIABLES AMONG HANDBALL PLAYERS

15

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ABSTRACT

The purpose of the study was to find out the effect of Free Hand exercises on selected Physical variables among Handball players. To achieve the purpose of the present study, thirty Handball players from Tirunelveli districts at school level were selected as subjects at random and their ages ranged from 14 to 17 years. The study was formulated as a true random group design. The subjects (N=30) were randomly assigned to two equal groups of fifteen Handball players each. Pre test was conducted for all the subjects on selected physical variables. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group and Control Group in an equivalent manner. Experimental Group was exposed to Free Hand exercises and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the thirty Handball players were tested on their selected physical variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using dependent't' test. In all cases 0.05 level of significance was fixed to test hypotheses. The Free Hand exercises group had shown significant improvement in all the selected physical variables among Handball players after undergoing Free Hand exercises group for a period of twelve weeks.

KEYWORDS: *Free Hands exercises, flexibility, explosive power, Handball.*

INTRODUCTION

Free Hand exercise and fitness can be contrasted with anFree Hand exercise, of which strength training and weight training are the most salient examples. The two types of exercise differ by the duration and intensity of muscular contractions involved, as well as by how energy is generated within the muscle. Initially during Free Hand exercise, glycogen is broken down to produce glucose, but in its absence, fat metabolism is initiated instead. The latter is a slow process, and is accompanied by a decline in performance level. The switch to fat as fuel is a major cause of what marathon runners call "hitting the wall". AnFree Hand exercise, in contrast, refers to the initial phase of exercise, or any short burst of intense exertion, in which the glycogen or sugar is consumed without oxygen, and is a far less efficient process. Operating anFree Handally, an untrained 400 meter sprinter may "hit the wall" short of the full distance (Cooper, 1969).

Free Hand capacity describes the functional status of the cardio respiratory system, (the heart, lungs and blood vessels). Free Hand capacity is defined as the maximum volume of oxygen that can be consumed by one's muscles during exercise. It is a function both of one's cardio respiratory performance and of the ability of the muscles to extract the oxygen and fuel delivered to them. To measure maximal Free Hand capacity, an exercise physiologist or physician will perform a VO2 max test, in which a subject will undergo progressively more strenuous exercise on a treadmill, from an

easy walk through to exhaustion. The individual is typically hooked up to a respirometer to measure oxygen, and the speed is increased incrementally over a fixed duration of time. The higher a cardio respiratory endurance level, the more oxygen transported to exercising muscles, the longer exercise can be maintained without exhaustion and accordingly the faster they are able to run. The higher Free Hand capacity, the higher the level of Free Hand fitness. The Cooper and multi-stage fitness tests can also be used to functionally assess Free Hand capacity. Free Hand capacity can be improved through a variety of means, including Fartlek training (Edvardsen, et al. 2011).

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of Free Hand exercises on selected Physical fitness variables among Handball players.

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the study was to find out the effect of Free Hand exercises on selected physical fitness variables among Handball players. To achieve the purpose of the present study, thirty Handball players from school level from Tirunelveli districts were selected as subjects at random and their ages ranged from 14 to 17 years.

EXPERIMENTAL DESIGN

The study was formulated as a true random group design. The subjects (N=30) were randomly assigned to two equal groups of fifteen Handball players each. Pre test was conducted for all the subjects on selected physical variables. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group and Control Group in an equivalent manner. Experimental Group was exposed to Free Hand exercises and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the thirty Handball players were tested on their physical variables. This final test scores formed as post test scores of the subjects.

PHYSICAL VARIABLES

- Flexibility
- Explosive power

STATISTICAL TOOL

The pre test and post test scores were subjected to statistical analysis using dependent‘t’ test. In all cases 0.05 level of significance was fixed to test hypotheses.

TABLE –I

VARIABLES AND TEST

S.No	Variables	Tests	Unit of Measurement
1	flexibility	Trunk flexibility test	centimetre
2	Explosive power	Vertical jump	centimetre

RESULTS

The findings pertaining to analysis of dependent 't' test between experimental group and control group on selected physical variables among Handballers for pre-post test respectively have been presented in table II to III.

TABLE –II

SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST TEST SCORES OF EXPERIMENTAL & CONTROL GROUP ON FLEXBILITY

Group	Pre- test	Post- test	Standard Devation		Std error mean	t- ratio
			Pre	post		
Experimental group	3.81	8.04	3.08	2.78	0.29	14.56*
Control group	4.10	4.14	2.88	2.89	0.03	1.09

** Significant at 0.05 level*

To find out difference experimental and control group of Free Hand practices in flexiblity Difference in two group –ratio was employed and the level of significance was set at 0.05. Experimental group pre and post –test mean value were 3.81, 8.04, respectively. In control group pre and post- test were the mean value was 4.10, 4.14, respectively. In experimental the obtained t- ratio 14.56.was greater than the table value of 2.15 so it is found to be significant. In control group the obtained t- ratio 1.09 was lesser than the table value of 2.15 so it was found to be insignificant.

TABLE –III

SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST TEST SCORES OF EXPERIMENTAL & CONTROL GROUP ON EXPLOSIVE POWER

Group	Pre- test	Post- test	Standard Devation		Std error mean	t- ratio
			Pre	post		
Experimental group	37.16	40.75	5.84	5.37	0.29	12.37*
Control group	37.12	36.25	2.43	2.17	0.902	0.96

** Significant at 0.05 level*

To find out difference experimental and control group of Free Hand practices in explosive power Difference in two group –ratio was employed and the level of significance was set at 0.05. Experimental group pre and post –test mean value were 37.16, 40.75, respectively. In control group pre and post- test were the mean value was, 37.12,36.25 respectively. In experimental the obtained t- ratio12.37 .was greater than the table value of 2.15 so it is found to be significant. In control group the obtained t- ratio 0.96was lesser than the table value of 2.15 so it was found to be insignificant.

CONCLUSION

From the analysis of the data, the following conclusions were drawn:

1. The Free Hand exercises group had shown significant improvement in all the selected physical variables among Handball players after undergoing Free Hand exercises group for a period of twelve weeks.

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INDIA'S APPROACH TO SPORTS POLICY

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ABSTRACT

India's Sports Policy is designed to cultivate a comprehensive and inclusive sports environment that encourages participation at the grassroots level, promotes athletic excellence, and ensures fair opportunities for everyone. The policy emphasizes improving access to sports facilities, installing a culture of physical fitness, and developing nurturing young talent across the country. It is primary objectives encompass the enhancement of sports infrastructure, the creation of centers of excellence, and the provision of structured training programs for athletes, particularly in rural and underserved regions. Typically, sports polices articulate a nation's or organization's strategy for encouraging sports participation, achieving excellence, and fostering inclusivity. They outline methods to boost physical fitness, promote mental well being, and encourage teamwork and fair play among individuals of varying age groups and abilities. Core objectives often involve strengthening sports infrastructure, supporting athlete training and development, and nurturing a sense of sportsmanship and inclusivity, particularly for marginalized communities. Additionally, sports policies address governance and funding issues, establish health and safety standards, and implement anti-doping regulations to ensure ethical practices. The policy places significant emphasis on athlete welfare through initiatives that focus on health, well-being, and transparent governance. It promotes collaboration among government agencies, private sectors, and local communities to enhance sports development and foster a national pride. Initiatives like Khelo India and the Target Olympic Podium Scheme (TOPS), illustrate India's commitment to creating a vibrant sports culture and boosting the nation's performance in international competitions. Key areas of focus include promoting inclusivity, supporting athlete well being, implementing anti-doping polices, and fostering ethical practices and fair play. Collaborative efforts among government, private, and community stakeholders are encouraged to establish a sustainable sports ecosystem. Ultimately, a well developed sports policy seeks to create a healthy, active society, bolster national pride, and enhance a country's performance on the global sports stage.

1. INTRODUCTION

Sports have long been a fundamental aspect of Indian culture and tradition. In recent years, the rise of professional sports leagues and events in India has heightened the significance of sports law and governance. While the legal and regulatory framework governing sports in the country has developed over time, it still requires further advancement.

This article seeks to deliver an in- depth examination of the sports law landscape in India. It explores essential governmental policies and the legal frameworks that oversee various dimensions of sports in the country, including the governance of national sports federations, broadcasting regulations, employment contracts, and mechanisms for dispute resolution. Additionally, it addresses issues such as the regulation of sports agents, the legality of fantasy sports, and the legal challenges surrounding the development of sports infrastructure.

This article offers an overview of sports law and policy in India illuminating the current landscape, its evolution, and future trends within the sports legal environment. It serves as a valuable resource for sports lawyers, administrators, and enthusiasts eager to comprehend the legal and regulatory challenges affecting sports in the country. Sports have long been integral to Indian society, transitioning from leisure activities to viable professional opportunities for numerous athletes. The importance of

sports has only amplified with the rise of major events such as Indian Premier League (IPL), Pro Kabaddi League, and Indian Super League (ISL). This rapid expansion underscores the necessity for a comprehensive legal frame work to mange sports, particularly in light of growing revenue, sponsorships deals, broadcasting rights, and heightened concerns regarding ethics, competition, and player rights.

In India, sports law remains a developing area. Unlike many other nations, there is no comprehensive statue that governs sports law in India. Instead, it is influenced by legislations related to contracts, intellectual property, arbitration, labour laws, competition laws, and even constitutional provisions. It sounds like you want to discuss the evolution of sports law in India, its role in regulating the sporting ecosystem, protecting stakeholders' rights, and ensuring integrity.

2. VISION

The Sports Policy of India 2024 presents an ambitious vision and objectives designed to revolutionize in the nation's sports landscape. The policy aims to establish a sustainable and inclusive sports culture not just athletic excellence, but also the holistic well-being of the country. It highlights the necessity of grassroots development, improved infrastructure, athlete welfare, and a robust governance structure.

The vision of the Sports Policy of India 2024 is, "To cultivate a sports culture across the country that nurtures excellence at the all levels, from grassroots initiatives to international competitions, resulting in a fitter, healthier, and more cohesive nation." This vision seeks to establish in the global sports arena, ensuring that every has access to opportunities for physical activity while developing elite athletes who can compete and succeed on the world stage.

3. OBJECTIVES

The Sports Policy of India 2024 has been formulated with the several key objectives in mind.

- Foster Grassroots Sports Development
- Elevate Sports Infrastructure and Amenities
- Assist and Nurture Athletes for Global Competitions
- Encourage Inclusive and Engaging Sports
- Enhance the Strength of National Sports Federations (NSFs) and their Governance
- Income Sports into the Educational Curriculum
- Build a Strong Sports Ecosystem via Public-Private Collaborations:
- Facilities Opportunities for International Exposure
- Encourage National Cohesion and Unity through Sports
- Advocate a 'Fit India' Initiative

4. CONTOURS OF NATIONAL SPORTS POLICY

The framework of sports policy in India has undergone considerable transformation over the years, mirroring the nation's growing acknowledgment of sports as a means for social, economic, and cultural progress. These policies strive to develop an environment that cultivates talent, promotes

inclusivity, and encourages excellence internationally, all while supporting grassroots involvement and community participation.

4.1. HISTORICAL DEVELOPMENT OF SPORTS POLICY IN INDIA

Since gaining independence, India's sports polices have evolved considerably, mirroring the nation's increasing recognition of sports as an essential instrument for nation building. The initial National Sports Policy (NSP) was established in 1984, concentrating on developing fundamental sports infrastructure and fostering talent identification. This was succeeded by the NSP 2001, which prioritized the integration of sports into the education system and the preservation of traditional games. In recent years, various initiatives, such as the Khelo India program and the Target Olympic Podium Scheme, have been introduced to further enhance the sporting landscape.

4.2. COMBINING SPORTS WITH DEVELOPMENT

Contemporary sports policies in India are designed to align with national objectives, highlighting the significance of sports in enhancing health, education, and economic growth. Initiatives like the Fit India Movement (2019) promote widespread engagement in physical activities, encouraging fitness as a part of everyday life. Furthermore, recent reforms, such as the National Sports Policy (NSP) 2024, are integrated with the National Education Policy (NEP) 2020, promoting comprehensive development through an emphasis on physical literacy and sports.

4.3. MAIN OBJECTIVES AND KEY FOCUS AREAS

India's sports policy highlights the importance of developing infrastructure, identifying talent, and fostering inclusivity. Initiatives such as the Khelo India Scheme are designed to deliver modern sports facilities and encourage participation from both rural and urban areas. Additionally, elite programs like TOPS are dedicated to preparing athletes for prestigious international events, including the Olympics. The policies also emphasize inclusivity, promoting the involvement of women, individuals with disabilities, and underrepresented communities in sports.

4.4. OBSTACLES TO IMPLEMENTATION

Despite ongoing efforts, numerous challenges remain, such as unequal resource allocation, insufficient infrastructure in rural regions, and bureaucratic inefficiencies. Tackling these issues is essential for realizing the ambitious objectives of the policy. The NSP 2024 seeks to bridge these gaps by creating sustainable and inclusive sports ecosystems that cater to all levels, from grassroots to elite.

4.5. FUTURE DIRECTIONS

The NSP 2024 is a visionary framework aimed at revolutionizing India's sports ecosystem. With the guiding principle of "**Sports for Nation Building**," it seeks to attain global excellence, create economic opportunities via sports tourism and manufacturing, and enhance health and well-being. By cultivating a dynamic, inclusive, and innovative sports culture, the policy aspires to establish India as a leading force in global sports while reinforcing the nation's social cohesion.

5. GLOBAL STAGE OF NATIONAL SPORTS POLICY

5.1. TALENT DEVELOPMENT AND EARLY IDENTIFICATION

National Talent Scouting System - To cultivate world class athletes, India requires a robust framework for scoring and nurturing talent from a young age. This policy highlights the importance of school sports initiatives, district level talent searches, and partnerships with local academics to uncover potential athletes across various sports disciplines. The goal is to recognize talent early on and provide an optimal environment for its development.

Emphasis on Rural and Remote Areas - The policy places a strong emphasis on discovering athletes from rural and underserved regions, which often harbor untapped talent but are hindered by a lack of resources and training facilities. This approach promotes inclusivity and expands the pool of potential championships.

5.2. TOP -TIER INFRASTRUCTURE AND FACILITIES

Enhanced Sports Infrastructure - *For athletes to excel at the highest levels, they require access to cutting-edge facilities. NSP 2024 aims to establish modern training centers, versatile stadiums, and specialized facilities throughout India. This development is essential not only for nurturing athletes but also for attracting international sporting events that enhance visibility and foster global competition.*

Sports Hubs and Training Academies - *The policy proposes the creation of sports hubs and specialized academies dedicated to various sports disciplines. These hubs will serve as centers of training excellence while also prioritizing the holistic development of athletes, encompassing aspects such as mental health support, nutrition, injury prevention, and recovery.*

5.3. ATHLETE-CENTRIC SUPPORT SYSTEMS

Comprehensive Athlete Development - *Competing on the global stage requires athletes to go beyond just physical training. The NSP 2024 emphasizes the significance of a holistic development strategy that encompasses sports science, sports medicine, psychological counseling, and nutritional guidance. By establishing an all-encompassing support network around each athlete, we can ensure they are optimally prepared to excel internationally.*

Financial and Institutional Assistance - *Financial barriers can hinder athletes from realizing their full potential. The NSP 2024 seeks to implement robust financial support mechanisms, including enhanced scholarships, stipends, sponsorship opportunities, and government funding initiatives, to aid athletes throughout their training and competitive journeys.*

5.4. GLOBAL EXPOSURE AND COMPETITIVE OPPORTUNITIES

International Training Programs and Exposure - *The policy prioritizes providing Indian athletes with international exposure by facilitating their participation in global training camps, competitions, and collaborations with esteemed experts and coaches from around the world. This approach not only boosts the athletes' performance but also equips them to compete at the highest level on the international stage.*

Hosting Global Events in India - *A crucial element of this strategy is attracting prestigious international sporting events to India, which aims to enhance the country's visibility and elevate*

the competitiveness of Indian athletes. By hosting world championships, international leagues, and tournaments, Indian athletes can showcase their skills to global audiences, thus gaining invaluable experience and building confidence.

5.5. IMPROVING COMPETITIVE PERFORMANCE

Emphasis on Targeted Sports - *The policy outlines key sports where India has the potential to shine internationally, including athletics, badminton, wrestling, boxing, shooting, and hockey. It seeks to allocate dedicated resources and specialized training for athletes in these areas.*

Comprehensive Performance Monitoring Systems - *To uphold competitive standards, the policy promotes an integrated performance monitoring system that utilizes data analytics, performance metrics, and routine assessments by national coaches and experts to track athlete progress. This approach enables athletes and coaches to fine-tune their training programs for optimal performance in global competitions.*

5.6. ROBUST AND TRANSPARENT GOVERNANCE

Transforming National Sports Federations (NSFs) - *The success of athletes on the international arena is frequently influenced by the governance standards of sports organizations. The NSP 2024 aims to enhance the management and transparency of National Sports Federations (NSFs) to guarantee that funds, resources, and policies are utilized effectively for the welfare of athletes.*

Improved Collaboration between Government and Federations - *A smooth and cooperative relationship among government entities, NSFs, and sports administrators will ensure that the policy's goals are achieved and aligned with the requirements of athletes.*

5.7. PUBLIC-PRIVATE PARTNERSHIPS (PPP) FOR SPORTS EXCELLENCE

Corporate Engagement - *To enhance funding and infrastructure, the NSP 2024 promotes public-private partnerships (PPPs) in the sports sector. By encouraging collaboration between the government and private entities, India can attract sponsorships, develop sports infrastructure, and provide financial incentives for athletes who perform at a global level.*

Sports Entrepreneurship and Innovation - *The policy also emphasizes the importance of fostering sports entrepreneurship and innovations in areas such as sports management, equipment manufacturing, and technology. This approach aims to boost the country's competitiveness on the international stage, improving athlete gear, training programs, and management systems.*

5.8. CREATING AN INCLUSIVE SPORTS CULTURE

Promoting Sports as a Lifestyle - *The National Sports Policy (NSP) highlights the importance of cultivating a sports culture in India that integrates physical activity into everyday life. This involves encouraging participation in sports at the grassroots level through school and community initiatives, aimed at nurturing a healthy and active populace that could potentially evolve into elite athletes in the future.*

National Unity through Sports - *The NSP advocates for the promotion of a wide variety of sports to foster unity and enhance national pride. Achievements on the international stage symbolize the collective spirit of the nation, and sports can play a pivotal role in strengthening national cohesion among India's diverse communities.*

5.9. LEGACY DEVELOPMENT THROUGH MAJOR INTERNATIONAL EVENTS

Enduring Effects of Hosting International Sports Competitions: Organizing significant sports events like the Asian Games or World Championships can create a lasting legacy characterized by enhanced sports infrastructure, the cultivation of local talent, and increased global visibility. The policy aims to guarantee that these events provide sustainable benefits to the country's sports ecosystem, moving beyond mere temporary attractions.

6. ECONOMIC DEVELOPMENT IN NATIONAL SPORTS POLICY

6.1. SPORTS INFRASTRUCTURE AND REAL ESTATE DEVELOPMENT

Enhancing Infrastructure Investment - *The policy emphasizes the creation of top-tier sports facilities, including training centers, multi-functional sports complexes, stadiums, and community sports amenities. This infrastructure enhancement will stimulate growth in the construction and real estate industries, driving substantial economic activity in both urban and rural settings.*

Public-Private Partnerships (PPP*) - To expedite infrastructure progress, the strategy promotes the establishment of public-private partnerships (PPP) to finance the construction and management of sports venues. Such collaborations can reduce government expenditures while attracting private investment, ensuring the long-term viability and commercialization of sports facilities.*

Regional Development - *The policy advocates for the establishment of sports hubs nationwide, especially in smaller towns and rural regions, to foster regional economic development. The introduction of new sports centers and events has the potential to create local employment opportunities, invigorate the hospitality sector, and enhance the demand for local goods and services.*

6.2. JOB CREATION AND EMPLOYMENT OPPORTUNITIES

Direct Employment in Sports - *The sports industry offers a diverse array of job opportunities, ranging from athletes and coaches to administrative personnel, event planners, and technical specialists. With the construction of more sports facilities and the overall expansion of the sector, there will be a heightened need for skilled professionals in areas such as sports management, coaching, sports science, event management, and marketing.*

Sports-Related Industries - *The growth of the sports sector will have a direct impact on associated industries, including sports equipment manufacturing, merchandising, sports media, broadcasting, and digital platforms. India's burgeoning sports leagues such as the Indian Premier League (IPL) for cricket, the Indian Super League (ISL) for football, and the Pro Kabaddi League are already generating significant revenue and employment opportunities, a trend that will likely continue as sporting activities expand.*

Entrepreneurship in Sports - *The expanding sports industry opens up avenues for entrepreneurship, especially in fields such as sports technology, fitness startups, sports tourism, and sports nutrition. The National Sports Policy (NSP) encourages aspiring entrepreneurs to explore sports-related ventures, fostering a vibrant ecosystem that capitalizes on both local and global market demands.*

6.3. TOURISM AND SPORTS EVENTS

Sport Tourism - *The global market for sports tourism is experiencing rapid growth, with fans traveling to participate in live events, sports training, or leisure activities. The NSP 2024 encourages India to take advantage of this trend by hosting international sports events, including world championships, multi-sport competitions, and professional leagues. Such events have the potential to attract thousands of international tourists, generating significant revenue for the local economy through sectors like travel, hospitality, retail, and entertainment.*

Destination Sports Events - *Hosting prestigious sports events, such as the Commonwealth Games, Asian Games, or FIFA World Cup qualifiers, can provide a considerable boost to local economies. The policy advocates utilizing these events to enhance India's reputation as a prime destination for sports tourism, thereby attracting foreign investment and elevating the country's global standing.*

Tourism Infrastructure Development - *Organizing large-scale sporting events also requires the expansion of related tourism infrastructure, including hotels, transportation systems, restaurants, and entertainment facilities. This development not only creates jobs but also contributes to regional economic growth.*

6.4. BRANDING AND SPONSORSHIP OPPORTUNITIES

Global Sports Branding - *As Indian athletes and sports teams gain recognition on the world stage, they present substantial opportunities for brand collaborations and sponsorship agreements. The successes of notable figures such as PV Sindhu, Neeraj Chopra, and the Indian cricket team have demonstrated the extensive commercial potential of sports branding. The National Sports Policy (NSP) aspires to foster more stories of international achievement, enhancing the appeal of Indian sports to sponsors, advertisers, and investors.*

Corporate Sponsorship and Investments - *This policy encourages the corporate sector to engage in sports by sponsoring athletes and teams, as well as contributing to the development of sports infrastructure. By bolstering corporate sponsorships and funding, sports can emerge as a vital contributor to economic activities across various sectors.*

Media and Broadcasting Rights - *The rights to broadcast both domestic and international sporting events represent a significant revenue stream for sports organizations and the broader economy. The NSP supports the advancement of digital and traditional media platforms capable of selling broadcasting rights to both global and local media outlets, thereby generating revenue and creating job opportunities within the media industry.*

6.5. EDUCATION AND SKILL DEVELOPMENT IN SPORTS

Establishment of Sports Institutions - *The NSP 2024 highlights the need for dedicated sports educational institutions, including universities, colleges, and specialized training academies. These establishments aim to train and prepare professionals in various domains such as sports management, physiotherapy, sports analytics, and coaching.*

Vocational Training Initiatives - *In addition to traditional education, the policy advocates for vocational training programs that cater to various sports-related professions, including coaching, officiating, sports journalism, and fitness training. This initiative aims to foster a skilled workforce that can satisfy the increasing demands of the sports industry.*

Advancing STEM in Sports - *Another key focus is the integration of Science, Technology, Engineering, and Mathematics (STEM) within the sports field. This encompasses areas like sports technology, data analysis, and biomechanics, all of which will necessitate a workforce proficient in these disciplines. Promoting innovation in sports science has the potential to drive job growth in the technology and research sectors.*

6.6. SOCIAL IMPACT AND HEALTH BENEFITS

Improved Public Health - *Regular participation in sports leads to better health outcomes, reducing the strain on the healthcare system By fostering a fit and healthy populace, the nation can reduce healthcare expenses and boost overall economic productivity.*

Community Growth - *The policy's emphasis on grassroots sports initiatives can significantly benefit communities. These programs foster a sense of belonging, contribute to crime reduction, and offer positive outlets for youth. As these initiatives grow, they stimulate local economic activity, create opportunities for businesses, and enhance social results.*

6.7. GOVERNMENT FUNDING AND GLOBAL SUPPORT

Government Initiatives - *The NSP 2024 promotes financial incentives and government-supported programs to assist sports organizations, clubs, and athletes. This may encompass tax advantages, funding for sports infrastructure, and support for sports entrepreneurs. By directing government resources towards sports development, the policy seeks to stimulate private sector investments and foster a strong sports economy.*

Foreign Direct Investment (FDI) - *As India enhances its sports sector and develops successful leagues and events, it is poised to draw foreign direct investment. International investors will view India as an appealing market for sports business opportunities, including media rights, sponsorship deals, and athlete representation.*

7. SOCIAL DEVELOPMENT IN NATIONAL SPORTS POLICY

7.1. ADVANCING INCLUSIVITY AND SOCIAL EQUITY

Empowering Women and Girls - *A primary objective of the NSP 2024 is to eliminate obstacles that hinder women's and girls' engagement in sports. This involves establishing safe environments for female athletes, enhancing access to sports facilities, and elevating the visibility of women in all athletic disciplines. The policy specifically aims to:*

- Boost participation in both competitive and recreational sports among girls.
- Support women's sports leagues, tournaments, and career avenues.
- Tackle cultural and societal barriers that often deter women from pursuing sports, through awareness campaigns, community initiatives, and educational efforts.

Sports for Individuals with Disabilities - *The policy emphasizes the importance of including individuals with disabilities in mainstream sports, advocating for para-sports and fostering increased participation. Key initiatives consist of:*

- *Enhancing opportunities for athletes with disabilities at both grassroots and elite levels.*
- *Supporting inclusive sports programs in schools, colleges, and communities.*

- *Ensuring that sports facilities are accessible to all and those athletes with disabilities receive equitable coaching, funding, and opportunities as their able-bodied peers.*

Overcoming Social Barriers - *Sports possess a unique capacity to bridge social, economic, and cultural divides. The NSP seeks to leverage sports to promote social integration by:*

- *Creating avenues for underprivileged and marginalized communities to engage in sports.*
- *Utilizing sports as a means to foster harmony among different castes, religions, and communities.*
- *Providing targeted programs for economically disadvantaged youth to access sports training, mentorship, and competition opportunities.*

7.2. COMMUNITY ENGAGEMENT AND UNITY

Strengthening Communities - *This policy aims to enhance community engagement and foster unity by promoting sports at the grassroots level. Local sports events and competitions have the power to reinforce community bonds, stimulate civic involvement, and help alleviate social isolation.*

New community sports programs will be established to encourage active local participation.

Youth clubs, schools, and grassroots sports organizations will be encouraged to collaborate with local governments and social organizations to create opportunities for both recreational and competitive sports.

Additionally, sports can serve as a means to address social challenges like crime and substance abuse by providing positive outlets for youthful energy.

Sports as an Instrument for Peace and Conflict Resolution - *The policy recognizes the vital role of sports in conflict resolution and peace-building initiatives. It envisions sports programs that:*

- *Unite individuals from diverse social, ethnic, or religious backgrounds.*
- *Create a platform for fostering understanding and dismantling prejudices.*
- *Utilize sports in regions affected by conflict or tension to encourage dialogue, promote tolerance, and support peaceful coexistence.*

7.3. YOUTH DEVELOPMENT AND ENGAGEMENT

Empowering Youth - *The policy highlights the transformative power of sports in empowering young individuals. By engaging them in organized sports, India can instill essential life skills like teamwork, leadership, and resilience. Key initiatives include:*

- *Enhancing sports infrastructure in schools and communities.*
- *Creating clear pathways for young athletes to advance from grassroots levels to professional careers.*
- *Providing mentorship and career guidance to young athletes, aiding their transition into successful careers in sports, coaching, or related industries.*

Tackling Youth Unemployment - *Sports programs not only foster personal growth but also present employment opportunities. With careers ranging from sports coaching to event management, the sports sector offers a variety of pathways. The policy aims to connect youth unemployment with economic prospects in sports, especially in emerging fields like sports media, tourism, and fitness.*

Promoting Mental and Emotional Growth - *Sports play a crucial role in enhancing the mental and emotional health of young people. The policy aims to:*

- *Incorporate mental health awareness and emotional support into sports training programs.*
- *Cultivate resilience, discipline, and focus through organized sports activities.*
- *Utilize sports as a platform to address challenges such as stress, anxiety, and self-esteem issues among youth.*

7.4. ENHANCING PHYSICAL HEALTH AND WELL-BEING

National Fitness Initiative - *The Fit India Movement, launched by the government, is in line with the objectives of the NSP 2024. This policy promotes active lifestyles for all citizens, emphasizing the reduction of sedentary behavior while encouraging physical activity.*

- *Educational institutions, workplaces, and local authorities will be urged to implement programs that foster physical fitness and recreational sports.*
- *Awareness campaigns and events will be organized to highlight the significance of physical activity, nutrition, and overall well-being.*
- *Particular attention will be directed towards addressing the escalating issue of childhood obesity and the necessity for early intervention through sports and physical education initiatives.*

Addressing Lifestyle Diseases - *The NSP also seeks to harness sports as a preventative measure against lifestyle diseases, including diabetes, heart disease, and obesity. By advocating for participation in sports at various levels, the policy aims to confront the increasing health challenges in India, which are intensified by urbanization, unhealthy diets, and sedentary habits.*

7.5. SPORTS FOR RURAL AND TRIBAL DEVELOPMENT

Rural Sports Development - *The policy acknowledges that rural India possesses a wealth of untapped sporting talent. It aims to harness sports as a tool for rural advancement by:*

- *Establishing sports facilities in rural regions.*
- *Promoting participation among local youth in traditional sports such as Kabaddi and Kho-Kho, in addition to more conventional disciplines.*
- *Implementing community sports initiatives that integrate sports with educational, health, and social welfare programs to enhance the quality of life in rural communities.*

Tribal Sports Programs - *Recognizing the vital role of tribal communities in India's cultural heritage, the policy supports the promotion of tribal sports. By organizing tribal sports festivals and offering training in mainstream sports, the National Sports Policy (NSP) 2024 seeks to empower tribal youth, safeguarding their cultural legacy while providing opportunities for competitive advancement.*

7.6. ECO-FRIENDLY PRACTICES IN SPORTS

Promoting Sustainable Practices in Sports - The NSP leads the way in promoting environmental sustainability within the sports industry by supporting eco-friendly practices. Key initiatives include;

- *Creating sustainable sports facilities, featuring energy-efficient stadiums that harness renewable energy sources.*

- *Reducing the ecological impact of large sporting events by implementing strategies to minimize waste, carbon emissions, and resource consumption.*
- *Promoting awareness among athletes, coaches, and sports organizations regarding the importance of environmental responsibility in the realm of sports.*

8. CONCLUSION

The National Sports Policy of India 2024 (NSP 2024) represents a significant advancement in India's ambition to emerge as a global leader in sports. This policy establishes a comprehensive, inclusive, and sustainable framework designed to enhance India's sporting achievements on the international stage while utilizing sports as a means for social progress, economic development, and national cohesion.

Excellence in Performance - *The NSP 2024 aims to elevate India's athletes to thrive on the global stage by implementing support systems for elite athletes, expanding international exposure, and providing specialized training. By targeting major international competitions such as the Olympics and Commonwealth Games, the policy seeks to establish India as a formidable competitor across a variety of sports.*

Inclusive Growth and Empowerment - *This policy emphasizes the significance of diversity by working to uplift women, marginalized groups, and individuals with disabilities. It aims to eliminate obstacles to sports participation and ensure equal opportunities for success in athletics.*

Economic and Social Development - *Acknowledging sports as a key catalyst for economic progress, the policy outlines initiatives to generate employment, enhance the sports sector, and promote sports tourism. Additionally, it views sports as a vehicle for achieving broader social objectives, such as improving public health, fostering community solidarity, and mitigating youth disengagement.*

Sustainability and Long-Term Vision - *The policy lays a foundation for a sustainable sports ecosystem by prioritizing green infrastructure, technological innovation, and responsible resource management, ensuring that sports development in India is innovative and environmentally conscious.*

Collaboration across Stakeholders - *Attaining the goals of NSP 2024 necessitates a unified effort involving central and state governments, sports federations, the private sector, educational institutions, and the community at large. The policy advocates for enhanced public-private partnerships and collaborative initiatives to cultivate a dynamic, well-resourced, and inclusive sports environment.*

The NSP 2024 marks a pivotal advancement in unlocking India's full potential in the realm of sports. However, its triumph hinges on the effective execution of its strategies, ongoing monitoring and evaluation, and the unwavering commitment of all involved parties. This initiative transcends a mere sports development policy; it embodies a comprehensive vision aimed at enhancing the quality of life, health, and economic prosperity of the Indian population. By nurturing a culture of sportsmanship, discipline, and excellence, India can inspire future generations, produce role models, and enhance the country's stature on the global sports stage.

As India progresses, the NSP 2024 emerges as a guiding light for sports development, promising to transform lives, empower communities, and achieve international recognition in the sporting world. With appropriate investments, collaborative endeavors, and a focus on sustainable growth, the aspiration to establish India as a leading sports nation is now within grasp.

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IMPACT OF FARTLEK AND CIRCUIT TRAINING ON VO2 MAX OF KABADDI PLAYERS

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ABSTRACT

The aim of this study is to find out the impact of Fartlek and circuit training on Vo2max of Kabaddi. Forty five male Kabaddi were selected from Department of Physical Education and Sports, Manonmaniam Sundaranar University, Tirunelveli. They were divided into three groups, namely, Fartlek training (group – I), circuit training (group – II) and control (group – III). The two groups were experimented with Fartlek and circuit training respectively for 12 weeks. The collected data from the three groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups were involved, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases statistical significance was fixed at 0.05 levels. Twelve weeks of Fartlek and circuit training had significant increase on Vo2max of Kabaddi.

Key Words: *Fartlek and Circuit Training and Vo2max.*

INTRODUCTION

Fartlek training adheres to the principle of adaptation. Fartlek training leads to many physiological changes including an increase in cardiovascular efficiency the ability to deliver oxygen to the working muscles as well as increased tolerance to the build-up of lactic acid. These changes result in improved performance, greater speed, and endurance. Special Fartlek training technique involves carrying out Fartleks in two completely different aerobic activities within a single workout. The impact of Fartlek training on V O2max, lactate threshold and economy, it's important to recognise that Fartlek training can also have a strong influence on the development of strength and power. It is assumed so far that Fartlek workouts consist only of running at various speeds.

Circuit training is an efficient and challenging form of conditioning that develops strength, endurance both aerobic and anaerobic, flexibility and coordination all in one exercise session. It is one of the few forms of fitness training that has been shown to effectively develop both strength and cardiovascular fitness in the same exercise session. The term "circuit training" describes the way a workout is structured rather than the type of exercise performed. It typically consists of a series of exercises or stations completed in succession with minimal rest in between. Circuit routines allow the athlete or coach to create an endless number of workouts and add variety to routine training programs.

METHODOLOGY

SUBJECTS AND VARIABLE

To achieve the purpose of this study, forty five male Kabaddi from Department of Physical Education and Sports, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, were selected

randomly as the subjects and their age ranged between 21 to 23 years. The selected subjects were divided into three groups, namely, Fartlek training group and circuit training group and control group consisting of 15 Kabaddi in each group. The experimental period was fixed for 12 weeks. VO2max was measured by the Astrand – Astrand Nomogram test and the unit of measurement is L/min.

STATISTICAL TECHNIQUE

The collected data from the three groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups were involved the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases statistical significance was fixed at 0.05 levels

RESULTS

The collected data from the three groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA) and the results are presented in Table – I.

Table – I:

Analysis of Covariance on Vo2Max of Experimental and Control Groups

	Fartlek Training Group	Circuit Training Group	Control Group	S o V	Sum of Squares	df	Mean squares	'F' ratio
Pre test Mean	2.18	2.23	2.19	B	0.022	2	0.011	
SD	0.08	0.10	0.07	W	0.33	42	0.008	1.41
Post test Mean	3.01	2.85	2.21	B	5.21	2	2.60	
SD	0.32	0.57	0.26	W	7.11	42	0.16	15.40**
Adjusted Post test Mean	3.00	2.85	2.21	B	5.21	2	2.61	
				W	7.11	41	0.17	15.06*

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 42 is 3.22 and degree of freedom 2 and 41 is 3.23.)

**Significant at .05 level of confidence*

The adjusted post-test means of Fartlek and circuit training and control groups are 3.00, 2.85 and 2.21 respectively. The obtained "F" ratio of 15.06 for adjusted post test scores is greater than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on Vo2max.

The results of the study indicated that there was a significant difference among the adjusted post- test means of Fartlek and circuit training and control groups on Vo2max. To determine the significance difference among the three paired means, the Scheffe's test was applied as post-hoc test and the results are presented in Table – II

Table – II:

Scheffe's Post Hoc Test for the Differences among Paired Means of Fartlek and Circuit Training Groups and Control Group on Vo2 Max

Fartlek Training Group	Circuit Training Group	Control Group	Mean Difference	Confidence Fartlek
3.00	2.85		0.15	0.38
3.00		2.21	0.79*	0.38
	2.85	2.21	0.64*	0.38

**Significant*

From table-II shows that the mean difference values between Fartlek training and control groups; circuit training and control groups 0.79 and 0.64 respectively on Vo2max which are greater than the confidence Fartlek value 0.38 required for significance at .05 level of confidence.

The results of the study also showed that between the Fartlek and circuit training groups no significant differences on Vo2max. Both experimental groups had significant difference when compared to control group. Hence, it was concluded from the results both training groups were better improvement on Vo2max when compared to control group.

DISCUSSION

Investigations linked circuit training with enhancement of VO2max. Vivekanand et al., (2010) stated that high intensity Fartlek training is an effective endurance training tool in non-athletic school going male population and provides better improvement in VO2max than slow continuous training. Andrew et al., (2013) study result showed that the meta-analysis is that Fartlek training produces improvements in VO2max. Knuttgen et al., (1973) concluded that Fartlek training in combination with continuous training and shown more robust increases in VO2max with at least some evidence of marked responses in all subjects.

CONCLUSION

The result of the study concluded that Fartlek training and circuit training groups had significant improvement on VO2max compared to control group. And also there are no significant differences among the Fartlek training and circuit training groups but Fartlek training group had better increase on VO2max.

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EFFECT OF AEROBIC DANCE ON SELECTED AGILITY AND AEROBIC CAPACITY VARIABLES OF ADOLESCENT BOYS

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ABSTRACT

The purpose of the study was to find out the effect of Aerobic Danceon selected Agility and aerobic capacity variables of adolescent boys. To achieve the purpose of this study 45 adolescent boys as subject from Coimbatore district, Tamilnadu. The 30 subjects' age ranged from 12 to 15 years. They were divided into two groups namely experimental group and control group. Thirty were experimental groups (Aerobic dance) and fifteen were control group. The control group was not given any specific training apart from curriculum and the experimental group underwentsixweeksoftraining for5daysperweekfor45minuteper day. The pre tests and post tests after six weeks of training in the Aerobic dance activity were conducted. The selected Agility measured 50-meter dash andAerobic Capacitymeasured 12 minutes run and walk in minutesanalysis of adolescent boys. The collected data were analyzed using 't' ratio to find out the significant improvement in the selected variables by experimental group. The statistical analysis showed that the adolescent boys of experimental group had significantly improved in all the selected Agility and Aerobic capacity variables. There is no improvement in the control group in all the selected Agility andAerobic capacity variables.

Key Words: *-Aerobic Dance,Agility, Aerobic Capacity*

INTRODUCTION

In this competitive world, many people find it hard to dedicate time for physical activities like exercises, although one of their first priorities is to stay in perfect shape. Here comes the easy method of maintaining perfect figure-dance aerobics. As the name suggests, dance aerobics is an exercise that combines the rhythmic steps of aerobics with graceful dance movements. High impact exercises involve intense jumping actions that are synchronized with the rhythmic beats of the music being played. Low impact exercise,the second type of dance aerobics,involves less jumping action, but more of footwork, which are co-ordinate with the rhythm of the music being played. Step aerobics is performed in araised platform, while water aerobics is done in waist-deep water. Typically, a dance aerobic exercise is performed for about20-30minutes.Thestepsareperformedinarhythmicway,with4or8counts.

Generally every one's life literate with music and dance either professionally or recreation or relaxation purpose. Dance and music is a basic human activity that can be ever changing because it is close to the pulse of life. Nowadays so many health centres, schools andcolleges provide fitness program based on "aerobic dance".

METHODOLOGY

The purpose of the study was to find out the effect of Aerobic Dance on selected Agility and aerobic capacity variables of adolescent boys. To achieve the purpose of this study 45 adolescent

boys as subject from Coimbatore district, Tamilnadu. The 30 subjects' age ranged from 12 to 15 years. They were divided into two groups namely experimental group and control group. Thirty were experimental groups (Aerobic dance) and fifteen were control group. The control group was not given any specific training apart from curriculum and the experimental group underwentsixweeksoftraining for5daysperweekfor45minuteper day. The pre tests and post tests after six weeks of training in the Aerobic dance activity were conducted. The selected Agility measured 50-meter dash and Aerobic Capacity measured 12 minutes run and walk in minutes analysis of adolescent boys. The collected data were analyzed using 't' ratio to find out the significant improvement in the selected variables by experimental group. The statistical analysis showed that the adolescent boys of experimental group had significantly improved in all the selected Agility and Aerobic capacity variables. There is no improvement in the control group in all the selected Agility and Aerobic capacity variables.

TRAINING

The training in the Aerobic Dance was given to the experimental groups for aperiod of 6 weeks as follows:

- **Training period**: 6weeks
- **Trainingsessions**:5 days per week
- **Duration ofonesession**: 45 minutes

RESULTS AND DISCUSSION OF 'T' RATIO

Theresultsofthesignificantdifferencebetweenthepretestsandposttestswereanalyzedusing 't' ratio and the results are presented.

TABLE-II

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL GROUP ON AGILITY VARIABLE

Group	Test	M	SD	σ DM	DM	t- ratio	'p' value
Experimental	PreTest	8.01	1.22	0.07	0.93	12.32*	0.02
	PostTest	7.75	0.97				
Control	PreTest	8.43	1.18	0.01	0.01	3.45	0.08
	PostTest	8.39	1.17				

**significance at 0.05 level.*

ThetableIindicatesthattherewasasignificantimprovementontheAgilitythroughtheaerobicdancetraining. Itrevealsthatthe obtained t-ratio 12.32 was significant because the 'p' value waslesserthanthe0.05,there-wasasignificantimprovementbetweenpreand post tests on the Agility. So there was a significantim-provementontheAgilitybetweenpreandposttestsofexperimental group, whereas control group showed no significantimprovement. Hence the results indicate that the significantimprovementontheAgility wasduetotheaerobicdance.

FIGURE– 1

BAR DIAGRAM SHOWING PRE AND POST TEST MEANS OF EXPERIMENTAL GROUP ON AGILITY VARIABLE

TABLE- III

MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF CONTROL GROUP ON AEROBIC CAPACITY VARIABLES

Group	Test	M	SD	σ DM	DM	t- ratio	p
Experimental	**PreTest**	28.31	3.37	0.38	5.64	13.34*	0.01
	PostTest	33.64	3.32				
Control	**PreTest**	28.16	3.56	0.05	0.01	0.01	1.00
	PostTest	28.17	3.54				

*significanceat0.05level.

ThetableIIindicatesthattherewasasignificantimprovementontheAerobic capacity throughtheaerobic-dancetraining.Itrevealsthatthe obtained t-ratio 13.34 was significant because the 'p' value waslesser-thanthe0.05,therewasasignificantimprovementbetweenpreand post tests on the Aerobic capacity. So there was a significantimprovementontheAerobic capacity betweenpreandposttestsofexperimental group, whereas control group showed no significantimprovement. Hence the results indicate that the significantimprovementontheAerobic capacity wasduetotheaerobicdance.

FIGURE– 2

BAR DIAGRAM SHOWING PRE AND POST TEST MEANS OF CONTROL GROUP ON AEROBIC CAPACITY VARIABLE

Discussion On Findings of Agility

- The result of the study had revealed that there is significant difference in Agility among the experimental group from pre test to posttest.
- The result of the study had revealed that there is no significant difference in Agility among the control group from pre test to posttest.

Discussion on Findings of Aerobic Capacity

- The result of the study had revealed that there is significant difference in Aerobic Capacityamong the experimental group from pre test to posttest.
- The result of the study had revealed that there is no significant difference in Aerobic Capacity among the control group from pre test to posttest.

CONCLUSIONS

1) There is a significant improvement on Agility between pre and post – tests of the experimental group as a result of 6 weeks of Aerobic Dance Training programme
2) There is a significant improvement on Aerobic capacity between pre and post – tests of the experimental group as a result of 6 weeks of Aerobic Dance Training programme.
3) The results also reveal that the experimental group had significantly improved in Agility and Aerobic capacity variables better than the control group.

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AN OVERVIEW OF INTEGRITY IN SPORTS

19

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ABSTRACT

Integrity in sports have over the past decade been a topical issue in sport literature and integrity scholars these is predominantly as a result of increased media and public attention to sports players, institutions, leagues, organizations and stakeholders in both on-field play and off-field player behaviour contexts. In the past few years, these have included issues related to: match fixing, corruption and doping. It has been described by many, including high profile sporting figures, sport administrators and governing bodies, as a greater threat to the integrity of sport than doping. This threat is match-fixing. The aims of this study were to explicate the concept of integrity of sports highlights integrity issues in sport, the role integrity plays in sport and provide some strategies and suggestions for integrity in sport. In conclusion, the key principles of sports ethics – fair play, respect for opponents and officials, and integrity and honesty – are essential for maintaining the integrity and spirit of sports in today's games. By adhering to these principles, individuals can ensure that sports remain a positive and enriching experience for all involved.

KEY WORDS: *Integrity, Sports and Ethics.*

INTRODUCTION

INTEGRITY IN SPORTS

Sport is increasingly big business and, crucially, associated with big business, thus providing opportunity and motivation for corrupt practices. Integrity is a complex term that takes on different meanings in different sporting environments: amateur, elite or professional sport, sporting levels, age groups: and according to different **(Sipes, 1976)**.

Integrity is generally viewed as critical area in today‟s world, and the sport environment is really no different and reasons for integrity behavior in sport and its allied support mechanisms are attributed to many factors, some of these factors are match fixing, corruption and doping, others reasons are overemphasis on winning, seeking prestige or financial rewards, bending the rules, cheating, coach aggression, disrespect, and player aggression; Lack of practical understanding of sportsmanship and difference between gamesmanship and sportsmanship, Winning at all costs; verbal abuse, negative coaching behaviors and practices, athletes being pushed too hard by coaches or parents, negative administrative behaviors and practices and negative officiating behaviors and practices; Negative coaching behaviors and practices are perhaps some main reasons for many instances of misconduct by individuals **(Howman, 2013)**.

Integrity in sport is largely addressed in research through concepts of fair play, respect for the game, sportsmanship, positive personal values of responsibility, compassion for the other, and honesty in adhering to rules **(Lumpkin, Stoll, & Beller, 2003; Keating 2007; Gould and Carson 2008; Bolter 2010; Festini 2011;)**

INTEGRITY ISSUES IN SPORTS

Sport not only reflects a society's ethical standards but also contains its own moral qualities that influence societal structures and institutions. Corruption, doping and match-fixing damage public perceptions of the integrity of sport as an arena for competition, from grass-roots competitions to international mega-events; corruption and athletes transgressing the ideals of fair play gives the public a cause for concern as to the validity of competition, fair play and enforcement. Proving that officials accepted kickbacks, athletes used banned substances or matches were fixed can have a dramatic effect on the public‟s opinion of sport. Such findings call into question every aspect of the sporting relationship, from the highest levels of governing organizations all the way to individual athletes. Corrupt practices are therefore parasitic, because they undermine and destroy the ideals of fair play ideals are integral to the continued success and growth of sport. The overemphasis on winning, seeking prestige or financial rewards, and persistent social discrimination such as racism and sexism are perhaps some main reasons for many instances of misconduct by individuals **(Atkin, 1998)**.

WHAT ROLE DOES INTEGRITY PLAY IN SPORTS?

There are five primary rationales for integrity in competitive sports:

1. for sports managers, officials and coaches to serve sports in the best interest of those that they represent;
2. for the athlete, the discipline and values of sports can contribute to personal development reinforcing performance excellence;
3. for the sports environment the ceremonies and competition of sports can contribute to proliferation of sports participants and loyalty;
4. For the age group/sporting level, sports can broaden positive interest in and public support for sponsorship.
5. For Sporting institutions, the ability to provide check and balance recurrence of scandals taking place in a certain number of competitions provides a preview of the magnitude of the phenomenon and preoccupying public opinion and competent authorities beyond the sporting world.

Integrity in sports refers to the commitment to fair play, ethical behavior, and honesty in all aspects of athletic endeavors. This includes adherence to rules and regulations, promoting values of respect, and ensuring a level playing field for all participants. It's a crucial element that upholds the spirit of competition and ensures that sports remain an enjoyable and rewarding experience for everyone involved.

Sports ethics refer to the moral principles and values that govern the behavior of athletes, coaches, officials, and fans in the world of sports. It involves fair play, integrity, respect, and honesty in all aspects of the game.

The concept of **sports integrity involves several important aspects:**

- Fairness: Ensuring equal opportunities for all participants and adhering to the rules.
- Honesty: Being truthful about one›s abilities and actions.
- Respect: Showing consideration for competitors, officials, and fans.
- Accountability: Taking responsibility for one›s actions and decisions.

EVOLUTION OF SPORTS ETHICS

Sports ethics have evolved over time, with a focus on promoting sportsmanship and upholding the spirit of competition. The emphasis has shifted from winning at all costs to valuing fairness and respect for opponents.

IMPORTANCE OF SPORTS ETHICS IN SPORTSMANSHIP

Sports ethics play a crucial role in shaping the character of athletes and promoting a culture of fair play. It helps in fostering mutual respect among competitors, encouraging teamwork, and enhancing the overall integrity of the game. By following ethical guidelines, athletes can uphold the values of sportsmanship and inspire others to do the same.

KEY PRINCIPLES OF SPORTS ETHICS

In today's sports landscape, the importance of ethics and integrity cannot be overstated. Sports ethics are the moral principles that govern the conduct of athletes, coaches, and officials in the world of sports. By adhering to these principles, individuals can ensure fair play, respect for opponents and officials, and honesty in all aspects of the game.

FAIR PLAY AND SPORTSMANSHIP

Fair play is a fundamental principle of sports ethics. It involves playing by the rules, competing to the best of one's ability, and respecting the integrity of the game. Sportsmanship goes hand in hand with fair play, emphasizing respect for one's opponents, graciousness in victory and defeat, and a commitment to upholding the spirit of sportsmanship at all times.

RESPECT FOR OPPONENTS AND OFFICIALS

Respect for opponents and officials is another key principle of sports ethics. Athletes must treat their opponents with dignity and respect, recognizing their talent and hard work. Additionally, athletes must show respect for officials by accepting their decisions with grace and refraining from any form of disrespect or dissent.

INTEGRITY AND HONESTY IN SPORTS

Integrity and honesty are essential components of sports ethics. Athletes, coaches, and officials must uphold the highest standards of integrity, acting with honesty and transparency in all aspects of the game. This includes refraining from cheating, doping, or any other form of dishonest behavior that could compromise the integrity of the sport.

In conclusion, the key principles of sports ethics – fair play, respect for opponents and officials, and integrity and honesty – are essential for maintaining the integrity and spirit of sports in today's games. By adhering to these principles, individuals can ensure that sports remain a positive and enriching experience for all involved.

ACCOUNTABILITY AND RESPECT

Accountability implies that everyone involved in sports - from athletes to coaches - is responsible for their actions. Respect is equally vital, as it fosters an environment where participants appreciate each other's efforts, skills, and contributions.

- Own up to our actions, whether on-field errors or off-field decisions.

- Acknowledge the role of team members and opponents alike.
- Recognize the authority of referees and officials, respecting their decisions.

ETHICAL LEADERSHIP

Leaders in sports, including coaches and team captains, hold a significant influence on team dynamics. By setting an example of ethical behavior and insisting on sticking to the principles of honesty and fairness, they establish an environment conducive to integrity

CHALLENGES TO SPORTS ETHICS

In today's sports landscape, there are several challenges that threaten the ethics and integrity of the games we love. These challenges can undermine the values of fair play, honesty, and respect that are essential to the spirit of competition.

SIGNIFICANCE OF ETHICAL CONDUCT IN SPORTS

ETHICAL CONDUCT IN SPORTS IS VITAL FOR VARIOUS REASONS:

- Integrity: Upholding ethics ensures that competitions are conducted fairly, maintaining trust in the sport.
- Inclusivity: It promotes an environment where all members, regardless of background, feel respected and valued.
- Role Models: Athletes are often viewed as role models, and ethical behavior reinforces positive values in society.

SPORTS SCIENCE: ROLE IN PROMOTING SPORTS INTEGRITY

Sports science plays a pivotal role in maintaining and promoting sports integrity. By integrating principles of fair play and ethical standards, sports science ensures that athletic practices are carried out with honesty and respect. The study of physical performance, alongside psychological factors, helps athletes and coaches navigate ethical dilemmas, promoting a culture of integrity across varying sports disciplines.

DOPING AND PERFORMANCE-ENHANCING DRUGS

One of the most prevalent challenges to sports ethics is the use of doping and performance-enhancing drugs by athletes. This unethical practice not only gives competitors an unfair advantage but also poses serious health risks to those who partake in it. Doping scandals have tarnished the reputations of numerous athletes and sports organizations, highlighting the need for stricter regulations and testing protocols to ensure a level playing field for all.

MATCH-FIXING AND CORRUPTION

Another significant challenge to sports ethics is the issue of match-fixing and corruption. When athletes, coaches, or officials engage in these illicit activities, they undermine the integrity of the game and erode the trust of fans and stakeholders. Match-fixing scandals have rocked the world of sports, leading to suspensions, bans, and legal consequences for those involved. It is crucial for sports organizations to implement stringent anti-corruption measures and enforce strict penalties to deter individuals from engaging in these unethical behaviors.

VIOLENCE AND UNSPORTSMANLIKE BEHAVIOR

Violence and unsportsmanlike behavior are also challenges that can compromise the ethics of sports. Whether it's on the field, court, or in the stands, acts of aggression, intimidation, or disrespect have no place in sports. Such behavior not only detracts from the spirit of fair competition but also sets a negative example for fans, especially impressionable youth. Sports organizations must promote a culture of respect, sportsmanship, and integrity to ensure that athletes and spectators uphold the values of fair play and ethical conduct.

ROLE OF ETHICS COMMITTEES IN SPORTS ORGANIZATIONS

Ethics committees play a crucial role in upholding the values of sports ethics and integrity in today's games. These committees are responsible for setting and enforcing ethical standards, as well as investigating and addressing any violations that may occur within the organization.

FUNCTIONS OF ETHICS COMMITTEES

Ethics committees are tasked with developing and implementing codes of conduct for athletes, coaches, and other stakeholders within the sports organization. These codes outline the expected behavior and values that should be upheld in order to maintain the integrity of the sport. Additionally, ethics committees provide education and training programs to ensure that all members are aware of their ethical responsibilities.

ENFORCEMENT OF ETHICAL STANDARDS

Ethics committees are responsible for monitoring and enforcing ethical standards within the organization. This may involve conducting investigations into alleged violations, imposing sanctions on individuals who have breached the code of conduct, and implementing measures to prevent future ethical lapses. By holding members accountable for their actions, ethics committees help to maintain a culture of integrity and fair play within the sports organization.

SPORTS ETHICS EXAMPLES IN REAL LIFE

Real-life examples of sports ethics demonstrate how athletes apply integrity within competitive environments:

- Refusing Doping: Athletes choose to remain clean despite pressures, upholding the essence of fair competition.
- Returning the Trophy: A team voluntarily returns a trophy after realizing they unknowingly used an ineligible player.
- Acknowledgement of Mistakes: A football player admits to having touched the ball with their hand during a goal, leading to a fair decision by the referee.
- The responsibility of the coach to teach, the athlete to perform,
- The officials to govern the contest,
- The spectators to cheer and
- The athletic director to conduct event management

CONCLUSION

In conclusion, ethics committees play a vital role in promoting sports ethics and integrity in today's games. By setting and enforcing ethical standards, investigating violations, and educating members on their responsibilities, ethics committees help to ensure that sports are played fairly and with the highest level of integrity.

The importance of sports ethics and integrity in today's games cannot be overstated. It is essential for players, coaches, and administrators.

It is clear that integrity and sports presents unique challenges for players, spectators, coaches, sports managers, governing bodies and sports Association because of the organizational pressures involved in the organization and management of sport competitions

• Match fixing, corruption and doping damage public perceptions of the integrity of sport as an arena for competition, from grass-roots competitions to international mega-events. This is alarming, particularly because international sporting institutions increasingly face allegations of corruption.

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OUTCOME OF BREATHING TECHNIQUE ON EMOTIONAL INFLUENCES OF WOMEN

20

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ABSRACT

The study was designed to investigate the outcome of breathing technique on emotional influences of women. To investigate the study, thirty women were randomly selected from house women at Coimbatore and their age was ranged between 30 and 35 years. The subjects were randomly assigned to two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent Breathing technique for a period of 12 weeks and group-II acted as control who did not participate in any special training other than the regular routine. The emotional factors variables such as anxiety and stress were selected as dependent variables. Pre and post-test random group design was used for this study. The dependent 't' test was applied to determine the difference between the means of two groups. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05level of confidence was fixed. The result of the study shows that, there was a significant improvement takes place on anxiety and stress of women due to the Effect of breathing technique. And also concluded that, there was a significant difference exists between experimental and control groups in anxiety and stress. The control group did not improve the selected criterion variables.

Keywords: *Breathing Technique, anxiety and stress.*

INTRODUCTION

Breathing is a necessity of life that usually occurs without much thought. When you breathe in, blood cells receive oxygen and release carbon dioxide. Carbon dioxide is a waste product that's carried back through your body and exhaled. Improper breathing can upset the oxygen and carbon dioxide exchange and contribute to anxiety, panic attacks, fatigue, and other physical and emotional disturbances. The next time you're feeling anxious, there are a variety of anxiety breathing exercises to try. Learn how to use breathing exercises to help relieve feelings of anxiety and stress. This type of breathing, called thoracic or chest breathing, causes an upset in the body's oxygen and carbon dioxide levels, resulting in increased heart rate, dizziness, muscle tension, and other physical sensations.9 Your blood is not being properly oxygenated, and this may signal a stress response that contributes to anxiety and panic attacks. Diaphragmatic or deep breathing, on the other hand, stimulates the parasympathetic nervous system, which is part of the peripheral nervous system responsible for regulating heartbeat, blood flow, breathing, and digestion. Deep breathing helps you avoid the "fight-or-flight" response (acute stress response) to mentally or physically terrifying situations. Any type of deep breathing exercise can be effective for relieving anxiety. **Sheryl Ankrom (2012)**

METHODOLOGY

The purpose of the study was to find out the Effect of Breathing technique. To achieve the purpose of the study, thirty house women were Coimbatore. The subjects were randomly assigned in to two equal groups namely, Breathing technique group (BTG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The

respective training was given to the experimental group the 3 days per weeks for the training period of 12 weeks. The control group was not given any sort of training except their routine.

DESIGN

To evaluate emotional factors variable anxiety was questioner test and stress was by questioner test. The parameters were measured at baseline and after 12 weeks of Waling technique were examined.

STATISTICAL ANALYSIS

The collected data before and after training period of 12 weeks on the above said variables due to the Effect of breathing technique was statistically analysed with 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05)

Table I

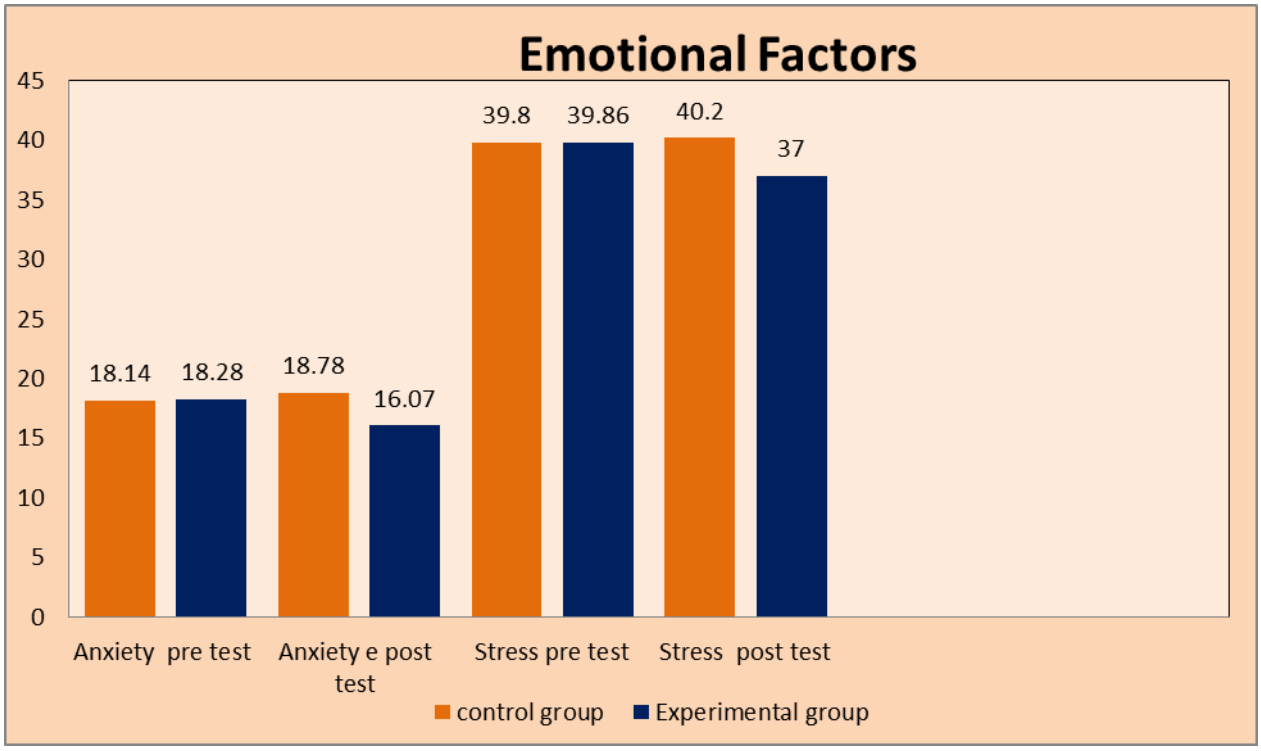
Computation of 'T' Ratio on experimental group and Control group selected House women Coimbatore.

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t ratio
Experimental Group	Anxiety	Pre	18.28	15	1.58	0.29	7.38*
		Post	16.07	15	1.38		
	Stress	Pre	39.86	15	2.50	0.50	5.66*
		Post	37.00	15	1.96		
Control Group	Anxiety	Pre	18.14	15	2.76	0.46	1.38
		Post	18.78	15	3.06		
	Stress	Pre	39.80	15	4.74	1.01	0.39
		Post	40.20	15	3.70		

**Significant level 0.05 level degree of freedom (2.14, 1 and 14)*

Table I reveals the computation of mean, standard deviation and't' ratio on selected emotional factors variable namely anxiety and stress of experimental group. The obtained 't' ratio on anxiety and stress were 7.38 and 5.66 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained't' values were greater than the table value it was found to be statistically significant. Further the computation of mean, standard deviation and't' ratio on selected Health related fitness variable namely anxiety and stress of control group. The obtained't 'ratio on anxiety and stress were 1.38 and 0.39 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance.

Since the obtained‘t’ values were lesser than the table value it was found to be statistically not significant.



DISCUSSION ON FINDINGS

The result of the present showed the Effect of breathing technique on emotional factors of women.. And there was a difference between experimental group and control group. The findings of the present study are in line with investigator referred in this study. Anxiety and stress developed due to the game specific training after 12 week training period**. Deniz** (2021) The Effect of Breathing Exercise on Stress Hormones**. Rickard(2015)**. Breathing techniques associated with improved health outcomes**. Vagedes (2014)** The Buteyko breathing technique in children with asthma. Investigated Effect of breathing technique on emotional factors of women. From the result of the present study, it is speculated that the observed changes in anxiety and stress may properly designed game specific which are suitable for male tennis players.

CONCLUSION

- There was a significant improvement takes place on selected emotional factors variable due to the effect of 12 weeks breathing technique.
- There was a significant difference exists between experimental and control groups on selected emotional factors variable such as anxiety and stress.

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THE SCIENCE BEHIND YOGA: UNDERSTANDING THE PHYSICAL MENTAL AND SPIRITUAL BENEFITS OF ANCIENT PRACTICE

21

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ABSTRACT

Yoga is an ancient practice that has been around for thousands of years. In recent years, there has been a surge in scientific research examining the physical, mental, and spiritual benefits of yoga. This article provides an overview of the scientific research on the benefits of yoga and how it can improve overall well-being.

Keywords*: Yogic Science, Physical, Mental and Spiritual.*

INTRODUCTION

Yoga is a holistic practice that encompasses physical postures, breathing exercises, meditation, and ethical principles. It originated in ancient India and has been practiced for thousands of years as a means of promoting physical health, mental clarity, and spiritual growth. In the modern era, yoga has become increasingly popular, with millions of people around the world practicing it for its many benefits. In this article, we explore the science behind yoga and how it can improve physical, mental, and spiritual well-being.

PHYSICAL BENEFITS OF YOGA

Yoga has numerous physical benefits that have been supported by scientific research. Here are some of the most significant physical benefits of practicing yoga:

- **Improved flexibility and strength:** Yoga involves a wide range of movements and postures that can help to improve flexibility and build strength. Regular practice can help to lengthen and stretch the muscles, increase range of motion in the joints, and tone the body.
- **Reduced pain and inflammation:** Yoga has been shown to be effective in reducing pain and inflammation in the body, making it a useful therapy for conditions such as arthritis, back pain, and fibromyalgia. The practice of yoga postures, breathing exercises, and meditation can help to alleviate pain and promote healing.
- **Lowered risk of chronic diseases:** Numerous studies have shown that practicing yoga can lower the risk of chronic diseases such as heart disease, diabetes, and hypertension. Yoga has also been shown to be effective in managing the symptoms of these conditions in those who already have them.
- **Improved cardiovascular health:** Yoga has been shown to improve cardiovascular health by reducing blood pressure, lowering cholesterol levels, and improving circulation. These benefits can help to prevent heart disease and stroke.

- **Enhanced immune function:** Research has shown that practicing yoga can enhance immune function by reducing stress and inflammation in the body. This can help to improve overall health and reduce the risk of infectious diseases.

MENTAL BENEFITS OF YOGA

- **Reduced stress and anxiety:** Yoga has been shown to decrease the levels of the stress hormone cortisol, which can help reduce feelings of stress and anxiety.
- **Improved mood and well-being:** Yoga is believed to increase the production of neurotransmitters like serotonin and dopamine, which can improve mood and overall well-being.
- **Enhanced cognitive function:** Regular yoga practice has been shown to improve cognitive function, including memory, attention, and concentration.
- **Reduced symptoms of depression and PTSD:** Studies have shown that yoga can help alleviate symptoms of depression and post-traumatic stress disorder (PTSD).
- **Improved sleep quality:** Yoga has been found to improve sleep quality and reduce insomnia symptoms. This could be due to its ability to reduce stress and promote relaxation.

SPIRITUAL BENEFITS OF YOGA

Yoga is not just a physical practice but also a spiritual one that can lead to a greater sense of connection to oneself, others, and the universe. The spiritual benefits of yoga are often overlooked but are just as important as the physical and mental benefits. Through yoga, individuals can develop a greater sense of self-awareness and introspection, leading to a deeper understanding of their own thoughts, emotions, and behaviors. This can lead to a greater sense of purpose and meaning in life, as individuals become more in tune with their values and desires.

Yoga can also lead to a greater sense of connection to a higher power or universal consciousness, depending on one's beliefs. Through the practice of yoga, individuals may experience moments of transcendence or unity with something greater than themselves, leading to a greater sense of awe, wonder, and gratitude.

Another spiritual benefit of yoga is the development of compassion and empathy for others. As individuals become more aware of their own thoughts and emotions, they may also become more attuned to the experiences of others. This can lead to a greater sense of empathy and understanding, as well as a desire to alleviate the suffering of others.

Finally, yoga can lead to greater inner peace and contentment, as individuals learn to cultivate a sense of calm and stillness within themselves. Through regular practice, individuals can develop a greater ability to let go of stress, anxiety, and negative thoughts, leading to a more peaceful and center state of mind. Overall, the spiritual benefits of yoga can lead to a more meaningful and fulfilling life, as well as a greater sense of connection to oneself, others, and the universe.

SCIENCE BEHIND YOGA

Yoga is a holistic practice that has been shown to have numerous physical, mental, and spiritual benefits. In recent years, there has been a surge in scientific research examining the underlying mechanisms and effects of yoga. Some of the key areas of study include the neurobiological effects

of yoga, psychophysiological effects of yoga, genetic and molecular effects of yoga, effects of yoga on brain structure and function, and the mechanisms underlying the effects of yoga.

The neurobiological effects of yoga refer to how yoga impacts the nervous system and brain. Studies have shown that yoga can increase the activity of the parasympathetic nervous system, which is responsible for rest and relaxation, while decreasing the activity of the sympathetic nervous system, which is responsible for the fight-or-flight response. This can lead to reduced stress and anxiety, improved sleep quality, and other benefits.

The psychophysiological effects of yoga refer to how yoga impacts the body and mind. Studies have shown that yoga can reduce inflammation, improve immune function, lower blood pressure, and improve cardiovascular health. Yoga has also been shown to improve cognitive function, including attention, memory, and information processing.

The genetic and molecular effects of yoga refer to how yoga can influence gene expression and molecular pathways. Studies have shown that yoga can modulate the expression of genes involved in inflammation, stress response, and immune function. Yoga has also been shown to influence various molecular pathways, such as those involved in the regulation of mood, stress, and metabolism.

The effects of yoga on brain structure and function refer to how yoga can change the structure and function of the brain. Studies have shown that yoga can increase gray matter volume in areas of the brain associated with emotion regulation, attention, and sensory processing. Yoga has also been shown to increase functional connectivity between different regions of the brain, which can improve cognitive function.

The mechanisms underlying the effects of yoga refer to how yoga produces its various physical, mental, and spiritual benefits. One proposed mechanism is through the modulation of the stress response, which can lead to reduced inflammation and improved immune function. Another proposed mechanism is through the activation of the parasympathetic nervous system, which can promote rest and relaxation. Other proposed mechanisms include changes in gene expression, alterations in brain structure and function, and improvements in overall mind-body awareness.

Overall, the science behind yoga is complex and multifaceted. While there is still much to be learned about the underlying mechanisms and effects of yoga, the existing research suggests that yoga can have numerous physical, mental, and spiritual benefits, making it a valuable practice for promoting overall health and well-being.

CONCLUSION

In conclusion, the science behind yoga reveals a multitude of benefits for physical, mental, and spiritual well-being. From improved flexibility and strength to reduced stress and anxiety, yoga has been shown to positively impact multiple aspects of human health. The neurobiological, psychophysiological, genetic, and molecular effects of yoga all contribute to the holistic benefits of this ancient practice. Furthermore, the mechanisms underlying these effects are still being explored and studied. As yoga continues to grow in popularity and scientific research continues to uncover its benefits, it is likely that even more will be revealed about the power of this ancient practice. Overall, the science behind yoga provides compelling evidence for the practice's effectiveness in promoting optimal health and well-being.

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IMPACT OF SPORTS TECHNOLOGY REDEFINING COACHING, TRAINING, AND COMPETITION

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ABSTRACT

Sports in every aspect are a celebration of hard work, persistence, perseverance, and skill. It has been an integral part of human life entertainment since time immemorial. Technology in sports plays a pivotal role in advancing all domains in sports. Technology is constantly innovating and changing the world around us, thereby proliferation of technology can be felt in the sports arena too. Physical education and sports fields can make a great contribution to the role that technologies play in our lives by carefully considering the benefits and liabilities of new information technologies on the whole person, body as well as mind. Athletic performance and participation in sports has become safer with use of technology. Information Technology in Sports has established scientific discipline, Research activities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. There is something so captivating about all kinds of sports that keep its beholders glued to their seats. Ever-growing sports engineering has been helping all kinds of sports to overcome the limitations of human performance. Given the pace and results of technological development, more and more sportspersons are compelled to gain a competitive advantage in their respective sports.

Keywords: *Technology, sports, training, performance*

INTRODUCTION

Technology plays vital role in the human being in particularly in field of sports and games. It helps to avoid mistake in organization and administration of various sports and games at all levels. Ever-evolving technology has become smaller, more resilient, and less burdensome over recent years, paving the way for new opportunities, especially in athletics. Information age in Sports technology was in 1970's. The change was brought to the society with the creation of web. Channels of communication and message content changed. The computer technology established protocols which become as the internet and later development of Hypertext Mark-up Language (HTML) in 1989 and that became the basic for the development of web in 1993. The web was introduced to the public at large. Technology in sports is constantly changing in today's era which is boosted by the vast use of computers. Then video camera became common and helped analysing sport performance like never before. Electronic timing controlled by computers is employed to measure performance times of athletes in a great many sports including Athletics, Cycling, Skiing, Bobsled, Triathlon and many more. In the case of Athletics, the electronic timing also measures the athlete's reaction time to the start gun in case the athlete moves too early in the blocks. Hawkeye, a computer system first used in 2001 for showing the trajectory of a cricket ball has made an immeasurable difference to the sport of Cricket. Hawkeye produces all manner of statistical analysis such as ball speed, ball pitch on the wicket and trajectory of the ball after bounce. Hawkeye is now used in Tennis to assist in determining

whether a shot is “in” or “out”. The analysis of sport performance provided by Hawkeye has greatly enhanced the spectator’s knowledge and involvement.

Here are various impacts of information technology in sports:

TRACKING PERFORMANCE

Sports trainers can measure and track performance in real time by using sensors placed on body. Real-time individual performance measurements for athletes can set a more precise and accurate baseline. Trainers can read live metrics during practice and decide when it’s time to rest, stretch or train harder. Almost anything about the athlete can be measured, from breathing and heart rate, to hydration and temperature. Lasers and GPS have been incorporated into various aspects of the sports training world.

PREVENTION OF INJURIES

Technology in sports training has greatly helped in the fact that injuries have been severely reduced and now can be identified much earlier. Tracking performance, perfecting movements and enhancing communication are not only benefits but they actually help create less injury-prone environments. When coaches and trainers can define individual practice for optimum results, they are preventing fatigue and self-created injuries. Advances in software has allowed athletes and trainers to determine optimal workouts and nutrition to improve performance, sleep habits to the type of shoes they wear so that athletes can push their bodies to the limit and better avoid injury. The invention of smart helmets and equipment is certainly game-changing when it comes to efforts to prevent brain injuries. These helmets are designed with sensors that can measure the force of impact and determine if it was enough to cause a concussion.

BETTER COMMUNICATION

Many applications such as YouTube and Twitter have enhanced the process of communication during training. Workouts and game plays can be shared just as quickly through YouTube. Communication has been further enhanced by other applications such as My Fitness Pal, a personal digital health, diet and exercise journal that can be accessed on a smartphone or computer.

GOOD FIELD CONDITIONS

Grounds crews have lobbied their owners for new, better fields like Astroturf that are maintained meticulously. It looks like a carpet out there. These conditions make sports better for everyone involved, most specifically the athletes.

FAIR GAMES

Technology has helped to the extent that drug testing has become more sophisticated, thereby eliminating much of the cheating that was hard to eradicate. Humidors, were created to counterbalance the thin air in several stadiums which is important in making sure that both teams have a fair chance.

ENHANCED ATHLETIC ACCURACY

Technology helps athletes, both amateur and professional, find out what is wrong with a particular part of their game, and helps them fix it. It is a revolutionary part of the game that has become a key ingredient for success.

BETTER EQUIPMENT

The equipment used is just as important as the person using it. Tennis rackets and golf clubs have seen the biggest jump in technological developments, while there has been a significant influence in all areas of the games. Everything from shoes to dry fit shirts has changed. There has been a natural evolution that has been great for sports.

EASES DECISION MAKING FOR UMPIRES / REFEREES

Instant replay and other high-tech aids to help referees make the right call. Basketball referees use replay systems to make sure players are shooting within the time allotted by the shot clock. In international cricket, the third umpire has been used, one sitting off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. Replays could be used to decide off-side decisions, whether a ball passes over the goal line, and clarify penalty decisions in football.

DETAILED INFORMATION

Smart phone can help download applications that make following sports as easy as receiving text messages. ESPN mobile and other websites have made it simple to follow scores and read analysis anywhere. This has made even the most casual sports fan into a technology junkie.

WATCHING MORE AND VIEWING BETTER

MLBTV, NFL Sunday Ticket and NBA League Pass are all ways for the biggest sports fans, no matter where they live, to catch every game. This connects sports fans and makes us all much more educated. There are many simple things that we take for granted in our daily sports viewing world. One of these is the first down line in football, and the other being the score prominently displayed at the bottom of the television screen. Visually stunning video games have made it desirable to play often and always buy the newest version.

BETTER COACHING, TRAINING AND SCOUTING

The use of video camera has helped coaches a lot in improving the feed-back to players. Scouting talent has been based on guts, feelings and instincts. Now with technology scouts have an entire sheet of information on how fast an athlete can run, how high they can jump and how accurate their passing is.

FANTASY SPORTS

Fantasy sports are dorky, but it is a billion dollar a year industry. Fantasy sports brings people that do not have a lot of knowledge of the game into the system and teaches them the sport from the inside out. It has helped make the leagues bigger and more important.

TICKET PURCHASING

Earlier people used to go to the game and not have tickets. They would walk up to the window or scalp a pair in the parking lot. Those days are over. Now tickets can be purchased online sitting at home. This revolutionized our ability to go to games and find the exact seat we want to sit in.

HI-FI STADIUMS

Hi-fi stadiums are made with technology with enormous booming sound systems make you feel like you are on another planet. It enhanced the game experience like never before. Highlights can be seen perfectly and nothing gets lost and every fan leaves happy whether the team wins or loses. It's a truly incredible experience that takes the phrase state of the art to a whole new level.

BETTER UNDERSTAND OF GAME

Technology has done a great job at making it easier to understand what is going on in a game by highlighting the most important things going on. One way this has been done is through ESPN Axis, a revolutionary way of showing the intricacies of the game. It shows which players scored, why and who could have prevented it.

CONCLUSION

Technology is revolutionizing sports training by live-tracking performances, perfecting athletic movements, enhancing communication and virtually eliminating injuries. Technology in Sports has established scientific discipline, Researchactivities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. As long as athletes continue to push themselves to the limits of human potential, there will be technology racing alongside them to ensure their safety and aide their performance. In future very soon the way computer with be applicable in sports with good quality and best results.

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COMPARISON OF BATSMEN AND BOWLERS ON FITNESS VARIABLE POWER

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ABSTRACT

The present study was an attempt to investigate the significant mean difference between Batsmen and Bowlers on fitness variable leg power which are participating at District level. The sample of the study comprised of 20 batsmen and 20 bowlers of Tirunelveli District. All the players are male participants and their age ranges from 16 to 19 years. In order to test the significance of mean difference between the variables descriptive statistics was employed. The result indicates that there exists a significance difference between Batsmen and Bowlers on fitness variable power. Batsmen were found to be better than Bowlers on this fitness variable.

Keywords*: Power, cricket, players*

INTRODUCTION

POWER

Power is recognized as one of the most basic components of movement. It is the capacity of the individual to bring into play maximum muscle contraction at the fastest possible speed. Power is an explosive action and is equal to the product of force and velocity, where force has to do with muscle strength and velocity with the speed with which strength is used in motor performance. Power is a mechanical principal concerned with propelling the body or projecting its parts in a forceful, explosive manner in the shortest period of time. It is the ability to release maximum muscular force at maximum speed.

METHODOLOGY

For this study the investigator adopted survey method to collect data related to cricket players (batsmen and bowlers).The subjects of the study consist of 40 cricket players i.e. 20 batsmen and 20 bowlers. The age group of cricket players ranges between 16 to 19 years. All these cricket players are male participants and belong to Tirunelveli District only.

TOOLS USED

STANDING BROAD JUMP TEST

Purpose: To measure Leg Power.

Facilities and Equipments:

Ground surface of about 20 feet with marked ‘take-off line’ at any side and a measuring tape to determine the distance of the jump.

PROCEDURE:

The test was explained and demonstrated before the testing commenced. The subject assumed a starting position behind the take-off line, with feet kept parallel and several inches apart and the toes pointed straight ahead. A preliminary movement of bending the knees and swinging the arms backward was allowed, after which the subject jumped outward as far as possible in the pit by swinging the arms forward and the best one was recorded to the nearest centimeter.

- **Instruction:** The players were asked to take off with both feet and to land on both feet simultaneously. They were instructed not to fall backward after the landing crouch before the take-off.
- **Scoring:** Each jump was measured in meters from the take-off point to the nearest point where any part of the body touches the ground surface. The reading of the best jump out of three trails was recorded as the final score.
- **Validity:** The validity, based on a comparison with the composite of 29 tests is.759.
- **Reliability:** This test is considered to be highly reliable, with reliability co-efficient ranging from.83 to.99.
- **Testing personnel:** The help of two trained assistants was taken to supervise the testing station and to measure and record the score.

FINDINGS

The main objective of the study is to compare batsmen and bowlers on fitness variable power. The data collected from cricket players was arranged, tabulated and statistically analyzed. The obtained data was processed for descriptive statistics i.e. Mean S.D and Z-ratio.

Table 1:

The main objective of the study is to compare batsmen and bowlers on fitness variable power

Sr. No.	Variable	Batsmen		Bowlers		Z-ratio
		Mean	S.D	Mean	S.D	
1.	SBJ	2.19	0.19	2.31	0.15	3.306**

***Significant at.01 level of confidence*

Table 1 shows the results of mean scores of Standing Broad Jump test of Batsmen and Bowlers which are 2.19 and 2.31 respectively. The Z-ratio of the mean difference is 3.306 in favor of Bowlers. It is significant at.01 level of confidence. Hence, the difference between the mean scores of Batsmen and Bowlers on SBJ test is significant. The mean score of Bowlers is higher than that of Batsmen. It implied that the Bowlers have better leg power as compared to Batsmen. It may be due to their long height and powerful muscle contraction as compare to their counterpart Batsmen. Bowlers have to jump each and every time they bowl and for longer duration especially in test matches. It may be the reason they performed better on fitness variable Leg power as compared to Batsmen.

DISCUSSION OF FINDINGS

The results suggested that the Bowlers have better leg power than the Batsmen. It Hence, there exist a significance difference between Batsmen and Bowlers on fitness variable power.

CONCLUSION

Based on the results of the present study the following conclusion is drawn: There exists a significance difference between Batsmen and Bowlers on fitness variable power. Bowlers were found to be better than Batsmen on this variable.

IMPLICATIONS

The findings of the study have a number of implications for coaches, physical education teachers, trainers and cricket players

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EFFECT OF AEROBIC DANCE AND CLASSICAL DANCE ON SELECTED PHYSICAL FITNESS VARIABLES

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ABSTRACT

The purpose of the present study was to find the effect of aerobic dance and classical dance on Physical Fitness variables of School girls. Sixty female students from Alagappa Matriculation School,Karaikudi Tamilnadu, India were selected as subjects. The selected subjects were divided in to three groups and group I was given regular training on aerobic dance and group II was given regular training on classical dance and group III acted as control group. The subject's age ranged from 16 to 18 years. Muscular strength, flexibility and muscular endurancewere selected as physical fitness variables for this study. The collected data were analyzed statistically by using dependent 't' test to determine the improvement, if any among the groups prior to and immediately after the training period on selected physical fitness variables separately. Analysis of covariance (ANCOVA) was used to determine the differences, if any among the adjusted Post test means on selected dependent variables separately. The level of significance was fixed at.05 level of confidence, which was considered as appropriate. The results of the study revealed that aerobic dance is better than classical dance in improving selected physical fitness variables

Key words: *Physical Fitness, classical dance, aerobic dance, muscular strength, flexibility*

MUSCULAR ENDURANCE.

INTRODUCTION

Fitness is a key to enjoy life. Exercise is an important of a total fitness programme. Modern living has taken all the exercise out of our lives and so in order to get fit and have to put it back again, regular exercise is necessary to develop and maintain an optional level of health, performance, and appearance. It makes feel good, both physically and mentally. It gives psychological lift and strengthens a sense of accomplishment. Looking young is a reflection of good health. Regular physical exercise enhance the function of the joints; increase the sense of physical well-being and promotes a sense of feeling good; increases physical working capacity by increasing cardiorespiratory fitness, muscle strength, and endurance and decreases the risk of serious diseases that could lead to early disability and death. (**Michaud and F. Narring , 1996**)

Aerobic dance and bharathanatyam have evolved from rigidly choreographed dance routines intended for female participants to free style routines that incorporate random combinations of dance, sport, and exercise movements designed to attract men and women.

Bharathnatyam was the dance technique evolved in south of India in tamilnadu and practiced in the temples of Siva. It is highly specialized science with a traditional background and rigid course and convention. Bharathnatyam skillfully embodies the three [primary ingredients of dancing. They are 'Bava' or 'mood' or 'Music' or 'melody' and 'tala' or 'timing'. The technique of Bharathnatyam consists of sixty-four principles of coordinated hand, foot, face, and body movements, which are performed to the accompaniment of dance syllables.

Traditional aerobic dance consists of mixture of running, hopping, skipping, jumping, sliding, and swimming moments and a variety of dance steps self to music. During performance of these dance routines there is suspension phase of the body during which both feet one momentarily of the floor. This type of a modification of traditional aerobic dance has evolved called "high impact" aerobic dance. Recently, a modification of traditional aerobic dance has evolved called "low impact" aerobic dance. In this approach, one foot maintained contact with the floor at all times. There by eliminating the suspension phase of the activity thus the incidence of impact type of influence should be lessened with low impact dance. Regular physical activity is associated with a healthy, longer life, a lower risk of heart disease, high blood pressure, diabetes, obesity, and some cancers

METHODOLOGY

Sixty female students from Alagappa Matriculation school, Karaikudi, Tamilnadu, India were selected as subjects. The selected subjects were divided into three groups and two groups were given regular training on aerobic dance and classical dance and the third group acted as control group. The subjects' age ranged from 16 to 18 years. Muscular Strength, flexibility and muscular endurance were selected as Physical fitness variables. The collected data were analyzed statistically by using dependent't' test to determine he improvement, if any among the groups prior to and immediately after the training period on selected psychological variables separately. Analysis of covariance (ANCOVA) was used to determine the differences, if any among the adjusted Post test means on selected dependent variables separately. The level of significance was fixed at.05 level of confidence, which was considered as appropriate.

ANALYSIS OF THE DATA

The influence of independent variables on each criterion variable were analyzed and presented in table. The mean and dependent 't' test values on Physical fitness variables of Aerobic dance, Classical dance and control groups have been analyzed and presented in Table 1

TABLE I

Summary of Mean Standard Deviationand DEPENDENT't' Test for the Pre Post and Adjusted Post Tests on Physical fitness VARIABLES OF Experimental and control Groups

Variables			Aerobic Dance Group	Classical Dance Group	Control Group
Muscular Strength	Pre test	Mean	1.036	1.038	1.013
		SD	0.023	0.028	0.058
	Post test	Mean	1.088	1.064	1.022
		SD	0.031	0.023	0.058
	Adjusted Post test	Mean	1.082	1.056	1.037
	't' test		9.902*	7.549*	1.269

Variables			Aerobic Dance Group	Classical Dance Group	Control Group
Flexibility	Pre test	Mean	13.023	13.210	13.034
		SD	0.616	0.588	0.623
	Post test	Mean	13.552	15.304	12.931
		SD	0.665	0.823	0.626
	Adjusted Post test	Mean	13.535	15.334	12.917
	't' test		2.820*	9.623*	1.402
Muscular Endurance	Pre test	Mean	18.000	17.800	17.950
		SD	0.562	0.410	0.605
	Post test	Mean	20.400	19.050	17.900
		SD	0.940	0.510	0.718
	Adjusted Post test	Mean	20.348	19.123	17.879
	't' test		14.236*	13.317*	1.035

**Significant at .05 level. The table value required for .05 level of significance with df19 is 1.729.*

Since, the obtained 't' ratio values of experimental groups are greater than the table value, it is implies that aerobic dance and classical dance groups have significantly improved on the performance of muscular strength, flexibility and muscular endurance However, the control group has not improved significantly as the obtained 't' value is less than the table value, because they were not subjected to any specific training.

The analysis of covariance on muscular strength, flexibility and muscular endurance of aerobic dance, classical dance and control groups are analysed and presented in Table II.

Table II

Analysis of Covariance for the Data on Physical fitness VARIABLES among Experimental and Control Groups

Variables		Sources of Variance	Sum of Squares	df	Mean Squares	F-Ratio
Muscular Strength	Pre test	Between	0.008	2	0.0038	2.435
		Within	0.089	57	0.0016	
	Post test	Between	0.044	2	0.0222	13.772*
		Within	0.092	57	0.0016	
	Adjusted Post test	Between	0.020	2	0.0100	26.739*
		Within	0.021	56	0.0004	

Variables		Sources of Variance	Sum of Squares	df	Mean Squares	F-Ratio
Flexibility	Pre test	Between	0.442	2	0.221	0.595
		Within	21.169	57	0.371	
	Post test	Between	60.583	2	30.291	60.123*
		Within	28.718	57	0.504	
	Adjusted Post test	Between	61.863	2	30.931	63.138*
		Within	27.435	56	0.490	
Muscular Endurance	Pre test	Between	0.433	2	0.217	0.765
		Within	16.150	57	0.283	
	Post test	Between	62.633	2	31.317	56.578*
		Within	31.550	57	0.554	
	Adjusted Post test	Between	60.859	2	30.429	67.531*
		Within	25.234	56	0.451	

** Significant at 0.05 level of confidence. The table value for significance at 0.05 with df 2 and 57 and 2 and 56 are 3.162 and 3.166 respectively.*

Table II shows that the F-ratio for pre test of physical fitness variables at (df 2 and 57) are insignificant at 0.05 level of confidence. It implies that there is no significant difference between the pre test mean scores of experimental and control groups on muscular strength, flexibility and muscular endurance. From the above table it infers that the F-ratio for post test of muscular strength is 13.772 against the table value 3.162 (df 2 and 57) which is significant at 0.05 level of confidence. Since the obtained F-ratio is greater than the table value, it implies that there is significant difference between the post test mean scores of experimental and control groups on muscular strength. The table II also reveals that the F-ratio for adjusted post test of muscular strength is 26.739 against the table value 3.166 (df 2 and 56) which is significant at 0.05 level of confidence. Since the value of F-ratio is higher than the table value, it indicates that there are significant differences among the adjusted post-test means of aerobic dance, classical dance and control groups on muscular strength.

It infers that the F-ratio for post test of flexibility is 60.123* against the table value 3.162 (df 2 and 57) which is significant at 0.05 level of confidence. Since the obtained F-ratio is greater than the table value, it implies that there is significant difference between the post test mean scores of experimental and control groups on flexibility. It also reveals that the F-ratio for adjusted post test of flexibility is 63.138* against the table value 3.166 (df 2 and 56) which is significant at 0.05 level of confidence. Since the value of F-ratio is higher than the table value, it indicates that there are significant differences among the adjusted post-test means of aerobic dance, classical dance and control groups on flexibility.

From the above table it infers that the F-ratio for post test of muscular endurance is 56.578 against the table value 3.162 (df 2 and 57) which is significant at 0.05 level of confidence. Since the obtained F-ratio is greater than the table value, it implies that there is significant difference between the post

test mean scores of experimental and control groups on muscular endurance. The table II also reveals that the F-ratio for adjusted post test of muscular endurance is 67.531 against the table value 3.166 (df 2 and 56) which is significant at 0.05 level of confidence. Since the value of F-ratio is higher than the table value, it indicates that there are significant differences among the adjusted post-test means of aerobic dance, classical dance and control groups on muscular endurance.

Since the obtained F-ratio for post test are greater than the table value at 0.05 level of confidence on muscular strength, flexibility and muscular endurance, to find out which of the three paired means had a significant difference on selected physical fitness variables, the Scheffe's post-hoc test was applied and the results are presented in Table III.

Table III

Scheffe's Post Hoc for Difference between Adjusted Post Test Means of Experimental AND CONTROL Groups on Physical fitness VARIABLES

	Adjusted Post Test Mean			Mean Differences	Confidence Interval
	Aerobic Dance Group	Classical Dance Group	Control Group		
Muscular Strength	1.082	1.056		0.027*	0.015
	1.082		1.037	0.046*	0.015
		1.056	1.037	0.019*	0.015
Flexibility	13.535	15.334		1.799*	0.557
	13.535		12.917	0.618*	0.557
		15.334	12.917	2.416*	0.557
Muscular Endurance	20.348	19.123		1.225*	0.534
	20.348		17.879	2.469*	0.534
		19.123	17.879	1.244*	0.534

** Significant at 0.05 level.*

Table III shows that the mean differences between aerobic dance and classical dance groups; aerobic dance and control groups; classical dance and control groups on muscular strength are 0.027, 0.046 and 0.019 respectively. Since the mean difference values were higher than the confidence interval value 0.015 which show significant differences exist at 0.05 level of confidence. The mean differences between, aerobic dance and classical dance groups; aerobic dance and control groups; classical dance and control groups on flexibility are 1.799, 0.618 and 2.416 respectively. Since the mean difference values were higher than the confidence interval value 0.557 which show significant differences exist at 0.05 level of confidence. The mean differences between aerobic dance and classical dance groups; aerobic dance and control groups; classical dance and control groups on muscular endurance are 1.225,2.469 and 1.244 respectively. Since the mean difference values were higher than the confidence interval value 0.534 which show significant differences exist at 0.05 level of confidence. The result of the study indicates that the aerobic dance significantly improved when compared to classical dance and control groups on muscular strength, flexibility and muscular endurancee. It also reveals that classical dance group significantly improved the muscular strength, flexibility and muscular endurance when compared to the control group.

CONCLUSIONS

- The training programmes namely aerobic dance and classical dance had significantly improved the performance Profile of mood states.
- There was a significant difference among the adjusted post-test means of aerobic dance group, classical dance group and control groups towards improving Profile of mood states.
- It was concluded that of classical dance group is better than aerobic dance group and control groups in improving Profile of mood states.

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PHYSICAL EDUCATION IS TO CULTIVATE STUDENTS CHARACTER

25

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ABSTRACT

Physical education is one of the solutions to instil character values in the primary school environment. Teachers must have a sense of responsibility to instil values and standards in students through the teaching process, both in teaching and learning activities and outside of teaching and learning activities such as reflection on good behaviour to the students themselves, which aims to be able to instil and change the character, especially the discipline character of students for the better. This research uses qualitative library research by collecting library materials from various writings, both books and journals, related to the implementation of character education in civic education, both in international and national journals. Therefore, dealing with the morality of character education of children from early age is the most important key to be built and implemented in the life of the state. Thus, the character of students who can personally follow school rules is the most needed character in the school environment, namely through physical education. The conclusion of this research shows that through physical education subjects is a way to shape the character of students. Therefore, character development in primary schools is the most important thing in creating moral and disciplined learners in the life of the country. Character development is also influenced by the conditions and environment in which students grow and develop. It is hoped that physical education that instills character values can have a positive impact on the moral and character development of students.

Keywords: *Physical Education, Character, Learners*

INTRODUCTION

Indonesia expects education that can produce competent and friendly students. To protect the Indonesian nation, it is necessary to develop the character of the Indonesian nation. In this case, primary school children can also play a role in character building. However, the development of the nation's character does not only take place in the primary school environment, but must involve all stakeholders, both in the family environment and in the wider community.

In response to the criticisms of education in the 21st century, we put forward the ideals of the Indonesian state, which is to create wealth and happiness through the formation of a society composed of quality human resources, namely H. Individuals who are self-reliant and self-reliant. The realisation of the ideals of the state and equality with other countries in the world. The problem of education in the 21st century is clearly seen in the teachers, namely character education, because the task of a teacher is not only to educate students, but to make them wise, honest, disciplined, creative, curious and possessive, good personality, remain calm and respect others.

The role of educators (teachers) is very influential in instilling character education in schools. Teachers have a responsibility to teach students standards so that they know what is good and what is not good, what is right and what is wrong, or what is appropriate and inappropriate. These norms do not always have to be taught in the classroom, but can also be taught outside the classroom through teachers' attitudes, behavior and actions. Pupils will usually appreciate the teacher's attitude and behavior more than what the teacher says.

Primary school is one of the levels of formal education considered appropriate for incorporating character education. It is at this level that the character development of learners begins in formal education. At this primary school age, character education is very important because the character they learn will stay with them into adulthood.

According to (Santoso, 2011), character itself can be interpreted as a trait, personality or nature that distinguishes an individual from other individuals, and this character is used by individuals as a basis for thinking, perspective, attitude and action. Character is developed through positive habits at home, at school or in the community. Therefore, schools, as official educational institutions, must include character education in all their materials. Teaching in schools is integrated into the curriculum. It aims not only to create a skilled and civilised Indonesian nation that is not only intelligent and loyal, but also warm, empathetic and ethical

According to (Ilmiah & Pendidikan, 2023) Physical Education is part of education to develop students' ability through movement so that they can achieve health and expected educational goals which include knowledge, skills and attitudes. (Prasetyo et al., 2019: 2) The role of physical education is very important, which provides opportunities for students to be directly involved in various learning experiences through physical activity, play, and sports that are systematically conducted. The provision of learning experiences is aimed at promoting and shaping a healthy and active lifestyle. The psychomotor aspect of learning does not mean that the affective aspect should be forgotten. It is not uncommon that the affective aspects that are written in the Learning Implementation Plan are not applied, but that those that are not written in the Learning Implementation Plan are applied instead, leading to the assumption that teachers are not ready to teach for life.

Based on the above, researchers are interested in conducting research for physical education teachers on their role as physical education teachers in developing character in students. In addition, researchers also examine the importance and application of affective aspects in lesson plans when teachers teach in the field or in the classroom. Thus, the researchers want to continue research on "Cultivating Student Character through Physical Education Subjects in Primary Schools".

RESEARCH METHODOLOGY

All research needs a method. The use of methods in research is adapted to the problem and the research objectives. This means that research methods play an important role in the implementation of data collection and analysis. Regarding the method itself, Sugiyono said: "Research methods are essentially scientific methods for obtaining information for specific purposes and uses. Based on this, there are four key words that need to be considered, namely scientific method, data, purpose and use." (Sugiono, 2017:33).

This research uses qualitative library research by collecting literature from various writings, both books and journals, that discuss the implementation of character in physical education, sport and health, as well as international and national journals. After reading and researching, the researcher wrote down the results of his analysis in a document in the form of a date, because it is a legal record of the event.

RESULTS AND DISCUSSION

In general, physical education is an education that focuses on the formation of moral (affective) aspects, without neglecting other aspects. On this basis, it is shown that physical education is closely

related to the development of pupils' character, as it has the same task of promoting morality. Physical education is a subject that has a great influence on attitudes and character, as it is one of the subjects in which the formation and cultivation of character is most visible. But it seems that physical education is considered less important because it covers many physical and basic subjects and does not fulfil its responsibility as an important area of character education

Warsono, 2010 argues that character education is the process of giving and helping students to become a person of character in various dimensions of heart, mind, body and taste and purpose. Meanwhile, character is defined as the quality of a good person in the sense that he or she knows good, wants to do good and behaves very well, resulting consistently from mental exercise, heart exercise, emotional exercise and practice and Karrsa. Character education is an education that is considered very important in early childhood, because character education is an aspirational educational process. To develop values, attitudes and behaviours that reflect good or noble character in quality education, character potential must be nurtured from an early age.

Character education is an education that is considered very important to start with primary school children, because character education is an educational process that is carried out to promote values, attitudes and behaviours that exude noble or noble morals. In quality education, character must be nurtured from an early age. The potential for good character is actually present in everyone from the beginning of growth and development, but this potential must be consistently given and trained through socialisation and education froman early age. Early childhood is a crucial period for character development. Many experts say that a lack of character development from an early age causes a person to develop into a problem person in adulthood. Furthermore, teaching morality to primary school children is a strategic endeavour. Therefore, instilling morality in children as early as possible through character education is the most important key to nation building.

Everyone has goodness in them before they are born, but this potential needs to be nurtured and trained from an early age through socialisation and education. Adolescence is a critical time for character development. Many experts say that if a person's character is not developed at an early age, he or she will face personal problems in adulthood. The moral education of primary school children is also a strategic undertaking. Therefore, cultivating the morality of children's character from an early age is the most important key to building a country.

There are three main approaches to character education: the first is a cognitive development approach (often referred to as moral education), which emphasizes the characteristic of "good knowledge"; the second is the approach of "good intentions"; and the third is about traditionalist character education, which believes that "doing good" is fundamental. These three approaches are often integrated.

FACTORS THAT SUPPORT THE CHARACTER OF STUDENTS

In general, a factor is a memorable part of a problem that a person encounters in finding a problem, such as factors that influence the disciplinary character of students. Sociological factors are factors that arise from social or community relationships with other people. Examples of influencing factors are

FAMILY ENVIRONMENT

Mulyaningtyas, (2006) states that "for young people, the family is the first and most important place where they receive their education". The family is also interpreted as the smallest social unit in which human beings are social creatures characterised by cooperation. "A family environment that lacks child discipline can usually influence student delinquency. The main reason in the family environment is the selfish nature of the child. This reason can be interpreted as the child's own will, in other words, the crime is caused by the individual himself".

SCHOOL ENVIRONMENT

The school environment is largely formal. Teachers' unresponsive behaviour towards students inhibits children's physical development and fosters poor teacher-student relationships. According to (Persada, 2003), "School is a superior educational environment. The environment in which children attend school every day is their school environment in addition to their home environment".

COMMUNITY ENVIRONMENT

After the family and the school, the community is part of the educational environment. Whatever the state of society, therefore, it will have an impact, either directly or indirectly, on children's behaviour in everyday life. Community factors can also influence the triggering of problems in pupils. A good social environment makes for good character in young people, and vice versa

According to (Octavia & Sumanto, 2018), there are several types of character that are needed to support the formation of students' disciplinary character in schools, including:

- Disciplinary character is good behaviour and compliance with various rules and regulations, e.g. arriving at school on time.
- National spirit character is a pattern of thinking, doing and seeing that puts the interests of the nation and the state above the needs of oneself and groups, for example the spirit of attending the flag ceremony every Monday.
- Environmental care character is an attitude and behaviour that always aims to prevent the destruction of the surrounding natural environment and tries to repair the natural damage that has been done. For example, preserving the school environment by not littering.
- Responsibility character is the attitude and behaviour of a person in fulfilling their duties and responsibilities based on themselves, society, the environment (natural, social and cultural), the state and God Almighty, such as carrying out class cleaning tasks systematically.

Based on the above character types, it is expected to be able to develop the disciplinary nature of students to thoroughly achieve the goals of civic education. Therefore, the character of students who can personally follow school rules is the most needed character in the school environment. The goals of civic education are to: 1) educate moral Indonesian people; 2) educate intelligent and rational Indonesian people; 3) educate Indonesian people who are innovative and willing to work hard; 4) create an optimistic and confident Indonesian society; 5) create a patriotic Indonesian nation (Pradana, 2021).

CHARACTER EDUCATION GOALS

From some of the previous descriptions, it can be seen that the purpose of character building is mostly to shape a person's character as expected. However, some references have their own

explanation of this. The former president of Indonesia, Susilo Bambang Yudhoyono, also stated that character education aims to: From the above description, it can also be emphasised that character education can be implemented everywhere, starting from the family environment, at all levels of formal and informal education, but also in a broader sense, for example in the community. It is also stressed that shaping the character of future generations is not only the responsibility of teachers, but of all of us living in the present. In addition, there are similarities in the goals of character education at all levels of education, which differ in the efforts of educators to achieve these goals at each level of education.

CONCLUSION

The conclusion of this research shows that physical education, sport and health is a way to build character in students. Physical education, sport and health is an education that aims to develop each learner into a good citizen and character. Therefore, character building in primary schools is the most important thing in creating personal learners who are moral and disciplined in the life of the state. Character education is also influenced by the conditions and environment in which students grow and develop. Thus, it is hoped that the existence of physical education, sports and health that instill character values can have a positive impact on the moral formation of students, so as to bring about changes in the next generation of the nation in the future.

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INFLUENCE OF SPECIFIC TRAINING PROGRAMME WITH AND WITHOUT VIDEO FEEDBACK ON SELECTED PHYSICAL FITNESS PHYSIOLOGICAL AND SKILL PERFORMANCE VARIABLES AMONG SCHOOL-LEVEL FOOTBALL PLAYERS

26

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ABSTRACT

The major goal of this research was to investigate how a specific training program with and without video feedback influenced selected physical fitness, physiological, and skill performance variables among school-level football players. To do this, we picked sixty participants at random from Ranipet District schools. The participants' ages varied from 15 to 17. The participants were divided into three equal groups of twenty each. Group I (STPWVFG) participated in a specific training program with video feedback five days a week for twelve weeks, Group II (STPG) participated in a specific training program five days a week till twelve and Group III served as the control group. The criterion variables for speed, peak expiratory flow, and dribbling were assessed both before and after the following training.

Keywords: *Specific Training Program, Video feedback, speed, peak expiratory flow and dribbling.*

INTRODUCTION

Football training is crucial for improving players' abilities, fitness, and tactical understanding of the game. It usually focusses on important skills including ball handling, passing, shooting, dribbling, defensive positioning, and general fitness. Training sessions also focus on collaboration, strategy, and mental components of the game, such as decision-making and psychological resilience. The training environment contains a range of drills, small-sided games, and match simulations to help individuals and teams improve. **(Gabbett 2016).** In football (soccer), dribbling is the talent of controlling and manoeuvring the ball past opponents utilising a variety of tactics such as changing direction, pace, and ball control. Effective dribbling is vital for generating space, breaking defensive lines, and moving the ball forward. **(Gheorghe & Popescu 2014).**

VBT enables athletes to thoroughly evaluate their methods, which aids in self-correction and progress. For example, a study of beginner basketball players found that a training program including video modelling resulted in considerable gains in passing performance and offensive play. Participants in video-based sessions demonstrated superior technical execution than those who did not use such tools. **(Tannoubi et al., 2023)**

Peak Expiratory Flow (PEF) is the greatest rate at which a person may expel air from their lungs, as measured using a peak flow meter. It is an important metric in determining respiratory function,

especially in those who have asthma or other chronic respiratory disorders. PEF is used to assess the severity of asthma, measure medication efficacy, and detect early warning indications of an asthma attack or deteriorating respiratory function. **(GINA 2023)**.

For football conditioning, programming is influenced by several factors, including the physiological demands of the sport. A well-rounded football training program should address endurance, strength, power, agility, and flexibility. Periodized training program, which combines strength and conditioning, is crucial to improving football performance and minimizing the risk of injury **(Bompa & Haff, 2009).** The importance of sport-specific conditioning drills, particularly small-sided games, for enhancing technical skills under competitive conditions **(Stolen, et al., 2005).**

2. METHODOLOGY

2.1 SELECTION OF SUBJECTS

This study attempts to find 60 school-level football players in Ranipet District, Tamil Nadu, India. The subjects were selected at random. Their ages varied between fifteen to seventeen years.

2.2 SELECTION OF VARIABLES

Table-I

S. No	Variables	Test Items	Units of Measurement
	Speed Endurance	150 metres run	In seconds
	Peak Expiratory Flow	Digital spirometer	In litres
	Dribbling	Morgan and Chirstian Soccer Test,1979	In Minutes

2.3 EXPERIMENTAL DESIGN

The study applied an actual random group design with a pre-test and a post-test. Sixty participants were chosen from schools around Ranipet District, Tamil Nadu. The 60 participants were divided into three equal groups of 20 each. The experimental and control groups were separated evenly. The experimental group was given a specific training program with video feedback (STPWVFG) and a specific training program group (STPG), whereas the control group (CG) got no training. The speed, peak expiratory flow, and dribbling variables were determined during the pretest. After twelve weeks of training, three groups took the post-test.

2.4 STATISTICAL TECHNIQUES

The ANCOVA test was used to determine if there was a significant difference between the pre-test, post-test, and adjusted post-test means in the three groups. The data were analysed on a computer with the SPSS statistics software, and the hypothesis was evaluated at the 0.05 significance level.

3. RESULT OF THE STUDY

Table-II

Computation of F-Ratio between the Pre-Test, Post-Test and Adjusted Post-Test Means on Speed Endurance of Experimental Groups and Control Group

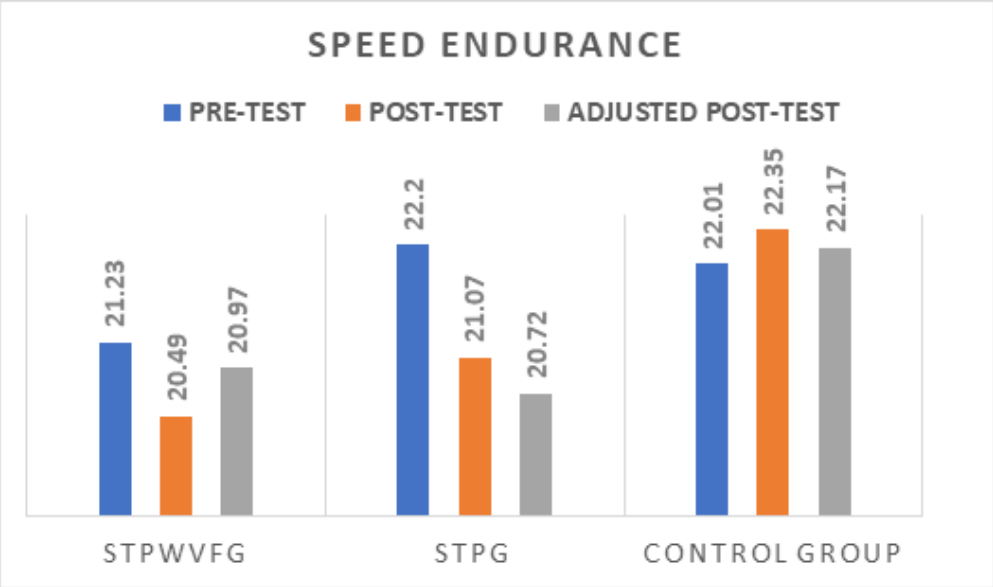
	STPWVFG	STPG	CG	Sources of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre-Test Mean	21.23	22.20	22.01	BG	10.67	2	5.34	1.43
				WG	211.97	57	3.73	
Post-Test Mean	20.49	21.07	22.35	BG	37.23	2	18.61	6.00*
				WG	176.84	57	3.1	
Adjusted Post-Test Means	20.97	20.72	22.17	BG	24.08	2	12.04	46.44*
				WG	14.52	56	0.26	

*(*Significance level of 0.05, Table value of 3.16 with df 2,57 & Table value of 4.01 with df 1,56)*

Table II indicates that the pre-test means of speed endurance for the specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and control groups were 21.23, 22.20 and 22.01, respectively. The pretest's attained F-ratio was 1.43, whereas the table's F-ratio was 3.16. Hence, for degrees of freedom 2 and 57, the pre-test means that the F-ratio was insignificant at the 0.05 significance level. The specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and the control group were post-test means of Speed Endurance was 20.49, 21.07 and 22.35 respectively. The acquired F-ratio for the post-test was 6.00*, whereas the table F-ratio was 3.16. Therefore, the post-test mean F-ratio for degrees of freedom 2 and 57 was statistically significant at the significance level of 0.05. The specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and the control group had adjusted post-test means of speed endurance was 20.97, 20.72 and 22.17 respectively. The table F-ratio was 4.01, but the obtained F-ratio for the adjusted post-test means was 46.44. Hence, for degrees of freedom 2 and 56, the adjusted post-test means the F-ratio was statistically significant at the significance level of 0.05.

Figure-1

BAR DIAGRAM SHOWING THE PRE-TEST POST-TEST AND ADJUSTED POST-TEST MEAN VALUE OF EXPERIMENTAL GROUPS AND CONTROL ON SPEED ENDURANCE



Computation of F-Ratio between the Pre-Test, Post-Test and Adjusted Post-Test Means on Peak Expiratory Flow of Experimental Groups and Control Group

Table – III

	STPWVFG	STPG	CG	Sources of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre-Test Mean	4.52	4.39	4.30	BG	0.37	2	0.19	2.78
				WG	3.87	57	0.07	
Post-Test Mean	4.96	4.81	4.31	BG	4.24	2	2.12	27.85*
				WG	4.34	57	0.07	
Adjusted Post-Test Means	4.86	4.83	4.42	BG	2.24	2	1.12	120.03*
				WG	0.56	56	0.01	

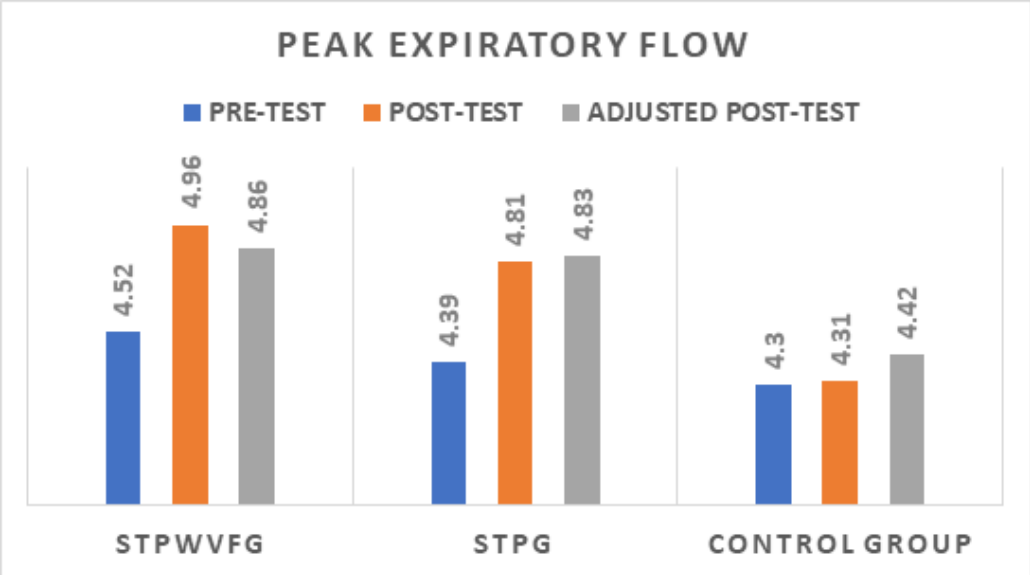
*(*Significance level of 0.05, Table value of 3.16 with df 2,57 & Table value of 4.01 with df 1,56)*

Table III indicates that the pre-test means of peak expiratory flow for the specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and control groups were 4.52, 4.39 and 4.30, respectively. The pretest's attained F-ratio was 2.78, whereas the table's F-ratio was 3.16. Hence, for degrees of freedom 2 and 57, the pre-test means that the F-ratio was insignificant at the 0.05 significance level. The specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and the control group were post-test means of peak expiratory flow of 4.96, 4.81 and 4.31 respectively. The acquired F-ratio for the post-test was 27.85*, whereas the table F-ratio was 3.16. Therefore, the post-test mean F-ratio for degrees of freedom 2 and 57 was statistically significant at the significance level of 0.05. The

specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and the control group had adjusted post-test means of peak expiratory flow 4.86, 4.83 and 4.42 respectively. The table F-ratio was 4.01but the obtained F-ratio for the adjusted post-test means was 120.03. Hence, for degrees of freedom 2 and 56, the adjusted post-test means the F-ratio was statistically significant at the significance level of 0.05.

Figure-2

BAR DIAGRAM SHOWING THE PRE-TEST POST-TEST AND ADJUSTED POST-TEST MEAN VALUE OF EXPERIMENTAL GROUPS AND CONTROL ON PEAK EXPIRATORY FLOW



Computation of F-Ratio between the Pre-Test, Post-Test and Adjusted Post-Test Means on Dribbling of Experimental Groups and Control Group

Table – IV

	STPWVFG	STPG	CG	Sources of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre-Test Mean	3.02	3.14	3.22	BG	0.40	2	0.20	1.34
				WG	8.59	57	0.15	
Post-Test Mean	2.26	2.98	3.22	BG	3.03	2	1.57	9.24*
				WG	9.37	57	0.16	
Adjusted Post-Test Means	2.77	2.97	3.13	BG	1.21	2	0.60	26.36*
				WG	1.29	56	0.02	

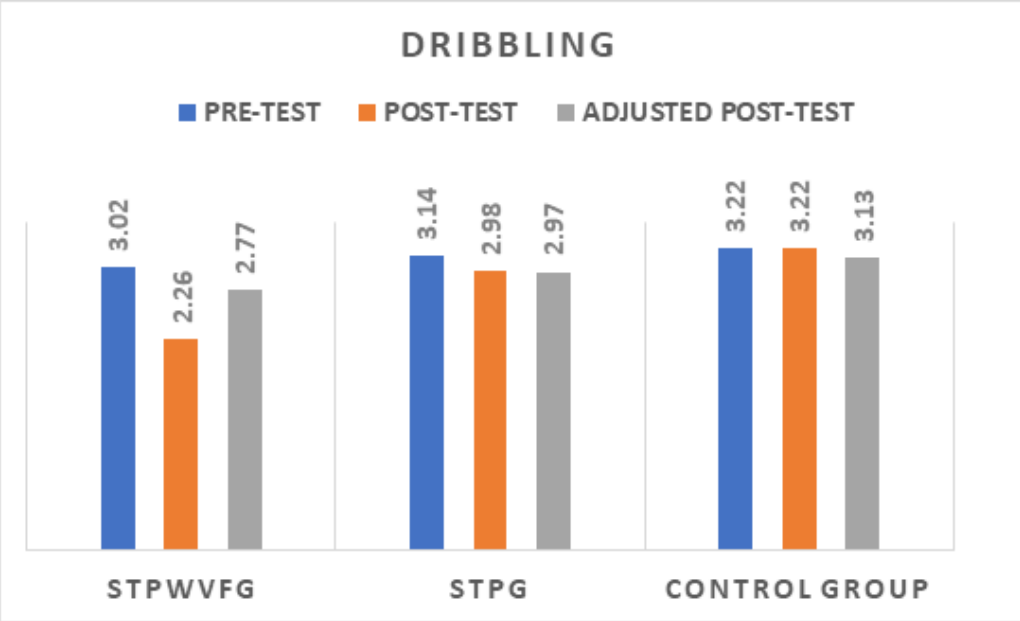
*(*Significance level of 0.05, Table value of 3.16 with df 2,57 & Table value of 4.01 with df 1,56)*

Table IV indicates that the pre-test means for the specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and control group of dribbling were 3.02, 3.14 and 3.22 respectively. The pretest's attained F-ratio was 1.34 whereas the table's

F-ratio was 3.16. Hence, for degrees of freedom 2 and 57, the pre-test means that the F-ratio was insignificant at the 0.05 significance level. The specific training programme with video feedback group (STPWVFG), specific training programme group (STPG), and the control group of dribbling were post-test means of 2.26, 2.98 and 3.22 respectively. The acquired F-ratio for the post-test was 9.24*, whereas the table F-ratio was 3.16. Therefore, the post-test mean F-ratio for degrees of freedom 2 and 57 was statistically significant at the significance level of 0.05. The specific training programme group with video feedback group (STPWVFG), specific training programme group (STPG), and the control group had adjusted post-test means of dribbling were 2.77, 2.97 and 3.13 respectively. The table F-ratio was 4.01, but the obtained F-ratio for the adjusted post-test means was 26.36. Hence, for degrees of freedom 2 and 56, the adjusted post-test means the F-ratio was statistically significant at the significance level of 0.05.

Figure-3

BAR DIAGRAM SHOWING THE PRE-TEST POST-TEST AND ADJUSTED POST-TEST MEAN VALUE OF EXPERIMENTAL GROUPS AND CONTROL ON DRIBBLING



4. DISCUSSION OF FINDINGS

The study's findings indicate that a specific training program with and without video feedback significantly impacted selected speed endurance, peak expiratory flow and dribbling variables among school-level football players. After twelve weeks of training, specifically improved on speed endurance, peak expiratory flow and dribbling variables. The findings support the hypothesis that a specific training program with video feedback and a specific training programme would increase physical fitness, physiological and skill performance variables, as reported by Ramya et al., (2024), Varley et al., (2023), Yeole et al., (2023), Vander et al., (2023), Kuswoyo & Lahinda (2020) and Asaad et al., (2024).

5. CONCLUSION

It was determined that the twelve weeks of the specific training program with video and without video feedback of school-level football players had considerably improved the following

variables: speed endurance, peak expiratory flow and dribbling in the experimental groups. There was insignificant improvement in the control group.

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REVOLUTIONIZING ATHLETIC PERFORMANCE: THE TRANSFORMATIVE IMPACT OF TECHNOLOGY AND FUTURE PROSPECTS

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ABSTRACT

This paper critically examines the transformative role of technology in reshaping the landscape of sports performance and training. It delves into three primary technological innovations currently making significant inroads in sports: wearable technology, virtual reality (VR), and advanced data analytics. Wearable technology offers real-time biometric data, significantly influencing personalized training programs and injury prevention. VR in sports training enhances skill acquisition and psychological preparedness, providing immersive experiences that replicate real- competition scenarios. Advanced data analytics, powered by big data and machine learning, has emerged as a game-changer, offering predictive insights that inform strategic decision-making and performance optimization. However, these advancements are not without challenges. The paper underscores the need for a multidisciplinary approach to technology integration, addressing issues related to data privacy, ethical use, accessibility, and the potential impact on the spirit of sportsmanship. It advocates for a balanced approach that considers athlete well- being, equitable access, and the preservation of competitive integrity. Furthermore, the discussion highlights the necessity of updating educational curricula and developing robust regulations to guide the ethical use of technology in sports. The paper concludes by emphasizing a harmonious synthesis of technology with the human aspect of sports, ensuring that technological advancements serve to enhance, not overshadow, the essence of athletic competition.

Keywords: *sports technology; wearable devices; virtual reality; data analytics.*

INTRODUCTION

In the contemporary world, technology's intersection with various disciplines has not only transformed operational frameworks but has also revolutionized how professionals approach their practices. One sector that has experienced significant technological disruption is sports. This disruption is not merely on the surface level, such as the use of new gadgets but involves a profound integration of technology into various aspects of athletic training, performance monitoring, and even psychological preparation. With the proliferation of advanced technological tools like wearable devices, Virtual Reality (VR), and sophisticated data analytics, a new vista of opportunities has been opened for enhancing athletic performance.

However, with these advancements, there has been an emergence of new challenges. The sports sector grapples with issues such as the ethical implications of data collection, the reliability of technological tools, the risk of over-dependence on technology, and the necessity of maintaining an equilibrium between traditional training methods and technological interventions. Furthermore, the dynamic nature of technology raises concerns about the constant need for up skilling professionals to keep them abreast of the latest developments and proficient in the newest tools.

WEARABLE TECHNOLOGY AND PERFORMANCE MONITORING

The advent of wearable technology marks a significant shift in the sports domain, transcending traditional barriers to physiological monitoring and performance enhancement. These devices, which include heart rate monitors, GPS trackers, and accelerometers, provide a continuous stream of real-time biometric data, giving unprecedented insights into an athlete's specific performance metrics such as heart rate variability, metabolic rate, physical workload, and movement patterns (Buchheit, 2014; Cummins, Orr, O'Connor, & West, 2013).

For instance, heart rate monitors are instrumental in gauging an athlete's cardiovascular response to training stimuli and are pivotal in delineating zones of training intensity, ensuring that athletes operate within the optimal threshold to elicit desired adaptive responses without inadvertently sliding into the realms of overtraining (Buchheit, 2014). Similarly, GPS trackers and accelerometers yield comprehensive data on an athlete's motion, velocity, and expended energy during training sessions and competitive scenarios, facilitating nuanced understanding and optimization of their biomechanical efficiency and energy conservation (Cummins et al., 2013).

The wealth of data generated by these devices is particularly salient in crafting highly individualized training regimens tailored to the unique physiological and biomechanical profiles of each athlete. This personalization is crucial in eliciting maximal performance enhancements while concurrently mitigating the risk of injury through the meticulous monitoring of physiological parameters and workload, thereby ensuring a balance between training stress and recovery (Schwellnus et al., 2016).

However, the potential of wearable technology in transforming athletic training is not without its complexities. The sheer volume and intricacy of data necessitate advanced analytical acumen among sports professionals. Interpreting this data requires not only a deep understanding of sports science but also proficiency in data analysis techniques, underscoring the need for an interdisciplinary approach in sports training and education (Düking, Holmberg, & Sperlich, 2017).

VIRTUAL REALITY (VR) IN TRAINING SIMULATIONS

The integration of Virtual Reality (VR) in sports training marks a paradigm shift in how athletes prepare for competitions, offering immersive environments that replicate the intensity and demands of real-world sporting events (Esteves, Oliveira, & Araújo, 2019). Through VR, athletes can engage in simulated training that mimics actual competitive scenarios, allowing for the refinement of tactics, decision-making, and technical skills in a risk-controlled setting (Pan & Hamilton, 2018). This technology is especially beneficial in sports requiring high levels of spatial awareness, strategic foresight, and rapid reaction to environmental stimuli.

One significant advantage of VR is its capacity for cognitive load management during training, enabling athletes to process and respond to complex game scenarios without the physical risk inherent in real-world play (Gregersen & Fink, 2020). This feature is particularly salient in contact sports, where the risk of injury may limit the scope of live training sessions. Furthermore, VR simulations can be tailored to challenge specific cognitive and technical aspects of an athlete's performance, offering a personalized approach to skill development (Stinson & Bowman, 2014).

In addition to skill acquisition, VR plays a crucial role in psychological conditioning, preparing athletes for the high-pressure atmosphere of competition. By exposing athletes to simulated high-stakes environments, VR helps in acclimatizing them to the stressors they'll face, thereby enhancing psychological resilience and performance under pressure (Farrow, Reid, Buszard, & Kovalchik, 2018).

However, while the benefits are compelling, the integration of VR into sports training is not without challenges. The immersive nature of VR means it can significantly impact an athlete's cognitive load, potentially leading to mental fatigue if not appropriately managed (Bell, Rönnqvist, & Hoshizaki, 2018). Therefore, careful consideration must be given to the duration and intensity of VR training sessions, ensuring a balanced load that optimizes skill development while preventing cognitive overload.

ADVANCED DATA ANALYTICS IN SPORTS

The realm of sports has been dramatically transformed by the incorporation of advanced data analytics, reshaping how performances are evaluated, players are trained, and games are strategized. Big data, collected through various sources such as wearable devices, video feeds, and player statistics, are now analyzed using sophisticated algorithms to guide decision-making in sports (Rein & Memmert, 2016). This fusion of technology and sports science has ushered in a new era of sports analysis where predictive modeling, pattern recognition, and tactical analysis have become integral to competitive success.

One notable application of advanced data analytics in sports is the predictive modeling of injuries. By analyzing data points related to players' physical conditions, past injuries, and game performances, predictive models can identify patterns and risk factors associated with specific injuries, thereby guiding preventive measures (Gabbett, 2016). This approach is invaluable in reducing downtime for athletes and extending their careers.

Moreover, machine learning algorithms can process and analyze vast datasets far beyond human capacity, uncovering hidden patterns and correlations in athletes' performance data. This information is critical in developing personalized training programs that address the individual strengths and weaknesses of each athlete (Lucey et al., 2014). Additionally, the analysis of opponent teams' data facilitates the development of game strategies that can exploit their weaknesses, significantly impacting the game's outcome (Pappalardo et al., 2019).

However, leveraging the full potential of advanced data analytics in sports requires a cohesive multidisciplinary approach. Professionals with expertise in sports science must collaborate with data scientists and IT experts to ensure the accurate collection, analysis, and interpretation of sports data (Milne, Leineweber, Blackburn, & Braun, 2020). Furthermore, ethical considerations regarding data privacy and security must be diligently addressed, ensuring athletes' confidential information is protected (Dignum, 2018).

CONCLUSION

The journey through the multifaceted landscape of technology in sports has illuminated both the extraordinary potential and intricate challenges inherent in this union. As we stand on the precipice of what can be considered a new era in sports science and athletic training, several key conclusions crystallize:

- Indispensable Integration. Wearable technology, VR, and advanced data analytics are no longer futuristic concepts but present-day tools that are revolutionizing sports in unprecedented ways. Their ability to provide detailed insights into athletes' physiological and psychological states is transforming how training programs are designed, executed, and evaluated.
- Beyond the Numbers. While technology offers detailed data and innovative training methods, the importance of human insight in interpreting this information and making informed decisions cannot

be overstated. Technological data should complement, not replace, the nuanced understanding and professional judgment that sports scientists, coaches, and medical staff bring.

- Ethical and Privacy Considerations. The surge in data collection raises legitimate concerns regarding athletes' privacy. It's imperative to establish robust protocols for data management, ensuring that athletes' personal information is protected and used transparently and ethically.
- Accessibility and Fairness. The financial burden of advanced technology might limit its accessibility, creating a divide where only well-resourced teams can afford these tools, potentially compromising the fairness of competitions. Governing bodies need to address these disparities, ensuring equal opportunities for all athletes and teams.
- Holistic Approach. The incorporation of technology in sports demands a multidisciplinary approach. Current and future sports professionals need to be technologically literate, requiring an update in the educational curricula of sports science to include comprehensive training in new technological tools, data analysis, and interpretation.
- Athlete-Centric Perspective. Any technological advancement should prioritize the well-being and development of the athlete. Continuous feedback from athletes is essential to gauge the impact of technology on their training experience, performance, and overall well-being.
- Guiding Regulations. As technology continues to evolve, so too should the regulations that govern its use in sports. These guidelines should promote innovation while upholding the integrity of competitions, ensuring that technology complements athletic performance rather than overshadowing it. In reflection, the confluence of technology and sports is a realm of immense possibility, beckoning a future where enhanced performance, informed strategies, and improved athlete welfare are the hallmarks. However, this future is contingent on our collective ability to navigate the complexities of this integration with thoughtful consideration, ethical discernment, and an unwavering commitment to keeping the spirit of sportsmanship alive. As we forge ahead, our guiding principle should be a harmonious balance between technological advancement and the timeless human essence of sports.

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IMPACT OF POWER TRAINING ON SELECTED PHYSICAL VARIABLES AMONG SCHOOL VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the effect of power training on selected physical variables among school volleyball players. Thirty subjects were selected from Christhu Raja Higher Secondary School, Palayamkottai, Tirunelveli. The subject's age ranged from 14 to 17 years. The selected subjects were divided into two groups with fifteen subjects in each group selected randomly power training and control group. The training periods of experimental group were six weeks, five days per week. Control group did not undergo any training programme other than their routine work. To find out the significance difference between the means on the criterion variables correlated `t' ratio was applied. Pertaining to present study it processed with appropriate statistical technique. The obtained `t' values are tested at 0.05 levels.

Keywords: *1.Power training, 2. Speed, 3. Explosive power and 4.Agility.*

INTRODUCTION

POWER TRAINING

Power training is also known as strength training. It is a common component of sports and physical fitness programmes for young people. Some adolescents and pre-adolescents may use strength training as a means to enhance muscle size and to simply improve appearance (clayne, 1979). Strength training programmes may include the use of free weights, weight machines, elastic tubing, or body weight. In addition to the obvious goal of getting stronger power training programmes may be undertaken to improve long-term health. Studies have shown that strength training, when properly structured with record of frequency, mode (type of lifting), intensity, and duration of programmes, can increase strength in pre-adolescents and adolescents. In preadolescents proper power training can enhance strength without concomitant muscles hypertrophy. Such kinds in strength can be attributed to neuro muscular "learning", in which training increase the number of motor neurons that will fire with which muscle contraction. This mechanism helps to explain the strength gained from power training in population with low androgen levels including males and females. Strength training can also augment the muscles enlargement that is normally acquired with pubertal growth in males in females.

BENEFITS OF POWER TRAINING

Power training involves activities that use weights, machines and even body weight to work out the muscles. It is also known as strength training or weight training. Many people have jobs that involve little in the way of physical exercise and your body adapts to this by allowing your muscles to shrink (atrophy) to the point they are able to do your job but not much more.

METHODOLOGY

The purpose of the study was to find out the effect of power training on selected physical variables among school volleyball players. Thirty subjects were selected from Christhu Raja Higher Secondary School, Palayamkottai, Tirunelveli. The subject's age ranged from 14 to 17 years. The selected subjects were divided into two groups with fifteen subjects in each group selected randomly power training and control group. The training periods of experimental group were six weeks, five days per week. Control group did not undergo any training programme other than their routine work. The pre and post tests were administrated for all the groups before and after the experimental treatment.

SELECTION OF VARIABLES

The selected Physical variables are

- Speed - 50 yards dash (Seconds)
- Explosive power - Standing broad jump (Meters)
- Agility - T-test (Seconds)

STATISTICAL TECHNIQUE

To test the significance of `t' values as level of significance 0.05 level was chosen for the required table value for the degrees of freedom.

TABLE – I

ANALYSIS OF 'T'-RATIO THE PRE AND POST-TEST FOR CONTROL AND EXPERIMENTAL GROUP ON SPEED, EXPLOSIVE POWER AND AGILITY

Variable	Groups	Mean		SD		Sd Error	df	't' ratio
		Pre	Post	Pre	Post			
SPEED	Control	7.97	7.97	0.55	0.55	0.14	14	0.81
	Experimental	7.98	7.46	0.18	0.16	0.14		12.97*
EXPLOSIVE POWER	Control	2.12	2.06	0.12	0.28	0.03	14	1.08
	Experimental	2.15	2.21	0.04	0.04	0.07		18.36*
AGILITY	Control	11.10	11.10	0.69	0.68	0.18	14	0.56
	Experimental	11.16	10.81	0.19	0.18	0.18		12.01*

** significance at 0.05 level of confidence*

The Table shows that the mean values of pre-test and post-test of control group on speed were 7.97 and 7.97 respectively. The obtained 't' ratio was 0.81, since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on speed were 7.98 and 7.46 respectively. The obtained 't' ratio was 12.97 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in speed. It may be concluded from the result of the study that experimental group improved in speed due to six weeks of power training.

The Table shows that the mean values of pre-test and post-test of control group on explosive power were 2.12 and 2.06 respectively. The obtained 't' ratio was 1.08 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on explosive power were 2.15 and 2.21 respectively. The obtained 't' ratio was 18.36 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in explosive power. It may be concluded from the result of the study that experimental group improved in explosive power due to six weeks of power training.

The Table shows that the mean values of pre-test and post-test of control group on agility were 11.10 and 11.10 respectively. The obtained 't' ratio was 0.57 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on agility were 11.16 and 10.81 respectively. The obtained 't' ratio was 12.01 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in agility. It may be concluded from the result of the study that experimental group improved in agility due to six weeks of power training.

DISCUSSION ON FINDING

In analyzing the physical variables for power training over the period of 12 weeks of training, the obtained results favored the school volleyball players on speed, explosive power and agility.

CONCLUSIONS

Practice of the power training was significant effective in bring desirable changes in speed, explosive power and agility among school volleyball players.

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RESEARCH ON THE USE OF ANIMAL MOVEMENT TRAINING IN SPORTS

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ABSTRACT

This research paper explores the application of animal movement training in sports performance enhancement. It examines the principles of animal locomotion and how these movements can be adapted for human athletes to improve agility, coordination, and overall physical conditioning. The study integrates both qualitative and quantitative methodologies, involving a series of experiments and participant observations across various sports disciplines. Key findings demonstrate that animal movement training not only promotes physical agility and strength but also fosters mental resilience and adaptability in athletes. The implications of these findings suggest that incorporating animal-inspired movements into training regimens can lead to improved athletic performance and injury prevention. This research contributes to the growing body of literature on innovative training techniques in sports and highlights the potential for interdisciplinary approaches to athlete development.

Keywords: *Animal Movement Training, Sports*

INTRODUCTION

The Animal movement training, also known as quadrupedal movement training (QMT), is a type of bodyweight training that incorporates animal poses, crawling patterns, and transitions.

Animal movement training includes low-impact movements like crawling, rolling, jumping, and balancing. The use of animal movement training in sports has gained significant attention in recent years. This unconventional approach to athletic training involves mimicking the movements and patterns of various animals to improve human physical performance. From the powerful strides of a cheetah to the agile jumps of a kangaroo, animal movement training has been adopted by athletes and coaches across various sports disciplines. This paper delves into the concept of animal movement training, its benefits, and its applications in sports.

EXAMPLES OF ANIMAL MOVEMENT TRAINING

- Animal Flow is a type of QMT that combines resistance training models and fitness programs.
- Primal movement is a type of QMT that focuses on moving more like an animal to improve strength and mobility.
- GMB Elements is a type of QMT that focuses on moving more like an animal to improve strength and mobility.

BENEFITS OF ANIMAL MOVEMENT TRAINING

One of the primary benefits of animal movement training is its ability to improve flexibility and mobility. By mimicking the movements of animals such as the cat, bear, and monkey, athletes can increase their range of motion, reduce stiffness, and enhance their overall flexibility. For instance, the

"bear crawl" exercise, which involves crawling on all fours like a bear, can help improve hip mobility, strengthen the core, and increase flexibility in the shoulders and chest. Similarly, the "monkey walk" exercise, which involves walking on all fours with the hands and feet, can help improve flexibility in the hips, knees, and ankles.

- **Cardiovascular activity**: One study found that Animal Flow burned more calories than walking on a treadmill at the same heart rate.
- **Strength**: Animal movement training can help build strength and power.
- **Mobility**: Animal movement training can improve mobility and flexibility.
- **Coordination**: Animal movement training can improve coordination and control.
- **Fun**: Animal movement training can be fun and can be modified for any fitness level.

SIGNIFICANT ADVANTAGE OF ANIMAL MOVEMENT TRAINING

It is ability to enhance power and speed. By mimicking the movements of fast and powerful animals such as the cheetah, lion, and gazelle, athletes can improve their acceleration, deceleration, and overall speed. For example, the "cheetah run" exercise, which involves sprinting with a low centre of gravity and rapid arm and leg movements, can help improve speed, agility, and reaction time. Similarly, the "gazelle jump" exercise, which involves jumping and landing like a gazelle, can help improve explosive power and vertical jump height.

INJURY PREVENTION AND REHABILITATION

Animal movement training also offers a unique approach to injury prevention and rehabilitation. By mimicking the movements of animals known for their agility and resilience, athletes can improve their proprioception, balance, and coordination, reducing their risk of injury. For instance, the "kangaroo hop" exercise, which involves hopping on one leg like a kangaroo, can help improve balance, strength, and proprioception in the legs and ankles. Similarly, the "frog jump" exercise, which involves jumping and landing like a frog, can help improve flexibility, strength, and coordination in the legs and hips.

MENTAL AND EMOTIONAL BENEFITS

In addition to its physical benefits, animal movement training can positively impact an athlete's mental and emotional well-being. By adopting the movements and patterns of animals, athletes can tap into their primal instincts, increasing their confidence, focus, and aggression. For example, the "lion's roar" exercise, which involves making a loud roaring sound like a lion, can help increase confidence and aggression, while the "monkey's play" exercise, which involves playing and moving like a monkey, can help reduce stress and improve mood.

APPLICATIONS IN SPORTS ANIMAL MOVEMENT TRAINING

It has been successfully applied in various sports disciplines, including football, basketball, tennis, and gymnastics. For instance, football players have used the "cheetah run" exercise to improve their speed and agility, while basketball players have used the "kangaroo hop" exercise to improve their jumping ability and coordination. Tennis players have used the "gazelle jump" exercise to improve their reaction time and agility, while gymnasts have used the "monkey walk" exercise to improve their flexibility and balance.

CONCLUSION

Animal movement training is a unique and effective approach to athletic training that offers a range of physical, mental, and emotional benefits. By mimicking the movements and patterns of various animals, athletes can improve their flexibility, power, speed, and agility, while also reducing their risk of injury and enhancing their overall well-being. As the use of animal movement training continues to grow in popularity, it is likely to become an essential component of athletic training programs across various sports disciplines.

FUTURE RESEARCH DIRECTIONS

In terms of future research, several areas warrant further investigation. Researchers could explore the specific benefits of different animal movements on athletic performance, as well as the optimal training protocols and dosage for animal movement training. Additionally, researchers could investigate the use of animal movement training in injury rehabilitation and prevention, as well as its applications in non-sports contexts, such as physical therapy and fitness training.

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THE POWER OF DIVERSITY IN SPORTS: A GAME-CHANGING PERSPECTIVE

30

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INTRODUCTION

In today's rapidly evolving world, the importance of diversity in sports cannot be overstated. As society becomes more conscious of the need for equal opportunities, the sports industry is also recognizing the immense value of embracing diversity. From promoting inclusivity to driving innovation, diversity in sports has the power to transform the entire landscape. In this article, we will explore the various aspects of diversity in sports, its significance, and how it can pave the way for a more inclusive and progressive future.

1. BREAKING DOWN BARRIERS

Diversity in sports breaks down barriers that have historically limited participation and representation. It challenges stereotypes, biases, and discrimination, creating a level playing field for individuals from all backgrounds. By embracing diversity, the sports industry can dismantle systemic barriers that have hindered progress and create an environment where talent and passion are the sole criteria for success.

2. PROMOTING INCLUSIVITY

One of the key benefits of diversity in sports is the promotion of inclusivity. When individuals from different ethnicities, genders, socio-economic backgrounds, and abilities come together, it creates an environment where everyone feels valued and included. This fosters a sense of belonging and encourages individuals to participate, engage, and excel in sports, regardless of their differences.

3. DRIVING INNOVATION

Diversity in sports fuels innovation by bringing together individuals with unique perspectives, ideas, and experiences. When people from diverse backgrounds collaborate, they bring a wealth of knowledge and insights that can lead to groundbreaking advancements in coaching techniques, sports equipment, and game strategies. By embracing diversity, the sports industry can tap into this rich pool of creativity and drive innovation to new heights.

4. EXPANDING AUDIENCE REACH

Sports have the power to unite people from all walks of life, transcending cultural, social, and geographical boundaries. By promoting diversity, the sports industry can expand its audience reach and appeal to a broader spectrum of people. When individuals see themselves represented in sports, they are more likely to engage, support, and become passionate followers of the game. This not only benefits the sports industry but also helps foster a sense of community and belonging among diverse groups of fans.

5. ENHANCING PERFORMANCE

Diversity in sports has shown to enhance team performance. When individuals from diverse backgrounds come together, they bring a multitude of skills, perspectives, and strengths that

complement each other. This diversity of talents and abilities can create a synergistic effect, leading to improved team dynamics, problem-solving, and overall performance. By embracing diversity, sports teams can unlock their full potential and achieve greater success on and off the field.

6. CREATING ROLE MODELS

Representation matters, especially in sports. By promoting diversity, the sports industry can create role models for future generations. When individuals from underrepresented groups see athletes, coaches, and leaders who share their background excelling in sports, it inspires them to dream big and pursue their own sporting aspirations. This not only helps in diversifying the talent pool but also encourages individuals to overcome barriers and achieve greatness.

7. BUILDING BRIDGES AND FOSTERING UNDERSTANDING

Sports have the unique ability to bring people together and foster understanding among different communities. By embracing diversity, the sports industry can become a catalyst for social change and bridge gaps between different cultures, religions, and ideologies. Through sports, individuals can learn to appreciate and respect each other's differences, breaking down stereotypes and building a more harmonious society.

CONCLUSION

Diversity in sports is not just a buzzword; it is a powerful force that has the potential to transform the entire sports industry. By breaking down barriers, promoting inclusivity, driving innovation, expanding audience reach, enhancing performance, creating role models, and fostering understanding, diversity in sports can lead to a more inclusive, progressive, and ultimately successful future. It is imperative for the sports industry to embrace diversity wholeheartedly and harness the transformative power it holds.

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IMPACT OF UPPER AND LOWER LIMB PLYOMETRIC TRAINING INTERVENTION ON MOTOR FITNESS ATTRIBUTES OF MEN HANDBALL PLAYERS

31

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ABSTRACT

Plyometric exercises are widely believed to lead to positive adaptations in terms of power production and corresponding improvements in tasks, which have shown a strong relationship with athletic performance such as sprinting and jumping. The purpose of the study was to investigate the effect of upper and lower plyometric training on selected performance determinants of handball players. Thirty players were randomly selected from affiliated colleges of Bharathiar University, the selected players were divided into two groups consisting of 15 players. No attempt was made equate the groups. The age of the subjects ranged between 18 to 23 years. The influence of the upper and lower limb plyometric training was assessed on selected variables. The duration of the training period was restricted to six weeks and the number of sessions per week was confined to three. The data obtained from all the groups before and after the experimental period were statistically analyzed by dependent 't' test to find out the significant improvement if any, 0.05 level of confidence was fixed to the level of significance between pre and posttest means of all groups. Pre and post test was conducted on separate days with warm up. In this study, plyometric training was adopted as independent variables and lower limb muscle power and change of direction speed were selected as dependent variables. Further, the findings confirmed the upper and lower limb plyometric training is suitable protocol to bring out the desirable changes over the selected parameters of handball players.

Key words*: Upper and lower limb Plyometric Training, Handball, Lower limb muscle power and Change of direction speed*

INTRODUCTION

Plyometric training, also known as jump training, has long been recognized as an effective method for improving athletic performance, particularly in sports that require explosive movements like handball. Plyometrics involve exercises that use the stretch-shortening cycle (SSC) of muscles to produce powerful, fast movements, enhancing the muscle's ability to generate force quickly. This type of training has been shown to improve important physical attributes such as muscle power, explosiveness, agility, and coordination. In volleyball, explosive power is critical in performing skills such as spiking, blocking, serving, and quick lateral movements across the court. The high demand for repeated jumping and rapid changes in direction during a match makes plyometric training a key component in a handball athlete's conditioning program. Benefits of plyometric training are well-documented in athletic performance, most research has focused on bilateral plyometrics, such as two-leg jumps or power drills. However, handball specific movements often involve single-leg actions or asymmetrical movements, which suggests that unilateral plyometric training might be more beneficial for volleyball players in some areas of performance. Despite this, there is a lack of comprehensive research comparing the effects of unilateral vs. bilateral plyometric training on handball-specific performance outcomes. (**Makaruk** *et al.,* **2011).**

METHODOLOGY



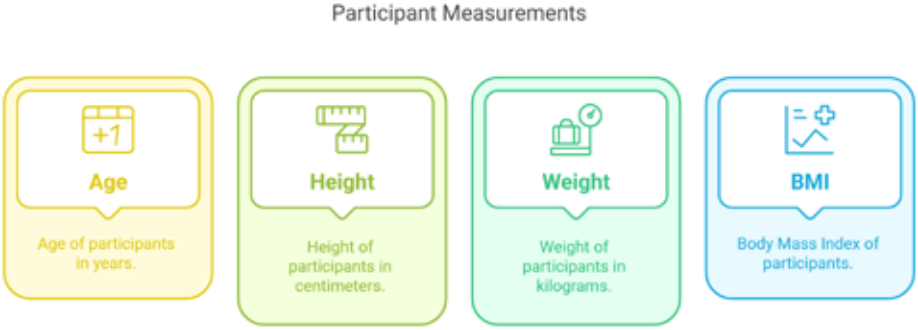
Figure 1: Sampling methods

Thirty handball players were randomly assigned to 2 groups (i.e., ULLPTG, and AGG) using the method of randomly permuted blocks using Research Randomizer, a program published on a publicly accessible official website (www.randomizer.org) their age ranged from 18 to 23 years. All subjects were advised not to decrease or increase their regular activities over the course of the study. Concerns on the possible risks or benefits arising from the study were explained to all the participants and each of them signed a written informed consent. The study sample was randomly divided into an experimental group (n=15) that remained with plyometric training. The active control group (n=15) remained active but did not participate in any upper and lower limb plyometric training.

Table 1 summarizes the demographic characteristics of the participants

Group of subjects	n(1)	Age (Years)	Height (Cm)	Weight (Kg)	BMI
Plyometric training (G1)	15	20.7 ± 1.2	175.5 ± 4.2	74.9 ± 3.4	24.3
Control (G2)	15	20.8 ± 0.8	175.2 ± 3.4	75.1 ± 2.7	24.4

Figure 2: Participant characteristics



INCLUSION AND EXCLUSION CRITERIA

Regular attendance at both measurements, a lack of injuries, and consent to participate in the study were the inclusion criteria. During the 6-week period, only one absence was allowed. The standards for exclusion were they had no history of musculoskeletal, cardiopulmonary, neurological or orthopaedic disorders and infectious diseases and disability in performing plyometric exercises, more than two sessions absence in exercises and the reluctance of subjects and parents to take part.

INTERVENTION

The specific intervention implemented in the experimental group's upper and lower limb training program was to perform exercises that targeted the to increase the muscle explosive of both upper and lower body which help to increase the explosiveness of handball players. The experimental group underwent training for 6 weeks at an interval of three times a week. In the setup of the 6-week plan the first week was considered as the familiarization week. In this week, the participants were acquainted with the exercise form and the correct manner in which they should be performed to avoid injuries and for enhanced efficiency. There were no dropouts in this study. The procedures followed were in accordance with the ethical standards on human experimentation stated in compliance with the 1964 Helsinki Declaration and its later amendments.

OUTCOME MEASURE PROCEDURE

Assessments of motor fitness attributes were conducted at baseline and after the 6-week intervention period. These assessments included measures of lower limb muscle power, and change of direction speed. A week prior to the baseline measurement, the main fitness tests were carried out by the participants, but they underwent two warm-up sessions to familiarize them with the tests. Data pertaining to the demographic profile of the subjects were gathered during the familiarization sessions. Participants were advised against indulging in any form of exercise and taking alcohol for 24 hours before the test.

LOWER LIMB MUSCLE POWER

The muscle power in the lower limbs was evaluated using the standing long jump (SLJ). The testing procedure was modified using techniques described in an earlier investigation **(Singh** *et al.,* **2022)** and carried out on an outdoor track. Participants were told to swing their arms and countermove to a depth of their choice while standing behind a start line with their feet slightly apart. Then, they were to take off and land on both legs. There was verbal encouragement to jump as far as they could. From the starting line to the closest point of contact on the landing that is, the rear of the closest heel—the measurement was taken. After one minute of rest in between each of the two jumps, the longest jump was chosen for examination. In the test-retest scenario, the ICC was 0.88 (95% CI: 0.81–0.93).

CHANGE OF DIRECTION SPEED (MODIFIED AGILITY T-TEST)

The Modified Agility T-test, or MAT, was utilized to measure the speed with direction changes, such as sprinting forward, shuffle walking to the left and right, and running backward. The protocol was modified based on procedures described in a prior investigation (Figure 3) **(Sassi** *et al.,* **2009)**. Two independent assistants who were not involved in the study were designated as timekeepers (ICC

between timekeepers was 0.99), and they were tasked with using a hand stopwatch (Casio S053 HF-70W-1DF) to record the timing of each trial.

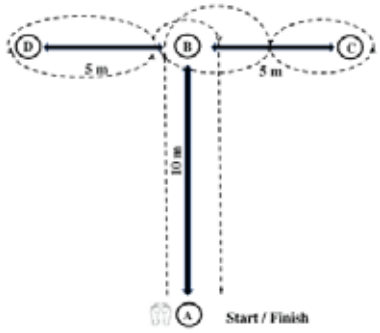


Figure 3: Modified agility T test

Change-of-direction speed time was measured using the modified agility T-test configuration. Cones measuring 0.64 metres in height were positioned at points A, B, C and D. The participants' instructions were to run from point A to point B, turn 90 degrees from cone B to cone C, turn 180 degrees at cone C towards cone B, weave at cone B towards cone D, turn 180 degrees at cone D towards cone B and finally run to the start/finish line. Without touching the cones, participants had to turn or weave around them. If the cones moved during a direction change, the trial was discarded, and participants had to restart it after three minutes of rest (i.e., slowly standing or walking). With their backs constantly facing the start/finish line, the participants finished the test.

Note: The movement pattern during the test is indicated by the black dotted line.

Table 2. Plyometric training (PT) Performed by Experimental Group

Exercises	1-2 weeks	3-4 weeks	5-6 weeks
Squat jump	2 x 5*	3 x 5	3 x 5
Plyo-pushup	2 x 5	3 x 5	4 x 5
Jump lunges	2 x 5	3 x 5	3 x 5
Tuck jump	2 x 5	3 x 5	3 x 5
Double leg speed hops	2 x 10	3 x 10	3 x 10
Burpee	2 x 5	3 x 5	4 x 5
Medicine ball (MB) throw (kg)	2 x 10 (1)	2 x10 (2)	2 x10 (3)
Alternative leg bounds	-	-	3 x 10
Total no. of jumps/Push ups/MB throws (kg)	60/20/20(1)	90/30/20(2)	125/40/20(3)

**denotes sets ×repetitions*

STATISTICAL ANALYSIS

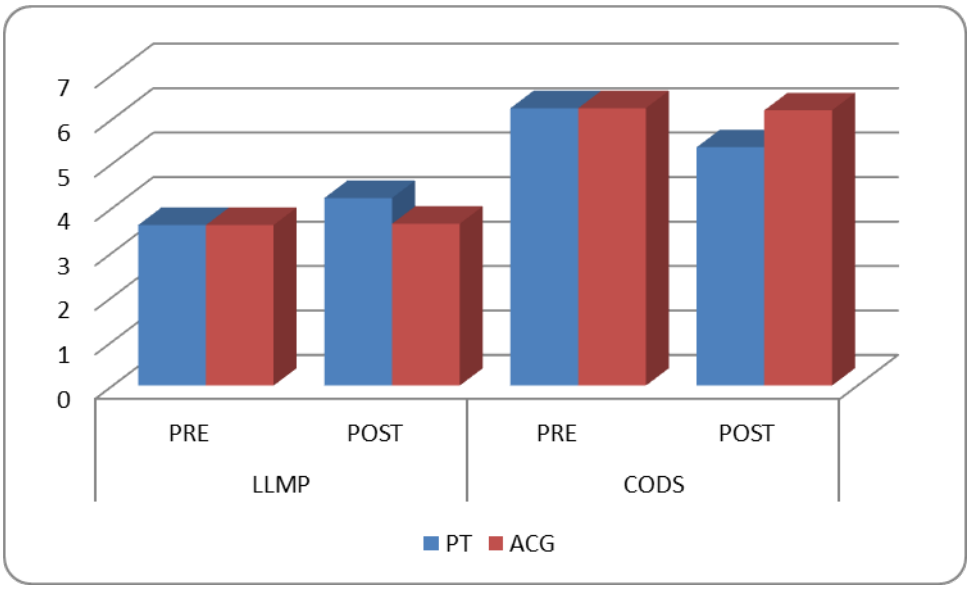
This study employs a paired sample t-test hypothesis test. This test's objective is to compare the pretest and posttest results. For the statistical analysis in this study, IBM SPSS Statistics 16.0 was used. (SPSS, Inc.; USA; Chicago, IL).

Table 3. Paired Sample t Test

Groups	Variables	Mean		Paired Difference				t	df	Sig. (2 tailed)
				Mean ± SD	Std. Error Mean	95% Confidence Interval				
						Lower	Upper			
PTG	Pre-post LLMP	3.61	4.22	0.61±1.03	0.27	1.2	0.04	2.3	14	0.037
	Pre-post CODS	6.24	5.36	0.88 ± 0.27	0.07	0.73	1.03	12.6	14	0.000
ACG	Pre-post LLMP	3.61	3.64	0.03 ± 0.10	0.03	0.09	0.25	1.23	14	0.238
	Pre-post CODS	6.24	6.19	0.05 ± 0.15	0.04	0.04	0.13	1.2	14	0.25

**Statistically significant difference, mean scores at point comparisons from baseline: sig (2-tailed) value of ≤ 0.05; data are presented as means ± SD.*

FIGURE- 4 Bar diagram displays the pre- and post-test results for the treatment and control groups for LLMP and CODS.



DISCUSSION

This study evaluates how plyometric training affects team handball athletes' lower limb muscle power and change of direction speed. Our results showed that six weeks of plyometric training increased handball players' lower limb muscle power and change of direction speed. Many experimental studies conducted in the last few decades have suggested that plyometric training has positive effects on both the performance of sport tasks like sprint time, change of direction speed, and jump performance, as well as speed-strength capacities like muscle strength, muscle power, explosive strength, and even endurance performance **(Dias** *et al.,* **2016, Andrade** *et al.,* **2018).**

Plyometric training significantly improved agility, according to our research. Research from the past has confirmed this finding: athletes' change of direction speed is affected more by upper and lower limb plyometric training when compared to active controls. Three reviews that used different inclusion criteria than the current study yielded results that were comparable to ours, indicating an

increase in agility **(Mainer** *et al.,* **2021)**. According to **Karadenizli** *et al.,* **2016** the 10-week upper and lower limb plyometric training program's horizontal and vertical jump and sprint drills improved the young female handball players' agility performance. Furthermore, studies suggest that muscle coordination, balance, flexibility, and explosive strength all affect agility.

Previous studies, such as those by **Makaruk** *et al,.* **(2011),** suggest that upper and lower plyometric exercises produce power and jumping performance during a shorter period when compared to plyometric exercises but achieved performance gains last longer after lower plyometric training. Practitioners should consider the inclusion of both upper and lower modes of plyometric exercise to elicit rapid improvements and guard against detraining.

CONCLUSION

In summary, the motor fitness attributes of handball players were significantly improved by the 6-week plyometric training (PT) program, which included three sessions per week. The effectiveness of this training regimen in improving the motor performance of handball players was demonstrated by the PT group, which exhibited significant improvements in the selected outcome parameters. In order to enhance training outcomes, future research should investigate the potential variations and long-term benefits of PT protocols. It is also conclude that plyometric training is a feasible and safe (i.e., no injuries reported) training modality that produces marked increases in motor fitness in male handball players.

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EXPLORING THE EFFECTS OF HIGH INTENSITY INTERVAL TRAINING ON SELECTED MOTOR PERFORMANCE TRAITS OF MALE KABADDI PLAYERS

32

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ABSTRACT

The purpose of the study was to investigate the effect of high intensity training on selected motor performance determinants of kabaddi players. Thirty players were randomly selected from affiliated colleges of Bharathiar University, the selected players were divided into two groups consisting of 15 players. No attempt was made equate the groups. The age of the subjects ranged between 18 to 23 years. The influence of the high intensity interval training was assessed on selected variables. The training load was increased from the maximum working capacity of the subject doing pilot study. The duration of the training period was restricted to eight weeks and the number of sessions per week was confined to three. The data obtained from all the groups before and after the experimental period were statistically analyzed by dependent 't' test to find out the significant improvement if any, 0.05 level of confidence was fixed to the level of significance between pre and posttest means of all groups. Pre and post test was conducted on separate days with warm up. In this study, only one training program were adopted as independent variables. The speed and agility was selected as dependent variable and it was tested by 30 meter dash test, and MAT test respectively . Further, the findings confirmed the high intensity interval training is suitable protocol to bring out the desirable changes over the speed and agility of kabaddi players.

Key words*: High Intensity Interval Training, Kabaddi Players, Speed and Agility.*

INTRODUCTION

Achievements of an athlete are always related to how he/she practices, what is practiced and what its purpose. Selection methods and the right kind of exercise will support the success of the exercise itself. High Intensity Interval Training (HIIT) is one of the methods and the right kind of exercise because it is very effective and efficient way to improve the desired physical components. HIIT workouts can improve cardiac performance and impact on the body's metabolism is also increased sharply. Metabolism herein relates to the body's ability to convert fat into energy. In addition to increased metabolism during practice, at rest also increased the metabolism so that the body remains at rest in a state of energy production **(Miromonti** *et al.,* **2015).**

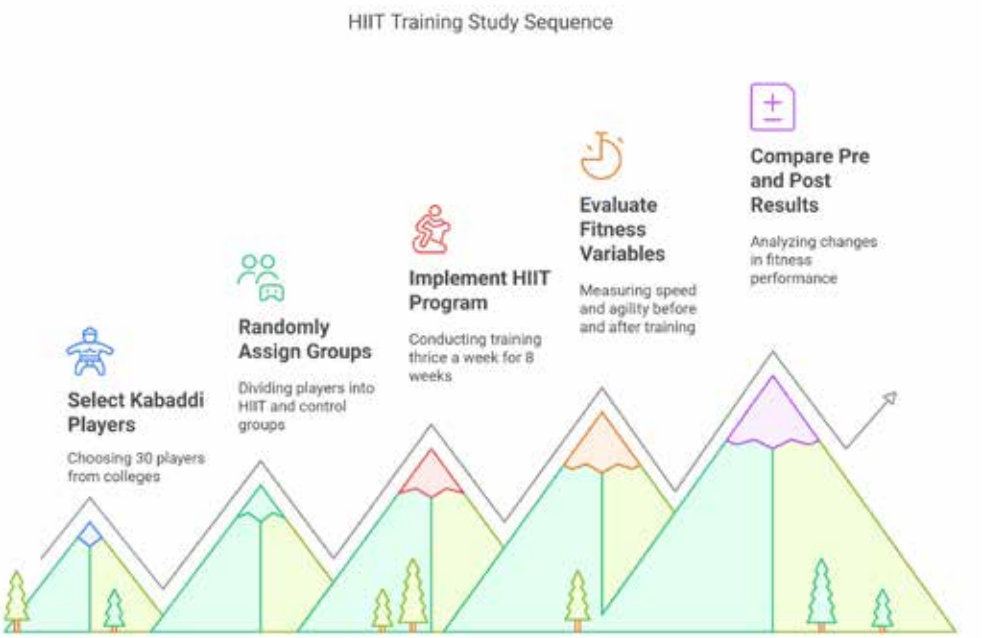
High-intensity interval training (HIIT) is a training protocol alternating short periods of intense or explosive anaerobic exercise with brief recovery periods until the point of exhaustion. HIIT involves exercises performed in repeated quick bursts at maximum or near maximal effort with periods of rest or low activity between bouts. The very high level of intensity, the interval duration, and number of bouts distinguish it from aerobic (cardiovascular) activity, because the body significantly recruits anaerobic energy systems (although not completely to the exclusion of aerobic pathways. There is no specific formula for HIIT. Depending on one's level of cardiovascular development, the moderate-level intensity can be as slow as walking. A typical HIIT session uses a 2:1 work-to-rest ratio, for example, 30–40 seconds of hard sprinting alternated with 15–20 seconds of jogging or walking, repeated to failure. The entire HIIT session may last between four and 30 minutes, meaning that it is

considered to be an excellent way to maximize a workout limited by time constraints. Use of a clock or timer is recommended to keep accurate times, the number of rounds, and intensity. An alternative form of HIIT, designed for heart rate training, involves a 30-minute period of cardio followed by 30 minutes of full-body resistance training to help maximize calorie burning. The idea is to combine aerobic exercise with intense weight and resistance training to achieve a high level heart rate for an extended period of time, in order to maximize strength and endurance. The method thereby relies on "the anaerobic energy releasing system almost maximally **(Izumi** *et al.,* **1996).**

METHODOLOGY

In order to address the hypothesis presented herein, we selected 30 kabaddi players from affiliated colleges of Bharathiar University, Coimbatore district. Their age ranged from 18 to 23 years. The subjects were randomly assigned in to two equal groups namely, High Intensity Interval Training Group (HIITG*)* (n=15) and Control group (CG) (n=15). The respective training was given to the experimental group the 3 days of the weeks for the training period of eight weeks. The control group was not given any sort of training except their routine. The evaluated fitness variables were speed was assessed by 30 meter dash test, performance was recorded in seconds and agility was assessed by MAT performance was recorded in seconds. The parameters were measured at before weeks of high intensity interval training and after 8 weeks of high intensity interval training were examined. The intensity was increased once in two weeks based on the variation of the exercises.

Figure 1: HIIT Study phases



INCLUSION AND EXCLUSION CRITERIA

Regular attendance at both measurements, a lack of injuries, and consent to participate in the study were the inclusion criteria. During the 8-week period, only one absence was allowed. The standards for exclusion were they had no history of musculoskeletal, cardiopulmonary, neurological or

orthopaedic disorders and infectious diseases and disability in performing High intensity exercises, more than two sessions absence in exercises and the reluctance of subjects and parents to take part.

OUTCOME MEASURE PROCEDURE

SPEED

The protocols for the linear sprint speed test were modified from those described in an earlier study, and the tests were run over 10 and 30 meter distances **(Singh** *et al.,* **2022)**. An outdoor track was used for the testing. Standing behind a start line with their chosen leg forward, participants were told to begin only upon the assessor's command. The interclass correlation coefficient (ICC) values between timekeepers were 0.99 for both 10 m and 30 m. Two independent assistants who were not involved in the study were chosen to serve as timekeepers, and they were tasked with timing each trial using a hand stopwatch (Casio S053 HF-70W-1DF, Casio Computer Co., Ltd., Tokyo, Japan). For analysis, the two timekeepers' recorded times were averaged. A linear sprint test lasting 10 and 30 metres was performed in two trials, with a one-minute break in between each trial. The fastest trial was chosen for additional examination. For the 10 m sprint test, the internal consistency coefficient (ICC) was 0.66 (95% confidence interval [CI]: 0.44–0.80), and for the 30 m sprint test, it was 0.80 (95% CI: 0.66–0.88).

AGILITY (MODIFIED AGILITY T-TEST)

The Modified Agility T-test, or MAT, was utilized to measure the speed with direction changes, such as sprinting forward, shuffle walking to the left and right, and running backward. The protocol was modified based on procedures described in a prior investigation (Figure 1) **(Sassi** *et al.,* **2009)**. Two independent assistants who were not involved in the study were designated as timekeepers (ICC between timekeepers was 0.99), and they were tasked with using a hand stopwatch (Casio S053 HF-70W-1DF) to record the timing of each trial.

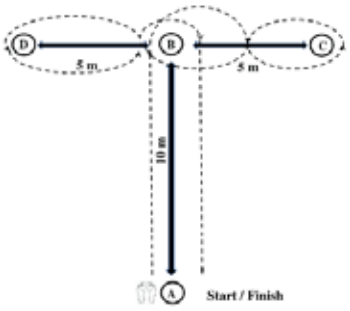


Figure 2: Modified agility T test

Change-of-direction speed time was measured using the modified agility T-test configuration. Cones measuring 0.64 metres in height were positioned at points A, B, C and D. The participants' instructions were to run from point A to point B, turn 90 degrees from cone B to cone C, turn 180 degrees at cone C towards cone B, weave at cone B towards cone D, turn 180 degrees at cone D towards cone B and finally run to the start/finish line. Without touching the cones, participants had to turn or weave around them. If the cones moved during a direction change, the trial was discarded, and participants had to restart it after three minutes of rest (i.e., slowly standing or walking). With their backs constantly facing the start/finish line, the participants finished the test.

Note: The movement pattern during the test is indicated by the black dotted line.

TRAINING PROGRAMME

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 8 weeks duration. These 45 minutes included warm up for 5 minutes, 35 minutes high intensity interval training and 5 minutes warm down. The equivalent in high intensity interval training is the length of the time each action in total 3 day per weeks. There were no dropouts in this study. The procedures followed were in accordance with the ethical standards on human experimentation stated in compliance with the 1964 Helsinki Declaration and its later amendments

STATISTICAL ANALYSIS

This study employs a paired sample t-test hypothesis test. This test's objective is to compare the pretest and posttest results. For the statistical analysis in this study, IBM SPSS Statistics 16.0 was used. (SPSS, Inc.; USA; Chicago, IL).

TABLE - I

COMPUTATION OF 't' RATIO ON SPEED EXPERIMENTAL GROUP AND CONTROL GROUP

(Scores in Seconds)

GROUPS	PRE TEST	POST TEST	SD	"t" RATIO
Experimental Group	6.99	6.30	0.77	10.27*
Control group	6.98	6.99	0.93	0.54

**significant level 0.05 level (degree of freedom 2.14, 1 and 14)*

Table I reveals the computation of mean, standard deviation and 't' ratio on speed of experimental group and control group. The obtained 't' ratio on speed was 10.27 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

The obtained 't' ratio of control group on speed were 0.54. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

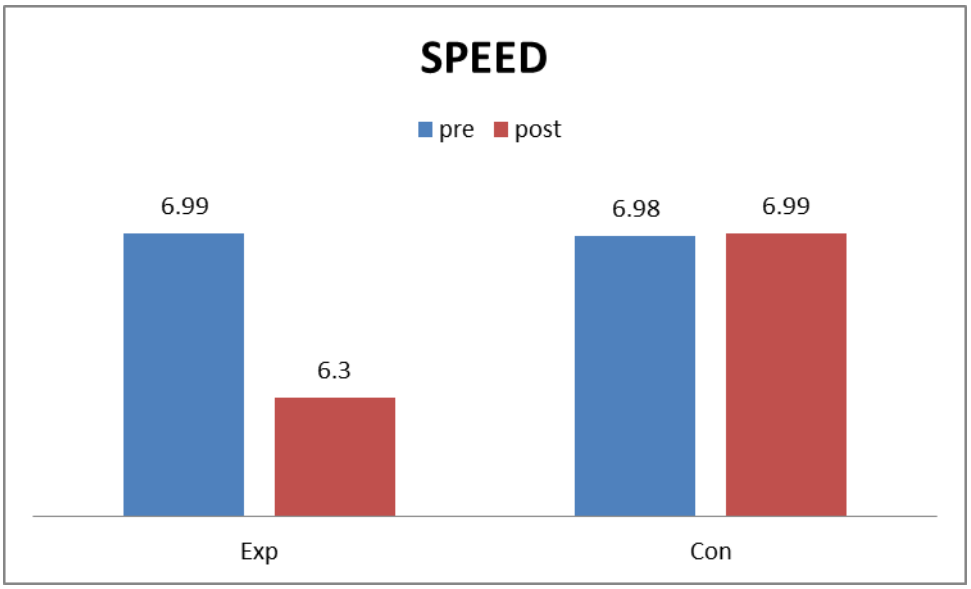


FIGURE- I

BAR DIAGRAM SHOWING THE MEAN VALUE ON SPEED OF KABADDI PLAYERS ON EXPERIMENTAL AND CONTROL GROUP

TABLE - II

COMPUTATION OF 't' RATIO ON AGILITY EXPERIMENTAL GROUP AND CONTROL GROUP

(Scores in Seconds)

GROUPS	PRE TEST	POST TEST	SD	"t" RATIO
Experimental Group	11.19	10.62	0.16	6.89*
Control group	11.20	11.22	0.22	0.47

**significant level 0.05 level (degree of freedom 2.14, 1 and 14)*

Table II reveals the computation of mean, standard deviation and't' ratio on agility of experimental group. The obtained 't' ratio on agility were 6.89 . The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained't' values were greater than the table value it was found to be statistically significant.

The obtained 't' ratio of control group on agility was 0.47. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

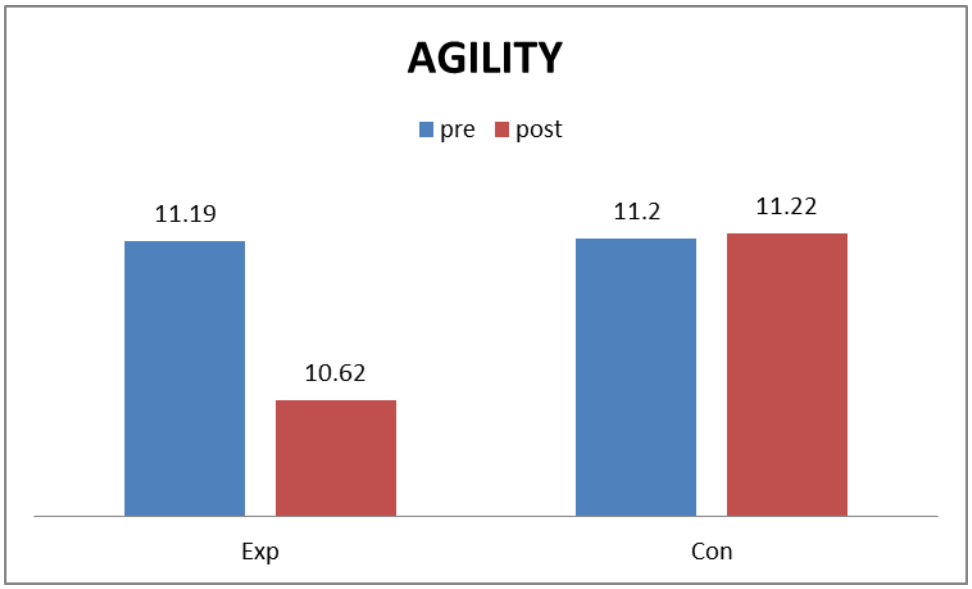


FIGURE- II

BAR DIAGRAM SHOWING THE MEAN VALUE ON AGILITY OF KABADDI PLAYERS ON EXPERIMENTAL AND CONTROL GROUP

DISCUSSION

The present study examined the effects of eight-week high intensity interval training program on selected fitness variables in kabaddi players. While much is understood about the biomechanics of fastest movement, recent research has expanded to explore additional factors, such as speed and agility. These aspects include how a player approaches kabaddi game, performing attacking and defending while airborne, and positioning themselves for scoring opportunities. The results of this study demonstrated that high intensity interval training is highly effective in producing significant improvements in the abilities of kabaddi players. **Astorino** *et al.* **(2012)** revealed that HIIT workout can improve endurance and increase the speed of the athlete. Brown (2005) and Chu (2013), in his book explains that the nature of explosive exercises can improve power, speed, and agility.

Previous studies, such as those by research shows that high-intensity interval gave a positive performance on agility and speed when compared to the control group of inter-collegiate men kabaddi players **(Manimaran** *et al.,* **2022).** It can be concluded that high intensity interval training, leads to marked improvements in fitness components for kabaddi players.

CONCLUSIONS

Based on the findings and within the limitation of the study it is noticed that practice of high intensity interval training, helped to improve performance of kabaddi players.

The effectiveness of this training regimen in improving the motor performance of kabaddi players was demonstrated by the HIIT group, which exhibited significant improvements in the selected

outcome parameters. In order to enhance training outcomes, future research should investigate the potential variations and long-term benefits of HIIT protocols.

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RELATIVE EFFECT OF VISUALIZATION ON MENTAL TOUGHNESS AMONG FEMALE KICKBOXERS

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ABSTRACT

This article explores the effect of Visualisation to develop mental toughness among female kick boxers. For this study 20 women kick boxers age ranges between 18 and 25 years from Ninja Sports Academy, Pudukottai has been taken. Subjects were given visualization training for twelve weeks. Dependent 't' test was used for statistical analysis with significance level of 0.05. From the analysis it is found that there is a slight changes among the athletes on their mental toughness. Also this study creates an impact among athletes to impart new training in their schedule in order to develop their psychological components.

Keywords*: Visualization Technique, Mental Toughness, Kick Boxing.*

INTRODUCTION

Coaches often focuses mainly on teaching physical skills. But it is equally important to focus on psychological components too. Mental toughness plays a vital role for an athlete during competition (**Sandy Gordon et al.**, 2015). This study aims to investigate the effect of visualization on mental toughness among female kick boxers. By developing mental toughness of an athletes can help to improve their performance during competition (Crust, L., 2007).

VISUALIZATION AND KICK BOXING:

On top of race-day gains, visualization has been shown to increase self-confidence, the ability to focus and concentrate as well as enhance an athlete's ability to establish an optimum physical and psychological performance state prior to competition. Also Visualization Shadow fighting and visualization technique helps to improve kick boxer's performance during training as well as competition too (HANTON, JONES & et al., 2008).

MENTAL TOUGHNESS

Alderman (1974) suggested that successful athletes are thought of as being not only physically tough, but mentally tough as well. It is considered to be an vital factor that allows individuals to deal effectively with challenges and to persist under pressure. (Clough et al., 2002). Mental toughness allows individuals to proactively seek out opportunities for an athlete due to high level of confidence in one's ability (St Clair-Thompson et al., 2015).

OBJECTIVES OF THE STUDY

To study the effect of visualization techniques on mental toughness among female kick boxers.

HYPOTHESIS

H_1: There would be significant difference on mental toughness among kick boxers due to visualization technique.

METHODOLOGY

A single-group experimental design was used for this study. Twenty female kick boxers aged between 18 to 25 years from Ninja Sports Academy, Pudukkottai, were selected using a simple random sampling technique. The training was conducted three days per week for twelve weeks (Carter & Joshua Allen, 2021). Goldberg's mental toughness 1998 questionnaire was used to measure the mental toughness. After the pre-test, the training intervention was introduced, lasting 60 minutes per session for three days per week for twelve weeks (Pınar Demir, A., 2020)

STATISTICAL ANALYSIS AND FINDINGS

The data obtained during pre-test and post-test was then statistically analysed by using paired 't' test with 0.05 level of confidence.

Table I

Relationship of Mean, SD and 't' values of Mental Toughness between pre-test and post-test of experimental group

Variables	Test	Mean	SD	't' Values
Mental Toughness	Pre-test	15.3	3.925	12.6582
	Post-test	19.8	4.118	

**Significant at 0.05 level of confidence*

From the above graphical representation it clearly shows that there is a significant difference in mental toughness among female kick boxers due to visualization technique. Hence, H_1: There will be a significant improvement in the mental toughness due to visualization technique training among female kick boxers, is accepted.

FINDINGS AND DISCUSSIONS

From the analysis and interpretation of data obtained, this training helps to develop the mental toughness among female kick boxers. By comparing the scores of pre-test and post-test, pre-test score is lower than the post-test. Thus, it clearly shows that by practicing visualization technique training can improve the mental toughness among female kick boxers.

CONCLUSION

From the obtained statistical analysis and graphical representation it is concluded that there is a significant difference on mental toughness among female kick boxers due to visualization technique training.

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EFFECTS OF CORE STABILITY AND SKILL BASED RESISTANCE TRAINING ON PHYSICAL FITNESS VARIABLES AMONG INTERCOLLEGIATE HOCKEY PLAYERS

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ABSTRACT

The purpose of the study was to investigate the effects of core stability and skill based resistance training on physical fitness variables among intercollegiate hockey players. For this purpose, 60 men hockey players were selected randomly from various college in Coimbatore, the age group of the subject ranged from 17 to 25 years. The subjects were randomly divided into three equal groups and each group consisted 20 subjects. Experimental Group- I named as (CSTG) underwent Core Stability Training, Experimental Group- II named as (SBRTG) underwent Skill Based Resistance Training and Group- III named as (CG) Control Group, the subjects in control group were not engaged in any training programme other than their regular work. Before and after the training period of six weeks core stability training and skill based resistance training the pre-test and post test was conducted for all the groups. To determine the difference between the pretest and post test scores of Groups I, Group II, and Group III 't' test was used. The level of confidence was fixed as 0.05 level. Results proved that there was a significant difference between control group, core stability training group and skill based resistance training group on agility and power. It was concluded that six weeks of core stability and skill based resistance training had a significant improvement on agility and power among intercollegiate hockey players.

INTRODUCTION

Physical fitness is a fundamental requirement for success in competitive sports, particularly in high-intensity games like hockey. Hockey players need a combination of strength, speed, agility, endurance, and balance to perform optimally on the field. Among the various training methods available, core stability training and skill-based resistance training have gained significant attention for their role in enhancing athletic performance.

Core stability training focuses on strengthening the muscles of the abdomen, lower back, and pelvis, which are essential for maintaining balance, generating power, and preventing injuries. A strong core improves posture, stability, and movement efficiency, all of which are crucial for hockey players who engage in rapid directional changes, sprinting, and powerful strokes.

Skill-based resistance training, on the other hand, involves resistance exercises tailored to the specific movements and demands of hockey. Unlike traditional strength training, this method integrates sport-specific actions such as stick handling, shooting, and sprinting under resistance. This approach enhances not only muscular strength and endurance but also functional performance in real-game scenarios.

This study aims to analyze the effects of combining core stability and skill-based resistance training on the physical fitness variables of hockey players. By evaluating improvements in key attributes such as strength, agility, speed, endurance, and balance, the research seeks to provide insights into the effectiveness of specialized training programs for optimizing athletic performance in hockey. The findings can contribute to the development of evidence-based training protocols to enhance competitive performance and reduce injury risks among hockey players.

SIGNIFICANCE OF THE STUDY

This study may help to understand the effects of core stability and skill based resistance training on physical fitness variables among intercollegiate hockey players.

HYPOTHESIS

It was hypothesized that there would be significant improvement on agility and power among hockey players due to core stability and skill based resistance training.

DELIMITATIONS

- To achieve the purpose of the study 60 men hockey players were selected randomly from various colleges in Coimbatore.
- The age of the subject ranged from 17 to 25 years.
- The variables selected for the study are Agility and Power. **Limitations**
- The previous experience of the subjects in the field of sports training, which might be influencing on the data collection, was not considered.
- Psychological factors, food habits, rest period; life style etc. could not be controlled.
- The weather conditions such as atmospheric temperature, humidity during testing period were also not considered.
- Though the subjects were motivated verbally, no attempt was made to differentiate the motivation level during the period of testing

METHODOLOGY

To achieve the purpose of the study, sixty (N=60) men hockey players were randomly selected from various colleges in Coimbatore. The age group of the subject ranged from 17 to 25 years. The subjects were randomly divided into three groups and each group consisted 20 subjects each by adopting random procedure. The investigator did not made any attempt to equate the groups. The Experimental Group I (CSTG) underwent core stability training, Experimental Group II (SBRTG) underwent skill based resistance training for three days per week for a period of six weeks and Group III acted as control group were not engaged in any training programme other than their regular work.

TABLE- I

TESTS SELECTION

S.NO	CRITERION VARIABLES	TEST ITEMS	UNIT OF MEASUREMENTS
1	Agility	Illinois Agility Test	In Seconds
2	Power	Vertical Jump	In Centimeters

RESULTS AND DISCUSSION

The data collected on hockey players were statistically processed and discussed on the effects of core stability and skill based resistance training on physical fitness variables among intercollegiate hockey players were statistically processed and discussed.

TABLE-II

ANCOVA AMONG THE EXPERIMENTAL GROUPS AND CONTROL GROUP ON AGILITY FOR PRE AND POST TEST

	Core Stability Training Group	Skill Based Resistance Training Group	Control Group	SOV	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	18.706	18.382	18.554	BG	1.054	2	0.527	1.103
				WG	27.242	57	0.477	
Post-Test Means	16.583	16.554	17.134	BG	4.268	2	2.134	5.386*
				WG	22.586	57	0.396	
Adjusted Post-Test Means	16.537	16.602	17.132	BG	4.256	2	2.128	5.979*
				WG	20.287	56	0.355	

**Significant at 0.05 level F0.05 (2, 57) =3.15, F0.05 (2, 56) =3.16*

FIGURE-I

GRAPHICAL REPRESENTATION OF AGILITY BETWEEN PRE AND POST TEST MEANS AMONG THE THREE GROUPS

Table- II and Figure- I, revealed no significant difference in agility in pretest phase among CSTG, SBRTG and CG. The obtained 'F' value 1.103 was found lesser than the tabulated 'F' value 3.15 at 0.05 level of significant with 2, 57 degree of freedom. However, the 'F' ratio values in post test phase (5.386), and adjusted post-test phase (5.979) were found significant for being greater than the tabulated 'F' values 3.15 and 3.16 at 0.05 level of significant with 2, 57 and 2, 56 degree of freedom respectively. As in analysis of co-variance the significant improvement in agility in adjusted post-test means among CSTG, SBRTG and CG were found, further in order to find out the significant difference among paired adjusted final means, the post-hoc test were computed, which is presented in table-3.

TABLE- III

SCHEFFEE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES AMONG EXPERIMENTAL GROUPS AND CONTROL GROUP ON AGILITY

Mean values			Mean Differences	Confidential Interval
Core Stability Training Group	Skill Based Resistance Training Group	Control Group		
16.537	**16.602**		0.065	0.377
16.537		17.132	0.595*	
	16.602	17.132	0.530*	

**Significant at 0.05 level of confidence.*

Table- III, (post-hoc test) in respect to the paired adjusted final mean differences in agility clearly indicates significant difference between CSTG and CG (0.595), SBRTG and CG (0.530) of men hockey players for pre-post test phase, which were found greater than that of the critical value 0.377. However, no significant difference between CSTG and SBRTG (0.065) was observed in the difference of mean values which was found lesser than that of the critical value (0.377).

TABLE- IV

ANCOVA AMONG THE EXPERIMENTAL GROUPS AND CONTROL GROUP ON POWER FOR PRE AND POST TEST

	Core Stability Training Group	Skill Based Resistance Training Group	Control Group	SOV	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	44.9	44.25	43	BG	37.3	2	18.65	1.743
				WG	609.55	57	10.69	
Post-Test Means	47.85	47.05	44.9	BG	93.1	2	46.55	4.243*
				WG	625.3	57	10.97	
Adjusted Post-Test Means	47.032	46.857	45.91	BG	13.771	2	6.885	6.426*
				WG	61.074	56	1.071	

**Significant at 0.05 level, F0.05 (3, 57) =3.15, F0.05 (2, 56) =3.16*

FIGURE-1I

GRAPHICAL REPRESENTATION OF POWER BETWEEN PRE AND POST TEST

Table-IV and Figure- II, revealed no significant improvement in power at pretest phase among the CSTG group, SBRTG group and CG. The obtained 'F' value 1.743 was found lesser than that of tabulated 'F' value 3.15 at 0.05 level of significant with 2, 57 degree of freedom. However, the 'F' ratio values in post test phase (4.243), and adjusted post-test phase (6.426) were found significant for being greater than the tabulated 'F' values 3.15 and 3.16 at 0.05 level of significant with 2, 57 and 2, 56 degree of freedom respectively. As in analysis of co-variance the significant improvement in power in adjusted post-test means among CSTG, SBRTG and CG were found, further in order to find out the existence of significant difference among paired adjusted final means, the post-hoc test was computed, which is presented in table- 5.

TABLE-V

SCHEFFEE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES AMONG EXPERIMENTAL GROUPS AND CONTROL GROUP ON POWER

Mean Values				
			Mean Differences	Confidential Interval
Core Stability Training Group	Skill Based Resistance Training Group	Control Group		
47.032	**46.857**		0.175	0.654
47.032		45.91	1.122*	
	46.857	45.91	0.947*	

**Significant at 0.05 level of confidence*

Table- V, (post-hoc test) in respect to the paired adjusted final mean differences in power clearly indicates significant differences between core stability training group and control group (1.122), skill based resistance training group and control group (0.947) of men hockey players for pre-post test phase, which were found greater than that of critical value 0.654. However, no significant difference between core stability training group and skill based resistance training group (0.175) was observed in the difference of mean value which was found to be lesser than that of critical value (0.654).

DISCUSSION OF FINDINGS:

The result revealed that the experimental groups (CSTG and SBRTG) improved hockey performance significantly in comparison to the control group (CG). The reasons for improvement might be due to the application of core stability training and skill based resistance training group on the treatment groups.

DISCUSSION OF HYPOTHESES

Therefore the hypothesis stated earlier has been accepted in hockey performance where the comparison among the core stability training and skill based resistance training group and the control group showed significant improvement. The hypothesis is also accepted in physical fitness variables namely agility and power, where the comparison among the two Experimental groups and Control group showed significant improvement.

CONCLUSIONS:

Based on the findings and within the limitations of the study the following conclusions may be drawn: core stability training and skill based resistance training group has a significant positive effect on the performance of hockey players. Core stability training and skill based resistance training group improves the selected physical fitness variables agility and power.

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THE ULTIMATE GUIDE TO YOGIC DIET: HEALTHFUL BODY MIND AND PERSONALITY WITH MINDFUL EATING

35

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ABSTRACT

The Yogic Diet is a dietary practice rooted in the ancient Indian philosophy of Yoga, which aims to promote overall health and well-being by nourishing not just the physical body but also the mind and soul. This comprehensive guide provides readers with a clear understanding of the Yogic Diet, including its origins, principles, and guidelines for following this dietary practice. The guide outlines the benefits of the Yogic Diet, which include improved digestion, increased energy levels, mental clarity, reduced stress and anxiety, and a greater sense of connection to the self and the world around us. Additionally, readers will learn about the various foods that are encouraged and discouraged in the Yogic Diet, such as whole, plant-based foods that are rich in nutrients and prana, or life force energy, as well as foods that are considered heavy or tamasic, such as meat, alcohol, and processed foods and also covers practical tips for meal planning and preparation, including mindful eating practices that emphasize the importance of eating slowly and with awareness. Readers will find recipes for delicious and nutritious Yogic Diet meals, along with guidance on how to adapt the diet to their individual needs and preferences.

Keywords: *Yogic Diet, Body, Mind, Soul and Conscious Eating.*

INTRODUCTION

The Yogic Diet is a dietary practice that has been around for thousands of years, originating in the ancient Indian philosophy of Yoga. The Yogic Diet is based on the belief that the food we consume has a direct impact on our overall health and well-being, including our physical, mental, and spiritual health. This dietary practice focuses not just on the nutritional value of the food, but also on the energetic quality or prana of the food **(Charan and Sahana, 2018)[2].**

The Yogic Diet emphasizes a holistic approach to eating, recognizing that food is not just a source of physical sustenance, but also a way to nourish the mind and soul. By following the principles of the Yogic Diet, individuals can achieve a greater sense of balance and harmony in their lives, promoting overall health and well-being **(Gerson and Scott, 2015)[3].**

YOGIC DIET

The Yogic Diet is a dietary practice that has been around for thousands of years, originating in the ancient Indian philosophy of Yoga. The Yogic Diet is based on the belief that the food we consume has a direct impact on our overall health and well-being, including our physical, mental, and spiritual health. This dietary practice focuses not just on the nutritional value of the food, but also on the energetic quality or prana of the food **(Witonis, 2002)[5].**

The Yogic Diet is a holistic approach to eating, recognizing that food is not just a source of physical sustenance, but also a way to nourish the mind and soul. The diet emphasizes the consumption of whole, natural foods that are rich in nutrients and prana, or life force energy. This includes fruits, vegetables, whole grains, legumes, nuts, and seeds.

One of the key principles of the Yogic Diet is ahimsa, or non-violence, which means avoiding foods that cause harm to animals or the environment. This means that the diet is predominantly vegetarian, although some yogic practitioners may consume certain types of meat or fish that are considered to be ethically sourced and prepared.

Another principle of the Yogic Diet is moderation. Yogic practitioners aim to eat in moderation, avoiding overeating or consuming foods that are excessively spicy, salty, or sweet. They also emphasize mindful eating practices, such as eating slowly and with awareness, to fully experience the taste, texture, and energy of the food.

The Yogic Diet also includes the consumption of specific foods and spices that are believed to promote overall health and well-being. For example, turmeric is a popular spice in the Yogic Diet due to its anti-inflammatory properties, while ghee (clarified butter) is believed to improve digestion and boost the immune system **(Cannon, 2012)[4].**

In addition to the physical benefits of the Yogic Diet, such as improved digestion and increased energy levels, this dietary practice is also believed to promote mental clarity and spiritual connection. By consuming foods that are rich in prana, yogic practitioners believe they can enhance their overall sense of well-being and promote a greater sense of spiritual connection. Overall, the Yogic Diet is a holistic approach to eating that emphasizes the interconnectedness of the body, mind, and soul. By adopting the principles of the Yogic Diet, individuals can experience improved physical health, mental clarity, and a greater sense of spiritual connection.

BENEFITS OF THE YOGIC DIET

The Yogic Diet is a way of eating that can offer a range of benefits for the body, mind, and spirit **(Ketabi and Sahara Rose, 2020)[1].** Here are some of the key benefits of following the Yogic Diet:

- **Promotes Physical Health:** The Yogic Diet focuses on nutrient-dense whole foods, such as fruits, vegetables, whole grains, legumes, nuts, and seeds. These foods are rich in vitamins, minerals, and antioxidants that can help boost the immune system, reduce inflammation, and improve overall physical health.
- **Supports Mental Health:** The Yogic Diet emphasizes foods that are believed to have a calming effect on the mind, such as fresh fruits, vegetables, and whole grains. These foods are also rich in vitamins and minerals that support cognitive function and may help reduce symptoms of anxiety and depression.
- **Enhances Spiritual Growth:** The Yogic Diet is often viewed as a tool for enhancing spiritual growth and promoting greater awareness and mindfulness. Eating in a conscious and mindful way can help individuals connect more deeply with their inner selves and the world around them.
- **Promotes Energy and Vitality:** The Yogic Diet encourages the consumption of fresh, whole foods that are rich in nutrients and easily digestible. This can help individuals feel more energized and vibrant throughout the day.
- **Supports Weight Management:** The Yogic Diet emphasizes foods that are low in saturated fats, added sugars, and processed ingredients, which can help individuals maintain a healthy weight and reduce the risk of chronic diseases such as diabetes, heart disease, and obesity.

- **Encourages Sustainable Living:** The Yogic Diet emphasizes a plant-based diet and encourages individuals to eat locally sourced, organic, and seasonal foods. This can help reduce the carbon footprint and promote sustainable living.

Overall, the Yogic Diet offers a holistic approach to eating that supports physical, mental, and spiritual health. By incorporating the principles of this diet into your lifestyle, you can experience a range of benefits and improve your overall well-being.

GUIDELINES FOR FOLLOWING THE YOGIC DIET

Here are some general guidelines for following the Yogic Diet:

- **Focus on whole, fresh foods:** The Yogic Diet emphasizes whole, fresh foods such as fruits, vegetables, whole grains, legumes, nuts, and seeds. Processed and packaged foods should be avoided.
- **Choose organic, locally sourced foods:** Whenever possible, choose organic and locally sourced foods to support sustainable and environmentally friendly practices. Eat mindfully: The Yogic Diet emphasizes the importance of eating mindfully, being present with your food, and taking the time to savor and enjoy each bite.
- **Follow a sattvic diet:** The Yogic Diet is based on the principles of Ayurveda and encourages a sattvic diet, which is a diet that promotes balance and harmony in the body and mind. Sattvic foods include fresh fruits and vegetables, whole grains, nuts, seeds, and legumes.
- **Avoid stimulants and depressants:** The Yogic Diet discourages the use of stimulants such as caffeine and alcohol, as well as depressants such as sugar and processed foods.
- **Practice moderation:** The Yogic Diet emphasizes moderation in all things, including food. Overeating and restrictive dieting are discouraged.
- **Pay attention to food combinations:** The Yogic Diet encourages paying attention to food combinations and avoiding incompatible foods, such as mixing milk with sour fruits.

FOODS TO INCLUDE

- **Fruits and vegetables:** The Yogic Diet emphasizes the consumption of a variety of colorful fruits and vegetables, as they are rich in vitamins, minerals, and antioxidants. Leafy greens, berries, citrus fruits, cruciferous vegetables, and root vegetables are all excellent choices.
- **Whole grains:** Whole grains such as brown rice, quinoa, oats, and barley provide complex carbohydrates and fiber to fuel the body and promote digestive health.
- **Legumes:** Legumes such as lentils, chickpeas, black beans, and kidney beans are excellent sources of plant-based protein, fiber, and other important nutrients.
- **Nuts and seeds:** Nuts and seeds such as almonds, walnuts, chia seeds, and flax seeds are rich in healthy fats, protein, and other nutrients.
- **Herbal teas:** Herbal teas such as chamomile, peppermint, and ginger tea are great alternatives to caffeinated beverages and can have therapeutic properties.
- **Spices:** Spices such as turmeric, ginger, cumin, and coriander can add flavor and health benefits to meals.

FOODS TO AVOID

- **Processed and packaged foods:** These are often high in preservatives, additives, and refined sugars, and offer little nutritional value.
- **Fried and greasy foods:** Fried foods can be difficult to digest and can contribute to inflammation in the body.
- **Meats and animal products:** While some individuals may choose to include small amounts of animal products in their diet, the Yogic Diet generally emphasizes a plant-based approach.
- **Caffeine and alcohol:** These substances can be overstimulating and can disrupt the body's natural rhythms.
- **Spicy and overly seasoned foods:** While spices can add flavor and health benefits to meals, overly spicy or seasoned foods can be irritating to the digestive system.

MEAL PLANNING AND PREPARATION

- **Plan ahead:** Before you go grocery shopping, take some time to plan your meals for the week. This will help you make sure you have all the necessary ingredients and save time in the kitchen.
- **Keep it simple:** The Yogic Diet emphasizes simple, whole foods, so aim for meals that are easy to prepare and don't require a lot of ingredients.
- **Include a variety of foods:** To ensure you're getting all the nutrients you need, include a variety of foods in your meals, including fruits, vegetables, whole grains, legumes, nuts, and seeds.
- **Cook with care:** When cooking, use gentle cooking methods like steaming, boiling, and sautéing, which help preserve the nutrients in your food.
- **Avoid processed foods:** Processed foods are often high in salt, sugar, and unhealthy fats, so try to avoid them as much as possible.
- **Practice mindful eating:** Take time to savor your meals and eat slowly, paying attention to the flavors, textures, and aromas of your food. This will help you feel more satisfied and prevent overeating.

MINDFUL EATING PRACTICES

Mindful eating is an essential aspect of the Yogic Diet, as it helps to cultivate awareness, appreciation, and respect for the food we eat. Here are some mindful eating practices to incorporate into our daily routine:

- **Eat slowly and savor our food:** Take time to chew your food thoroughly and enjoy the flavors, textures, and aromas of your meal.
- **Pay attention to your hunger and fullness cues:** Tune in to our body's signals of hunger and fullness, and stop eating when to feel satisfied.
- **Avoid distractions:** Minimize distractions like TV, phones, and computers, which can interfere with our ability to tune into our body's needs.
- **Practice gratitude:** Before eating, take a moment to express gratitude for the food on our plate and the people and processes that brought it to you.

- **Connect with the source of our food:** When possible, choose locally sourced, organic, and sustainably produced foods, and learn about the people and practices behind the food to eat.

YOGIC DIET MEALS

The Yogic Diet is all about eating meals that are nourishing to the body, mind, and soul. Meals should be prepared with fresh, whole, and nutrient-dense foods that provide the body with the energy it needs to function optimally. A typical Yogic Diet meal might include whole grains like quinoa or brown rice, a variety of colorful vegetables, and a source of plant-based protein such as beans or tofu. Seasonings and herbs are used to enhance the flavors of the food without relying on excessive salt or sugar. Mindful eating practices are also important, such as taking time to chew food thoroughly and savor each bite. With a little creativity, it's easy to create delicious and satisfying meals that align with the principles of the Yogic Diet.

CONCLUSION

The Yogic Diet is a holistic approach to eating that emphasizes nourishing not only the physical body but also the mind and soul. By choosing whole, fresh, and nutrient-dense foods, we can provide our bodies with the energy and nutrients it needs to function optimally. Mindful eating practices help us to fully appreciate the flavors and textures of our food, while also supporting our digestive health. By following the guidelines of the Yogic Diet, we can experience a range of benefits, including increased energy, improved mental clarity, and a greater sense of overall well-being. While it may take some time to adjust to this way of eating, with practice it can become a natural and rewarding way of life. Ultimately, the Yogic Diet is a path towards greater health and vitality, helping us to live our lives with purpose, joy, and balance.

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IMPACT OF SPORTS TECHNOLOGY IS REDEFINING COACHING, TRAINING, AND COMPETITION

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ABSTRACT

Sports in every aspect are a celebration of hard work, persistence, perseverance, and skill. It has been an integral part of human life entertainment since time immemorial. Technology in sports plays a pivotal role in advancing all domains in sports. Technology is constantly innovating and changing the world around us, thereby proliferation of technology can be felt in the sports arena too. Physical education and sports fields can make a great contribution to the role that technologies play in our lives by carefully considering the benefits and liabilities of new information technologies on the whole person, body as well as mind. Athletic performance and participation in sports has become safer with use of technology. Information Technology in Sports has established scientific discipline, Research activities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. There is something so captivating about all kinds of sports that keep its beholders glued to their seats. Ever-growing sports engineering has been helping all kinds of sports to overcome the limitations of human performance. Given the pace and results of technological development, more and more sportspersons are compelled to gain a competitive advantage in their respective sports.

Keywords: *Technology, sports, training, performance*

INTRODUCTION

Technology plays vital role in the human being in particularly in field of sports and games. It helps to avoid mistake in organization and administration of various sports and games at all levels. Ever-evolving technology has become smaller, more resilient, and less burdensome over recent years, paving the way for new opportunities, especially in athletics. Information age in Sports technology was in 1970's. The change was brought to the society with the creation of web. Channels of communication and message content changed. The computer technology established protocols which become as the internet and later development of Hypertext Mark-up Language (HTML) in 1989 and that became the basic for the development of web in 1993. The web was introduced to the public at large. Technology in sports is constantly changing in today's era which is boosted by the vast use of computers. Then video camera became common and helped analysing sport performance like never before. Electronic timing controlled by computers is employed to measure performance times of athletes in a great many sports including Athletics, Cycling, Skiing, Bobsled, Triathlon and many more. In the case of Athletics, the electronic timing also measures the athlete's reaction time to the start gun in case the athlete moves too early in the blocks. Hawkeye, a computer system first used in 2001 for showing the trajectory of a cricket ball has made an immeasurable difference to the sport of Cricket. Hawkeye produces all manner of statistical analysis such as ball speed, ball pitch on the wicket and trajectory of the ball after bounce. Hawkeye is now used in Tennis to assist in determining

whether a shot is “in” or “out”. The analysis of sport performance provided by Hawkeye has greatly enhanced the spectator’s knowledge and involvement.

Here are various impacts of information technology in sports:

TRACKING PERFORMANCE

Sports trainers can measure and track performance in real time by using sensors placed on body. Real-time individual performance measurements for athletes can set a more precise and accurate baseline. Trainers can read live metrics during practice and decide when it’s time to rest, stretch or train harder. Almost anything about the athlete can be measured, from breathing and heart rate, to hydration and temperature. Lasers and GPS have been incorporated into various aspects of the sports training world.

PREVENTION OF INJURIES

Technology in sports training has greatly helped in the fact that injuries have been severely reduced and now can be identified much earlier. Tracking performance, perfecting movements and enhancing communication are not only benefits but they actually help create less injury-prone environments. When coaches and trainers can define individual practice for optimum results, they are preventing fatigue and self-created injuries. Advances in software has allowed athletes and trainers to determine optimal workouts and nutrition to improve performance, sleep habits to the type of shoes they wear so that athletes can push their bodies to the limit and better avoid injury. The invention of smart helmets and equipment is certainly game-changing when it comes to efforts to prevent brain injuries. These helmets are designed with sensors that can measure the force of impact and determine if it was enough to cause a concussion.

BETTER COMMUNICATION

Many applications such as YouTube and Twitter have enhanced the process of communication during training. Workouts and game plays can be shared just as quickly through YouTube. Communication has been further enhanced by other applications such as My Fitness Pal, a personal digital health, diet and exercise journal that can be accessed on a smartphone or computer.

GOOD FIELD CONDITIONS

Grounds crews have lobbied their owners for new, better fields like Astroturf that are maintained meticulously. It looks like a carpet out there. These conditions make sports better for everyone involved, most specifically the athletes.

FAIR GAMES

Technology has helped to the extent that drug testing has become more sophisticated, thereby eliminating much of the cheating that was hard to eradicate. Humidors, were created to counterbalance the thin air in several stadiums which is important in making sure that both teams have a fair chance.

ENHANCED ATHLETIC ACCURACY

Technology helps athletes, both amateur and professional, find out what is wrong with a particular part of their game, and helps them fix it. It is a revolutionary part of the game that has become a key ingredient for success.

BETTER EQUIPMENT

The equipment used is just as important as the person using it. Tennis rackets and golf clubs have seen the biggest jump in technological developments, while there has been a significant influence in all areas of the games. Everything from shoes to dry fit shirts has changed. There has been a natural evolution that has been great for sports.

EASES DECISION MAKING FOR UMPIRES / REFEREES

Instant replay and other high-tech aids to help referees make the right call. Basketball referees use replay systems to make sure players are shooting within the time allotted by the shot clock. In international cricket, the third umpire has been used, one sitting off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. Replays could be used to decide off-side decisions, whether a ball passes over the goal line, and clarify penalty decisions in football.

DETAILED INFORMATION

Smart phone can help download applications that make following sports as easy as receiving text messages. ESPN mobile and other websites have made it simple to follow scores and read analysis anywhere. This has made even the most casual sports fan into a technology junkie.

WATCHING MORE AND VIEWING BETTER

MLBTV, NFL Sunday Ticket and NBA League Pass are all ways for the biggest sports fans, no matter where they live, to catch every game. This connects sports fans and makes us all much more educated. There are many simple things that we take for granted in our daily sports viewing world. One of these is the first down line in football, and the other being the score prominently displayed at the bottom of the television screen. Visually stunning video games have made it desirable to play often and always buy the newest version.

BETTER COACHING, TRAINING AND SCOUTING

The use of video camera has helped coaches a lot in improving the feed-back to players. Scouting talent has been based on guts, feelings and instincts. Now with technology scouts have an entire sheet of information on how fast an athlete can run, how high they can jump and how accurate their passing is.

FANTASY SPORTS

Fantasy sports are dorky, but it is a billion dollar a year industry. Fantasy sports brings people that do not have a lot of knowledge of the game into the system and teaches them the sport from the inside out. It has helped make the leagues bigger and more important.

TICKET PURCHASING

Earlier people used to go to the game and not have tickets. They would walk up to the window or scalp a pair in the parking lot. Those days are over. Now tickets can be purchased online sitting at home. This revolutionized our ability to go to games and find the exact seat we want to sit in.

HI-FI STADIUMS

Hi-fi stadiums are made with technology with enormous booming sound systems make you feel like you are on another planet. It enhanced the game experience like never before. Highlights can be seen perfectly and nothing gets lost and every fan leaves happy whether the team wins or loses. It's a truly incredible experience that takes the phrase state of the art to a whole new level.

BETTER UNDERSTAND OF GAME

Technology has done a great job at making it easier to understand what is going on in a game by highlighting the most important things going on. One way this has been done is through ESPN Axis, a revolutionary way of showing the intricacies of the game. It shows which players scored, why and who could have prevented it.

CONCLUSION

Technology is revolutionizing sports training by live-tracking performances, perfecting athletic movements, enhancing communication and virtually eliminating injuries. Technology in Sports has established scientific discipline, Researchactivities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. As long as athletes continue to push themselves to the limits of human potential, there will be technology racing alongside them to ensure their safety and aide their performance. In future very soon the way computer with be applicable in sports with good quality and best results.

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BUILDING CHARACTER THROUGH PHYSICAL EDUCATION

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INTRODUCTION

For many years, character (or moral) development has been cited as one of the many benefits of an effective Physical Education program. Essentially, character development is about helping students to become better human beings, as it emphasizes moral traits such as kindness, respect and fairness. Physical education has been recognized as "probably the most significant physical activity context for developing moral character". Thus, as physical educators we have a huge opportunity to support the development of the whole-student – physically, intellectually, socially, affectively, and possibly even spiritually. This is where terms such as 'sportsperson ship' and 'fair play' come into use, as many physical education teachers and sports coaches around the world try urge students to model the behaviour expected of participants in sport and physical activity.

Physical education can help build character by teaching values such as respect, teamwork, and discipline. It can also help students develop social skills like cooperation and empathy.

1. **Teamwork**: Physical education often involves team sports and activities, which can teach students the importance of working together towards a common goal. Through teamwork, students learn valuable skills such as communication, collaboration, and problem-solving.
2. **Respect and sportsmanship**: Physical education teaches students the importance of respecting their peers, coaches, and opponents. It also instils values such as fair play, honesty, and sportsmanship. Students learn to win and lose gracefully, demonstrating respect for themselves and others.
3. **Discipline and dedication**: Physical education requires students to be disciplined in their training and practice routines. Through regular physical activity, students develop perseverance, resilience, and a strong work ethic. These qualities are essential for success both in sports and in life.
4. **Leadership skills**: Physical education provides opportunities for students to take on leadership roles, whether as team captains, coaches, or role models. By leading by example, students learn to motivate and inspire others, fostering qualities such as empathy, compassion, and integrity.
5. **Confidence and self-esteem**: Physical activity helps students build confidence in their abilities and develop a positive self-image. By setting and achieving personal goals, students learn to believe in themselves and their potential, leading to improved self-esteem and self-confidence.

Overall, physical education serves as a powerful tool for promoting moral and character development in students by instilling values such as teamwork, respect, discipline, leadership, and self-confidence. By participating in physical activity, students not only improve their physical health but also develop essential life skills that will benefit them in all areas of their lives.

ESTABLISHING EXPECTATIONS AND ROUTINES

The first step for implementing a character education program is to create a positive and respectful learning environment. This can come in the form of listed expectations, codes of conduct or behavioural contracts, which can be devised collaboratively with students. These expectations should run in alignment with those of the school and society. Additionally, having routines such as shaking

hands with opponents, taking a knee when a player is injured, and celebrating the successes of others will help create a moral classroom environment

IDENTIFY AND EMPHASIZE CHARACTER TRAITS

As physical educators we need to intentionally identify and emphasize the values and moral behaviour that we aspire to see in our students. This can be as simple as having a character focal point for each month, week or even lesson, such as "In today's lesson, we will be exploring 'Respect'". Or by taking the initiative and leading an assembly on the qualities of 'sportsperson ship'. From there we need to continually emphasize those traits in our lessons

MODEL GOOD CHARACTER

If you want to help develop character in your students, you need to demonstrate good character yourself. This doesn't mean you need to be perfect, we are all imperfect beings that make mistakes. Rather, it is about trying our best to model respect for others, being responsible and organized, being gracious in victory and defeat, showing patience and kindness, admitting and apologizing for our mistakes, and making amends. We are all a work in progress, and sharing our journey will inspire others. Furthermore, you could create learning displays with professional athletes who are role models.

ENCOURAGE AND REWARD

It is important to recognise, encourage and reward students when they demonstrate good character. As it will motivate others and reinforce the development of those desired traits. Moreover, it is beneficial for students to also recognize positive character traits in others and will help hammer the message home. One simple idea maybe to have a 'compliment slip', where students can note down a student that exemplified a moral trait during the lesson.

CHALLENGE

This one is simple but important. Teachers must have the courage to challenge students, even their star athletes, when they conduct themselves inappropriately. This doesn't mean you need to shout out them, or publicly humiliate them. We're not paid to shout at students. Rather, having an individual conversation with them, asking them why you've called them over, and how their decisions impact others. From there remind them of the expectations, request an apology, thank them for acknowledging their mistake and move on

TEAM BUILDING

Before teams can experience success, they must first learn how to be good teammates. They must learn how to support each other, praise and encourage one another, and overcome problems and challenges together. This requires purposeful practice through teambuilding activities which should be incorporated at the start of each school year, and revisited periodically to help refresh their cooperative skills

HOW TO BUILD CHARACTER THROUGH SPORTS?

CHARACTER DEVELOPMENT THROUGH SPORTS

- promote essential virtues like sportsmanship;
- build skills like problem solving;

- build the capacity of coaches; and.
- provide opportunities for athletes to use skills to give back.

FUNDAMENTAL MORAL VALUES FOR PHYSICAL EDUCATION

Respect	**Actions in physical education**
❖ We treat people in a way in which we expect to be treated ❖ We work nicely with others and communicate positively ❖ We look after another people's property ❖ We take care of the environment ❖ We take care of ourselves	❖ We treat teammates, opponents, coaches and officials in a way that shows we value them. ❖ We are able play games nicely with everyone ❖ We make sure everyone is involved ❖ We always say positive things ❖ We look after our sports facilities and equipment
Responsible	**Actions in physical education**
❖ We fulfil our obligations ❖ We are dependable ❖ We are in control of ourselves ❖ We are persistent	❖ We prepare ourselves to do our best ❖ We are punctual for lessons ❖ We are self-disciplined ❖ We cooperate with our teammates
Caring	**Actions in physical education**
❖ We are compassionate and have empathy ❖ We are for giving ❖ We are generous and kind ❖ We are not selfish or mean	❖ We help our teammates play better ❖ We are supportive to teammates ❖ We are generous with praise, stingy with criticism ❖ We play for the team, not ourselves

Honesty	**Actions in physical education**
❖ We are truthful and forthright ❖ We act with integrity ❖ We are trustworthy ❖ We are courageous to do the right thing	❖ We play by the spirit of the rules ❖ We are loyal to the team ❖ We admit our mistakes
Cooperation	**Actions in physical education**
❖ We work nicely with others and communicate positively ❖ We help out others to help them achieve their own goals ❖ We are willing to do whatever is needed from us ❖ We enjoy working together and know that two heads are better than one	❖ We always work well in small groups and teams ❖ We help keep the team together and make sure we all contribute and play our part ❖ We constantly communicate clearly with our teammates and encourage them ❖ We are willing to play any position or role in order to help the team

CONCLUSION

As physical education teachers we have a great opportunity to promote, teach, and provide opportunities for students to become better people. This is not about making everyone the same, our personality makes us individuals, but our character makes us better human beings, and helps build a stronger community.

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INVESTIGATING THE EFFECTS OF 12 WEEKS CORE STRENGTH TRAINING ON BIO-MOTOR FITNESS ABILITIES OF COLLEGE MEN

38

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ABSTRACT

It has been demonstrated that core strength training is an effective means to proxies of physical fitness in college men. The Purpose of this investigation was to study the impact of core strength training on upper body strength, lower back and hamstring flexibility and change of direction speed in college men. Thirty untrained male college students were randomly assigned to core strength (CST) (n=15) and active control group (CG) (15) and their ranged from 18 to 23 years. The experimental group performed core strength training, three times per week for twelve weeks. Prior to and after the training, UBS, LBHF, and CODS were evaluated using standardized tests. The paired sample test was used to analyze pre- and post-intervention data. The CST group showed significant improvements across all measured variables. Notable percentage changes were observed in the Upper body strength 9.40%, lower back and hamstring flexibility 8.37% and change of direction speed 8.24%. A 12-week core strength training program, consisting of three sessions per week, significantly improved bio-motor fitness components in college men. These findings support the inclusion of CST in training regimens to enhance the general fitness of college men.

Keywords: *Core strength training, Upper body strength, Lower back and hamstring flexibility, and Change of Direction Speed.*

INTRODUCTION

Core muscle strength is a vital requirement for several daily tasks, such as sitting, standing, and walking in a straight-up position. In terms of anatomy, the core is a muscular box with the abdominals in the front, the paraspinals as well as gluteus muscle in the back, the diaphragm as the top layer, and at the bottom with the pelvic floor and hip girdle muscles[1]. Core training continues to be emphasized with the proposed intent of improving athletic performance. Definitions regarding the anatomical components of the core have suffered in consistency. The core was described as an anatomical box consisting of 29 pairs of muscles forming a front (abdominals), back (paraspinals and gluteals), top (diaphragm), and bottom (pelvic floor and hip girdle)[2].

Core stability refers the ability of lumbopelvic stabilizers to maintain stable trunk and hip posture during static or dynamic movements, often surpassing strength[3]. The core muscles, including those around the lumbar spine and pelvis, play a vital role in stabilizing the body during dynamic movements. This stabilization is essential for the efficient transfer of forces through the kinetic chain, contributing to overall athletic performance and reducing injury risk[4]. In addition, a well-conditioned core has been proven to aid in appropriate posture and alignment while playing, translating into better handling of the game's physical demands, whether in a training or competitive environment[5].

Furthermore, the ability to make appropriate alterations in the path of motion and balance during such rapid directional changes is dominantly based on core muscle strength and reactivity, which enhances agility and maintains body balance and control against a rapid directional change [6]. However,

despite this well-documented advantage of core training, more research is still needed on the exact quantification of CST benefits to the physical fitness components. This justifies the identified research gap for focused studies, which would yield direct benefits concerning core training in college men. This study aims to fill this gap by implementing a systematic 12-week core strength training program and assessing its specific effects on bio-motor fitness abilities in college men.

MATERIALS AND METHODS



Participants

Figure 1 CST vs ACG

Thirty college men were randomly assigned to 2 groups (i.e., CSTG, and AGG) using the method of randomly permuted blocks using Research Randomizer, a program published on a publicly accessible official website (www.randomizer.org) their age ranged from 18 to 23 years. All subjects were advised not to decrease or increase their regular activities over the course of the study. Concerns on the possible risks or benefits arising from the study were explained to all the participants and each of them signed a written informed consent. The study sample was randomly divided into an Experimental group (n=15) that remained with core strength training. The active control group (n=15) remained active but did not participate in any core strength training.

Table 1 summarizes the demographic characteristics of the participants

Group of subjects	n(1)	Age (Years)	Height (Cm)	Weight (Kg)	BMI
Core strength training (G1)	15	20.3 ± 1.2	175.1 ± 4.3	75 ± 4.2	24.4
Control (G2)	15	20.5 ± 1.1	175.3 ± 3.8	75.1 ± 3.8	24.4

INCLUSION AND EXCLUSION CRITERIA

Regular attendance at both measurements, a lack of injuries, and consent to participate in the study were the inclusion criteria. During the 12-week period, only one absence was allowed. The standards for exclusion were they had no history of musculoskeletal, cardiopulmonary, neurological or orthopaedic disorders and infectious diseases and disability in performing core exercises, more than two sessions absence in exercises and the reluctance of subjects and parents to take part.

INTERVENTION

The specific intervention implemented in the experimental group's core strength training program was to perform exercises that targeted the strengthening of the core muscles. The experimental group

underwent training for 12 weeks at an interval of three times a week. Some of the movements that were performed in each session are planks, bridges besides various types of crunches where the intensity of the exercises was programmed to gradually be increased, within the successive meetings. In the setup of the 12-week plan the first week was considered as the familiarization week. In this week, the participants were acquainted with the exercise form and the correct manner in which they should be performed to avoid injuries and for enhanced efficiency. There were no dropouts in this study. The procedures followed were in accordance with the ethical standards on human experimentation stated in compliance with the 1964 Helsinki Declaration and its later amendments.

OUTCOME MEASURE PROCEDURE

Assessments of bio-motor fitness abilities were conducted at baseline and after the 12-week intervention period. These assessments included measures of upper body strength, lower back and hamstring flexibility and change of direction speed. A week prior to the baseline measurement, the main fitness tests were carried out by the participants, but they underwent two warm-up sessions to familiarize them with the tests. Data pertaining to the demographic profile of the subjects were gathered during the familiarization sessions. Participants were advised against indulging in any form of exercise and taking alcohol for 24 hours before the test.

UPPER BODY STRENGTH (BACKWARD MEDICINE BALL THROW)

In this case, the backward medicine ball throw was used to determine upper body explosive strength. The exercise was carried out on a large open space of an available ground for safety measures to be observed. This study involved three trials for each participant, with the analysis using the average of the three throws recorded. Before the experiment, all the participants developed a set of exercises that had to be performed before the start of the test, in particular, stretching exercises and movements aimed at the upper extremities as a preventive measure against injuries. A specific line for throwing was drawn on the ground and subjects positioned themselves with their backs towards the direction in which they needed to throw. With two hands, participants took a standard grip of a medicine ball in front of them and got advised to bend their knees and then throw the ball as high and backward as they could. Measuring of the distance from the throwing line to the point where the ball touched the ground was done using a measuring tape. There were enough breaks in between the trials (2-3 minutes) in order to allow recovery to occur. This procedure ensured high subject reliability in that the instructions and conditions for all the tests were consistent in relation to the participants' information and their motivation[7].

LOWER BACK AND HAMSTRING FLEXIBILITY (SIT AND REACH TEST)

To evaluate the lower back and hamstring flexibility, participants performed the sit and reach test[8]. High values of ICC indicate that both versions, the chair sit and reach (0.92–0.96) [9] and the back saver sit and reach (0.99)[10], are reliable. An apparatus which had 25 cm mark equivalent to the point where the feet touch the box was used. Participants were asked to warm-up by performing slow stretching exercises. They were asked to "sit barefoot with the legs fully extended with the soles of the feet placed flat against the horizontal cross board of the apparatus, with the inner edge of the sole placed 2 cm from the scale, keeping the knees fully extended, arms evenly stretched, and palms down". Participants were then asked to bend and reach forward (without jerking) while pushing the sliding marker along the scale with the fingertips as far forward as possible. They held maximum

flexion position for approx. two seconds. The test was performed twice. The trial was not recorded if the knees flexed. The record taken was the maximum distance reached to the nearest 0.5 cm.

CHANGE OF DIRECTION SPEED (MODIFIED AGILITY T-TEST)

The Modified Agility T-test, or MAT, was utilized to measure the speed with direction changes, such as sprinting forward, shuffle walking to the left and right, and running backward. The protocol was modified based on procedures described in a prior investigation (Figure 1)[11]. Two independent assistants who were not involved in the study were designated as timekeepers (ICC between timekeepers was 0.99), and they were tasked with using a hand stopwatch (Casio S053 HF-70W-1DF) to record the timing of each trial.

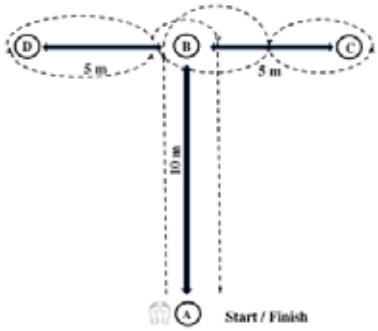


Figure 2: Modified agility T test

Change-of-direction speed time was measured using the modified agility T-test configuration. Cones measuring 0.64 metres in height were positioned at points A, B, C and D. The participants' instructions were to run from point A to point B, turn 90 degrees from cone B to cone C, turn 180 degrees at cone C towards cone B, weave at cone B towards cone D, turn 180 degrees at cone D towards cone B and finally run to the start/finish line. Without touching the cones, participants had to turn or weave around them. If the cones moved during a direction change, the trial was discarded, and participants had to restart it after three minutes of rest (i.e., slowly standing or walking). With their backs constantly facing the start/finish line, the participants finished the test.

Note: The movement pattern during the test is indicated by the black dotted line.

Table 2. Core Strength Training (CST) Performed by Experimental Group

Week	Day 1	Day 2	Day 3
1	Planks (3x30s, 30s rest)	Bridges (3x15, 30s rest)	Crunches (3x20, 30s rest)
2	Planks (3x40s, 30s rest)	Bridges (3x20, 30s rest)	Crunches (3x25, 30s rest)
3	Planks (3x45s, 30s rest)	Bridges (3x25, 30s rest)	Bicycle Crunches (3x20, 30s rest)
4	Side Planks (3x30s each side, 30s rest)	Single-leg Bridges (3x15 each leg, 30s rest)	Leg Raises (3x15, 30s rest)
5	Side Planks (3x40s each side, 30s rest)	Single-leg Bridges (3x20 each leg, 30s rest)	Leg Raises (3x20, 30s rest)
6	Side Planks (3x45s each side, 30s rest)	Single-leg Bridges (3x25 each leg, 30s rest)	Russian Twists (3x30, 30s rest)
7	Planks with Arm Lift (3x30s, 30s rest)	Bridges with Leg Lift (3x15 each leg, 30s rest)	Flutter Kicks (3x30s, 30s rest)

Week	Day 1	Day 2	Day 3
8	Planks with Arm Lift (3x40s, 30s rest)	Bridges with Leg Lift (3x20 each leg, 30s rest)	Flutter Kicks (3x40s, 30s rest)
9	Planks with Arm Lift (3x45s, 30s rest)	Bridges with Leg Lift (3x25 each leg, 30s rest)	Mountain Climbers (3x30s, 30s rest)
10	Planks (3x1min, 30s rest)	Single-leg Bridges (3x30 each leg, 30s rest)	V-ups (3x15, 30s rest)
11	Side Planks (3x1min each side, 30s rest)	Single-leg Bridges (3x35 each leg, 30s rest)	Russian Twists (3x40, 30s rest)
12	Planks with Arm and Leg Lift (3x1min, 30s rest)	Bridges with Leg Lift (3x30 each leg, 30s rest)	Bicycle Crunches (3x30, 30s rest)

STATISTICAL ANALYSIS

This study employs a paired sample t-test hypothesis test. This test's objective is to compare the pretest and posttest results. For the statistical analysis in this study, IBM SPSS Statistics 16.0 was used. (SPSS, Inc.; USA; Chicago, IL).

Table 3. Paired Sample t Test

Groups	Variables	Mean Mean ± SD		Paired Difference				t	df	Sig. (2 tailed)
				Std. Error Mean	95% Confidence Interval					
					Lower	Upper				
CSTG	Pre-post UBS	11.7	12.8	1.12±0.28	0.07	1.27	0.97	15.59	14	0.000
	Pre-post LBHF	30.58	33.14	2.55 ± 0.33	0.09	2.74	2.37	29.84	14	0.000
	Pre-post CODS	6.31	5.79	0.52 ± 0.11	0.29	0.46	0.58	17.57	14	0.000
ACG	Pre-post UBS	11.79	11.65	0.45 ± 0.11	0.03	0.01	0.11	1.71	14	0.110
	Pre-post LBHF	30.59	30.79	0.21 ± 0.75	0.19	0.62	0.21	1.06	14	0.31
	Pre-post CODS	6.30	6.35	0.05 ± 0.09	0.02	0.1	0.01	1.98	14	0.068

**Statistically significant difference, mean scores at point comparisons from baseline: sig (2-tailed) value of ≤ 0.05; data are presented as means ± SD.*

Based on the results of Table 3 above and from the results of the hypothesis test with the Paired Sample t-Test, the upper body strength, lower body and hamstring flexibility and change of direction speed of experimental group results obtained sig (2-tailed) value of 0.000 <0.05, it can be concluded that there is a significant improvement in the selected variables due to twelve-week core strength training.

Figure 3. Bar diagram displays the pre- and post-test results for the treatment and control groups for UBS, LBHF and CODS.

DISCUSSION

This study evaluates how core strength training affects upper body strength, lower back and hamstring flexibility and change of direction speed in college men. Our results showed that twelve weeks of core strength training increased upper body strength, lower back and hamstring flexibility and change of direction speed in college students. When the core is strong, athletes can generate more powerful hip and leg movements, which are critical in short-distance sprints where acceleration and speed are paramount[11]. Therefore, the integration of core strength training can provide a substantial advantage in short sprints by improving the speed and efficiency of muscle contractions necessary for rapid acceleration[12]. Musculoskeletal flexibility is vital element of health. Further, flexibility is a noteworthy part of physical fitness to reach optimal musculoskeletal function[13]. Recent research has also suggested that core training can enhance intermuscular coordination between the trunk and lower extremities, potentially leading to more synchronized muscle activation patterns during explosive movements[14]. Change of direction ability in the group trained with core strength training, compared to the active control group, is attributed to the enhanced neuromuscular control, stability, and power transfer facilitated by a stronger core[15]. Core strength training has been shown to improve the body's ability to rapidly generate and transfer force through the kinetic chain, which is crucial for quick and efficient changes in direction[16]. The core muscles play a vital role in maintaining postural control and balance during dynamic movements, allowing for more precise and rapid adjustments in body position during agility tasks[17]. A strong core provides a stable base for the lower extremities to generate force, potentially improving the rate of force development and power output during the propulsive phase of directional changes[18].

CONCLUSION

In summary, the bio-motor fitness components of college men were significantly improved by the 12-week core strength training (CST) program, which included three sessions per week. The effectiveness of this training regimen in improving the physical performance of college men was demonstrated by the CST group, which exhibited significant improvements in the selected outcome parameters. In order to enhance training outcomes, future research should investigate the potential variations and long-term benefits of CST protocols. It is also conclude that core strength training is a feasible and safe (i.e., no injuries reported) training modality that produces marked increases in physical fitness in healthy male.

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HYPERTROPHY FOR THE NEXT GENERATION BUILDING MUSCLE AND STRENGTH

39

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ABSTRACT:

Muscle hypertrophy, the process of increasing muscle size through targeted training and nutrition, is a cornerstone of fitness for the younger generation. This guide delves into the science behind muscle growth, offering practical strategies for achieving hypertrophy effectively and sustainably. From understanding the basics of muscle physiology to implementing progressive overload and recovery techniques, this resource is designed to empower young fitness enthusiasts with the knowledge and tools they need to build strength, improve physique, and enhance overall health. Whether you're a beginner or an intermediate lifter, this guide provides actionable insights to help you maximize your results and avoid common pitfalls.

Keywords: *Hypertrophy, muscle growth, strength training, progressive overload, fitness for youth, workout guidelines, muscle-building, exercise science, fitness schedule, recovery, nutrition, compound exercises, isolation exercises and fitness motivation.*

INTRODUCTION:

In an era where fitness and health are increasingly prioritized, the younger generation is more motivated than ever to build strength, improve physique, and enhance overall well-being. Muscle hypertrophy, the process of increasing muscle size through resistance training, is a key goal for many. However, the journey to achieving hypertrophy is often riddled with misinformation, unrealistic expectations, and ineffective practices.

This guide is designed to bridge the gap between science and practice, offering a comprehensive roadmap for young individuals seeking to unlock their muscle-building potential. By understanding the principles of hypertrophy, implementing evidence-based training strategies, and adopting sustainable habits, you can achieve your fitness goals while minimizing the risk of injury or burnout.

CONTENTS:

1. UNDERSTANDING HYPERTROPHY

WHAT IS MUSCLE HYPERTROPHY?

Hypertrophy refers to the increase in size of skeletal muscle fibers, achieved through resistance training and proper nutrition. It occurs when muscle fibers are subjected to stress, leading to microscopic damage that, when repaired, results in larger and stronger muscles.

TYPES OF HYPERTROPHY:

- **Myofibrillar Hypertrophy:** Growth in the contractile proteins of the muscle, leading to increased strength.
- **Sarcoplasmic Hypertrophy:** Increase in the fluid and energy storage components of the muscle, contributing to muscle size.

ROLE OF GENETICS AND AGE:

While genetics play a role in determining muscle-building potential, consistent training and proper nutrition can help anyone achieve significant progress. Younger individuals often have an advantage due to higher levels of growth hormones and faster recovery rates.

2. BENEFITS OF HYPERTROPHY TRAINING

IMPROVED STRENGTH AND ENDURANCE:

Building muscle enhances physical performance, making daily activities easier and improving athletic performance.

ENHANCED PHYSICAL APPEARANCE AND CONFIDENCE:

A well-developed physique can boost self-esteem and body image.

LONG-TERM HEALTH BENEFITS:

Increased muscle mass is associated with better metabolism, improved insulin sensitivity and stronger bones, reducing the risk of osteoporosis and other age-related conditions.

3. GUIDELINES FOR EFFECTIVE HYPERTROPHY TRAINING

PROPER FORM AND TECHNIQUE:

Prioritizing correct form reduces the risk of injury and ensures optimal muscle engagement.

BALANCING VOLUME, INTENSITY AND FREQUENCY:

- **Volume:** The total amount of work performed (sets x reps x weight).
- **Intensity:** The level of effort relative to your maximum capacity.
- **Frequency:** How often you train each muscle group.

ROLE OF NUTRITION:

Protein Intake: Essential for muscle repair and growth. Aim for 1.6–2.2 grams of protein per kilogram of body weight daily.

Caloric Surplus: Consuming more calories than you burn supports muscle growth.

Micronutrients: Vitamins and minerals like vitamin D, calcium, and magnesium play a role in muscle function and recovery.

4. SAMPLE WORKOUT SCHEDULE

BEGINNER ROUTINE:

Focus on full-body workouts 3 times per week, incorporating compound exercises like squats, deadlifts and bench presses.

INTERMEDIATE ROUTINE:

Split training into upper/lower body or push/pull/legs, training 4–5 times per week.

ADVANCED ROUTINE:

Incorporate specialization phases, targeting specific muscle groups with higher volume and intensity.

REST AND RECOVERY:

Muscles grow during rest, so ensure adequate sleep (7–9 hours per night) and include rest days in your schedule.

5. PROGRESSIVE OVERLOAD: THE KEY TO GROWTH

WHAT IS PROGRESSIVE OVERLOAD?

Gradually increasing the stress placed on muscles over time to stimulate growth. This can be achieved by adding weight, increasing reps, or improving exercise form.

HOW TO IMPLEMENT IT:

- Track your workouts using a journal or app.
- Aim to increase weight or reps every 1–2 weeks.

TRACKING PROGRESS:

Regularly assess strength, muscle size and overall performance to ensure making progress.

6. CONCLUSION:

Achieving muscle hypertrophy is a journey that requires consistency, patience and a willingness to learn. By understanding the science behind muscle growth, following evidence-based training principles and prioritizing recovery and nutrition, It can unlock full potential. Remember, fitness is not just about physical transformation it's about building discipline, resilience and a healthier lifestyle.

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FAIR PLAY VS. ONLINE FAME: THE ETHICAL DILEMMAS OF SOCIAL MEDIA IN PROFESSIONAL SPORTS

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ABSTRACT

Social media has become an integral part of modern sports, influencing athletes, fans, coaches, and sports organizations (Boyd & Ellison, 2007). While it provides opportunities for engagement, branding, and advocacy, it also raises ethical concerns related to fair play, integrity, and sportsmanship (Kian, Clavio, Vincent, & Shaw, 2011). This paper explores the ethical dilemmas that arise from the intersection of social media and professional sports, including issues of online misconduct, unfair advantages, privacy concerns, and the pressure for online fame (Sanderson & Kassing, 2011). Through an analysis of existing literature, case studies, and ethical theories, this paper discusses how social media affects the core values of sports ethics and suggests potential strategies for maintaining fairness and integrity in the digital era (Pegoraro, 2010).

INTRODUCTION

The rise of social media platforms such as Twitter, Instagram, TikTok, and Facebook has transformed the way athletes, teams, and sports organizations communicate with their audiences (Kaplan & Haenlein, 2010). These platforms allow for direct fan interaction and personal branding, creating opportunities for athletes to shape their public personas and engage with sponsors (Pegoraro, 2010). However, the pursuit of online fame sometimes comes at the cost of ethical integrity (Hutchins & Rowe, 2012). Athletes may feel pressured to engage in questionable behaviors, such as exaggerating their performances, engaging in online disputes, or prioritizing social media engagement over professional responsibilities (Sanderson, 2011). This paper examines how social media impacts ethical behavior in sports, with particular attention to issues such as performance enhancement controversies, cyberbullying, misinformation, and privacy violations (Frederick et al., 2012).

THE ROLE OF SOCIAL MEDIA IN MODERN SPORTS

ATHLETE BRANDING AND ENDORSEMENTS

Social media has provided athletes with an unprecedented platform for self-promotion, allowing them to build personal brands, attract endorsements, and shape their public image (Kassing & Sanderson, 2010). This digital presence has helped athletes gain financial independence and extend their influence beyond the sporting arena (Pegoraro, 2010). However, the focus on personal branding can sometimes lead athletes to prioritize commercial success over ethical sportsmanship (Frederick et al., 2012). Some athletes may exaggerate training routines, fabricate personal struggles, or engage in controversial publicity stunts to gain followers and engagement (Hambrick et al., 2010). This commercialization of sports through social media raises ethical questions about authenticity, honesty, and the responsibility of athletes as role models (Sanderson, 2013).

FAN ENGAGEMENT AND INFLUENCE

Fans play a crucial role in the sports industry, and social media has strengthened this connection by providing real-time interaction opportunities (Hambrick et al., 2010). While fan engagement fosters a sense of community, it also exposes athletes to increased scrutiny, pressure, and sometimes hostility (Sanderson, 2013). The instantaneous nature of social media means that athletes are often expected to respond quickly to controversies or criticisms, sometimes leading to impulsive and regrettable actions (Schultz & Sheffer, 2010). Moreover, the increasing influence of fan opinions on sports organizations and sponsorship decisions can push athletes into making ethically questionable choices to maintain their public image (Petersen-Wagner, 2017).

THE ROLE OF SPORTS ORGANIZATIONS

Sports organizations have also embraced social media to enhance public relations, engage with audiences, and manage crises (Witkemper, Lim, & Waldburger, 2012). However, they face ethical challenges in ensuring that digital interactions uphold the principles of fairness, integrity, and respect (Schultz & Sheffer, 2010). Organizations must navigate the delicate balance between allowing athletes to express themselves freely and maintaining professional decorum (Hutchins & Rowe, 2012). Additionally, sports organizations are increasingly responsible for monitoring and mitigating online controversies involving athletes, coaches, and fans (Moreno et al., 2013).

ETHICAL DILEMMAS IN SOCIAL MEDIA AND SPORTS

PERFORMANCE ENHANCEMENT AND UNFAIR ADVANTAGE

Social media provides athletes with unprecedented access to information about their competitors, game strategies, and refereeing decisions (Sanderson & Kassing, 2011). While this can be used ethically, there have been cases where athletes and teams have exploited social media to gain unfair competitive advantages (Schultz, 2011). For example, some players have been caught analyzing opponents' training videos or coordinating in-game strategies through private social media channels (Hutchins & Rowe, 2012). The ethical concern arises when these tactics blur the lines between strategic preparation and unsportsmanlike behavior, ultimately affecting the fairness of competition (Petersen-Wagner, 2017).

CYBERBULLYING AND ONLINE HARASSMENT

Social media has amplified the visibility of athletes, making them more accessible to fans and critics alike (Kian et al., 2011). While this enhances engagement, it also exposes athletes—especially those from marginalized communities—to cyberbullying, hate speech, and personal attacks (Sanderson, 2013). Instances of racial abuse, body shaming, and sexist comments directed at athletes are rampant on social media platforms (Frederick et al., 2012). This not only affects the mental well-being of athletes but can also lead to diminished performance and reluctance to engage with fans (Pegoraro, 2010). The ethical dilemma lies in finding a balance between free expression and protecting individuals from harmful online behavior (Moreno et al., 2013).

PRIVACY VIOLATIONS AND DATA MISUSE

Athletes' personal information is frequently exposed on social media, raising significant privacy concerns (Petersen-Wagner, 2017). From unauthorized leaks of private messages to hacking incidents, athletes often find themselves struggling to maintain personal security in a digital world (Hutchins & Rowe, 2012). The ethical challenge here is ensuring that privacy policies are robust enough to protect

athletes while allowing them to maintain an authentic social media presence (Schultz & Sheffer, 2010).

MISINFORMATION AND FAKE NEWS IN SPORTS

The rapid spread of misinformation on social media has led to numerous controversies in the sports industry (Moreno et al., 2013). False rumors about athlete transfers, fabricated doping allegations, and misleading injury reports have caused reputational damage and financial losses for individuals and teams (Schultz & Sheffer, 2010). Addressing misinformation requires ethical journalism, fact-checking mechanisms, and responsible social media use by athletes and organizations (Pegoraro, 2010).

THE PRESSURE TO MAINTAIN AN ONLINE PERSONAL

Many athletes feel compelled to maintain a curated online image that aligns with public expectations (Sanderson & Kassing, 2011). The demand for constant engagement can lead to burnout, anxiety, and questionable decision-making (Frederick et al., 2012). Some athletes resort to fabricating narratives, engaging in online feuds, or promoting controversial content to stay relevant (Hambrick et al., 2010). The ethical concern here is whether authenticity and mental well-being should be sacrificed for the sake of digital popularity (Hutchins & Rowe, 2012).

CONCLUSION

Social media has undeniably transformed the sports industry, offering both opportunities and challenges (Boyd & Ellison, 2007). While it enhances engagement, branding, and global recognition, it also raises ethical concerns related to fair play, privacy, cyberbullying, and misinformation (Kaplan & Haenlein, 2010). Athletes, sports organizations, and social media platforms must collaborate to uphold ethical standards and preserve the core values of sportsmanship (Pegoraro, 2010). Through the implementation of digital literacy programs, mental health support, and ethical guidelines, the sports industry can navigate the complexities of social media while maintaining integrity and fairness (Schultz & Sheffer, 2010).

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BUILDING CHARACTER THROUGH PHYSICAL EDUCATION AND SPORTS

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INTRODUCTION

Sports play a crucial role in shaping an individual's personality, instilling essential life skills such as character, discipline, and punctuality. Engaging in sports from a young age cultivates a strong sense of responsibility, teamwork, and perseverance, which are fundamental for personal and professional growth. This article explores how sports contribute to character building, reinforce discipline, and promote punctuality, ultimately preparing individuals for success in various aspects of life.

Sports have long been recognized as an essential part of human culture, providing recreation, entertainment, and a sense of unity among individuals and communities. Beyond physical benefits, sports play a crucial role in shaping character, instilling discipline, and fostering punctuality in individuals. Whether at the amateur or professional level, the lessons learned through sports extend far beyond the playing field, influencing personal growth and success in life. This article explores how engaging in sports helps cultivate character, discipline, and punctuality, and how these attributes contribute to personal and professional development.

In a world driven by academics and professional achievements, the importance of sports in character building often takes a backseat. However, sports offer valuable lessons and experiences that extend far beyond the playing field. This blog explores how sports, as an essential element of modern world education, contribute to character development.

Key Words: *Sports, Character, Discipline, Punctuality, Teamwork, Responsibility, Holistic Development*

DEVELOPMENT OF CHARACTER THROUGH SPORTS

Character refers to the set of moral and ethical qualities that define an individual's behavior and decision-making. Sports serve as a powerful medium to develop these qualities in several ways:

- **Teamwork and Cooperation**: Many sports require collaboration, teaching individuals to work harmoniously with others, communicate effectively, and contribute selflessly toward a common goal.
- **Resilience and Perseverance**: Success in sports often comes with challenges, failures, and setbacks. Athletes learn to push through adversity, develop a growth mindset, and emerge stronger despite difficulties.
- **Fair Play and Integrity**: Sports promote adherence to rules, respect for opponents, and ethical behaviour, reinforcing honesty, respect, and accountability.
- **Leadership and Responsibility**: Athletes, particularly team captains, learn to take responsibility for their actions, inspire others, and make crucial decisions under pressure.

PHYSICAL FITNESS AND WELL-BEING

Participating in sports is an excellent way to promote physical fitness and well-being among students. Regular physical activity helps in maintaining a healthy body weight, reducing the risk of various diseases, and improving overall fitness. The Star Global School in Rohtak understands the importance of physical health and encourages students to participate actively in sports to promote a healthy lifestyle.

TEAMWORK AND COLLABORATION

Sports teach essential life skills such as teamwork, collaboration, and effective communication. When students engage in team sports, they learn how to work together towards a common goal. They discover the importance of trust, cooperation, and mutual support—skills that are invaluable in any professional or personal setting.

DISCIPLINE AND TIME MANAGEMENT

Success in sports requires discipline and effective time management. Student-athletes often have to balance their academic commitments with rigorous training schedules. This dual responsibility instils a strong sense of discipline, responsibility, and time management, all of which are crucial life skills.**Sports as a Tool for Instilling Discipline**

Discipline is a fundamental trait for success in any field, and sports serve as an excellent training ground for developing this attribute. Some key aspects include:

- **Structured Training and Routine**: Sports require athletes to follow a strict training regimen, adhere to schedules, and maintain consistency in practice.
- **Self-Control and Focus**: Athletes must master emotional regulation, remain focused under pressure, and resist distractions that could hinder performance.
- **Commitment and Dedication**: Excelling in sports demands unwavering commitment, effort, and the ability to make sacrifices, reinforcing a disciplined approach to goals.
- **Rule Adherence and Respect for Authority**: Sports teach individuals to follow established rules, respect coaches and referees, and understand the consequences of non-compliance.

PUNCTUALITY AND TIME MANAGEMENT IN SPORTS

Punctuality, the habit of being on time, is a vital skill that sports help cultivate. Here's how:

- **Strict Schedules and Deadlines**: Athletes must be on time for training sessions, matches, and team meetings, reinforcing the importance of punctuality.
- **Consequences of Tardiness**: In competitive sports, late arrivals can result in penalties, loss of playtime, or even disqualification, emphasizing the significance of being punctual.
- **Time Management Skills**: Athletes learn to balance practice, rest, and other responsibilities effectively, honing their ability to prioritize tasks and use time efficiently.
- **Preparedness and Readiness**: Punctuality in sports translates to being prepared mentally and physically, ensuring optimal performance. **Real-Life Applications Beyond Sports**

The values of character, discipline, and punctuality learned through sports extend to various aspects of life:

- **Academics**: Students who participate in sports tend to develop better study habits, time management, and perseverance, leading to improved academic performance.
- **Workplace Success**: Employers value individuals who are disciplined, punctual, and possess strong teamwork and leadership skills—qualities honed through sports.
- **Personal Development**: Discipline in sports leads to healthier lifestyles, better decision-making, and the ability to handle pressure in everyday situations.
- **Social and Community Engagement**: Sports foster a sense of responsibility and social awareness, encouraging individuals to contribute positively to society.

CONCLUSION

Sports serve as a powerful platform for developing character, instilling discipline, and reinforcing punctuality—three essential qualities for personal and professional growth. The lessons learned on the field extend beyond the game, shaping individuals into responsible, determined, and time-conscious members of society. Encouraging participation in sports at an early age can be instrumental in fostering these attributes, ultimately contributing to a more disciplined and ethically strong generation. As society continues to recognize the transformative power of sports, it is imperative to integrate them into educational and professional settings, ensuring individuals reap the lifelong benefits they offer.

REVOLUTIONIZING ATHLETIC PERFORMANCE: THE TRANSFORMATIVE IMPACT OF TECHNOLOGY AND FUTURE PROSPECTS

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ABSTRACT

This paper critically examines the transformative role of technology in reshaping the landscape of sports performance and training. It delves into three primary technological innovations currently making significant inroads in sports: wearable technology, virtual reality (VR), and advanced data analytics. Wearable technology offers real-time biometric data, significantly influencing personalized training programs and injury prevention. VR in sports training enhances skill acquisition and psychological preparedness, providing immersive experiences that replicate real- competition scenarios. Advanced data analytics, powered by big data and machine learning, has emerged as a game-changer, offering predictive insights that inform strategic decision-making and performance optimization. However, these advancements are not without challenges. The paper underscores the need for a multidisciplinary approach to technology integration, addressing issues related to data privacy, ethical use, accessibility, and the potential impact on the spirit of sportsmanship. It advocates for a balanced approach that considers athlete well- being, equitable access, and the preservation of competitive integrity. Furthermore, the discussion highlights the necessity of updating educational curricula and developing robust regulations to guide the ethical use of technology in sports. The paper concludes by emphasizing a harmonious synthesis of technology with the human aspect of sports, ensuring that technological advancements serve to enhance, not overshadow, the essence of athletic competition.

Keywords: *sports technology; wearable devices; virtual reality; data analytics.*

INTRODUCTION

In the contemporary world, technology's intersection with various disciplines has not only transformed operational frameworks but has also revolutionized how professionals approach their practices. One sector that has experienced significant technological disruption is sports. This disruption is not merely on the surface level, such as the use of new gadgets but involves a profound integration of technology into various aspects of athletic training, performance monitoring, and even psychological preparation. With the proliferation of advanced technological tools like wearable devices, Virtual Reality (VR), and sophisticated data analytics, a new vista of opportunities has been opened for enhancing athletic performance.

However, with these advancements, there has been an emergence of new challenges. The sports sector grapples with issues such as the ethical implications of data collection, the reliability of technological tools, the risk of over-dependence on technology, and the necessity of maintaining an equilibrium between traditional training methods and technological interventions. Furthermore, the dynamic nature of technology raises concerns about the constant need for up skilling professionals to keep them abreast of the latest developments and proficient in the newest tools.

WEARABLE TECHNOLOGY AND PERFORMANCE MONITORING

The advent of wearable technology marks a significant shift in the sports domain, transcending traditional barriers to physiological monitoring and performance enhancement. These devices, which include heart rate monitors, GPS trackers, and accelerometers, provide a continuous stream of real-time biometric data, giving unprecedented insights into an athlete's specific performance metrics such as heart rate variability, metabolic rate, physical workload, and movement patterns (Buchheit, 2014; Cummins, Orr, O'Connor, & West, 2013).

For instance, heart rate monitors are instrumental in gauging an athlete's cardiovascular response to training stimuli and are pivotal in delineating zones of training intensity, ensuring that athletes operate within the optimal threshold to elicit desired adaptive responses without inadvertently sliding into the realms of overtraining (Buchheit, 2014). Similarly, GPS trackers and accelerometers yield comprehensive data on an athlete's motion, velocity, and expended energy during training sessions and competitive scenarios, facilitating nuanced understanding and optimization of their biomechanical efficiency and energy conservation (Cummins et al., 2013).

The wealth of data generated by these devices is particularly salient in crafting highly individualized training regimens tailored to the unique physiological and biomechanical profiles of each athlete. This personalization is crucial in eliciting maximal performance enhancements while concurrently mitigating the risk of injury through the meticulous monitoring of physiological parameters and workload, thereby ensuring a balance between training stress and recovery (Schwellnus et al., 2016).

However, the potential of wearable technology in transforming athletic training is not without its complexities. The sheer volume and intricacy of data necessitate advanced analytical acumen among sports professionals. Interpreting this data requires not only a deep understanding of sports science but also proficiency in data analysis techniques, underscoring the need for an interdisciplinary approach in sports training and education (Düking, Holmberg, & Sperlich, 2017).

VIRTUAL REALITY (VR) IN TRAINING SIMULATIONS

The integration of Virtual Reality (VR) in sports training marks a paradigm shift in how athletes prepare for competitions, offering immersive environments that replicate the intensity and demands of real-world sporting events (Esteves, Oliveira, & Araújo, 2019). Through VR, athletes can engage in simulated training that mimics actual competitive scenarios, allowing for the refinement of tactics, decision-making, and technical skills in a risk-controlled setting (Pan & Hamilton, 2018). This technology is especially beneficial in sports requiring high levels of spatial awareness, strategic foresight, and rapid reaction to environmental stimuli.

One significant advantage of VR is its capacity for cognitive load management during training, enabling athletes to process and respond to complex game scenarios without the physical risk inherent in real-world play (Gregersen & Fink, 2020). This feature is particularly salient in contact sports, where the risk of injury may limit the scope of live training sessions. Furthermore, VR simulations can be tailored to challenge specific cognitive and technical aspects of an athlete's performance, offering a personalized approach to skill development (Stinson & Bowman, 2014).

In addition to skill acquisition, VR plays a crucial role in psychological conditioning, preparing athletes for the high-pressure atmosphere of competition. By exposing athletes to simulated high-stakes environments, VR helps in acclimatizing them to the stressors they'll face, thereby enhancing

psychological resilience and performance under pressure (Farrow, Reid, Buszard, & Kovalchik, 2018).

However, while the benefits are compelling, the integration of VR into sports training is not without challenges. The immersive nature of VR means it can significantly impact an athlete's cognitive load, potentially leading to mental fatigue if not appropriately managed (Bell, Rönnqvist, & Hoshizaki, 2018). Therefore, careful consideration must be given to the duration and intensity of VR training sessions, ensuring a balanced load that optimizes skill development while preventing cognitive overload.

ADVANCED DATA ANALYTICS IN SPORTS

The realm of sports has been dramatically transformed by the incorporation of advanced data analytics, reshaping how performances are evaluated, players are trained, and games are strategized. Big data, collected through various sources such as wearable devices, video feeds, and player statistics, are now analyzed using sophisticated algorithms to guide decision-making in sports (Rein & Memmert, 2016). This fusion of technology and sports science has ushered in a new era of sports analysis where predictive modeling, pattern recognition, and tactical analysis have become integral to competitive success.

One notable application of advanced data analytics in sports is the predictive modeling of injuries. By analyzing data points related to players' physical conditions, past injuries, and game performances, predictive models can identify patterns and risk factors associated with specific injuries, thereby guiding preventive measures (Gabbett, 2016). This approach is invaluable in reducing downtime for athletes and extending their careers.

Moreover, machine learning algorithms can process and analyze vast datasets far beyond human capacity, uncovering hidden patterns and correlations in athletes' performance data. This information is critical in developing personalized training programs that address the individual strengths and weaknesses of each athlete (Lucey et al., 2014). Additionally, the analysis of opponent teams' data facilitates the development of game strategies that can exploit their weaknesses, significantly impacting the game's outcome (Pappalardo et al., 2019).

However, leveraging the full potential of advanced data analytics in sports requires a cohesive multidisciplinary approach. Professionals with expertise in sports science must collaborate with data scientists and IT experts to ensure the accurate collection, analysis, and interpretation of sports data (Milne, Leineweber, Blackburn, & Braun, 2020). Furthermore, ethical considerations regarding data privacy and security must be diligently addressed, ensuring athletes' confidential information is protected (Dignum, 2018).

CONCLUSION

The journey through the multifaceted landscape of technology in sports has illuminated both the extraordinary potential and intricate challenges inherent in this union. As we stand on the precipice of what can be considered a new era in sports science and athletic training, several key conclusions crystallize:

- Indispensable Integration. Wearable technology, VR, and advanced data analytics are no longer futuristic concepts but present-day tools that are revolutionizing sports in unprecedented ways.

Their ability to provide detailed insights into athletes' physiological and psychological states is transforming how training programs are designed, executed, and evaluated.

- Beyond the Numbers. While technology offers detailed data and innovative training methods, the importance of human insight in interpreting this information and making informed decisions cannot be overstated. Technological data should complement, not replace, the nuanced understanding and professional judgment that sports scientists, coaches, and medical staff bring.
- Ethical and Privacy Considerations. The surge in data collection raises legitimate concerns regarding athletes' privacy. It's imperative to establish robust protocols for data management, ensuring that athletes' personal information is protected and used transparently and ethically.
- Accessibility and Fairness. The financial burden of advanced technology might limit its accessibility, creating a divide where only well-resourced teams can afford these tools, potentially compromising the fairness of competitions. Governing bodies need to address these disparities, ensuring equal opportunities for all athletes and teams.
- Holistic Approach. The incorporation of technology in sports demands a multidisciplinary approach. Current and future sports professionals need to be technologically literate, requiring an update in the educational curricula of sports science to include comprehensive training in new technological tools, data analysis, and interpretation.
- Athlete-Centric Perspective. Any technological advancement should prioritize the well-being and development of the athlete. Continuous feedback from athletes is essential to gauge the impact of technology on their training experience, performance, and overall well-being.
- Guiding Regulations. As technology continues to evolve, so too should the regulations that govern its use in sports. These guidelines should promote innovation while upholding the integrity of competitions, ensuring that technology complements athletic performance rather than overshadowing it. In reflection, the confluence of technology and sports is a realm of immense possibility, beckoning a future where enhanced performance, informed strategies, and improved athlete welfare are the hallmarks. However, this future is contingent on our collective ability to navigate the complexities of this integration with thoughtful consideration, ethical discernment, and an unwavering commitment to keeping the spirit of sportsmanship alive. As we forge ahead, our guiding principle should be a harmonious balance between technological advancement and the timeless human essence of sports.

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EFFECT OF STRENGTH TRAINING PRECEDED WITH PNF STRETCH TECHNIQUE ON MOTOR FITNESS VARIABLES AMONG SCHOOL LEVEL KARATEKA

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ABSTRACT

The purpose of the study was to investigate the effect of strength training preceded with PNF stretch technique on motor fitness variables among school level karateka. For this purpose, 60 male karateka were selected randomly from various schools and clubs from Karnataka. The age of the subject ranged from 15 to 18 years. The subjects were randomly divided into two equal groups and each group consisted 30 subjects. Experimental Group I underwent strength training preceded with PNF stretch technique and Group II acted as control group, the subjects in control group was not engaged in any training programme other than their regular work. Before and after the training period of six weeks strength training preceded with PNF stretch technique the pre-test and post test was conducted for all the groups. To determine the difference between the pretest and post test scores of Group I and Group II (ANCOVA) was used. The level of confidence was fixed as 0.05 level. Results proved that there was a significant difference between control group and strength training preceded with PNF stretch technique group on flexibility and speed. It was concluded that six weeks of strength training preceded with PNF stretch technique on flexibility and speed among school level karateka.

Keywords: *Strength Training, PNF Stretch Technique, Motor Fitness and Karate.*

INTRODUCTION

Motor fitness, a key component of athletic performance, encompasses a variety of physical attributes such as strength, flexibility, speed, agility, and coordination. For athletes, particularly those engaged in skill-based sports like karate, enhancing motor fitness is crucial for optimal performance. Karate, a martial art that demands high levels of flexibility, strength, speed and balance requires athletes to continually refine their physical capabilities.

Strength training, known for its ability to increase muscular power and endurance, plays a vital role in the development of these motor fitness variables. However, the effectiveness of strength training can be further optimized when combined with flexibility enhancement techniques, such as Proprioceptive Neuromuscular Facilitation (PNF) stretching. PNF stretching, a technique that involves both stretching and muscle contraction, has been shown to significantly improve flexibility, range of motion, and muscle performance.

This study aims to examine the combined effects of strength training followed by PNF stretching on motor fitness variables among school-level karate players. By exploring how these two training methodologies interact, the research seeks to determine whether the combination of strength training and PNF stretching provides superior benefits in terms of agility, strength, flexibility, and overall motor fitness compared to strength training alone. Given the demanding nature of karate, this investigation

has the potential to offer valuable insights into enhancing training programs tailored for martial artists at the school level.

SIGNIFICANCE OF THE STUDY

This study may help to understand the effects of strength training preceded with PNF stretch technique on motor fitness variables among school level karateka.

HYPOTHESIS

It was hypothesized that there would be significant improvement on motor fitness variables among school level karateka due to strength training preceded with PNF stretch technique.

DELIMITATIONS

- To achieve the purpose of the study 60 male karate players were selected randomly from various schools and club in Karnataka.
- The age of the subject ranged from 15 to 18 years.
- The variables selected for the study are flexibility and speed.

LIMITATIONS

- The previous experience of the subjects in the field of sports training, which might be influencing on the data collection, was not considered.
- Psychological factors, food habits, rest period; life style etc. could not be controlled.
- The weather conditions such as atmospheric temperature, humidity during testing period were also not considered.
- Though the subjects were motivated verbally, no attempt was made to differentiate the motivation level during the period of testing

METHODOLOGY

To achieve the purpose of the study, sixty (N=60) male karate trainees from various schools and clubs from Karnataka were selected. The age of the subject ranged from 15 to 18 years. The subjects were randomly divided into two groups and each group consists 30 subjects. Group I underwent strength training preceded with PNF stretch technique and Group II acted as control group, didn't take part in any specific training.

Table- I

TESTS SELECTION

S.NO	CRITERION VARIABLES	TEST ITEMS	UNIT OF MEASUREMENTS
1	Flexibility	Sit and reach test	In Centimeters
2	Speed	50 yards test	In Seconds

Table-II

ANALYSIS OF COVARIANCE AMONG STRENGTH TRAINING PRECEDED WITH PNF STRETCH TECHNIQUE GROUP AND CONTROL GROUP ON FLEXIBILITY

	STPWPNFSTG	Control Group	Source of Variance	Sum of Square	df	Mean Square	F
Pre Test Mean	5.07	5.4	Between	80.17	2	40.09	2.79
			Within	396.78	57	4.56	
Post Test Mean	5.37	5.1	Between	7.52	2	3.76	14.58
			Within	22.44	57	0.26	
Adjusted Post Mean	5.32	4.66	Between	7.95	2	3.97	15.59
			Within	21.91	56	0.25	

**Significant at 0.05 level of confidence*

Table- II revealed no significant difference in flexibility in pretest phase among STPWPNFSTG and CG. The obtained 'F' value 2.79 It was greater than the critical ratio of 2.05 for degree of freedom 2, 57 at 0.05 level of confidence. However, the 'F' ratio values in post test phase (14.58), and adjusted post-test phase (15.59) were found significant for being greater than the tabulated 'F' values 3.15 and 3.16 at STPWPNFSTG and CG were found, further in order to find out the significant difference among paired adjusted final means, the post-hoc test were computed, which is presented in table- iii.

FIGURE-II

GRAPHICAL REPRESENTATION OF FLEXIBILITY BETWEEN PRE AND POST TEST MEANS AMONG THE TWO GROUPS

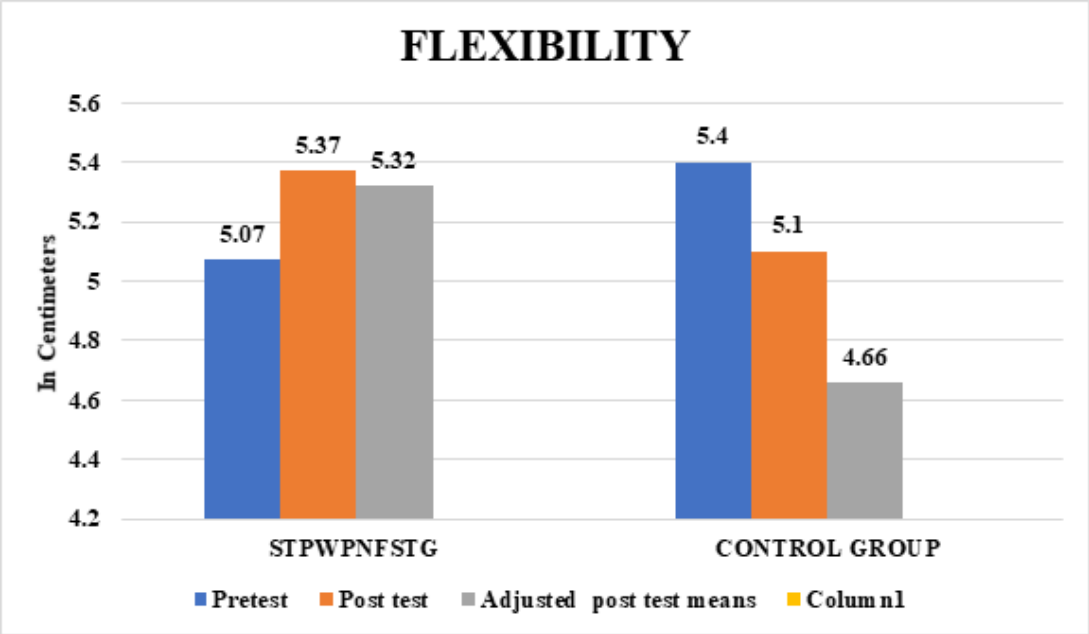


Table- III

SCHEFFEE'S POST HOC VALUES OF ADJUSTED POST TEST MEAN DIFFERENCE ON FLEXIBILITY

S. No	STPWPNFSTG	Control Group	Mean difference	C.V
1.	5.32	4.66	0.12	0.31

Table- III Showing the significant difference of paired adjusted post test means of STPWPNFSTG and Control Group on flexibility.

The obtained mean differences between strength training preceded with PNF stretch technique group and Control Group were 5.32 & 4.66 respectively. The required confidence interval value was 0.31.

Since the obtained mean differences between control group and experimental group were greater than the obtained confidence interval value on flexibility, it was concluded that strength training preceded with PNF stretch technique group increased the flexibility better than the Control Group.

Table-IV

ANALYSIS OF COVARIANCE AMONG STRENGTH TRAINING PRECEDED WITH PNF STRETCH TECHNIQUE GROUP AND CONTROL GROUP ON SPEED

	STPWPNFSTG	Control Group	Source of variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	8.30	8.33	BG	0.42	2	0.20	0.33
			WG	52.21	57	0.60	
Post-Test Means	7.75	8.41	BG	10.92	2	5.46	14.30*
			WG	33.23	57	0.38	
Adjusted Post-Test Means	7.74	10.73	BG	10.19	2	5.09	14.33*
			WG	30.58	56	0.36	

**Significant at 0.05 level of confidence*

Table- IV revealed no significant difference in speed in pretest phase among STPWPNFSTG and CG. The obtained 'F' value 0.33 was found lesser than the tabulated 'F' value 3.15 at 0.05 level of significant with 2, 57 degree of freedom. However, the 'F' ratio values in post test phase (14.30), and adjusted post-test phase (14.33) were found significant for being greater than the tabulated 'F' values 3.15 and 3.16 at STPWPNFSTG and CG were found, further in order to find out the significant difference among paired adjusted final means, the post-hoc test were computed, which is presented in table-v.

FIGURE-II

GRAPHICAL REPRESENTATION OF SPEED BETWEEN PRE AND POST TEST MEANS AMONG THE TWO GROUPS

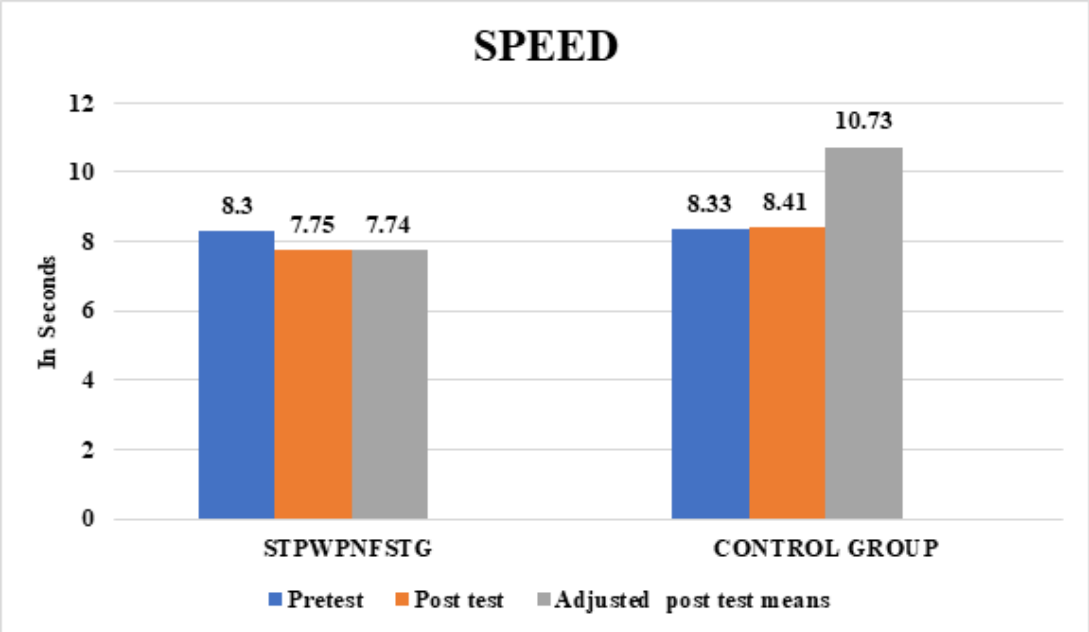


Table- V

SCHEFFEE'S POST HOC VALUES OF ADJUSTED POST TEST MEAN DIFFERENCE ON SPEED

S. No	STPWPNFSTG	Control Group	Mean difference	C.V
1.	7.74	8.40	0.66*	0.36

Table- V Showing the significant difference of paired adjusted post test means of STPWPNFSTG and Control Group on speed.

The obtained mean differences between strength training preceded with PNF stretch technique group and Control Group were 7.74 & 8.40 respectively. The required confidence interval value was 0.36.

Since the obtained mean differences between control group and experimental group were greater than the obtained confidence interval value on speed, it was concluded that strength training preceded with PNF stretch technique group increased the speed better than the Control Group.

DISCUSSION ON FINDINGS

The result revealed that the resistance training preceded with PNF stretch technique group improved karate performance significantly in comparison to the control group (CG). The reasons for improvement might be due to the application of resistance training preceded with PNF stretch technique on the treatment group.

CONCLUSION

Based on the findings and within the limitations of the study the following conclusions may be drawn: resistance training preceded with PNF stretch technique group has a significant positive effect on the performance of karateka. Resistance training preceded with PNF stretch technique training group improves the selected motor fitness variables flexibility and speed.

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ADVANCEMENTS IN WEARABLE TECHNOLOGY FOR TRACKING HEALTH AND FITNESS

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ABSTRACT

Advances in technology continue to provide numerous options for physical activity assessment. These advances necessitate evaluation of the validity of newly developed activity monitors being used in clinical and research settings. This paper provides basic information about the monitoring devices like accelerometer, pedometer, heart rate monitors and armbands that can be applied outside the laboratory in a free-living environment to track energy expenditure, physical activity durations and levels, and lifestyle information.

Key Note*: Accelerometer, Pedometer, Heart Rate Monitors*

INTRODUCTION

The accurate assessment of physical activity (PA) and sedentary behavior in free-living conditions has always been a challenge in epidemiological research. Continued efforts to improve assessment techniques are critical for systematic advancements of the field. The accurate measurement of PA is important to clarify the strength and nature of the dose–response relation between PA and health, to identify current and changing activity levels within populations, to monitor adherence to activity guidelines and to determine the effectiveness of interventions designed to promote PA .

Research has demonstrated the benefits of physical activity (PA) and the negative consequences of sedentary behavior for physical and mental wellbeing . Thus, PA has become increasingly prominent as an intervention tool; however, research is often hindered by the challenge of employing a valid, reliable measure that also adequately satisfies the research question or design. The aim of this commentary is to summarize the main methods of measuring PA.

Currently, three general categories of sensors are used for measuring physical activity in humans: Movement sensors, physiological sensors, and Contextual sensors. Depending on the desired outcome measures, a sensor or a combination of sensors (arrays or networks) can be used for multiple purposes. In this paper devices based on movement and physiological sensors are discussed viz. accelerometer, pedometer (movement sensors), heart rate monitor and armbands (physiological sensors).

ACCELEROMETER

An accelerometer (Figure 1) is a device that measures acceleration (rate of change of velocity) and are increasingly used in the biological sciences. Recordings of acceleration are translated into a metric of interest, which can be biological (e.g. energy expenditure) or PA patterns (e.g. stationary].

Accelerometers can be used to compute physical activity volume, rate, and time spent in different intensities of exercise, and can be used for broader characterizations such as achievement of public health guidelines and classification by physical activity levels. Strengths of accelerometers include minute-by-minute on-line monitoring, capturing intensity level feasibility with young children accuracy with static and dynamic behaviors and large memory capacities. However, accelerometers are expensive and require technical expertise, specialized hardware, software, and individual programming. Devices can be worn in numerous places on the body, including waist, hip, and thigh.



Figure 1: An Accelerometer



Figure 2: A Pedometer

PEDOMETERS

A pedometer is a device, usually portable and electronic or electromechanical, that counts each step a person takes by detecting the motion of the person's hands or hips. The technology for a pedometer includes a mechanical sensor and software to count steps. Their simplicity, relatively low cost, and ability to pick up short durations of PA make these devices popular. Pedometer data also tend to be correlated with biological outcomes and predictors (e.g. age, BMI). Pedometers appear to yield the most accurate data for running and moderate walking, as these behaviors require forward vertical motion. Pedometers do not record intensity, frequency, or duration of PA have significantly less data storage capacity than accelerometers. Pedometers work best for documenting relative changes in PA or ranking individuals.

HEART RATE MONITOR



Figure 3: A Heart Rate



Figure 4: An Armband

Heart rate monitoring is a physiological indicator of PA and energy expenditure providing real-time data on the frequency, duration, and intensity of PA in an unobtrusive (e.g., they can be worn as watches or on the chest), low-effort way for periods up to one month. HR monitors (figure 3) capture energy expenditure during activities not involving vertical trunk displacement that many accelerometers and pedometers miss and are best suited to categorize subjects' PA levels (i.e., highly active, somewhat active, sedentary) as opposed to the exact amount of PA. Advanced models use optics to measure heart rate which measures changes in blood flow by shining a light from an LED through the skin and measuring how it scatters off blood vessels. Some models use either infrared

light or red visible light to measure the heart rate. In addition to measuring the heart rate, devices using this technology are able to measure blood oxygen saturation (SpO_2)

ARMBANDS

In recent years, armband technology has been developed and validated in an effort to address the limitations of other devices. Several versions of the armband exist (e.g., Sense Wear, Health Wear, body bugg) and they use motion and heat-related sensors (i.e., heat flux, galvanic skin response, skin temperature, body temperature). Heat Flux sensors measures the rate at which heat is dissipating from the body. Galvanic Skin Response measures sweat and the dilation of the sweat glands. Skin temperature measures change in the surface temperature of the skin. These sensors calculate and report: Total energy expenditure (kCal), active energy expenditure (kCal), resting energy expenditure (kCal), total number of steps, physical activity duration (PAD) and sleep duration. Armbands have proven to be excellent devices for tasks of daily life (or low to moderate activity), but have not been ideal for higher intensity exercise.

CONCLUSION

Physical activity is a multi-dimensional construct and thus, there is no measure that can assess all facets of PA. The above discussed devises are a few to mention as there are many other devices which can monitor the physical activity like electromechanical switches (for heel strike detections), mercury switches, inclinometers, gyroscopes and Goniometer (for angles or postures). Even global positioning systems (GPS) can now be added to the list. But accelerometers, pedometers, heart rate monitors and armbands are currently the most widely used sensors in human physical activity monitoring in clinical and free-living settings.

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ETHICS OF YOGA IN PHYSICAL EDUCATION AND SPORTS

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ABSTRACT

Yoga is an ancient disciplinedesigned to bring balance and health to the physical, mental, emotional and spiritualdimensionsoftheindividual. Keepingin mind thehealthbenefitsofYoga,ithasbeen madepart oftheschool curriculumunderphysical education and sports. It isalso necessaryto rememberthat sports and gymnastics belong to the scope of Physical Education. In our modern society the term Physical Education has been understood in different ways. In fact, the expression ofPhysical Education originally means "education through the body". It is usingthe work with the bodyas a strategyto reach the noblest goals of education: autonomy and ethics in our relationships with each other and the environment. Both Yoga and Physical Education in their origin use the body as a tool for developing attitudes and abilities that are important to achieve physical and mental health. Nowadays they can be considered complementary subjects. While the West developed the aerobic conditioning and the sports training and focused on its relationship with good heath, the East pursued the same goals through concentration and relaxation. This paper attempts to study the need and importance of some elements of yoga in physical education and sports.

Keywords:*Yoga,physicaleducation,sports,exercise, yogapractice*

INTRODUCTION

Yoga originated thousands of years ago in India as a technique to help people achieve spiritual enlightenment. The word 'yoga' means "to join or Yoke together". It brings the body and mind together to become a harmonious experience. Man is a physical, mental and spiritual being; yoga helps promote a balanced development of all the three. Yoga is a method of learning that aims at balancing "Mind, Body and Spirit". Yoga is distinctly different from other kinds of exerciseas itgenerates motion withoutcausingstrainand imbalancesinthebody. Other forms of physical exercises, like aerobics, assure only physicalwell-being. They have little to dowith the development of the spiritual or astral body. Yogic activities refresh the body and promote divine energies. Yogic exercises recharge the body with cosmic energy and facilitate benefits for Physical Education. Yoga is then commonly taken as a system of physical education with a spiritual component, although the truth is the reverse: Yoga is a spiritual system with a physical component. The "postures" are the physical positions that coordinate breath with movement and we hold these positions to stretch and strengthen different parts of thebody. Theysystematically work allthe major musclegroups,including theback,neck,and shoulders, deep abdominals, hip and buttock muscles and even ankles, feet, wrists and hands. Yoga can help to check any imbalance in muscular development and will enable the body to function more efficiently. If the body is flexible and supple, it will be less prone to sports injuries as the joints will be kept lubricated. Yoga also helps strengthen connective tissue, break down adhesions from old injuries and over-training that have tightened as we age, thus helping create mobility of the joints and an anti-aging posture.

METHODOLOGY

In order to locate research studies and interventions that examined the therapeutic effects of yoga, databases were searched through web based and leading yoga journals.

ROLEOFYOGAINPHYSICALEDUCATION

Yoga is a sound lifestyle, began in India. Presently it is accepted to be a type of science acknowledged everywhere throughout the world. The primary goal of yoga, as a practice of physical education, is to lead to the harmonious growth of childrenandadolescents.Yogaimplementationinphysical education is looked at as a process where no instructions are used.Theuseofyogaelementsincurricularandextracurricularphysicaleducationworkshouldbeprimarily orientedtowardsasanapractice,withelementsofbreathing controland-concentrationinaddition.Incourseoftime, different schools ofyoga created.The significant schoolsof yogaareJnanayoga,Bhaktiyoga,KarmayogaandRaja yoga. Theseschoolsof yoga advocate specific sortofstrategy whichincorporatesanassortmentof systematized practices of yog arelyinguponttheirspecificmethodology. Yogafora typicalindividualcontainstheactsofyama,niyama,asana, pranayama, pratyahara, kriya, mudra, bandha and contemplationwhichareusefultokeeponephysicallyfit, rationally alert and genuinely adjusted. This at last gets ready groundfortheprofoundimprovementofaperson.Thepsychologicalaccentuationofthepresentyogaeducational modulesforschool-goingkidsistobuildup theirphysical wellness, psychological advancement and passionate dependability as opposed to on the otherworldly part of yoga. Role of yoga in education from various angles, including the typeofeducationthatwasbeingprovidedtochildren throughout the world as well as the different levels of stress thatchildrenfaceintheclassroomenvironment.The difficulties,problems,conflicts,distractionsanddissipationof their energies were also considered. We started using certain principles and practices of yoga, firstly, as an experiment to increasethechildren'slearningabilityand,secondly,toinspire teachers to teach theirsubjects in a slightly different way.Ourbeliefwas,andstillis,thatweareeducatingour children without considering or caring for the growth of their entirepersonality.Wearecrammingtheirbrainsandminds with information without creating any support group outside theclassroomenvironment wherethey can continue to imbibe education.Wehavetolookatwhatsciencesaysaboutthe growthofachild,whatpsychoanalysissaysaboutchild psychologyandhowthehormonesandglandsalterandinfluencetherationality,emotionalstructureandcreative output of the child.

IMPORTANCEOFYOGAINPHYSICALEDUCATION

Great Health is the privilege of each individual. Be that as it may, this privilege relies upon individual, social and natural variables. Alongside social or ecological variables to a substantial degree, we can build up a superior insusceptible framework and a superior view of oneself with the goal that differentconditionsdon'tinfluenceusantagonisticallyandwe can accomplish great wellbeing. Wellbeing is a positive idea. Positive wellbeing does not mean only opportunity from infection, however, it additionally incorporate a joyous and lively sentiment of prosperity with a measure of general opposition and ability to effectively develop insusceptibility against explicit culpable specialists. There are numerous advanced and indigenous techniques and orders that can push ustoeffectivelybattlewithailments.Forinstance,the arrangement of yoga, naturopathy, ayurveda, unani, homeopathy and siddha can be cited among indigenous frameworks, though allopathic framework is cited as the cuttingedgeandwellknownrestorativeframework.Yogaisa standout amongst the most dominant drugless arrangement of treatment. It is having its own idea of wellbeing which has been deductively comprehended and displayed by many.Yoga can be received as way of life for advancing our physical and psychological well-being. Yoga, whenever presented at the school level would instill solid propensities and sound way of life to accomplish great wellbeing. The point of yoga in this way, at the school level, is to empower a positive and solid way of life for physical, psychological and passionate wellbeing of youngsters. Yoga helps in the advancement of solidarity, stamina, continuance and high vitalityatphysicaldimension. Itlikewiseenablesoneselfwith expanded

fixation, quiet, harmony and happiness at psychological dimension prompting inward and external amicability.

IMPORTANCEOFYOGAINSPORTS

Sports make an individual extrovert, self-confident and aggressive whereas yoga makes the man humble, docile and balance. Although Yoga and sports are two different disciplines yet yoga techniques and asanas help players to improve their performance and strength, reducinginjuriesand take off their minds from various troubles. It is a good complimentary exercise for athletes. Moreover whatever isthe game, players need focus concentration, self-confidence, self-discipline and better energy levels. All these can be achieved through various yoga techniques. In other words yoga techniques can be used for enhancement of sports performance. All though yoga is beneficial for physicalfitness but every sport involves vigorous movement whereas yoga techniques involve smooth and safe movement of muscles. In sports, muscles are commonly injured by pullsand strains but asanas help to avoid various kinds of injuries. So, Yoga as a therapy helps healing of Physical and mental suffering. Importance of yoga in sports can never be ignored. But as every game is played in different mode and through different means, it is necessary to understand what kind of yoga asanas are needed for the better performance. Every game needs specialized skills as per its requirements. But whatever is the form of skills, players need to train the bodyinsuchawaythatskillsarerefinedandpolishedtoperformin better way. It takes time, energy and commitment to master the skills. Along with this it is very important that a player remains focused, concentrated and confident despite various kinds of distractions liking cheering or chanting slogans. So yoga not only helps to relieve stressand mental sufferings but also contributes in physical fitness. The importance of yoga can be described through the following aspects:

- **ConcentrationandMeditation:** Generallyitisobserved thateverypersonisunableto concentratehis/hermindon single object for long time. Due to lack of concentration, player cannot focus on practice properly which leads to the bad performance, but concentration can be improved through yoga practice. Simply concentration is an act to achieve a focused mind; on the other hand meditation is an act to achieve an uncultured mind. Meditation is very goodbecauseitaddspositiveenergytoallthecellsofthe body and removes any kind of negative energy. Meditation helps to go deeper within oneself. For meditation and concentration, Padmasana or Siddhasana is prescribed. In fact Siddhasana is considered to be the mostbeneficialofall.
- **Stress and Yoga:** During game there is need of stress to some extent but bad stress often effects badly to the performance. Due to stress player can get stomach pain and headaches. Yogic exercises reduce the stress and keeps body and mind fit.
- **Yoga and Nervous System:** The human body is a very efficient, self-generating chemical factory and giant power station practically regulated by the nervoussystem, resulting in excessive release of chemical from the glands under great pressure. Yoga practices provide a large variety of nervous stimulation and increases efficiency of the nerves.
- **Breathing and Yoga:** Breathing is directly related to the performance. A player can reduce the anxiety and improve concentration through deep breathing. Meditation trains the mind to block out all worries of game and helps to focus on the present situation. Yoga regards sinus as a minor problem as it can be cured through breathing techniques. Many players experience stress and anxiety especially at the time of competition. Breathing techniques can contribute in lessening anxiety and pressure of those moments.

- **Yoga balances exercise and athlete:** Yoga improves balance which is very much needed in every game. By practicing balancing moves in yoga, player can learn where to find the centre of gravity or balance, and then movements can be adjusted according to the situations.
- **Strength and Yoga:** Yoga increases an athlete'sstrength. Strengtheningin yoga requiresentire bodyto be working as a unit so that the strengthening one muscle groupisconnected tothatofanother musclegroup. Yoga works on muscles that support the spine andstrengtheningthem,givesthebodymoreflexibility.Yoga balances out posture, improving alignment when thebody is out of alignment. Regular exercises make strong body to feel good.
- **Core strength mechanism:** Yoga postures are all about buildingcorestrength. Corestrengthexercisesstrengthen the core muscles like abdominal muscles, back muscles, hipflexors,hipadductors,diaphragmmusclesetc. Strong coremusclesmakeiteasiertodovariouskindofphysical activities. Core exercises train the muscles in pelvis, lower back, hips and abdomen to work in harmony. This leads to better balance and stability, whether on the playingfieldorindailyactivities. Infact,mostsportsand other physical activities depend on stable core muscles.
- **Kinesthetic:** Yoga discover and explore kinesthetic awareness. It has a wonderful effect on every team sport because it helps to be more aware of both the teammates and the opposition.
- **Agility and yoga:** Agility is an ability of individual to move body position easily and quickly according to the situation. Yoga helps in improving agility. The combination of total body strength, flexibility, postureand balance is aimed to improve body's ability to move freely, quickly and without pain.
- **Yoga and endocrine glands:** Nature has blessed every human being with endocrine system. This system is a network of glands that produce the hormones which help cells to link with each other. They are responsible for every activity or function of every organ in the body. If the endocrine system develops problems, whole bodywill face different kind of issues. This endocrine systemisa fantastic superchemicalsystemofgrowthenhancing, performance enhancing. Thousands of years ago theyogic postures and other exercises had provided for the stimulation of all the endocrine glands.

CONCLUSION

Fromthe above analysis our paper is concluded that need and importance of yoga in physical education and sports is as essentialasithelps us indifferent waysanddifferentlevels in life. The systematic yogic practices not only eliminate and control several diseases but also keep the mind perfect, clean and peaceful. That means the yogic practice gives both physical and mental perfection. Through yoga physical education helps in creating discipline through games and sports. Physical education enhances all the essential traits required for development of the personality and develops the alertness of mind. Yoga offers children and adults an opportunity to experience success in physical activity, which can help build a foundation of strong of life. It is yoga that helps players keeping them cool and calm in stress. So although yoga itself is a sport yet it helps in improvement of playersofother kind ofgames. It would be no exaggeration if yoga is called basic for all other games.

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PERFORMANCE PROFILING TO DETERMINE THE WINNING AND LOSING SDAT MEN'S VOLLEYBALL TEAM

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ABSTRACT

The purpose of this study was to identify the performance indicators that influence match outcomes for the SDAT men's volleyball team, especially with the quality of the opposing teams. The sample included 72 sets played across 26 matches involving 14 teams from various volleyball tournaments. Nine key performance indicators, such as points scored and errors made, were selected for analysis based on whether the team won or lost and the type of opponent faced. The data were analysed through NAC sports software. The findings revealed that the quality of opposition significantly affects team performance. Specifically, the success rates and errors related to spikes and blocks emerged as the primary performance indicators impacting match outcomes. Additionally, service points and errors were also found to be important factors. The analysis employed descriptive statistics and the Chi-Square test using SPSS version 26 to examine these performance indicators across different match conditions and outcomes. This study provides valuable insights for coaches, physical trainers, and match analysts, helping them to evaluate team performance and optimize training strategies.

Keywords*: SDAT team, volleyball, NAC sports software*

INTRODUCTION

Performance analysis is a way to understand the factors explaining success in elite-level sports. It gives coaches knowledge of the sport and ways to develop playing and training.(Inkinen et al., 2014) Coaches carry out match analysis to prepare matches (e.g. to scout) and training sessions, to make decisions during matches, and to analyze their teams or other teams in the competition. (Palao et al., 2018) The availability of the middle attacker emerged as a nuclear issue relating to the construction of quick attacks (Afonso et al., 2010)an increased importance has been given to the preservation of the situation's ecology, thus attempting the comprehension of game patterns through the establishment of relationships between variables of several orders. The purpose of this study was to analyse some match variables that could constraint the setter's tactical action in high-performance women's volleyball, as well as its outcomes. Six matches of the Women's World Champhionships 2006 were analysed following a category system, recurring to observational methodology, namely the technique of sequential lag analysis. Attack tempo has emerged as the crucial variable of the setter's tactical action. Patterns with closed blocks from the opponent, setting in the ideal zone with a jump set, attack simulation by the middle attacker and block anticipation, through committing strategies, tended to culminate in quick attacks. These, in turn, stimulate a debilitated block opposition. Open block formations, receptions in zones 4 and 1, setting in non-ideal zones, no simulation by the middle

attacker and a non-anticipative block (read-and-react strategy The ‘‘near-the-setter’’ blocking strategy, which is a high-risk strategy, provides possibilities for the triple block, whereas the zone block system is a low-risk strategy, and leads to the use of the double block (Stamm et al., 2016)France, Croatia and Italy. A total of six games and 912 serves were analysed.Data were collected using the statistics program Data Volley 2007. The data were transferred to Microsoft Excel 2010, which was used for data analysis. Additional statistical analysis was performed using the program SPSS Statistics 21.For jump float serve, the most preferable service zone was zone 5. The serves from this zone were also the most dangerous. For power jump serve, the most preferable service zone was zone 1. From this zone the smallest number of faults were made at power jump serve, but also the smallest number of ace serves and serves after which the opponent could not use all attack combinations were performed.Substitute players who came game only to perform serves showed the same efficiency in jump float serve as starting players. Among the performers of power jump serves, the starting players could perform more ace serves, but there were also more serves after which the opponent could use all attack combinations. Thus, the serve efficiency was relatively similar for both types of players. Players using the power jump serve were more likely to earn a point with their first serve than the performers of jump float serve. The likeliness of earning a point with the second consecutive serve increased for players using the jump float serve, but remained the same for performers of power jump serve. At power jump serve, service faults occurred more often after timeout than in play, but good serves were hit equally after timeout and in play. At jump float serve, the number of faults was the same after timeout and in play, but good serves, both aces and serves after which was not possible to use all attack combinations, were more often hit after timeout.Underhand pass was used for receiving float serve almost twice more often than overhand pass, even though the accuracy of the latter was higher.”,”container-title”:”Papers on Anthropology”,”DOI”:”10.12697/poa.2016.25.2.06”,”ISSN”:”1406-0140”,”issue”:”2”,”title”:”Comparative analysis of serve and serve reception performance in pool B of European Men’s Volleyball Championship 2015”,”volume”:”25”,”author”:[{“family”:”Stamm”,”given”:”Raini”},{“family”:”Stamm”,”given”:”Meelis”},{“family”:”Vantsi”,”given”:”Marko”},{“family”:”Jairus”,”given”:”Aleksander”}],”issued”:{“date-parts”:[[“2016”]]}}},”schema”:”https://github.com/citation-style-language/schema/raw/master/csl-citation.json”} that can be useful in training planning(De Costa et al., 2014) Serve as the only element in volleyball that the player can perform entirely independently (Stamm et al., 2016) France, Croatia and Italy. A total of six games and 912 serves were analysed.Data were collected using the statistics program Data Volley 2007. The data were transferred to Microsoft Excel 2010, which was used for data analysis. Additional statistical analysis was performed using the program SPSS Statistics 21.For jump float serve, the most preferable service zone was zone 5. The serves from this zone were also the most dangerous. For power jump serve, the most preferable service zone was zone 1. From this zone the smallest number of faults were made at power jump serve, but also the smallest number of ace serves and serves after which the opponent could not use all attack combinations were performed.Substitute players who came game only to perform serves showed the same

efficiency in jump float serve as starting players. Among the performers of power jump serves, the starting players could perform more ace serves, but there were also more serves after which the opponent could use all attack combinations. Thus, the serve efficiency was relatively similar for both types of players.Players using the power jump serve were more likely to earn a point with their first serve than the performers of jump float serve. The likeliness of earning a point with the second consecutive serve increased for players using the jump float serve, but remained the same for performers of power jump serve. At power jump serve, service faults occurred more often after timeout than in play, but good serves were hit equally after timeout and in play. At jump float serve, the number of faults was the same after timeout and in play, but good serves, both aces and serves after which was not possible to use all attack combinations, were more often hit after timeout.Underhand pass was used for receiving float serve almost twice more often than overhand pass, even though the accuracy of the latter was higher.",",container-title":"Papers on Anthropology",",DOI":"10.12697/poa.2016.25.2.06",",ISSN":"1406-0140",",issue":"2",",title":"Comparative analysis of serve and serve reception performance in pool B of European Men's Volleyball Championship 2015",",volume":"25",",author":[{"family":"Stamm",",given":"Raini"},{"family":"Stamm",",given":"Meelis"},{"family":"Vantsi",",given":"Marko"},{"family":"Jairus",",given":"Aleksander"}],"issued":{"-date-parts":[["2016"]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} Information obtained through regular monitoring and statistical analysis can be proved to be an extremely useful way to identify the strengths and weaknesses of a team (Yiannis et al., 2004)1,542 phases-points\\r\\nwere analyzed. As a result of the analysis, it was found that the Greek team was not inferior to the top 5 teams with regard to service.\\r\\nThe Greek team had a significantly greater proportion of aces. This benefit does not compensate for the concurrent greater proportion\\r\\nof lost serves as a consequence of the greater risk embedded in their execution. Greece's capabilities in reception and kill attacks were\\r\\nalso not inferior to those of the top-ranking teams. Greece did not, however, have the same capacity to encompass a positive defense\\r\\nbeyond the block. When serve reception was not optimum, Greece lagged behind both in the proportion of kill attacks and positive\\r\\ndefense beyond the block. Greece also exhibited an inferior potential for cover attacks.",",container-title":"International Journal of Volleyball Research",",issue":"1",",title":"A comparative Study of the Effectiveness of the Greek National Men's Volleyball Team With Internationally Top-Ranked Teams",",volume":"7",",author":[{"family":"Yiannis",",-given":"Laios"},{"family":"Panagiotis",",given":"Kountouris"},{"family":"Ioannis",",given":"Aggelonidis"},{"family":"Alkinoi",",given":"Katsikadelli"}],"issued":{"-date-parts":[["2004"]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} is visible in the matches between different quality teams (upper vs. middle, upper vs. lower) (Drikos et al., 2022) Match analysis emerges as a tool to understand the context of tactical action in team sports settings (Afonso et al., 2010)an increased importance has been given to the preservation of the situation's ecology, thus attempting the comprehension of game patterns through the establishment of relationships between variables of several orders. The purpose of this

study was to analyse some match variables that could constraint the setter's tactical action in high-performance women's volleyball, as well as its outcomes. Six matches of the Women's World Champhionships 2006 were analysed following a category system, recurring to observational methodology, namely the technique of sequential lag analysis. Attack tempo has emerged as the crucial variable of the setter's tactical action. Patterns with closed blocks from the opponent, setting in the ideal zone with a jump set, attack simulation by the middle attacker and block anticipation, through committing strategies, tended to culminate in quick attacks. These, in turn, stimulate a debilitated block opposition. Open block formations, receptions in zones 4 and 1, setting in non-ideal zones, no simulation by the middle attacker and a non-anticipative block (read-and-react strategy

METHODS

The sample was made up of 72 sets played in 26 matches by 14 teams participating in the various volleyball tournaments the SDAT men's volleyball team. An analysis was conducted to examine the performance indicators of various skills based on match balance and match outcomes (win or lose). The statistics were used descriptive statistics and Chi-Square test through SPSS-26 version. These matches are divided into four phases group stage, eliminating stage, semi-finals, and final. There is a total of 26 matches (Yu et al., 2018). This research has shown that the SDAT team has only managed to secure the fourth position at best during various matches. Their performance has been average, placing them in the middle of the tournament rather than at the top

PERFORMANCE INDICATORS

- **Attack Attempt** is an action taken by a malicious actor to launch an attack on a system or person. It can also refer to the act of gathering information and assessing vulnerabilities to prepare for an attack
- **Attack Success** Points are scored in volleyball when the spiker sends the ball directly to the opponent's court or when the ball-defending team is unable to control the ball.
- **Attack Error** The spiker either sends the ball over the net, makes a fault, or has the ball blocked by the opponent's front line.
- **Service attempt** effort to inform a person that they have been summoned to appear in court. This is done by a service agent, such as a process server, who delivers the summons or other legal documents to the defendant.
- **Serve Success** Points are scored in volleyball when the serving team hits the ball directly into the opponent's court or if the receiving unit is unable to control the ball.
- **Serve errors** the server either hits the ball into the net or makes a fault, causing the ball to go out.
- **Block Attempt** an attempt to obstruct someone or something from doing something. For example, you might block someone from signing into your account, or block an opposing player in a game
- **Block Success** If the blocker hits the ball toward the opponent's court or if the defending team is unable to manage the ball, it will result in a point for the opposing team.
- **Block errors** Points can be lost if there is contact with the block or if the blockers make a fault.

DISCUSSION

This research aimed to identify the key performance indicators that could distinguish between the results of matches based on the strength of the opposing team in the SDAT Men's volleyball team. It was found that the primary indicators affecting the outcome of sets were spike and block points along with errors. Serve points, serve-reception errors, and excellent defenses were also found to be significant indicators. The importance of these performance indicators varied depending on the quality of the opposing team. This study provides valuable insights into how situational factors influence the performance of the SDAT men's volleyball team.

It is worth noting that spike errors are a significant indicator during matches that involve teams with varying levels of ability. This could be attributed to the inferior performance of teams with lower ability or the higher risk-taking behavior of teams when attacking superior opponents.

When training young players, it's important to consider their tactical abilities and gender-specific differences in technical skills. The serve is a key aspect of a successful team's performance. According to the data, the jump serve has the highest error rate and the lowest number of aces generated. Successful players possess the ability to set appropriate goals and points. Teams that win tend to have a higher attack efficiency than those that lose. The main difference between winning and losing teams is the frequency of errors, which varies depending on the type of attack used.

After analyzing the game actions during the side-out transition, it was concluded that the complexity of the attack in this game is a good performance indicator. Interestingly, the present study did not find a significant association between attack errors and the set outcome. This means that the attack's effectiveness is more important in achieving points for the teams that lose the sets. To increase the chances of winning, it is crucial to improve the attacking effectiveness during a counterattack or side-out.

The study suggests that experienced and successful players tend to prioritize scoring goals and competing against their opponents over understanding the conditions or concepts of the game. Additionally, the research found that top-tier teams demonstrate higher efficiency in scoring points through serving, attacking, and blocking while making fewer errors when playing against lower-quality teams.

This study provides information about the performance indicators that distinguish set outcomes based on team levels. However, certain limitations need to be noted. For instance, the absence of game spike tempo, player roles, or the influence of other contextual variables. Therefore, future studies should consider other contextual factors such as match location, game period, or match status, to gain a better understanding of the game dynamics. Additionally, other performance indicators could be analyzed, such as the type of action, or performance in other leagues or international contexts.

Table:1 Performance indicators values (mean, SD, SE when the statistically significant differences between match outcomes.

PIs	Mean	SD	SE	F	Sig.	Chi-square
Attack attempt	51.5385	17.20519	3.37421	1.101	.504	6.308
Attack success	24.5769	8.97184	1.75952	.939	.591	6.692

PIs	Mean	SD	SE	F	Sig.	Chi-square
Attack error	10.1923	7.33223	1.43797	2.833	.126	8.000
Block attempt	28.5769	13.06652	2.56255	.828	.658	4.462
Block success	6.1154	3.17902	.62346	.812	.669	7.000
Block error	11.3077	8.19155	1.60650	1.806	.266	4.462
Service attempt	51.3846	11.42305	2.24025	.644	.781	59.538
Service success	5.0385	4.03466	.79126	2.011	.225	10.385
Service error	5.0769	2.24362	.44001	.718	.731	10.923

The table presents statistical measures for various volleyball performance indicators (PIs), including attack, block, and service actions. The **mean** values indicate the average occurrences of each action, such as **51.54 attack attempts**, **24.58 attack successes**, and **10.19 attack errors** per match. The **standard deviation (SD)** shows the dispersion of data, with higher values like **17.21 for attack attempts** suggesting greater variability, while lower SDs, such as **3.18 for block success**, indicate more consistency. The **standard error (SE)** quantifies the precision of the mean estimate, with smaller values (e.g., **0.62 for block success**) signifying higher reliability. The **F-values** represent variance comparisons among groups, with none reaching statistical significance as indicated by **p-values (Sig.)** all above **0.05**, suggesting no significant differences between groups. The **Chi-square values** measure the statistical distribution of each indicator, with **service attempt (59.54)** showing the highest variability. These statistics provide valuable insights into performance consistency and variability across different volleyball actions.

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CONCLUSION

To improve the performance of the SDAT team in attacking and blocking, it is crucial to focus on specific strategies and training methods.

Encourage players to communicate effectively and work on their timing and positioning during blocking. Incorporate specific drills that focus on synchronized movements and reading the opponent's attack patterns.

Train players to recognize and exploit gaps in the opponent's defense, especially during counterattacks. Encourage players to vary their attacking strategies, including using off-speed shots and directional hitting.

Serve and block error reduction. Implement drills that focus on consistent serving techniques and placement. Emphasize the importance of disciplined blocking without committing unnecessary errors.

Diverse training methods. Introduce varied training activities such as game simulations, situational drills, and video analysis to enhance decision-making during attacks and blocks. Incorporate strength and conditioning exercises to improve players' physical capabilities for effective attacking and blocking.

Encourage the team to work together to improve their first pass and defense through synchronized movements and positioning. Focus on developing a cohesive defensive strategy that complements the attacking efforts.

Teach players to assess the game situation and take calculated risks when necessary, especially during attacking and blocking scenarios. Emphasize the importance of decision-making under pressure and maintaining composure during crucial points in the game.

Create a system for continuous performance evaluation, including individual feedback sessions and analysis of match performance. Encourage players to learn from mistakes and adapt their strategies based on feedback. By focusing on these specific instructions and guidance, the SDAT team can effectively address their performance issues and significantly enhance their attacking and blocking skills during the first set and beyond.

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EXPLORING THE EFFECTS OF RHYTHMIC AND CLASSICAL THEME YOGA ON STRESS REDUCTION IN THE MODERN WORLD

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ABSTRACT

In the modern world, stress has become a pervasive issue affecting mental, physical, and emotional well-being. Rhythmic yoga, with its focus on movement and breath, is effective in regulating heart rate and promoting mental clarity. Classical theme yoga, with its emphasis on deep stretching and relaxation techniques, is known to reduce chronic stress and anxiety. Both forms of yoga offer unique benefits for stress relief, catering to different preferences and stress levels. Integrating rhythmic or classical yoga into daily routines can help individuals achieve a healthier balance and enhance overall well-being.

Keywords: *Rhythmic yoga and Classic yoga*

INTRODUCTION

In the fast-paced, technologically driven environment of the modern world, stress has become a pervasive issue affecting mental, physical, and emotional well-being. The search for effective stress management techniques has led to the growing popularity of yoga, a holistic practice that integrates physical postures, breathing exercises, and meditation. Among the various forms of yoga, rhythmic and classical theme yoga has shown promising effects in combating stress.

RHYTHMIC YOGA AND STRESS REDUCTION

Rhythmic yoga involves synchronized movements that flow with the rhythm of breathing. This dynamic practice often resembles a dance-like sequence and creates a balance between body, mind, and breath. Key features of rhythmic yoga include:

Flow of Movement: The seamless transitions between poses (asanas) in rhythmic yoga promote continuous movement, which helps in releasing tension from the muscles.

Focus on Breathing: Rhythmic breathing techniques are crucial in calming the nervous system, reducing cortisol levels (stress hormones), and improving oxygen flow to the brain.

Mind-Body Connection: By incorporating rhythm into the practice, participants become more attuned to their body's movements, promoting mindfulness and reducing anxiety.

Studies have shown that rhythmic yoga helps regulate heart rate, lowers blood pressure, and induces a state of mental clarity, all of which contribute to reduced stress levels.

CLASSICAL THEME YOGA AND ITS IMPACT ON STRESS

Classical theme yoga is grounded in ancient yogic traditions, emphasizing a slower, more meditative approach to yoga practice. The classical form often focuses on the following elements:

Asanas (Postures): Classical yoga emphasizes holding poses for longer durations, allowing for deep stretching and release of built-up tension.

Pranayama (Breathing Techniques): Controlled breathing exercises in classical yoga, such as Nadi Shodhana (alternate nostril breathing) and Ujjayi (victorious breath), help activate the parasympathetic nervous system, bringing the body into a state of relaxation.

Meditation and Mindfulness: Classical yoga integrates mindfulness meditation to quiet the mind and promote a sense of inner peace. Techniques such as Dhyana (focused meditation) allow practitioners to detach from stress-inducing thoughts and emotions.

Research indicates that classical yoga practices are highly effective in reducing chronic stress, anxiety, and depression. The slow, intentional movements paired with breath work help in activating the relaxation response in the body.

COMPARATIVE ANALYSIS: RHYTHMIC VS. CLASSICAL THEME YOGA FOR STRESS REDUCTION

While both rhythmic and classical yoga practices are effective for stress relief, they offer different approaches based on individual preferences and stress levels:

Rhythmic Yoga: Ideal for those who prefer a more energetic and dynamic practice. It is well-suited for people who enjoy movement-based relaxation and may be looking for an engaging way to release pent-up stress.

Classical Yoga: Best for individuals seeking a meditative and introspective practice. It is particularly effective for those dealing with long-term stress or emotional fatigue, as the focus on stillness and breath can have profound calming effects.

CONCLUSION

In the modern world, where stress is an inevitable part of life, both rhythmic and classical theme yoga offer powerful tools for stress management. Rhythmic yoga's fluid movements paired with deep breathing techniques provide an energizing way to unwind, while classical yoga's slower, meditative practice allows for deeper emotional and mental relaxation. By integrating either or both forms of yoga into daily routines, individuals can achieve a healthier balance between mind, body, and spirit, ultimately reducing stress and promoting well-being.

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EFFECT OF KETTLE BELL TRAINING ON HEART RATE AMONG MEN HANDBALL PLAYERS

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ABSTRACT

The purpose of this study was to examine the effect of kettlebell training on heart rate among college-level male handball players. To achieve this objective, thirty college men handball players were selected from PMT College, Sankarankovil, Tenkasi, Tamil Nadu, India, during the academic year 2024–25. The participants were aged between 18 and 24 years.The selected players were randomly divided into two equal groups of 15 each: an experimental group and a control group. The experimental group underwent a structured kettlebell training program for six weeks, while the control group did not participate in any additional training during the study period. Heart rate was chosen as the primary criterion variable and was measured using the palpation method at the wrist (radial artery).A pre-test was conducted before the training period, and a post-test was administered immediately after the six-week intervention. The collected data were analyzed using the statistical 't' ratio to compare the mean values of the pre-test and post-test for both groups. The results indicated a significant difference in heart rate, demonstrating that kettle bell training had a measurable impact on the experimental group when compared to the control group. This study highlights the effectiveness of kettlebell training in influencing heart rate, reinforcing its potential as a valuable conditioning tool for handball players.

Keywords: *Kettle Bell, Training, Heart rate.*

INTRODUCTION

The physical and physiological variables considered as the fundamental important in the training process upon which the training elements are completed, where achieving levels of performance associates with possession of levels of physical and physiological abilities by the player that is significantly related to skills and tactical performance **Elumalai, G., & Kannan**, **S. (2019)** Numerous training methods were developed to promote the level of performance, kettle bell training method is one of the most recent methods for the team games. A kettle bell exercise are known as changing speed or speed play, discriminates for other methods that its work can be conducted in a similar feature to performance time during the games. Moreover, kettle bell exercise considered as one of the most important training methods that work on developing the player's aerobic and anaerobic **Jay, K., Frisch, D., Hansen, K., Kjer, J., & Andersen, L. L. (2013)**

METHODOLOGY

The purpose of this study was to examine the effect of kettlebell training on heart rate among college-level male handball players. To achieve this objective, thirty college men handball players were randomly selected as subjects. The participants were between 18 and 24 years of age.The selected subjects were divided into two equal groups of fifteen: the kettlebell training group (experimental group) and the control group. The experimental group underwent kettlebell training three days per

week for six weeks, while the control group continued with their regular physical activities as per their curriculum, without any additional training.Heart rate was chosen as the primary physiological variable for assessment. The heart rate of all subjects was measured using the palpation method at the wrist (radial artery) both before the training period (pre-test) and immediately after the six-week program (post-test).To determine significant differences between the groups, a 't' test was applied. A confidence level of 0.05 was set to assess statistical significance, ensuring an appropriate level of accuracy for the study.

ANALYSIS OF THE DATA

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent't' test was used with 0.05 levels as confidence.

TABLE - I

ANALYSIS OF T-RATIO FOR THE PRE AND POST TESTS OF EXPERIMENTAL AND CONTROL GROUP ON HEART RATE

Scores in beats per minute

Variables	Group	Mean		SD		Sd Error		df	't' ratio
		Pre	Post	Pre	Post	Pre	Post		
Heart rate	Control	69.13	68.73	1.30	1.33	0.34	0.34	14	1.31
	Experimental	68.80	66.07	1.74	1.16	0.45	0.30		10.25*

**Significance at .05 level of confidence.*

The Table-I reveals that the mean values of pre-test and post-test of the control group on heart rate were 69.13 and 68.73 respectively. The obtained 't' ratio was 1.31, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on heart rate were 68.80 and 66.07 respectively. The obtained 't' ratio was 10.25*since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in heart rate. It may be concluded from the result of the study that experimental group improved in heart rate due to six weeks of kettle bell training.

DISCUSSIONS ON FINDINGS

The result of the study indicates that the experimental group, namely kettle bell training group had significantly improved the selected dependent variable, namely heart rate, when compared to the control group. It is also found that the improvement caused by kettle bell training when compared to the control group. The result of this study on heart rate has in line with the study conducted by Takeshima, N., Rogers, M. E., Islam, M. M., Yamauchi, T., Watanabe, E., & Okada, A. (2004).

CONCLUSIONS

- There was a significant difference between experimental and control group on heart rate after the training period.
- There was a significant improvement in heart rate. However the improvement was in favour of experimental group due to six weeks of kettle bell training.

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EXPLORATION OF VIRTUAL FITNESS CLASSES

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ABSTRACT

Virtual fitness allowing individuals to personalize their routines and progress at their own pace. It also promotes mental health by offering an easy way to maintain physical activity, which has well-documented benefits for reducing stress, anxiety, and depression. The ability to access classes from home or anywhere, virtual fitness allows users to avoid the constraints of gym hours, geographical limitations, and costly memberships. A group of participants who are interested in participating in VFC. Participants engaged in live virtual group fitness classes with real-time instructor feedback and interaction. The study found that individuals who reported increased intrinsic motivation during the intervention also showed increases in exercise frequency ($r = 0.60$, $p < 0.01$). Adults and adolescents particularly benefiting from peer engagement and instructors personalized support. the future of fitness is likely to be a blend of in-person and virtual experiences, designed to cater to a wide range of user preferences and needs.

***Keywords**: Virtual Fitness Class (VFC), Social Interaction, Exercise Adherence, Motivation and Engagement ETC.,*

INTRODUCTION

Virtual fitness has become increasingly necessary due to its ability to offer convenience, flexibility, and accessibility. It allows individuals to work out from the comfort of their homes, eliminating the barriers of travel time, gym schedules, and busy lifestyles. Virtual fitness platforms also provide greater access to a wide variety of workouts and trainers, making fitness resources available to people regardless of their location. Moreover, virtual fitness tends to be more cost-effective than traditional gym memberships or personal training sessions, providing affordable options for many. The need for virtual fitness was further highlighted during the pandemic, as gyms closed and people sought alternative ways to stay active while practicing social distancing. Additionally, virtual fitness caters to various fitness levels, allowing individuals to personalize their routines and progress at their own pace. It also promotes mental health by offering an easy way to maintain physical activity, which has well-documented benefits for reducing stress, anxiety, and depression. As a result, virtual fitness not only supports physical health but also enhances overall well-being, making it an essential part of modern wellness routines. *Harris & Melnick (2020)* argue that one of the primary reasons for the widespread adoption of virtual fitness programs is their convenience. With the ability to access classes from home or anywhere, virtual fitness allows users to avoid the constraints of gym hours, geographical limitations, and costly memberships. This flexibility has significantly increased participation rates among individuals with busy lifestyles or limited access to gyms. As health and wellness trends have shifted toward personalized and flexible fitness solutions, virtual fitness emerged as a solution that meets the demand for more tailored, convenient exercise routines. *Jones & Miller (2021),* motivation is a double-edged sword in the world of virtual fitness. While virtual fitness offers the flexibility of working out in private, some users find it difficult to stay motivated without the structured environment and social support provided by a traditional gym. However, they note that fitness apps and platforms that offer customized goals, progress tracking, and virtual rewards tend to see higher levels of user

retention and satisfaction. And virtual fitness has reshaped the fitness industry by broadening access to exercise and diversify streams for fitness companies. Traditional gyms have been forced to adapt, offering virtual membership options to stay competitive. Moreover, fitness instructors and personal trainers have expanded their reach, gaining clients globally rather than being limited to a local area

VFC associated with mental health improvements, including reductions in anxiety, stress, and depression. Many online fitness programs incorporate mindfulness, meditation, and mental well-being components, which have shown positive outcomes. *But Meyer & Weinstein (2020)* note that motivation and accountability can be challenges in virtual fitness. Without the presence of an instructor physically present, participants may struggle to stay motivated.

PRIMARY GOALS OF STUDY

- Exploring the factors influencing user engagement in virtual fitness programs.
- Coining the mental health benefits of participating in virtual fitness programs.
- Identifying the key barriers to sustained participation in virtual fitness programs and how they can be overcome.
- Examining the effectiveness of virtual fitness programs in supporting weight loss goals.

APPEARANCES OF VIRTUAL FITNESS CLASSES

- **Convenience** - The ability to access classes from home or anywhere, virtual fitness allows users to avoid the constraints of gym hours, geographical limitations, and costly memberships. *Harris & Melnick (2020)* argue that one of the primary reasons for the widespread adoption is due to the flexibility in accessing the classes has significantly increased participation rates among individuals with busy lifestyles or limited access to gyms.
- **VFC -** People turned to online and virtual fitness classes as gyms and fitness studios this surge in demand for virtual fitness was driven by the need for physical activity during social isolation.
- **Gadgets** - the role of wearable devices and fitness trackers are enhancing the VF experience. Wearables, such as smartwatches and fitness trackers, allow users to monitor heart rate, calories burned, and other key metrics in real-time, making virtual fitness more interactive and personalized.
- **Platforms** -Many fitness companies and individuals were already offering virtual classes and workout videos. Platforms like Beachbody on Demand (launched in 2015) and Peloton (launched in 2012 for cycling classes, with other workouts expanding later) paved the way for on-demand fitness experiences.
- **YouTube -** Fitness enthusiasts and personal trainers were posting free workout videos across various styles, from yoga and Pilates to HIIT and strength training.
- **Fitness Apps -** Apps like Nike Training Club and Fit on offered free and paid virtual workouts for users, although the demand was much lower compared to the pandemic era.
- **Expanding Options -** Hybrid approach by Fitness centres and trainers like offering both in-person and online options. Platforms like Mindbody and Zumba also continued offering virtual fitness options. New formats and specialized training such as virtual boot camps, specialized cycling programs, and mindfulness fitness have emerged.

- **Sustained VFC**: Many people prefer the option to work out at home, and fitness companies continue to develop innovative ways to enhance virtual experiences like live classes, virtual challenges and interactive features.

METHODOLOGY

In this approach, Sequential Exploratory Design was used to surveys the identify general trends and then follow up with interviews to explore individual experiences and perceptions in more depth. A group of participants who are interested in participating in VFC. Participants engaged in live virtual group fitness classes with real-time instructor feedback and interaction. They have attended live, instructor-led fitness classes via an online platform like Zoom, Google Meet, or another live-streaming services. Independent Variable where types of fitness classes include live virtual group classes and pre-recorded on-demand classes. Dependent Variables were Social Interaction, Exercise Adherence, Motivation and Engagement. Social Interaction measured by standardized surveys or scales where participants rate their sense of connection and communication with others during virtual sessions. Exercise Adherence recorded through participant logs indicating the frequency of participation in classes. Motivation of Participants was filled out before and after the intervention it leads to surveys assessing their motivation to continue with fitness programs with behavioural regulation in exercise questionnaire. Participant Satisfaction trapped through Surveys or interviews at the end of the study. While Analysing data the Descriptive statistics was used to summarize demographic data and baseline characteristics of the groups. Inferential statistics techniques to determine the predictive factors for exercise adherence and motivation by regression and T-tests was used to measure motivation and social interaction.

RESULTS AND DISCUSSION

Social Interaction: A t-value of 4.59 with a p-value less than 0.001 indicates that participants in the live virtual group felt significantly. VFC can create a sense of community and provide peer support, boosting motivation and increasing long-term exercise adherence. Features like live chats, group challenges, and instructor engagement help foster social connections. Adults and adolescents particularly benefiting from peer engagement and instructors personalized support.

Exercise Adherence: The t-value of 3.21 with a p-value of 0.002 suggests that there is a statistically significant difference among all the participants in the live virtual group fitness classes would report higher levels of exercise adherence. The primary reasons for the widespread adoption of virtual fitness programs are their convenience.

Motivation and Engagement: The study found that individuals who reported increased intrinsic motivation during the intervention also showed increases in exercise frequency ($r = 0.60$, $p < 0.01$). Conversely, individuals who became more demotivated during the study showed decreases in exercise frequency ($r = -0.50$, $p < 0.01$). Particularly pre-recorded classes, may lack this personalized attention, which can lead to lower quality of exercise performance.

SUGGESTION

The prerequisites for trainers in virtual fitness programs combines professional qualifications, technical skills, and personal attributes. Trainers should have a recognized fitness certification for evident results. Proficiency with Fitness Technology comfortable using online platforms and tools for delivering classes. Essential to address potential streaming or technical issues during live sessions

to ensuring a smooth user experience. Trainers need to be able to engage and motivate participants through a screen. Effective verbal communication is key for delivering clear instructions and keeping participants engaged. Trainers should be able to listen to participants' concerns and feedback, adjusting the class accordingly to suit their needs.

CONCLUSION

This research focuses on the technological advancements driving the virtual fitness industry. One potential limitation fitness is the lack of social interaction, which is often cited as a motivator for attending in-person fitness classes. However, some platforms have introduced virtual challenges, group classes, and social features to counteract feelings of isolation.

Overall, virtual fitness has proven to be a highly effective and convenient solution for many individuals, offering flexibility, accessibility, e options for improving both physical and mental health. However, challenges remain, including maintaining motivation and engagement and overcoming technological barriers. As the virtual fitness landscape continues to evolve with new technologies and innovations, the future of fitness is likely to be a blend of in-person and virtual experiences, designed to cater to a wide range of user preferences and needs.

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STEP, LIFT, STRENGTHEN: UNVEILING THE BENEFITS OF LOW-IMPACT AEROBIC DANCE COMBINED WITH WEIGHT TRAINING ON WAIST HIP RATIO AND LEG STRENGTH ENDURANCE OF SEDENTARY WOMEN

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ABSTRACT

Background and study aim*: Aerobic dancing and weight training have positive effects on women who are sedentary. However, less emphasis has been placed on the combined effects of using two distinct training modalities in one session. The need to look into these training techniques is indicated by this research gap.*

Materials and methods**:** *This study aimed to investigate the impact of 12-week aerobic dance and weight training on waist hip ratio and leg strength endurance of sedentary women. Thirty inactive women were randomized to be in one of two groups either an exercise training group (TG) or control group (CG), and their ranged from 35 to 45 years. For 12 weeks, the training group underwent their corresponding training three times a week for an hour each session. Both before and after the investigation, waist and hip ratio and leg strength and endurance were evaluated using standardized tests. Data before and after the intervention were analyzed using the t test.*

Results: *Following the intervention in sedentary women, significant improvements were observed compared with the control group. WHR decreased from 0.88% to 0.87% in the experimental group, whereas there were no changes in the control group. Similarly, LSE increased from 13.13 and 17.07 counts in 12-week training group, while in CG, it decreased from 13.33 to 13.27 counts.*

Conclusion: *This study highlights the potential of 12-week low impact aerobic dance combined with weight training as a noninvasive intervention for maintaining physical fitness in sedentary women.*

Keywords: *Low impact aerobic dance, Weight training, Waist-hip ratio and Leg strength and endurance.*

INTRODUCTION

"Physical inactivity is a silent threat to global health, contributing significantly to the burden of chronic diseases"

People's general health is greatly influenced by their sedentary lifestyles around the world. Everyone knows that physical inactivity, or being less physically active, is bad for health. Physical inactivity is the 4th most important risk factor for mortality and is responsible for 6% of all deaths. Sedentary behavior is any awake behavior (such as leaning or sitting) that requires more than 1.5 metabolic equivalent tasks (METs) **(SBRN, 2017)**.

A recent study published in 'The Lancet Global Health' reveals that almost half of Indian adults do not meet the World Health Organization›s (WHO) recommended levels of physical activity. This trend poses significant health risks and highlights a concerning increase in sedentary lifestyles. The study, conducted across 197 countries from 2000 to 2022, shows a sharp rise in physical inactivity among Indian adults. In 2022, 45.4% of Indian adults were inactive, up from 22.4% in 2000. The

gender disparity is notable, with 52.6% of women and 38.4% of men physically inactive. If this trend continues, inactivity levels could reach 55% by 2030.

The increasing development of technology that significantly reduces the volume and intensity of physical activity can lead to health problems, such as the increased risk of cardiovascular diseases (CVD), type 2 diabetes mellitus (T2DM) **(Kovacova** *et al.,* **2011).** Modern lifestyle associated with easy access to food, lack of exercise, sedentary lifestyles, calorie dense foods, and excessive television viewing contribute to development of NCDs **(Kelishadi** *et al.,* **2008).** Women generally have lower levels of physical activity compared to men **(Scharff** *et al.,* **1999).** They are more likely to have a change (either an increase or a decrease) in calorie intake in their lifetime **(Richardson** *et al.,* **1996)**. Compared to global estimates, Indians are found to be sedentary and less active physically. A multi-center study conducted in four regions of India concluded that more than 50% of the participants were inactive and less than 10% of the population engages in recreational physical activity **(Anjana** *et al.,* **2014)**.

Currently, aerobic dance is very popular in various parts of the world **(Schroeder** *et al.,* **2017)**. Aerobic dance is one type of gymnastics that is developing, it is favored by the community for several reasons, such as being able to practice anywhere, alone or together, and at low cost. Several studies reveal the benefits of doing aerobic dance can reduce the level of the individual stress response, and reduce psychosomatically **(Ramania** *et al.,* **2020)**. The popularity of aerobic dance is associated with the type of physical activity that is following the concept of gender identity, the concept of femininity, and female body image **(Chuprun & Yurch-enko, 2020).**

In older people, exercise improves their physiological status and quality of life. Resistance training with moderate-intensity loads was confirmed to be helpful for older individuals with increasing muscle size and strength. In aerobic exercise, these larger muscles work in a rhythmic manner over a long period of time; and resistance exercise involves those muscles working hard against an applied force or weight, as in weight lifting. Aerobic and resistance-type exercise training has been shown to improve the rate of decline in muscle mass and strength with age **(Frankel** *et al.,* **2006).**

However, despite this well-documented advantage of combined training, more research is still needed on the exact quantification of aerobic dance combined with weight training benefits over physical fitness components. This justifies the identified research gap for focused studies, which would yield direct benefits concerning aerobic dance combined with weight training in sedentary women. This study aims to fill this gap by implementing a systematic 12-week low impact aerobic dance and weight training and assessing its specific effects on waist hip ratio and leg strength and endurance of sedentary women.

HYPOTHESIS

We hypothesized that, sedentary women performing low impact aerobic dance combined with weight training will produce larger improvements in the following variables (i.e. waist to hip ratio and leg strength and endurance). Specifically, waist-to-hip ratio and leg and abdominal muscular strength are important for sedentary women as it relates to daily living and injury prevention.

MATERIALS AND METHODS

STUDY PARTICIPANTS

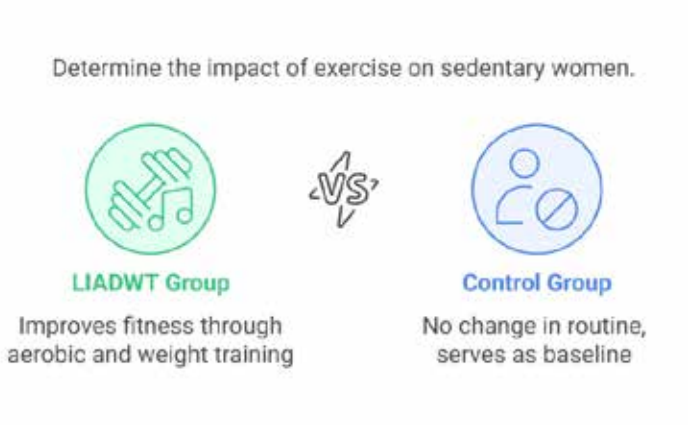


Figure 1: LIADWT vs. CG

Thirty sedentary women aged 35-40 years were randomly assigned to two groups (i.e. LIADWTG and CG) of involvement i.e by using the method of Randomly Permute Blocks, a program available on a freely accessible official website (www.randomizer.org). During the trial, participants were told not to change their daily routines in any way possible. Concerns on the possible risks or benefits arising from the study were explained to all the participants and each of them signed a written informed consent. Group I performed low impact aerobic dance training in addition to weight training, (LIADWT), while Group II served as the control group. The primary objective of the study and any associated protocols were explained to the participants. A licensed medical professional evaluated all subjects and deemed all fit to participate in this study. No dropout was observed in this study. Consistent with the Declaration of Helsinki's guidelines, this study adhered closely to these guidelines.

Table 1 summarizes the demographic characteristics of the participants

Group of subjects	n(1)	Age (Years)	Height (Cm)	Weight (Kg)	BMI
LIADWT (G1)	15	40.7 ± 1.5	172.6 ± 2.1	73.7 ± 2.5	24.7
Control (G2)	15	40.5 ± 0.9	172.5 ± 1.6	78.5 ± 1.7	26.3

INCLUSION AND EXCLUSION CRITERIA

In order to be included in the study, the women had to fulfill certain requirements. To participate in the study, participants had to be sedentary for six months prior to the start of the study, not smoke, not be pregnant, and only missing one session of the 12-week aerobic dance and weight training classes of which they participated; they also had no injuries; they appeared at both assessments; they had participated regularly in any sports or other serious physical activity, and they agreed to participate in the study.

The exclusion criteria were a history of infectious diseases, musculoskeletal, cardiopulmonary, neurological, or orthopedic disorders; disability for performing aerobic dance steps and weight training exercises; more than two missed exercise sessions; and subject or parent unwillingness to participate.

OUTCOME ASSESSMENT

CIRCUMFERENCE MEASUREMENT (WAIST-HIP RATIO)

A standard tape measure was used to measure the circumference. The waist and hip regions are measured to compute the waist-to-hip ratio. To ensure an accurate measurement, subjects were required to stand and dress modestly. Measurements of circumference were made three times at each point, and the mean of the three measurements was noted. The same tester performed each measurement to reduce the observer error. The waist was measured while breathing normally, parallel to the ground at its narrowest point. The muscle that extended the furthest from the buttocks, the gluteus maximus, was measured parallel to the hip. Waist circumference divided by hip circumference yields the WHR value.

CHAIR STAND TEST

The leg strength and endurance tests were performed using a chair stand (Sherwood et al., 2019). The participants sat in the middle of the chair, with their feet flat on the floor, and their hands on the opposite shoulder, crossed at the wrists. The participants were instructed to stand up from the chair and assume a full standing position as soon as the instructor said, "Go," and then to sit down again as quickly as they could for a duration of 30 seconds. A standard chair (with a seat height of 40 cm) without a backrest but with armrests was used. The participants were instructed to maintain a straight back and to keep their arms pressed against their chests. All trials were performed using the same chair and under similar ambient conditions. The best performance was noted after twice counting the total number of stand-ups in 30s **(ACSM, 2013)**.

TRAINING INTERVENTION

Training volume varied between 60% and 80% of low impact aerobic dance and weight workouts for the training groups versus 3 days per week. In the same session, the participants performed low-impact aerobic dance and, then weight training. Aerobic dance exercise intensity difficulty refers to the difficulty in performing and weight training exercise intensity starts with 65% in 1-4 weeks, 70% in 5-8 weeks and 75% in 9-12 weeks. The anatomical adaptation phase was needed to induce the first neural adaptations, and we needed an intensity of 65% during the first 2 weeks to reach up. Intensity was increased progressively every four weeks thereafter. The training was imparted on 45 minutes to 60 minutes of every session and included 5 minutes warming up, low impact aerobic dance, weight training exercises, 5 minutes warming down, and 45 seconds rest between exercises and resting for 45 seconds between sets. Recovery between aerobic dance and weight training was two minutes. The Dumbbell shoulder press, Triceps Extension, Squat, Pushups, Dumbbell chest press, lunges and plank are the weight training exercises of the subjects. Training sessions were held on Monday, Wednesday, and Friday from 6.30 to 7.30 a.m. Tables 1 and 2 provide details of the exercise prescription. This finding was used to determine the duration of the training intervention for this study based on the 12-week minimum required for observable changes in selected parameters (Rice et al., 1999).

Table 2. Low-impact aerobic dance training program

Exercises	1-4 weeks	5-8 weeks	9-12 weeks
Warm up and stretching	Ten min jog, static stretching	Ten min jog, static stretching	Ten min jog, static stretching
On spot marching	2 x 3 rounds*	3 x 3 rounds	3 x 4 rounds
Box step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds

Exercises	1-4 weeks	5-8 weeks	9-12 weeks
Walking and Kicking	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
Step cross	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Power walk	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Grapevine	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
T step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Diamond	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
Knee up	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
A step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds

**1 round=8 counts (in steps)*

Table 3. Weight training program

Exercises	1-4 weeks	5-8 weeks	9-12 weeks
Dumbbell shoulder press	2 x 8*	2 x15	2 x20
Triceps extensions	2 x 8	2 x15	2 x20
Squat	2 x 8	2 x15	2 x20
Dumbbell chest press	2 x 8	2 x15	2 x20
Lunges	2 x 10	2 x15	2 x20
Plank	2 x 10 secs	2 x15 secs	2 x20 secs

**Sets x Reps*

STATISTICAL ANALYSIS

This study employs a paired sample t-test hypothesis test. This test's objective is to compare the pretest and posttest results. For the statistical analysis in this study, IBM SPSS Statistics 16.0 was used. (SPSS, Inc.; USA; Chicago, IL).

RESULTS

Table 4 –Descriptive statistics of circumference measurements (WHR)

WHR Variables	EG (n=15)				ACG (n=15)			
	Pretest		Posttest		Pretest		Posttest	
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ
Waist (cm)	99.3	1.05	93.93	0.8	99.3	1.1	99.3	0.89
Hip (cm)	113.2	1.47	108.33	1.29	113.27	0.96	113.33	0.72
WHR (%)	0.88	0.01	0.87	0.01	0.88	0.01	0.88	0.01

($\bar{x}$ - sample mean; σ – standard deviation)

Table 5. The mean and "t" test summary for the control and experimental groups' pre- and post-tests on WHR and LSE

Variables	Group	Test	Mean ± SD	't' ratio	p-value
WHR	EXP	Pre	0.88±0.01	2.78	0.15
		Post	0.87±0.01		
	CON	Pre	0.88±0.01	0.62	0.55
		Post	0.88±0.01		
LSE	EXP	Pre	13.13±0.74	15.85	0.00
		Post	17.07±1.28		
	CON	Pre	13.33±0.62	0.29	0.77
		Post	13.27±0.59		

Data are represented in the mean ± SD (standard deviation).

Table 5 compares the selected LIADWTG and CG parameters before and after the intervention. The training group exhibited a significant reduction in WHR and improvement in LSE. In contrast, the CG showed no improvement.

Figure 2. Bar diagram displays the pre- and post-test results for the treatment and control groups for WHR and LSE.

DISCUSSION

Together, low-impact aerobic dance and weight training are somewhat complementary. Aerobic dance can improve cardiovascular health and help to lose fat, whereas weight training can help to improve body composition. Combining aerobic dance with weight training may be appealing because it offers the variety that comes from performing both the rhythmic and social aspects of dance as well as the progressive and strength-building aspects of weight training.

Aerobic dancing is an exercise program designed to reduce the risk of coronary artery disease and improve overall fitness **(Cearly** *et al.,* **1984)**. One of the advantages of this research is that, aerobic dancing is, of course, an art form that allows elders to exercise and live while exercising, and it also increases the interest of and participation in exercise of older adults, which are very important factors to participants. The function of exercise in the musculo-skeletal system is to increase aerobic metabolism, the number and size of mitochondria, regulation of blood flow in muscles, myoglobin in skeletal muscles, muscle hypertrophy, as well as metabolic range, joint mobility and flexibility **(Saryono, 201**1).The exercise dance intervention effectively prevents the decline in physical function, cognitive function, and quality of life associated with aging. Physical functions include balance, endurance performance, flexibility, muscle strength, and mobility, and a decline in these abilities is considered a sign of aging **(Liu** *et al.,* **2021)**.

Bassey *et al.* **(1992)** found strong correlations (0.83 to 0.93) in women between leg extensor power and functional abilities such as chair-rising speed, stair-climbing speed, walking speed, and stair climbing power. Development and maintenance of adequate lower body muscle power/body weight ratios in women may offer a larger reserve of power for retention of functional independence in old age. Maintenance of muscular strength and endurance in aging significantly impacts a woman's ability to perform activities of daily living and to participate in activities designed to maintain aerobic fitness **(Brill** *et al.,* **2000)**.

In support, strength training has increased spontaneous activity **(Nelson** *et al.,* **1994)**, and increased lean body mass **(Fiatarone** *et al.,* **1994)** and decreased fat **(Nichols** *et al.,* **1993)** in postmenopausal women. Additionally, strength training has simultaneously impacted many factors that relate to the risk for falls and fractures, including muscle power, strength, mass, and dynamic balance **(Nelson** *et al.,* **1994)**. Strength training in older women has demonstrated a reduction in cardiovascular stress (e.g., heart rate, systolic blood pressure, and rate pressure product) while carrying the same absolute weight before and after training **(Parker** *et al.,* **1996)**.

CONCLUSION

In summary, the waist hip ratio and leg strength endurance of sedentary women were significantly improved by the 12-week LIADWT, which included three sessions per week. The effectiveness of this training regimen in improving the physical performance of sedentary women was demonstrated by the experimental group, which exhibited significant improvements in the selected outcome parameters. In order to enhance training outcomes, future research should investigate the potential variations and long-term benefits of aerobic dance and weight training protocols. It is also conclude that LIADWT is a feasible and safe (i.e., no injuries reported) training modality that produces marked increases in fitness in sedentary women.

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IMPACT OF TABATA TRAINING ON TOTAL BODY WATER AND VISCERAL FAT PERCENTAGES OF OVERWEIGHT SCHOOL BOYS

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ABSTRACT

The purpose of this study was to find out the impact of tabata training on total body water and visceral fat percentages of overweight school boys. To execute the present study the research investigator selected thirty (30) over weight school boys from Sri K Rangaswami Naidu Higher Secondary School, Periyanaickenpalayam, Coimbatore, Tamil Nadu. The subjects were randomly divided into two equal groups namely tabata training group (TTG), and control group (CG). Each group consisted of fifteen (15) overweight school boys. The experimental group underwent the tabata training for a period of twelve (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely total body water and visceral fat percentages of overweight school boys, were selected as dependent variables of the study. Independent variable was tabata training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the level of confidence was fixed at 0.05 level for the chosen variables. The analysis of the data revealed that there was a significant improvement on the selected dependent variables namely total body water and visceral fat percentages by the application of tabata training programme.

Key words*: Tabata training, total body water and visceral fat percentages.*

INTRODUCTION

Tabata is a form of high-intensity interval training that forces you to work at a very high intensity for short periods of time. Dr. Izumi Tabata, a professor at the Faculty of Sport and Health Science at Ritsumeikan University in Japan, was along with the head coach of the Japanese speed skating team, did high-intensity exercise during the early 1990s.

Their objective was to find out if short bursts of high intensity exercise followed by shorter rests might condition the body better than a continuous moderate intensity exercise. The tabata Protocol improved two of our main energy systems. It targets the anaerobic energy system responsible for short and high intensity exercise such as sprints and it also targets the aerobic energy system which is the system used for endurance exercise. (Tabata, 1996)

IMPORTANCE OF TABATA TRAINING

1.TOTAL BODY WATER

Total body water is the total amount of fluid in a human body. The human body should consist of at least 50% of water. The exact percentage varies based on a number of factors (e.g. Age and gender). Body water is the primary building block for cells. It helps to regulate the internal body temperature,

strengthens your muscles and moisturizes your skin. These are just a few examples why body water and drinking water is so important.

2. VISCERAL FAT

Visceral fat is a type of body fat that's stored deep in the abdominal cavity, around major organs like the liver, pancreas, and kidneys. It's important because it helps maintain metabolic and immune balance, but too much visceral fat can be dangerous. Some visceral fat is healthy and helps protect organs. It stores and releases lipids based on metabolic needs, and helps maintain a balance between inflammatory and anti-inflammatory environments.

METHODOLOGY

To execute the present study the research investigator selected thirty (30) overweight school boys from Sri K Rangaswami Naidu Higher Secondary School, Periyanaickenpalayam, Coimbatore, Tamil Nadu. The subjects were randomly divided into two equal groups namely tabata training group (TTG), and control group (CG). Each group consisted of fifteen (15) overweight school boys. The experimental group underwent the tabata training for a period of twelve (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely total body water and visceral fat percentages were selected as dependent variables of the study. Independent variable was tabata training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the hypothesis the level of significance was fixed at 0.05 level for the chosen variables.

RESULTS OF THE STUDY

TABLE-I

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON TOTAL BODY WATER OF EXPERIMENTAL AND CONTROL GROUPS

Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	Pre-Test	49.00	7.53	0.09	1.20	12.82*	0.01
	Post Test	50.20	7.62				
Control	Pre-Test	51.77	5.07	0.02	0.01	0.56	0.58
	Post Test	51.78	5.08				

** Significance at 0.01 level.*

The table I indicates that there was a significant improvement on the total body water through the tabata training. It reveals that the obtained t-ratio 12.82 was differ significantly, because the 'p' value (0.01) was lesser than the 0.05, level of significance. So, there was a significant increase on the total body water between the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the results indicated that the significant increase on the total body water was due to the tabata training alone.

FIGURE- I

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON TOTAL BODY WATER OF EXPERIMENTAL AND CONTROL GROUPS

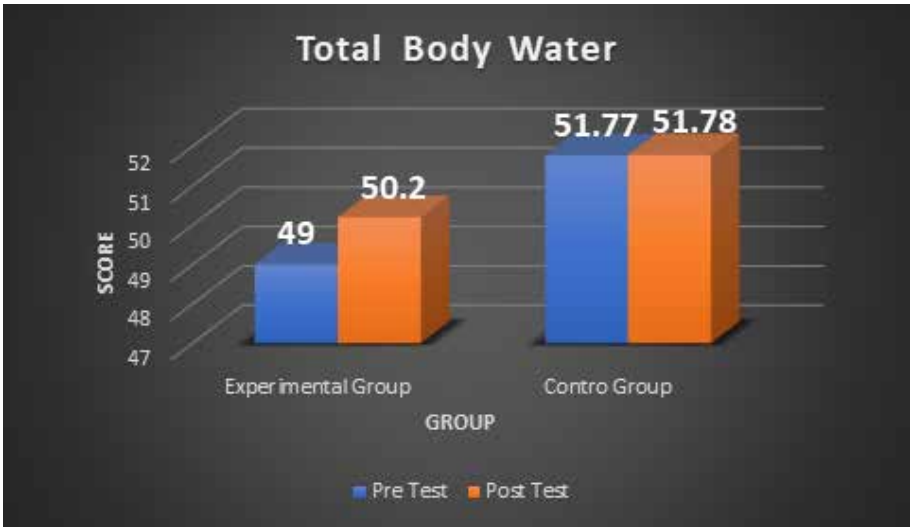


TABLE-II

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON VISCERAL FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

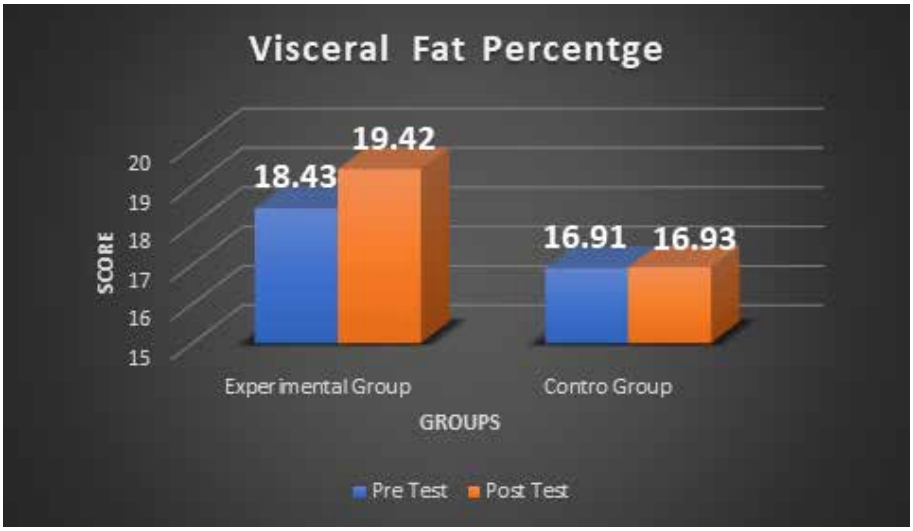
Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	Pre-Test	19.42	4.07	0.07	0.99	13.20*	0.01
	Post Test	18.43	4.02				
Control	Pre-Test	16.91	2.75	0.02	0.03	1.17	0.26
	Post Test	16.93	2.76				

** Significance at 0.01 level.*

The table II indicates that there was a significant reduction on visceral fat percentage through the tabata training. It reveals that the obtained t-ratio 13.20 was reduced significantly because the 'p' value (0.01) was lesser than the 0.05 level of significance. So, there was a significant reduction on the visceral fat percentage between the pre and post-tests of experimental group, whereas the control group showed no significant reduction. Hence the result indicated that the significant reduction on the visceral fat percentage was due to the tabata training alone.

FIGURE- II

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON VISCERAL FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUP



DISCUSSION ON FINDINGS

The results of this study indicate a significant improvement in total body water (TBW) following tabata training in the experimental group. The obtained t-ratio of 12.82, along with a p-value of 0.01, demonstrates a statistically significant difference at the 0.05 level of significance. This means that the changes observed in TBW between the pre- and post-tests of the experimental group were not due to chance, but were directly influenced by the tabata training regimen.

The lack of significant change in the control group further strengthens the findings, as it confirms that the improvement in TBW is attributable to the tabata training intervention. This type of training, which likely combined different modalities of exercise, may have led to enhanced hydration status, or improved overall body composition, all of which could contribute to an increase in TBW.

The significant difference between the pre and post-tests of experimental and control groups underlines the effectiveness of tabata training in improving physiological metrics such as TBW. This finding is consistent with the understanding that structured, multi-dimensional training programs can positively influence body water content through mechanisms like muscle hypertrophy, enhanced circulation, and better fluid retention. Hence, it can be concluded that the significant improvement in TBW was due solely to the tabata training protocol implemented in this study. The result of the study is in consonance with the research done by Fatemeh Khodadadi, Reza Bagheri, Raoof Negaresh, Sajjad Moradi, Michael Nordvall, Donny M Camera, Alexei Wong, Katsuhiko Suzuki 2023.

The findings presented in Table II highlight a significant reduction in visceral fat percentage as a result of tabata training in the experimental group. The obtained t-ratio of 13.20, along with a p-value of 0.01, indicates a statistically significant improvement at the 0.05 level of significance. This suggests that the reduction in visceral fat percentage observed between the pre- and post-tests of the experimental group was not coincidental but was directly influenced by the tabata training regimen.

Visceral fat, which surrounds vital organs, is linked to various metabolic conditions, and its reduction is a key marker of improved health. The experimental group's significant reduction in visceral fat percentage following tabata training suggests that this type of training effectively targets

and decreases fat stores. Tabata training, likely involving a mix of aerobic and resistance exercises, can enhance fat oxidation, increase metabolic rate, and promote the utilization of fat as a fuel source, thereby contributing to the reduction in visceral fat.

The control group, showing no significant changes, underscores the importance of the intervention in eliciting these improvements. Without a structured tabata training program, visceral fat levels remained unchanged, reinforcing the effectiveness of the training.

In conclusion, the significant reduction in visceral fat percentage can be attributed solely to the tabata training regimen. This result emphasizes the positive impact of tabata training on body composition, particularly in reducing harmful fat stores, which can have long-term health benefits. The result of the study is in consonance with the research done by Hiroo Matsuse, Chikahiro Iwasa, Kisei Imaishi, Takeshi Nago, Yoshihiko Tagawa, Tatsu Kakuma,Naoto Shiba, (2011).

CONCLUSIONS

It is concluded that tabata training is an effective method for significantly improving total body water and reducing visceral fat percentages. This training approach has shown to be beneficial in enhancing body composition and promoting better health outcomes.

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PREVENTION AND MANAGEMENT OF YOGA INJURIES: A COMPREHENSIVE REVIEW

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ABSTRACT

Yoga is widely recognized for its physical, mental, and emotional benefits. However, the increasing popularity of yoga has also led to a rise in yoga-related injuries. This review paper examines the prevalence, causes, and types of yoga injuries, while providing evidence-based strategies for their prevention and management. The paper emphasizes the importance of proper guidance, individualized practice, and a holistic approach to ensure safe and sustainable yoga practice.

INTRODUCTION

Yoga, an ancient practice with roots in Indian philosophy, has become a global phenomenon. While it is generally considered safe, improper practice can lead to injuries. This review synthesizes current literature on yoga injuries, focusing on prevention and management strategies to promote safe practice.

PREVALENCE OF YOGA INJURIES

Studies indicate that yoga injuries are relatively rare but increasing due to its growing popularity.

A 2016 study by Swain and McGwin found that injury rates were highest among older adults and those with pre-existing conditions.

Common injury sites include the lower back, shoulders, knees, and wrists.

CAUSES OF YOGA INJURIES

- **Overexertion**: Pushing beyond physical limits, especially in advanced poses.
- **Poor Alignment**: Incorrect posture due to lack of proper instruction.
- **Pre-existing Conditions**: Underlying musculoskeletal or medical issues.
- **Lack of Warm-up**: Skipping preparatory exercises.
- **Ego-driven Practice**: Attempting poses without adequate preparation or experience.

TYPES OF YOGA INJURIES

- **Muscle Strains**: Overstretching or tearing of muscles, commonly in the hamstrings and lower back.
- **Ligament Sprains**: Overstretching of ligaments, particularly in the knees and ankles.
- **Joint Injuries**: Frequent in shoulders, wrists, and hips due to weight-bearing poses.
- **Lower Back Pain**: Caused by improper forward bends, twists, or backbends.
- **Neck Injuries**: Often associated with headstands, shoulder stands, or incorrect alignment.

PREVENTION STRATEGIES

- **Proper Guidance**: Practice under the supervision of a certified yoga instructor.
- **Warm-up and Cool-down**: Essential to prepare the body and prevent strains.
- **Use of Props**: Blocks, straps, and bolsters to support proper alignment.
- **Modify Poses**: Adapt poses to individual flexibility and strength levels.
- **Mindful Practice**: Encourage practitioners to listen to their bodies and avoid overexertion.
- **Education**: Raise awareness about the risks and benefits of yoga.

MANAGEMENT OF YOGA INJURIES

- **Immediate Care**: Follow the RICE protocol (Rest, Ice, Compression, Elevation).
- **Professional Help**: Consult a physiotherapist or healthcare provider for severe injuries.
- **Rehabilitation**: Gradual reintroduction to yoga with modified poses and strengthening exercises.
- **Mindfulness Practices**: Incorporate meditation and breathing exercises to reduce stress and promote healing.
- **Avoid Re-injury**: Focus on strengthening and flexibility exercises post-recovery.

HOLISTIC APPROACH TO SAFE YOGA PRACTICE

- **Awareness**: Educate practitioners about the risks and benefits of yoga.
- **Personalization**: Tailored practices to individual needs and limitations.
- **Integration**: Combine yoga with other forms of exercise for balanced fitness.
- **Mind-Body Connection**: Emphasize mindfulness to enhance body awareness and prevent injuries.

Yogic practices that effectively help prevent and manage injuries include: dynamic stretching like Sun Salutations, strengthening poses like Warrior I and II, flexibility poses like Pigeon Pose, deep breathing exercises (pranayama), mindful alignment, proper warm-ups, and restorative yoga poses which can aid in recovery from existing injuries; with Yin yoga being particularly beneficial for connective tissue health and injury prevention through static stretching.

Yin Yoga is a slow-paced style of yoga, incorporating principles of traditional Chinese medicine, with asanas that are held for longer periods of time than in other yoga styles. Advanced practitioners may stay in one asana for five minutes or more.

KEY POINTS ABOUT THESE PRACTICES:

DYNAMIC STRETCHING:

Improves blood flow and prepares muscles for activity, reducing the risk of strains by warming them up.

STRENGTHENING POSES:

Enhance muscle stability and power, important for supporting joints and preventing imbalances.

FLEXIBILITY POSES:

Increase range of motion in joints, reducing tightness that can lead to injuries.

PRANAYAMA (BREATHWORK):

Promotes relaxation, improves focus, and helps maintain proper alignment during poses.

MINDFUL ALIGNMENT:

Paying close attention to body positioning helps avoid overstretching or misalignments that could cause injuries.

RESTORATIVE YOGA:

Utilizes props to deeply relax muscles and tissues, aiding in recovery from existing injuries

CONCLUSION

Yoga offers numerous health benefits, but it must be practiced with caution and awareness. By understanding the causes of injuries, adopting preventive measures, and managing injuries effectively, practitioners can enjoy the benefits of yoga while minimizing risks. A holistic approach ensures a safe and sustainable yoga journey.

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EFFICACYOF TRAININGWITH GADGETS ON SELECTED MOTOR FITNESS VARIABLES OF MEN TENNIS PLAYERS

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ABSTRACT

The purpose of this study was to find out the efficacy of training with gadgets on selected motor fitness variables of men tennis players. To execute the present study the research investigator selected thirty (30) men tennis players from Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education and Ramakrishna Mission Vivekananda Educational and Research Institute, Periyanaickenpalayam, Coimbatore, Tamil Nadu. The subjects were randomly divided into two equal groups namely training with gadgets group (TWGG), and control group (CG). Each group consisted of fifteen (15) men tennis players. The experimental group underwent the tennistraining with gadgets for a period of eight (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely speedandendurance, were selected as dependent variables of the study. Independent variable wastraining with gadgets. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the results of the study the level of significance was fixed at 0.05 level for the chosen variables. The analysis of the data revealed that there was a significant improvement on the selected dependent variables namely speed and enduranceby the application of training with gadgets interventionprogramme.

Key words:*Training with gadgets, Speed and Endurance.*

INTRODUCTION

TENNIS

Original lawn tennis, game played on a rectangular court in, which two (singles) or four (doubles) players use strung rackets to hit or ball back and forth over a net at the centre of the court. The object is to hit the ball so that an opponent cannot reach or return in correctly. Games of racket and ball originated from a twelfth and thirteenth- century French hand ball game called jeu de paume ("game of the palm"). In 1873 Major walterWingfield invented a game called Sphairistike, from which modern outdoor tennis evolved. The game caught on quickly in Great Britain and spread throughout the British Empire. The all-England Croquet Club at Wimbledon later added the term Lawn Tennis to its title and in 1877, it sponsored the first world tennis championship professional tennis in the United States began in 1927 with the formation of the U.S professional Lawn Tennis Association. In 1968 the International Tennis Federation (Founded 1913), the governing body of Tennis, sanctioned open tennis which allowed amateur players to compete against professionals in the same tournament. The International team tournaments and Davis Cup for men (begun 1900) and the Federation Cup (1963) For women's teams. The Wightman Cup (1923) between British and U.S. Women's teams was discontinued after 1989. The International men's professional circuit governed by ATP tour.Launched on January 1, 1990. The ATP Tour is a partnership between player and tournaments the replaced the former men's Tennis Council as the governing body for the men's professional tennis circuit. The

inception of the ATP Tour also marked the discontinuance of the A.T.P, or the association of Tennis Professional. When launched in 1990, the ATP tour consisted of 76 tournaments in 28 countries. The tour has helped popularize professional men's tennis all over the world. The major tournaments for individual players constitute the grand slam of tennis and consist of the national championship of Great Britain (Wimbledon), the United States, Australia and France. Tennis an Olympic sport from 1896 to 1927, returned to the Olympic in 1988. (Dale Hoiberg, 2000)

SPORTS TRAINING

Sports' training is the process of sports protection based on scientific and pedagogical principles for higher performance. (HardyalSingh, 1991).

Sports Training is done for improving sports performance. The sports performance, as any other type of human performance, is not the product of any single system or aspect of human personality. On the contrary, it is the product of the total personality of the sports person. The personality of a person has several dimensions e.g., physical, physiological, social and psychic. In order to improve sports performance the social and psychic capacities of the sports person have to be improved in addition to the physical and physiological ones. In other words the total personality of a sportsman has to be improved in order to improve his performance. Sports training, therefore, directly and indirectly aims at improving the personality of the sportsman. No wonder, therefore, sports training is an educational (i.e., pedagogical) process.

"Sports training is a scientifically based and pedagogically organized process which through planned and systematic, effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition".

"Sports training, based on scientific knowledge, is a pedagogical process of sports perfection which through systematic effect on psychophysical performance ability and performance readiness aims at leading the sportsman to high and the highest performance. Through active and conscious interaction with the given demands in sports training, the sportsman's personality develops according to the norms and standards of socialist society".

METHODOLOGY

To execute the present study the research investigator selected thirty (30) men tennis players from Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education and Ramakrishna Mission Vivekananda Educational and Research Institute, Periyanaickenpalayam, Coimbatore. The subjects were randomly divided into two equal groups namely training with gadgets group (TWGG), and control group (CG). Each group consisted of fifteen (15) men tennis players. The experimental group underwent the training with gadgets for a period of twelve (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely speedand endurancewere selected as dependent variables of the study. Independent variable was training with gadgets. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the level of confidence was fixed at 0.05 level for the chosen variables.

TRAINING PROGRAM

The training in the training with gadgets trainingwas given to the experimental group for a period of 8 weeks as per the following schedule:

- **Training period**: 12 weeks
- **Trainingsessions**:5 days per week
- **Duration ofonesession**: 60 minutes

RESULTS AND DISCUSSION OF 'T' RATIO

Theresultsofthesignificantdifferencebetweenthepreandposttestswereanalyzedusing t ratio and the results are presented.

TABLE-I

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON SPEEDOF EXPERIMENTAL AND CONTROL GROUPS

Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	Pre-Test	7.21	0.29	0.05	0.57	12.31	0.01
	Post Test	6.64	0.39				
Control	Pre-Test	7.42	0.24	0.07	0.04	0.59	0.56
	Post Test	7.46	0.37				

** Significance at 0.01 level.*

The table I indicates that there was a significant improvement on the speedthrough the training with gadgets. It reveals that the obtained t-ratio 12.31 was differ significantly, because the 'p' value (0.01) was lesser than the 0.05, level of significance. So, there was a significant improvement on the speedbetween the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the results indicated that the significant improvement on the speedwas due to the experimental training namely training with gadgets alone.

FIGURE- I

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS ON SPEEDOF EXPERIMENTAL AND CONTROL GROUPS

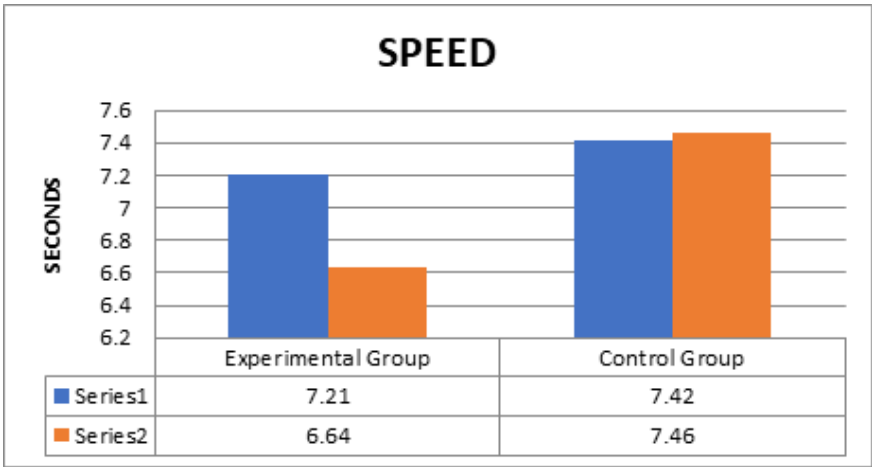


TABLE-II

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON ENDURANCEOF EXPERIMENTAL AND CONTROL GROUPS

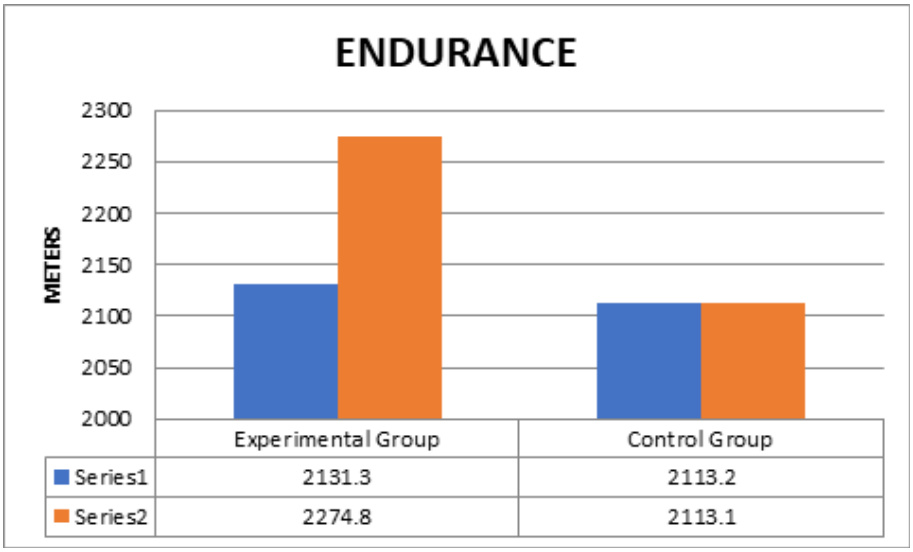
Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	Pre-Test	2131.30	245.58	5.02	143.54	28.60*	0.01
	Post Test	2274.80	239.08				
Control	Pre-Test	2113.20	139.91	0.61	0.03	0.05	0.96
	Post Test	2113.10	138.18				

** Significance at 0.01 level.*

The table II indicates that there was a significant improvement on endurancethrough the training with gadgets. It reveals that the obtained t-ratio 28.60 was improved significantly because the 'p' value (0.01) was lesser than the 0.05 level of significance. So, there was a significant improvement on the endurancebetween the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the result indicated that the significant improvement on the endurancewas due to the training with gadgets alone.

FIGURE- II

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS ON ENDURANCE OF EXPERIMENTAL AND CONTROL GROUP



DISCUSSION ON FINDINGS

The findings of this study provide compelling evidence of the effectiveness of twelve-weeks of training with gadgets program in improvingspeed. The results indicate a statistically significant increase in speedamong participants in the experimental group, as the experimental group's t-ratio is12.31. The p-value of 0.01, which is well below the 0.05, further confirms that this improvement is not due to chance but is a direct outcome of the training regimen. The significant improvement in speedobserved between the pre-test and post-test measurements in the experimental group underscores the efficacy

of training with gadgets. This form of training, which combines various exercise modalities, appears to effectively target the speedimprovement, likely by promoting both cardiovascular and muscular adaptations that enhance fat metabolism. In contrast, the control group, which did not participate in the training with gadgets, showed no significant change inspeed. This improvement highlights the importance of the specific training interventions applied in the experimental group. The difference in outcomes between the two groups strengthens the conclusion that the observed changes in the experimental group can be attributed solely to the training with gadgets programme. Overall, these findings suggest that training with gadgets is a potent method for improvingspeed, making it a valuable tool for tennis players seeking to improve their fitness component as well as performance. The study's results may have practical implications for tennis professionals and coaches aiming to design effective training programs, emphasizing the importance of incorporating diverse and targeted exercises into their routines.The result of the study is in consonance with the research done byMiller, G., & Gabbard(2013),Miller, G., & Gabbard, C. (1988), Douvis, SJ. (2005).

The results of this study highlight the efficacy of twelve-week training with gadgets program in significantly improving endurancelevels. The data shows that the experimental group experienced a marked improvement inendurance, as evidenced by a t-ratio of 28.60. This value, coupled with a p-value of 0.01, well below the 0.05 significance threshold, confirms that the improvement in enduranceis statistically significant and unlikely to be due to random variation.

Endurance, is a critical health marker due to its strong association with metabolic diseases. The significant improvement observed in the experimental group suggests that thetraining with gadgets program effectively targeted and increasedendurance, likely through a combination of training with gadgets that enhance metabolic efficiency and fat oxidation.The control group, which did not participate in the trainingwith gadgets, showed no significant change in endurancelevels, emphasizing the efficacy of the training regimen used in the experimental group. The contrast between the two groups reinforces the conclusion that the observed improvements in endurancewere due exclusively to the training with gadgets intervention.

These findings are particularly relevant in the context of tennis player's health, as increasing enduranceis crucial for improving overall health, and other metabolic disorders. The study suggests that training with gadgets, which integrates various forms of exercise, can be an effective strategy for individuals aiming to increased enduranceand improve their overall health.The results underscore the importance of structured and diverse exercise programs in enhancingendurance, providing valuable insights for tennis professionals and individuals seeking to optimize their fitness and health outcomes. The result of the study is in consonance with the research done by Miller, G., & Gabbard (2013), Miller, G., & Gabbard, C. (1988), Douvis, SJ. (2005).

CONCLUSIONS

It is concluded that training with gadgets is an effective method for improving both the speed and endurance. This approach has proven to enhance these specific skills, contributing to overall performance improvement.

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THE IMPACT OF PLYOMETRIC TRAINING ON SELECTED MOTOR FITNESS AND PERFORMANCE VARIABLES AMONG MALE GOALBALL PLAYERS

54

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ABSTRACT

This study investigates the impact of plyometric training on selected motor fitness and performance variables among visually impaired male goalball players. Sixteen participants were divided into two groups: an experimental group (n=8) and a control group (n=8). The experimental group underwent a plyometric training program, while the control group maintained their regular training routine. Pre- and post-tests were administered to assess motor fitness variables (speed and leg explosive power), performance variables (overall playing ability). Analysis of Covariance (ANCOVA) was employed to analyse the data. The results showed significant enhancements in the experimental group compared to the control group across various parameters, indicating that plyometric training has the potential to augment both motor fitness and performance among visually impaired goalball players. These findings underscore the importance of integrating plyometric exercises into training regimens for individuals with visual impairments to optimize their athletic capabilities.

INTRODUCTION

Blindness can lead to reduced physical work capacity, posture issues, orientation challenges, depression, and balance problems. Individuals with visual impairment require additional assistance in both their psychosocial and physical development (Aslan, C. S., Karolaks, M., & Ürgüp, S. 2018). Engaging in physical activities during childhood can facilitate the enhancement of motor skills and establish a basis for good health. Therefore, people with visual impairment require further support in their psychosocial and motor development (Çolak, T., Bamaç, B., Aydin, M., Meriç, B., & Özbek, A. 2004). Among the various adapted sports available, goalball stands out as a prominent team sport specifically designed for individuals with visual impairments. Goalball demands a combination of physical fitness, coordination, and strategic thinking, making it an ideal platform to investigate the efficacy of training interventions tailored to this population.

Plyometrics is a well-known form of 'ballistic training', is widely recognized for its ability to enhance jump performance capabilities. It has been demonstrated as an effective method for improving explosive power, agility, and sprint ability (Stojanović, E., Ristić, V., McMaster, D. T., & Milanović, Z. (2017). Researchers have observed significant physiological and physical advancements resulting from plyometric training, indicating its efficacy in enhancing basic motor performance (Kurtoğlu, A., Çar, B., & Konar, N. (2022). To enhance an athlete's speed and explosive power, a system was devised to trigger an explosive response during the execution of dynamic movements, and this system is none other than plyometric training (Kurtoğlu, A., Çar, B., & Konar, N. (2022).

The rope jumping exercise emerges as a beneficial activity for visually impaired students, aiding in overcoming movement restrictions and learning limitations. It is a simple activity that can be easily implemented without significant time, space, or equipment constraints. Given its potential benefits, promoting rope jumping in the curriculum and activities of schools for the blind could be valuable

(Chen, C.-C., & Lin, S.-Y. (2011). Based on the above literature, this study aimed to investigate the impact of plyometric training on selected motor fitness and performance variables among amateur goalball players.

MATERIALS AND METHODS

PARTICIPANTS

In Coimbatore district, a total of 16 visually impaired males aged 17 to 25 years volunteered for the study. The subjects were divided into two groups: the experimental group, comprising 8 goalball players undergoing a 6-week training program, and the control group, consisting of 8 nonactive individuals who had not engaged in any sports activity previously. All participants had no other known disorders besides visual impairment.

MEASUREMENTS

Pre-tests were conducted to establish baseline measures of motor fitness variables (speed and leg explosive power) and performance variables (overall playing ability) for all participants. The experimental group underwent a plyometric training program specifically designed for visually impaired goalball players, while the control group maintained their regular training routine. The plyometric training likely included exercises such as depth jumps, bounding, and box jumps, focusing on lower body muscles. After a specified training period, post-tests were administered to assess changes in motor fitness and performance variables for both groups. Statistical analysis using Analysis of Covariance (ANCOVA) was employed to compare post-test scores, controlling for baseline differences.

ANALYSIS OF DATA

The analysis of data encompassed several crucial steps in evaluating the impact of plyometric training on visually impaired goalball players. Initially, data collection involved gathering pre-test and post-test scores for motor fitness variables (such as speed and leg explosive power) and performance variables (like overall playing ability) across both the experimental and control groups. Descriptive statistics were then computed to summarize the data, providing insights into the central tendency and variability of the scores. Prior to conducting inferential analysis, baseline comparisons between the groups were conducted to ensure comparability at the outset. Subsequently, Analysis of Covariance (ANCOVA) was utilized to scrutinize post-test scores while controlling for any initial disparities, thereby assessing the specific impact of the plyometric training intervention. Interpretation of the ANCOVA results enabled the determination of whether significant differences existed in motor fitness and performance variables between the experimental and control groups post-intervention.

RESULTS

The statistical analysis presented in Table I compares the initial and final means of motor fitness (speed and explosive power) and performance variables (overall playing ability) resulting from plyometric training on goalball players.

Table – 1

ANCOVA between Experimental group and control group on speed of male gymnasts for pre-post and adjusted test

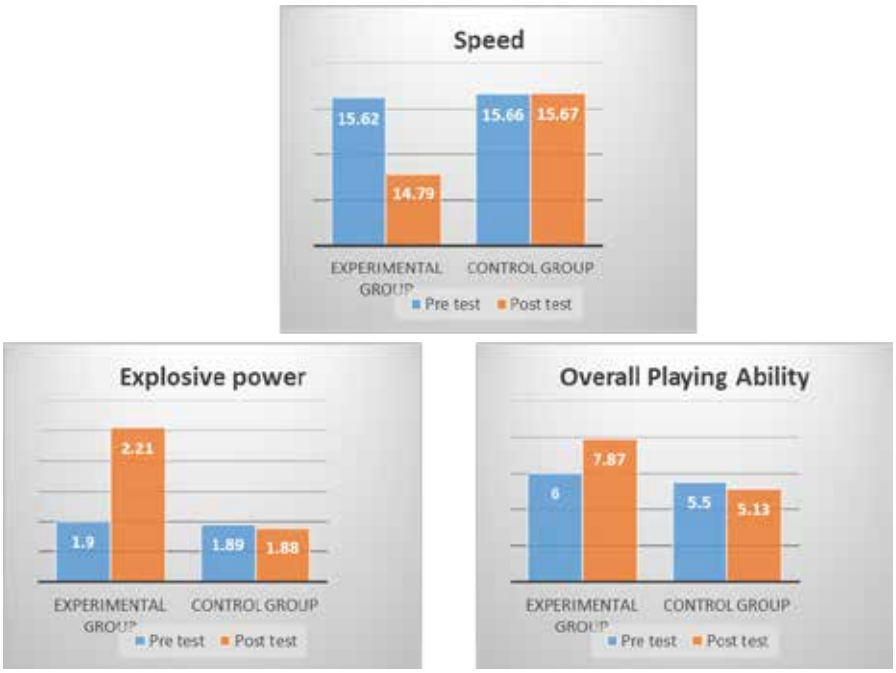
VARIABLES NAME	GROUP NAME	EG	CG	'F' Ratio
Motor fitness variables				
SPEED	Pre-test Mean ± S.D	15.62 ± 0.67	15.66 ± 0.66	0.015
	Post-test Mean ± S.D	14.79 ± 0.71	15.67 ± 0.72	5.95*
	Adj.Post-test Mean ± S.D	14.82	15.64	71.55*
EXPLOSIVE POWER	Pre-test Mean ± S.D	1.90 ± 0.19	1.89 ± 0.22	0.14
	Post-test Mean ± S.D	2.21 ± 0.13	1.88 ± 0.2	13.61*
	Adj.Post-test Mean ± S.D	2.21	1.89	35.96*
Performance related variables				
OVERALL PLAYING ABILITY	Pre-test Mean ± S.D	6.00 ± 0.93	5.50 ± 0.93	1.167
	Post-test Mean ± S.D	7.87 ± 0.64	5.13 ± 0.35	112.93*
	Adj.Post-test Mean ± S.D	7.87	5.14	95.87*

*** Significant at 0.05 level.*

The table revealed that the obtained 'F' values of speed, explosive power and overall playing ability was found to be significant at 0.05 level with the tabulated value of 4.6 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of speed, explosive power and overall playing ability of goalball players between experimental group and control group. In case of motor fitness and performance variables results between pre and posttest has been found significantly higher in experimental group in comparison to control group.

Figure I

Figure shows the Mean score of motor fitness and performance variables of both experimental and control group



DISCUSSION ON FINDINGS

The research aims to investigate the impact of 6-weeks of plyometric on selected motor fitness (speed and explosive power) and performance variables (overall playing ability) among goalball players. In the present study there was an improvement was noticed in plyometric training group on motor fitness and performance variables. The findings of this study highlight the importance of integrating plyometric training into the regular training regimens of visually impaired goalball players, offering a valuable avenue for optimizing their athletic potential and ultimately improving their performance on the field. This findings is in accordance with Grobler L, Ferreira S, Terblanche E. (2015); Loturco I, Pereira LA, Kobal R, et al. (2017); McMahon, John; Emerson, Robert S. Wall; Ponchillia, Paul; Curtis, Amy (2019); Houwen, S., Hartman, E., & Visscher, C. (2010); Malwina, K. A., Krzysztof, M., & Piotr, Z. (2015); Mayda, M. H., Karakoc, O., & Ozdal, M. (2016); Abdollahipour, R., Land, W. M., Cereser, A., & Chiviacowsky, S. (2020); Abdullah, N. M., Mohamed, M., Shapie, M. N. M., & Ab Rahman, Z. (2022). Plyometric training show improved performance in agility tests either because of better motor recruitment or neural adaptations.

CONCLUSION

This study provides compelling evidence of the positive impact of plyometric training on selected motor fitness and performance variables among visually impaired goalball players. Through the implementation of a structured plyometric training program, significant enhancements were observed in areas crucial to goalball performance, including speed, leg explosive power, and overall playing ability. These improvements underscore the effectiveness of plyometric exercises in augmenting the physical capabilities of visually impaired athletes, thereby enhancing their competitiveness within the sport.

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IMPACT OFPLYOMETRICTRAININGONSELECTED SKILL AND PHYSICAL FITNESS VARIABLES OF VOLLEYBALL PLAYERS

55

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ABSTRACT

The objective of the present investigation was to examine the impact of plyometric work outs on specific skill as well as physical fitness variables among male Volleyball male players affiliated with a club. To fulfill this goal, a total of sixty male players at the school level, who had not undergone any formal training but wereallowed to actively participate in regular physical activities during the 2021-22 period wereselected as subjects. Tamil Nadu, India, representing the population under study and the age range of the respondents from 16 to 18 years.

For this study, a pre and post-test random group design was employed,involving the random selection of 60 male volleyball players. Each group comprised thirty participants. The subjects were separated equally in to two groups: namelyGroup-A (PTG), which underwent plyometric training with specific skill practices and games(n=30),andGroup-B(CG),theCGcontrolledGroupandinthisgroupheydid not receive any training but was permitted to engage within regular physical activities (n=30). The training sessions occurred six days a week for duration of twelve weeks.

INTRODCTION

Volleyball is a modern game. This game was invented by Morgan (Physical Director of Holyoke, YMCA, USA during 1895. The circumstances that led to the origin of Volleyball is interesting. Morgan was seeking a suitable recreational game for some middle aged men who regularly visited his gymnasium. There was two staff for gymnastics and similar activities. Basketball was then growing in popularity. But this game also proved too strenuous for many of them. This kept him thinking and finallyhe decided to make an experiment. Morgan was thrilled to see the success of his experiment. And the new game, Volleyball was born. Morgan however, named this game "Mintonnette". Dr. A.T.Halsted of Springfield College after watching Morgan's gamesuggestedchangingthenameto Volleyball as thebasicideaofplaywas to volley the ball. This was accepted and the game was renamed as "Volleyball".

Volleyball was introduced in India by the YMCA and the records show that the gamehasbeenplayednowfor45 years.The 'YMCACollegeofPhysical Education'at Madraswassolitary oftheprimaryinstitutiontotake-upvolleyballaswellasthe students prepared in the college had taken the Volleyball game to all parts of India. Today the game is played throughout the width and breadth of the country, schools, colleges as well as public playgrounds with on a more size in village as well as rural areas (Dhanaraj, 1969).

The objective of the present investigation was to examine the impact of plyometric work outs on specific skill as well as physical fitness variables among male Volleyball male players affiliated with a club. To fulfill this goal, a total of sixty male players at the school level, who had not undergone any formal training but wereallowed to actively participate in regular physical activities during the 2022-

23 period wereselected as subjects. Theseindividuals were chosen randomlyfromEagle's Sports Club, located near Hosur, Karnataka Border, Tamil Nadu, India, representing the population under study and the age range of the respondents from 16 to 18 years.

METHODOLOGY

For this study, a pre and post-test random group design was employed,involving the random selection of 60 male volleyball players. Each group comprised thirty participants. The subjects were separated equally in to two groups: namelyGroup-A (PTG), which underwent plyometric training with specific skill practices and games(n=30),andGroup-B(CG),theCGcontrolledGroupandinthisgroup theydid not receive any training but was permitted to engage within regular physical activities (n=30). The training sessions occurred six days a week for duration of twelve weeks.

Data collection encompassed skill variables (volleying ability, serving ability, passing ability, and set-up ability) measured in points and physical variables (speed, agility, flexibility, arm explosive strength, leg explosive strength, and cardiovascular endurance) measured in seconds, inches, meters, and centimeters. These assessments were considered as pre-test scores.

After the initial data collection, participants underwent their respective twelve- week training programs. Post-tests were then controlled to both control and experimental groups, with the final scores were recorded. Data was gathered prior to and afterthe trainingsession programmeforstatistical analysis on theselectedcriterion variables.

TRAININGPROGRAMME

Throughout the training programme period, the experiment group was engaged in their designated training regimens. Group-A were participated in plyometric training alongside volleyball-specific skills practices for three days weekly. Each training session, conducted for duration of sixty minutes, encompassed warm-up activities and the commencement of the training session. Participants were regularly inquired about their health status throughout the training program.

Plyometric exercises are an effective way to develop motor fitness and skill performance in volleyball players. These exercises focus on explosive movements that help to improve power, speed, and agility. The table shows the Twelve weeks plyometric exercise program that volleyball players follow to improve their physical fitness and skill performance.

SKILLPERFORMANCEVARIABLES

DescriptivestatisticsonVolleyballplayers'pretestaswellas posttestscoresof Volleying Ability related to Both CG and PTG groups and each consisting of 30 volleyball players prior and after the implementation of Plyometric Training involving specific exercises.

SkillPerformance:VolleyingAbility(VA)

Test	Group: CG		Group:PTG	
	Mean	Standard Deviation	Mean	Standard Deviation
Pre-Test	31.933	5.970	31.666	5.725

Test	Group: CG		Group:PTG	
	Mean	Standard Deviation	Mean	Standard Deviation
Post-Test	32.400	5.763	33.866	5.739

related to pre- test with post-test scores of the Volleying Ability for two groups: CG (Control Group) and PTG (Plyometric Training Group). Each group consists of 30 volleyball players. The mean scores and standard deviations are provided for all the groups.

Concerning the pre-test assessment scores related to Volleying Ability, the CG group has an average score of 31.933 along with standard deviation of 5.970, while the PTG group has a slightly lower average score of 31.666 along with standard deviation of 5.725. This suggests that both groups had similar performance levels before the intervention of Plyometric Training.

Afterthe intervention, thescores relatedto post-test ofVolleying Abilityforthe CGgroupimproved,withanaveragescoreof32.400alongwithastandarddeviationof 5.763. On the other hand, the PTG group showed a larger improvement, with anaveragescoreof33.866alongwithastandarddeviationof5.739.Thesepointoutsthat the PTG group had a higher mean score with a slightly smaller standard deviation compared to CG group.

The statistical output confirms that the Plyometric intervention had a positive consequenceontheVolleyingAbilityofbothgroups.However,thePTGgroupshowed a greater improvement in post-test scores contrasted to the CG group. These results suggest that engaging in Plyometric Exercises, along with specific exercises was more effective in enhancing the Volleying Ability of the PTG group contrast to the CGgroup.

RESEARCHCONCLUSION

Based on the results as well as consideringthe study's limitations, the following conclusions were reached by the researcher:

- The study revealed a significant enhancement in selected skill variables, including volleying ability, serving ability, passing abilities, and set-up ability among volleyball players following a twelve-week intervention involving plyometric training coupled with volleyball skills practices.
- Significant improvements were observed in elected physical fitness aspects such as speed, agility, flexibility, arm explosive strength, leg explosive strength, and cardiovascular endurance of volleyball players following a twelve-week intervention comprising plyometric training and volleyball skills practices.

Plyometric training is one of exercise that engages quick, powerful movements that target the muscles' fast twitch fibers, like plyometric exercises viz., jumping, bounding, and hopping. When performed regularly and properly, plyometric training can lead to a number of physical condition improvements, such as increased muscle- power as well as explosiveness; improved cardiovascular condition and increased bone density. However, to see improvement, it is important to increase intensity and volume in a progressive manner. A twelve week period of plyometric training would be a good amount of time to see significant improvements in muscle power, flexibility, explosiveness,

and overall physical fitness. It is also important to have a balanced workout plan and proper form throughout the training period to avoid injury.

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EFFECT OF MINI GAME ON SPEED OF KHO-KHO PLAYERS

56

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ABSTRACT

Kho-kho is a traditional Indian tag sport played by two teams of twelve players each. Nine players from the chasing team enter the field, while three additional players sit in a designated area. The game involves one team the chasers trying to tag members of the other team (the runners) while adhering to specific rules. Kho-Kho demands physical prowess, strategic thinking, and teamwork, making it a dynamic and engaging sport.This study aimed to evaluate the effect of mini game on speed and agility of kho-kho players. Mini game training of intercollegiate 30 kho kho players the age ranged between 18-25 years. The participants underwent a 6-week minim game training program designed to enhance explosive strength. Pre- and post-training assessments were conducted to 50 m dash tests. The results indicated a significant improvement in vertical jump after the mini game intervention. The findings suggest that mini game are an effective training modality for enhancing speed in khokho players, potentially improving their performance in game situations that require explosive movements such as sky diving and covering. Further research is recommended to examine the long-term benefits of mini game training on intercollegiate khokho players.

INTRODUCTION

Kho-Kho is a traditional Indian sport that embodies the spirit of teamwork, speed and strategy. This fast-paced tag game, deeply rooted in Indian culture, has been played for centuries. It involves two teams, with one team chasing and the other defending. The game's objective is for the chasers to tag as many defenders as possible within a limited time. Kho-Kho is not just a physical contest; it's a mental game that requires quick thinking, coordination, and the ability to anticipate opponents' moves.Kho-Kho has a rich history, with its origins dating back to ancient India. It is believed to have evolved from a game called 'Rathera,' played on chariots. The modern version of Kho-Kho was standardized in the early 20th century, and it has since gained popularity across India and beyond. Today, Kho-Kho is a popular sport in schools and communities, and it is also played at the national and international levels.

METHODOLOGY

Intercollegiate male Kho Kho players age 18-25 years voluntarily participated in this study. All participants were healthy, free from injury and actively competing at the collegiate level. Prior to participation, each athlete provided informed consent. This methodology ensures a controlled and

systematic approach to assessing the impact of different starting stances on base running sprint speed in kho kho players. All participants read and signed an informed consent prior to participation.



50 Mt Speed Test

SAMPLE SELECTION

The study included in mini game speed kho kho players who were actively competing at the collegiate level. Participants were selected based on the performance.

TRAINING PROGRAMME

This six-week training program is designed to improve acceleration, sprint speed in khokho players, specifically for running and defensive and offensive movements. The program includes mini game training toenhance the speed, explosiveness and quick directional changes.

PRE AND POST TEST TRAINING

To evaluate the effectiveness of the six-week speed and acceleration training program, pre- and post-training assessments should be conducted. These tests will measure improvements in sprint speed.

STATISTICAL TECHNIQUES

To evaluate the effectiveness of different starting stances and the impact of the six-week mini game training program, the following statistical methods was being used: The primary statistical tool used was the t-test for large paired samples, which allowed for the comparison of pre- and post-training endurance scores.

TABLE-I

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF SPEED EXPERIMENTAL AND CONTROL GROUP

S.No	Variables	Pre test Mean (± SD)	Post test Mean (± SD)	DM	σDM	't' ratio
MINI GAME TRAINING GROUP						
1	Speed	7.18 ± 0.26	6.86 ± 0.32	0.32	0.11	2.78*

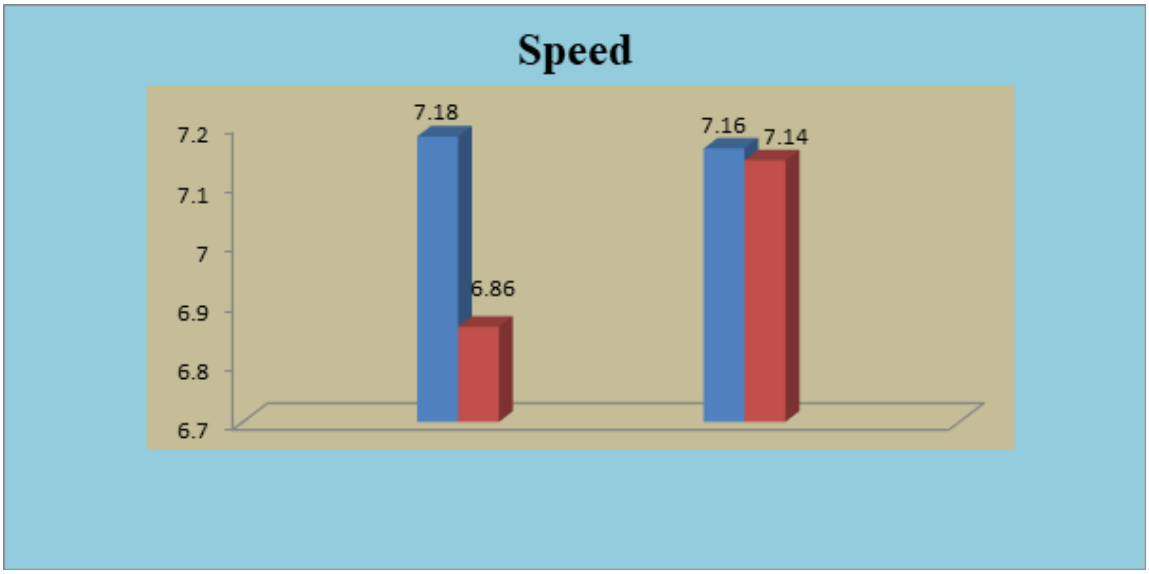
S.No	Variables	Pre test Mean (± SD)	Post test Mean (± SD)	DM	σDM	't' ratio
CONTROL GROUP						
2	Speed	7.16 ± 0.31	7.14 ± 0.30	0.01	0.10	1.00

**significant at 0.05 level ('t' value 2.14) with df 14*

Table-I shows that the pre and post mean values of experimental and control group of speed. The obtained't' value of 2.78 mini game training group is greater than table the value of 2.14 with df 14. The obtained 't' value of the control group is 1.00 lesser than which is the table value of 2.14 and is insignificant.

FIGURE-I

BAR DIAGRAM SHOWING THE MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP OF SPEED



CONCLUSIONS

This study explored the effect of mini-games on the speed of Kho-Kho players. Based on the intervention, which involved structured mini-game sessions designed to simulate real-match conditions, the study sought to evaluate whether such a training method could enhance athletic performance, particularly in the areas of acceleration, sprint speed, and agilitykey attributes for base running and general gameplay in Kho-Kho.The results from the pre-test and post-test assessments speed are expected to show a noticeable improvement in the players' performance after the 6-week intervention period. Mini-games, through their dynamic nature and focus on speed, reaction time, and quick directional changes, help in enhancing the athletes' ability to accelerate and change directions effectively.

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INFLUENCE OF FITLIGHT TRAINING ON MOTOR DEVELOPMENT AMONG ADOLECENT GIRLS HOCKEY PLAYERS

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ABSTRACT

This study investigates the impact of Fit Light training on motor skill development in adolescent hockey players. Twenty male hockey players (ages 14-16) participated in a 6-week Fit light training program. Pre- and post-training assessments included measures of speed, agility, reaction time, and hand-eye coordination. Results showed significant improvements in speed, agility, and reaction time. These findings suggest that FitLight training can be an effective adjunct to traditional hockey training for enhancing motor skill development in adolescent girls hockey players.

INTRODUCTION

Hockey is a fast-paced, high-intensity sport requiring quick reactions, rapid changes of direction, and precise hand-eye coordination. Adolescent hockey players require training programs that enhance motor skill development to improve performance and reduce injury risk.

FITLIGHT TRAINING

Fitlight training is a cognitive system that uses wireless lights that measure improve the brain-body relationship. The system records the performance and gives immediate feedback including the coordination, speed, reaction time and fitness level after every session.

STATEMENT OF THE PROBLEM

The purpose of this study is find out the effect of training on physical variables of Adolescent Hockey girls.

OBJECTIVES OF THE STUDY

The following objectives were formulated in this study:

- To find out the Fitlight training on physical variables of Adolescent Hockey players.
- To understand the importance of Fitlight training on 6 weeks of physical variable on adolescent girls Hockey players.
- To find out the suitable training to set desirable change over the Fitlight training on physical variables of adolescent girls Hockey players.

SIGNIFICANCE OF THE STUDY

The study may be significance in the following respects.

- The study also helpful to find the physical variables of Adolescent girls Hockey players.
- The study would be helpful to the player to know their status.
- The result of the study would be great in designing and administrating physical variables like speed, agility and reaction time.
- The finding of the study may provide guidance to physical education teacher and coaches to prepare training schedule for specific events on basis of their capacity.

It may be useful to understand the specific change that take place on different variables at different fit light training standardized format in connection which physical variables which would help them for easy identification.

HYPOTHESIS

It is hypothesized that there will be significant changes over physical variables of Adolescent hockey players due to the effect of fit light training.

DELIMITATIONS

- The present study will be delimited to the following aspects.
- The study was conducted on 30 adolescent girls hockey players from chavara school.
- Their age ranged from 14to 17 years.
- The study was delimited to physical variables such as speed,agility and reaction time.
- The training period was delimited to eight weeks only.

LIMITATIONS

- The study is limited in the following factors
- The subjects are from different social, cultural and economic back grounds, which cannot be controlled.
- The subject's motivational level during testing will not be controlled.
- The nutritional status and the daily dietary intake of the subjects will not be considered.
- Factors like food habit, life style etcetera will not be controlled.

METHODOLOGY

To achieve the purpose of the study 30 Adolescent girls hockey players will be selected from chavara school, vadavalli, criterion. The subjects are ranged between 14to 17 years. The selected thirty subjects will be divided into two equal groups, consists of fifteen each. Experimental group – I underwent fit light training, group – II Control group were not engaged in any special training programme other than their regular work. The experimental groups under gone their respective training for 3 days per week for the period of 8 weeks.

SELECTION OF VARIABLES

INDEPENDENT VARIABLES

Fitlight training

SKILL PERFORMANCE VARIABLES

- Speed
- Agility
- Reaction time
- Hand eye coordination

CRITERION MEASURE

S.NO	VARIABLE	TEST ITEMS	UNIT OF MEASUREMENT
1	Speed	40m sprint	meter/second
2	Agility	zig-zag run	meter/second
3	Reaction Time	reaction to visual stimulus	millisecond
4	Hand Eye Coordination	catching task	Number of catches

COLLECTION OF DATA

To study the base line performance of subjects belongs to hockey player's motor development namely speed, agility, reaction time and hand eye coordination were used in the study, the subjects of each group will be measured using the standardized tests as mentioned earlier. Further, the performance of subjects of two groups after completion of test program on variables used in the study will be measured as such in the test. Thus, the data for this study will be collected.

STATISTICAL TECHNIQUE

The statistical technique dependent 't' test is used. To find out the significance for 't' test will be applied 0.05 level of confidence was fixed to level of significance.

DISCUSSION

FitLight training appears to be an effective adjunct to traditional hockey training for enhancing motor skill development in adolescent hockey players. Significant improvements in speed, agility, and reaction time andhand eye coordination suggest that Fitlight training can help hockey players develop the quick reactions and rapid changes of direction required for success in the sport.

CONCLUSION

This study provides evidence for the effectiveness of Fit light training in enhancing motor skill development in adolescent girls hockey players. Coaches and trainers can consider incorporating Fit light training into their training programs to improve performance and reduce injury risk.

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LIFE AFTER SPORTS: THE CHALLENGES OF EARLY RETIREMENT IN ATHLETES

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INTRODUCTION

The career lifespan of professional athletes (track and field) is often much shorter than that of individuals in other professions. Early retirement can also be addressed by the word Premature retirement . Due to the intense physical demands of their sport, many athletes face the prospect of early retirement, sometimes forced by injury, health concerns, or declining performance. The concept of "early retirement" in sports is multifaceted and requires an exploration of its causes, effects, and the strategies athletes employ to navigate life after their careers.

This paper seeks to provide an in-depth theoretical understanding of early retirement in athletes, examining the contributing factors, the consequences on athletes' mental and physical well-being, and potential strategies that can help athletes transition smoothly into life after their sporting careers.

CAUSES OF EARLY RETIREMENT

The reasons for early retirement in athletes are varied, and they can be broadly categorized into the following:

EARLY SPECIALISATION AND OVER – TRAINING:

This has been a major challenge in Indian Athletics. According to recommendations from World Athletics, event specifications must be done only under the age of U16, but in India below 14 athletes are over trained under coaches and parents who have no knowledge. Due to this factor athletes are burned out in younger stages and decrease in performance occurs in their later stages which forces them to retire from athletics.

INJURIES AND HEALTH ISSUES:

One of the most common reasons for early retirement is injury. High-impact injuries cause severe physical trauma, resulting in chronic conditions that force athletes to retire early.

DECLINE IN PERFORMANCE / FEAR OF FAILURES:

Consistency in performances and winning is a very difficult task in athletics mainly in sprint events. The pressure to maintain peak performance can be overwhelming, leading some athletes to retire early, either voluntarily or due to being phased out of competitive play.

PSYCHOLOGICAL STRESS:

The mental and emotional toll of high-level sports can contribute to an athlete's decision to retire early. Anxiety, depression, and burnout are common among athletes who have spent years under intense pressure, leading some to choose an early exit.

FINANCIAL REQUIREMENTS:

Athlete financial requirements are high in order to meet his nutrition, sports kit, travelling and health care expenses. Due to lack of funds athletes tend to retire early.

SOCIAL / CULTURAL FACTORS:

India is a culture – rich country which has a unique tradition. Females are mostly given in marriage around the age of 25. Family burdens, marriage and other social and cultural factors cause early retirement among athletes.

PERSONAL CHOICE AND EXTERNAL FACTORS:

Some athletes may choose to retire early to pursue other career opportunities, spend time with family, or focus on personal growth. External factors, such as the financial incentives to retire early or changing team dynamics, can also influence an athlete's decision.

IMPACT OF EARLY RETIREMENT:

Early retirement has profound effects on an athlete's life, both positively and negatively. Some key impacts include

MENTAL HEALTH ISSUES:

Studies have shown that many athletes struggle with mental health challenges after retiring. The loss of identity that comes with leaving professional sports can lead to depression, anxiety, and a sense of purposelessness. The transition from a high-profile career to an ordinary life can be difficult, especially when athletes lack proper support.

PHYSICAL HEALTH CONCERNS:

Many retired athletes experience long-term physical ailments from their time in sport, including joint pain, arthritis, and neurological conditions such as concussions. These health issues often become more pronounced as athletes age, adding to the challenges faced post-retirement.

FINANCIAL ADJUSTMENTS:

Unless or otherwise athletes earn significant amounts of money during their careers, a lack of financial planning or sudden changes in lifestyle can lead to financial difficulties after retirement. Early retirement may also affect an athlete's post-career earning potential if they haven't prepared for a secondary career.

LOSS OF SOCIAL IDENTITY:

Athletes often derive a significant part of their identity from their sport. When they retire early, they may struggle with the loss of recognition and the social benefits that come with being a professional athlete. This can lead to feelings of isolation and loss of self-worth.

STRATEGIES FOR SMOOTH TRANSITION

To mitigate the negative effects of early retirement, athletes can employ several strategies to ensure a smooth transition into life after sports:

CAREER PLANNING AND EDUCATION:

Athletes should begin planning for their post-retirement careers during their professional years. Education, vocational training, or seeking career counseling can help athletes build skills for alternative careers, reducing the shock of retirement. Various sport based industries and earning opportunities are open . Athletes should make use of them effectively.

FINANCIAL PLANNING:

Early financial planning, including saving, investing, and working with a financial advisor, can help ensure that athletes are financially stable after retirement. This also includes creating a plan for managing assets, as well as understanding taxes and benefits related to their earnings.

MENTAL HEALTH SUPPORT:

Providing athletes with mental health support, including therapy and counseling services, can help address psychological challenges post-retirement. Having a support system in place—family, friends, or professional counselors—can also make the transition easier.

PHYSICAL REHABILITATION AND HEALTH CARE:

Long-term rehabilitation for injuries and managing physical health are critical to improving post-retirement quality of life. Many retired athletes benefit from continued medical support to manage pain and maintain an active lifestyle.

BUILDING A NEW IDENTITY:

It is important for athletes to cultivate new hobbies, interests, and social networks beyond sports. Volunteering, mentoring, or engaging in community work can provide a sense of purpose and fulfillment after retirement.

CONCLUSIONS AND RECOMMENDATIONS:

A secured life long career can be achieved by sports. Sports industry is a rapid growing industry in India with various corporate and federations joining together to create a impact globally. Athletes who enter into regular training should build a strong mind to strive against all hardships in the athletic career and pave way for smooth transitions in life.

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A QUALITATIVE STUDY: PERFORMANCE ANALYSIS THROUGH VIDEO FEEDBACK ON SELECTED SKILLS OF TABLE TENNIS NOVICES

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ABSTRACT

This study looks at how video feedback can help improve the performance of beginner table tennis players. The goal was to understand how watching videos of their play can help players learn key skills, such as forehand,backhand drive and service techniques. Novice players were filmed while practicing, and then they received feedback from the coach using the videos. Afterward, the players reflected on their performance and discussed it with the coach. The study collected data through interviews and observations to see how the players' skills, understanding, and confidence changed. The results showed that video feedback helped players spot areas where they needed improvement and made them more aware of their strengths and weaknesses. Overall, the study suggests that video feedback is a useful tool for helping beginner players improve their skills in table tennis.

Keywords: *Video feedback, Performance improvement, Table tennis, Novice players,Skilldevelopment*

INTRODUCTION

TABLE TENNIS:

Table tennis is a racket sport derived from tennis but distinguished by its playing surface being atop a stationary table, rather than the court on which players stand. Either individually or in teams of two, players take alternating turns returning a light, hollow ball over the table's net onto the opposing half of the court using small rackets until they fail to do so, which results in a point for the opponent. Play is fast, requiring quick reaction and constant attention, and is characterized by an emphasis on spin, which can affect the ball's trajectory more than in other ball sports. Owed to its small minimum playing area, its ability to be played indoors in all climates, and relative accessibility of equipment, table tennis is enjoyed worldwide not just as a competitive sport, but as a common recreational pastime among players of all levels and ages.

VIDEO FEEDBACK:

Video feedback is a helpful tool that allows people to watch recordings of their actions to see what they are doing well and what they can improve. It is used in many areas like sports, education, and work to help individuals learn and perform better. By watching themselves on video, people can understand their movements or actions in a way that may be hard to notice while they are doing them.

In sports, for example, athletes can use video feedback to see their techniques from different angles and make improvements. This visual feedback, combined with advice from a coach or teacher, helps them understand exactly what changes they need to make. Video feedback not only helps with improving skills, but it also encourages people to think about their performance and take charge of their learning. Whether in training or everyday tasks, video feedback is a valuable way to boost performance and learning.

HOW CAN VFB (VIDEO FEEDBACK)HELP PLAYERS:

- Learn from mistakes: Players can learn from their mistakes and identify areas for improvement.
- Improve technique: Players can learn how to optimize their motion techniques and sequences.
- Build confidence: Players can build self-confidence and self-awareness.
- Improve motivation: Players can be motivated to improve their performance.

IMPACT OF VIDEO FEEDBACK ON NOVICE PLAYERS:

The impact of video feedback on novice players is significant in shaping their learning and development process. For beginners, video feedback serves as a powerful tool that allows them to visually observe their actions, movements, and overall performance. This direct visual representation helps bridge the gap between theoretical knowledge and practical application, offering a clearer understanding of how their actions translate into game performance.

For novice players, one of the key benefits of video feedback is its ability to highlight areas that may not be easily perceived during live play. Whether it's a flaw in technique, positioning, or decision-making, video allows players to see exactly where improvements are needed. By breaking down each movement, players can pinpoint their mistakes and gain a deeper understanding of how small adjustments can make a significant difference in their performance.

IMPACT OF VIDEO FEEDBACK ON ADVANCE PLAYERS

1.IMPROVED TECHNIQUE AND SKILL DEVELOPMENT

Visual Learning: Table tennis requires a high level of precision and technique. Video feedback allows players to visually see their strokes, footwork, and overall positioning. This visual representation can help them understand what needs improvement. For example, they can notice inconsistencies in their grip or body alignment that might be hard to feel during live play.

2.TACTICAL AWARENESS

Match Analysis: By reviewing video footage of their matches, players can analyze their strategies and tactics. They can study the opponents' playing patterns, weaknesses, and strategies, leading to a better understanding of how to adjust their approach in future matches.

3.MENTAL AND PSYCHOLOGICAL BENEFITS

Self-Confidence: Positive reinforcement from watching successful play and improvement can boost self-confidence. Players can see tangible evidence of their progress, which can motivate them to keep improving.

4.INJURY PREVENTION

Biomechanical Analysis: With advanced video technology, players' movements can be analyzed in terms of biomechanics. This can help identify any inefficient or risky motions that could lead to overuse injuries, such as elbow or shoulder strain. Preventative measures can then be taken before an injury occurs.

METHODOLOGY

Participants: 5 college men from Sri Ramakrishna Mission Vidyalaya,Maruthi College of Physical education, Coimbatore,Tamil Nadu selected as participants. The age of the subjects rangedfrom 18 to 24 years.

Variables: Independent variable - Table tennis training with video feedback, Dependent variables - Forehand drive, Backhand drive, Service.

Training Protocol: During the training - 6 weeks, Number of days per week - 5 days, Number of sessions per day - 1 session (1 hour) and Duration of session - 60 minutes.

FOREHAND DRIVE:

During the video feedback training, the players experience improvement in holding the grip, the correct stance for various strokes, and the appropriate swinging motion with accurate timing. The player can maintain control of the game through consistent rallies.

BACKHAND DRIVE:

Through the video feedback training, the players exhibit specific improvements in their grip adjustments, wrist management, stable stance, and effective follow-through motion. The players managed to keep control the game with the assistance of steady rallies.

SERVICE:

Through the video feedback training, the player made notable progress in their ball toss, contact point, serve consistency, and also improved their ability for precise serve placement.

CONCLUSION:

This study shows that video feedback is a helpful tool for improving the skills of beginner table tennis players. By watching videos of their practice sessions, players were able to identify areas for improvement and better understand their strengths and weaknesses. The feedback from their coach, combined with self-reflection, helped the players enhance key skills such as the forehand, backhand drive, and service techniques. Overall, the study highlights that video feedback is an effective method for helping novice players improve their technique and build confidence in their abilities.

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EFFECTS OF YOGIC PRACTICE ON SELECTED BMI AND FLEXIBILITY AMONG COLLEGE OBESE WOMEN

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ABSTRACT

The study aimed to explore the influence of effect of yogic practice on selected BMI and flexibility among college obese women. The hypothesis posited that eight weeks of yogic practice would significantly impact selected BMI and flexibility among college obese women. For this investigation, 30 randomly selected college obese women from STC college, Coimbatore district, Tamilnadu, India, aged between 18 to 21 years, were chosen as subjects. The research employed a pretest–posttest random group design, incorporating an experimental group (Group 'A') and a control group (Group 'B'), each comprising fifteen participants. Group 'A' underwent yogic practice training, while Group 'B' received no training. BMI and Flexibility were assessed using the BMI and sit and reach test, respectively. Before the eight-week experimental period commenced, we conducted pre-tests to assess the selected physical fitness variables in all 30 subjects. Subsequently, post-tests were carried out at the conclusion of the experimental period, with scores meticulously recorded. Statistical analysis was conducted with a predetermined level of significance set at a confidence level of 0.05. The study results revealed a significant improvement in BMI and flexibility among participants in the yogic practice group.

Keywords*: yogic practice, BMI, flexibility.*

INTRODUCTION

Yoga is more than mastering postures and increasing your flexibility and strength. In Hinduism, Buddhism and Jainism the word yoga means "spiritual discipline". People often associate yoga with the postures and stances that make up the physical activity of the exercise, but after closer inspection it becomes clear that there are many more aspects of yoga. It is an activity that has been practiced for thousands of years, and it is something that has evolved and changed overtime. (Swami Satyananda Saraswathi 1991) . The science of Yoga brings to work on the outermost aspect of the personality, the physical body, which for most people is a practical and familiar starting point. When imbalance is experienced at this level, the organs, muscles and nerves no longer function in harmony, rather they act in opposition to each other. Yoga aims at bringing the different bodily functions in to perfect co-ordination so that they work for the good of the whole body. Walking can help in weight control since it burns at least four times more calories than sitting or standing. (William, E. 1980). Suryanamaskar is an unavoidable part of Yoga. However it is not described in Patangali Yog Sutra, Hathapradipika, Gherandsamita, Yog Vasistha or any main Literature of Yoga. Worshiping Sun as God is there since the Vedic period. However practicing a chain of asana with mantras and pranayama in Suryanamaskar is a recent development- i.e. after 15th - 16th century.

Surya Namaskar, an age-old yogic practice, is a comprehensive exercise, which contributes to mental, emotional, physical, and spiritual well-being. Suryanamaskar helps to increase flexibility, endurance and stamina. It tones body muscles and helps to lose weight by activating fat metabolism and normalizing hormonal imbalance. It helps to increase mobility in almost all joints. Blood

circulation increases all over the body up to organic level, tissue level and cellular level. Physical health is any bodily activity that enhances or maintains psychological and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, cardiovascular disease, diabetes and obesity, It also improves mental health and helps prevent depression Physical exercise "exertion of the muscles, limbs and bodily powers, regarded with, reference to its effect on the subject, especially such exertion undertaking with a view to the maintenance or improvement of health" (Mathews 1981).

METHODOLOGY

The objective of this study was to investigate the effect of yogic practice on selected BMI and flexibility among college obese women. It was hypothesized that eight weeks of yogic practice would significantly influence selected BMI and flexibility among college obese women. For the present study, 30 college obese women from STC College, Coimbatore district, Tamilnadu, India, were randomly selected as subjects, with ages ranging from 18 to 21 years.A pretest–posttest random group design, incorporating an experimental group (Group 'A') and a control group (Group 'B'), was employed. Subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent yogic practice, while Group 'B' received no training BMI and Flexibility were assessed using the BMI and sit and reach test, respectively. Subsequently, the experimental group underwent an eight-week regimen involving yogic practice, while the control group did not partake in any training activities. After the completion of the eight-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests were subjected to statistical analysis using the dependent t-test to determine if any statistically significant improvements were observed. It is noteworthy that a level of significance was set at 0.05, ensuring a 95% confidence level for all analyses.

RESULTS

Table I.

Mean and Dependant 'T' – ratio for the Pre and Post Tests on yogic practice Group and control Group on BMI and Flexibility

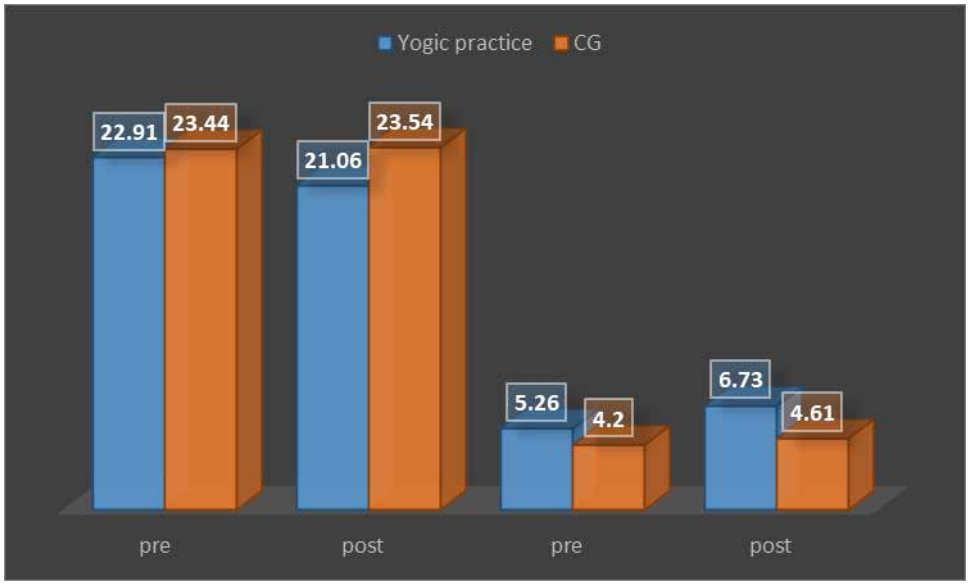
S.No	Group	Variables	Pre-Test Mean & SD	Post-Test Mean & SD	Standard error mean	T- ratio
1	Yogic practice	BMI	22.91 ± 0.98	21.06 ± 0.78	0.07	8.12*
2		Flexibility	5.26 ± 2.57	6.73 ± 0.35	0.99	7.50*
1	Control Group	BMI	23.44 ± 0.92	23.54 ± 1.26	0.13	0.71
2		Flexibility	4.20 ± 1.65	4.61 ± 1.69	0.36	0.54

**Significant level 0.05 level degree of freedom (2.14, 1 and 14)*

Table I displays the computation of the t ratio comparing the means of pre-test and post-test for among college obese women. The mean BMI and Flexibility values for the experimental group were 22.91 before training and 21.06 after and 5.26 before training and 6.73 after, while the control group

had means of 23.44 and 23.54 and 4.20 and 4.61 for the respective tests. The calculated t ratio of 8.12 and 7.50 exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the BMI and Flexibility of the experimental group significantly improved due to the influence of in-and-outs yogic practice. Conversely, the computed t ratio of 0.71 and 0.57 fell short of the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the BMI and Flexibility of the control group did not exhibit significant improvement following the intervention.

The bar diagram shows the mean values of pre test on BMI and Flexibility of experimental group and control group.



FINDING OF RESULTS

The study findings reveal a significant improvement in the selected variables, namely BMI and Flexibility, within the experimental group, which consisted of individuals undergoing yogic practice, in comparison to the control group. Furthermore, the study indicates that the enhancements achieved by the yogic practice are notably superior to those observed in the control group. For further insights into this topic, one can refer to the research conducted by **Arunya Buttichak *et al.*, (2019)** .In their study titled the effects of a yoga training program with fit ball on the physical fitness and body composition of overweight or obese women. Therefore, the eight-week training of yoga with fit ball can improve some parameters of physical fitness and body composition in overweight or obese women. In conclusion, the study results underscore the positive impact of yogic practice on BMI and Flexibility, emphasizing their effectiveness in enhancing athletic performance.

CONCLUSIONS

Within the limitations of the present study, the following conclusions were drawn:

- The experimental group, comprised of individuals who underwent yogic practice, achieved a notably significant improvement in BMI and Flexibility, college obese women.

- In contrast, the control group exhibited insignificant improvement in physical fitness variables, specifically BMI and Flexibility, college obese women.

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SPORTS FOR CHARACTER BUILDING AND HEALTHY SOCIETY: FOSTERING PERSONAL GROWTH, SOCIAL CONNECTIONS, AND COMMUNITY DEVELOPMENT

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ABSTRACT

Participation in sports has long been recognized as a vital component of holistic development, contributing significantly to the building of character, promotion of physical and mental health, and fostering of social connections. This paper explores the transformative power of sports in shaping individuals and societies, highlighting its role in developing essential life skills, promoting social inclusion, and driving community development. By examining the intersections between sports, character building, and healthy societies, this research underscores the importance of integrating sports into educational and community programs, ultimately contributing to the creation of a more just, equitable, and healthy society.

Keywords: *sports, character building, healthy society, personal growth, social connections, community development.*

INTRODUCTION

Sports have been an integral part of human civilization for centuries, serving as a platform for physical activity, social interaction, and personal growth. Beyond its entertainment value, sports have the profound ability to shape individuals and societies, fostering the development of essential life skills, promoting social inclusion, and driving community development. The values and principles inherent in sports, such as discipline, teamwork, and fair play, provide a foundation for character building, while the physical and mental health benefits of sports participation contribute to a healthier society.

Imagine a world where individuals are empowered with the skills, confidence, and resilience to overcome life's challenges. A world where communities come together, united by a shared passion for physical activity and mutual support. A world where the benefits of sports extend far beyond the playing field, fostering a culture of character, inclusivity, and wellness.

This is the world of sports, where the pursuit of excellence and the joy of participation converge to create a transformative experience. Sports have the power to shape individuals and societies, teaching valuable life skills like discipline, teamwork, and perseverance. They promote physical and mental health, providing a healthy outlet for stress and anxiety. And they bring people together, bridging cultural and socio-economic divides to create a sense of community and belonging.

From the grassroots fields of local youth sports to the grand stages of international competition, sports have the capacity to inspire, educate, and uplift. They offer a unique platform for character building, where individuals can develop essential life skills, challenge themselves, and push beyond their limits. And they provide a foundation for healthy societies, where physical activity, social connection, and community engagement come together to create a culture of wellness and vitality.

In this context, sports are more than just a game – they are a powerful tool for building character, promoting health, and fostering community. As we explore the intersections between sports, character building, and healthy societies, we begin to uncover the profound impact that sports can have on individuals and communities, and the vital role they play in shaping a brighter, healthier future for all.

In today's world, where societal challenges such as obesity, mental health issues, and social isolation are increasingly prevalent, the importance of sports in promoting character building and healthy societies cannot be overstated. This paper will explore the transformative power of sports, examining its role in shaping individuals and societies, and highlighting its potential to address some of the most pressing social and health issues of our time. By investigating the intersections between sports, character building, and healthy societies, we can gain a deeper understanding of the ways in which sports can be harnessed to create a more just, equitable, and healthy world.

CHARACTER BUILDING THROUGH SPORTS

Participating in sports can help individuals develop essential life skills, such as:

DISCIPLINE AND HARD WORK

Discipline and hard work are essential life skills that sports can help develop. Through sports, individuals learn to:

- - Set goals and work towards achieving them
- - Develop a strong work ethic and commitment to training
- - Overcome obstacles and challenges
- - Stay focused and motivated, even in the face of adversity
- - Develop self-discipline and self-control, leading to improved time management, prioritization, and decision-making skills

By learning discipline and hard work through sports, individuals can develop a strong foundation for success in all areas of life.

TEAMWORK AND COMMUNICATION

Teamwork and communication are critical life skills that sports can help develop. Through sports, individuals learn to:

- - Work collaboratively with others towards a common goal
- - Communicate effectively with teammates, coaches, and officials
- - Build strong relationships and trust with others
- - Develop active listening and conflict resolution skills
- - Understand and appreciate the value of diversity and inclusivity

By learning teamwork and communication through sports, individuals can develop essential skills for success in personal and professional relationships.

PERSEVERANCE AND RESILIENCE

Perseverance and resilience are vital life skills that sports can help develop. Through sports, individuals learn to:

- - Overcome setbacks, failures, and disappointments
- - Develop coping strategies and stress management techniques
- - Stay motivated and focused, even in the face of adversity
- - Learn from mistakes and use them as opportunities for growth
- - Develop a growth mindset and embrace challenges as opportunities for development

By learning perseverance and resilience through sports, individuals can develop the ability to bounce back from adversity and achieve success in all areas of life.

FAIR PLAY AND SPORTSMANSHIP

Fair play and sportsmanship are essential life skills that sports can help develop. Through sports, individuals learn to:

- - Respect rules, officials, and opponents
- - Develop a sense of justice and fairness
- - Understand the importance of honesty, integrity, and accountability
- - Learn to win graciously and lose with dignity
- - Develop empathy and compassion for others

By learning fair play and sportsmanship through sports, individuals can develop a strong moral compass and a deep respect for others.

LEADERSHIP AND INITIATIVE

Leadership and initiative are critical life skills that sports can help develop. Through sports, individuals learn to:

- - Take charge and lead others
- - Develop problem-solving and decision-making skills
- - Communicate effectively and inspire others
- - Build confidence and self-esteem
- - Develop a sense of responsibility and accountability

By learning leadership and initiative through sports, individuals can develop the skills and confidence to take on leadership roles and make a positive impact in their communities.

PHYSICAL HEALTH BENEFITS

Regular sports participation can significantly improve physical health, including:

CARDIOVASCULAR HEALTH

Regular sports and exercise participation can significantly improve cardiovascular health by:

- - Strengthening the heart and lungs
- - Increasing blood flow and circulation
- - Lowering blood pressure and cholesterol levels
- - Reducing the risk of heart disease, strokes, and high blood pressure
- - Improving overall cardiovascular function and efficiency

MUSCLE STRENGTH AND ENDURANCE

Sports and exercise can help build muscle strength and endurance by:

- - Increasing muscle mass and density
- - Enhancing muscle fiber size and strength
- - Improving muscle tone and definition
- - Boosting metabolism and energy levels
- - Reducing the risk of muscle-related injuries and disorders

FLEXIBILITY AND MOBILITY

Regular sports and exercise participation can improve flexibility and mobility by:

- - Increasing range of motion and flexibility
- - Reducing muscle tension and stiffness
- - Improving joint mobility and function
- - Enhancing balance and coordination
- - Reducing the risk of injuries and mobility-related disorders

WEIGHT MANAGEMENT

Sports and exercise can help with weight management by:

- - Burning calories and increasing energy expenditure
- - Building muscle mass and boosting metabolism
- - Improving appetite regulation and nutrient partitioning
- - Reducing body fat percentage and improving body composition
- - Maintaining weight loss and preventing weight regain

REDUCED RISK OF CHRONIC DISEASES

Regular sports and exercise participation can reduce the risk of chronic diseases, including:

- - Type 2 diabetes
- - Certain types of cancer (e.g., colon, breast, and prostate cancer)
- - Osteoporosis and osteopenia
- - Stroke and cardiovascular disease

- - Mental health disorders (e.g., depression, anxiety, and substance abuse)

By incorporating sports and exercise into daily life, individuals can significantly reduce their risk of developing these chronic diseases and improve their overall health and well-being. Exercise and physical activity can also improve mental health and well-being.

MENTAL HEALTH BENEFITS

Sports participation can have a profound impact on mental health, including:

REDUCED STRESS AND ANXIETY

Regular sports and exercise participation can help reduce stress and anxiety by:

- - Releasing endorphins, also known as “feel-good” hormones
- - Distracting from daily worries and concerns
- - Providing a healthy outlet for emotions and tension
- - Improving mood and reducing symptoms of anxiety and depression
- - Enhancing resilience and ability to cope with stress

IMPROVED MOOD AND SELF-ESTEEM

Sports and exercise can improve mood and self-esteem by:

- - Releasing neurotransmitters such as serotonin and dopamine, which regulate mood
- - Providing a sense of accomplishment and pride in physical achievements
- - Enhancing body image and self-confidence
- - Offering opportunities for social interaction and connection with others
- - Reducing symptoms of depression and anxiety

ENHANCED COGNITIVE FUNCTION

Regular sports and exercise participation can enhance cognitive function by:

- - Improving concentration and focus
- - Enhancing memory and learning capacity
- - Boosting creativity and problem-solving skills
- - Supporting brain health and development
- - Reducing risk of age-related cognitive decline

BETTER SLEEP QUALITY

Sports and exercise can improve sleep quality by:

- - Regulating sleep patterns and circadian rhythms
- - Reducing stress and anxiety, common causes of insomnia
- - Increasing physical fatigue, promoting deeper sleep

- - Enhancing sleep duration and quality
- - Improving overall restfulness and rejuvenation

INCREASED SELF-CONFIDENCE

Regular sports and exercise participation can increase self-confidence by:

- - Providing opportunities for achievement and success
- - Enhancing physical abilities and skills
- - Promoting positive self-talk and self-perception
- - Offering social support and encouragement from teammates and peers
- - Fostering resilience and ability to overcome challenges and setbacks

Exercise can also provide a healthy distraction from daily worries and concerns.

SOCIAL BENEFITS

Sports can bring people together, fostering social connections and community engagement, including:

TEAM BONDING AND CAMARADERIE

Sports teams provide a unique environment for bonding and camaraderie to develop. Team members work together towards a common goal, sharing experiences, and supporting each other through challenges. This leads to strong relationships, trust, and a sense of belonging.

SOCIAL SUPPORT NETWORKS

Participating in sports provides opportunities to develop social support networks. Teammates, coaches, and fans offer emotional support, encouragement, and motivation. These networks can extend beyond the sports environment, providing a sense of connection and community.

COMMUNITY INVOLVEMENT AND VOLUNTEERISM

Sports teams and organizations often engage in community involvement and volunteerism. This can include participating in charity events, hosting youth clinics, or supporting local initiatives. Community involvement fosters social responsibility, empathy, and a sense of connection to the broader community.

CULTURAL EXCHANGE AND UNDERSTANDING

Sports provide a unique platform for cultural exchange and understanding. International competitions, tournaments, and exchange programs bring people together from diverse backgrounds, promoting cross-cultural understanding and respect.

REDUCED SOCIAL ISOLATION

Participating in sports can help reduce social isolation by providing opportunities for social interaction, connection, and community engagement. Sports teams and clubs offer a sense of belonging, reducing feelings of loneliness and disconnection.

EDUCATION AND PERSONAL GROWTH

Sports can provide valuable learning experiences, including:

GOAL SETTING AND ACHIEVEMENT

Participating in sports helps individuals develop goal-setting skills, which are essential for achieving success in various aspects of life. Through sports, individuals learn to:

- - Set specific, measurable, and attainable goals
- - Develop strategies to achieve goals
- - Work towards goals with persistence and dedication
- - Celebrate achievements and reflect on progress

OVERCOMING OBSTACLES AND SETBACKS

Sports participation helps individuals develop the ability to overcome obstacles and setbacks. Through sports, individuals learn to:

- - Face challenges with courage and determination
- - Develop coping strategies for dealing with adversity
- - Bounce back from setbacks and failures
- - Learn from mistakes and use them as opportunities for growth

DEVELOPING PROBLEM-SOLVING SKILLS

Sports participation helps individuals develop problem-solving skills, which are essential for navigating complex situations in life. Through sports, individuals learn to:

- - Analyze problems and identify solutions
- - Develop critical thinking and decision-making skills
- - Work collaboratively with others to solve problems
- - Adapt to changing situations and circumstances

BUILDING RESILIENCE AND ADAPTABILITY

Sports participation helps individuals develop resilience and adaptability, which are essential for navigating the challenges of life. Through sports, individuals learn to:

- - Develop a growth mindset and view challenges as opportunities for growth
- - Build coping skills and learn to manage stress and anxiety
- - Adapt to changing situations and circumstances
- - Develop a sense of purpose and meaning

LEARNING FROM FAILURE AND SUCCESS

Sports participation provides individuals with opportunities to learn from both failure and success. Through sports, individuals learn to:

- - Reflect on experiences and identify areas for improvement
- - Develop a growth mindset and view failures as opportunities for growth
- - Celebrate successes and reflect on what contributed to them
- - Develop a sense of humility and gratitude for experiences and opportunities.

Sports participation can also promote personal growth and self-awareness.

WOMEN'S EMPOWERMENT THROUGH SPORTS

Sports can play a vital role in empowering women and girls, including:

PROMOTING GENDER EQUALITY AND INCLUSION

Sports can play a significant role in promoting gender equality and inclusion by:

- - Providing opportunities for women and girls to participate in sports and physical activity
- - Challenging traditional gender roles and stereotypes that limit women's and girls' participation in sports
- - Promoting equal access to resources, facilities, and opportunities for women and girls in sports
- - Encouraging women's and girls' leadership and decision-making in sports organizations and governance

CHALLENGING TRADITIONAL GENDER ROLES AND STEREOTYPES

Sports can help challenge traditional gender roles and stereotypes by:

- - Providing opportunities for women and girls to participate in sports and physical activity that are traditionally male-dominated
- - Promoting positive images and role models of women and girls in sports
- - Encouraging men and boys to support and advocate for women's and girls' participation in sports
- - Challenging sexist language and behaviors that perpetuate negative stereotypes about women and girls in sports

BUILDING CONFIDENCE AND SELF-ESTEEM

Sports can help build confidence and self-esteem in women and girls by:

- - Providing opportunities for women and girls to develop physical skills and abilities
- - Encouraging women and girls to take risks and challenge themselves
- - Promoting positive body image and self-esteem
- - Providing opportunities for women and girls to experience success and achievement

PROVIDING OPPORTUNITIES FOR LEADERSHIP AND MENTORSHIP

Sports can provide opportunities for women and girls to develop leadership and mentorship skills by:

- - Providing opportunities for women and girls to take on leadership roles in sports teams and organizations
- - Encouraging women and girls to mentor and support each other
- - Promoting women's and girls' participation in sports governance and decision-making
- - Providing training and development opportunities for women and girls in sports leadership

FOSTERING SOCIAL CONNECTIONS AND COMMUNITY ENGAGEMENT

Sports can foster social connections and community engagement among women and girls by:

- - Providing opportunities for women and girls to connect with each other and build relationships
- - Encouraging women and girls to participate in community-based sports programs and initiatives
- - Promoting women's and girls' sports as a way to build community and promote social cohesion
- - Providing opportunities for women and girls to engage in volunteerism and community service through sports.

Sports can help create a more equitable and just society.

SPORTS FOR SOCIAL CHANGE

Sports can be a powerful tool for driving social change, including:

PROMOTING SOCIAL JUSTICE AND HUMAN RIGHTS

Sports can promote social justice and human rights by:

- - Raising awareness about social justice issues, such as racism, sexism, and homophobia
- - Providing a platform for marginalized voices to be heard
- - Promoting inclusive and equitable participation in sports
- - Supporting human rights initiatives and campaigns
- - Encouraging athletes and sports organizations to take a stand on social justice issues

ADDRESSING SOCIAL AND ECONOMIC INEQUALITIES

Sports can address social and economic inequalities by:

- - Providing opportunities for people from disadvantaged backgrounds to participate in sports
- - Promoting economic development and job creation through sports initiatives
- - Addressing systemic inequalities in sports, such as lack of access to resources and facilities
- - Supporting education and employment initiatives for marginalized groups
- - Encouraging corporate social responsibility and philanthropy in sports

FOSTERING COMMUNITY ENGAGEMENT AND ACTIVISM

Sports can foster community engagement and activism by:

- - Providing a platform for community-based initiatives and campaigns

- - Encouraging athletes and sports organizations to engage in community service and activism
- - Supporting grassroots sports initiatives and programs
- - Promoting civic engagement and voter registration through sports
- - Encouraging fans and spectators to get involved in community-based initiatives

SUPPORTING EDUCATION AND ADVOCACY INITIATIVES

Sports can support education and advocacy initiatives by:

- - Providing educational programs and resources on social justice issues
- - Supporting advocacy campaigns and initiatives on issues such as racism, sexism, and homophobia
- - Encouraging athletes and sports organizations to use their platform to advocate for social justice
- - Providing funding and resources for education and advocacy initiatives
- - Promoting partnerships between sports organizations and advocacy groups

INSPIRING INDIVIDUAL AND COLLECTIVE ACTION

Sports can inspire individual and collective action by:

- - Providing role models and inspiring stories of athletes and teams making a positive impact
- - Encouraging fans and spectators to take action on social justice issues
- - Providing opportunities for individuals to get involved in community-based initiatives and campaigns
- - Promoting a sense of community and collective responsibility among athletes, teams, and fans
- - Encouraging individuals to use their voice and platform to make a positive impact.

Sports can help create a more just and equitable society.

CHALLENGES AND OPPORTUNITIES

Despite the many benefits of sports, there are also challenges and opportunities, including:

INCREASING ACCESSIBILITY AND INCLUSIVITY

Increasing accessibility and inclusivity in sports can be achieved by:

- - Developing programs and initiatives that promote diversity, equity, and inclusion
- - Providing opportunities for people with disabilities, women, and marginalized groups to participate in sports
- - Building accessible and inclusive sports infrastructure
- - Promoting adaptive sports and para-sports
- - Encouraging sports organizations to adopt inclusive policies and practices

ADDRESSING FUNDING AND RESOURCE CONSTRAINTS

Addressing funding and resource constraints in sports can be achieved by:

- - Exploring alternative funding models, such as public-private partnerships and social impact investing
- - Developing sustainable and self-sufficient sports programs
- - Leveraging technology and innovation to reduce costs and increase efficiency
- - Building partnerships with local businesses, governments, and organizations
- - Promoting philanthropy and fundraising initiatives

PROMOTING SPORTS FOR DEVELOPMENT AND PEACE

Promoting sports for development and peace can be achieved by:

- - Using sports as a tool for social change and community development
- - Promoting sports programs that address social issues, such as poverty, inequality, and conflict
- - Supporting sports initiatives that promote peace, tolerance, and understanding
- - Building partnerships with international organizations, governments, and NGOs
- - Developing sports programs that promote education, health, and economic development

LEVERAGING TECHNOLOGY AND INNOVATION

Leveraging technology and innovation in sports can be achieved by:

- - Developing digital platforms and tools that promote sports participation and engagement
- - Using data analytics and artificial intelligence to improve sports performance and safety
- - Creating virtual and augmented reality sports experiences
- - Promoting e-sports and digital sports competitions
- - Developing innovative sports equipment and technology

FOSTERING INTERNATIONAL COOPERATION AND COLLABORATION

Fostering international cooperation and collaboration in sports can be achieved by:

- - Building partnerships between international sports organizations, governments, and NGOs
- - Promoting international sports competitions and events
- - Developing international sports development programs and initiatives
- - Sharing best practices and expertise in sports development and management
- - Encouraging international cooperation and collaboration in sports research and innovation.

By addressing these challenges and opportunities, we can unlock the full potential of sports.

CONCLUSION

In conclusion, sports play a vital role in fostering personal growth, social connections, and community development, ultimately contributing to a healthy and harmonious society. Through sports, individuals can develop essential life skills, such as discipline, teamwork, and resilience, which benefit them throughout their lives. Sports also provide a platform for social interaction, community engagement, and cultural exchange, breaking down social barriers and promoting inclusivity.

Moreover, sports have the power to transform individuals and communities, promoting physical and mental well-being, education, and economic development. By leveraging the potential of sports, we can build stronger, more compassionate, and resilient communities, where individuals can thrive and reach their full potential.

As we move forward, it is essential that we prioritize sports development and investment, ensuring that everyone has access to quality sports programs, facilities, and resources. By working together, we can harness the transformative power of sports to create a brighter, healthier, and more harmonious future for all. Ultimately, sports have the potential to be a game-changer for individuals, communities, and society as a whole and it is our collective responsibility to ensure that this potential is realized.

EFFECT OF BALL BADMINTON TRAINING WITH VIDEO FEEDBACK ON SELECTED SKILL PERFORMANCE VARIABLES AMONG SRI RAMAKRISHNA MISSION VIDYALAYA BALL BADMINTON ACADEMY PLAYERS

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ABSTRACT

The research study aims to determine the Effect of ball badminton training with video feedback on selected skill performance variables among Sri Ramakrishna Mission Vidyalaya ball badminton academy players. Participants: To accomplish the purpose of his study, 15 players were selected as subjects from Sri Ramakrishna Mission Vidyalaya ball badminton academy players. Age of the subjects ranged from 11 to 14 years. Variables: Independent variable-ball badminton with video feedback, dependent variable-high twist service, low service, over-arm volley, under-arm volley, front row overhead flat smash. Statistical Technique: A paired 't' test was used to test the mean difference between the pre and post-test. Training Protocol: During the training – 6 weeks, Number of days per week – 5 days, Number of sessions per day – 1 session and Duration of session - 60 minutes. Findings: These results emphasize the importance of incorporating video feedback as a modern training tool to accelerate skill development in ball badminton. Conclusions: It is concluded that the skill performance variables namely high twist service, low service, over-arm volley, under-arm volley, and front row over-head flat smash of college-level students were significantly improved due to the training of ball badminton training with video feedback.

Keywords: *ball badminton, high twist service, low service, over arm volley, under arm volley, front row overhead flat smash video feedback*

INTRODUCTION

Sports training has evolved significantly with technology integration, leading to enhanced skill acquisition and performance improvement. Ball badminton, a sport that demands quick reflexes, precise motor coordination, and strategic game play, has seen substantial advancements through video-based training methods. Video feedback has emerged as a powerful tool in modern coaching, enabling athletes to analyze their movements, correct errors, and refine techniques more effectively than traditional methods (Lees, 2003).

Video feedback in sports training allows athletes to observe their performance from multiple angles, compare their techniques with expert models, and receive immediate corrections. Research suggests that visual feedback enhances motor learning and skill execution, especially in sports requiring high-speed decision-making and coordination (Magill & Anderson, 2017).

This study explores the impact of video feedback on the skill performance of young ball badminton players.

Ball badminton is basically a South Indian game. There is no exact record available, when and by whom this game was introduced. But there is evidence that before 1856 the rulers of Thanjavur played

this game. It is learned that the royal family, Ball badminton game because originally badminton is an Indian game ball badminton the 19th century particularly in the south, people who migrated from south India carried the game to different parts of the country.

Sports require a combination of skill, endurance, and strategy, with racket sports like ball badminton demanding agility, precision, and quick reflexes. Originating in South India, ball badminton has gained recognition as a competitive sport, played at both amateur and professional levels. This study explores the impact of video feedback on the skill performance of young ball badminton players.

This study aims to investigate the effect of ball badminton training with video feedback on selected skill performance variables among Sri Ramakrishna Mission Vidyalaya Ball Badminton Academy players. By analyzing the impact of video-based feedback on stroke accuracy, reaction time, and tactical decision-making, this research seeks to provide valuable insights into the effectiveness of technology-assisted training in ball badminton. The findings may contribute to the development of evidence-based training programs that optimize skill acquisition and performance enhancement among young athletes.

METHODOLOGY

Participants: To accomplish the purpose of his study, 15 players were selected as subjects from Sri Ramakrishna Mission Vidyalaya ball badminton academy players. Age of the subjects ranged from 11 to 14 years. **Variables:** Independent variable-ball badminton with video feedback, dependent variable-high twist service, low service, over-arm volley, under-arm volley, front row overhead flat smash. **Statistical Technique:** A paired 't' test was used to test the mean difference between the pre and post-test. **Training Protocol:** During the training – 6 weeks, Number of days per week – 5 days, Number of sessions per day – 1 session and Duration of session - 60 minutes.

RESULTS AND INTERPRETATION OF DATA

Table –I

The mean difference, standard deviation, and 't' value of ball badminton training with video feedback on high twist service

Group	Mean	MD	SD	Std. Error of the mean	DF	't'	Table value
Pre-test	14.50	11	1.17	0.32	18	15.22*	2.10
Post-test	25.50		1.95	0.61			

** Significance at 0.05 level of confidence*

The ball badminton training with video feedback group pretest value was 14.50 and the post-test value was 25.50 respectively. The mean difference value was 11 and the ball badminton training with video feedback group obtained a 't' ratio of 15.22 greater than the table value of 2.10. It shows that the ball badminton training with video feedback group had improvement.

The pretest and posttest mean value of ball badminton training with video feedback group on high twist service is shown in Figure 1.

Figure – 1

Figure showing the mean values of ball badminton training with video feedback on high-twist service

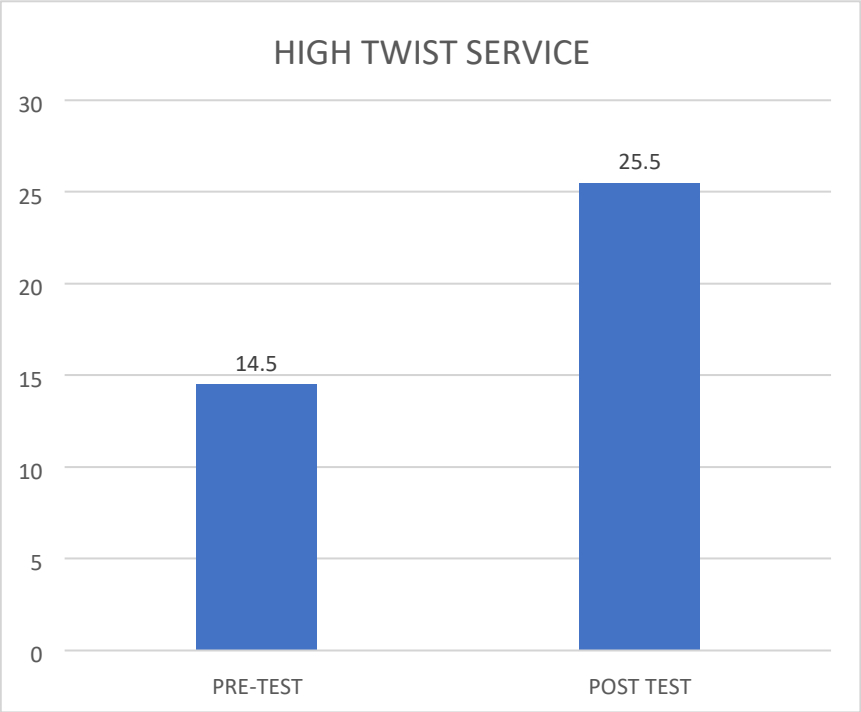


Table - II

The mean difference, standard deviation, and 't' value of ball badminton training with video feedback on low service

Group	Mean	MD	SD	Std. Error of the mean	DF	't'	Table value
Pre-test	17.40	10.90	2.06	0.37	18	21.60*	2.10
Post-test	18.30		0.51	0.61			

** Significance at 0.05 level of confidence*

The ball badminton training with video feedback group pretest value was 17.40 and the posttest value was 18.30 respectively. The mean difference value was 10.90 and the ball badminton training with video feedback group obtained a 't' ratio of 21.60 greater than the table value of 2.10. It shows that the ball badminton training with video feedback group had significant improvement on low service.

The pretest and posttest mean value of the ball badminton training with video feedback group on low service is shown in Figure 2.

Figure - 2

Figure showing the mean values of ball badminton training with video feedback on the low service

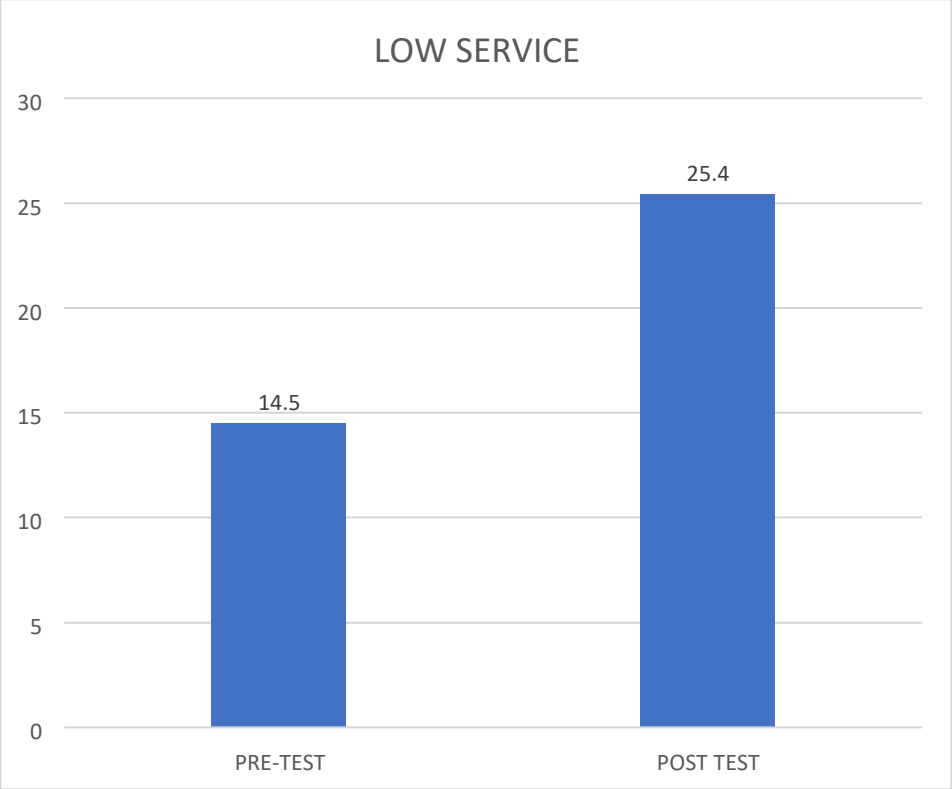


Table - III

The mean difference, standard deviation and 't' value of ball badminton training with video feedback on overarm volley

Group	Mean	MD	SD	Std. Error of the mean	DF	't'	Table value
Pre-test	15.00	10.10	1.24	0.39	18	17.23*	2.10
Post-test	25.10		1.37	0.43			

** Significance at 0.05 level of confidence*

The ball badminton training with video feedback group pretest value was 15.00 and the posttest value was 25.10 respectively. The mean difference value was 10.10 and the ball badminton training with video feedback group obtained a 't' ratio of 17.23 greater than the table value of 2.10. It shows that the ball badminton training with video feedback group had significant improvement on the overarm volley.

The pretest and posttest mean value of the ball badminton training with video feedback group on the overarm volley is shown in Figure 3.

Figure – 3

Figure showing the mean values of ball badminton training with video feedback on the overarm volley

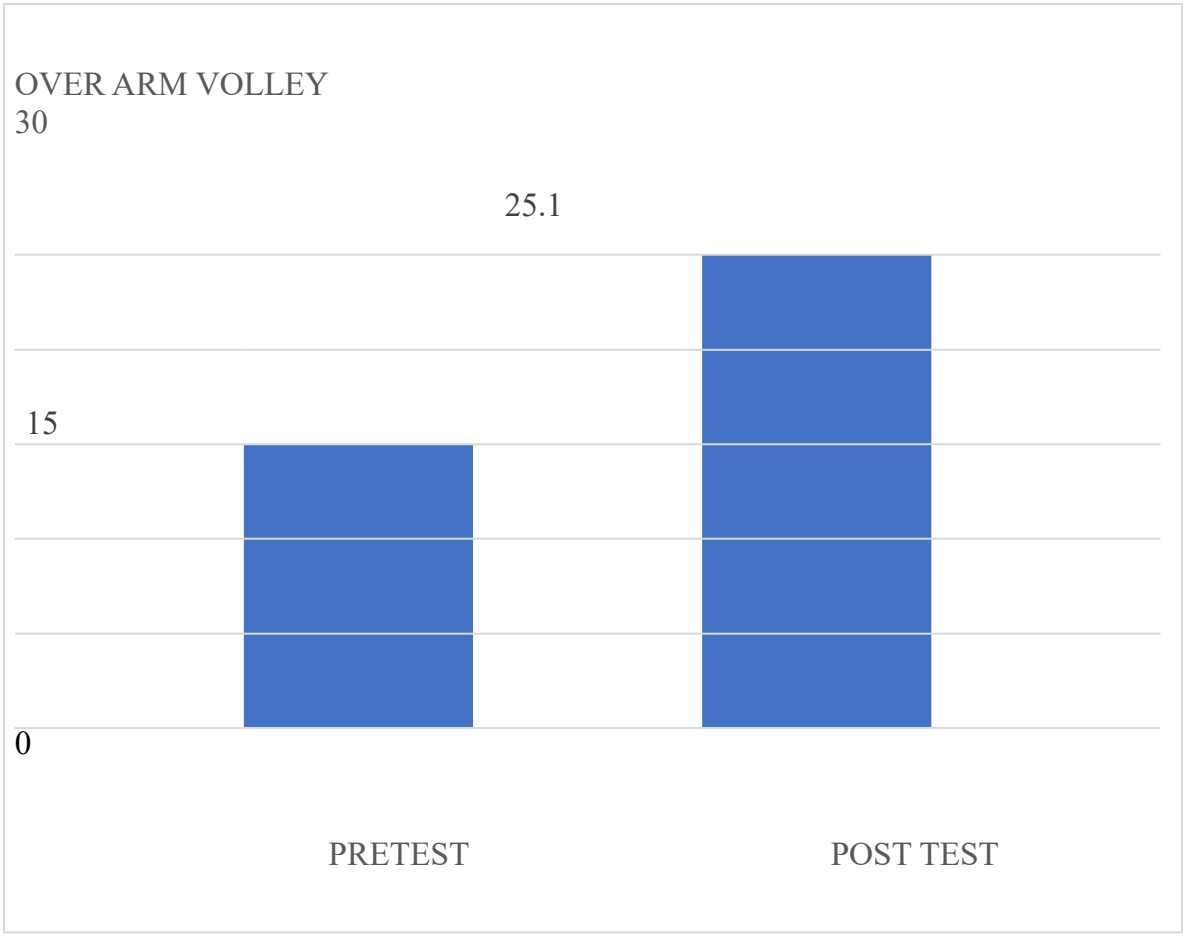


Table - IV

The mean difference, standard deviation and 't' value of ball badminton training with video feedback on under arm volley

Group	Mean	MD	SD	Std. Error of the mean	DF	't'	Table value
Pre-test	14.50	11.20	0.97	0.30	18	20.60*	2.10
Post-test	25.70		1.41	0.41			

** Significance at 0.05 level of confidence*

The ball badminton training with video feedback group pretest value was 14.50 and the posttest value was 25.70 respectively. The mean difference value was 11.20 and the ball badminton training with video feedback group obtained a 't' ratio of 20.60 greater than the table value of 2.10. It shows that the ball badminton training with video feedback group had significant improvement on underarm volley.

The pretest and posttest mean value of the ball badminton training with video feedback group on underarm volley is shown in Figure 4.

Figure – 4

Figure showing the mean values of ball badminton training with video feedback on the underarm volley

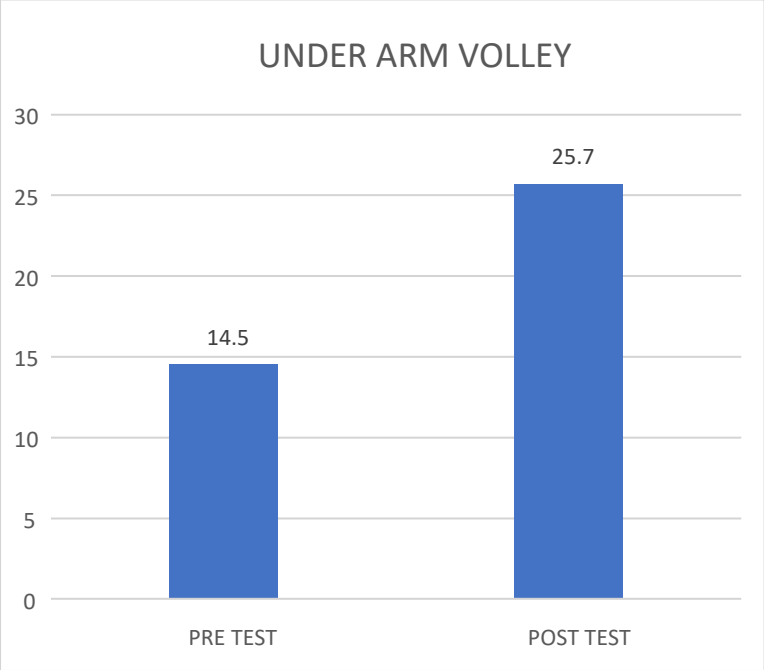


Table - V

The mean difference, standard deviation, and 't' value of ball badminton training with video feedback on the front row overhead flat smash

Group	Mean	MD	SD	Std. Error of the mean	DF	't'	Table value
Pre-test	14.60	11.20	0.69	0.22	18	23.75*	2.10
Post-test	25.80		1.31	0.41			

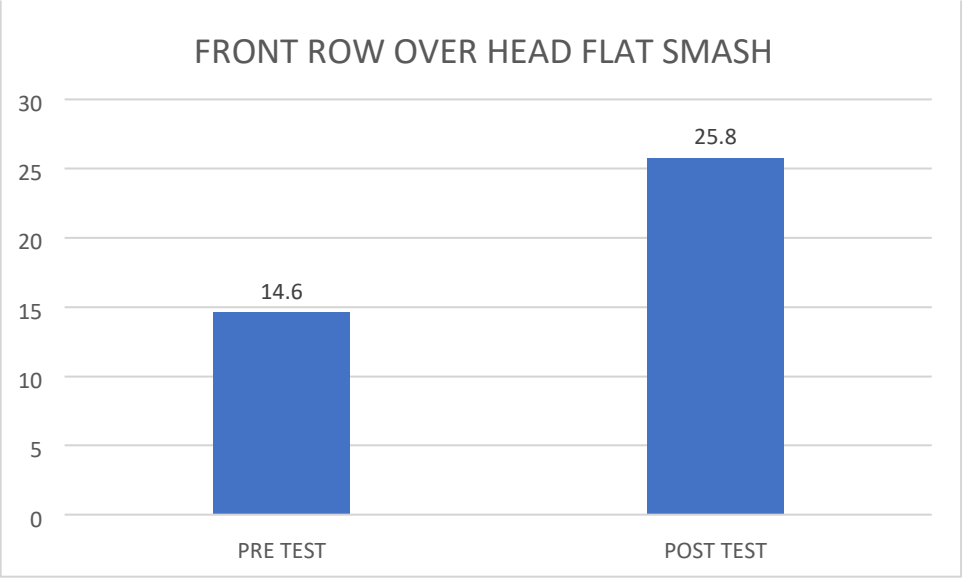
** Significance at 0.05 level of confidence*

The ball badminton training with video feedback group pretest value was 14.60 and the posttest value was 25.80 respectively. The mean difference value was 11.20 and the ball badminton training with video feedback group obtained a 't' ratio of 23.75 greater than the table value of 2.10. It shows that the ball badminton training with video feedback group had significant improvement on the front row overhead flat smash.

The pretest and posttest mean value of the ball badminton training with video feedback group on the front row overhead flat smash is shown in Figure 5.

Figure – 5

Figure showing the mean values of ball badminton training with video feedback on the front row overhead flat smash



DISCUSSION ON FINDINGS

Overall, the findings confirm that integrating video feedback into ball badminton training is highly effective in improving key skill performance variables. The significant improvements across all measured parameters align with previous research indicating that video-based training enhances motor learning, skill execution, and overall game performance (Magill & Anderson, 2017; Pinder et al., 2011). The ability to visualize one's performance, identify errors, and receive immediate corrective feedback likely played a critical role in these enhancements.

The result of the study reveals that the ball badminton training with video feedback group had significantly improved on selected skill performance variables namely low service, high twist service, under arm volley, the front row overhead flat smash, back row overhead twist smash due to six weeks of ball badminton training with video feedback.

CONCLUSIONS

It is concluded that the skill performance variables namely low serve, high twist serves, under-arm volley, the front row over-head flat smash, and the over-arm volley of ball badminton academy players were significantly improved due to the training of ball badminton training with video feedback.

RECOMMENDATIONS

[1] Based on the findings of this study, the following recommendations are proposed to enhance ball badminton training and skill development among school & college-level players:

[2] Coaches and trainers should incorporate video feedback as a regular part of ball badminton training to facilitate skill analysis, correction, and improvement in stroke mechanics.

[3] Individualized video feedback sessions should be conducted to help players identify their specific strengths and weaknesses, allowing for targeted skill enhancement.

[4] Players should be encouraged to compare their movements with expert-level techniques using video analysis tools, enabling them to refine their strokes based on professional standards.

EFFECTS OF MULTIMEDIA CAI ON DRIBBLING AMONG HOCKEY PLAYERS

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ABSTRACT

The role of technology in sports education has been drawing more focus, especially with the adoption of Multimedia Computer-Assisted Instruction (CAI) to boost skill development and performance. This research explores how multimedia CAI impacts the dribbling skills of undergraduate hockey players, comparing it to conventional Teacher Instruction (TI) and a Control Group (CG) over a six-week training program. Thirty undergraduate physical education students specializing in hockey were randomly divided into three groups: CAI, TI, and CG. Participants engaged in field training alongside either multimedia or traditional teaching sessions, with their dribbling abilities evaluated through pre- and post-tests. Using statistical tools like Analysis of Covariance (ANCOVA) and Scheffé's post-hoc test, the results showed that the CAI group achieved a notable improvement in dribbling (adjusted post-test mean of 82.21), outperforming the TI (74.56) and CG (72.12). This suggests that multimedia CAI is a powerful tool for enhancing dribbling skills in hockey. The findings highlight the potential of multimedia as a complementary approach to traditional teaching, providing a more dynamic and effective way to develop athletic abilities. This study adds to the expanding research on technology-driven learning in physical education and sports training.

Keywords: *CAI-Computer Assisted intruction, TI-Teacher Instruction,CG-Control Group, Hockey,& Multimedia.*

1.INTRODUCTION

In the ever-changing world of education technology, multimedia computer-assisted instruction (CAI) has become a cutting-edge tool to boost learning results. When it comes to physical education, especially in sports such as hockey, blending computer-aided techniques presents a fresh way to sharpen skills and elevate performance. This research was crafted to evaluate whether multimedia CAI could make a noticeable difference in mastering essential hockey skills when stacked against traditional teaching methods and a no-intervention setup. The goal was to shed light on impactful teaching approaches for college students focusing on hockey, adding valuable perspectives to the ongoing conversation about tech-driven learning in sports education.

2.METHODOLOGY

2.1 SELECTION OF SUBJECTS

The research focused on undergraduate physical education students specializing in hockey. Initially, data was collected from 30 participants, but they were later divided into three separate groups as outlined below:

- **Computer-Assisted Instruction (CAI) Group:** n = 10

- **Teacher Instruction (TI) Group:** n = 10
- **Control Group (CG):** n = 10

2.2 CRITERION MEASURES

1	Dribbling	Harbans Singh Field Hockey Test

2.3 RESEARCH DESIGN

The study was set up as a genuine randomized group experiment, incorporating both pre- and post-tests to track dribbling improvements. For six weeks, all groups took part in training sessions held every other day. The training was divided into two parts:

- **Field Training Session:** Lasting 60 minutes, focusing on practical, on-field skill application.
- **E-content Session:** Lasting 20 minutes, where multimedia instructional content was delivered.

The CAI and TI groups were given tailored instruction based on their specific methods, whereas the control group stuck to their usual routine without any extra teaching input. This setup made it easy to compare how multimedia CAI stacks up against traditional teaching and regular practice.

2.4 STATISTICAL TECHNIQUES

The research focused on dribbling, a fundamental aspect of hockey. Descriptive stats broke down the pre- and post-test results, while an Analysis of Covariance (ANCOVA) was employed to compare group averages, factoring in the pre-test scores. When notable differences popped up ($p < 0.05$), Scheffé's post-hoc test pinpointed the specific groups that stood apart. This method gauged how multimedia CAI influenced hockey dribbling abilities, accounting for any starting disparities.

3.RESULTS

Table-1

ANALYSIS OF COVARIENCE DUE TO COMPUTER ASSISTED INSTRICTION AND TEACHER INSTERUCTION ON DRIBBLING ABILITY

	CAI Group	TI Group	Control Group		Sum of squares	df	Mean Square	F
Pre test mean	69.5	73.5	72.5	BG	86.66	2	43.33	4.73
Std Dev	3.02	3.02	3.02	WG	247.5	27	9.167	
Post test mean	80.2	76.0	72.2	BG	282.6	2	141.3	17.85*
Std Dev	2.66	3.16	2.58	WG	213.7	27	7.91	
Adjusted Post test	82.21	74.56	72.12	BG	440.609	2	220.305	162.159*
				WG	29.529	26	1.136	

As indicated in Table 1, the pre-test average for Dribbling Ability in the computer-assisted instruction group was 69.5, with a standard deviation of +3.02. The teacher instruction group had a pre-test average of 73.5, with a standard deviation of +3.02, while the control group's pre-test average was 72.5, also with a standard deviation of +3.02. The calculated F ratio of 4.73 for the pre-test averages across the groups was not significant at the 0.05 level, as it was lower than the required table F value of 3.35. This indicates no significant difference in the pre-test averages among the groups.

In the post-test, the average Dribbling Ability score for the computer-assisted instruction group was 80.2, with a standard deviation of +2.66. The teacher instruction group scored an average of 76.0, with a standard deviation of +3.16, and the control group had an average of 72.2, with a standard deviation of +2.58. The calculated F ratio of 17.85 for the post-test averages was significant at the 0.05 level, as it exceeded the required table F value of 3.35. This demonstrates a significant difference in the post-test averages among the groups.

After adjustments, the post-test average for the computer-assisted instruction group was 82.21, while the teacher instruction group averaged 74.56, and the control group averaged 72.12. The calculated F ratio of 162.159 for the adjusted post-test averages was significant at the 0.05 level, as it surpassed the required table F value of 3.35. This confirms a significant difference in the adjusted post-test averages among the groups.

The mean value of pre and post test on dribbling ability was graphically represented in Figure 1.

Figure-1

SHOWS PRE AND POST TEST MEANS ON DRIBBLING ABILITY

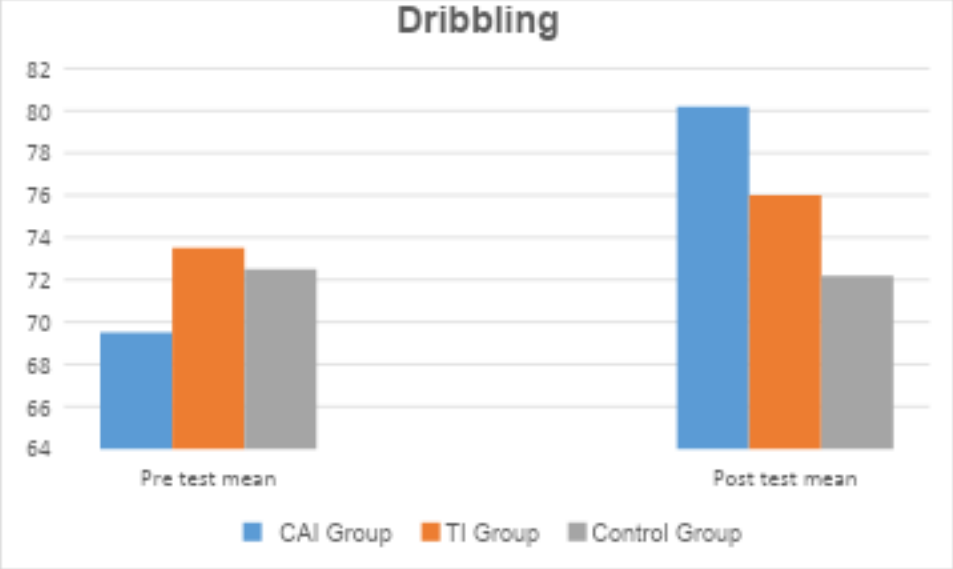


TABLE II

SCHEFEE'S POST HOC TEST OF VARIANCE FOR DRIBBLING ON HOCKEY PLAYERS

	CAI Group	TI Group	Control Group	Mean Difference	CI	Significance
Pre test	69.5	73.5		4.00*	2.26	Sig
	69.5		72.5	3.00*	2.26	Sig
		73.5	72.5	1.00	2.26	insig
Post test	80.2	73.5		4.20*	2.26	Sig
	80.2		72.2	7.50*	2.26	Sig
		76.0	72.2	3.30*	2.26	Sig

(**Level of Significance was 0.05)*

Table II presents the average differences in dribbling performance among hockey players. The recorded mean differences were 4.00, 3.00, 1.00, 4.20, 7.50, and 3.30, respectively. The confidence interval threshold was set at 2.26. The mean differences in the pre-test between the computer-assisted instruction group and the teacher instruction group, as well as between the computer-assisted instruction group and the control group, exceeded this threshold. Similarly, the post-test mean differences between the computer-assisted instruction group and the teacher instruction group, the computer-assisted instruction group and the control group, and the teacher instruction group and the control group were also greater than the required confidence interval value of 2.26.

4.DISCUSSION OF FINDINGS

The study findings indicate that Multimedia Computer-Assisted Instruction (CAI) significantly enhanced the dribbling skills of hockey players when compared to traditional Teacher Instruction (TI) and the Control Group. Based on the Analysis of Covariance (ANCOVA), the adjusted post-test mean score for the CAI group was 82.21, which was considerably higher than the TI group's 74.56 and the Control group's 72.12. The F ratio of 162.159 for the post-test means was significant at the 0.05 level, exceeding the required table F value of 3.35. This confirms that the differences between the groups were statistically meaningful.

Further examination using Scheffé's post-hoc test showed significant mean differences between the CAI group and both the TI and Control groups in both pre-test and post-test results. This highlights the effectiveness of multimedia CAI in enhancing dribbling skills, with the CAI group showing the most improvement. These findings align with earlier studies, which suggest that multimedia-based instructional methods can positively influence skill development and physical performance in sports (e.g., Wu & Chou, 2021; Hsin et al., 2020).

The effectiveness of multimedia CAI likely stems from its interactive and engaging approach, which provides more dynamic and tailored learning experiences compared to traditional teaching methods. This may explain the superior outcomes in the CAI group, as the method enables players to visualize and practice skills repeatedly in a structured setting.

5.CONCLUSIONS

The study's findings indicate that Multimedia Computer-Assisted Instruction (CAI) significantly improved the dribbling ability of undergraduate hockey players compared to traditional teacher instruction and the control group. The six-week intervention with multimedia CAI led to notable enhancements in dribbling skills, demonstrating its effectiveness in skill acquisition and performance improvement in hockey. Based on these results, it is recommended that physical education programs integrate multimedia CAI as a complementary approach to traditional instruction, as it provides considerable benefits for athlete skill development.

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COMPREHENSIVE APPROACHES TO THE MANAGEMENT OF COMMON SPORTS INJURIES

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ABSTRACT

Sports injuries are a significant concern across various athletic activities, affecting athletes at all levels. This paper examines the most common injuries in sports, such as sprains, strains, fractures, dislocations, tendinitis, concussions, and stress fractures, and discusses their causes, symptoms, and management. Effective treatment is essential for facilitating recovery and minimizing long-term complications. Immediate care typically follows the R.I.C.E. (Rest, Ice, Compression, Elevation) protocol, followed by rehabilitation, including physical therapy, and, when necessary, surgical intervention. Preventative strategies, including proper warm-ups, appropriate protective gear, and sport-specific training, play a key role in reducing injury occurrences. Furthermore, addressing the psychological impact of injury is crucial for the athlete's emotional well-being during recovery. This paper highlights contemporary approaches to sports injury management, emphasizing the need for a comprehensive, multi-faceted care plan to support athletes' safe return to their respective sports.

KEYWORDS*: Sports Injuries, Injury Management, R.I.C.E. Protocol, Rehabilitation, Injury Prevention, Psychological Recovery*

INTRODUCTION:

Sports injuries are a major concern for athletes at all levels of competition and recreation. These injuries can lead to prolonged periods of inactivity, which impact not only the athlete's performance but also their mental and emotional health. In addition to the physical consequences, sports injuries present challenges in terms of management and prevention. This paper explores common sports injuries, their causes, symptoms, immediate treatment, rehabilitation, and strategies for prevention. It also highlights the importance of addressing the psychological aspect of recovery and the role of comprehensive care in ensuring athletes' safe return to their sport.

COMMON SPORTS INJURIES AND THEIR CAUSES

1. SPRAINS AND STRAINS:

Sprains and strains are among the most common sports injuries, often resulting from excessive physical activity or improper movement. **Sprains** occur when ligaments—the tough bands connecting bones—are stretched or torn, frequently affecting areas such as the ankle, knee, and wrist. On the other hand, **strains** involve injuries to muscles or tendons, with common sites including the back, hamstring, and shoulder. These injuries typically arise due to overexertion, poor technique, inadequate warm-up routines, or sudden, forceful changes in movement. Proper conditioning, stretching, and correct form can help reduce the risk of sprains and strains in athletes (*Prentice, 2021*).

2. FRACTURES AND DISLOCATIONS:

Fractures and dislocations are common sports injuries that often occur due to high-impact activities or accidents during performance. **Fractures** refer to broken bones, typically resulting from direct trauma, falls, or excessive force, and they frequently affect the limbs. **Dislocations**, on the other hand, occur when bones are forced out of their normal position, with the shoulder and fingers being the most commonly affected areas. These injuries are prevalent in contact sports and high-intensity physical activities where collisions and sudden impacts increase the risk. Proper safety measures, including protective gear and technique training, can help reduce the likelihood of fractures and dislocations (*Brukner & Khan, 2019*).

3. TENDINITIS:

Tendinitis is a common sports-related injury characterized by inflammation of the tendons, which are the connective tissues that attach muscles to bones. This condition frequently occurs in areas such as the elbow (**tennis elbow**), the Achilles tendon (**Achilles tendinitis**), and the shoulder (**rotator cuff injuries**). Tendinitis is primarily caused by repetitive motion, overuse of a joint, or insufficient recovery time between activities. Athletes involved in sports requiring repetitive movements, such as tennis, running, or swimming, are particularly susceptible. Proper warm-up routines, adequate rest, and ergonomic movement techniques can help prevent tendinitis and reduce strain on the affected tendons (*Khan & Scott, 2020).*

4. CONCUSSIONS:

A concussion is a form of mild traumatic brain injury (TBI) that occurs due to a sudden impact or forceful jolt to the head or body, causing the brain to move rapidly within the skull. This type of injury is particularly prevalent in high-contact sports such as football, hockey, and rugby, where collisions, falls, or direct blows to the head are common. Concussions can lead to symptoms such as headaches, dizziness, confusion, and memory impairment. If not properly managed, repeated concussions may result in long-term neurological complications. Implementing protective measures, such as wearing well-fitted helmets and enforcing strict concussion protocols, can help reduce the incidence and severity of these injuries (McCrory et al., 2017).

5. STRESS FRACTURES:

Stress fractures are tiny cracks in the bone that develop due to repetitive stress and overuse, rather than a single traumatic event. These injuries are most commonly found in the lower limbs, particularly in athletes involved in high-impact sports like running, basketball, and gymnastics. Factors such as inadequate conditioning, a sudden increase in training intensity, and improper footwear that fails to absorb shock effectively can contribute to their development. Without proper rest and gradual progression in physical activity, stress fractures can worsen, leading to prolonged recovery periods. Preventative strategies, including strength training, appropriate footwear, and balanced training loads, are essential in reducing the risk of these injuries (Nattiv et al., 2013).

IMMEDIATE CARE AND MANAGEMENT

1. THE R.I.C.E. PROTOCOL:

The **R.I.C.E. protocol** is a widely recommended first-aid approach for managing acute sports injuries, aimed at reducing pain, swelling, and promoting faster recovery. **Rest** is essential to prevent

further strain on the injured area, allowing the body to initiate the healing process. **Ice therapy** helps minimize inflammation and swelling by constricting blood vessels when applied in controlled intervals. **Compression**, typically using elastic bandages, provides gentle pressure to limit fluid buildup and support the affected tissue. Finally, **elevation** of the injured limb above heart level assists in reducing swelling by enhancing fluid drainage. This method is most effective when applied immediately after an injury and is commonly used for conditions such as sprains, strains, and contusions (Bleakley et al., 2012).

2. PAIN MANAGEMENT:

Pain management plays a crucial role in the recovery process following a sports injury, helping to alleviate discomfort and reduce inflammation. **Non-prescription anti-inflammatory drugs**, such as ibuprofen, are commonly used to minimize swelling and provide relief from pain. Additionally, **cold therapy** (ice application) is effective in the initial stages of recovery, as it helps constrict blood vessels, thereby reducing inflammation and numbing the affected area. As healing progresses, **heat therapy** can be introduced to promote circulation, relax muscles, and ease stiffness. A combination of these approaches, when used appropriately, can significantly aid in the overall healing process and enhance recovery outcomes (Cheung et al., 2015).

3. INITIAL EVALUATION AND DIAGNOSIS:

Prompt assessment by a medical professional is essential in determining the **type and severity** of a sports injury, ensuring appropriate treatment is administered. A thorough clinical evaluation involves examining the affected area, assessing symptoms, and identifying potential movement limitations. In many cases, **diagnostic imaging** techniques such as **X-rays** are used to detect fractures, while **magnetic resonance imaging (MRI)** provides detailed insights into soft tissue damage, including ligament tears or muscle injuries. Accurate diagnosis enables the development of a targeted treatment plan, helping athletes recover efficiently and reducing the risk of complications (Brukner & Khan, 2019).

REHABILITATION AND RECOVERY

1. PHYSICAL THERAPY:

Physical therapy plays a vital role in the rehabilitation of sports injuries, focusing on restoring **strength, flexibility, and range of motion** in the affected area. A well-structured rehabilitation program incorporates **targeted stretching routines** to improve mobility, **strengthening exercises** to rebuild muscle support, and **balance training** to enhance stability and prevent future injuries. These techniques are tailored to the specific injury and the athlete's needs, ensuring a **gradual and safe return to activity**. By systematically progressing through rehabilitation phases, physical therapy helps optimize recovery and reduce the risk of re-injury (Diener et al., 2020).

2. GRADUAL RETURN TO PLAY:

A **structured and progressive return-to-play** approach is essential to ensure athletes safely resume sports activities while minimizing the risk of re-injury. This process involves **progressive loading**, where physical activity is gradually increased in intensity, duration, and complexity to allow the body to adapt without undue stress. Continuous **monitoring and assessment** by medical professionals and trainers help determine the athlete's readiness, considering not only physical recovery but also **psychological confidence** in returning to competition. A carefully managed

transition ensures optimal performance while reducing the likelihood of setbacks (Meeuwisse et al., 2017).

3. SURGICAL INTERVENTION:

In instances of **severe fractures, ligament tears, or joint damage**, surgical intervention may be necessary to restore structural integrity and functionality. Procedures such as **fracture fixation, ligament reconstruction, or joint repair** help stabilize the injury and promote proper healing. However, surgery is only the first step in recovery—**post-operative rehabilitation** plays a crucial role in regaining strength, flexibility, and mobility. A structured rehabilitation plan, including **physical therapy and gradual activity progression**, is essential to prevent complications, improve functional outcomes, and ensure a safe return to sports (Ahmad et al., 2019).

PREVENTATIVE STRATEGIES

INJURY PREVENTION STRATEGIES

1. WARM-UP AND COOL-DOWN

A well-structured warm-up routine is essential for preparing muscles, joints, and the cardiovascular system for physical activity. It enhances blood flow, improves flexibility, and reduces the risk of injuries. Similarly, cool-down exercises help the body transition back to a resting state by relaxing muscles, reducing lactic acid buildup, and minimizing post-exercise soreness. Both practices are critical components of injury prevention (McGowan et al., 2015).

2. PROTECTIVE GEAR

Wearing **sport-specific protective equipment**, such as **helmets, pads, braces, and proper footwear**, significantly reduces the risk of injuries. Properly fitting and well-maintained gear enhances safety by providing necessary support and cushioning against impacts. Athletes should regularly inspect and replace equipment to ensure optimal protection (Emery & Meeuwisse, 2010).

3. SPORT-SPECIFIC TRAINING

Tailored training programs that focus on flexibility, strength, and agility are key to improving overall athletic performance while minimizing injury risks. Teaching athletes the correct techniques and movement patterns helps prevent common injuries associated with poor form or excessive strain on muscles and joints. Sport-specific drills also enhance coordination and adaptability during competition (Zech et al., 2014).

4. REST AND RECOVERY

Allowing the body adequate **rest between intense training sessions** is crucial for muscle repair, preventing fatigue-related injuries, and improving overall performance. Overtraining can lead to chronic stress on muscles and joints, increasing the likelihood of injuries. Implementing structured rest periods and active recovery strategies ensures **optimal physical conditioning and long-term athletic sustainability** (Kellmann et al., 2018).

PSYCHOLOGICAL ASPECTS OF INJURY RECOVERY

1. EMOTIONAL IMPACT

Sports injuries can have profound psychological effects on athletes, often leading to stress, anxiety, frustration, and even depression, especially if the injury significantly impacts their performance and career progression. The sudden loss of routine and physical activity can lead to feelings of isolation and a loss of identity. Addressing the mental health challenges associated with injuries is essential to promote a holistic recovery and ensure an athlete's well-being and motivation during rehabilitation (Hutchison, Mainwaring, & Comper, 2009).

2. SUPPORT SYSTEMS

Having a strong **support system**, including **coaches, teammates, family, and mental health professionals**, plays a crucial role in an athlete's recovery. **Counseling services, sports psychologists, and peer support groups** help athletes cope with the **emotional distress** of being sidelined and maintain a positive outlook during the rehabilitation process. Encouraging **mental resilience and motivation** through goal setting and psychological interventions can facilitate a **smoother and more effective** recovery (Arvinen-Barrow & Walker, 2013).

3. RETURN TO SPORT

Reintegrating into competitive sports after an injury requires not only physical readiness but also mental confidence. A gradual return-to-play approach, where athletes slowly regain strength and skill, helps alleviate fears of re-injury and rebuilds self-assurance in their performance. Psychological techniques such as visualization, relaxation exercises, and self-talk strategies can enhance an athlete's confidence and reduce performance anxiety, ultimately ensuring a successful transition back to competition (Podlog & Eklund, 2007).

CONCLUSION:

Sports injuries, though common, can often be effectively managed through timely intervention and a comprehensive recovery plan. The integration of immediate care, rehabilitation, prevention strategies, and psychological support ensures a well-rounded approach to injury management. A multi-disciplinary team, including medical professionals, physical therapists, and psychological counselors, plays a crucial role in an athlete's safe and successful return to sport. A focus on prevention, proper training, and recovery will continue to be essential in minimizing injury occurrences and improving the overall well-being of athletes.

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SIGNIFICATIONS OF COORDINATIVE ABILITY FOR BALL BADMINTON PLAYERS

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ABSTRACTS

The objective of this study is to examine the significance of coordination ability in ball badminton players and its impact on performance metrics such as reaction speed, accuracy, and movement efficiency. Coordination is a fundamental motor ability that influences an athlete's ability to execute precise and timely movements, especially in sports requiring rapid decision-making and agility. This study utilized a sample of competitive ball badminton players, assessing their coordination levels through standardized tests such as hand-eye coordination drills, agility tests, and reaction time assessments. The results indicate a strong correlation between high coordination ability and superior performance in ball badminton, highlighting the need for targeted coordination training in player development programs. These findings emphasize the importance of incorporating coordination-based exercises to enhance player efficiency and competitive success.

INTRODUCTION OF COORDINATIVE ABILITY

Coordinative ability is a crucial element of human movement and sports performance, involving the capability to execute smooth, precise, and controlled actions. It requires the integration of sensory data, cognitive processing, and motor execution to attain accurate and efficient movements. In athletic pursuits, coordinative ability is vital for mastering technical skills, responding to changing environments, and performing complex tasks under stress. The idea of coordinative ability is based on theories of motor learning and control, which highlight the interaction between the nervous system and the musculoskeletal system. This ability consists of several sub-components, such as balance, rhythm, orientation, reaction time, and adaptation, all of which contribute to an athlete's overall skill level. For example, balance provides stability during movement, while reaction time allows for rapid responses to external cues.

In sports such as ball badminton, the ability to coordinate movements is crucial for achieving successful performance results. Athletes need to display outstanding hand-eye coordination, awareness of their surroundings, and quickness to make accurate shots, move around the court, and outsmart their rivals. Being able to align their movements with the ball's path and predict the actions of their opponents is vital for achieving success.

INTRODUCTION OF BALL BADMINTON

Ball badminton is a fast-paced racket sport game played with a wool ball on a rectangular court divided by a net ball badminton is a captivating traditional sport that hails from India, with a rich history that can be traced back to at least 1856. This intriguing game was originally enjoyed by the royal family in the picturesque Tanjore District of Tamil Nadu, where it functioned as a means to promote physical fitness and provide leisurely entertainment

COORDINATIVE ABILITY

- Differentiation ability
- Orientation ability
- Coupling ability
- Reaction ability
- Balance ability
- Rhythm ability
- Adaptation ability

SELECTED COORDINATIVE ABILITY

DIFFERENTIATION ABILITY

It is the ability to achieve a high level of fine tuning or harmony of individual movement phases and body part movements. It finds expression in high degree of accuracy and movement economy. Differentiation ability depends on conscious and precise perception of temporal, dynamic and spatial parameters of movement execution and their comparison with the similar parameters of movement concept at different levels of control and regulation. The high level of differentiation at depends on movement experience (i.e., motor memory) and the degree of mastery over motor action. It enables the sportsman to perceive micro-differences regarding the temporal, dynamic and spatial aspects of movement execution.

Differentiation ability is to be particularly stressed when the aim is to achieve high level of mastery over sports movements and their effective application in competition. High level of differentiation ability is expressed in different sports as a feeling or sense of an implement or movement e.g., ball sense, movement sense, water feeling etc. The ability to execute highly skill full movements with hand, feet or head is also a special type of differentiation ability. Muscle relaxation ability is also a type of differentiation ability.

ORIENTATION ABILITY

It is the ability to determine and change the position and movements of the body in time and space in relation to a definite field of action (e.g., playing field, boxing ring, apparatus and/or a moving object (e.g., ball, opponent, partner). The perception of position and movement and the motor action to change the body position should be understood as a unity for the ability for space-timeoriented movement regulation (Meinel and Schnabel 1987)

The demands on the orientation ability are vastly different in different sports e.g., team games, combat sports, technical sports. In gymnastics the position and movement of head and eyes is important for orientation. In wrestling, on the other hand, kinesthetic sense organs assume more importance for orientation. In team games vision, especially perepheral vision, is decisive for orientation.

REACTION ABILITY

It is the ability to react quickly and effectively to a signal. Reaction ability has been discussed in detail in the chapter on speed and hence it need not be discussed here again

BALANCE ABILITY

It is the ability to maintain balance during whole body movements and to regain balance quickly after the balance disturbing movements. Balance ability can be of two types:

(A)Ability to maintain balance during stationary position or slow movements (static balance). It depends primarily on kinesthetic, tactile and to some extent on vestibular sense organs.

(B). Ability to maintain or regain balance during large range movements and during rapidly changing positions of the body. It depends primarily on the functional capacity of the vertibular sense organ.

Balance ability is a necessary prerequisite for all types of movements. Static balance is required for the execution of all movements whether slow or fast, part body movement or whole-body movement. Static balance ability develops to a significant extent through various activities in childhood. Dynamic balance ability is important in sports in which frequent and rapid change of body position is required e.g., gymnastics, sky jump etc. In these sports the performance has positive relationship with dynamic balance.

SKILLS PERFORMED WITH COORDINATIVE ABILITY

DIFFERENTIATION ABILITY

Accuracy shots (Drop shot), Overshot (Lob)

A player can only strike the ball accurately to their desired location if they possess strong differentiation ability

ORIENTATION ABILITY

Overhead forehand smash &Overhead backhand smash

The capacity to successfully execute a range of skills one after the other is known as orientation ability

REACTION ABILITY

Service and Setting (Block)

The ability to respond quickly and effectively to a signal or any sound Reaction ability works at full capacity when going from serving to setting in ball badminton.

BALANCE ABILITY (STATIC BALANCE ABILITY)

Smash (Front-position-player), Setting

The ability to hit a ball in the moment and then balance without any hindrance to the next hit is called static balance ability.

SIGNIFICANCE

ENHANCED PERFORMANCE

A player’s technical skills, including stroke accuracy and footwork, are directly affected by their coordinative ability. Athletes with better coordination can predict the ball’s trajectory, position

themselves effectively, and make precise shots. This results in improved rally control and a higher likelihood of securing points.

INJURY PREVENTION

Good coordination helps minimize the risk of injuries by ensuring that movements are both efficient and biomechanically proper. For example, well-balanced footwork reduces joint strain, while controlled racket movements help avoid overuse injuries in the shoulder and wrist.

TACTICAL ADVANTAGE

Strong coordinative skills allow players to adjust to their opponents' tactics and take advantage of their weaknesses. Fast reactions and good spatial awareness enable players to handle unexpected shots confidently and maintain a competitive advantage.

PSYCHOLOGICAL ADVANTAGES

Better coordination enhances a player's self-assurance and lowers anxiety levels in competitive situations. Successfully performing skills reliably under stress strengthens mental toughness and concentration.

CONCLUSION

Coordination ability plays a crucial role in determining the performance of ball badminton players, influencing key aspects such as reaction speed, movement precision, and tactical execution. This study highlights the strong correlation between superior coordinative skills and enhanced gameplay efficiency, emphasizing the importance of training programs that incorporate coordination-based exercises. The various components of coordinative ability—differentiation, orientation, reaction, and balance—directly contribute to technical skill development, injury prevention, and strategic adaptability on the court.

By improving coordination, players can refine their shot accuracy, optimize footwork, and respond swiftly to in-game challenges, leading to a more competitive edge. Additionally, enhanced coordination reduces the risk of injury and boosts psychological confidence, allowing athletes to perform under pressure with greater consistency. Given these findings, coaches and trainers should integrate specific drills targeting coordinative skills into regular training regimens to maximize player development and overall team performance.

In conclusion, coordinative ability is a foundational element in ball badminton that significantly enhances technical proficiency, game intelligence, and resilience. Future research can further explore advanced training methodologies and their impact on long-term athletic performance in ball badminton and other dynamic sports.

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AI FOR EDUCATORS: REDUCING STRESS AND ENHANCING WELL-BEING

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ABSTRACT

The teaching profession is both rewarding and demanding, often resulting in stress, time constraints, and burnout. With the integration of Artificial Intelligence (AI) in education, there is an opportunity to alleviate many of these challenges by automating administrative tasks, providing personalized learning, and offering mental health support. This paper explores how AI can reduce educator stress by streamlining work processes, improving classroom efficiency, and supporting emotional well-being. By adopting AI tools and practices, schools can foster a healthier work environment, enhancing teachers' professional satisfaction and overall mental health.

Keywords: *AI, Teacher Stress, Education Technology, Well-being, Automation, Mental Health Support.*

INTRODUCTION

Teaching requires significant emotional and intellectual labor. Educators manage lesson planning, grading, classroom management, and administrative duties while supporting students' diverse needs (Harmsen et al., 2018). These responsibilities often lead to stress, burnout, and a work-life imbalance (Richter et al., 2020). Integrating AI technology offers new solutions to these persistent challenges, enabling teachers to work more efficiently while maintaining their well-being.

AI AND THE REDUCTION OF ADMINISTRATIVE BURDENS

One of the primary sources of teacher stress is the substantial administrative workload. Tasks like grading, lesson planning, and data management consume hours that could otherwise be devoted to instruction and student engagement (Turner & Kelly, 2000). AI tools can automate these repetitive processes, reducing the administrative load and allowing teachers to focus on core teaching duties.

Automated grading systems, for example, can quickly assess multiple-choice and short-answer tests, providing immediate feedback to students while saving educators valuable time (Luckin et al., 2016). AI-driven scheduling tools help manage meetings, deadlines, and lesson planning, reducing the cognitive load on teachers and improving organizational efficiency (Chassignol et al., 2018).

PERSONALIZED LEARNING AND CLASSROOM EFFICIENCY

AI enhances personalized learning by analyzing student data to provide individualized instruction. Adaptive learning platforms use machine learning to assess each student's strengths and weaknesses, offering customized resources and practice opportunities (Zawacki-Richter et al., 2019). This approach allows educators to provide targeted support, reducing the stress associated with meeting diverse learning needs. AI-driven learning analytics can identify students at risk of falling behind, allowing

early interventions that reduce the pressure on teachers to monitor academic progress manually (Popenici & Kerr, 2017). Additionally, AI chatbots can answer student queries outside class hours, reducing the burden on teachers to provide constant support (Holmes et al., 2019).

AI FOR MENTAL HEALTH SUPPORT

AI tools extend beyond administrative support to address educators' emotional and mental well-being. Virtual mental health assistants offer mindfulness exercises, stress management techniques, and counseling resources (Miner et al., 2019). AI can track patterns of stress through sentiment analysis of teachers' communications, offering early alerts and interventions to prevent burnout (Gimpel et al., 2018).

AI-powered wellness applications, such as guided meditation platforms, provide on-demand mental health support that fits into busy schedules. Additionally, AI-driven professional development programs can offer personalized learning paths, allowing teachers to grow without the added pressure of rigid schedules (Goodyear et al., 2019).

ETHICAL CONSIDERATIONS AND CHALLENGES

While AI provides substantial benefits, ethical concerns must be addressed. Data privacy is a critical issue, as AI systems rely on sensitive information about students and teachers (Williamson & Eynon, 2020). Clear policies are needed to protect this data and ensure ethical use.

Additionally, over-reliance on AI could depersonalize education and reduce human connection. Schools must strike a balance, using AI to enhance—not replace—human judgment and emotional support (Selwyn, 2019).

CONCLUSION

AI holds transformative potential for reducing teacher stress and enhancing well-being. By automating administrative tasks, supporting personalized learning, and offering mental health resources, AI allows educators to focus on meaningful work while maintaining emotional balance. Implementing AI tools thoughtfully and ethically can create a more sustainable teaching environment, improving both teacher satisfaction and educational outcomes.

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BADMINTON: A SPORT OF INTEGRITY AND DISCIPLINE

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ABSTRACT

Badminton is a sport that requires not only physical agility and technical skills but also strong moral values, including integrity and discipline. These principles are crucial for maintaining fair play, ensuring professionalism, and fostering respect among players. This paper explores the significance of integrity and discipline in badminton, their impact on the sport's credibility, and the role of players, coaches, and governing bodies in upholding these values. Furthermore, it discusses challenges faced in promoting ethical behavior and strategies to strengthen discipline and fair play in badminton.

1. INTRODUCTION

Badminton is one of the fastest racquet sports in the world, requiring quick reflexes, endurance, and precision. However, beyond the physical aspects, the sport also demands mental strength and ethical conduct. Integrity and discipline are core values that define a player's character and contribute to the overall quality of the game. Without these values, the credibility of the sport can be compromised, leading to unfair competition, unethical practices, and a lack of respect for the rules and opponents.

In recent years, issues such as match-fixing, doping, and misconduct on and off the court have raised concerns about integrity in badminton. To maintain the true spirit of the game, it is essential for all stakeholders, including players, coaches, officials, and governing bodies, to promote and enforce discipline and ethical behavior. This paper delves into the importance of integrity and discipline in badminton, examining their role in fair play, personal development, and the sport's reputation on a global scale **Suleyeva** *et al.,* **(2018).**

2. IMPORTANCE OF INTEGRITY IN BADMINTON

Integrity is the foundation of sportsmanship and fair play in badminton. It refers to honesty, adherence to ethical principles, and commitment to playing the game in a fair and respectful manner. Without integrity, the sport loses its credibility, and the competitive spirit diminishes.

A key aspect of integrity in badminton is honest gameplay. Players must adhere to the rules and avoid deceptive tactics such as deliberately miscalling shots or pretending to be injured to gain an advantage. Additionally, respecting referees' decisions, even when they may seem unfavorable, demonstrates true sportsmanship. Disputing every call or arguing with officials not only disrupts the game but also sets a bad example for younger players **Hudani** *et al.,* **(2024).**

Furthermore, integrity extends beyond the court. Players are expected to uphold ethical standards in all aspects of their professional careers, including their interactions with sponsors, the media, and fans. Engaging in unethical activities such as match-fixing or accepting bribes severely damages the sport's reputation and can lead to severe penalties, including lifetime bans. Governing bodies like the

Badminton World Federation (BWF) have strict regulations to prevent such violations, ensuring that the sport remains clean and competitive.

3. THE ROLE OF DISCIPLINE IN ACHIEVING EXCELLENCE

Discipline is an essential attribute for any successful badminton player. It encompasses self-control, commitment, punctuality, and adherence to training routines. Without discipline, even the most talented players struggle to reach their full potential.

One of the key aspects of discipline in badminton is consistent training and preparation. Elite players follow rigorous training schedules that involve physical conditioning, technical drills, and mental preparation. Skipping training sessions or failing to follow a structured routine can lead to poor performance and inconsistency in matches. Discipline in practice ensures that players develop strong fundamentals and refine their techniques to compete at the highest levels. Another critical aspect of discipline is emotional control. Badminton is a high-intensity sport where players often face challenging situations, including controversial referee decisions, tough opponents, and unexpected mistakes. A disciplined player remains calm under pressure, focusing on their strategy rather than reacting emotionally. Losing temper on the court can lead to unnecessary penalties and disrupt concentration, affecting overall performance. Moreover, tactical discipline plays a significant role in match success. Players must stick to their game plans, execute strategies as instructed by coaches, and make adjustments based on their opponent's playing style. Ignoring tactics due to frustration or overconfidence can result in avoidable errors and lost opportunities. Therefore, discipline in following a structured game plan is crucial for consistent success.

4. CHALLENGES IN MAINTAINING INTEGRITY AND DISCIPLINE

While integrity and discipline are fundamental values in badminton, there are several challenges in maintaining these principles at all levels of the sport. One of the most pressing issues is match-fixing and corruption. Due to financial pressures, some players are tempted to engage in unethical activities, such as deliberately losing matches for personal gain. This not only undermines the credibility of competitions but also affects the trust of fans and sponsors.

Another challenge is the influence of external factors, including media, sponsors, and fan expectations. Elite players are often under immense pressure to perform, which can lead to the temptation of using performance-enhancing drugs or engaging in dishonest practices. To combat this, strict anti-doping regulations and regular testing have been implemented by organizations like the World Anti-Doping Agency (WADA) and the BWF. Additionally, inconsistent rule enforcement poses a challenge in maintaining integrity. In some cases, different regions or tournaments may have varying levels of strictness in implementing disciplinary actions. This inconsistency can lead to confusion among players and officials, making it difficult to establish a universal standard for fair play and discipline. A significant issue at the grassroots level is lack of proper education on ethics and discipline. Young players, especially those new to competitive badminton, may not fully understand the importance of sportsmanship and fair play. If they are not guided properly by coaches and mentors, they may develop habits that compromise their integrity as they progress in their careers.

5. STRATEGIES TO PROMOTE INTEGRITY AND DISCIPLINE IN BADMINTON

To preserve the spirit of badminton and ensure fair competition, several strategies can be implemented to reinforce integrity and discipline among players, coaches, and officials.

First, stronger regulations and enforcement mechanisms should be put in place. Governing bodies must ensure that players who violate ethical standards face appropriate consequences. Strict penalties, such as fines, suspensions, and lifetime bans, should be enforced against those involved in match-fixing, doping, or other dishonest activities. Transparency in disciplinary actions will also serve as a deterrent for future violations.

Second, ethical education programs should be introduced at all levels of badminton, from junior leagues to professional circuits. Players must be educated on the importance of integrity, the risks of unethical behavior, and the long-term consequences of misconduct. Workshops, seminars, and mentorship programs led by experienced players and coaches can instill a strong sense of ethics in young athletes **(Blair, K. (2020).**

Third, coaches and trainers should play an active role in fostering discipline among their players. They must set clear expectations regarding punctuality, behavior, and commitment to training. Encouraging a disciplined approach to both practice and competition will help players develop habits that lead to long-term success. Coaches must also lead by example, demonstrating fairness, respect, and professionalism in their interactions with players and officials.

Furthermore, mental conditioning and emotional management training should be emphasized in badminton programs. Teaching players how to handle stress, control emotions, and stay focused during matches will improve their overall discipline on the court. Sports psychologists can assist athletes in developing resilience, ensuring that they maintain composure even in challenging situations.

Finally, greater use of technology in officiating can enhance integrity in the sport. The introduction of instant replays, video reviews, and electronic line-calling systems helps minimize human error and ensures that match decisions are fair and transparent. By reducing controversies and disputes over calls, technology can contribute to a more disciplined and respectful playing environment.

6. CONCLUSION

Integrity and discipline are the cornerstones of badminton, shaping the sport's reputation and the character of its players. By fostering fair play, honesty, and commitment, these values ensure that badminton remains a competitive and respected sport worldwide. However, challenges such as corruption, doping, and inconsistent rule enforcement threaten the sport's integrity. Through strong regulations, ethical education, disciplined coaching, and technological advancements, badminton can continue to uphold its values and inspire future generations of players. Maintaining integrity and discipline is a shared responsibility among players, coaches, officials, and governing bodies. By working together, they can create an environment where fairness prevails, respect is prioritized, and badminton continues to thrive as a sport of excellence and honor.

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INFLUENCE OF ASANA WITH VARMA ON PRE FRANDIAL-GLUCOSE AND QUALITY OF LIFE AMONG TYPE-II DIABETIC CERVICAL DYSTONIA MIDDLE-AGED MEN

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ABSTRACT

To achieve this purpose, thirty subjects type-II diabetic men were purposive selected as subject from group rehabilitation center and headquarters of (CMC), Hospital, Vellore, Tamil Nadu State, India as subjects. The selected subjects age, height and weight range were 39 ± 6 years, 171 ± 11 cm and 75 ± 14 kg respectively. They were randomly split into two equal groups, and all groups contains of fifteen (n=15) subjects in each, in which they known as group asana with varma group, group The group II would be considered as control group, which did not undergo any specific training program except their regular activities. The pre frandial glucose assessed with blood sample method. The quality of life in patients of CD was assessed by using the CD Impact Profile-58 questionnaire (CDIP-58). The centre had developed a simple questionnaire on basis of CDIP-58 which covered all aspects of symptoms to assess quality of life. After twelve weeks asana with varma training statistically assessed with dependent 't' test. The results of the study shows that experimental group significantly improvement in pre frandial glucose and improved in quality of life of Type-II Diabetic men cervical dystonia middle-aged men. The control group no significant alter in selected criterion variables.

Key words: *Asana with Varma Training, pre frandial glucose, Quality of Life, cervical dystonia Type-II Diabetic men.*

INTRODUCTION

Type II diabetes is a condition that happens because of a problem in the way the body regulates and uses sugar as a fuel. That sugar also is called glucose. This long-term condition results in too much sugar circulating in the blood. Eventually, high blood sugar levels can lead to disorders of the circulatory, nervous and immune systems.

In type 2 diabetes, there are primarily two problems. The pancreas does not produce enough insulin — a hormone that regulates the movement of sugar into the cells. And cells respond poorly to insulin and take in less sugar

Cervical Dystonia commonly called 'Spasmodic Torticollis' is a neurological disorder that causes involuntary muscle contractions, spasms, pain and tremors in the neck region.

Yoga is a great way to work on your flexibility and strength. Some types of yoga are about relaxation some styles of yoga, such as ashtanga and power yoga, are very physical. Practicing one of these styles will help you improve muscle tone (Hannah Nichols. 2021). Yoga also helps your body

awareness. That helps you notice more quickly if you're slouching or slumping, so you can adjust your posture. Yoga usually involves paying attention to your breath, which can help you relax. It may also call for specific breathing techniques. Yoga has long been known to lower blood pressure and slow the heart rate. A slower heart rate can benefit people with high blood pressure or heart disease (Sarley, D, 1999).

Psychology addresses the cognitive, perceptual, emotional, and behavioral aspects performance in extreme conditions. Operational and clinical challenges like crisis intervention and stress management remain the same for both, and hence can cross contribute to each other (Miller, 2008). Stress is the body's automatic response to any physical or mental demand placed on it. It is subjective and unpleasant felling of distress. Every one of us irrespective of our age, sex, education, occupation, socio-economic status, whether live in rural or urban area face stress. Stress effect body, mind, behavior in many ways and everyone experiences stress differently. It adversely affects a wide range of health condition and yoga is the most comprehensive approach to fighting stress (Meghnandini Khandare, & Ritu Wadhwa. 2014).

Yoga improves attention and emotional control as well as affects the nervous system, making the parasympathetic nervous system more dominant and stabilizing the autonomic nervous system to enhance resistance to the effect of stress. Yoga practices including asanas, slow breathing, meditation, increases activation of pehriparal nervous system & lead to mental relaxation. Yoga is a way of improving our self & understanding our internal state.

India's paramilitary is the largest force in the world. These forces have given employment to whoever willingly to join serve for the nation. While young age they are very actively joined and completed their basic training. The service is bestowing but their lifestyle is slowly changing some time climatic changes, irregular food habits and family separation, some important issues not solving in exact occasion in their family, not presence essential functions or poignant situation in their family. They are therefore prone to depression. Because of stress they will not eat properly and will not sleep properly they will always thing about family. As a result, they indirectly suffered High Blood Pressure suddenly High BP attacked them. Therefore, some yogasanas, pranayama, mudra and mediation very helpful to them. Regular practicing the yoga they will get fruitful result.

The typical symptoms of CD include pain, abnormal posture, spasms, tremors, and dyskinesia. Pain is experienced in almost all patients due to the presence of muscle contractions and head deviations [4, 5]. The symptoms are the cause of significant disability and impaired quality of life among patients [6]. CD is thought to increase psychiatric issues like anxiety and depression in patients [2, 5]. Interventions to reduce psychiatric issues and pain play a more prominent role in treating Dystonia patients in order to improve disability levels.

METHODOLOGY

To achieve this purpose, thirty subjects were purposive selected as subject from group rehabilitation center and headquarters of (CMC), Hospital, Vellore, Tamilnadu State, India as subjects. The selected subjects age, height and weight range were 39 ± 6 years, 171 ± 11 cm and 75 ± 14 kg respectively. They were randomly split into two equal groups, and all groups contains of fifteen (n=15) subjects in each, in which they known as group asana with varma group, group The group II would be considered as control group, which did not undergo any specific training program except their regular activities. The pre frandial glucose level assess to blood sample method. The quality of life in patients of CD

was assessed by using the CD Impact Profile-58 questionnaire (CDIP-58). The centre had developed a simple questionnaire on basis of CDIP-58 which covered all aspects of symptoms to assess quality of life. It is composed of fifty-eight 5-point items grouped into eight subscales that measure symptoms (head and neck movements, pain and discomfort in neck and shoulders, sleep disturbance), activity limitations in upper limb activities and walking, psychosocial features (annoyance, mood, psychosocial functioning). Eight summary scale scores are generated by summing items and then transformed to a 0–100 score. The whole experimental program was implemented for six days per week for twelve weeks. In every day training session, the practice lasted approximately between forty-five minutes and an hour, which included warning up and relaxation. Under yogasanas, a batch of twelve asanas, which are commonly called of Suryanamaskar was given to the subjects, followed by Tadasana, Trikona asana, Paschimottanasana Virabhadrasana, Naukasana, Sedu Bandhasana, Uttanasana , Chakrasana, Dhanurasana Halasana and Salabhasana. were practice with 2 to 5 sets of 5 to 15 repetitions increased every 3 weeks respectively. He was given Varma therapy like Varma Elakku Muraigal (Varma Relieving Methods) and Varma Thadavu Muraigal (Varma Massage Methods) with the main focus to relax myofascial muscles to decrease dyskinesia and decrease pain and spasms. The following 6 Varmam points are stimulated to achieve a therapeutic effect in the treatment of patient: Muddichu varmam (near C7), Kakkatai Kalam (on b/l shoulders), Kaichulukki varmam (above the clavicle bone both side) and Chippi Varmam (below the clavicle bone both sides) In initial 5-8 sessions, patient felt no difference in spasms but he could feel the neck stiffness release and was able to move it much freely. Pain was recorded on NRS after every gap. The intensity of muscle twitching and dyskinesia was noted to visualize the difference. Pain on daily activities like walking, sleeping, lifting and other symptoms were maintained. The patient was advised to notice the intensity and frequency of tremors and spasms along with neck stiffness and swelling in left neck region. The level of confidence is fixed at 0.05, for significance. The data on selected criterion variables were analyses using IBM SPSS software version 21.0.

TREATMENT PLAN

The treatment included pressure at different varmam points at the neck and thoracolumbar region. Following the initial assessment, 5 sessions were administered after every 3 days. Each session began with a discussion to involve the patient in the treatment process, and feedback of previous treatment was obtained. Record was maintained of severity of pain and spasms release with improvement in daily activities. 30-min were allotted for each treatment session with 10 mins of physiotherapy to strengthen the neck muscles.

TABLE -I

ASANA WITH VARMA TRAINING GROUP PRE-TEST, POST-TEST MEANS AND "t" RESULTS ON PRE FRANDIAL GLUCOSE AND QUALITY OF LIFE OF CERVICAL DYSTONIA TYPE-II DIABETIC MIDDLE-AGED MEN

Variables	Pre-Test		Post Test		M.D	σDM	't'
	Mean	S.D(±)	Mean	S.D(±)			
Pre Prandial Glucose	114.3	3.13	154.8	5.42	40.0	1.47	27.4*
Quality of Life	83.73	4.51	36.2	3.27	47.53	1.24	38.33*

**Significant with df 14 table value 2.14*

Table -I results show the pre-test and post-test pre prandial glucose and quality of life asana with varama training group. The pre-test mean values for stress and quality of life were 23.6 ± 1.72 and

83.73 ± 4.51, while the post-test mean values for pre prandial glucose and quality of life were 14.20 ± 2.24 and 36.2 ± 3.27, respectively. The 't' values were 27.4 and 38.33. The table value required for a significant difference at the .05 level with 14 degrees of freedom is 2.14. Since the obtained "t" ratio value for the asana with Varma training group is greater than the table value, it can be concluded that the asana with Varma training showed a significant improvement in pre prandial glucose level and increasing quality of life asana with Varma training on among type-ii diabetic cervical dystonia middle-aged men.

FIGURE-1

MEAN VALUES OF ASANA WITH VARMA TRAINING GROUP OF PRE-PRANDIAL GLUCOSE AND QUALITY OF LIFE AMONG TYPE-II DIABETIC CERVICAL DYSTONIA MIDDLE-AGED MEN.

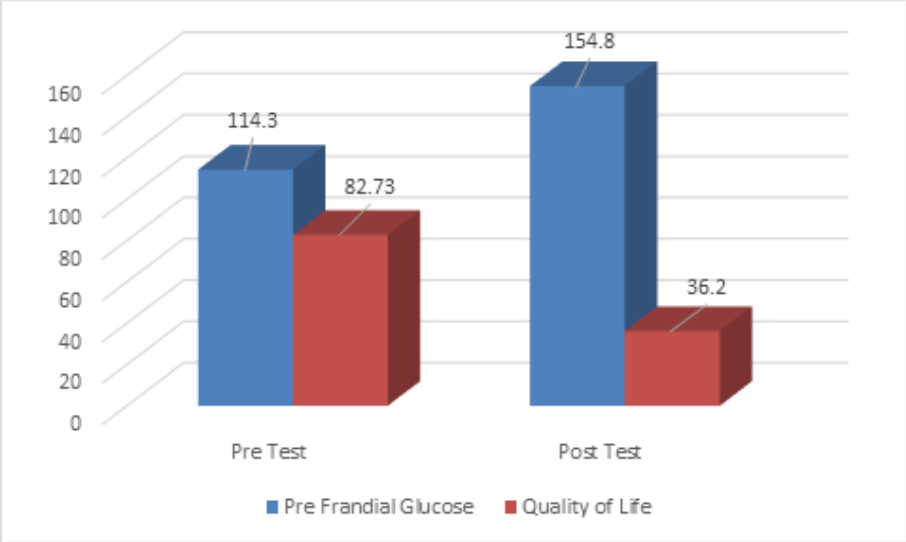


TABLE – II

CONTROL GROUP PRE-TEST, POST-TEST MEANS AND "t" RESULTS ON PRE PRANDIAL GLUCOSE AND QUALITY OF LIFE TYPE-II DIABETIC CERVICAL DYSTONIA MIDDLE-AGED MEN

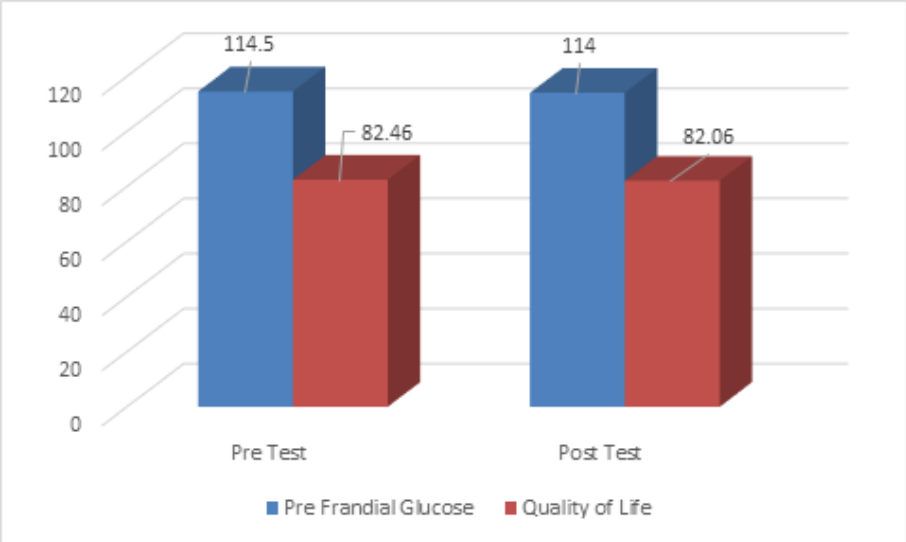
Variables	Pre Test		Post Test		M.D	σDM	't'
	Mean	S.D(±)	Mean	S.D(±)			
Pre Prandial Glucose	114.5	2.99	114.0	3.11	0.50	0.33	1.58
Quality of life	83.46	4.77	82.06	4.81	0.40	0.30	1.33

No significant with df 14 table **value 2.14**

Table -II results show the pre-test and post-test Pre Prandial Glucose and quality of life asana with varama training group. The pre-test mean values for Pre Prandial Glucose and quality of life were 23.4 ± 2.22 and 83.46 ± 4.77, while the post-test mean values for Pre Prandial Glucose and quality of life were 23.86 ± 1.76 and 82.06 ± 4.81, respectively. The 't' values were 1.31 and 1.33. The table value required for a significant difference at the .05 level with 14 degrees of freedom is 2.14. Since the obtained "t" ratio value for the asana with Varma training group is lesser than the table value, it can be concluded that the asana with Varma training showed a no significant improvement in Pre Prandial Glucose and quality of life control group among type-ii diabetic cervical dystonia middle-aged men.

FIGURE-2

MEAN VALUES OF CONTROL GROUP OF PRE-PRANDIAL GLUCOSE AND QUALITY OF LIFE AMONG TYPE-II DIABETIC CERVICAL DYSTONIA MIDDLE-AGED MEN.



DISCUSSION ON FINDINGS

The result on present study reviles that the stress among paramilitary personals managed with asana with varma training practices. The results were consistent with other findings that Varmam massage can perhaps reduce dystonia symptoms, and worked well in stimulating the nervous system & perform vasodilation that improves the circulation of blood and helps in reducing pain, stiffness & inflammation [12] Various pressure techniques to varmam points were utilized to initiate relief from pain, inflammation, swelling & stiffness associated with musculoskeletal pains [14, 15]. Though, Siddha therapy is very old and ancient therapy but came into limelight a few years ago, very few studies have been conducted on this topic [14]. Further research is recommended to determine how effective this therapy may be on dystonia symptoms, and to find efficient and safe treatment methods as compared to other CAM's [13].

CONCLUSION

It may be concluded that the asana with varma training practice has highly positive impact in the management of pre prandial glucose levels and quality of life style. The strong need is that the various aspects of yogic practices may suitably be embraced as a part of regular training particularly among the among Type-II Diabetic men cervical dystonia middle-aged men.

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ANALYSIS OF INJURY PATTERNS AMONG MALE KABADDI PLAYERS IN COIMBATORE

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ABSTRACT

The objectives of the study were to analyze the injury occurrences & sports achievements in Kabaddi players of various teams in Coimbatore district. This study may help to find out the injury patterns, sports performance and the underlying causes and its effects among Kabaddi men players. Information on injuries were collected from 35 Kabaddi players who were participating in regional and state level competitions, a total of 18 players were participated in regional level and 17 players were participated in state level competitions, the age of the players ranges from 17 to 24 years. IOC-injury surveillance questionnaire developed by Junge et al.,(2015).Results shows that the most common occurrence of injuries are sprains on the ankle, knee, and shoulder joints. Most sports injuries happen during games and tournaments and the chance of getting injured is more when playing in artificial mats then compared to natural surface. It is also evident that the least number of players consult a physiotherapist or undergo a proper rehabilitation therapy after the injury. It was concluded that in Kabaddi, players were injured due to not doing proper warming up exercises, not using the correct technique, insufficient knowledge about scientific procedures, and inadequate use of equipment. Regarding all these factors, more knowledge is required for the players, coaches, trainers, and organizers.

Key words*: Injury patterns, risk factors, Kabaddi*

INTRODUCTION

A sports injury is any injury sustained during physical activity or sports participation **Bhandari (2021)**. India is home to the widely popular sport of kabaddi, which is played throughout the nation. It is a low-cost/no-cost game, and in the modern era of games and sports, the word "power" has been added, transforming it into "power sports" and "power games," ultimately taking on a "combat" aspect **Mondal, A., & Ghosh, M. C. (2017)**. Because of the enthusiastic support and total involvement of the spectators, it is also referred to as the "Game of the masses" **(Dey, S. K. et al.,1993, Selva, S. et al.,2018).** Kabaddi players require extraordinary levels of physical endurance, agility, individual skill, lung capacity, quick reflexes, neuromuscular coordination, intelligence, and mental focus **(Dey et al., 1993).** The frequent contact between players and the rough playing mat contribute to a fair number of injuries **(Venkatesh, 2016).** Due to the high-intensity intermittent nature of the sport, success requires a well-built physique **(Pawar, S. B., & Borkar. P, 2018).** Every sport has some level of injury risk, but kabaddi is no exception due to the high force required in play. There is increasing the number of injuries in kabaddi players due to its competitive nature **(Sen. J, 2004).** Since it is a contact sport, there is a lot of pushing, pulling, jumping, and twisting involved in the game which has high possibilities of strains. The risk of these kinds of injuries is increased when specific body parts are used frequently. Ankles are particularly vulnerable to injuries because of the contact nature of the game. Establishing risk factors for injury and re-injury is a key component of injury prevention, which helps to promote

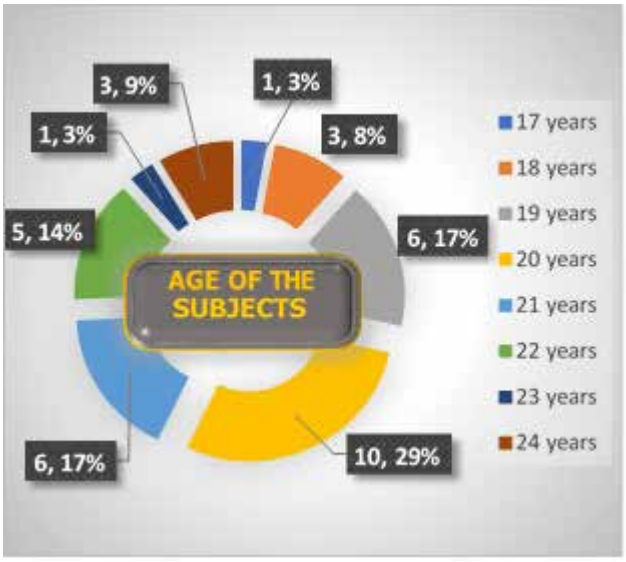
safe exercise participation. Over the past ten years, research on injury prevention has attracted more attention from around the world. Youth sports injuries have a substantial impact on young athletes' health and wellbeing, which may indirectly hinder their professional development. It is required to reduce these injury effects by developing suitable injury-prevention strategies based on precise epidemiological data. The introduction of various preventive strategies demands a multidisciplinary approach to manage these injuries and their consequences **(Gundre, S. D. et al, 2015).**

RESEARCH QUESTIONS

- What are the common types of injury in kabaddi?
- When there is a maximum chance of occurrence of injury?
- Which is the most injury prone area in body?
- What is the major cause of injury in kabaddi?
- At which activity/skill the chance of injury is more?
- What is the impact of playing surface on occurrence of injury?
- What are the means and methods of treatment after the injury?
- How do coaching strategies and medical support enhance injury management and sports achievements in Kabaddi?

METHODOLOGY SELECTION OF SUBJECTS

To complete the purpose of this study 35 men Kabaddi players from Coimbatore district were selected who has participated in various Kabaddi tournaments held in Tamil Nadu during August 2023 to October 2023.





SELECTION OF THE TEST AND CRITERION MEASURES

S. No	Variables	Name of the test	Unit of measurements
1	Injury assessment	IOC questionnaire (Junge et al,. 2015)	Scores
2	Sports achievement	Questionnaire	Scores

STATISTICAL TECHNIQUES

The intention of the study was to analyze the injury patterns and sports achievement among men Kabaddi players in Coimbatore. To find out any significant in injuries level and their achievements, for which the data collected from above said method was tested using descriptive statistics such as mean and standard deviation which were found in order to get the basic idea of the distribution of injuries and sports achievement among men Kabaddi players of Coimbatore.

RESULTS

PERCENTAGE OF TYPES OF INJURY OCCURRED IN KABADDI PLAYER

Injuries	Frequency	Percent %
Subluxation, Dislocation	1	2.90%
Disc Injury	1	2.90%
Muscle Spasm	1	2.90%
Fracture	4	11.40%
Ligament Rupture (Partial Rupture, Complete Rupture)	6	17.10%
Sprain (Ligament, Joint Capsule)	22	62.90%

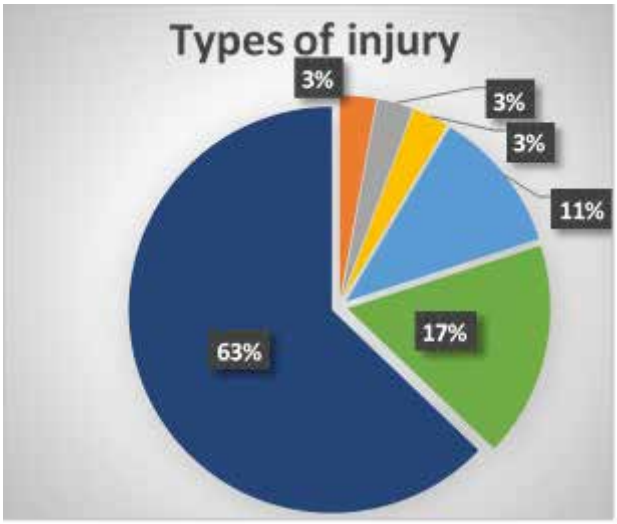


TABLE 2: TYPES OF INJURY

Table 2 states the percentage of occurrence of injuries among kabaddi players in Coimbatore, sprain (62.9%) is the most common injury, 17.1% of injuries are ligament rupture which includes both partial and complete rupture, 11.4% of injuries are fracture, muscle spasm, disc injury, subluxation and dislocation each has 2.9% of injury occurrence.

THE PERCENTAGE OF THE TIME THAT THE INJURY OCCURRED

Time that injury occurred	Frequency	Percent
Practice Morning	1	2.90%
Practice Evening	8	22.90%
Competition First Half	12	34.30%
Competition Second Half	14	40%

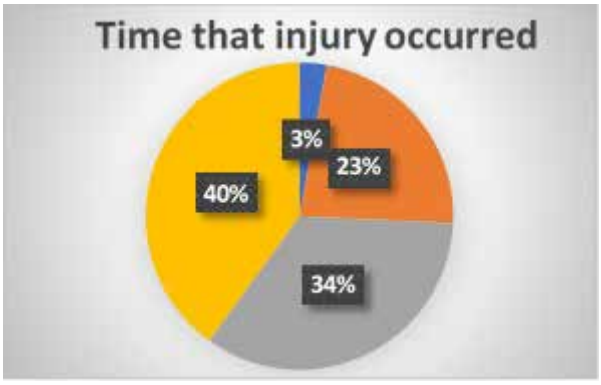


TABLE 3: TIME OF INJURY OCCURRENCE

Table 3 states the percentage of time of occurrence of injuries among kabaddi players in Coimbatore, 40% of injuries occurs during 2nd half of the competition, 34.3% of injuries occurs during 1st half of the competition, Evening and morning practice sessions has 22.9% and 2.9% of occurrence of injuries respectively.

THE PERCENTAGE OF THE BODILY LOCATION OF THE INJURY OF THE KABADDI PLAYERS

Bodily Location of injury	Frequency	Percent
Wrist (Medial, Lateral)	1	2.90%
Hand	1	2.90%
Hip	1	2.90%
Elbow (Medial, Lateral)	2	5.70%
Ankle (Anterior, Medial, Lateral)	5	14.30%
Shoulder, Clavicle (Anterior, Posterior)	8	22.90%
Knee (Medial, Lateral)	17	48.60%

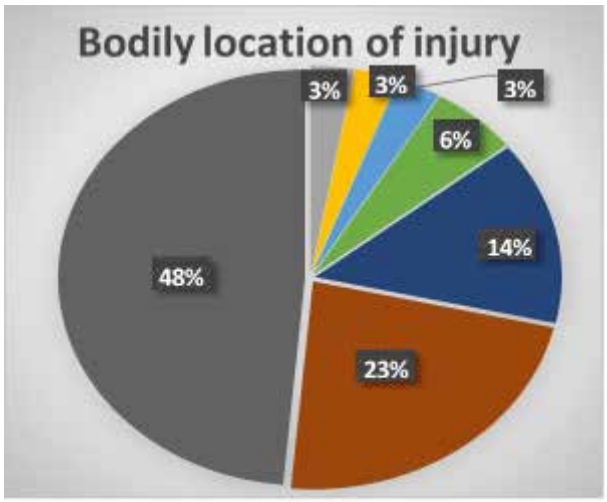


TABLE 4: BODILY LOCATION OF INJURIES

Table 4 states the percentage of the bodily location of the injuries among kabaddi players in Coimbatore, knees are most prone to injuries among kabaddi players which has 48.6% of injury occurrence, anterior and posterior Shoulder has 22.9% of injury occurrence, ankle has 14.3% of

injury occurrence, elbow has 5.7% of injury occurrence, hip, hand and wrist each has 2.9% of injury occurrence.

THE PERCENTAGE OF THE INJURY DURING ATTACK OR DEFENSE OF THE PLAYING SITUATION

Injury during attack or defense of the playing situation	Frequency	Percent
Unrelated to the Situation	1	2.90%
Defense	13	37.10%
Raid	21	60%



TABLE 5: PREVALENCE OF INJURIES DURING GAME

Table 5 states the percentage of the prevalence of injuries during game among kabaddi players in Coimbatore, mostly injuries are occurred during raid which has 60% while defense has 37.1% and 2.9% of injuries occurred irrelevant to the playing situation.

THE PERCENTAGE OF THE PARTICULAR ACTIVITY DURING WHICH INJURY OCCURRED

Skills	Frequency	Percent%
Landing	1	2.90%
Avoidance	1	2.90%
Kick	3	8.60%
Releasing	3	8.60%
Jumping	3	8.60%
Touch	3	8.60%
Falling	9	25.70%
Blocking	12	34.30%

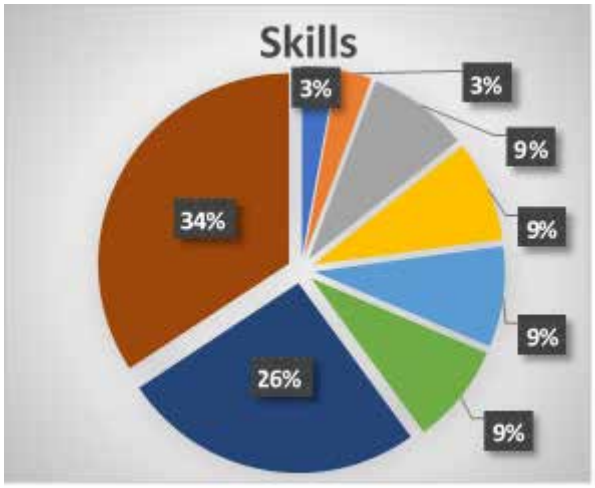


TABLE 6: ACTIVITY DURING WHICH INJURY OCCURRED

Table 6 states the percentage of the particular activity during which injury occurred among kabaddi players in Coimbatore, 34.30% of injuries occurred during blocking, 25.7% of injuries occurred during falling, occurrence of injuries during touch, jumping, releasing and kicking are each 8.6% and occurrence of injuries during landing and avoidance are 2.9%.

THE PERCENTAGE OF WHICH TYPES OF FLOORS GOT INJURIES MORE IN KABADDI

Playing Surfaces	Frequency	Percent
Natural	6	17.10%
Artificial	29	82.90%

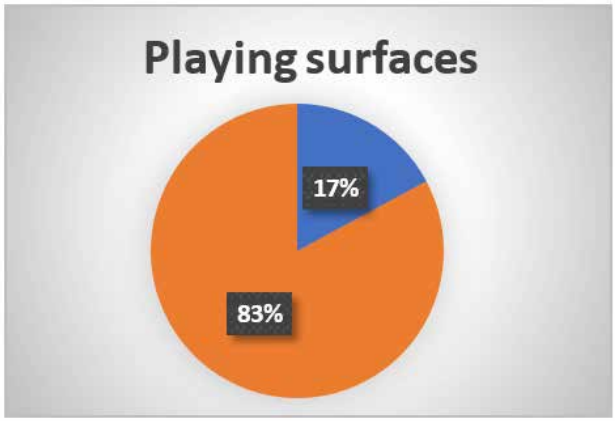


TABLE 7: PLAYING SURFACE AND INJURY OCCURENCE

Table 7 states the percentage of the occurrence of injuries in artificial and natural playing surfaces among kabaddi players in Coimbatore. 82.9% of injuries has occurred while playing in artificial mat while only 17.1% of injuries has occurred while playing in natural playing surface.

THE PERCENTAGE OF THE MEANS AND METHODS FOR TREATMENT OF KABADDI PLAYERS AFTER THE INJURY

Frequency		Percent%
Massage	3	3.10%
Rehabilitation		
therapy	5	5.10%
Home remedy	11	11.34%
Taping	12	12.40%
Medication	15	15.50%
Wearing a protector	16	16.50%
Cold and hot packs	16	16.50%
Physiotherapy	19	19.60%

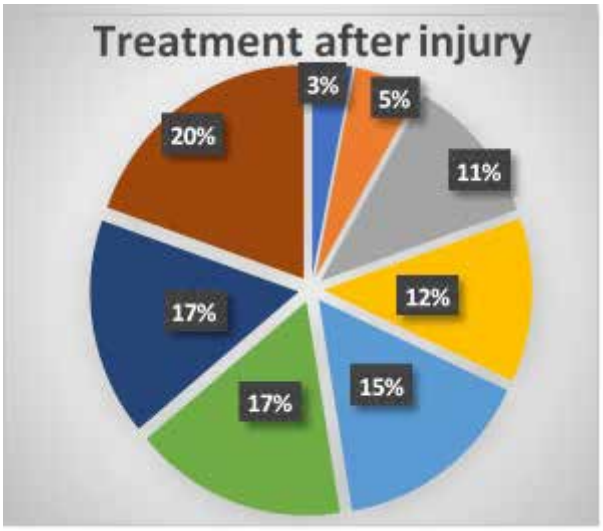


TABLE 8: MEANS AND METHODS OF TREATMENT OF INJURIES.

Table 5 states the percentage of the means and methods for treatment of injuries among kabaddi players in Coimbatore, 19.6% of injuries have treated by physiotherapy, 16.5% used cold and hot packs while another 16.5% used to wear a protector, 15.5% used other medications, 12.4% used taping techniques, 11.34% stayed with home remedies, 5.1% undergone rehabilitation therapy and 3.1% used massaging techniques.

DISCUSSION ON FINDINGS

The results indicate that the most common injuries reported by Kabaddi players are sprains in the ankle, knee, and shoulder joints, accounting for 62.9% of all injuries. In a survey, **Prabhu and Kishore (2014)** discovered that ankle and knee injuries were the most common in Kabaddi which was further supported by **Dhillon et al. (2017), Mondal and Ghosh (2017), Moeini et al., 2011, Sen (2014), and Kurup and Chowdhery (2014).** 74% sports injuries happen during games and tournaments compared to training sessions, or fitness activities which was further supported by **Datar and Singh (2021).** It is also found that 60% of injury got in attack (raid) situation. The most particular activity during the injury occurrence is blocking 34.30% compared to falling, touching, kick and jumping. It is also found that the chance of getting injured is 82.9% when playing in artificial mats when compared to playing in natural surface which coincides with the findings of **Paliobeis et al. (2021).** In many circumstances, these kinds of injuries might result from overdoing it physically when

engaging in a certain activity which was supported by **Sajjan Pal (2021)** in his study. It is also evident that the least number of players consult a physiotherapy or undergo a proper rehabilitation therapy after the injury which make the players to take a long break after the injury.

CONCLUSION

Based on the results of the study revealed that 94% of players reported their injuries hindered their performance and ability to achieve their goals. The findings identified improper warm-up exercises, incorrect technique, lack of knowledge about scientific training methods, and improper equipment use as the primary causes of injuries among Kabaddi players. To minimize injury risks, coaches, trainers, organizers, and players must enhance their understanding of these critical areas.

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INDIVIDUALISED AND COMBINED EFFECTS CORE STRENGTH TRAINING AND YOGASANA PRACTICES ON SPEED AND EXPLOSIVE POWER ON UNTRAINED COLLEGE MEN

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ABSTRACT

The core could be described as your body except limbs, specifically as runners and yoga have a long history and a rich depth of knowledge and are both essential aspects to examine and investigate in people. Based on the concept the study design to find out the effect of isolated and combined core strength and yogasana practices on selected speed and explosive power of untrained college men. For the purpose of the study 45 men students from various colleges in Chennai, Tamilnadu were selected as subjects. The subjects were divided into three groups of fifteen namely core strength training group (n=15), yogasana practice group (n=15) and combined core strength yogasana training group (n=15). The speed and explosive power were selected as physical fitness variables. The variables were testes by using 50 m dash and Sarjent jump. The experimental groups underwent there training for 12 weeks, 4 days per week, 45 to 60 minutes per day with suitable warming up and cooling down exercise. The criterion variables were tested prior to and immediately after the training programme. The collected data were analysed using ANCOVA (analysis of covariance) and scheffe's post hoc test was applied to know the paired mean differences if the optioned 'f' ratio was significant. The level of significance fixed at .05. After investigate of the study, there was a significant difference among experimental groups on selected speed and power parameters. The study also shows that the combined training group shows better improvement on criterion variables when compare with isolated training groups.

Key Words: *Core Strength, Yogasana, Combined, Speed, Power untrained college men*

INTRODUCTION

According to the principle of specificity, specific exercises elicit specific adaptations, creating specific training effects. Furthermore, sport scientists are more interested in finding the best training method to gain the best training benefits with a minimum cost of time and energy [Baechle, T. R 1994].

The terms "core" or "core strength" are some of the most common phrases heard around the gym or track in recent years. Many runners would accept the idea that it would be desirable to have a strong core, but rarely do we think about what that really means or why exactly it would be helpful. Core strength should not be confused with having a rippling six-pack like a model on an exercise machine infomercial. Although many people with very well defined front abdominal muscles do have a strong core, it is not one and the same.

The core could be described as your body except for your limbs, but thinking specifically as runners, your core comprises the parts of your trunk that help stabilize you to resist forces of gravity and allow you to effectively operate those same limbs in the direction and at the speed [Brooks, G. A, 2000], core strength training results in an increased muscle force, glycolytic enzyme activity, intracellular ATP, and muscle hypertrophy [Tanaka, H. and T. Swensen, 1998].

Yoga is also commonly understood as a therapy or exercise system for health and fitness. While physical and mental health are natural consequences of yoga, the goal of yoga is more far-reaching. "Yoga is about harmonizing oneself with the universe. It is the technology of aligning individual geometry with the cosmic, to achieve the highest level of perception and harmony." Yoga does not adhere to any particular religion, belief system or community; it has always been approached as a technology for inner wellbeing. Anyone who practices yoga with involvement can reap its benefits, irrespective of one's faith, ethnicity or culture.

Different Philosophies, Traditions, lineages and Guru-shishya paramparas of Yoga lead to the emergence of differnt Traditional Schools of Yoga e.g. Jnana-yoga, Bhakti-yoga, Karma-yoga, Dhyana-yoga, Patanjala-yoga, Kundalini-yoga, Hatha-yoga, Mantra-yoga, Laya-yoga, Raja-yoga, Jain-yoga, Bouddha-yoga etc. Each school has its own principles and practices leading to altimate aim and objectives of Yoga. [Dudley, G. A, 1985]. Now-a-days, millions and millions of people across the globe have benefitted by the practice of Yoga which has been preserved and promoted by the great eminent Yoga Masters from ancient time to this date. The practice of Yoga is blossoming, and growing more vibrant every day. To date, we are unaware of any research investigating the effects of a whole body combined training program on speed and power performance in men.

Combined training has been commonly used by athletes to improve neuromuscular responses and energy systems [Dudley GA, Djamil R, 1985]. Several studies have shown that combined training results in a development of muscle strength or power. In the past decade, combined strength and yogic practices has received much attention as a form of training. Many of previous investigations have examined several variables during combined training [Leveritt et al. 1999]. Moreover, they have demonstrated that the impact of combined training appears to be more determinable to potential strength gains and not to aerobic power [Rahnama et al. 2007]). Additionally, after combined strength and endurance training, investigators have noted positive changes in body systems [Garcia-Lopez et al. 2007].

METHODOLOGY

SELECTION OF SUBJECTS AND VARIABLES

For the purpose of the study 45 men students from various colleges in Chennai, Tamilnadu were selected as subjects. The subjects were divided into three groups of fifteen namely core strength training group (n=15), yogasana practice group (n=15) and combined core strength yogasana training group (n=15). The speed and explosive power were selected as physical fitness variables. The variables were testes by using speed tested with 50 m dash and explosive power tested with Sarjent jump.

TRAINING PROGRAMME

The experimental groups underwent there training for 12 weeks, 4 days per week, 45 to 60 minutes per day with suitable warming up and cooling down exercise. The core strength training group

underwent training on lateral leg roll, abdominal brace, abdominal crunch, ball rollout, hanging knee raise, ab reverse crunch, push ups and so on with 60 to 75% of intensity from their 1RM, the yogasana practice group underwent padahastasana, paschimottanasana, naukasana, ustrasana, uttanpadasana and so on and the combined training group underwent training on both core strength and yogasana training. The criterion variables were tested prior to and immediately after the training programme.

STATISTICAL PROCEDURE

The collected data were analysed using ANCOVA (analysis of covariance) and scheffe's post hoc test was applied to know the paired mean differences if the optioned 'f' ratio was significant. The level of significance fixed at .05.

RESULT:

Table – I

ANCOVA ON SPEED AND EXPLOSIVE POWER OF CORE STRENGTH YOGASANA AND COMBINED TRAINING GROUP OF UNTRAINED COLLEGE MEN

Variables	Core Strength Group	Yogasana Group	Combined Group	SOV	Sum of square	Df	Mean square	'F' Ratio
Speed	6.61	6.68	6.54	B	0.15	2	0.08	3.74*
				W	0.84	41	0.02	
Explosive Power	25.41	24.84	28.47	B	113.84	2	56.923	463.40*
				W	5.036	41	0.12	

**Significance at .05 level of confidence*

The Table Value Required For Significance at 0.05 level with df 1 and 41 Is 3.22

The obtained f ratio for all the selected psychomotor variables such as speed and explosive power are significance at .05 level. Hence, scheffe's post hoc test was employed and presented in table –II

Table – II

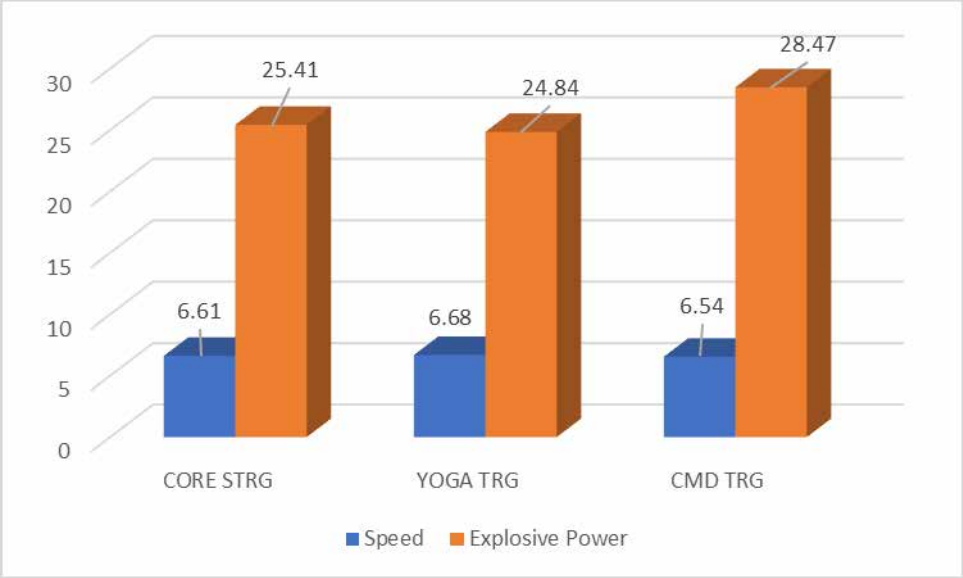
SCHEFFE'S POST HOC TEST ON SPEED AND EXPLOSIVE POWER

Variables	Mean Difference			Confidence Interval
	Core Strength Group Vs Yogasana group	Core Strength Group Vs Combined Group	Yogasana group Vs Aerobic Group	
Speed	0.07	0.14*	0.07	0.13
Explosive Power	0.57*	3.63*	3.06*	0.30

**Significance at .05 level of confidence*

FIGURE-1

MEAN VALUES OF CORE STRENGTH TRAINING YOGAASANA TRAINING AND COMBINED TRAINING ON UNTRAINED COLLEGE MEN OF SPEED AND EXPLOSIVE POWER



The result of post hoc test shows that combined training group was better in all selected variables then core strength yogasana training group. There was no significance of speed on combined and core strength group & core strength and yogasana practice group. The rest of the paired mean differences were found significant. Hence, it was concluded that combined training is the best training for develop speed and power.

DISCUSSION:

The findings of similar investigation (Bloomer et al. 2005) of the application of combined training in other sports may indirectly confirm our conclusions. Other investigations that studied simultaneous training for the development of endurance and muscle power in a long-time period (Hennessy and Watson 1994) indicated the possibility of a decrease in physical abilities in athletes with a training experience.

The abilities that require demonstration of power, i.e. large muscle power and speed, are the most susceptible for large-extent and high- intensity trainings to which elite athletes. The successful combination of training depends on many factors such as the athlete's genetic potential, length of training experience, current physical preparation form, intensity and extent of training, optimal periodization, nutrition and supplementation etc. The combined performed training for strength and endurance induces the increase in anaerobic power and maximal oxygen uptake.

A number of previous studies reported the greatest reduction in body fat in the core training group than the combined group, whereas Park et al (2003), reported the highest decrease in body fat percentage in combined training group. Therefore, combined training is an effective method in reducing body fat and improving body composition [Nader, G.A. (2006)]. The results of this study also showed that aerobic power significantly increased after training programs in both exercise groups compared with the control group. In line with this, most of the previous studies reported an increase in VO2max in endurance and combined groups. However, some of these studies suggested significant reduction in VO2max in the resistance training group [Balabinis C.P, et al 2003].

CONCLUSION:

The study concluded that the combined training was the best training method for improving speed and explosive power of untrained college men. This conclusion of this study may help the trainer design the optimal exercise program for athletes.

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PILOT STUDY: EFFECT OF SPECIFIC CORRECTIVE EXERCISES ON POSTURE DEFORMITIES OF SCHOOL STUDENTS

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ABSTRACT

Posture deformities, such as slouching, forward head posture, and scoliosis, are increasingly prevalent among school-aged children, particularly in the 13-15 age group. This pilot study aimed to assess the effect of specific corrective exercises on posture deformities in 30 school students aged 13-15 years. The exercise intervention was conducted twice a week (Monday and Wednesday) for a duration of 40 minutes per session over a period of six weeks. Posture was evaluated before and after the intervention using visual assessments and photographic analysis. The findings indicated significant improvements in posture, suggesting that corrective exercises could be an effective strategy for addressing posture deformities in adolescents.

INTRODUCTION

Postural deformities such as kyphosis, lordosis, scoliosis, and flat feet are becoming more common among adolescents, particularly those aged 13 to 15. These issues are often exacerbated by modern lifestyle factors, including prolonged sitting, poor posture during schoolwork, limited physical activity, and excessive screen time. Adolescence is a critical period for musculoskeletal development, making it an ideal time to address and correct postural issues before they lead to chronic discomfort, pain, and long-term musculoskeletal problems in adulthood.

Kyphosis, commonly known as a “hunchback,” involves an excessive outward curvature of the upper spine (thoracic region), resulting in discomfort, limited range of motion, and visible deformities. Lordosis, or swayback, is an exaggerated inward curve of the lower spine (lumbar region), which can lead to back pain and muscle imbalances. Scoliosis is characterized by an abnormal lateral curvature of the spine, which can vary in severity, with more severe cases requiring medical intervention. Flat feet, or fallen arches, affect the foot’s natural arch and can cause discomfort, as well as misalignment in the legs, hips, and lower back.

These deformities can negatively impact not only physical appearance but also mobility, self-esteem, and overall quality of life. Adolescents with poor posture may struggle with prolonged sitting, walking, and participating in physical activities, potentially discouraging exercise and worsening health issues. Corrective exercises designed to target these conditions have been shown to improve spinal alignment, strengthen postural muscles, and reduce discomfort. However, most research has focused on adults or clinical populations, with limited attention given to school-aged children, particularly in the 13-15 age group.

This pilot study aims to evaluate the effectiveness of specific corrective exercises in addressing kyphosis, lordosis, scoliosis, and flat feet in adolescents. The program, conducted twice a week for six

weeks, is designed to improve spinal alignment, strengthen postural muscles, and enhance flexibility. By assessing posture through visual evaluations, photographic analysis, and self-report surveys, this study seeks to contribute to the development of school-based programs that promote better posture and musculoskeletal health in adolescents, enhancing their physical health, self-confidence, and academic performance.

KYPHOSIS is characterized by an exaggerated forward rounding of the upper back, often resulting from factors such as prolonged sitting, poor ergonomic practices, and muscle imbalances. This condition can lead to discomfort, restricted mobility, and even respiratory issues due to compromised lung capacity.

CORRECTIVE EXERCISES:

Thoracic Extension:	Sit or stand tall, place hands behind the head, and gently extend the upper spine backward. Hold for 10-15 seconds.
Chest Opener Stretch:	Clasp hands behind the back and gently lift, opening the chest to stretch the pectoral muscles.
Scapular Retraction:	Squeeze shoulder blades together to strengthen upper back muscles and improve posture.

LORDOSIS, in contrast, involves an excessive inward curvature of the lower back. This deformity can be caused by obesity, pregnancy, and weak core muscles, and it may contribute to pain and altered gait patterns.

CORRECTIVE EXERCISES:

Pelvic Tilts:	Lie on your back, press lower back into the floor while tightening abdominal muscles. Hold for 5 seconds and repeat.
Planks:	Engage core muscles in a forearm plank position, holding for 20-30 seconds.
Hip Flexor Stretch:	Kneel with one foot in front, push hips forward to stretch the hip flexors and reduce lumbar stress.

SCOLIOSIS is a more complex condition marked by an abnormal lateral curvature of the spine. It can develop during adolescence or result from neuromuscular disorders, and it often requires careful management to prevent progression and associated complications.

CORRECTIVE EXERCISES:

Side Planks:	Lie on your side, lift hips so body forms a straight line, and hold for 15-30 seconds.
Back Extensions:	Lie on stomach and gently lift upper torso, activating spinal muscles. Hold for a few seconds and lower.
Cat-Cow Stretch:	Begin on hands and knees, arch your back and lift chest (cow pose), then round back and tuck chin (cat pose).

FLAT FEET, A fallen arch, occur when the arches of the feet collapse or don't form properly, leading to discomfort and misalignment in the legs, hips, and lower back. Flat feet can also affect posture and walking patterns, potentially leading to pain and discomfort in the feet, knees, and lower back. Incorporating specific corrective exercises can help strengthen the muscles in the feet, improve arch formation, and reduce the discomfort associated with flat feet.

CORRECTIVE EXERCISES:

Towel Scrunches	Sit on a chair with a towel placed flat on the floor. Use your toes to scrunch the towel toward you, then relax. Repeat for 10-15 minutes.
Foot Roll (Using a Ball)	Sit with your foot flat on the floor. Roll a tennis or golf ball under your arch.Apply pressure as needed for 2-3 minutes.
Marble Pickup	Place marbles on the floor. Use your toes to pick up each marble and place it in a container. Perform for 5-10 minutes.

BENEFITS OF CORRECTIVE EXERCISES

Corrective exercises offer numerous benefits, including improved posture, enhanced flexibility, and increased muscle strength. They help correct musculoskeletal imbalances, reduce pain, and prevent the progression of conditions like kyphosis, lordosis, scoliosis, and flat feet. These exercises also promote better balance, stability, and mobility, improving overall movement efficiency. By addressing muscle weaknesses and tightness, they help alleviate discomfort, reduce joint stress, and enhance physical performance. Regular corrective exercises contribute to long-term musculoskeletal health, boosting self-esteem, and confidence, while fostering healthier movement patterns and reducing the risk of injury, ensuring overall well-being and quality of life.

CONCLUSION

This pilot study shows that specific corrective exercises can effectively improve posture deformities in adolescents aged 13-15. After a six-week intervention, significant improvements in spinal alignment and posture were observed through visual assessments and photographic analysis. The exercises targeted conditions like kyphosis, lordosis, scoliosis, and flat feet, leading to enhanced flexibility, muscle strength, and alignment. These findings suggest that corrective exercise programs can reduce discomfort, prevent progression of musculoskeletal issues, and improve overall health. Integrating such programs into school activities could support better posture, physical health, and self-esteem in adolescents, promoting long-term well-being.

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ROLE OF ASSISTIVE TECHNOLOGY AND GADGETS APPLICABLE FOR PEOPLE WITH DISAPLITY

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ABSTRACT

Assistive technology (AT) and gadgets play a crucial role in enhancing the quality of life for individuals with disabilities by improving accessibility, communication, mobility, and independence. These technologies range from simple aids like hearing devices and screen readers to advanced solutions such as prosthetics, brain-computer interfaces, and smart home automation. Innovations in artificial intelligence, robotics, and the Internet of Things (IoT) have significantly expanded the effectiveness and reach of AT. This paper explores the impact of assistive technology on various disabilities, highlighting key advancements and their applications in daily life, education, and employment.

Keywords: *Assistive technology, Disability*

INTRODUCTION

Assistive technology (AT) is any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities.

- AT can be low-tech: communication boards made of cardboard or fuzzy felt.
- AT can be high-tech: special-purpose computers.
- AT can be hardware: prosthetics, mounting systems, and positioning devices.
- AT can be computer hardware: special switches, keyboards, and pointing devices.
- AT can be computer software: screen readers and communication programs.
- AT can be inclusive or specialized learning materials and curriculum aids.
- AT can be specialized curricular software.
- AT can be much more—electronic devices, wheelchairs, walkers, braces, educational software, power lifts, pencil holders, eye-gaze and head trackers, and much more.

Assistive technology helps people who have difficulty speaking, typing, writing, remembering, pointing, seeing, hearing, learning, walking, and many other things. Different disabilities require different assistive technologies.

DOT WATCH



A Dot Watch is a smartwatch designed for visually impaired and blind users. Unlike traditional smartwatches that use a digital or analog display, the Dot Watch features a Braille display that allows users to read time, notifications, and other information through raised dots.

BRAILLE KEYBOARD



A Braille keyboard is a specialized input device designed for visually impaired users to type using Braille characters. There are two main types of Braille keyboard

ORCAM-MY EYE



OrCam-My-Eye is an advanced wearable assistive device designed for individuals who are blind or visually impaired. It is a small, lightweight device that attaches to the frame of any pair of glasses and uses artificial intelligence (AI) to provide real-time assistance.

BIONIC HAND



Bionic hand is a high-tech prosthetic device designed to replicate the function and movement of a human hand. It is used by people who have lost a hand due to injury, illness, or congenital conditions. Bionic hands use advanced robotics, sensors, and sometimes artificial intelligence to provide better control, dexterity, and even sensory feedback.

BIONIC LEG



Bionic leg is a prosthetic limb that uses advanced technology to mimic the movement and functionality of a natural leg. Unlike traditional prosthetic legs, which are passive, bionic legs are equipped with microprocessors, sensors, motors, and artificial intelligence to adapt to the user's movement in real time.

SCREW WHEEL CHAIR MOBILITY



Screw wheel chair mobility system is an innovative wheelchair design that uses rotating screw-like wheels instead of traditional wheels. This allows the wheelchair to move more efficiently over uneven terrain, stairs, sand, snow, and other challenging surfaces.

BRAIN-COMPUTER INTERFACES



Brain-computer interfaces (BCIs), are devices placed in or on the brain to monitor, stimulate, or interact with neural activity. They are used in medical, research, and even experimental applications.

CONCLUSION

Assistive technology and specialized gadgets play a crucial role in empowering individuals with disabilities by enhancing their independence, communication, mobility, and overall quality of life. These technologies bridge the gap between limitations and possibilities, enabling users to participate more actively in education, employment, and social interactions. From screen readers and voice recognition software to advanced prosthetics and smart home devices, assistive technology continues to evolve, making the world more accessible and inclusive. Continued innovation, affordability, and widespread availability of these solutions are essential to ensuring that people with disabilities can fully integrate into society and lead fulfilling lives.

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EFFECT OF LOW AND MEDIUM AEROBIC EXERCISES BALL MASTERY TRAINING ON SELECTED MOTOR FITNESS VARIABLES AMONG MEN HANDBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the effect of low and medium aerobic exercise and ball mastery training on selected motor fitness variables among men handball players. 60 men handball players from the coimbatore region of tamil nadu, india were selected at the age range of 17 to 23 years. They were divided into 4 groups namely group A low-intensity aerobic exercise group B medium-intensity aerobic exercise, group C ball mastery training and group D as the control group each group being her 15 subjects. The investigator reviewed the available scientific literature and based on discussion with experts, feasibility criteria, availability of equipment, and the relevance of variables to the present study. All participants were instructed to maintain their regular training routine throughout their participation in the study. The experimental groups received the 8-week training protocol. Speed was measured by the 50mts run and agility was measured by the t-test. Collect data from the subject to check performance before and after the training protocol of 8 weeks. Statistical analysis IBM SPSS software 26 version was used and statical technic ANOVA was used for this research.

Keywords: Low-Intensity Aerobic Exercises, Medium-Intensity Aerobic Exercises, Ball Mastery Training, Speed, Agility .

INTRODUCTION

Handball is one of the most popular and widely played sports in the world. Handball is a dynamic and exciting sport that fosters teamwork, skill development, and passion among players **Sousa, 2020**. Its universal appeal and rich history make it a cornerstone of global sports culture. Handball is a game of skill, strategy, and teamwork, where eleven players on each side compete to outwit and outmaneuver their opponents **Darendeli, 2021**. Aerobic training, also known as cardio or cardiovascular training, is a form of exercise that primarily targets the cardiovascular system and improves the body's ability to use oxygen efficiently. Aerobic exercises are in the presence of oxygen to fuel the body's energy production process. Aerobic exercises involve activities that elevate the heart rate and breathing rate for an extended period **vechin, 2021**. Common examples include walking, running, cycling, swimming, dancing, and aerobics classes. Aerobic training strengthens the heart muscle, improves blood circulation, and lowers blood pressure and cholesterol levels, reducing the risk of cardiovascular diseases. Regular aerobic exercise increases the body's capacity to sustain physical activity for longer without fatigue. Aerobic training can be performed at various intensity levels, ranging from low to high. Intensity is often measured using metrics like heart rate or perceived exertion **sousa, 2020**. Moderate-intensity aerobic exercise, where you can still hold

a conversation while exercising, is recommended for most people and provides significant health benefits **eslami, 2021**. High-intensity interval training (hiit) involves alternating between short bursts of intense exercise and periods of rest or lower-intensity activity. Hiit can offer similar or even greater cardiovascular benefits compared to traditional steady-state aerobic exercise, in less time **deeva, 2021**. Ball mastery training is a fundamental aspect of handball training focused on developing a player's ball-handling skills, control, and technique **dina, 2022**. It involves a series of drills and exercises designed to improve a player's ability to manipulate the ball effectively using various surfaces of the feet. Ball mastery begins with mastering basic ball control techniques such as dribbling, passing, and receiving. Players learn to manipulate the ball with different parts of their feet inside, outside, soles, and laces to maintain possession and move the ball efficiently **hakman, 2018**. Ball mastery drills often involve repetitive movements and exercises that allow players to develop muscle memory and improve their touch and feel for the ball. These drills typically focus on close control, quick footwork, and coordination **hidayat, 2022**. Ball mastery training encompasses a wide range of techniques and skills, including dribbling, feints, turns, twists, and quick changes of direction. Players are encouraged to experiment with different moves and combinations to enhance their creativity and adaptability on the field. Developing speed and agility is an essential aspect of ball mastery training. Players work on quick, explosive movements, sharp changes of direction, and acceleration to evade defenders and create scoring opportunities **geerts, 2012**.

METHODOLOGY

For this study, 60 men handball players from the coimbatore region of Tamil Nadu, India were selected at the age range of 19 to 23 years. they were divided into 4 groups namely group A low-intensity aerobic exercise group B medium-intensity aerobic exercise, group C ball mastery training and group D as the control group each group being her 15 subjects. the investigator reviewed the available scientific literature and based on discussion with experts, feasibility criteria, availability of equipment, and the relevance of variables to the present study. all participants were instructed to maintain their regular training routine throughout their participation in the study. the experimental groups received the 8-week training protocol. speed was measured by the 50mts run and agility was measured by the t-test. collect data from the subject to check performance before and after the training protocol of 8 weeks. the difference between the initial and final means of the reference variables was considered the effect of treatment on subjects. after the collection of the data was analyzed by IBM (SPSS version 26.0) and the 2 groups were analyzed by the statistical technique of ANOVA the confidence level was maintained at 0.05 level.

RESULT AND DISCUSSION

TABLE 1

ANOVA OF SPEED AND AGILITY OF EXPERIMENTAL GROUPS AND CONTROL GROUP

Test	Grp A	Grp B	Grp C	Grp D	SOS	DF	MEAN	F-RATIO
SPEED								
Pre-test	7.54	7.65	7.68	7.87	1.031	3	0.344	1.15
					16.62	56	0.297	
Post-test	6.82	6.72	6.60	7.86	14.53	3	4.845	37.91*
					7.15	56	0.128	

Test	Grp A	Grp B	Grp C	Grp D	SOS	DF	MEAN	F-RATIO
AGILITY								
Pre-test	12.11	12.15	12.14	12.24	0.110	3	0.037	0.297
					6.89	56	0.123	
Post-test	11.53	11.48	11.17	12.27	6.115	3	2.038	11.63*
					9.80	56	0.175	

** Significant at 0.05 level table value 2.76 to2.77 respectively df (3.56)*

According to the results of the analysis presented in table 4.1, the pre-test means on speed scores of low-intensity aerobic exercise, medium-intensity aerobic exercise, ball mastery training and control group was 7.54, 7.65, 7.68 and 7.87 respectively. The acquired pre-test with an f-ratio value of 1.15 turned out to be smaller compared with 2.77 of the table value for the degrees of freedom 3 and 56 necessary for the significant level at 0.05. The low-intensity aerobic exercise, medium-intensity aerobic exercise, ball mastery training and control group methods had post-test mean scores of 6.82, 6.72, 6.60 and 7.86 respectively. The value of the f-ratio cost of **37.91*** for the post-test used after training methods was greater compared with the table value of 2.77 for the degree of freedom 3 and 56 necessary for a significant level with 0.05 specifications. The pre-test means on agility scores of low-intensity aerobic exercise, medium-intensity aerobic exercise, ball mastery training and control group was 12.11, 12.15, 12.14 and 12.24 respectively. The acquired pre-test with an f-ratio value of 0.297 turned out to be smaller compared with 2.77 of the table value for the degrees of freedom 3 and 56 necessary for the significant level at 0.05. The low-intensity aerobic exercise, medium-intensity aerobic exercise, ball mastery training and control group methods had post-test mean scores of 11.53, 11.48, 11.17 and 12.27 respectively. The value of the f-ratio cost of **11.63*** for the post-test used after training methods was greater compared with the table value of 2.77 for the degree of freedom 3 and 56 necessary for a significant level with 0.05 specifications.

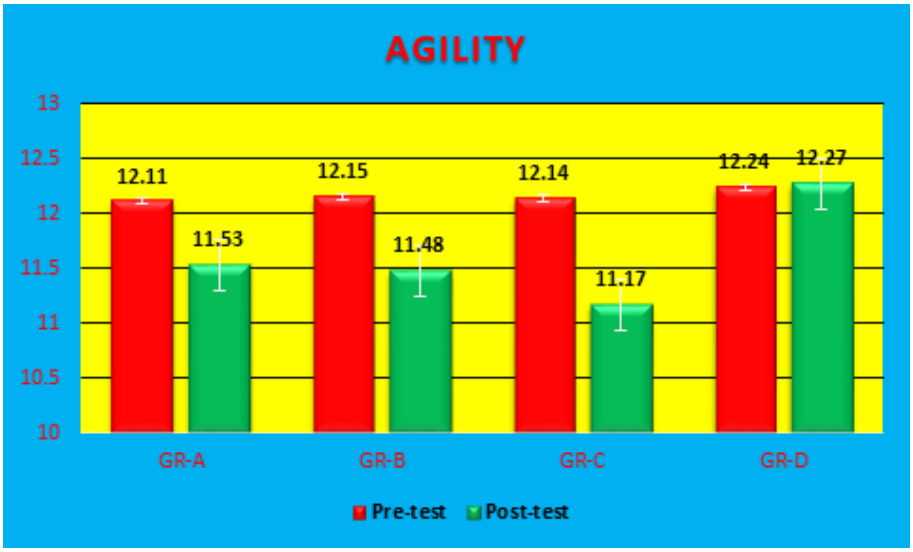
FIGURE 1

FIGURE DIAGRAM OF SPEED ON EXPERIMENTAL GROUPS AND CONTROLGROUP



FIGURE 2

FIGURE DIAGRAM OF AGILITY ON EXPERIMENTAL GROUPS AND CONTROL GROUP



CONCLUSION

Based on the result of the study the following conclusion was drawn participation in low-intensity Aerobic exercises, medium-intensity exercises and ball mastery programs in a significant reduction in speed and agility among the experimental group when compared with the control group and there was a significant increase.

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TECHNOLOGY IN PHYSICAL EDUCATION

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ABSTRACT

The purpose of this study was to use of technology in our Physical Education curriculum, it covers in theory and practical. It enhanced the performance of learning the sports skills in theoretical and physical activities. Technology has enough potential to simplify more effective instruction in physical education and to provide physical educators with key pieces of information that can be used in advocacy efforts. Teachers can also conduct video interviews to document student's impressions of physical education and motor learning. Rapid developments in electronic technology have made important effects on the education systems in the world. With technology, particularly mobile technology, physical educators now have a wide range of tools they can use to examine and improve their students' physical skills. The list includes video analysis, wearable tech, physical education apps, gaming systems, virtual classes, and monitors and trackers.

Key word: *Physical Education, Technology, Virtual Classes, Digital Platform*

I. INTRODUCTION

Technologies, especially in the last twenty years, have enriched school education, expanded contents, tools, methodologies and changed the relationship between disciplinary knowledge, teachers and students. Rapid developments in electronic technology have made important effects on the education systems in the world. The use of technology is an important effect of mediation between the discipline and the student, helping to change the ways of learning, developing the intrinsic motivation and the met cognition. The most important technologies used in schools (video recording and personal computers) have determined a re-setting of knowledge and have emerged new areas of intervention in each areas in relation to the essential disciplinary themes [1]. After few years of development, modern education technology in physical education discipline has achieved outstanding achievements that unprecedented attention was given by sports teachers and researchers, and an agreement was reached that full use of educational technology can not only benefit the design, development, utility, assessment and management of sports teaching training process and teaching training material, which help colleges form self- characteristics, but also help in solving the bottleneck problems in physical education and thus achieves the optimization of the combination of theory and practice in the physical education process of colleges and universities [2].

II INFORMATION AND COMMUNICATION TECHNOLOGY

The great educational challenge is related to achieving a true methodological implication for curricular development, thus breaking with the preconceived idea that Information and communication technologies (ICT) are an external element, especially in the field of Physical Education. It requires specific training that involves empowerment in order to take full advantage of the potential of ICT for the management of teaching, professional development and life-long learning [3].

The applications in the domain of health and physical education are available and can be used to enrich and improve curricular offerings in most colleges. Numerous technological applications regarding the promotion of physical activities and fitness are available and easily accessible [4].

Today, the application of various technologies by students and teachers requires new competences. Students must demonstrate motor competencies and use technology mainly through a self-learning process. It is essential to learn to manage the organization of the activities together with the use of different equipment. Physical education curricula and health promotion programs are developed to offer students better opportunities instead of the traditional way of learning in gyms [5].

III RECENT TECHNOLOGY IN PHYSICAL EDUCATION

The learning processes of motor skills (physical literacy) are developed according to the successive-interdependent stages and constitute qualitative aspects essential in physical education teaching [6].

The implementation of technology in teaching physical education is motivating for students. It contributes to the monitoring of the students' progress, to identify gaps in the repertoire of motor skills and to reinforce the perceived physical self-efficacy [7].

With technology, particularly mobile technology, physical educators now have a wide range of tools they can use to examine and improve their student's physical skills. The list includes video analysis, wearable tech, physical education apps, gaming systems, virtual classes, and monitors and trackers [8].

A) VIDEO ANALYSIS

Video analysis is included in the tools of qualitative assessment. It is an effective tool for monitoring the levels of learning and encourages the perception of competence of the student. Thus, the psychological factors and the relationships with motor abilities are solicited: it is possible to analyse the motor task, compare the evolution of learning at different time of year varying the teaching styles, compare the performance of different students, disassemble and reassemble motor sequences to detect errors and appreciate the learning outcomes; elaborate combinations of motor sequences [9].

B) MOBILE APPLICATION

Almost everyone has a smart phone, and PE teachers can use such devices to their advantage in encouraging their students to work out and exercise. Although they won't probably like their students to be constantly glued to their mobile phones throughout their classes, when educational benefits are obvious the use of mobile phones and phone apps should be encouraged.

There are numerous apps that can be taken advantage of, with some allowing for movement tracking and nutritional help, while others assist in enhancing athletic activities like basketball. Apps involving video and picture analysis can be used to examine athletic movements, and ultimately help to improve physical skills.

There are a lot of phone apps available these days designed to track movements and offer nutritional guides. Students can access important information regarding their fitness and diet with just a few clicks. And the best part is that most of those apps are free. While there are apps that require

some form of payments or monthly fees, the cost can be worth the health benefits associated to well-informed workout and diet programs [10].

C) ONLINE VIDEOS

With faster and more reliable internet, streaming videos is more accessible than ever before. PE teachers can take advantage of this technology to encourage their students to enhance their skills by checking out online videos and demonstrations. With the depths of information available online, PE instructors won't have a hard time searching for videos that can fit every student's needs. Teachers, however, need to be careful in choosing videos. They need to make sure that the videos are age appropriate to the class and grade they are teaching.

Additionally, to encourage better learning, teachers can also encourage their students to create their own instructional videos of any workout they are passionate about doing. This is more engaging than having students sit and watch videos that are already on the internet [11].

D) VIRTUAL CLASSES

Physical education is not just about being "physically active." It's still a learning process, so students are expected to engage in discussion with their teachers about their learning, challenges, and other necessary information for them to reach a deeper level of understanding. Effective learning involves two-way communication where students are able to engage in discussion and challenge the teacher's ideas in order to achieve a deeper understanding. Many classrooms have already started taking advantage of the online world by creating classroom blogs or websites. A classroom website is valuable for encouraging discussion after class, or enabling communication for students applying PE techniques or working on sport practices or exercise outside of classroom. Another awesome way to leverage virtual connectivity is to invite guests into your classroom via video chat programs such as Skype and Hangouts [12].

Students can also be encouraged to get involved with online courses about nutrition, exercising, and fitness principles or web quests geared toward purposeful inquiry. Virtual classes allow students to express their opinions and views about their activities. They are also valuable in developing student's writing and communication skills. They enable students to blend into media and enhance their creative thinking [13].

E) GAMING SYSTEMS

Video games can change the way students think and feel about being physically active and competitive. They appeal to their love of video games and spark their interest in their application to physical education. They even make a great solution to keeping kids active in bad weather.

Interactive video games such as Dance Revolution, Wii Fit, and Wii Sports, can be invaluable in promoting physical activity of students and are already in use across many physical education centres. They serve as a reasonable alternative to exercising in bad weather and produce results similar to those seen with outdoor physical activity. Physical education teachers can easily tap into students' love of video games to foster interest in physical education [14].

With gaming systems applied to gym classes, students can take an activity associated with inactivity and turn it into something productivity. They keep students immersed and engaged which can be continued at home [15].

F) MONITORS AND TRACKERS

Monitoring of physical activity and sedentary behaviours by mobile phone applications (apps) and wearable technology (wearable's) may improve these health behaviours.

Since not all students have the same physical capabilities, it's essential for teachers to be aware of what their students can and can't do. It is important to adapt a program to a particular student's body, thus heart rate monitors have become critical for assessing students' physical stamina and in setting realistic and reasonable goals for them.

Apart from heart-rate monitors, pedometers have also become an indispensable tool in physical education. They are excellent and reliable when it comes to tracking steps. They can keep track of how active a student is even when they're not engaged in a workout or exercise. Apart from that, pedometers work even when used in running errands and doing chores at home.

And if a student's step count is low, a pedometer can remind that student to keep walking and going. It makes students more aware of their progress and to stick to their goals [16].

G) SMART WATCHES

Smart watches make a great alternative to the traditional pedometer as a step counter. They may be more expensive, but they offer more functions. For example, some smart watches can let students access their favourite music and listen to it while working out. Other models have apps that can remind students to take any medication they are on, track their sleeping hours, or log their moods. Some smart watches can log students' running distance as well as their speed.

One problem with smart watches is that they tend to be expensive. And the more features they have, the higher their price gets. In essence, this simply means that although smart watches are handy in physical education classes, they may not fit every student and instructors need to be aware of that [17].

IV DISCUSSION AND IMPLICATIONS

Thornburg & Hill, (2004) suggest that technologies in education should be utilized as a tool to facilitate student- motor learning. Wise use of technology is to create a learning environment where the learners can be more actively involved in their own learning process (student-motor learning). Technology-enhanced learning environments have a potential to increase student's participation in complex cognitive tasks, to increase opportunities to receive sophisticated and individualized feedback, and to build communities of interaction between teachers, students, parents, and other interested groups.

V CONCLUSION

Technology, in general, has positively restructured physical education classes. With video analysis, apps, online videos, monitors, smart watches and trackers in physical education teachers are able to create customized and reasonable goals for their students. In the process, students felt more engaged and committed to being physically active which is essential in developing healthy habits.

As a physical education teachers make use and avail the technology support to enhance the student's knowledge in the class room education. Present condition, Physical Education needs much

more implication in latest technology availability to enrich the class room teaching as well as field work.

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ASSESSING IN AEROBIC TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG INTERCOLLEGIATE CRICKET PLAYERS

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ABSTRACT

Cricket, a sport that demands high levels of physical endurance, strength, and agility, requires athletes to maintain peak performance over extended periods of time. Intercollegiate cricket players, in particular, face the challenge of balancing their academic commitments with the rigorous demands of competitive cricket, making it crucial for them to engage in effective training regimens to optimize their physical conditioning. One of the most essential components of such training is aerobic conditioning, which has a significant influence on an athlete's ability to perform continuously with minimal fatigue. This study aimed to assess the impact of aerobic training on selected physical fitness variables among intercollegiate cricket players. Aerobic fitness plays a crucial role in enhancing overall performance in cricket, contributing to endurance, recovery, and sustained effort during matches. A sample of 30 intercollegiate male cricket players was selected, and they were divided into two groups: an experimental group (undergoing a structured aerobic training regimen) and a control group (not undergoing specific aerobic training). The aerobic training program was implemented over a period of 8 weeks, consisting of running, cycling, and swimming exercises aimed at improving cardiovascular endurance. Pre- and post-training measurements were taken for key physical fitness variables, including aerobic capacity (VO2 max), muscular endurance, flexibility, and body composition (body fat percentage and lean mass). Statistical analysis revealed significant improvements in the experimental group in comparison to the control group, especially in VO2 max, muscular endurance, and overall stamina. The findings suggest that aerobic training is beneficial in enhancing physical fitness parameters that are directly related to cricket performance, particularly in aspects of endurance, recovery time, and sustained exertion. These results emphasize the importance of incorporating aerobic conditioning into the training regimens of intercollegiate athletes, particularly in sports requiring prolonged physical activity, such as cricket.

Keywords: *Aerobic Training and Abdominal Muscular Endurance*

INTRODUCTION

Cricket, a sport that demands high levels of physical endurance, strength, and agility, requires athletes to maintain peak performance over extended periods of time. Intercollegiate cricket players, in particular, face the challenge of balancing their academic commitments with the rigorous demands of competitive cricket, making it crucial for them to engage in effective training regimens to optimize their physical conditioning. One of the most essential components of such training is aerobic conditioning, which has a significant influence on an athlete's ability to perform continuously with minimal fatigue. Aerobic fitness, which refers to the body's ability to take in, transport, and utilize oxygen during prolonged physical activity, is fundamental to sustaining efforts in cricket.whether in batting, bowling, or fielding, players must endure long sessions of activity, often under high levels of exertion. Improved aerobic capacity enhances recovery between intense bursts of activity, thereby contributing to better performance and reduced risk of injury. Despite the importance of aerobic

fitness, many athletes focus primarily on sport-specific skills and strength training, potentially neglecting the crucial element of cardiovascular conditioning. Previous studies in other sports have demonstrated the positive impact of aerobic training on variables such as endurance, recovery time, and overall performance. However, limited research exists on the specific effects of aerobic training on cricket players' physical fitness variables.

METHODOLOGY

The study involved 30 male intercollegiate cricket players from various colleges, aged between 18 and 22 years. Participants were selected based on their involvement in regular cricket practice and their willingness to participate in the study. All participants were free from major injuries or health conditions that could interfere with their training or testing. Before the commencement of the study, informed consent was obtained from all participants.





SIT-UPS TEST

SAMPLE SELECTION

A quasi-experimental design was employed, with participants divided into two groups: the experimental group (n=15) and the control group (n=15). The experimental group underwent an 8-week aerobic training program, while the control group maintained their regular cricket training routine without any specific aerobic conditioning intervention. The study followed a pre-test and post-test design, with baseline measurements taken before the intervention and follow-up measurements after the 8-week training period.

TRAINING PROGRAMME

The aerobic training program for the experimental group consisted of varied exercises designed to improve cardiovascular endurance. The program included the following components:

PRE- AND POST-TRAINING

To evaluate the effectiveness of the six-week aerobic training program, pre- and post-training assessments should be conducted. These tests were measure improvements abdominal muscular endurance. This was assessed using the sit-up and push-up tests. The number of correct repetitions performed within one minute was recorded for both exercises.

STATISTICAL TECHNIQUES

Data collected from pre- and post-tests were analyzed using statistical methods to determine the effectiveness of the aerobic training intervention. Paired t-tests were used to compare the pre- and

post-test scores for both the experimental and control groups. An independent t-test was employed to compare the post-test scores between the two groups. A significance level of $p < 0.05$ was set for all statistical analyses.

RESULTS AND DISCUSSION

TABLE - I

SIGNIFICANCE OF MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON ABDOMINAL MUSCULAR ENDURANCE

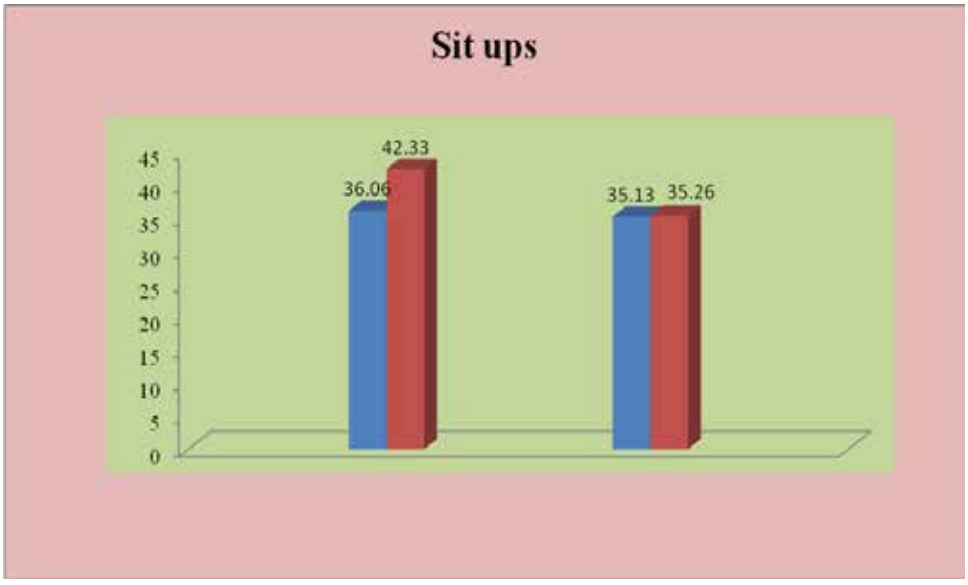
S. No	Variables	Pre-test Mean (± SD)	Post-test Mean (± SD)	DM	σDM	't' ratio
AEROBIC TRAINING GROUP						
1	Abdominal Muscular Endurance	36..06 ± 5.67	42.33 ± 2.02	6.26	1.67	3.80*
CONTROL GROUP						
2	Abdominal Muscular Endurance	35.13 ± 2.29	35.26 ± 2.08	0.13	0.16	0.80

**significant at 0.05 level ('t' value 2.14) with df 14*

Table-I shows that the pre and post mean values of experimental and control group of abdominal muscular endurance. The obtained 't' value of 3.80 aerobic training group is greater than table the value of 2.14 with df 14. The obtained 't' value of the control group is 0.80 lesser than which is the table value of 2.14 and is insignificant.

FIGURE – I

BAR DIAGRAM SHOWING THE MEAN GAINS / LOSSES BETWEEN PRE TEST AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ABDOMINAL MUSCULAR ENDURANCE



CONCLUSION

The results of this study indicate that aerobic training significantly enhances abdominal muscular endurance in intercollegiate cricket players. After undergoing an 8-week structured aerobic training program, the experimental group showed notable improvements in abdominal muscular endurance, as measured by the sit-up test. This improvement suggests that the aerobic training not only positively affects cardiovascular fitness but also contributes to strengthening the core muscles, which are essential for stability, posture, and overall athletic performance in cricket.

Abdominal muscular endurance is particularly important in cricket, where the core plays a pivotal role in movements like batting, bowling, and fielding. Enhanced abdominal endurance helps players maintain posture and stability during long periods of play, reduces fatigue, and supports efficient movement.

Given these findings, incorporating aerobic training into a cricket player's routine can be an effective strategy for improving abdominal endurance, thereby enhancing their performance and reducing the risk of injury. Coaches and trainers should consider adding aerobic exercises that engage the core to their training programs, as this could lead to better overall fitness and more sustained performance during matches.

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DEVELOPING SPORTS POLICIES FOR SUSTAINABLE GROWTH

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ABSTRACT

Sports play a vital role in societal development, promoting physical well-being, economic growth, and social cohesion. However, ensuring the long-term sustainability of sports requires well-structured policies that address environmental, economic, and social dimensions. This paper explores the essential components of sports policies that contribute to sustainable growth, focusing on inclusivity, infrastructure development, environmental responsibility, and economic viability. A sustainable sports policy must prioritize equitable access to sports for all individuals, regardless of socio-economic background, gender, or ability. This includes grassroots development programs, investment in community sports, and policies that encourage youth participation. Furthermore, sustainable sports policies should emphasize eco-friendly practices, such as green stadiums, waste management, and reduced carbon footprints in sporting events. Economically, sports policies should foster financial stability by promoting ethical sponsorship, fair wages, and long-term investments in sports organizations. Encouraging partnerships between the public and private sectors can enhance funding opportunities while ensuring financial accountability. Additionally, integrating technology and data analytics into policymaking can optimize resource allocation and improve sports governance. This study highlights best practices from global sports policies that have successfully integrated sustainability principles. By implementing comprehensive frameworks that balance environmental, social, and economic factors, policymakers can create a resilient sports ecosystem that benefits current and future generations. Sustainable sports policies not only enhance athletic performance and infrastructure but also contribute to broader societal well-being, fostering a culture of integrity, inclusion, and long-term success.

Key words *: Policies, Sustainable, Collaboration, Governance, Growth.*

INTRODUCTION:

The development of comprehensive sports policies is essential for fostering sustainable growth in the sports industry, ensuring long-term benefits for athletes, organizations, and society as a whole. Sustainable sports policies focus on inclusivity, ethical governance, environmental responsibility, and financial viability to create a balanced and progressive sporting ecosystem. By integrating fair play, talent development, infrastructure investment, and community engagement, such policies help maximize the positive impact of sports on health, social cohesion, and economic growth. Additionally, addressing challenges such as doping, corruption, and accessibility through well-structured policies enhances the credibility and effectiveness of sports programs. A sustainable approach ensures that future generations inherit a system that is resilient, adaptable, and capable of fostering excellence while maintaining ethical and environmental integrity. Thus, developing strategic sports policies is not just about short-term achievements but about creating a lasting and equitable sporting culture that benefits all stakeholders. Furthermore, collaboration between governments, sports organizations, and private sectors is crucial in fostering innovation, investment, and community engagement. Ultimately, sustainable sports policies contribute to healthier lifestyles, economic growth, and global sportsmanship, ensuring that future generations can benefit from well-managed and inclusive sporting environments.

SPORTS POLICY

A sports policy can be defined as "A comprehensive plan or set of principles established by governing bodies to promote, regulate, and develop sports, ensuring equitable access, ethical conduct, and the overall growth of sports and physical activities within a society."

SUSTAINABLE GROWTH

Sustainable growth refers to the ability of an economy, business, or system to grow and develop over time without depleting natural resources, harming the environment, or compromising the well-being of future generations. It balances economic progress with social responsibility and environmental protection.

TYPES OF SPORTS POLICIES:

National Sports Policy – Created by governments to regulate and promote sports nationally.

Institutional Sports Policy – Developed by schools, universities, or clubs to govern sports activities.

International Sports Policy – Formulated by organizations like the International Olympic Committee (IOC) and FIFA to set global sports standards.

OBJECTIVES OF DEVELOPING SPORTS POLICIES FOR SUSTAINABLE GROWTH

Effective sports policies are essential for fostering sustainable growth in sports and physical activities. Below are the key objectives of developing sports policies for sustainable growth:

PROMOTE FAIR PLAY AND ETHICAL CONDUCT :

- Establish guidelines for integrity, transparency, and sportsmanship.
- Prevent issues like doping, match-fixing, and corruption in sports.
- Ensure accountability among athletes, coaches, and sports organizations.

ENHANCE INCLUSIVITY AND ACCESSIBILITY :

- Develop programs that encourage participation from all social and economic backgrounds.
- Ensure equal opportunities for marginalized groups, including women, persons with disabilities, and underprivileged communities.
- Improve accessibility to sports facilities and resources.

STRENGTHEN ATHLETE DEVELOPMENT AND WELFARE :

- Implement policies that support the mental and physical well-being of athletes.
- Provide education, career transition programs, and post-retirement support.
- Promote a balance between education and sports for student-athletes.

ENSURE ENVIRONMENTAL SUSTAINABILITY IN SPORTS :

- Adopt eco-friendly practices in sports infrastructure, events, and operations.
- Encourage the use of renewable energy, waste management, and sustainable sports equipment.

- Reduce the carbon footprint of large-scale sports events.

BOOST ECONOMIC GROWTH THROUGH SPORTS :

- Develop policies to enhance sports tourism, job creation, and business opportunities.
- Encourage private and public investments in sports infrastructure.
- Support local and national sports industries through strategic planning.

STRENGTHEN GRASSROOTS AND COMMUNITY ENGAGEMENT :

- Develop local sports programs to nurture young talent.
- Promote community-based physical activities to improve public health.
- Support grassroots organizations in coaching, training, and infrastructure development.

IMPROVE GOVERNANCE AND INSTITUTIONAL FRAMEWORKS :

- Establish transparent governance structures for sports organizations.
- Strengthen anti-corruption and financial management regulations.
- Develop a legal framework to resolve disputes and ensure fair decision-making.

FOSTER INTERNATIONAL COLLABORATION AND RECOGNITION :

- Align national policies with international sports regulations and standards.
- Encourage global partnerships for sports development and knowledge exchange.
- Promote the participation of athletes in international events and competitions.

BASIC SPORTS POLICIES :

Sports policies in physical education and sports help ensure fairness, safety, and ethical behavior in competitions and physical activities. These policies are set by educational institutions, sports organizations, and governing bodies at national and international levels. Below are key categories of basic sports policies:

- Safety Policies
- Fair Play & Ethics Policies
- Anti-Doping & Substance Use Policies
- Inclusion & Equity Policies
- Participation & Eligibility Policies
- Governance & Organizational Policies
- Environmental & Facility Policies

STANDARD SPORTS POLICIES :

The Government of India has implemented several policies to promote physical education and sports across the nation. These initiatives aim to foster a culture of sportsmanship, enhance athletic performance, and ensure inclusive participation. Below is an overview of the key policies:

1. NATIONAL SPORTS POLICY 2001

The National Sports Policy 2001 emphasizes the development of sports infrastructure, talent identification, and the promotion of a sporting culture at the grassroots level. It outlines the roles of various stakeholders, including central and state governments, the Olympic Association, and national sports federations, in achieving these objectives.

2. KHELO INDIA PROGRAMME :

Launched in 2017-18, the Khelo India: National Programme for Development of Sports aims to revitalize the sports culture in India. Its objectives include talent Identification and development infrastructure development, annual competitions. The program also focuses on promoting traditional Indian games to preserve and popularize indigenous sports.

3. FIT INDIA MOVEMENT :

Initiated on August 29, 2019, the Fit India Movement encourages citizens to incorporate physical activities and sports into their daily routines. The movement's key features include fitness pledge, school engagement. This initiative aims to create awareness about the importance of a healthy lifestyle and make fitness an integral part of daily life.

4. BHARATIYA KHEL INITIATIVE :

As part of the National Education Policy and Indian Knowledge Systems, the Bharatiya Khel initiative seeks to introduce 75 traditional Indian games into school curricula. Objectives include cultural preservation, inclusive participation. This initiative fosters teamwork, creativity, and holistic development among students.

5. DRAFT NATIONAL SPORTS GOVERNANCE 2024 :

In October 2024, the government introduced the Draft National Sports Governance to reform sports administration. The policies aims to align India's sports governance with international standards and best practices.

6. PHYSICAL EDUCATION IN SCHOOLS :

Recognizing the importance of early physical education, the Central Board of Secondary Education (CBSE) mandated daily Health and Physical Education periods for students from Class 1 to 8, starting from the academic session in April 2019. This initiative ensures that children engage in regular physical activity, promoting their overall health and well-being.

These policies collectively aim to create a robust sports ecosystem in India, nurturing talent from the grassroots level and promoting a culture of physical fitness and well-being.

IMPORTANCE OF DEVELOPING SPORTS POLICIES FOR SUSTAINABLE GROWTH

Developing sports policies is essential for ensuring the sustainable growth of sports at all levels, from grassroots to professional levels. These policies provide a structured framework that promotes ethical practices, inclusivity, infrastructure development, and long-term financial sustainability.

KEY REASONS FOR DEVELOPING SPORTS POLICIES

1. PROMOTING FAIR PLAY AND ETHICAL STANDARDS :

- Establishing clear guidelines on fair play, anti-doping measures, and athlete conduct.
- Ensuring integrity in sports through transparency and accountability.

2. ENHANCING ACCESSIBILITY AND INCLUSIVITY :

- Providing equal opportunities for all individuals, regardless of gender, socioeconomic status, or physical ability.
- Encouraging participation of marginalized groups to create a more diverse sports culture.

3. ENSURING FINANCIAL SUSTAINABILITY

- Structuring financial models for funding sports organizations, events, and athletes.
- Encouraging public-private partnerships to support sports infrastructure and development.

4. DEVELOPING SPORTS INFRASTRUCTURE

- Investing in stadiums, training centers, and community sports facilities.
- Ensuring sustainable and eco-friendly infrastructure to minimize environmental impact.

5. ENCOURAGING YOUTH AND GRASSROOTS DEVELOPMENT

- Implementing policies to promote youth participation and talent identification programs.
- Supporting school and community-based sports initiatives to foster future athletes.

6. IMPROVING HEALTH AND WELL-BEING

- Integrating sports into public health strategies to combat lifestyle diseases.
- Encouraging physical activity through well-structured sports programs.

7. BOOSTING ECONOMIC GROWTH AND EMPLOYMENT

- Creating job opportunities in coaching, sports management, and event organization.
- Developing a sports industry that contributes to tourism and national income.

8. STRENGTHENING INTERNATIONAL COMPETITIVENESS

- Establishing national training programs to produce world-class athletes.
- Creating policies for international collaboration, exchange programs, and competition participation.

BENEFITS OF DEVELOPING SPORTS POLICIES FOR SUSTAINABLE GROWTH

Developing well-structured sports policies plays a crucial role in ensuring the long-term sustainability of sports at local, national, and global levels. These policies guide the management, funding, development, and promotion of sports while addressing social, economic, and environmental factors. Here are some key future benefits:

- Economic Growth & Job Creation
- Health & Well-Being of Society

- Talent Development & Global Competitiveness
- Environmental Sustainability
- Social Inclusion & Community Development
- Ethical & Governance Improvements
- Long-Term Infrastructure Development

CONCLUSION :

Developing sports policies for sustainable growth requires a comprehensive and strategic approach that balances economic, social, and environmental considerations. Effective policies must promote inclusivity, ensuring equal opportunities for participation regardless of gender, age, socio-economic status, or physical ability. Sustainability in sports also depends on responsible resource management, including the development of eco-friendly infrastructure, minimizing the environmental impact of sporting events, and encouraging green practices such as waste reduction and energy efficiency. Additionally, policies should focus on long-term athlete development by investing in grassroots programs, education, and career transition support to create a sustainable talent pipeline. Ethical governance, transparency, and anti-corruption measures are crucial for maintaining trust and fairness in sports administration. Moreover, fostering partnerships between governments, private organizations, and local communities can enhance funding and resource allocation, ensuring the growth of sports at all levels. By integrating these elements, sports policies can create a balanced, sustainable system that not only nurtures talent and promotes health but also contributes to economic development and social cohesion. Ultimately, well-designed sports policies can transform sports into a powerful tool for sustainable development, fostering a culture of fair play, environmental responsibility, and long-term success.

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IMPACT OF YOGASANA PRACTICE ON BREATH HOLDING TIME, BALANCE, AND CORE STRENGTH AMONG ARTS AND SCIENCE COLLEGE MALE STUDENTS

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ABSTRACT:

This study aimed to evaluate the impact of a 6-week structured yogasana program on breath-holding time, balance, and core strength among male Arts & Science College students at Swami Yoganandha Hostel, Sri Ramakrishna Mission Vidyalaya, Coimbatore. Thirty (N=30) male students, aged 17 to 20, participated in daily yoga sessions from 6:00 am to 7:00 am. The physical fitness variables assessed included breath-holding time (measured using the Breath Hold Test), balance (evaluated with the Stork Balance Stand Test), and core strength (measured using the Plank Test). Pre- and post-test data were analyzed using dependent t-tests with a significance level of 0.05. The results indicated significant improvements across all three variables. Breath-holding time increased from a mean of 31.21 seconds to 43.53 seconds (t = 7.11), balance improved from 11.42 to 20.31 (t = 5.69), and core strength rose from 66.66 to 99.87 (t = 6.17). These results suggest that the structured yoga program was effective in enhancing breath-holding time, balance, and core strength in college students. The findings align with previous research emphasizing the positive effects of yoga on physical fitness and overall well-being.

Keywords: *Yoga, Breath-Holding Time, Balance and Core Strength*

INTRODUCTION:

Yoga, an ancient practice originating from India, has gained global recognition for its ability to enhance physical fitness, mental clarity, and emotional well-being. Research over the years has shown that yoga offers multiple health benefits, particularly in areas like flexibility, strength, and respiratory health. Among the key elements of physical fitness, breath control, balance, and core strength are fundamental to overall health and performance. By combining asanas (postures), pranayama (breathing techniques), and mental focus, yoga serves as a holistic approach that can improve these essential fitness components **(Telles & Singh, 2013)**.

(Ramesh, 2016) Breath control, a cornerstone of yoga, is cultivated through pranayama exercises that are known to improve lung capacity and increase breath-holding ability. Studies have highlighted the effectiveness of pranayama in boosting respiratory function and reducing stress, offering broad benefits to overall health. **(Chtourou & Souissi, 2012)**Additionally, certain yoga asanas are designed to strengthen the core muscles, which are vital for stability, injury prevention, and functional fitness. Core strength is commonly measured through exercises like the Plank Test, which gauges endurance and stability in the trunk and abdominal regions.

(Mohod & Asanare, 2019) Balance is another significant area in which yoga has proven to be beneficial. Many studies have demonstrated that yoga helps to improve balance by enhancing

proprioception and coordination, which, in turn, supports better physical stability. **(Khatri & Sharma, 2017)**The Stork Balance Stand Test, a widely used tool to assess balance, evaluates a person's ability to maintain stability while standing on one foot, providing key insights into balance capabilities.

METHODOLOGY:

To conduct this study, thirty (N=30) male students from the Swami Yoganandha Hostel, Sri Ramakrishna Mission Vidyalaya in Coimbatore, Tamil Nadu, were chosen. Their ages ranged from 17 to 20 years. The participants underwent 6 week of yoga training, with sessions held daily from 6: 00 am to 7: 00 am. The physical fitness variables assessed included Breath - hold time, Balance and Core strength. Breath - holding time was measured using a nose clip, Balance was assessed with the stork stand test and Core strength was evaluated using the plank test. Pre - and post - training data were analyzed using the dependent t - test, with a significance level set at 0.05.

RECOMMENDED YOGA PRACTICES

Week	Asana Name	Repetitions	Rest Between Asanas & Rest between Repetitions	Duration
Week 1	Ujjayi Pranayama, Nadi Shodhana	2	30 seconds	5-7 minutes
	Vrikshasana	2-3	30 seconds	1-2 minutes
	Navasana	2-3	30 seconds	1-2 minutes
Week 2	Kapalbhati	2-3	30 seconds	3-5 minutes
	Virabhadrasana III	2	30 seconds	1-2 minutes
	Phalakasana	2	30-45 seconds	1-2 minutes
Week 3	Anulom Vilom	2-3	30 seconds	5 minutes
	Natarajasana	2	30 seconds	1-2 minutes
	Vasisthasana	2	30-45 seconds	1-2 minutes
Week 4	Bhastrika	2-3	30 seconds	4-5 minutes
	Utkatasana	2-3	30 seconds	1-2 minutes
	Parivrtta Navasana	2	30 seconds	1-2 minutes
Week 5	Ujjayi Pranayama	2-3	30 seconds	5 minutes
	Garudasana	2	30 seconds	1-2 minutes
	Navasana	2-3	30 seconds	1-2 minutes
Week 6	Kumbhaka	2-3	30 seconds	5-7 minutes
	Ardha Chandrasana	2	30 seconds	1-2 minutes
	Eka Pada Vasisthasana	2-3	30 seconds	1-2 minutes

TABLE I

Computation with 't' Test of Breath Hold Time on 6 Week Yoga Training of Arts & Science College Students

Variable	Test	Mean	S.D	DM	σDM	't'
Breath - Hold Time	Pre test	31.21	11.44	9.33	1.73	7.112
	Post test	43.53	10.50			

**Significant Level of significant was fixed at 0.05 with df29 Table value 2.04*

Table I shows the mean and standard deviation for Breath - Hold time in male Arts & Science College students following a 6-week yoga training. The pre - test and Post – test mean values for the group are 31.21 and 43.53, respectively, with corresponding standard deviations of 11.44 and 10.50.

The t – value obtained is 7.11, which exceeds the critical table value of 2.04 at df = 29. These results indicate a significant improvement in Breath Hold time among male Arts & Science College students after completing the six – week yoga training program.

TABLE II

Computation with 't' Test of Balance on 6 Week Yoga Training of Arts & Science College Students

Variable	Test	Mean	S.D	DM	σDM	't'
Balance	Pre test	11.42	9.42	8.54	1.56	5.694
	Post test	20.31	14.01			

**Significant Level of significant was fixed at 0.05 with df29 Table value 2.04*

Table II shows the mean and standard deviation for Balance in male Arts & Science College students following a 6-week yoga training. The pre - test and Post – test mean values for the group are 11.42 and 20.31, respectively, with corresponding standard deviations of 9.42 and 14.01. The t – value obtained is 5.69, which exceeds the critical table value of 2.04 at df = 29. These results indicate a significant improvement in Balance among male Arts & Science College students after completing the six – week yoga training program.

TABLE III

Computation with 't' Test of Core Strength on 6 Week Yoga Training of Arts & Science College Students

Variable	Test	Mean	S.D	DM	σDM	't'
Core Strength	Pre test	66.66	30.95	29.45	5.37	6.174
	Post test	99.87	46.96			

**Significant Level of significant was fixed at 0.05 with df29 Table value 2.04*

Table III shows the mean and standard deviation for Core Strength in male Arts & Science College students following a 6-week yoga training. The pre - test and Post – test mean values for the group are 66.66 and 99.87, respectively, with corresponding standard deviations of 30.95 and 46.96. The t – value obtained is 6.17, which exceeds the critical table value of 2.04 at df = 29. These results indicate a significant improvement in Core strength among male Arts & Science College students after completing the six – week yoga training program.

DISCUSSION ON FINDINGS

This study indicate a significant improvement in breath-holding time, balance, and core strength among arts and science college students who participated in a structured yogasana practice. These results are in alignment with previous studies that have demonstrated the positive impact of yoga on various physical fitness parameters. The improvement in breath-holding time highlights the beneficial effects of pranayama (breathing exercises) incorporated within the yoga sessions. This outcome is consistent with research by **Ramesh (2016)** and **Bandopadhyay (2012)**, who observed notable changes in fitness levels due to the inclusion of yogic practices, combined with aerobic exercises and interval training.

The Stork Balance Stand Test results underscore the enhancement in balance, with students showing improved stability and coordination after consistent practice. This finding aligns with the work of **Madanmohan (2008)**, who reported that yoga significantly contributed to enhancing balance and physical stability. Similarly, **Jivan W. Mohod** and **Dr. A. M. Asanare (2019)** found that six weeks of yoga training positively impacted balance and body control in healthy individuals, emphasizing the value of yoga for improving physical performance.

Ramesh (2016) The Plank Test, which assessed core strength, revealed considerable improvement, affirming that regular yogasana practice, especially with poses focusing on core engagement such as Navasana (Boat Pose) and Phalakasana (Plank Pose), can effectively enhance core strength.

CONCLUSIONS

The 6-week yoga training program for arts and science college students led to enhanced breath-holding time, balance, and core strength, as measured by the Breath Hold Test, Stork Balance Stand Test, and Plank Test.

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COMPARISON OF SELECTED PHYSICAL FITNESS AND SKILL PERFORMANCE VARIABLES OF HIGH -ALTITUDE AND LOW-ALTITUDE MALE FOOTBALL PLAYERS

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ABSTRACT

Football is a sport that demands a combination of physical fitness and skill performance, both of which are influenced by environmental conditions. This study compares selected physical fitness and skill performance variables between high-altitude (HA) and low-altitude (LA) male football players. High-altitude environments, characterized by reduced oxygen availability, lead to physiological adaptations such as increased red blood cell production and enhanced aerobic endurance. However, speed and power are often lower in HA players due to limited oxygen supply. In contrast, LA players benefit from better oxygen availability, allowing for improved speed, agility, and explosive movements.

Skill performance is also affected by altitude, with HA players demonstrating better dribbling and ball control due to adaptation to uneven terrains, while LA players excel in passing accuracy, shooting power, and reaction time. The findings highlight the need for altitude-specific training programs to optimize player performance based on their geographical background. By considering these environmental influences, coaches and sports scientists can design effective training regimens to enhance player development and competitive performance at both regional and international levels.

INTRODUCTION

Football is a dynamic sport requiring a combination of physical fitness and skill performance. The geographical location of an athlete plays a crucial role in determining their physiological adaptations and performance levels. High-altitude (HA) and low-altitude (LA) environments present distinct challenges that impact the fitness and skills of football players. This article examines the differences in selected physical fitness and skill performance variables between male football players from high-altitude and low-altitude regions.

EFFECTS OF ALTITUDE ON PHYSICAL PERFORMANCE

Altitude significantly influences an athlete's physiology. High-altitude environments (above 2,000 meters) have lower oxygen levels, leading to adaptations such as increased red blood cell production and improved oxygen utilization. Conversely, low-altitude regions (below 500 meters) offer more oxygen availability, allowing players to maintain high-intensity efforts for extended periods without altitude-induced fatigue.

COMPARISON OF SELECTED PHYSICAL FITNESS VARIABLES

Physical Fitness Variables	High-Altitude Players	Low-Altitude Players
Speed	Slightly lower due to reduced oxygen availability	Higher due to optimal oxygen supply
Agility	Well-developed due to rough terrains	Moderate, but enhanced with training
Leg explosive Power	Lower due to reduced oxygen for explosive actions	Higher due to better oxygen supply

High-altitude players typically have superior aerobic endurance, as their bodies are adapted to function efficiently in low-oxygen conditions. However, their speed and power may be lower compared to low-altitude players, who benefit from greater oxygen availability, allowing them to sustain high-intensity movements more effectively.

COMPARISON OF SELECTED SKILL PERFORMANCE VARIABLES

Skill Performance Variables	High-Altitude Players	Low-Altitude Players
Dribbling	Well-developed due to the need for control on uneven terrain	Slightly better due to faster movement capabilities
Passing	Moderate due to adaptation to environmental conditions	Higher due to stable playing conditions
Shooting	Slightly lower due to reduced oxygen availability	Higher due to better oxygen supply and muscle efficiency

Players from high-altitude regions often excel in ball control and dribbling due to their exposure to challenging playing conditions. However, low-altitude players tend to have better passing accuracy, shooting power, and reaction times, as they do not face oxygen limitations.

CONCLUSION

The comparison of physical fitness and skill performance variables between high-altitude and low-altitude male football players highlights the significant influence of environmental factors on athletic performance. High-altitude players develop superior aerobic endurance and adaptability due to prolonged exposure to low-oxygen conditions, which enhances their stamina and ability to perform in challenging terrains. Additionally, they exhibit strong dribbling and ball control skills, adapting to uneven playing surfaces.

On the other hand, low-altitude players benefit from optimal oxygen availability, leading to enhanced speed, agility, and explosive power. Their skill performance, particularly in passing accuracy, shooting power, and reaction time, is superior due to stable environmental conditions and better muscle efficiency.

These findings emphasize the importance of altitude-specific training programs to maximize player potential. Coaches and sports scientists must design tailored training regimens that address the strengths and weaknesses of both groups. By integrating altitude training strategies, teams can optimize player development, ensuring success in competitive football at both regional and international levels.

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[21] Sorate(2015) investigated the effects of exercise intensities on physiological and endurance performance efficiency of male soccer players.

[22] Sethu (2015) conducted a study on the effect of specific exercises and weight training on selected physiological variables of men football players.

[23] Muralikrishna (2016) investigated the impact of different conditional resistance training on high density lipoprotein of football players.

[24] Campos et al. (2016) conducted a study on the effect of 8 weeks soccer specific training on heart rate and lactate minimum speed relationship.



Dr. T. Jayabal has been working as a Principal of Sri Ramakrishna Mission Vidyalaya Maruthi college of Physical Education since 2023 and having 29 years of teaching experience in the same institution. He was Graduated from Bharathiar University, Coimbatore, did his B.P.Ed., M.P.Ed., and Ph.D., from Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education and Bharathiar University, Coimbatore. He qualified UGC National Eligibility Test (NET) with Junior Research Fellowship (JRF) in 1993. He did Post Graduate Diploma in Yoga from Ramakrishna Mission Vivekananda Educational and Research Institute, Coimbatore campus and M.Sc (Applied psychology) from Bharathiar University. In 2008 he conducted a University Grand Commission (UGC) sponsored-financial assistance to minor research project 'Situational Based Analysis on Casuation of Injuries in Kabaddi'. He has published 25 research articles in a reputed reviewed journals and presented 30 research papers in National and international level seminars and conferences. He has guided 15 M.Phil., 4 Ph.D., scholars and at present guiding four Ph.D., research scholars. In 2017, he received 'Best Coach Award' conferred by Tamil Nadu Amateur Kabaddi Association. He is also a coach of Inter University Kabaddi team and produced Kabaddi players at state and inter university level.



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