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CONTENTS

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Effect Of Circuit Training And Weight Training On Selected Physical Variables Among Football Players Of Yadadri Bhuvanagiri District.

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Abstract
The purpose of the study was to find out the effect of Circuit training and Weight training on selected physical variables among Football Players of Yadadri Bhuvanagiri District. To achieve this purpose, forty-five Football players in the age group of 18 to 22 years those who have participated in the inter college tournaments taken as subjects. The selected forty-five subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which group – I (n=15) underwent weight training for three days per week for Twelve weeks, group – II (n=15) underwent the Circuit Training for three days per week for Twelve weeks and group – III (n=15) acted as control who are not participate any training apart from their regular activities. The selected Physical variables such as abdominal strength, speed and leg explosive power were assessed before and after the training period. Sit Up Test, 50 M Dash and Standing Broad Jump are the Tests were used to conduct the pretest and post for Measuring the Physical Variables such as Abdominal Strength, Speed and explosive power of legs. The results of the study it was found that there was a significant difference of performance due to circuit training and weight training when compared with the control group. Key words: Football players, weight training, Circuit Training etc.

Introduction:

Circuit Training is developed by the Scientist Morgan R.E. and Adamson G.T. at University of Leeds in the year 1957. This is Resistance to develop the motor abilities such as strength, Speed and endurance. Circuit training is an exercise "circuit" which consists of prescribed exercises which includes for the upper body, lower back, abdomen and Lower body. It can be done with own body Weight and using the resistance exercises such as Barbells, Medicine Balls etc. Circuit training improves all round physical

fitness, as opposed to fitness for a specific sport. Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It uses the force of gravity in the form of weighted bars, dumbbells or weight stacks in order to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement. Sports include bodybuilding, weightlifting, powerlifting, strongman, highland games, hammer throw, shot put, discus throw, and javelin throw. Many other sports require strength training as part of their training Notably, American football, judo, weightlifting, volleyball, basketball, power lifting, etc Resistance training involves the performance of physical exercises that are designed to improve strength and endurance. It is often associated with the lifting of weights.

Review Of Literature

Adireddibhargava Ram and Dr P.P.SPaul Kumar (2021)study was to find out the effects of varied intensities and frequencies of weight training on selected motor fitness and performance variables among athletes. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=60) were randomly assigned to three equal groups of twenty athletes each. The groups were assigned as Experimental Groups I, II and control group respectively. Pre-tests were conducted for all the subjects on selected motor fitness and performance variables such as muscular endurance, speed, selected weight training exercises were selected for the study and 1 RM (Repetition Maximum) of the weight training exercises were determined for experimental group subject. The experimental groups participated in their respective high intensity (80% of 1 RM) low frequency (2 days per week) weight training and low intensity (60% of 1 RM) and high frequency (3 days per week) weight training a period of twelve weeks. The post tests were conducted on the above said dependent variables after the experimental period of twelve weeks for all the three groups. The difference between the initial and final scores of the subjects on each variable was the effect of respective treatments. Statistical significance was tested through applying ANCOVA.

Research Objectives

The Objective of this study was to find out the effect of Circuit training and weight training selected physical variables among Football players of Yadadri Bhuvanagiri District.

Hypothesis

It was hypothesized that there would be a significant difference in the effect of Circuit training and weight training selected physical variables among football players of Yadadri Bhuvanagiri District.

Methodology:

To achieve this purpose, forty-five football players in the age group of 18 to 22 years those who have participated in the inter college tournaments are taken as subjects. The selected forty-five subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which group – I (n=15) underwent Circuit training for three days per week for Twelve weeks, group – II (n=15) underwent the weight Training for three days per week for six weeks and group – III (n=15) acted as control who are not participate any training apart from their regular activities. The selected Physical variables such as abdominal strength, speed and leg explosive power were assessed before and after the training period.

Tools

The following Tests were conducted at In Pre-Test and Post Test for measuring the Physical variables.

1. Sit Ups – Abdominal Muscular Strength
2. Standing Broad Jump – Explosive Power of Legs
3. 50 M Dash – Acceleration and Speed

ANALYSIS OF DATA

The data collected prior to and after the experimental periods on abdominal strength, leg explosive power and speed, circuit training, weight training and control group were analyzed and presented in the following table -I.

Table-I: Analysis of covariance with Means and 'f' ratio for Sit Ups, Standing Broad Jump and 50 Meter Dash for Circuit Training, weight Training and control group

Variable Name	Group Name	Control Group	Group Weight Training	Circuit Training Group	'F' Ratio
Sit Ups (in Numbers)	Pre-test Mean ± S. D	37.13 ± 1.15	37.2 ± 1.25	37.3 ± 1.21	0.001
	Post-test Mean ± S.D.	37.34 ± 1.16	39.16± 1.31	41.22 ± 1.36	3.935*
Standing Broad Jump (in Meters)	Pre-test Mean ± S. D	1.916 ± 0.12	1.918 ± 0.135	1.922 ± 0.13	.003
	Post-test Mean ± S.D.	1.919 ± 0.12	2.066 ± 0.22	2.140 ± 0.31	3.034*
50 M Dash (in Seconds)	Pre-test Mean ± S. D	6.90 ± 0.008	6.89 ± 0.0089	6.90 ± 0.0083	.006
	Post-test Mean ± S.D.	6.88 ± 0.0081	6.59 ± 0.0092	6.48 ± 0.0097	6.766*

* Significant at .05 level of confidence.

Results

The results of the study also showed circuit training group has significantly improved in Sit-up's from Pre-Test Mean Score of 37.30 to 41.22 compared to the Weight training Group is 37.20 to 39.16 and control group is 37.13 to 37.34. Hence Circuit Training is effective for development of abdominal Strength. The results of the study also shown circuit training group has significantly improved in Standing Broad Jump from Pre-Test Mean Score of 1.922 to 2.140 compare to the Weight training Group is 1.918 to 2.066 and control group is 1.916 to 1.919.

Hence Circuit Training is effective for development of Explosive Power in the legs. The results of the study also shown circuit training group has significantly improved in 50 M Das from Pre-Test Mean Score of 6.90 to 6.49 compare to the Weight training Group is 6.89 to 6.59 and control group is 6.90 to 6.88. Hence Circuit Training is effective for development of Speed.

Conclusions

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

1.There was a significant improvement due to the Circuit training and Weight Training on abdominal strength, explosive power and speed when compared with the control group.

2. There was a significant improvement due to the Circuit Training compare to the weight Training for development of abdominal strength, explosive power and speed.

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Exercise-Induced Hypertension (EIH) Is The Most Hazardous To Public Health:

Potential Risk Factors, Causes And Treatment

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Abstract

High blood pressure, also scientifically known as hypertension, is a major risk factor for stroke, heart disease, kidney disease, and other health complications. During exercise, a person will experience a gradual increase in systolic blood pressure (SBP) as exercise intensity increases, while diastolic pressure may remain stable or decrease slightly. Exercise-induced hypertension or Blood Pressure is considering when a systolic BP is higher in 190 mmHg for women higher in case 210 mmHg for men in individuals during the exercise period and not normalize for long period. Exercise-induced hypertension is an independent risk factor for cardiovascular disease and mortality, cardiac abnormalities, and increase the risk of left ventricular (LV) hypertrophy, which can lead to myocardial fibrosis arrhythmias, atrial fibrillation and sudden cardiac arrest. The exact cause of Exercise-induced hypertension is unclear but some authors and research argued that change of life style, excessive consume of salt, sleep in late night, obesity, Chronic endothelial dysfunction, decreased myocardial diastolic function and myocardial hypertrophy, lethal arrhythmias, myocardial ischemia may be caused by exercise-induced hypertension. The low-intensity exercise is recommended for Exercise-induced hypertension and gradually increase the intensity so that body can adapt. Angiotensin II receptor blockers (ARBs), angiotensin-converting enzyme (ACE) inhibitors and β-blockers, loop and thiazide diuretics and calcium channel blockers would be the best possible treatment options for exercise-induced hypertension (EIH). There is a need to attention on greater awareness of exercise-induced hypertension and it prevention strategies. Key words : Exercise, Hypertension, Treatment, risk factor, cardiovascular disease etc.

Introduction

Exercise induced blood pressure" refers to a temporary increase both in systolic and Diastolic blood pressure as a normal physiological response that occurs during exercise or anaerobic and aerobic physical activity or while participating in sports, where the body needs to deliver more blood to the muscles ; However, in some cases, This increase is unusually high and persists for a long time and is not normal , known as "exercise-induced hypertension" (EIH), where systolic and diastolic blood pressure increases significantly during physical activity , which can potentially lead to health risks (Mohammed , Dhavale , Abdelaal, et al. (2020). High blood pressure has become the most prevalent cardiovascular risk factor worldwide. The role of participation in a variety of exercise and sports activities in the prevention, control, and delay of chronic diseases such as obesity, hyperthyroidism, cardiovascular disease, Type I and Type II diabetes, and hypertension is well described. Although hypertension is typically a disease of older people, the prevalence of hypertension in young athletes and active individuals is higher than typically seen. Caselli S, Cerdoz A, Mango F, et al well defined exercise-induced hypertension in 2019, they reported that exercise-induced hypertension is a systolic BP of >190 for women and >210 mmHg for men in individuals undergoing exercise stress testing. Normally, systolic blood pressure increases where Systolic blood pressure (SBP) is the maximum pressure in the arteries when the heart contracts. It's also known as the peak aortic pressure, while diastolic pressure where the stage of heartbeat when the heart relaxes may remain stable or slightly increase during exercise due to increased demands on the heart and increased oxygen intake from the working muscles and blood pressure returns to normal after some time due to reduced blood vessel stiffness so that blood can flow more easily.

The possible Risk factors for Exercise-induced hypertension

Several authors and investigators have indicated that EIH is an independent risk factor for cardiovascular events and mortality, cardiac injury and left ventricular (LV) hypertrophy, which can lead to arrhythmias (A heart rhythm that is not normal, beating too fast within its normal level) , atrial fibrillation (an irregular heart rhythm that starts in the upper chambers of the heart), myocardial fibrosis (Expansion of the cardiac interstitium through deposition of extracellular matrix proteins), and sudden cardiac death(Leischik et.al. 2014, Caldarone, 2017, Mohammed , Dhavale , Abdelaal, et al. (2020). However, other studies have shown that EIH is associated with the future development of hypertension (Tsumura, 2002, Manolio, 1994). High blood pressure during exercise can put healthy young adults and

athletes at risk for developing high blood pressure and heart disease. Several researchers Manolio et.al. 1994, Kim ,et.al.2020, Kimet.al. 2013; Tahir et.al 2020; Niebauer et.al 2019; Ha et.al 2002) show significant adverse associations between EIH and cardiovascular risk in their studies. The most commonly reported findings were LV mass and left atrium enlargement. The study of (Longás , Casanovas & Lenguas 1996) showed that 75% of young athletes with EIH suffered from severe LV hypertrophy. Structural changes in atrial size may increase the risk of arrhythmias, especially in the atrium heart fibrillation. Kim et al. and Abdulla et al. both reported in their studies that Atrial fibrillation was reported to be 2.5 times more prevalent in athletes who perform high-intensity exercise is five times more common athletes compared to the general population (Kim, Kim and Park , 2016; Abdulla & Nielsen, 2009)

Normal physiological response of BP during exercise

Normal blood pressure in an adult human is usually between 90/60 mmHg and 120/80 mmHg. Blood pressure is assessed using systolic (SBP) and diastolic pressure (DBP). Systolic blood pressure is the higher number and measures the pressure in arteries when your heart contracts while diastolic blood pressure is the lower number and measures the pressure in arteries when heart relaxes. In clinically healthy individual, systolic arterial blood pressure elevates during dynamic exercise and normalize after 2-3 minutes of exercise of a given intensity. (O'Brien et al. 2002; Yamaguchi et.al.2000, Mohammed, Dhavale , Abdelaal, et al. (2020) .In such situations diastolic blood pressure usually remains unchanged or may decrease marginally (O'Brien et al. 2002). According to European and American experts, high intensity dynamic exercise under normal conditions can increase the maximum value of systolic blood pressure up to 250 mmHg and diastolic pressure up to 110 mmHg (Mancia , Backer , Dominiczak A., et al. 2007; Fletcher , Balady , Amsterdam , et al. 2001;Astrand , 1960; Maneia , Laurent , Agabiti-Rosei , et al. 2009).

Causes of exercise-induced hypertension (EIH)

The pathophysiological mechanism of EIH is still unclear. A study shows that exercise-induced hypertension (EIH) is a risk factor for sudden cardiac death (SCD). While regular exercise may help reduce the risk of CVD, excessive exercise may increase the risk of cardiovascular events, including sudden cardiac death (SCD). One possible cause is the mismatch between oxygen supply and demand, leading to myocardial ischemia in patients with CVD. Exercise-induced hypertension (EIH) can also increase myocardial oxygen demand as blood pressure increases during exertion. Chronic endothelial

dysfunction, decreased myocardial diastolic function and myocardial hypertrophy, lethal arrhythmias, myocardial ischemia may be caused by exercise-induced hypertension. Resistant high blood pressure, diabetes, or cardiovascular diseases may contribute to abnormal exercise blood pressure responses. Older people may experience greater increases in blood pressure during exercise due to decreased compliance of arteries.

Renin-Angiotensin-Aldosterone System (RAAS) on exercise-induced hypertension (EIH)

According to the latest research, EIH has also been linked to angiotensin II activity. It has been found that EIH is associated with angiotensin II and nitric oxide (NO)Activities during exercise. For example, a 2008 study looked at the association between angiotensin II and an exaggerated blood pressure response to exercise. It was found that people with high angiotensin II were more likely to have an exaggerated blood pressure response during exercise.

Endothelial Dysfunction

Endothelial dysfunction is one of the main causes of **exercise-induced hypertension (EIH).** Endothelial dysfunction is a condition where the endothelium, or lining of blood vessels, becomes damaged. This can lead to high blood pressure with chronic heart failure and chronic artery disease. Prolonged excessive exercise can reduce endothelial function and increase arterial stiffness, resulting in increased after exertion and excessive increases in blood pressure.

Possible Treatment of exercise-induced hypertension (EIH)

Treatment of exercise-induced hypertension depends on qualified medical practitioners, including physicians and cardiologists and, in some cases, nephrologists and endocrinologists. The most prevalent pathophysiological mechanisms behind EIH are increase angiotensin II, decreased nitric oxide (NO) levels in blood, and elevated sympathetic tone. Thus, angiotensin II receptor blockers (ARBs), angiotensin-converting enzyme (ACE) inhibitors and β-blockers, loop and thiazide diuretics and calcium channel blockers would be the best possible treatment options for exercise-induced hypertension (EIH) . Another way to help treat exercise-induced hypertension (EIH) is to eat garlic, beets, carrots as well as reduce salt, caffeine and sugar intake which helps support the above medication.

Angiotensin II receptor blockers (ARBs)

According to current clinical guidelines, angiotensin receptor blockers (ARBs) are considered a first-line treatment option for hypertension, which means it is often the first medication prescribed to manage hypertension. Angiotensin II receptor blockers (ARBs) are a class of drugs that treat high blood pressure, heart failure, and chronic kidney disease. They work by stopping the action of the hormone angiotensin II, which constricts blood vessels and manage blood pressure. Irbesartan (Avapro), Valsartan (Diovan), Losartan (Cozaar), Candesartan (Atacand), Azilsartan (Edarbi), and Telmisartan (Micardis) are the class of Angiotensin II receptor blockers (ARBs)

Angiotensin-converting enzyme (ACE)

Angiotensin-converting enzyme inhibitors are a class of drugs commonly used to treat high blood pressure, which prevent the body from producing a substance that narrows blood vessels, effectively relaxing the arteries and reduces blood pressure. ACE inhibitors prevent the conversion of angiotensin I to angiotensin II, which is a powerful vasoconstrictor, resulting in reduced blood vessel contraction and reduced blood pressure; This makes them a major treatment option for managing high blood pressure. Captopril, Enalapril, lisinopril, ramipril, and perindopril are the example of Angiotensin-converting enzyme inhibitors.

Diuretics

Diuretics, also known as water pills, are a class of medications that help treat high blood pressure and heart failure by reducing the amount of fluid in your body.

Beta blockers

Beta blockers are a class of prescription drugs that slow the heart rate and relax the blood vessels. They are used to treat a variety of conditions including high blood pressure and heart failure.

Calcium channel blockers (CCBs)

Calcium channel blockers (CCBs) are a group of medications that treat conditions affecting the heart and blood vessels. Calcium channel blockers prevent calcium from entering the heart and blood vessels, which relaxes and widens the blood vessels. This allows blood to flow more easily and lowers blood

pressure. Amlodipine (Norvasc), Felodipine (Plendil), Isradipine (DynaCirc), Nicardipine (Cardene), Verapamil (Calan, Isoptin), and Diltiazem (Cardizem) are example of Calcium channel blockers.

Conclusions

In discussing the above, the author said that exercise-induced hypertension is more dangerous for the young population and is a worrying situation for the society both in the present and future. There is a need to emphasize on greater awareness of exercise induced hypertension, leading to control and treatment of exercise induced hypertension.

Limitations

The author writes this article on the basis of selected research papers and someone may not agree with the author so there is a need to research this topic in future. Some of the selected studies were conducted on a small sample group, which affected the power of the study. Because this article is an interventional review, we did not perform a quality assessment of the said studies.

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The Role of Sport Psychology in improving the performance of Badminton Athletes

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Abstract

The present study aimed to investigate the relationship between selected co-ordinative abilities (agility, balance, reaction time, and speed) and psychological factors (anxiety, motivation, and self-confidence) among badminton players. A total of 100 badminton players (50 males and 50 females) participated in this study. The co-coordinative abilities were assessed using standardized tests, while the psychological factors were measured using validated questionnaires. The results revealed significant positive correlations between co-coordinative abilities and psychological factors. Specifically, agility, balance, and speed were found to be positively correlated with motivation and self-confidence, while reaction time was negatively correlated with anxiety. The findings suggest that badminton players with superior co-coordinative abilities tend to exhibit more Favor able psychological profiles, which may contribute to their success in the sport. The study's results have implications for coaches and trainers seeking to develop effective training programs that integrate physical and psychological components. The creating propensities in worldwide sports are recognized as the expansion in game beat, harder body game and more note worthy fluctuation in procedure and strategies. In standard, an expansion in execution level must be accomplished by better double-dealing of all significant parts for example procedure appointment, strategies, actual wellness and mental amounts of the sports person. The part strategy co-appointment nonetheless, assumes a larger part in sports.

Introduction

The creating propensities in worldwide sports are recognized as the expansion in game beat, harder body game and more noteworthy fluctuation in procedure and strategies. In standard, an expansion in execution level must be accomplished by better double-dealing of all significant parts for example procedure appointment, strategies, actual wellness and mental amounts of the sportsperson. The part strategy co-appointment nonetheless, assumes a larger part in sports**.**

Context & Importance of the Study:

Why studying the relationship between coordinative abilities and psychological factors is relevant, especially in badminton. Brief overview of how psychological factors (e.g., motivation, stress, focus) influence athletic performance. The role of coordinative abilities (e.g., agility, balance, reaction time) in badminton.

Purpose of the Study:

To explore how selected coordinative abilities (such as balance, reaction time, etc.) interact with psychological factors in badminton players.

Research Question/Objective: What is the relationship between the selected coordinative abilities and psychological factors among badminton players.

Literature Review

Inspiration is a significant variable affecting exhibition and learning in sports, including badminton. (Li and Wen, 2019) recognize inherent inspiration, which starts inside the individual and is worried about the delight and fulfill mint got from the actual action, and outward inspiration, which is evoked by outer factors like prizes or acknowledgment. Research has shown that naturally spurred competitors will more often than not have higher determination, Centre around private improvement, and experience more noteworthy fulfill mint in their game (*Almagro et al., 2020; Festiawan et al., 2024).*

Methodology

Participants: How were the badminton players selected? (e.g., age, experience level, gender).

Coordinative Ability Measures: What specific coordinative abilities were measured (e.g., balance, agility, reaction time)?

Psychological Factors: What psychological factors were assessed (e.g., motivation, focus, stress levels)?

Data Collection Tools: Describe the instruments used (e.g., surveys, psychological tests, physical assessments).

Analysis: How the data will be analyzed (e.g., statistical methods, correlation analysis).

Results and Discussion

Coordinative Ability Findings: Summarize key findings regarding the participants' coordinative abilities.Did certain coordinative abilities correlate with better performance or psychological factors?

Psychological Factors Findings: Present findings on the psychological factors measured.How do they correlate with athletic performance in badminton players?

Relationship Between Coordinative Abilities and Psychological Factors:

What patterns or relationships were observed between the two sets of factors?Discuss the implications of these findings for training and performance enhancement in badminton players.

Conclusion

Summary of Findings: A recap of the key findings from the study.

Practical Implications: How can coaches and athletes use the findings to improve performance

Limitations and Future Research: Discuss any limitations of the study and potential areas for further research on this topic.

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Comparative Analysis of Agility and Flexibility Among Kakatiya University Kabaddi and Kho-Kho Players

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Abstract

The present study was undertaken to compare agility and flexibility among university kabaddi and kho-kho players. The investigator has selected 15 kabaddi players and 15 Kho-Kho players were selected as subjects from Kakatiya University age ranged between 18-25 years. To measure the agility (Shuttle run) and flexibility (Sit and reach test) because of their simplicity and availability of necessary facilities, instruments and equipment's. The subjects were tested on the agility and flexibility was analyzed statistically by using t-ratio to find out the significant differences. In all cases 0.05 level of confidence was fixed. The result of the study indicated that the Kho-Kho players have better performance than the kabaddi players on flexibility. Therefore, it also observed that there were no significant differences between Kho-Kho and Kabaddi players on agility.Keywords: Flexibility, Agility, Kabaddi and Kho-Kho etc.

Introduction

The physical fitness is appropriately related to the type of activity being considered. A physical characteristic of weight lifters is wholly different than for long distance runners. Agility in general ability to change the direction quickly and effectively while moving as nearly as possible at full speed. It is depended primarily on strength, reaction time, speed of movement and specific muscle coordination. Flexibility is the range of movement in a joint.

Statement of the Problem

The purpose of the study was to compare agility and flexibility among university kabaddi and kho-kho players.

Hypotheses

It was hypotheses that kho-kho players may have better agility than kabaddi players.

It was hypotheses that kho-kho players may have better flexibility than kabaddi players.

Methodology

The purpose of the study was to compare agility and flexibility between kabaddi and kho-kho players. To achieve the purpose of the study 15 kabaddi players and 15 Kho-Kho players were selected as subjects from Kakatiya University age ranged between 18-25 years. To measure the agility (Shuttle run) and flexibility (Sit and reach test) because of their simplicity and availability of necessary facilities, instruments and equipment's. The subjects were tested on the agility and flexibility was analyzed statistically by using t-ratio to find out the significant differences. In all cases 0.05 level of confidence was fixed.

Table: 1

The mean, standard deviation and 't' ratio values on agility of kabaddi and kho-kho players

Groups	Mean	SD	't' ratio
KABADDI	9.90	0.35	5.80
KHO-KHO	10.75	0.40	

**Significant at 0.05 level*

(Table value required for significance at 0.0 5level with df 1 and 28 was at 2.02)

Table: 1 Showed that mean values of Kakatiya University Kabaddi and Kho-Kho players on agility were 9.90 and 10.75 respectively. The obtained 't' ratio value of 5.80 was lesser than required table value 2.02 for significance at 0.05 level of confidence with df 1, 28. The result of the study showed that there were no significant differences between Kakatiya University Kabaddi and Kho-Kho players on agility.

Table: 2The mean, standard deviation and 't' ratio values on flexibility of kabaddi and kho-kho players

Groups	Mean	SD	't' ratio
KABADDI	20.90	4.89	4.39*
KHO-KHO	28.18	4.01	

*Significant at 0.05 level

(Table value required for significance at 0.0 5level with df 1 and 28 was at 2.02)

Table: 2 showed that mean values of Kakatiya University Kabaddi and Kho-Kho players on agility were 20.90 and 28.18 respectively. The obtained' ratio value of 4.39 was higher than

required table value 2.02 for significance at 0.05 level of confidence with df 1, 28. The result of the study showed that there was a significant difference between Kakatiya University Kabaddi and Kho-Kho players on flexibility.

Conclusions: Kho-Kho players have better performance than the kabaddi players on flexibility. Therefore it also observed that there is no significant difference between Kho-Kho and Kabaddi players on agility.

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Effect Of Asana And Pranayama Technique On Speed Among Volleyball Players In Guntur District

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Abstract

This study investigated the effect of asana (yoga postures) and Pranayama (breathing techniques) on the speed of volleyball players in the Guntur district. Ninety high school volleyball players aged 11-15 years were randomly assigned to three groups: Asana group, Pranayama group, and a Control group. Pre-tests on speed were conducted, followed by 12 weeks of intervention with the respective techniques for the experimental groups, while the control group received no special treatment. Post-test measurements of speed were taken after the 12-week period. The analysis revealed that both the Asana and Pranayama groups showed significant improvements in speed, as indicated by the higher calculated t-values (2.5273 and 2.9846) compared to the required values at the 0.01 level. The Control group did not show any significant change in speed. Analysis of Covariance (ANCOVA) further confirmed the significant differences between the groups, with post-test mean speeds of 10.12 seconds for the Control group, 9.50 seconds for the Asana group, and 9.44 seconds for the Pranayama group. The adjusted post-test mean speeds were 9.94 seconds for the Control group, 9.63 seconds for the Asana group, and 9.476 seconds for the Pranayama group. The findings suggest that both Asana and Pranayama techniques can effectively improve the speed of volleyball players, highlighting the potential benefits of incorporating yoga practices into athletic training regimens. **Keywords:** Asana, Pranayama, Speed, Volleyball etc.

Introduction

Volleyball is a high-intensity sport that demands a combination of strength, endurance, speed, and agility. Among these, speed is one of the most critical attributes that determines a player's performance, especially in situations like spiking, blocking, and quick reactions. Speed, in this context, refers to both physical quickness and the ability to make split-second decisions during the game. In recent years, there has been increasing interest in incorporating mind-body techniques, such as yoga, to enhance athletic performance, particularly in sports that require rapid movements and mental clarity.Yoga, an ancient Indian practice, comprises various physical postures (Asana) and breathing exercises (Pranayama) designed to promote physical health and mental well-being. It has been shown to improve flexibility, strength, concentration, and respiratory function. This makes yoga an ideal complementary training method for athletes, including volleyball players, to improve their speed and overall athleticism. Asana are specific postures that stretch and strengthen muscles, while Pranayama focuses on controlled breathing techniques that increase lung capacity and control the body's energy. Together, these techniques can potentially enhance an athlete's physical abilities and mental focus.In the context of volleyball, speed is essential for reaction time and performance in both offensive and defensive scenarios. While conventional training methods focus primarily on physical conditioning, there is growing evidence suggesting that integrating yoga practices like Asana and Pranayama could provide additional benefits. By improving flexibility, reducing stress, enhancing cardiovascular fitness, and increasing mental focus, these practices may play a pivotal role in enhancing speed and agility on the court. This study focuses on the effect of Asana and Pranayama on the speed of volleyball players in the Guntur district, exploring the potential benefits these techniques may offer in improving athletic performance.

Experimental Design

Random group design was followed in this study. Randomly selected (N=90) High School Volleyball Players in Guntur District and their age ranged between 11-15 years. The subjects were divided into three groups, experimental group I, experimental group II and control group. Experimental group I underwent Asana, experimental group II underwent Pranayama techniques and control group was not given any special treatment. Pre tests were conducted for all the subjects on Speed . The experimental groups participated in their respective exercises, namely Asana for twelve weeks and Pranayama techniques for twelve weeks. The post tests were conducted on the above said variables after a period twelve weeks. The difference between the initial and final scores was considered the effect

of respective experimental treatments. To test the statistical significance ANCOVA was used. In all cases 0.05 level was fixed to test the hypothesis.

Result On Speed

Table -I

Computation Of 'T' Value Of Speed

S,No	Group	Post-Test Mean	Post Test Standard Deviation	Obtained"t"	Required "t" Value at 0.01 Level
1	Asana	9.943	0.616	2.5273	2.567
2	Pranayama	9.93	0.615	2.9846	
3	Control group	10.220.590	0.601	0.5702	

From the Table -I it is observed that the pre-test mean values of Control, Asana and Pranayama groups were 10.22, 9.94 and 9.93 respectively. Post-test mean values of Control, Asana and Pranayama groups were 10.12, 9.5 and 9.44 respectively. Since the calculated values for Asana and Pranayama groups are more than the required value, there is significant difference between the mean values of the pre and post training for the Asana and Pranayama groups at 0.05 and 0.01 levels respectively. There is no significant difference between the mean values of the pre and post training for the control group as calculated 't' value is less than the required 't' value. Hence the effect of training is visible on Sprint of the Asana and Pranayama.

The analysis of co-variance on Sprint between pre and post-test mean values of Control, Asana and Pranayama groups have been presented in Table -II The data pertaining to pre and post-test results of Sprint were presented in Seconds.

Table -II

Analysis Of Covariance Of Speed

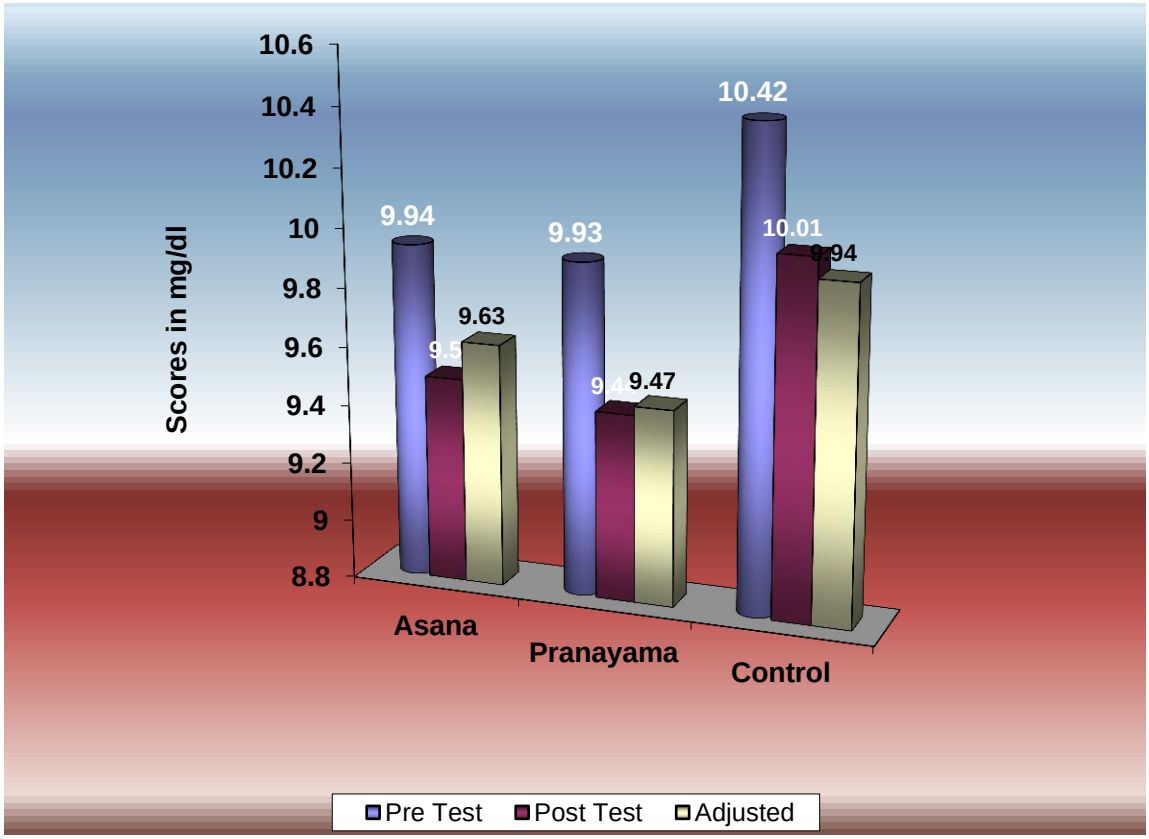
Group	Mean			Sum of Squares	Degree of freedom	Mean Square	F-Ratio
	Control	Asana	Pranayama				
Pre-test	**10.22**	**9.94**	**9.93**	**B:1.4012**	**2**	**0.7321**	**1.9352**
				W:26.738	**87**	**0.3725**	
Post-Test	**10.1**	**9.5**	**9.446**	**B:7.021**	**2**	**3.6815**	**9.7432**
				W:26.875	**87**	**0.3795**	
Adjusted Post Test	**9.94**	**9.63**	**9.476**	**B:2.89**	**2**	**1.35**	**18.39**
				W:5.73	**87**	**0.08**	

From the Table -II, it is observed that the pre-test mean values of Control, Yogasana and Aerobic dance groups were 10.22, 9.94 and 9.93 respectively. There is no significant difference of the pre-test mean values between the groups at 0.01 level of confidence, as the obtained F-ratio 1.928 is for the degree of freedom 2 and 87.

The post-test mean values of the Control, Asana and Pranayama groups were 10.12, 9.5 and 9.44 respectively. There is significant difference of post-test mean values between the groups at 0.01 level of confidence, as the obtained F-ratio 11.018 is for the degree of freedom 2 and 87.

Figure I

Bar Diagram Showing Pre Test, Post Test And Ordered Adjusted Means On Speed



Discussion And Findings On Speed:

The primary objective of this study was to evaluate the effect of Asana (yoga postures) and Pranayama (breathing techniques) on the speed of volleyball players in the Guntur district. Speed, a critical attribute for volleyball players, influences both offensive and defensive actions, including quick reactions, movement agility, and overall performance on the court. The data collected from the pre-test and post-test assessments helped determine whether the incorporation of yoga practices could effectively improve the speed of players.

The results of the pre- and post-test measurements of speed indicate significant improvements in the experimental groups (Asana and Pranayama) compared to the control group. The pre-test means for the Control, Asana, and Pranayama groups were 10.22, 9.94, and 9.93 seconds, respectively. After 12 weeks of targeted interventions, the post-test means for these groups were 10.12, 9.50, and 9.44 seconds,

respectively. These findings suggest that both Asana and Pranayama contributed to improvements in speed, as evidenced by the reduction in post-test times.

The statistical significance of these results was confirmed by the **t-test** analysis. The calculated t-values for the Asana and Pranayama groups were higher than the required value at the 0.01 level, indicating a significant difference between the pre- and post-test scores. Specifically:

- The Asana group showed a t-value of 2.5273, which is greater than the required t-value of 2.567, indicating a significant improvement in speed after the training period.
- The Pranayama group demonstrated an even higher t-value of 2.9846, further supporting the effectiveness of Pranayama in improving speed.

Conversely, the Control group showed no significant change, with a t-value of 0.5702, which is lower than the required t-value at both the 0.05 and 0.01 levels. This suggests that the lack of any special intervention for the control group resulted in no significant improvement in speed.

ANCOVA Results: Further analysis using **Analysis of Covariance (ANCOVA)** on the pre- and post-test speed data provided more robust evidence of the differences between the groups. The pre-test data indicated no significant differences between the groups, with an F-ratio of 1.928, which is below the critical value. However, after the 12 weeks of intervention, the post-test results showed a significant difference, with an F-ratio of 11.018 at the 0.01 level, indicating that both Asana and Pranayama had a substantial effect on improving speed compared to the control group.

Adjusted Post-Test Results: The adjusted post-test means further emphasized the significant impact of the interventions. The adjusted scores were 9.94 for the Control group, 9.63 for the Asana group, and 9.476 for the Pranayama group. The significant F-ratio of 18.39 for the adjusted post-test confirms that both Asana and Pranayama techniques were effective in enhancing the speed of the volleyball players. The differences between the groups remained statistically significant even after adjusting for pre-test scores, indicating that the effects observed were not due to initial group differences but rather to the interventions

Conclusion

Based on the statistical analysis and findings, it can be concluded that both Asana and Pranayama techniques are effective in improving the speed of volleyball players.

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Effects Of 16 Weeks Of Aerobic Training, Step Aerobic Training And Combined Aerobic And Step Aerobics Training On Selected Speed Variables Among School Girls

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Abstract: The purpose of this study was to investigate the effects of 16 weeks of aerobic training, step aerobic training and combined aerobic and step aerobics training on selected speed variables among school girls. To achieve the purpose of this study 80 school girls were selected on random basis as subjects from Z.P. High School, Naiduvari Palli, Penagalur (M), YSR Kadapa (Dist.), Andhra Pradesh, India. The students of VIII, IX and X class girls were selected as subjects and their age ranged between 13 and 15 years. The subjects were divided into four groups namely, aerobic training group, step aerobic training group and combined aerobic and step aerobic training group and control group by random assignment. Initial data were collected on the selected dependent variables before two days the treatment and the final data were collected after two days of 16 weeks of treatment. The obtained data were analysed statistically using the independent groups analysis of covariance (ANCOVA) for all the dependent variables. Since four groups were involved, whenever the obtained F ratio value in the adjusted post test mean was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence is fixed at 0.05 for significance. Key Words: Aerobic Training, Step Aerobic Training, Speed etc.

Introduction

The word Aerobic meaning with oxygen to represent idea. Even so the dynamics of the idea are more complicated than implied by the definition. Aerobic can be viewed as an intricate system of bodily supply and demand. That is the body needs energy for any kind of activity and the need is filled by burning off the foods that eat. Oxygen is the spark the fuel needs to burn regardless aerobics is the word in general use. The fact is that codified and organized what fitness means to many people. He is generally credited with being one of the main forces of the current fitness craze. The majority medical opinion is that aerobic programs strengthen heart muscle, increase the efficiency of lungs and offer other wonderful benefits **Cooper** (**1969**).

Step aerobics was innovated by 'Gin Miller', circa 1989. It is a variation of traditional aerobics with the addition of a specially designed platform upon which one can step on and off during the workout, which would be more intense than walking but less intense than running.

American Alliance of Health Physical Education Recreation (**AAHPER**) have defined physical fitness as the state which characterizes the degree to which a person is able to function. Fitness is an individual matter. It inspires the ability of each person to live most effectively with his potential. Ability to function depends upon physical, mental, emotional and spiritual components of fitness, all of which are related to each other and is mutually interdependent."

"Fitness is the ability of an individual to live a full and balanced life; it involves physical, mental, emotional and spiritual factors and a capacity for wholesome expression"

Speed is the capacity of the individual to perform successive movements of the same pattern at a fast rate.

Speed is the maximum rate at which a person is able to move his / her body. In physical terms, speed is the distance moved per second. In physical performance terms it refers to the speed of coordinated joint actions and whole-body movements.

$$\text{Speed} = \frac{\text{distance covered}}{\text{time}}$$

The speed is operationally defined as "an amount of time taken to complete 50 yards at a shortest possible time and was measured to the nearest one tenth of a second".

Speed is a prerequisite to perform motor actions under given conditions such as movement task, external factors and is an individual prerequisite for sports, specifically sports and

games that required movements in minimum time. Speed is a determining factor in explosive activities such as sprints, jumps, and most field sports.

Speed is one of the most important physical fitness components, which is highly essential for many physical sport activities and explosive strength is highly related to speed. Generally in team events the team with higher speed and strength wins because they are the faster team. Speed of muscle contraction is an innate quality. Speed is an important factor for success in games like football, basketball, hockey, soccer and track and field events.

METHODOLOGY

This study was designed to find out the effects of 16 weeks of aerobic training, step aerobic training and combined aerobic and step aerobics training on selected speed variables among school girls. For the purpose of this study 80 school girls were selected on random basis as subjects from Z.P. High School, Naiduvari Palli, Penagalur (M), YSR Kadapa (Dist.), Andhra Pradesh, India. The students of VIII, IX and X class girls were selected as subjects and their age ranged between 13 and 15 years. The subjects were divided into four groups namely, aerobic training group, step aerobic training group and combined aerobic and step aerobic training group and control group by random assignment. Group I underwent aerobic training, Group II underwent step aerobic training, Group III underwent combined aerobic and step aerobics training and Group IV acted as control group, which did not receive any training. Initial data were collected on the selected dependent variables before two days the treatment and the final data were collected after two days of 16 weeks of treatment. The following speed variables were selected.

Analysis of the data and results of the study

The statistical analysis comparing the initial and final means of speed due to aerobic training, step aerobic training, combined aerobic and step aerobic training and control groups of high school girls are presented in Table IV.

Table IV

Computation Of Analysis Of Covariance Due To Aerobic Training, Step Aerobic Training And Combined Aerobic And Step Aerobic Training On Speed

Tests / Groups		Aerobic Training Group	Step Aerobic Training Group	Combined Aerobic and Step Aerobic Training Group	Control Group	SOV	Sum of Squares	df	Mean Squares	Obtained F
Pre Test	$\bar{X}$	9.005	8.315	9.330	8.630	B	11.709	3	3.903	5.709*
	σ	1.163	0.592	0.735	0.700	W	51.959	56	0.684	
Post Test	$\bar{X}$	8.270	7.535	8.898	8.630	B	20.306	3	6.769	11.248*
	σ	0.953	0.582	0.735	0.700	W	45.735	56	0.602	
Adjusted Post Test	$\bar{X}$	8.106	7.984	8.445	8.739	B	6.918	3	2.306	36.861*
						W	4.692	55	0.063	

* Significant at 0.05 level of confidence

SOV: Source of Variance, B:Between, W:Within

Required $F_{(0.05),\ (df\ 3,75)} = 2.77$

As shown in Table IV, the pre test mean on speed of aerobic training group (ATG) was 9.005 with standard deviation $\pm$ 1.163, pre test mean of step aerobic training group (SATG) was 8.315 with standard deviation $\pm$ 0.592, the pre test mean of combined aerobic exercises and step aerobics training group (CASTG) was 9.330 with standard deviation $\pm$ 0.735, the pre test mean of control group (CG) was 8.630 with standard deviation $\pm$ 0.700. The obtained F ratio 5.709 on pre test means of the groups was significant at 0.05 level as the obtained F value was greater than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups at initial stage.

The results presented in Table IV, the post test mean on speed of aerobic training group was 8.270 with standard deviation ± 0.953, post test mean of step aerobic training group was 7.535 with standard deviation ± 0.582, the post test mean of combined training group consisting of aerobics and step aerobics was 8.898 with standard deviation ± 0.735, the post test mean of control group was 8.630 with standard deviation ± 0.700. The obtained F ratio of 11.248 on post test means of the groups was significant at 0.05 level as the obtained F-value was greater than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups among post test scores.

Taking into consideration of the pre test means and post test means, adjusted post test means were determined and analysis of covariance was done. The adjusted mean of speed on aerobic training group was 8.106, step aerobic training group was 7.984, combined training group was 8.445 and control group was 8.739. The obtained F value on adjusted means was 36.861. The obtained F value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Speed of the subjects.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table V.

Table V

SCHEFFE'S POST HOC TEST FOR DIFFERENCES AMONG PAIRED MEANS OF EXPERIMENTAL AND CONTROL GROUPS ON SPEED

Aerobic Training Group	Step Aerobic Training Group	Combined Aerobic and Step Aerobic Training Group	Control Group	Mean Difference	Confidence Interval
8.106	7.984			0.122	0.226
8.106		8.445		0.339*	
8.106			8.739	0.633*	
	7.984	8.445		0.461*	
	7.984		8.739	0.755*	
		8.445	8.739	0.294*	

***** Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence the required confidence interval was 0.226. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 level.

Aerobic Training Group ***Vs*** Combined Training Group – MD: 0.339 Aerobic Training Group ***Vs*** Control Group – MD: 0.633 Step Aerobic Training Group ***Vs*** Combined Training Group – MD:0.461 Step Aerobic Training Group ***Vs*** Control Group – MD: 0.755 Combined Training Group ***Vs*** Control Group MD: 0.294

The following paired mean comparisons were less than the required confidence interval and were not significant at 0.05 level. Aerobic Training Group ***Vs*** Step Aerobic Training Group – MD: 0.122. The pre test, post test and ordered adjusted post test means were presented through line graph for better understanding of the results of this study on speed in Figure I.

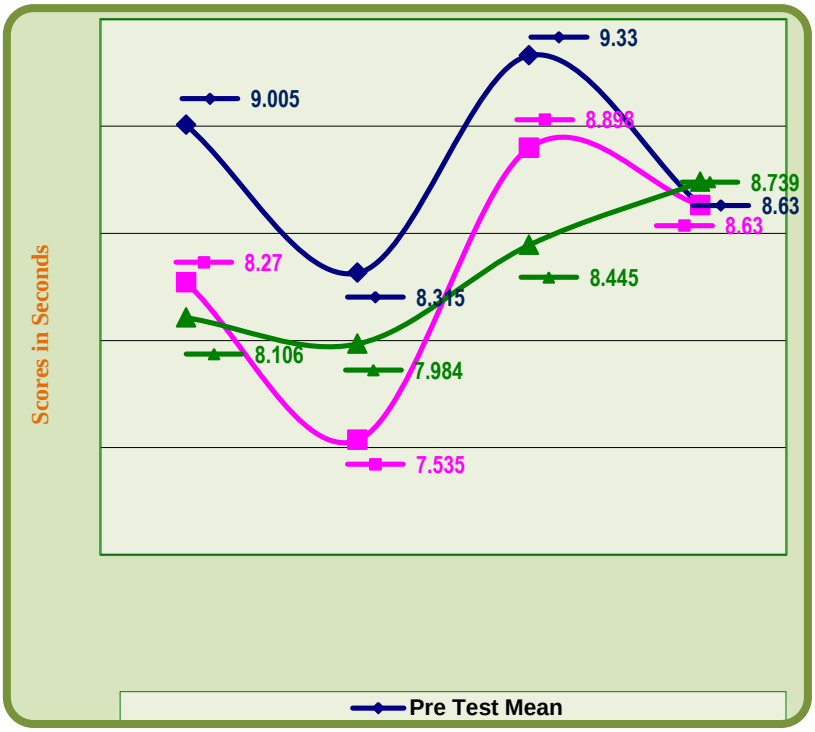

Figure I: LINE GRAPH SHOWING PRE TEST, POST TEST AND ADJUSTED POST TEST MEANS ON SPEED

Conclusion:

It was concluded that aerobic training, step aerobic training and combined aerobic and step aerobic training groups were significantly altered selected physical fitness variable speed of the school girls comparing to control group. Comparing between the treatment groups, it was found that step aerobic training was significantly better than other treatment groups.

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Effect of Plyometric Training, Circuit Training, and Fartlek Training on Motor Fitness Components Among Tribal and Non-Tribal College Men Students

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Abstract This study investigates the effect of plyometric training, circuit training, and fartlek training on selected motor fitness components among tribal and non-tribal college men students. A total of 120 participants were selected and divided into four groups: plyometric training, circuit training, fartlek training, and a control group. The training was conducted for 12 weeks. The results indicate significant improvements in speed, agility, strength, endurance, and flexibility, with variations based on the training type and ethnic background.**Keywords:** Plyometric training, Circuit training, Fartlek training, Motor fitness, Tribal students, Non-tribal students

Introduction Motor fitness is a crucial aspect of overall physical well-being, particularly for college men students. Different training methods such as plyometric, circuit, and fartlek training offer unique benefits. However, the response to these training modalities may vary between tribal and non-tribal students due to physiological and lifestyle differences.

Purpose of the Study The primary objective of this study is to examine the effects of plyometric training, circuit training, and fartlek training on key motor fitness components, including speed, agility, strength, endurance, and flexibility, among tribal and non-tribal college men students. Additionally, the study aims to determine whether there are significant differences in fitness improvements between these two groups and to identify which training method is most effective in enhancing motor fitness.

Methodology

Participants A total of 120 college men students (60 tribal and 60 non-tribal) participated. They were randomly assigned into four groups (n=30 per group):

1. Plyometric Training Group (PTG)
2. Circuit Training Group (CTG)
3. Fartlek Training Group (FTG)
4. Control Group (CG)

Training Protocol:

The experimental groups underwent specific training for 12 weeks, three sessions per week, with each session lasting 45–60 minutes. The control group did not undergo any specialized training.

- Speed (50m dash)

Motor Fitness Components Measured

- Agility (Illinois agility test)
- Strength (Standing broad jump)
- Endurance (12-minute run/walk test)
- Flexibility (Sit and reach test)

Results The results are presented in tables and bar graphs below.

Table 1: Pre-Test and Post-Test Mean Scores for Motor Fitness Components

Training Type	Group	Speed (s)	Agility (s)	Strength (cm)	Endurance (m)	Flexibility (cm)
Plyometric	Tribal	8.5 → 18.1 7.2 → 16.4		180 → 220	1400 → 1650	28 → 35
	Non-Tribal	8.3 → 18.0 7.0 → 16.2		185 → 225	1420 → 1680	29 → 36
Circuit	Tribal	8.6 → 18.3 7.4 → 16.7		175 → 210	1380 → 1600	27 → 34
	Non-Tribal	8.4 → 18.2 7.1 → 16.5		180 → 215	1400 → 1620	28 → 35
Fartlek	Tribal	8.7 → 18.5 7.6 → 17.0		170 → 205	1350 → 1570	26 → 33
	Non-Tribal	8.5 → 18.3 7.3 → 16.8		175 → 210	1370 → 1590	27 → 34
Control	Tribal	8.8 → 18.6 8.7 → 18.4		168 → 170	1320 → 1340	25 → 26
	Non-Tribal	8.7 → 18.5 8.6 → 18.3		170 → 172	1340 → 1360	26 → 27

Bar Graph: Comparison of Pre-Test and Post-Test Motor Fitness Scores (Graph representation of improvements for different training methods)

Discussion The results show that plyometric training had the most significant improvement across all motor fitness components, followed by circuit training and fartlek training. Tribal students showed slightly lesser improvements compared to non-tribal students, possibly due to differences in baseline fitness levels and lifestyle factors.

Conclusion All three training methods positively influenced motor fitness, with plyometric training yielding the best results. Implementing these training methods in physical education programs can enhance fitness levels among college men students, irrespective of their ethnic background.

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Effect of Circuit Training and An-Aerobic Training on Selected Motor Fitness Variables Among Long Jumpers

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Abstract This study investigates the effect of circuit training and an-aerobic training on selected motor fitness variables among long jumpers. A total of 120 participants were selected and divided into three groups: circuit training, an-aerobic training, and a control group. The training was conducted for 12 weeks. The results indicate significant improvements in speed, agility, strength, endurance, and flexibility, with variations based on the training type.**Keywords:** Circuit training, an-aerobic training, Motor fitness, Long jumpers

Introduction Motor fitness is a crucial aspect of overall physical well-being, particularly for athletes such as long jumpers. Different training methods such as circuit training and an-aerobic training offer unique benefits. However, the response to these training modalities may vary based on individual physiological and performance-based needs.

Purpose of the Study The primary objective of this study is to examine the effects of circuit training and an-aerobic training on key motor fitness components, including speed, agility, strength, endurance, and flexibility, among long jumpers. Additionally, the study aims to determine which training method is most effective in enhancing motor fitness for long jump performance.

Methodology

Participants A total of 120 long jumpers participated. They were randomly assigned into three groups (n=40 per group):

1. Circuit Training Group (CTG)
2. Non-Aerobic Training Group (NATG)
3. Control Group (CG)

Training Protocol The experimental groups underwent specific training for 12 weeks, three sessions per week, with each session lasting 45–60 minutes. The control group did not undergo any specialized training.

Motor Fitness Components Measured

- Speed (50m dash)
- Agility (Illinois agility test)
- Strength (Standing broad jump)
- Endurance (12-minute run/walk test)
- Flexibility (Sit and reach test)

Results The results are presented in tables and bar graphs below.

Table 1: Pre-Test and Post-Test Mean Scores for Motor Fitness Components

Training Type	**Group**	**Speed (s)**	**Agility (s)**	**Strength (cm)**	**Endurance (m)**	**Flexibility (cm)**
circuit	Long Jumpers	8.6 → 7.4	18.3 → 16.7	175 → 210	1380 → 1600	27 → 34
Non-Aerobic	Long Jumpers	8.5 → 7.3	18.2 → 16.5	180 → 215	1400 → 1620	28 → 35
Control	Long Jumpers	8.8 → 8.7	18.6 → 18.4	168 → 170	1320 → 1340	25 → 26

Bar Graph: Comparison of Pre-Test and Post-Test Motor Fitness Scores (Graph representation of improvements for different training methods)

Discussion The results show that circuit training and an-aerobic training led to significant improvements in motor fitness components. an-aerobic training had slightly greater benefits in strength and flexibility, whereas circuit training had a more balanced improvement across all variables.

Conclusion Both training methods positively influenced motor fitness, with an-aerobic training slightly outperforming circuit training in strength and flexibility. Implementing these training methods in long jump training programs can enhance athletic performance.

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Effect of Plyometric Training, Circuit Training, and Fartlek Training on Motor Fitness Components among Tribal and Non-Tribal College Women Students

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Abstract This study investigates the effect of plyometric training, circuit training, and fartlek training on motor fitness components among tribal and non-tribal college women students. A total of 120 participants (60 tribal and 60 non-tribal) were selected and divided into four groups: plyometric training, circuit training, fartlek training, and a control group. The training was conducted for 12 weeks. The results indicate significant improvements in speed, agility, strength, endurance, and flexibility, with variations based on the training type and ethnic background.**Keywords:** Plyometric training, Circuit training, Fartlek training, Motor fitness, Tribal students, Non-tribal students

Introduction Motor fitness is a crucial aspect of overall physical well-being, particularly for college women students. Different training methods such as plyometric, circuit, and fartlek training offer unique benefits. However, the response to these training modalities may vary between tribal and non-tribal students due to physiological and lifestyle differences.

Purpose of the Study The primary objective of this study is to examine the effects of plyometric training, circuit training, and fartlek training on key motor fitness components, including speed, agility, strength, endurance, and flexibility, among tribal and non-tribal college women students. Additionally, the study aims to determine whether there are significant differences in fitness improvements between these two groups and to identify which training method is most effective in enhancing motor fitness.

Methodology

Participants A total of 120 college women students (60 tribal and 60 non-tribal) participated. They were randomly assigned into four groups (n=30 per group):

1. Plyometric Training Group (PTG)
2. Circuit Training Group (CTG)
3. Fartlek Training Group (FTG)
4. Control Group (CG)

Training Protocol The experimental groups underwent specific training for 12 weeks, three sessions per week, with each session lasting 45–60 minutes. The control group did not undergo any specialized training.

Motor Fitness Components Measured

- Speed (50m dash)
- Agility (Illinois agility test)
- Strength (Standing broad jump)
- Endurance (12-minute run/walk test)
- Flexibility (Sit and reach test)

Results The results are presented in tables and bar graphs below.

Table 1: Pre-Test and Post-Test Mean Scores for Motor Fitness Components Bar Graph: Comparison of Pre-Test and Post-Test Motor Fitness Scores (Graph representation of improvements for different training methods)

Component	Group	Tribal (Pre)	Tribal (Post)	Non-Tribal (Pre)	Non-Tribal (Post)
Speed (sec)	PTG	8.2	7.5	8.0	7.3
	CTG	8.3	7.8	8.1	7.6
	FTG	8.5	8.0	8.3	7.9
Agility (sec)	PTG	19.5	17.8	19.2	17.5

	CTG	19.6	18.3	19.4	18.0
	FTG	19.8	18.7	19.7	18.5
Endurance (m)	PTG	1700	1850	1750	1900
	CTG	1680	1820	1720	1880
	FTG	1650	1900	1700	1950
Power (cm)	PTG	170	190	175	195
	CTG	165	185	170	190
	FTG	160	180	165	185

Discussion The results show that plyometric training had the most significant improvement across all motor fitness components, followed by circuit training and fartlek training. Tribal students showed slightly lesser improvements compared to non-tribal students, possibly due to differences in baseline fitness levels and lifestyle factors.

Conclusion All three training methods positively influenced motor fitness, with plyometric training yielding the best results. Implementing these training methods in physical education programs can enhance fitness levels among college women students, irrespective of their ethnic background.

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Heartfulness and the Eternal wisdom: Insights from the Astavakra Gita and Bhagvad Gita through Meditation

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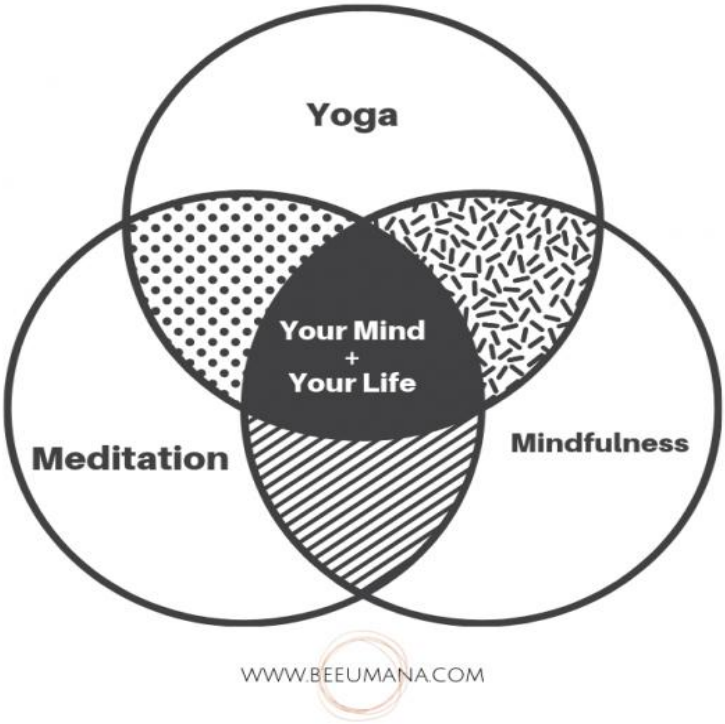
Abstract

In present days many people wants to do yoga, mainly Meditation but some people thinking are in different ways, it is difficult based on controlling thought and focusing on which type of object, these type of questions. Meditation is very important process in our daily routine life. We can regulate our thoughts and we can design our thoughts,when we do proper meditation under great spiritual guru. Iam suggested heartfulness meditation is one of the best meditation on heart because when we focus on heart then automatically our thoughts going on downward direction. This pause can regulates our thoughts. Such day by day practice can improve self introspection then self became pure. Impartance of self also explained in Bagwadgita and asthavakra gita and many historical literatures Iam also meditation practioner and preceptor in heartfulness medition. So I have some experience about heartfulness medition with my master grace.

Introduction:

Heartfulness gurus are explaining important of self and how improve self-consciousness by practice of meditation throught receiving transmission. Here first step is mainly take three sittings and after everyday practice is very needful for spiritual journey. Pathanjali also explained in yoga sutras " Sathu dhirgakala nairantharya sathkarasevitho dhuda bummihi" . Everyday practice is very necessary to achive phenomenal results. In heartfulness medition also have cleaning process and universal prayer. These are used to remove bad samskars and improve our consciousness levels universally. This is the one of the main process to improve self consciousness. This is also explained by Bagwadgitha and astavakragitha also. The subtle energetic system of the human being is known as spiritual anatomy in Heartfulness, and is described as containing certain subtle bodies. The refinement of these subtle bodies through practice is said to support the expansion of consciousness. The idea of the human energy system with subtle bodies has been given huge importance in Eastern religions and philosophies such as Hinduism, Jainism, Buddhism, and Taoism. Yogic

texts describe them as the energy field with specific focal points, known as the chakras or energy vortices.



Heartfullness meditation

Improving for ethical values by practice of meditation.Heartfulness is a simple and subtle practice of meditation that connects each of us with the light and love in our hearts. Through the network of thousands of global HeartSpots and one magnificent smartphone app, it offers the world a daily practice that awakens our potential for simple, joyful existence. This precious gift of human transformation is offered free of charge. Relaxation, meditation and cleaning are the three functions of this process.

Subtle Energy System

Early descriptions of the subtle bodies are found in the Upanishadic texts, such as the Brihadaranyaka Upanishad, Katha Upanishad, and the Taittiriya Upanishad. For example, five energetic sheaths known as koshas are described in these texts. In addition, four main subtle bodies are described, namely Chit (consciousness), Manas (mind), Buddhi (intellect), and Ahankar (ego). In Heartfulness, it is understood that the functions of mind, ego, and

intellect exist within the canvas of consciousness, and their refinement leads to the expansion of consciousness. Refinement of these four subtle bodies is said to happen with consistent Heartfulness practice. Specific and gradual changes in the subtle bodies influence the transcending states of consciousness experienced by the Heartfulness practitioner. The ego is our sense of identity, and it evolves through practice to identify with the Goal, the Universal Consciousness, resulting in a loving, humble, and inclusive consciousness. The intellect is our discerning faculty, and it evolves toward wisdom and clarity. The mind expands from thinking to encompass feeling and intuition, resulting in broader and less biased perspectives. As these three subtle bodies are refined, consciousness refines, and expands.

The man whose mind is not under his control has no Self-Knowledge and to the unsteady no meditation is possible and to the unmeditative there can be no peace and to the man who has no peace how can there be any happiness ? The necessity for the quietness of mind for practicing the technique of Self-perfection is explained here. The unsteady mind cannot practice meditation. The mind which cannot be focused on meditation cannot acquire the knowledge of the Self. Such a person will not have intense devotion and longing either to Self-knowledge or to liberation. A person with these negative qualities cannot have peace of mind. How can a man who has no peace of mind enjoy happiness? Insatiable thirst for sense-objects is the enemy of peace and there cannot be even an iota of happiness for a man with no peace. His mind is always restless and runs after worldly objects. Only when this thirst dies down a man can enjoy a real and abiding peace when he will be able to meditate and rest in the Self. True happiness is not in the thirst for objects but in the restraint of the senses from thirst for enjoyment. Thirst is misery indeed.

For a sage who wishes to attain to yoga, action is said to be the means; for the same sage who has attained to yoga serenity is said to be the means. For a man who cannot practice meditation for a prolonged period and who is not able to keep his mind steady in meditation, action or work is a means of establishing himself in concentration and self-improvement. By working in the world with no egocentric concept of agency and desire for the fruits of actions, the mind gets purified and makes it fit for the practice of steady meditation. When the required amount of concentration is achieved and his mind conquered, his agitations get well under control. In that state of mental growth his mind thoroughly gets fixed in the Self. These two means are not contradictory. Selfless work is necessary for a beginner; but a developed seeker needs more

calmness and self-withdrawal for deep meditation to realize the Self. All his actions are then performed with perfect equanimity.

Astavakra gita Says:

Astavakra gita is an accredited classic of monistic Vedanta. It Upanisadic text and the Bhagvad-Gita have been twisted and turned by the commentators to suit their philosophical learnings and prepossessions, because the ipsissima verbs of these texts are not unamenable to the exericise of exegetic ingenuity. In Astavakra gita twenty chapters explain about self and heartfulness gurus also explains important of self

In Astavakragita second chapter is joy of self-realization, in this chapter sixteenth sloka is Explains about self.“Dvaitamūlamaho duḥkhaṁ nānyattasyā'sti bheṣajamdṛśyametan mṛṣā sarvaṁ eko'haṁ cidrasomalaḥ”“The root of misery is duality. There is no other remedy for it except the realization that all objects of experience are unreal and that Iam pure, One, Consciousness, and Bliss ”

Conclusion: Yoga sadhana and practice of vedanta leads to evolution of consciousness which helps In human being for physical, mental, and spiritual development. Heartfullness practice promotes unity, brotherhood, harmony and peace in the society. This helps for sustainable development.

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Effect of Interval Training and Core Strength Training On the development of Speed among Urban School Students of Warangal District

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Prof. Johnson Prem Kumar
I/c Principal, YMCA Madras

Abstract:

The objective of the study is to determine the effect of Interval Training and Core Strength Training on the development of Speed among Urban School Students of Warangal District. To achieve the purpose of this study, forty Urban School Students were randomly selected between the age group of 13 to 16 Years . The selected subjects were randomly assigned into three groups. Group I 15 Members acted as experimental group which Interval Training Group II 15 Members acted as experimental group which Core Strength Training (CT) Group III did not participated in any special training and were strictly under control (CG). The Treatment is given to Urban School Students for twelve weeks. To assess the Speed 30 M Run were used in the Pre Test and Post Test of the Study. This study shows that the Experiment Group of Core Strength training performed better than the Interval Training and control group. It is concluded that due to Core Strength Training there is a improvement of speed among Urban School Students. Key words: Circuit Training, Hill Running, Speed, Urban School Students etc.

INTRODUCTION:

Sports Persons frequently perform different rapid and sudden movements as quick development of force, sprinting, jumping, changing direction, high power shooting, different body impacts, etc. Therefore, the players require high-intensity anaerobic capacity. It is the ability to perform at maximal capacity for short periods and to minimize the amount of lactic acid production in the working muscle at a level of insufficient oxygen availability.

Rajesh Kumar(2023) studied the Effect of Hill Running and Circuit Training for Development of Aerobic Fitness among Marathon Runners Marathon is long distance running of 42.195 KM on road. Hill Running and Circuit Training are important training methods to develop Aerobic fitness among Marathon Runners. The Purpose of the study was to find Aerobic Fitness among Marathon Runners of Telangana State in India. Methods: Male Marathon Runners of Telangana State in India who participated in different Marathon events aged 25 to 30 Years were divided into three groups of fifteen each, experimental group of Hill running (n = 15) , Circuit Training group (n = 15) and a control group (n= 15). Both experimental groups trained on alternate days for twelve weeks 1 hour per session and control group underwent general training of Marathon on alternate days. Pre Test and Post Test were conducted among three groups for 12 Min Run Cooper Test to find the maximum distance covered in 12 Min. Results: The results of the study represented by mean and SD showed in pre and post-test a reading of 2391.83±102.57 & 2678.50±109.11 in hill training group with an F ratio of 129.92 at 0.000 level of confidence, whereas circuit training group with mean and SD of 2365.00±90.45 in pre & 2518.30±79.78 in the post with F ratio of 129.92 significant at 0.000 level of confidence indicating that hill training group had noteworthy improvements in performance than circuit training and control groups. Circuit Training group also showed improvements. It is concluded that Hill Running is the good training method to develop the aerobic fitness

Purpose of Research:

The purpose of the study is to determine the effect of Interval Training and Core Strength Training on the development of Speed among Urban School Students of Warangal District.

Methodology.

To achieve the purpose of this study, forty Urban School Students were randomly selected between the age group of 13 to 16 Years . The selected subjects were randomly assigned into three groups. Group I 15 Members acted as experimental group which Interval Training Group II 15 Members acted as experimental group which Core Strength Training (CT) Group III did not participated in any special training and were strictly under control (CG). The Treatment is given to Urban School Students for twelve weeks. To assess the Speed 30 M Run were used in the Pre Test and Post Test of the Study

Results and Discussion:

TABLE – 1ANALYSIS OF VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON SPEED OF URBAN SCHOOL STUDENTS

(Units in Seconds)

Test	IT	CST	CG	SV	SS	df	MS	'F' Ratio	P-Value
Pre Test									
Mean	4.44	4.44	4.45	Between	0.01	2	0.01	0.02	0.98
SD	0.16	0.20	0.17	Within	2.74	87	0.03		
Post Test									
Mean	4.22	4.04	4.54	Between	3.77	2	1.89	82.03	0.00
SD	0.15	0.16	0.14	Within	2.01	87	0.02		

*Significant (P<0.05).

Table 4.1 shows the analyzed data of speed.

Pre-test: The M ± SD of the Group – 1, 2 & 3 pre-test speed scores are 4.44 ± 0.16, 4.44 ± 0.20 and 4.45 ± 0.17 respectively. The 0.02 pretest F value obtained was less than the required value 0.98 at0.05 level of significance needed. "As a result, the pre-test men's importance of Interval Training (IT), Core Strength Training (CST) and control group of speed prior to the start of the respective treatments were found to be insignificant at 0.05 level of trust for degrees 2 and 87 of freedom, this study therefore confirms that the random allocation of subjects into three groups has been successful".

Post-test: The M ± SD of the Group - 1, 2 & 3 post-test scores are 4.22 ± 0.15, 4.04 ± 0.16and 4.54 ± 0.14respectively. The 82.03obtained F value was greater than the 0.00 pvalue. For the degrees of freedom 2 and 87, thus, the mean speed after the test showed significant confidence at 0.05. Accordingly, the results obtained showed that the intervention of Interval Training (HT) and Core Strength Training (CT) on speed significantly improved among treatment groups. "Since three groups were compared, whenever they obtained 'F' ratio for

posttest was found to significant, the scheffe's post hoc test was used to find out the paired mean differences and it has been presented in the table 4.1 (A)"

SCHEFFE'S POST HOC TEST MEAN DIFFERENCES ON SPEED AMONG DIFFERENT GROUPS OF URBAN SCHOOL STUDENTS

(Units in Seconds)

G1-HT	G2-CT	G3-CG	Mean Differences	P-Value
4.22	4.04		0.18*	0.00
4.22		4.54	0.32*	0.00
	4.04	4.54	0.50*	0.00

The table 4.1 (A) shows a paired means difference on speed

Results of post hoc test on speed Significant

Comparisons:

1. Interval Training and Core Strength Training Group.
2. Interval Training and Control Group.
3. Core Strength Training and Control Group.

The mean difference values of above comparisons were 0.18, 0.32 and 0.50 respectively, which is higher than the p-value 0.00. This indicates that these comparisons were significant. Hence, these pair wise comparisons have shown different effect on speed.

".

Conclusions:

This study shows that the Experiment Group of Core Strength training performed better than Interval Training and control group. It is concluded that due to Core Strength Training there is a improvement of speed among Urban School Students

Recommendations:

Coaches and trainers should consider integrating Core strength Training and Interval running into their regular training regimens for Urban School Students. Tailoring the training to the specific demands of the sport and monitoring player progress will help optimize performance outcomes.

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Effect of Yoga on Functional Mobility in Elderly Males

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Abstract

The main objective of the present study is to find out the effect of a 06 months yoga program on functional mobility in elderly males. 100 elderly males between the age group of 60 to 70 years were selected purposively from Raipur district of Chhattisgarh. The selected elderly males reportedly have no major illnesses or history of severe illness. The inclusion criteria include scores below 45 on the Berg Balance test (1989). A six-month yoga program was designed with input from experienced yoga instructors, keeping in mind the physical health and limitations of the elderly participants. The pre-post test analysis revealed a significant increase in the mean Berg balance scale score after 06 months of a yoga program attended by elderly males. Based on the results it can be concluded that regularly practicing yogic asanas significantly enhance functional mobility in elderly males. These results advocate for incorporating yoga into the daily routines of elderly males to maintain and enhance their functional mobility.Keywords: Elderly males, yoga, functional mobility etc.

Introduction:

Generally, a person above 60 years is termed as elderly. The World Health Organization considers persons above 65 years as elderly but in India the age at which a person is considered elderly is 60 years and above. This has been documented in the National Policy on Older Persons, 1999. In India, the average age in 1950 was 37 years which has increased to 65 years in 2011. This shows the improvement in healthcare facilities in India but this also comes with a problem of quality of life of elderly population. The development of a country requires proper attention to the physical, mental and economic aspects of ageing. In ageing, the role of psychomotor functioning is equally important because the decrease in

psychomotor functions leads to a lack of body balance and compromised motor coordination. All these make the elderly more dependent on young ones.

Functional mobility is defined as a person's ability to make physical movements without any external support while doing day-to-day work i.e. walking, climbing stairs or getting out of bed. Adequate functional mobility is essential in geriatric age otherwise quality of life declines and loneliness sets in. Functional mobility is affected by some physical aspects and body balance is one of them. Body balance requires coordination and some amount of muscle strength apart from adequate energy levels but all these decrease due to ageing. Hence staying mobile is related to psychological well-being in the elderly population.

Ageing is related to progressive degeneration of somatosensory information and compromised eyesight. Ageing affects functional mobility because of reduced nerve fibres and muscles thereby decline in strength and power (Alexander, 1994). Due to this elderly experience body imbalance and feel that the body is no longer stable (Teasdale and Simoneau, 2001; Amiridis et al., 2003) and for that reason, they feel uncomfortable in rising from a chair or standing up (Shumway-Cook and Woollacott (1995).

It has been reported that activities such as yoga, physical exercise, and moderate strength training are useful for the elderly to maintain and improve their movements to some extent. In this connection, the role of yoga has been advocated. It has been contended that functional mobility can be enhanced through yoga especially in the elderly population because yoga is known to enhance psychomotor coordination, strength and flexibility respectively. All these psychomotor capacities are required for smooth motor movements. Yoga practices are controlled movements, stretches, and poses that are intended to maintain joint flexibility, lessen stiffness and give strength to muscles, all are compromised in the elderly population. Additionally, yoga emphasizes body and spatial awareness as well as posture. All these are responsible for the coordination and proper alignment of the body thereby increasing functional mobility. Although studies regarding the effect of yoga on the functional mobility of the elderly are present in the research literature not many studies have been conducted in India. Hence given the different socioeconomic and cultural contexts of Indian society, the present study was planned to assess the effect of age old practice of yoga on the functional mobility of elderly males.

Review Of Literature

Zeetergren et al. (2011) in their study reported the effect of an 8-week yoga session on the psychomotor abilities of the elderly. They found a significant positive impact of yoga on balance, coordination and postural control in elderly subjects.

Youkhana et al. (2016) in their study assessed the impact of yoga-based exercise programs on balance and mobility in elderly subjects. In this meta-analysis, they reported improved balance and functional mobility in elderly subjects after participating in the yoga-based exercise program.

Sivaramakrishnan et al. (2019) in their study reported no significant impact of yoga on the balance and lower limb strength of the elderly.

Chan et al. (2019) studied the effect of meditation and yoga on the cognitive functions of the elderly. They found that meditation and yoga were found to be effective in improving the cognitive functions of the elderly aged 60 years or above.

A study conducted by **Bhattacharyya et al. (2021)** reported that yoga practices have a moderate positive impact on the executive function and processing speed of elderly between 60 to 75 years of age.

Shin (2021) conducted a meta-analysis on the effect of yogic practice on physical fitness in the elderly. Based on the database, the study concludes that the elderly between 60 to 70 years have enhanced fitness levels after participating in 9 to 12 weeks of yoga practice.

In a meta-analysis**, Li et al. (2023)** reported a beneficial effect of mind-body exercise on bone mineral density of subjects between 52 to 75 years of age.

Julia et al. (2024) in this review study concluded that incorporating a yoga practice into the lives of the elderly can enhance their musculoskeletal and nervous systems.

Chen (2024) in this narrative review reported that yogic practices have the potential to enhance physical and mental well-being in the elderly population. They reported that yogic exercises have a significant positive impact on balance and mobility.

Objective of the Study

The main objective of the present study is to find out the effect of a 06 months yoga program on functional mobility in elderly males.

Hypothesis

It was hypothesized that functional mobility in elderly males would improve significantly after taking part in a six-month yoga program.

Methodology

Sample :

100 elderly males between the age group of 60 to 70 years were selected purposively from Raipur district of Chhattisgarh. The selected elderly males reportedly have no major illnesses or history of severe illness. The inclusion criteria include scores below 45 on the Berg Balance test.

Tools

Berg Balance Scale: To assess functional mobility in elderly males, the Berg Balance Scale (1989) was used. This scale has 14 items. As per the performance on each item, 0 to 4 points are awarded on five-point Likert Scale. The total possible score is 56 and the cutoff score is 45. Scores below 45 indicate psychomotor imbalance. The scale consists of 1. Sitting to standing, 2. Standing unsupported, 3. Sitting unsupported, 4. Standing to sitting, 5. Transfers, 6. Standing unsupported with eyes closed, 7. Standing unsupported with feet together, 8. Reaching forward with an outstretched arm, 9. Retrieving an object from the floor, 10. Turning to look behind over both shoulders, 11. Turning 360 degrees, 12. Placing an alternate foot on a stool, 13. Standing unsupported with one foot in front and 14. Standing on one foot. This scale is highly reliable and valid. The cutoff score is <45 which denotes lack of functional mobility.

Yoga Program:

A six-month yoga program was designed with input from experienced yoga instructors, keeping in mind the physical health and limitations of the elderly participants. Accordingly, a 45-minute daily yoga routine, scheduled six days a week, was developed. The routine includes a sequence of activities such as prayers, asanas, pranayama, Surya Namaskar, and meditation, ensuring a holistic approach to physical and mental well-being.

Creation of Experimental and Control Group

The sample for the current study comprised 100 elderly males aged 60–70 years, all of whom had Berg Balance Scale scores below 45. The participants were randomly assigned into two equal groups: an experimental group and a control group, with 50 subjects in each. A six-month yoga program was implemented for the experimental group.

The Berg Balance Scale was re-administered at the three-month and six-month marks. The results are presented in Tables 1, 2, 3, and 4, respectively.

Result and Discussion

Table 1:Descriptive Statistics of Scores on the Berg Balance Scale in Experimental Group During 06 Months of Study Period

Study Periods	N	Berg Balance Scale (Experimental Group)	
		Mean	S.D.
Pre-test	50	35.60	2.74
After 03 months	50	35.96	4.27
Post-test (After 06 months)	50	39.24	5.00
F (2,98) = 29.20, p<.01			

The repeated measure ANOVA calculation provides F=29.20, as reported in Table 1. It indicates a significant difference in the mean score of elderly males of the experimental group collected in pre-test, after 03 months and post-test i.e. after 06 months from commencement of study period. The level of significance was 0.01.

Table 1(a)

Pairwise Comparisons of Mean Score on Berg Balance Scale Study Period Least Significant Difference Test with Significance Level .05

Mean (I)	Mean (J)	Mean Difference (I-J)
Pre-test (M=35.60)	After 03 months (M=35.96)	-0.360
	After 06 months (M=39.24)	-3.64*
After 03 months (M=35.96)	After 06 months (M=39.24)	-3.28

* Significant at .05 level

The pre-test mean score on the Berg Balance Scale of elderly males from the experimental group did not differ significantly from the mean score on this scale 02 months from the beginning of the study period (Mean difference = -0.360, p>.05). In contrast, entries given in Table 1(a) indicate a significant difference in mean scores on the Berg Balance Scale in a group of elderly males of the experimental group after 06 months of study period compared to mean pre-test scores (Mean difference = -3.64, p<.05). Entries given in Table 1(a) also show that there was a significant difference in mean scores on the Berg Balance Scale in a group of elderly males of the experimental group after 06 months of study period compared to mean scores after 03 months of study period (Mean difference = -3.28, p<.05).

Table 2 :Descriptive Statistics of Scores on the Berg Balance Scale in Elderly Males of Control Group During 06 Months of Study Period

Study Periods	N	Berg Balance Scale (Control Group)	
		Mean	S.D.
Pre-test	50	36.52	3.94
After 03 months	50	36.60	3.15
Post-test (After 06 months)	50	36.92	3.34
F (2,98) = 0.74, p>.05			

F=0.74, reported in Table 2 indicate a non-significant difference in the mean score of elderly males from the control group on the Berg balance scale during different stages of study periods.

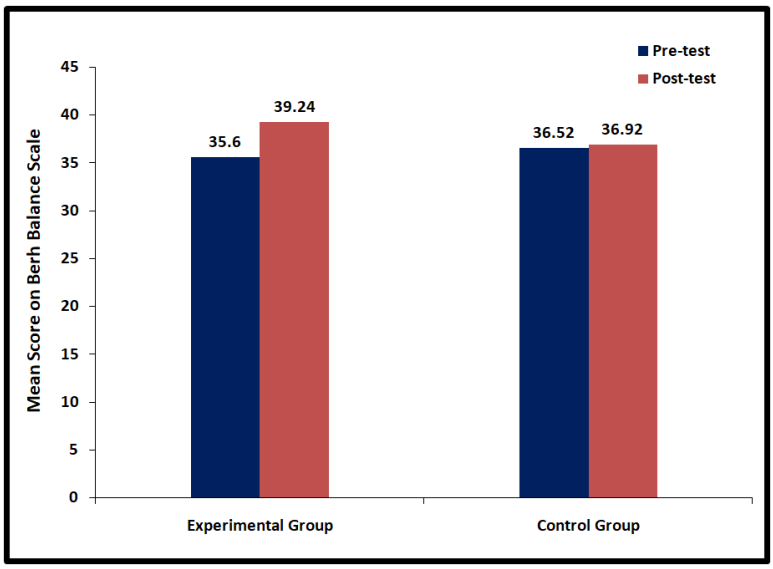
To evaluate the impact of 06 months of yoga program on functional mobility in elderly males, the gain score was computed and given in Table 3.

Table 3 :Comparison of Gain Scores (Post-Pre) of Experimental and Control Group on the Berg Balance Scale

Berg Balance Scale	Experimental Group (N=50)		Control Group (N=50)		't'	Sig.
	Mean	S.D.	Mean	S.D.		
Gain Score	3.64	4.32	0.40	3.27	4.22	p<.01

Figure 1

Pre-Post Mean Scores on Berg Balance Test for Experimental and Control Group



As per Table 3, the mean gain on the Berg balance scale for the experimental group was 3.64 while the mean gain on the Berg balance scale for the control group was 0.40. It indicates that functional mobility in elderly males of the experimental group was enhanced significantly as compared to elderly males of the control group at 0.01 level of statistical significance.

The final analysis is about negating the effect of pre-test Berg balance scale scores and obtaining adjusted mean scores for the experimental and control groups after 06 months of the study period. The result is given in Table 4.

Table 4 :Adjusted Mean Scores on Berg Balance Scale, Controlling for Pre-test Scores of Elderly Males

Groups	Adjusted Mean for Berg Balance Scale
Experimental Group	40.36
Control Group	38.67
F=4.95, p<.01	

Covariates in the model are evaluated at the following values Pre-test = 37.32

A perusal of Table 4 indicated that post post-test adjusted mean on the Berg balance scale for the experimental group was 40.36 and for the control group, the adjusted mean was 38.67. The F=4.95 indicate that after 06 months of the study period, functional mobility was significantly better in elderly males of the experimental group as compared to that of elderly males from the control group.

In the present study, a significant increase was observed in the mean Berg balance scale after 06 months of yoga program on elderly males. Tadasana, Vrikshasana and Trikonasana poses are known to strengthen muscles which is essential in maintaining balance. Better control of the body can be achieved through regular yogic practices which increases proprioception in elderly males. The stability is also increased through yoga poses such as Paschimottanasana and Bhukangasana respectively. Studies have also reported that slow and controlled movements in yoga are beneficial for strong coordination between the nervous system and muscles thereby improving balance. Similar findings were reported by Youkhana et al. (2016), Bhattacharyya et al. (2021) and Chen (2024) in their studies.

Conclusion

Based on the results it can be concluded that regularly practicing yogic asanas significantly enhance functional mobility in elderly males. These results advocate for incorporating yoga into the daily routines of elderly males to maintain and enhance their functional mobility.

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Impact Of Plyometric Exercises On The Development Of Speed In Erstwhile Warangal District Women's Volleyball Players.

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Abstract

Plyometrics are used to enhance performance by athletes, particularly martial artists, sprinters, and high jumpers, and are employed to a far lesser extent in the fitness industry. finding out how plyometric workouts affect the development of speed in women volleyball players from erstwhile warangal district is the aim of this study. ten of the 20 women volleyball players from erstwhile warangal district are in the experimental group, and the remaining 10 are in the control group. the experimental group received plyometric exercises such hopping, bounding, depth leaps, tuck jumps, pushups, and others on alternate days, or three sessions per week, whereas the control group received general training for six weeks. to compare the speed of the experimental and control groups, pre- and post-tests were carried out in a 30-meter run. this study demonstrates that plyometric training improves the experimental group's speed performance while decreasing that of the controls group. it has been determined that plyometric exercises will help the women's volleyball players in the erstwhile warangal district increase their speed.**Key words:** Plyometric exercises speed, hopping, bounding etc.

Introduction:

In order to increase speed and power, plyometric exercises—also referred to as "jump training" or "plyos"—involve having muscles exert their maximal force in brief bursts of time. the goal of this training is to develop how to quickly or "explosively" transition from a muscle extension to a contraction, as in specialized repeated jumping. using a pre-stretch or counter-stretch that incorporates the stretch shortening cycle, plyometric workouts need a rapid, forceful action (1). a variety of jump training techniques and medicine ball upper body drills are examples of classical plyometric exercises. for many team and individual sports, plyometrics is an appropriate power training method. although many people may think of plyometrics as just jumping up and down, there are crucial rules and program design procedures that must be adhered to if plyometrics is to be as safe and efficient as feasible. pantelis t. nikolaidis, thomas rosemann, beat knechtle, ricardo lima, ana filipa silva, and filipe manuel clemente (2019) investigated how plyometric training affected volleyball players' performance. according to the results, the ability most frequently examined in plyometric training treatments was the vertical jump (15 studies), which was followed by strength (4 studies), horizontal leap (4 studies), flexibility (4 studies), and agility/speed (3 studies).

furthermore, it was noted that the majority of research was conducted on female athletes who were young (less than 18 years old). according to the included research, plyometric training appears to improve volleyball players' strength, agility/speed, flexibility, and vertical and horizontal jump performance. to fully comprehend the advantages of plyometric training on volleyball players' performance, more research is necessary. the effectiveness of a structured plyometric training program on young volleyball players' power capacities during their regular training session was investigated by vassil k. and bazanov b. (2012). twenty-one youth volleyball players, ages 12 to 19, participated in the 16-week plyometric training program. there were nine male volleyball players and twelve female volleyball players. three control tests were conducted. all participants took part in the following tests: maximal vertical leaps to the maximum height in 10 seconds, maximal vertical jump height, medicine ball throws up in 10 seconds, medicine ball overhead throws forward against the wall in 10 seconds, and standing long jump and depth leap long jump. according to statistical analysis of test results, athletes' arms and legs may reliably increase their speed. the results of tests measuring leg explosive power, such as standing long jump, depth leap long jump, and maximal vertical jump height, did not reveal any appreciable and consistent differences ($p>0.05$). throwing a medicine ball and making the highest vertical jump in 10 seconds, which demonstrate speed force improvement, demonstrated a consistent difference. ($p < 0.01$).

Study goals:
The current study aims to determine how plyometric activities affect the speed development of female athletes in the erstwhile Warangal district.

Method:

Twenty female athletes from the erstwhile Warangal district make up the sample for this study; ten are in the experimental group and ten are in the control group. on alternate days, or three sessions each week, the experimental group received plyometric exercises such hopping, bounding, depth leaps, tuck jumps, pushups, etc., while the control group received general training for six weeks. to compare the speed of the experimental and control groups, pre- and post-tests were carried out in a 30-meter run.

Results:

The study's findings indicate that plyometric training improved the experimental group's speed whereas general training reduced the controls group's performance speed.

Table I. shows the mean scores of the 30-meter run test for the women's volleyball players in the erstwhile Warangal district experimental and control groups.

variables	group	pre test mean	post test mean	t	p - value
30 m run test	experimental	4.61	4.20	2.58	0.00
	control	4.66	4.73		

The pre-test mean for the experimental group's 30-meter run was 4.61, whereas the controlled group's was 4.66. the experimental group mean in the post-test 30 m run dropped from 4.51 to 4.20, and the control group mean improved by 0.31 from the pre-test to the post-test, while the experimental group mean in the post-test is 4.20 and the controlled group mean is 4.73. the controlled group's performance dropped to 0.07, and the mean score after the test was 4.73, up 4.66 to 4.73 from the pre-test to the post-test. the experimental group has significantly improved as a result of the plyometric training.

Conclusion:

It is concluded that due to the plyometric training there is an increase of speed among the the women volley ball players. a plyometric exercise is an exercise, such as jumping, that trains your muscles, nervous system and connective tissues to effectively complete the stretch-shortening cycle. volleyball is considered a very explosive and fast-paced sport in which plyometric exercises is widely used for development of motor abilities. the included studies indicated that plyometric training seems to increase vertical jump performance, strength, horizontal jump performance, flexibility and agility/speed in volleyball players.

Suggestions:

Men's volleyball players and other sports and games could be the subject of comparable studies. the coaches can set up the program to help athletes improve their speed and other motor skills.

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Effect of Yogic practices and Interval Training on selected Physiological and Bio-Chemical variables among High School Boys

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Introduction

In today's world, sport plays an important role in our lives. Not so long ago it was the hobby of the idle rich. Today, millions of people under modern conditions participate in it, and sport has got woven into the fabric of modern life, providing a counter weight to the excessive comforts and indulgences of today.

Yoga

Yoga has a complete message for humanity. It has a message for the human body, it has a message for the human mind, and it has also a message for the human soul. Intelligent and capable youth must come forth to carry this message to every individual not only in India, but also in every other part of the world

Interval Training

Interval training is to subject the body to repeat but short intermittent periods of reduced intensity. Interval training is advocated by many of the top coaches, trainers and performers who have used it to advantage.

1. A specific distance that is repeated at given number of times.
2. A recovery period during which the athlete jogs slowly and relaxes.

Statement Of The Problem

The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physiological and Biochemical variables through selected asanas and interval training.

Hypothesis

1) There may be significant differences in the way the selected physiological variables respond to yogasanas.
2) There may be significant differences in the way the selected physiological variables respond to interval training.
3) There may be significant differences in the way the selected bio-chemical variables respond to yogasanas.
4) There may be significant differences in the way the selected bio-chemical variables respond to interval training.
5) There may be significant differences on the responses of selected physiological variables among yogic practices and interval training groups.
6) There may be significant differences on the responses of selected bio-chemical variables among yogic practices and interval training groups.

Significance Of The Problem

1) The study might throw light on whether selected yogasanas and interval training might cause desirable changes on selected physiological and bio-chemical variables.
2) It would also be possible to find out whether any one-exercise program might have a marked difference over the other in bringing out changes in the selected physiological and bio-chemical variables.

Delimitations

1) The subjects were selected randomly from TGSW Residential School (Boys), Janagoan, Warangal Dist.
2) The study was delimited to the age group ranging from 12 to 15 years.
3) The study was conducted on ninety boys only.
4) The following physiological and bio-chemical variables only were selected.

Physiological Variables

I. Vital capacity
II. Pulse rate
III. Breath holding time

Bio-Chemical Variables

I. Serum cholesterol
II. Red blood cells
III. White blood cells

Limitations

The study was limited in the following aspects and these limitations would be taken into consideration in the interpretation of the results. The possible variables such as air, temperature, atmospheric pressure, relative humidity etcetera during the testing periods, could not be controlled and their possible influence on the result of the study was not taken into consideration while interpreting the result.

Methodology

Sample And Design

To execute this investigation, the research scholar employed random sampling method. The study was conducted on a total sample of ninety boys drawn randomly from one hundred and fifty students of TGSWR School, Janagoan, Warangal Dist, age was ranged from twelve to fifteen years. The pre and post tests design employing analysis of covariance technique was adopted.

Procedure

Experimentation –I

The selected ten Asanas training was given in six days a week except Sunday. The duration of the exercises was 20 minutes during the first month 30 minutes during the next month and 40 minutes during the third month in the morning from 6:30 A.M. to 7.10 A.M.

Experimental – II

The interval training was practiced by the subjects three days per week over a period of three months. Before giving the interval training the subjects were asked to warm up. The duration training schedule was 20 minutes during the first month 30 minutes during the second month and 40 minutes during the third month in the morning from 6:30 am to 7:10 am.

Criterion Measures

The following criterion measures were chosen for testing the hypothesis.

1. Vital capacity was recorded in liters / minute.
2. Pulse rate was measured in beats per minute.
3. Breath holding time was recorded in seconds.
4. Red blood cells, white blood cells and serum cholesterol was measured through blood analysis.

Statistical Procedure

In this study the analysis of covariance was used to analyze the results. The Scheff's post hoc test was used to analyze the means and differences between the means of the various groups.

Conclusions

1. Yogic practices and Interval Training had significantly improved the pulse rate, breath holding time, vital capacity and serum cholesterol.
2. When the experimental group-I (yogic practices) were compared with control group, there was significant improvement in pulse rate, vital capacity, breath holding time and serum cholesterol.
3. When the experimental group-II (Interval Training) was compared with control group, there was significant improvement in pulse rate, vital capacity, and breath holding time and serum cholesterol.
4. When the experimental group-I was compared with experimental group-II, experimental group-I had no significant difference in physiological variables where experimental group-II had a significant difference in physiological variables.
5. When the experimental group-I was compared with experimental group-II, experimental group-I had no significant difference in bio-chemical variables whereas experimental group-II had a significant difference in bio-chemical variables except W.B.C and R.B.C.

Recommendations

1. Similar study can be conducted using other physiological and bio-chemical variables.
2. The study may also be conducted in Asthmatic patients.
3. Similar study can be conducted separately for girls of different age groups.
4. It is recommended that yoga shall be made a compulsory part in the physical education programme in schools and colleges.
5. Comparative studies on the effects of yogasanas and other training schedules on the variables used in the studies shall be conducted.
6. Studies to see the effect of yogasanas on psycho-physiological and psychomotor variables shall also be conducted.
7. Similar studies may be conducted for other stages of yoga.
8. Similar studies may be conducted on state and National level players and Athletes to find the effects.
9. It is recommended that similar studies may be conducted separately for men of different age groups.

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Effect of Incantation method of Neuro-Linguistic Programming training on Mental toughness of football players

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Abstract

Mental toughness is an important aspect affecting the high level of sports performance. Recently the researchers are focusing on mental techniques and their impacts on psychological attributes of sports players. Neuro Linguistic Programming (NLP) is one such technique which could affect the psychological behaviour of athletes. There are different methods of NLP methods which are used in different contexts to bring about changes in the mind languages. The present study was done to evaluate the effect of incantation method of NLP techniques on mental toughness level of football players. This study engaged twenty-four (24) football players between the age range of 21 to 25 years and they were randomly assigned into two groups (control group and experimental group), consisting of twelve subjects in each. The experimental groups were provided with the Incantation method of the NLP technique for 4 weeks and the mental toughness of the two groups before and after the training were assessed using a valid and reliable questionnaire obtained from literature. The results of the present study indicated that there was significant ($p<0.05$) improvement in the mental toughness of foot players after undergoing incantation method of NLP training. Hence, it was proved that the Incantation method of NLP techniques had positive impacts on enhancing the mental toughness of sports players and they could be applied in increasing the performance of sports participants. Keywords: Mental coaching; Psychological training; Sports performance; Sports psychology.

Introduction

Mental toughness is an important performance related mental attributes which includes resilience, a positive attitude, emotional intelligence, and the ability to remain focused and calm under pressure. The actual mental toughness is also about adaptability, learning from experiences, and not being afraid to step out of comfort zone. It is important for the athletes to possess mental toughness to express their skills in sports. The success in competitive situations was associated with possession of a psychological edge and a positive mindset (Kuan & Roy, 2007). Specifically, it indicated that mental toughness facilitated maintenance of high-performance levels, even when athletes were faced with challenges, barriers, and adversity (Connaughton et al., 2008).

In the meantime, the psychological approaches especially the application of mental training techniques such as mental imaginary, self-talk, and mindful relaxation were known to improve the psychological components and resulting in the effective enhancement sports performance (Driskell et al., 1994). Neuro Linguistic Programming (NLP)is a psychological training technique which is a study of human excellence. It describes human functioning, and focuses on experience and experimenting rather than prescription; it can focus on how to intervene, transform and improve human functioning (Saunders, 2009).

The art and psychology of NLP provides greater control over the ability to be at the best more often. It allows a person to communicate more effectively and have greater control over your emotional state (O'Connor & Seymour, 2011; Kotera et al., 2019). Studies have proved that NLP training methods such as Swish, Anchor, bad memories reduction and new behavior generator methods of NLP training had positive impact on the psychological aspects such as sports motivation, sports confidence and sports competition anxiety (Raguvarman et al., 2023; Raguvarman et al., 2025)Similar to the aforementioned NLP techniques Incantation is one method of NLP training which involves repeating of positive statements or affirmations with emotion and belief. It is a way to program one's mind to adopt new beliefs and behaviours. This method of NLP training reinforced positive thought when they say the positive statements out loud with energy (Duru, 2024). Mental toughness is key in competitive sports, and NLP plays a crucial role in its development. By using NLP techniques to reprogram limiting beliefs, athletes can enhance their mental toughness, which helps them push through adversity and stay focused on their goals (Akbarzade et al., 2017).However, studies are rarely observed relating to the effect of NLP training especially with the incantation method and mental toughness. Hence this study was done with the aim to analyze the effect Incantation method of NLP training on the mental toughness of football players.

Methodology

The current study was employed for a sample of twenty-four (N=24) participants who were selected randomly from the University foot-ball players of Northern province of Sri Lanka, who were between the age range of 21 to 24 years. They were randomly and equally divided into two groups as experimental group and control group where there were twelve participants in each.

Experimental design

In this study, the researcher used a longitudinal study with a quantitative experimental approach to examine the research hypothesis where it compared the effect of NLP technique between the experimental group and control group. A completely randomized design was used to assign the selected subjects to the focus groups and to perform the experiments.

Experimental procedure

Provision of NLP training

The Incantation method of NLP training was provided as one-hour session on the basis of two days per week for a period of four weeks. The training was provided for the experimental group where they were asked to repeatedly and loudly say positive statements relating to their self-confidence, mental strength and achievements in sports. The control group was not given any training and they were ensured to stay emotionally neutral during this period of four weeks.

Research instrument

The research instrument used in the present study to measure the mental toughness variable is Sports Mental Toughness Questionnaire (SMTQ) which was derived from literature as recommended by Sheard et al., (2009). The Sports Mental Toughness Questionnaire is a 14-item survey designed to evaluate mental toughness. The survey was completed on a 4-point Likert Scale, anchored by 1 (not at all true) to 4 (very true). Scores on the scale ranged from 14 to 56. The SMTQ had been shown to have adequate support for reliability and validity (Sheard et al. 2009). Sheard et al. (2009) showed that the SMTQ had adequate divergent validity. Additionally, reliability of the Sports Mental Toughness Questionnaire was established by demonstrating internal consistency of all scales with Cronbach's alpha levels above 0.70 (Sheard et al., 2009).

Measurement of mental toughness

The mental toughness of the sample of football players were measured for the experimental group before and after the Incantation method of NLP training for four weeks using Sports Mental Toughness Questionnaire. For control group, the measurement of mental toughness was done twice similar to the experimental group and the period between the measurements were four weeks during which they engaged in usual practices.

Data analysis

The data analysis was done using the SPSS software version - 25. The data obtained for the control group and experimental group before and after the training were compared using paired sample t-test at 95% confidence level in order to identify whether there is any change in the mental toughness of players by undergoing incantation method of NLP training.

Results and discussion

The sample selected for the study was homogeneous in gender, where all participants were males. Further, the mean age of the control group and experimental group were 23.08 ± 1.24 and 22.83 ± 1.47 years, respectively. This showed that there was no significant difference (P value = 0.656) in the age of two groups selected for the research study.

Effects of Incantation method of NLP training on mental toughness

It was identified that the mental toughness is a crucial attribute for success in competitive sport and the development of champion sport performers (Durand-Bush & Salmela, 2002; Gould et al., 2002). The current study had identified the impact of incantation method of NLP training on the mental toughness of football players and the results are indicated in Figure 1.

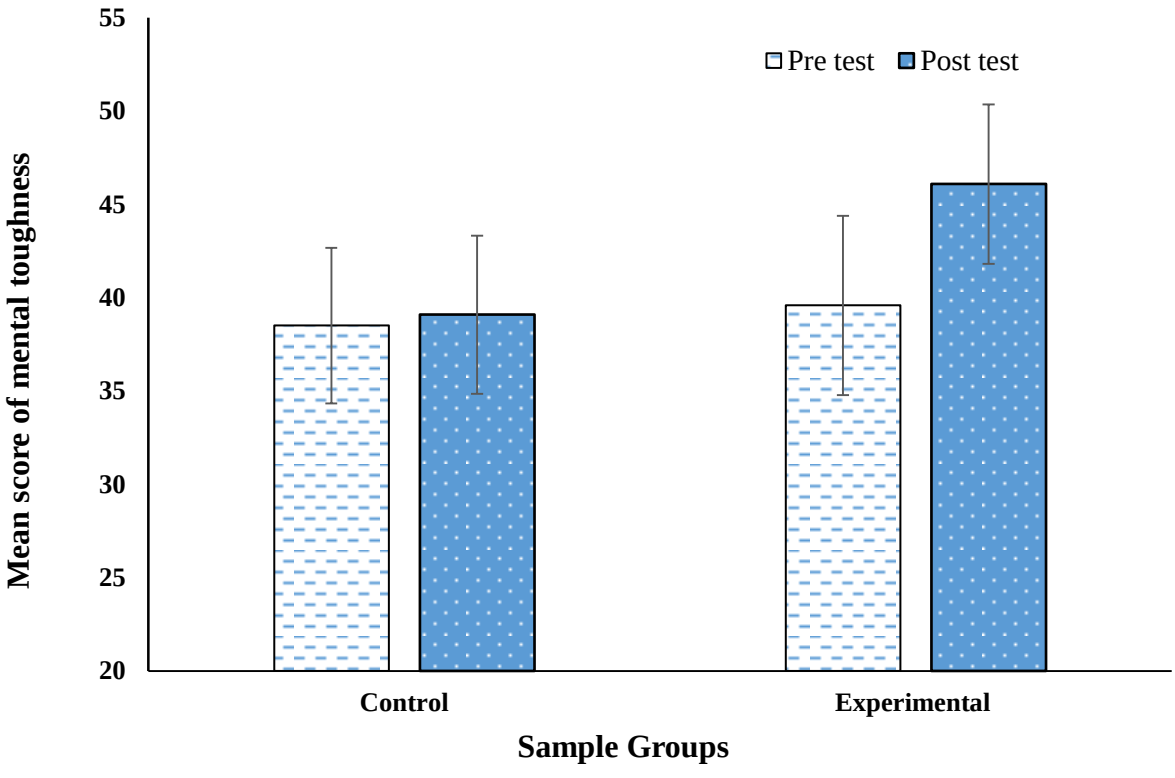

Figure 1: Mental toughness of football players before and after the NLP training

As indicated in Figure – 1, there is a significant improvement (P< 0.05) in the mean level of mental toughness by undergoing the incantation method [t (11) = -5.093, p=0.000] of NLP training for 4 weeks. However, there was no significant change in the mental toughness of control group [t (11) = -1.735), p = 0.111]. The results indicated that the mean level of mental toughness of selected football players increased from 39.58 ± 4.80 to 46.08 ± 4.27 after undergoing the incantation method of NLP training. However, the mental toughness of control group who were not given with any type of mental training remained unchanged.

The previous studies proved that there were positive effects of NLP training on the psychological aspects of teachers, students in prison and other achievers (Ahmadzadeh et al., 2019; Hijazi, 2012; Lashkariana & Sayadiana, 2015; Sharif & Aziz, 2015). A previous study by Akbarzadeh et al. (2018) had proved that neuro-linguistic programming strategies increased the sports self-confidence, and performance of athletes with disabilities. Most importantly, teaching the neuro-linguistic programming strategies affected the mental toughness in the veteran and disabled athletes (Akbarzade et al., 2017).

As supporting to the previous findings, the current study proved that the Incantation method of NLP training had significantly improved mental toughness of sports players which is an attribute which would have impact on the sports performance of players leading to success in competitive sports. Hence, NLP training technique applied in this study would be employed as the effective ways of managing the psychological states of sports players.

Conclusion

It was inferred from the findings of the present study that the incantation method of Neuro-Linguistic Programming (NLP) training had positive effect on the mental toughness of sports players after administering for a period of four weeks. Consequently, the identified NLP training method could be employed as effective strategy for the enhancement of sports performance.

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Effect of Yogic practices and Interval Training on selected Bio-Chemical variables among High School Boys

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Introduction

In today's world, sport plays an important role in our lives. Not so long ago it was the hobby of the idle rich. Today, millions of people under modern conditions participate in it, and sport has got woven into the fabric of modern life, providing a counter weight to the excessive comforts and indulgences of today.

Yoga

"Yoga has a complete message for humanity. It has a message for the human body, it has a message for the human mind, and it has also a message for the human soul. Intelligent and capable youth must come forth to carry this message to every individual not only in India, but also in every other part of the world".

Interval Training

Interval training is to subject the body to repeat but short intermittent periods of reduced intensity. Interval training is advocated by many of the top coaches, trainers and performers who have used it to advantage.

3. A specific distance that is repeated at given number of times.
4. A recovery period during which the athlete jogs slowly and relaxes.

Statement Of The Problem

The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physiological and Biochemical variables through selected asanas and interval training.

Hypothesis

There may be significant differences in the way the selected bio-chemical variables respond to yogasanas.There may be significant differences in the way the selected bio-chemical variables respond to interval training.There may be significant differences on the responses of selected bio-chemical variables among yogic practices and interval training groups.

Significance Of The Problem

The study might throw light on whether selected yogasanas and interval training might cause desirable changes on selected bio-chemical variables. It would also be possible to find out whether any one-exercise program might have a marked difference over the other in bringing out changes in the selected bio-chemical variables.

Delimitations

The subjects were selected randomly from TSW Residential School (Boys), Janagoan, Warangal Dist.The study was delimited to the age group ranging from 12 to 15 years.

The study was conducted on ninety boys only.

The following bio-chemical variables only were selected.

Bio-Chemical Variables

Serum cholesterol

Red blood cells

White blood cells

Limitations

The study was limited in the following aspects and these limitations would be taken into consideration in the interpretation of the results. The possible variables such as air, temperature, atmospheric pressure, relative humidity etcetera during the testing periods, could not be controlled and their possible influence on the result of the study was not taken into consideration while interpreting the result.

Methodology

Sample and Design

To execute this investigation, the research scholar employed random sampling method. The study was conducted on a total sample of ninety boys drawn randomly from one hundred and fifty students of TSWR School, Janagoan, Warangal Dist, age was ranged from twelve to fifteen years. The pre and post tests design employing analysis of covariance technique was adopted.

Procedure

Experimentation –I

The selected ten Asanas training was given in six days a week except Sunday. The duration of the exercises was 20 minutes during the first month 30 minutes during the next month and 40 minutes during the third month in the morning from 6:30 A.M. to 7.10 A.M.

Experimental – II

The interval training was practiced by the subjects three days per week over a period of three months. Before giving the interval training the subjects were asked to warm up. The duration training schedule was 20 minutes during the first month 30 minutes during the second month and 40 minutes during the third month in the morning from 6:30 am to 7:10 am.

Criterion Measures

The following criterion measures were chosen for testing the hypothesis.

Red blood cells, white blood cells and serum cholesterol was measured through blood analysis.

Statistical Procedure

In this study the analysis of covariance was used to analyze the results. The Scheff's post hoc test was used to analyze the means and differences between the means of the various groups.

Conclusions

Yogic practices and Interval Training had significantly improved the serum cholesterol.

When the experimental group-I (yogic practices) were compared with control group, there was significant improvement in serum cholesterol.

When the experimental group-II (Interval Training) was compared with control group, there was significant improvement serum cholesterol.

When the experimental group-I was compared with experimental group-II, experimental group-I had no significant difference in bio-chemical variables whereas experimental group-II had a significant difference in bio-chemical variables except W.B.C and R.B.C.

Recommendations

Similar study can be conducted using other physiological and bio-chemical variables.

The study may also be conducted in Asthmatic patients.

Similar study can be conducted separately for girls of different age groups.

It is recommended that yoga shall be made a compulsory part in the physical education programme in schools and colleges.

Comparative studies on the effects of yogasanas and other training schedules on the variables used in the studies shall be conducted.

Studies to see the effect of yogasanas on psycho-physiological and psychomotor variables shall also be conducted.

Similar studies may be conducted for other stages of yoga.

Similar studies may be conducted on state and National level players and Athletes to find the effects.

It is recommended that similar studies may be conducted separately for men of different age groups.

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Assessment Of Knowledge And Participation Of Secondary School Female Teachers In Recreational Activities In Jigawa State

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Abstract

This study investigated the knowledge and participation of secondary school female teachers in recreation activities among Secondary School female teachers in Jigawa state. To achieve the purpose of this study, three research questions, one main and three sub- hypotheses were formulated and tested. Descriptive research of survey type was used for the study. The population of the study consisted of female teachers of 11,700 in Jigawa state, while the sample of the study was 209 calculated and extracted using Krejcie & Morgan (1970) table for determining appropriate sample size from the total population of the study, and the participants selected through stratified sampling technique. Data collected was quantitative, using researchers developed questionnaire on four point modified Likert scale type. The instrument was validated by 3 experts in the field of the study and a reliability Co-efficient of 0.76 was obtained. The data collected were analyzed using frequency count and percentage to organize and describe the demographic characteristic of the respondents, t-test was used to test hypotheses 1-2, while Pearson Product Moment Correlation Co-efficient was used for hypothesis three at 0. 05 level of significance. The findings of this study revealed that, Secondary school female teachers have no significant knowledge of recreational activities in Jigawa state, Secondary school female teachers do not significantly participate in recreational activities in Jigawa state that there is no relationship between knowledge and participation of recreational activities among female secondary school teachers in Jigawa state. Based on the findings of this study, the study recommends that the school authority should organize enlightenment campaigns and programs for the staff, in order to help them understand more on the benefits to participate in recreational activities. **Keywords**: Assessment, female teachers, knowledge, participation, secondary school teachers, recreational activities

Introduction

Recreation is an organized activity that one engages in during free time and is voluntarily chosen activity by an individual because of satisfaction, pleasure or enrichment in their lives (Bianchi, 2013). Recreation participation must result in constructive, positive and socially acceptable behaviour (Mattingly & Bianchi, 2013). These activities among others could include hiking, walking, jogging, dancing and playing any game which involves physical exertion for fun (Nolan & Surujlal, 2019), other leisure activities could be indoor activities or experiences like drama, watching television, reading or even watching sporting activities on a television screen. These activities involve some degrees of learning and hence, provide opportunities for intellectual development of participants (Mwisukha & Wanderi, 2019).

In modern society, people use leisure and recreation as a way of counter – balancing stresses that result from living in a competitive and rapidly changing society. Kelly (2010) in Edginton, (2013) clarifies that some leisures may be modernized in such a way that anybody can participate on his own or in a society; recreation – by definition – is always beneficial in intent benefits associated with participation in recreation include relaxation, improved work production and improved health status (Donnlley & Coakley, 2012).

Shaw and Henderson (2015) stated that, Female teachers belong to this working population and may not be left behind in the contemporary leisure and recreation issues affecting people worldwide. For teachers, there is no time slotted in the timetable for marking, but they do so during their free time. For them to beat deadlines, they may be compelled to carry the work to their homes or have extra time on weekends and during holidays to cover their syllabi on time. Henderson. (2013) argue that, because women tend to be coordinators of family life, it is often very difficult for them to have extra time for themselves independent of household responsibilities.

Recreational activities help in managing stress. It provides a chance to nurture oneself and provides a sense of balance and self-esteem, which can directly reduce anxiety and depression. There is also an increased motivation to learn as it can serve as a laboratory for application of contents learnt in classrooms teaching (Adeniyi, 2010).

Recreation is a critical dimension of the quality of life for all people. It is a vehicle through which people have fun, meet new friends, and develop skills and competencies. The word "Recreation" is commonly viewed from the concept of play which is usually the term for children's recreational activities. Recreation is freely chosen, enjoyable and beneficial leisure time activity in which one voluntarily engage in because of the satisfaction derived from them (Adeniyi, 2010). Adeniyi, (2010) Affirmed that, recreation renews our strength and spirit after toil. Thus, it is regarded as a tool for mental and physical therapy, and for preparing the body for performance. Tokildson (2015) defined recreation as a voluntary activity a person chooses to participate in during available leisure time, which generates an experience that results in satisfaction, and may lead to enjoyment, pleasure, achievement and / or sense of wellbeing. People generally see recreation as social instrument because of its contributions to the society; that is because professionals have long used recreation programme and services to produce socially desirable outcome such as wise use of the free time, physical fitness and positive youth development.

Statement of the Problem

Participation in recreation activities by female teachers is an effective method for relieving pressure, suggests that teachers should actively participate in recreation activities to promote health, happiness and social relationships that enhance teaching efficiency (Chen, 2014). Everyone in this world including those in educational sectors or those residing in the remote areas need to take part in recreational activities as an important facet of life to sustain social relationships and approval from others. Participation in recreational activities can helps one to relieve pressure, therefore, promoting health, joy and healthy social relationships and attain a sense of wellbeing. Most schools visited there are recreation or common rooms for female teachers. However, most recreation rooms seem not fully utilized and which signifies that, they seem not to participate fully in recreational activities. It was also observed that, work commitments, lack of opportunity and time, price of recreational, lack of knowledge and awareness of where, how and why to participate in the activity may be hindrance and barrier to female teacher recreational activities.

However, Chen (2014), highlighted factors that may hinder participation in leisure and recreation such as constraints of time, income, overwork, lack of awareness, access to facilities, cultural impediments, domestic commitments and gender discrimination. These factors can be summed up as perceived constraints that inhibit or militate against participation in and enjoyment of leisure and recreation. It is also observed by the researcher that, no specific activities is designed for female teachers for recreational activities by Ministry of Education Jigawa State. This shows that, the majority of the female teachers seem not participate in recreational activities even with the facilities being put in place in each school. It is against this problem mentioned above that this study assessed the knowledge and participation of secondary school female teachers in recreational activities in Jigawa state.

Purpose of the Study

The study will assess knowledge and participation of secondary school female teachers in recreational activities in Jigawa state, with a view to possibly give suggestion that will enhance or improve their participation.

Hypotheses

The following hypotheses were formulated to guide the study:

- **Major hypothesis:** Female secondary School teachers do not have significant Knowledge and level of participation in recreational activities in Jigawa state.
- **Sub-hypothesis:**

$H0^1$: There is no significant knowledge on recreational activities among female secondary School female teachers in Jigawa state

$H0^2$: There is no significant participation in recreational activities among female secondary School female teachers in Jigawa state

$H0^3$: There is no significant relationship between knowledge and participation of recreational activities among female secondary school teachers of Jigawa state.

Review of Related Literature

The study investigated knowledge and participation of female Secondary School teachers in recreational activities in Jigawa state. The review of related literature in this paper will be discussed under three (3) phases; conceptual background, theoretical and empirical studies. Conceptually, the paper will discuss the concepts of recreational activities, benefits of participation in recreational activities, types of recreational activities, knowledge of recreational activities. Furthermore, the chapter will discuss two (2) theories in relation to the aspect of this paper, and the paper last by reviewing the empirical studies on the participation of female teachers in recreational activities in Secondary Schools.

Conceptual Background

Concept of Recreational Activities

Recreation is the expenditure of time with intent to gain some refreshment. It is a break from monotony and a diversion from the daily routine. It is a positive change from the stereotypical lifestyle and involves in active participation of some entertaining activity (Oak, 2010). Recreational activities involve an element of enjoyment and happiness obtained from engaging in something one likes. Different recreational activities serve as the sources of immense pleasure and provide relaxation to one's mind and body (Oak, 2010).

Boniface *et al.,* (2012) corroborated this in their view when stated that recreations are the varieties of activities we choose to undertake during leisure time. Recreation, therefore, are pursuits taken-up during leisure time other than those to which people have a high commitment.

Recreation according to Boniface *et al.,* (2012) is a measure of time, usually used to mean the time left over after work, sleep, and personal and household chores have been completed. Akogun (2010) reports that; leisure and recreation are classified as tourism activities which involve other sectors of the economy (transportation, education, industry, urban development, forestry, telecommunications, etc.); national, state and local socio-economic policies and socio-political traditions. While caught in the rut of hectic jobs and routine chores, everyone needs some time to revitalize their mind and body, and indulge in recreational activities.

Opportunities to combine work, rest and play should not be taken for granted because as Swann (2011) explains, recreation is an essential component of emotional, physical and cultural wellbeing required for balanced lifestyle and a complete person. Recreational activities give staff an opportunity to spend time with our near ones and ourselves. They give academic and non-academic an opportunity to meet new people, make new friends and socialize. Some of the recreational activities help in developing leadership qualities and interpersonal skills. Aside work to meet the basic needs of man (i.e. hunger, warmth and safety), recreation is regarded as one of the basic human needs as sources of pleasure, relaxation and excitement (Fadamiro, 2012).

Benefits of Participation in Recreational Activities

Personal health, including psychological health, is one of the important outcomes of participation in recreational activities. Psychological health can be demonstrated as:

1. Stress reduction
2. Good self-esteem and positive self-image
3. Life satisfaction, inspiration and self-realization
4. Facilities are the places that people go to get healthy and stay fit.

According to studies by the Centers for Disease Control and Prevention, creating, improving and promoting places to be physically active can improve individual and community health and result in a 25 percent increase of residents who exercise at least three times per week (Boniface and Cooper 2011).

Types Recreational Activities

Some of these include faster healing from medical conditions, stress management, improved body function and better cognitive function (Umeasiegbu, 2013).

- **Helps You Relax** - Recreational activities help you relax and give soothing effect to your nerves. It helps you release the tension and maintain equilibrium. It is one of the best relaxation techniques to help you get back to work in full form.
- **Reduces Stress-** Are you feeling stress lately? Do late hours suck out the best in you? If tension is taking it allow you then recreation activities are best for you. Impacts Your Health- Recreational activities have a very good impact on your health. It is an excellent medicine for ailments which cannot be cured by any other manner. It is a natural way to stay fit and healthy in life.
- **Social Benefits**- It helps you meet likeminded people and develop a favorable rapport. People who share common interest makes a joyful group that help each other to promote themselves.

Knowledge of Recreational Activities

Knowledge is critical to man's quality of life as everything we do depend on knowledge. Knowledge has been conceptualized as information that changes something or somebody by becoming grounded for actions or by making an individual capable of different or more effective action (Stuart & Achterbergh, 2004). It is the ability to understand or comprehend phenomena, the acquisition of positive information by the exercise of some capacity which humans presumably have in common (Nnachi, 2007).

An individual's behaviour and performance depends both on the knowledge that has been acquired through learning, practice and experience, as well as the sensory receptor of muscles, organs (Hunt, 2003). Knowledge according to Umaru (2003) comes about as a result of learning through cognitive, affective and psychomotor domain, therefore, knowledge does not stop at knowing or understanding of a phenomenon but also involves application, analysis and evaluation of what is known. Hunt (2003) further explained that a person can possess considerable knowledge as a result of learning but such knowledge remains a hidden power until the person uses the knowledge to do something- to perform a task, including practicing safety precautions during recreational sports activities.

Knowledge scores not only to stimulate interest in many forms of leisure activities, but also enables participation in some forms of leisure by providing necessary skills, awareness and developing appreciation (Godbey, 2014). He (Godbey, 2014) further explained that what people do during their recreation and how the leisure value they have are influenced by knowledge.

Theoretical Studies

Empirical Studies on Knowledge and Participation of Recreational Activities

Nolan and Surujlal (2009) in their study on assessment of impact of recreational activities among female Nurses in South Africa, reported that the duty of the female was traditionally regarded as that of a homemaker, where the family's wellbeing was her main responsibility. The duo also noted that with the enactment of the new Employment Equity Act (1998), equal career opportunities became available for all women in South Africa. The study revealed that, these additional career responsibilities resulted in women having more difficulty in balancing a career, health and family responsibilities, resulting in many instances of sacrificing opportunities to engage in recreational activities.

Jenkins & Pigram, (2005) in their study on influence of recreational activities on rural women, who stated that, despite the fact that women's presence in the labour market has increased in most societies, their disadvantages remain in the home relative to men's. This change may indicate convergence, divergence or stability in how women and men spend their time. Many theorists have examined time scarcity in modern society. As Nowotny (2014) summed it up in her classic book on time, the challenge for modern citizens on recreational activities, who stated that women are liable to feel increasingly hurried, is to "find time for them". Because women have been more constrained with regard to family- household obligations and commitments as compared to men, they are disadvantaged with regard to time for leisure**.** Of course, some scholars contend that all women are not primarily responsible for care-giving and homemaking, and some women who have the economic means are able to use part of their incomes to relieve household burden and to purchase their own leisure. Similarly, some argue that men will participate in household labour to the extent that there are demands on them to do so. Nowotny (2015) posits that, female teachers in Kenya have a regular income and may be in a position to hire house helps to assist with household chores, hence ample time to engage in leisure and recreation.

Summary

Literatures was reviewed conceptually, the Concept of recreation by different scholars, benefit of female teachers' participation in recreational activities, and the types of recreational activities, the knowledge and participation of recreational activities, and also those benefit derived from participating in recreational activities was also reviewed.

Furthermore, two (2) theories were discussed earlier above, each theory provide an emphasis more on the aspects and the title of this study. After that, some studies in relation to this study was also reviewed as an empirical evidence to the present study.

Methodology

This study assessed the knowledge and participation of Secondary School female teachers on recreational activities in Jigawa state. The methodology hinged on research design, population of the study, sample and sampling techniques, others were data collection instruments, validation of the instrument including validity and reliability of instrument, data collection procedure and data analysis.

The population of this study comprised all Secondary School female teachers in Jigawa state. The population was 11, 700, (Jigawa State Ministry of Education, 2022). A sample of two hundreds and nine (209) respondents was used for this study, selected using Krejcie & Morgan (1970) table for determining appropriate sample size from the total population of the study. Amburg (2004) suggested that in any population of the study, a sample of 209 was selected through Mult-Stage sampling method and used for this study out of the eight (8) Educational Zones.

The study used closed-ended self-constructed questionnaire, which comprised two (2) sections i.e. bio-data of the respondents and series of statements designed based on the objectives and the research questions of this study.

Descriptive research of survey type was used for the study. The population of the study consisted of female teachers estimated to be 11, 700 in Jigawa state, while the sample of the study was 209, selected through stratified sampling technique. Data collected was quantitative, using researchers developed questionnaire on four point modified Likert scale type. The instrument was validated by 3 experts in the field of the study and a reliability Co-efficient of 0.76 was obtained. The data collected were analyzed using frequency count and percentage to organize and describe the demographic characteristic of the respondents, t-test was used to test hypotheses 1-2, while Pearson Product Moment Correlation Co-efficient was used for hypothesis three at 0. 05 level of significance.

Results and its Analysis

Sub--hypothesis one: There is no significant knowledge of recreational activities among Secondary school female teachers in Jigawa state

Table 1.1: Showing T-Test Summary of the Respondents' Opinion on the Knowledge of Recreational Activities among Secondary School Female Teachers in Jigawa State

Variable	N	Mean	SD	df	t	P
Knowledge	205	1.0995	12307	204	-162.928	.001
Fixed Mean		2.50				

Source: t= 162.928, df 204, p>0.05

The table 1.1 above showed one sample t-test of knowledge of participation in recreational activities among female teachers in Jigawa state and the result revealed the means score of 1.0995 while the t-value was -162.928 and standard deviation .12307 and the probability value was recorded 0.001. This shows that the alpha value is greater than the P-value. This obtained mean of 1.0995 was less than the fixed mean. The null hypotheses is therefore retained. This implied that, the Secondary school female teachers in Jigawa State have no significant knowledge of recreational activities.

Sub-hypothesis two: There will be no significant participation in recreational activities among Secondary school female teachers in Jigawa State.

Table 1.2: Showing T-Test Summary on the Participation in Recreational Activities Among Female Secondary School Teachers

Variable	N	Mean	SD	df	t	P
participation on Rec	205	1.0312	.06104	204	-334.498	.000
Fixed Mean		2.50				

Source: t= -334.489, df 204, p>0.05

Table 1.2 above showed that one sample t-test of participation in recreational activities among female teachers the result revealed that the means score is 1. 0312 standard deviation of .06104 and t-test value of -334.498 while the probability value is 0.001. This indicated that, the alpha value is less than the P-value. The obtained value of 1.0312 is less than fixed mean. The null hypothesis is thus retained. This implied that, the Secondary school female teachers in Jigawa State do not participate in recreational activities.

Hypothesis 3: There will be no significant relationship between knowledge and participation of recreational activities among Secondary school female teachers in Jigawa State.

Table 1.3: Showing Correlation Summary of the Respondent Opinion on the Relationship between Knowledge and Participation

Variable	N	Mean	SD	r	P
Knowledge of Rec	205	1.0.995	.12307	.119	.088
Participation of Rec	205	1.0312	. 06104	. 1	
Total					

Source: r= .119 df=.1, p=..088

Table 1.3 above showed that, knowledge has a mean score of 1.0995 standard deviation of .12307 while participation mean score of 1.0312 and standard deviation of .06164 The statistical computation of r= .119 df=.1, p=..088. The null hypotheses is therefore retained. Which mean that, there is no relationship between knowledge and participation of recreational activities among Secondary school female teachers in Jigawa State.

Summary on Findings

This study investigated the knowledge and participation in recreation activities among Secondary School female teachers in Jigawa state. To achieve the purpose of this study, three research questions; one major and three hypothesis, were formulated and tested. Descriptive research of survey type was used for the study, the population of the study consisted of female teachers estimated to be 11,700 in Jigawa state while the sample of the study was 209 selected through sample random sampling technique and Purposive sampling technique. Data

collected was quantitative using researcher's developed questionnaires on four points modified Likert scale type. The instrument was validated by five (5) experts in the field of the study and a reliability Co-efficient of 0. 76 were obtained using split half method. 205 questionnaires out of 209 were returned and analyzed. The data collected were analyzed using frequency count and percentage to described the demographic characteristic of the respondents, t-test was used to test hypotheses 1-2 while Pearson Product Moment Correlation Co-efficient was used for hypotheses three at 0. 05 level of significance.

Discussion and Findings

The study investigated the knowledge and participation in recreation activities among secondary school female teachers in Jigawa state. The finding of this study revealed that, the female teachers have no significant knowledge of recreational activities in Jigawa state. This is in line with the study conducted by Jones (2015), on knowledge of recreation activities among female student upper basic in Adamawa state, who stated that, most of the female teacher do not have an experience on what recreation is all about. The study further suggested that, more recreational activities and enlighten need to be adequately provided especially to primary and secondary teachers. This finding is also in line with the study of Lee (1996) on knowledge and perceived participation on recreational programme in Katsina state. The study showed that all recreational activities are poorly known to the primary school female teachers.

This finding is equally in consonant with the study conducted by Adeloye (2013), who stated that both primary and upper basic teachers have poor knowledge of recreational activities which is the reason for their poor participation in recreational activities. This finding is also in agreement with the study of Benjamin, Edwards and Bharti (2015) on knowledge and predictors of recreation activity intentions and behaviors of female teachers and found that they do not involved in recreational activities as a result of absence of facilities and no time allocated for the activities The finding of this study revealed that, female teachers do not participate in recreational activities in Jigawa state. This finding is line with study conducted by Kabayi and Sarujlal (2014) on the level of participation on recreational activities among female lecturers in Hlanganani University in South Africa. The study found that the lecturers do not participate in recreational activities irrespective of their level of education. This finding is also in support of the study conducted by Owoniyi (2017) who conducted a study on recreational activities among secondary school teachers of in Maiduguri, in Nigeria. The finding is in line with the study conducted by Omolawon & Ibraheem (2011) on social factor predicting recreational participation among female civil servant in Kwara and Kogi states, Nigeria. This study revealed that participation in recreational activities was very poor as a result of lack of recreational facilities and equipment's. The finding is also in consonant with the study conducted by Shaw (2001), generally women are not availed the same opportunities as men to participate in recreational activities. Women share a common world in their unavailability of recreational equipment regarding opportunities for recreational participation

The finding of this study revealed that no significant relationship between knowledge and participation of recreational activities among female teachers in Jigawa state. The finding is supported with the study conducted by Gulam, (2016) on relationship between knowledge and participation in recreational activities he stated that knowledge of recreation is not related to the participation in the activities a female teacher generally value home activities than any other things, they do not performs within the free time zone or outside of the working hours for the reason of self-satisfaction. The finding is in agreement with the study conducted by Bulut, (2021) knowledge and participation in recreational activities is not related and seen as actually a natural phenomenon inherent in human beings. Every person literate and illiterate wants to get out of the routine life they live from time to time, experience something different, be physically and mentally refreshed, and therefore knowledge lead full participation in various recreational activities in their free time.

Conclusion

Based on the finding of the study, the followings conclusions were drawn;

1. Secondary school Female teachers in Jigawa state do not have knowledge of recreational activities.
2. Secondary school female teachers do not participate in recreational activities in Jigawa state
3. Relationship between knowledge and participation among secondary school female teachers in Jigawa state was very poor.

Recommendations

Based on the findings of this study, the following recommendations are made:

- Government and school authority in Jigawa state should organize enlightenment campaigns and programmes for the staff, in order to help them understand more on the benefits of participating in recreational activities.
- Ministry of education should emphasize benefit of participating in recreational activities and allocated them in the curriculum as this may encourage them to participate in recreational activities in Jigawa State.
- School Management should provide adequate fund to recreational centers so as to purchase and maintain recreational facilities to motivate staff to participate in recreational activities.

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The Role of Merchandising in Sports Revenue Models in the Indian Context

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Introduction

Sports merchandising has emerged as a critical revenue stream in India's rapidly growing sports industry. With the Indian sports merchandise market valued at □4,250 crore ($500million) in 2023 and *projected to reach* □8,500 *crore* ($1 billion) by 2028 (KPMG India, 2023), understanding its dynamics becomes essential. This paper examines how merchandising contributes to sports revenue models in India, focusing on cricket (IPL, national team), football (ISL), and kabaddi (PKL).

The research employs a mixed-methods approach:

- Analysis of financial reports from major leagues
- Consumer behavior surveys (n=2,500 across 15 cities)
- Case studies of successful merchandising strategies
- Comparative benchmarking with global markets

Current Market Landscape

Market Size and Segmentation

The Indian sports merchandise market exhibits stark segmentation by sport:

Sport	2023 Value (□ crore)	% Share	Growth Rate (CAGR)
Cricket	3,034	82%	18.2%
Football	370	10%	24.7%
Kabaddi	185	5%	31.5%
Others	111	3%	28.9%

Source: KPMG India Sports Merchandising Report 2023

Cricket's dominance stems from the IPL's commercialization success and national team following (Gupta & Dutta, 2021). However, football and kabaddi show higher growth potential due to younger fan bases (Mehta, 2022).

Price Segmentation

The market divides into four price tiers:

1. **Premium (□2,500+):** Official team jerseys (12% of sales)
2. **Mid-range (□1,000-2,500):** Training wear, caps (23%)
3. **Economy (□500-1,000):** Replica jerseys (35%)
4. **Counterfeit (□200-800):** 30% of total market (Krishnan & Patel, 2020)

Consumer Behavior InsightsDemographic Analysis

Survey data (YouGov India, 2023) reveals:

- **Age Groups:**
  - 16-25 years: 42% of purchasers
  - 26-35 years: 38%
  - 36+ years: 20%
- **Purchase Drivers:**
  1. Team/player loyalty (73%)
  2. Special occasions (IPL finals, World Cup) (61%)
  3. Fashion statement (44%)
  4. Gift purchases (32%)

Purchase Channels

Distribution channels show significant digital adoption:

Channel	% Share	Growth Rate
E-commerce	47%	34% yoy
Stadium stores	28%	12% yoy
Brand outlets	18%	8% yoy
Local markets	7%	-5% yoy

Source: Indian Retail Federation, 2023

Comparative Analysis: India vs. Global Markets

Per Capita Spending

Indian fans spend significantly less than global counterparts:

Market	Annual Spend per Fan
USA (NFL)	$32
UK (EPL)	£18
India (IPL)	□210 ($2.8)
China (CSL)	¥45 ($6.5)

Source: PwC, 2023

Licensing Revenue

Licensing gaps highlight untapped potential:

League	Licensing Revenue	Per Team Average
NFL	$3.5 billion	$109 million
EPL	£1.1 billion	£55 million
IPL	□320 crore	□20 crore
ISL	□28 crore	□2 crore

Source: Deloitte, 2023

Case Studies of Success

Mumbai Indians Merchandising Strategy

Key initiatives driving 132% revenue growth (2021-23):

- Exclusive e-commerce partnership with Reliance Digital
- Dynamic pricing model for matchday merchandise
- Augmented Reality-enabled jerseys (Economic Times, 2023)

Virat Kohli's Brand Ecosystem

Revenue streams demonstrate athlete branding potential:

1. Wrogn apparel: □85 crore
2. One8 collaborations (Puma): □120 crore
3. Digital collectibles: □18 crore (Forbes India, 2022)

Structural Challenges

Counterfeit Market

- Accounts for 58% of total merchandise sales (Krishnan & Patel, 2020)
- Loses □1,200 crore annually to fake goods (KPMG India, 2023)

Supply Chain Issues

- 60-day lead time for official merchandise vs 7 days for counterfeits
- 28% GST on licensed goods discourages formal sales (GST Council, 2022)

Future Growth Strategies

Digital Transformation

1. **Blockchain Authentication:** QR-code verification to combat counterfeits
2. **Virtual Merchandise:** Metaverse wearables for gaming avatars
3. **AI Customization:** 3D jersey design studios on team apps (McKinsey, 2023)

Policy Recommendations

1. Reduce GST on licensed merchandise to 12%
2. Fast-track IP protection for sports entities (Ministry of Sports, 2021)
3. Government-industry partnerships against counterfeiting

Conclusion

The Indian sports merchandising market stands at an inflection point. While cricket dominates currently, football and kabaddi present significant growth opportunities. Strategic focus on digital transformation, supply chain optimization, and policy reforms can help realize the market's □7,400 crore potential by 2028.

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Effect Of Plyometric Training And Strength Training On The Development Of Speed Among Male Taekwondo Players Of Telangana

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ABSTRACT

The purpose of the study to find out the effect of Plyometric training and Strength Training for the development of Speed among male taekwondo players of Telangana. To achieve the purpose of (45) forty five college level male taekwondo players of Telangana state. Their age category from 18-25 years, they were divided in three groups, Group- 1 underwent plyometric training group (PTG) Group-2 underwent strength training group (STG) and Group- 3 control (CG).Their did not participate in any special training, apart from their regular curricular activities. Training was given for twelve weeks and alternative three days per week. 50 M Test were used in the Study.The result of the study show there is a significant difference between the experimental groups and control group. The resultant has observed 'adjusted post test' means on speed of plyometric training group (PTG) was 5.85, strength training group (STG) was 5.63 & control group (CG) was 6.27. Hence Plyometric Training is better than strength training and control group for the development of Speed among Taekwondo Players.Keywords: Speed, Plyometric Training and Strength Training.

Introduction

Taekwondo made its first appearance at the Olympics as a demonstration sport at the 1988 Summer Olympics in Seoul, South Korea. The opening ceremony featured a mass demonstration of taekwondo, with hundreds of adults and children performing moves in unison. Taekwondo was again a demonstration sport at the 1992 Summer Olympics in Barcelona, Spain. Taekwondo became a full medal sport at the 2000 Summer Olympics in Sydney, Australia, and has been a sport in the Olympic Games. The quest to bring taekwondo to the Olympics began in 1974 in the United States when taekwondo was admitted into the Amateur Athletic Union.

Plyometric Training

Plyometrics is the term now applied to exercise, that have their roots in **"Europe"** where they were first known simply as "jumping training". Interest in this jump training increased during the early 1970's as east European athletes emerged as powers on the world sports scene.

Strength Training

Strength training follows the fundamental principle that involves repeatedly overloading a muscle group. This is typically done by contracting the muscles against heavy resistance and then returning to the starting position.

Methodology

To achieve the purpose of (45) forty five college level male taekwondo players of Telangana state. Their age category from 18-25 years, they were divided in three groups, Group- 1 underwent plyometric training group (PTG) Group-2 underwent strength training group (STG) and Group- 3 control (CG).Their did not participate in any special training, apart from their regular curricular activities. Training was given for twelve weeks and alternative three days per week. 50 M Test were used in the Study

RESULTS;

Table –I:**Computation Of Analysis Of Covariance On Speed Of Experimental And Control Groups (50 M Run Test)**

Test	Means			Sources of Variance	Sum of Square	DF	Mean Square	F	'P" Value
	Plyometric Training Group (PTG)	Strength Group (STG)	Control Group (CG)						
Pre	6.33	6.25	6.24	**B**	0.07	2	0.33	0.18	0.83
				W	7.57	42	0.18		
Post	5.90	5.61	6.25	**B**	3.11	2	1.55	11.43*	0.01
				W	5.71	42	0.14		
Adjusted Post	5.85	5.63	6.27	**B**	3.23	2	1.62	105.31*	0.01
				W	0.63	41	0.02		
Mean Gain	0.43	0.64	0.01						

*Significant difference at 0.05level.

Table –I displays that the pre test mean on speed of plyometric training group (PTG) was 6.33, strength training group (STG) was 6.25, and control group (CG) was 6.24.The observed p- value on ‘pre- test’ 0.83 was higher thanthe ‘p value’ of 0.05 to be significant at0.05 level of confidence. This showed that there were no statistical significant variation on the pre tests between the ex-gps as well as cg showing that the way of assigning of the groups was perfect while ‘assigning’ the subjects to groups.The final test assessment showed that there was a statistical significant variance between the groups; the attained ‘p’ value 0.01 was lower than the p- value of 0.05. This was conformed that there were significant changes between the final tests means of all the groups.Taking into consideration of the initial and final test between the groups, the ‘adjusted post test’ were estimated go through to statistical method. The observed ‘p value’ of0.01 was smaller than the required p- value of 0.05. This showed that there were significant changes between the means of ex-gps due to the allotted exercises on speed.Since the significant changes were noted, the resultants were applied to pair-wise comparison between the EX-GPS and CG. The results are displayed in table XIV.

TABLE II

‘PAIRED’ MEAN COMPARISON ON SPEED OF EX-GPS AND CG

Adjusted Post Test Means			**Mean Difference**	**'P' Value**
Plyometric TrainingGroup	**Strength Training Group**	**Control Group**		
-	5.63	6.27	0.64*	0.01
5.85	-	6.27	0.42*	0.01
5.85	5.63	-	0.22*	0.01

*Significant difference at 0.05 level.

Table -II clearly display that the paired mean significant variance on speed among the prescribed treatment groups as well as control group. And the ‘variation’ in speed between the EX-GPS and CG were initiate to be statistical significant variance among the paired means of PTG and STG, PTG and CG, strength training group as well as control group.

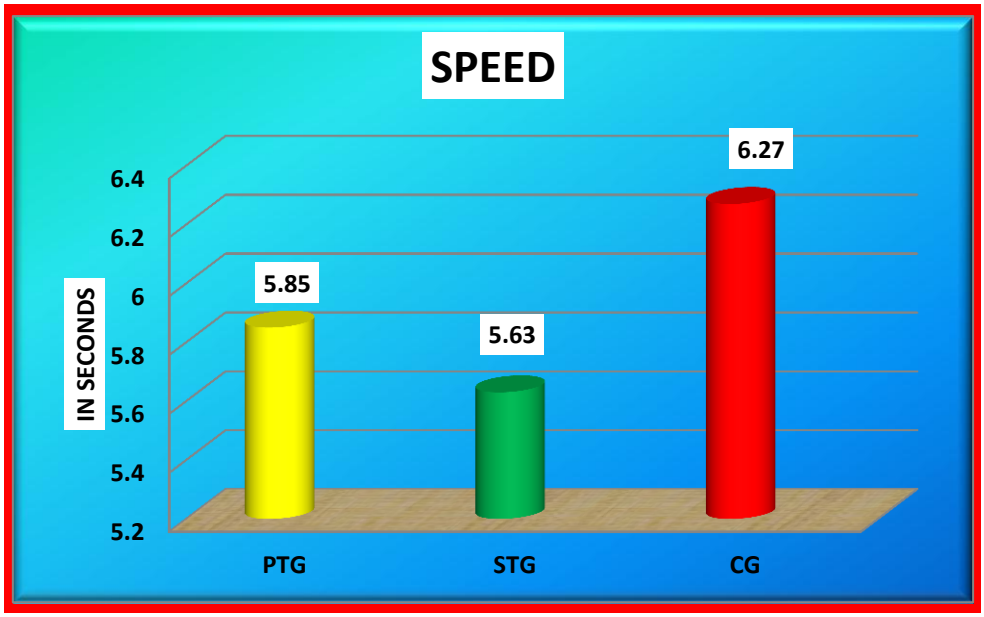

FIGURE -I

ADJUSTED POST TEST MEANSON SPEED OF EX-GPS AND CG

Discussion on Findings of Speed

The resultant displayed in the Table II indicated that the observed 'adjusted post test' means on speed of plyometric training group (PTG) was 5.85, strength training group (STG) was 5.63 & control group (CG) was 6.27. The variance between initial test, final test and 'adjusted post test' mean of the subjects were statistically exercised by applying ANCOVA and 'p' values attained were 0.83, 0.01 & 0.01 individually. It was predicated that the obtained 'p' valuesof post test' and 'adjusted post test' means were statistically differ significantly as the observed 'p' values were smaller thanthe 'p' value of 0.05.

Probably plyometric training group (PTG) and strength training group (STG) would be effective in causing statistically significant development between the EX-GPS on speed. As well as when comparing the 'adjusted post test' mean results of speed the strength training group (STG) had better improvement than the other groups.

Conclusions

From the analysis of the data and results of this research study, the following conclusions were arrived:The resultant has observed 'adjusted post test' means on speed of plyometric training group (PTG) was 5.85, strength training group (STG) was 5.63 & control group (CG) was 6.27. Hence Plyometric Training is better than strength training and control group for the development of Speed among Taekwondo Players

Recommendations

On the basis of results arrived from this research study, the following recommendations were created.

1. The results predicted in this research study may be utilized by physical education teacher, fitness trainer and coaches for their training programme to enhance the selected physical fitness performance of college level men players..
2. The results found in this research study may be utilized by physical education teacher, fitness trainer and coaches for their training programme to enhance the selected body composition performance of college level men players.

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Comparison of Explosive Power among Kabaddi and Kho Kho School Players of Nizamabad District between the age group of 14 to 16 Years

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Abstract:

The purpose of the study was to find out the effect of Explosive Power among Kabaddi Players and Kho Kho School Players of Nizambad District between the age group of 14 to 16 Years. For the present study the 25 School Kabaddi players and 25 School Kho Kho Players of Nizambad District between the age group of 14 to 16 Years.. The standing Broad Jump Test Pre and Post Test were conducted among two groups to assess the explosive power of legs. The Kabaddi School Players Mean in Standing Broad Jump is 2.48 and Kho Kho Players Mean is 2.32 . The Standard Deviation of Kabaddi Players is 0.10 and Kho Kho Players is 0.05.Hence Kabaddi School Players is having better Standing Broad Jump Performance compare to Kho Kho School Players. Hence there is difference between Kabaddi School Players and Kho Kho School Players in Standing Broad Jump i.e. explosive Power . The Kabaddi Players Performance is better than Kho Kho Players in Standing Broad Jump. Key Words: Explosive Power, Kabaddi, Kho Kho etc.

Introduction:

Sports form an important aspect of life. They play a vital role in bringing about physical, mentaland social growth of individual at its bestPhysical fitness is a general state of health and well-being and, more specifically, the ability to perform aspects of sports or occupations. Physical fitness is generally achieved through correct nutrition, moderate-vigorous physical activity, exercise and rest. It is a set of attributes or characteristics seen in people and which relate to the ability to perform a given set of physical activities.

Kabaddi is a contact team sport played between two teams of seven players. The objective of the game is for a single player on offense, referred to as a "raider", to run into the opposing team's half of the court, touch out as many of their players and return to their own half of the court, all without being tackled by the defenders in 30 seconds. Points are scored for each player tagged by the raider, while the opposing team earns a point for stopping the raider. Players are taken out of the game if they are touched or tackled, but are brought back in for each point scored by their team from a tag or a tackle.

The game of Kho-Kho is based on natural principles of physical development. It is vigorous and fosters a healthy competitive spirit among youths. It is not merely running with speed but it's a 'CHASE' a natural instinct to overtake to pursue, to catch a kill. No doubt speed is the heart and to stand to a relentless pursuit of 9 minutes at a stretch (turn) this heart demands stoutness.

Avula Srinivas (2023) effect of Explosive Power among High School Kabaddi Players and Kho Kho Players of Central Telangana. For the present study the 50 High School Kabaddi players and 50 Kho Kho Players of Central Telangana. The standing Broad Jump Test Pre and Post Test were conducted among two groups to assess the explosive power of legs. Regarding the leg explosive power of the selected high Kho-Kho and Kabaddi players of Central Telangana. Mean of the leg explosive power of Kho-Kho players is 183.71 with 7.542 Std. Deviation and mean of the Kabadi Players is 186.89 with 5.880 Std. deviation. The

mean difference between leg explosive power of the Kho-Kho and Kabaddi players is 3.182. This implies that the motor fitness variable such as leg explosive power of Kho-Kho and Kabaddi players are showed significantly difference . The Kabaddi Players is having better explosive Power compare to kho kho Players: Key words: Explosive Power, Kabaddi, Kho Kho etc.

Purpose of the study:

The purpose of the study was to find out the effect of Explosive Power among Kabaddi Players and Kho Kho School Players of Nizambad District between the age group of 14 to 16 Years.

Methodology:

For the present study the 25 School Kabaddi players and 25 School Kho Kho Players of Nizambad District between the age group of 14 to 16 Years.. The standing Broad Jump Test Pre and Post Test were conducted among two groups to assess the explosive power of legs.

Standing Broad Jump Test:

Purpose: To measure the power of the legs in jumping forward Equipment: Either a mat or floor may be used for this test marking material is needed for the starting line, along with a table measure to mark off increment of distance along the standing area.

Test administration: The subject toes a starting line, two feet from the end of a gymnasium mat held firmly in place against the wall, and jumps as far as possible. With a feet parallel to each other and behind the standing mark. The performer bends the knees and swings the arms and jumps as forward as possible. The best of three trails is recorded to the nearest inch. Scoring: The number of inches between the starting line and the nearest heel upon landing is the score. Three trails are permitted and then the best trails are recorded as the score.

Results and Discussion:

Table 1: One Way Anova Is Used To Test The Significance Mean Difference Between Kabaddi Players And Kho-Kho Players In Standing Broad Jump.

Descriptives	N	Mean	Std. Deviation	Std. Error
Kabaddi	25	2.48	0.10	0.01
KhoKho	25	2.32	0.05	0.00
Total	120	2.40	0.11	0.01

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.833	1	0.833	117.408	0.000
Within Groups	0.838	49	0.007		
Total	1.671	119			

The Kabaddi School Players Mean in Standing Broad Jump is 2.48 and Kho Kho Players Mean is 2.32 . The Standard Deviation of Kabaddi Players is 0.10 and Kho Kho Players is 0.05.Hence Kabaddi School Players is having better Standing Broad Jump Performance compare to Kho Kho School Players. Hence there is difference between Kabaddi School Players and Kho Kho School Players in Standing Broad Jump i.e. explosive Power . The Kabaddi Players Performance is better than Kho Kho Players in Standing Broad Jump. Key Words: Explosive Power, Kabaddi, Kho Kho etc.

Conclusion:

Hence there is difference between Kabaddi School Players and Kho Kho School Players in Standing Broad Jump i.e. explosive Power . The Kabaddi Players Performance is better than Kho Kho Players in Standing Broad Jump

Recommendations:

The study also helps the physical educationists and coaches understanding the knowledge and performance of the school kabaddi and kho kho players.

References:

Avula Srinivas (2023) effect of Explosive Power among High School Kabaddi Players and Kho Kho Players of Central Telangana, IRJEdT Volume: 05 Issue: 12 | Dec-2023

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Effect of Core Strength Training for development of Shoulder Strength among Kabaddi Players of Osmania University

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Abstract:

The objective of the study is to determine the effect of Core Strength Training for development of Shoulder Strength among Kabaddi Players of Osmania University between the age group of 18 to 25 Years..The sample for the present study consists of 30 Male Kabaddi Players out of which 15 are experimental group and 15 are controlled group. Core Strength training exercises were given to the Experimental Group along with general training of Kabaddi and control group has doing general Training of Kabaddi for eight weeks..To assess the Shoulder Strength the Pull Up Test were used in the Pre Test and Post Test of the Study. This study shows that the Experiment Group increase the shoulder Strength compare to the control group. It is concluded that due to core strength training there is a improvement of Shoulder Strength among Kabaddi Players. Key words: core strength training, Kabaddi, explosive power etc.

INTRODUCTION:

Kabaddi is basically a combative sport, with seven players on each side; played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is to score points by raiding into the opponent's court and touching as many defense players as possible without getting caught on a single breath..

Dr. G Redempta Nishanthi (2023) Studied the effect of Theraband resistance training on shoulder strength and core strength among Kabaddi players. To achieve the purpose of this study, 20 male Kabaddi players were randomly selected as subjects from Aditanar College of

Arts and Science, Tiruchendur, Tamilnadu, India. Their age ranged from 18 to 25 years. The selected participants were randomly divided into two groups such as Group 'I' underwent Theraband resistance training (n=10) and Group 'II' acted as control group (n-10). Group 'I' underwent Theraband resistance training for four alternative days and one session per day and each session lasted for 45 minutes to an hour for six week period. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on shoulder strength and core strength were collected and administering by pushups test and plank test. The pre and posttests data were collected on criterion selected variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent-'t' test and Analysis of covariance (ANCOVA) for each and every selected variable separately. It was concluded that the Theraband resistance training group had shown significantly improved in shoulder strength and core strength. However the control group had not shown any significant improvement on selected variables such as shoulder strength and core strength

Purpose of Research:

The objective of the study is to determine the effect of Core Strength Training for development of Shoulder among Kabaddi Players of Osmania University between the age group of 18 to 25 Years

Methodology.

The sample for the present study consists of 30 Male Kabaddi Players out of which 15 are experimental group and 15 are controlled group.

Sl. NO	Name of the University	Sample	Total number of subjects
1	Osmania	15 Raiders	30
		15 Defenders	

Core Strength Training exercises such as Reverse body plank, trunk extension, sit ups, front plank, side plan etc were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training for eight weeks. Pre Test and Post Test were conducted in Pull ups Test among experimental group and controlled group of Kabaddi Players of Osmania University.

Results and Discussion:

Research Hypothesis: There is would be significant differences in core strength training on experimental group than control group on Pull ups among Kabaddi Players of Osmania University.

(N=30)

Group	N	Pre test		Post test		Mean diff	t-value	df	Table Value	Sig. (2-tailed)	Inference
		Mean	SD	Mean	SD						
Experimental Group	15	9.67	3.055	17.07	4.975	7.400	13.157	29	2.045	0.000	S*
Control Group	15	8.70	2.366	8.87	1.995	0.167	0.817	29	2.045	0.420	NS

From the table it is observe that pull-ups of the selected sample in Experimental Group, Pre test mean is 9.67 with 3.055 Standard Deviation and post test mean is 17.07 with 4.975 Standard Deviation Here the 't' calculated value is 13.0157 which is greater than table value 2.045 at 29 degrees of freedom with 5% level of significance. Here post test pull-ups than pre test because of core strength training effectively effected among kabaddi players. Hence there is a support available to accept the research hypothesis which means there is would be significant differences in core strength training on experimental group on pull up among Kabaddi Players of Osmania University.From the above table clearly shows that there is a significant difference in core strength training in experimental group than control group on pull ups for the improvement of shoulder strength among Kabaddi Players of Osmania University.

Conclusions:

It is concluded that due to Core Strength training there will be improvement in Shoulder strength among Kabaddi Players. In this study due to the Core Strength Trainings exercises there is a improvement in the upper body strength i.e. shoulder strength among kabaddi players.

Recommendations: It is recommended that similar studies can be conducted on other events in other events and also female kabaddi players.This type of study is useful to coaches to give proper coaching for development of motor qualities for improvement of performance Sports and Games.

References:

Prof. Rajesh Kumar (2020)Effect of Plyometric and Circuit Training On Selected Physical Variables among Sprinters of Hyderabad District of Telangana State, IOSR Journal of Sports and Physical Education (IOSR-JSPE) e-ISSN: 2347-6737, p-ISSN: 2347-6745, Volume 7, Issue 2, (Mar –Apr 2020), PP 55-57

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Comparison of Agility among Kabaddi Players and Kho Kho Players of Warangal District

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Abstract:

The purpose of the study was to find out the effect of Agility among Kabaddi Players and Kho Kho Players of Warangal District. For the present study the 25 Kabaddi players and 25 Kho Kho Players of Warangal District. The Shuttle Run Test Pre and Post Test were conducted among two groups to assess the Agility. The Mean of Kho-Kho players is 8.91 with 0.59 Std. Deviation and mean of the Kabbadi Players is 9.09 with 0.56 Std. deviation. The mean difference between agility of the Kho-Kho and Kabaddi players is 0.180. It is found that Agility of Kho-Kho and Kabaddi players are showed significantly difference . The Kho Kho Players is having better agility compare to Kabaddi Players. Key words: Agility, Kabaddi, Kho Kho etc.

Introduction:

The word Kho is derived from Sanskrit word **syu** meaning "**get up go**" Kho Kho game is the India's most popular game. The origin of Kho Kho game is from Maharashtra. It is not clear how this game formed but it is said that Kho Kho game is developed from " Run and Chase" game as in this game you have to chase your friend. The first National Championship of Kho Kho game was played in 1959-60 in Andhra Pradesh in Vijayawada

Kabaddi is a popular contact sport in Southern Asia that first originated in Ancient India. It is played across the country and is the official game in the states of

Punjab, Tamil Nadu, Bihar, Telangana and Maharashtra. Outside of India it is a popular activity in Iran, is the national game of Bangladesh and is also one of the national sports of Nepal where it is taught in all state schools. Kabaddi is also popular in other parts of the world where there are Indian and Pakistani communities such as in the United Kingdom where the sport is governed by the England Kabaddi Federation UK.

Now a days all kho-kho and kabaddi players are facing at source some unique challenges to develop the required speed, strength, power, agility and endurance to execute techniques and skills while playing the games.

Rohit Mamgain (2021) The purpose of the study was to compare the agility between Kho-Kho and Kabaddi players, Twenty Kho-Kho & Kabaddi Male players were taken as the subjects for the study respectively, during Intercollegiate of G.K.V. Haridwar University. The age group of the subjects was ranged from (18-25) years. To measure agility between Kho-Kho & Kabaddi players, Semo agility test was conducted on the subjects of present study. The data collected where subjected to descriptive statistics and student "t" test and level of significance was set at 0.05 levels. There was no significant difference found on agility between Kho-Kho and Kabaddi players.

Purpose of the study:

The purpose of the study was to find out the effect of Agility among Kabaddi Players and Kho Kho Players of Warangal District

Methodology:

For the present study the 25 Kabaddi players and 25 Kho Kho Players of Warangal District. The Shuttle Run Test Pre and Post Test were conducted among two groups to assess the Agility

Results and Discussion:

Table-1 Independent T-Test Is Used to Test the Significance Mean Difference in Agility among Kho-Kho and Kabaddi Players of Warangal District

There is a Significance Mean Difference in agility among Kho-Kho and Kabaddi Players of Warangal District

Group Statistics					**t-test for Equality of Means**			
Group	N	Mean	Std. Deviation	Std. Error	Mean Difference	t	df	P-value
KHO-KHO	25	8.91	0.59	0.08	0.18	1.48	48	0.141
KABBADI	25	9.09	0.56	0.08				

Note: Table value=1.984 at 48 degrees of freedom and p=0.141>0.05.

As shown the above table shows that the agility of the selected Kho-Kho and Kabaddi players of Warangal District. Mean of the agility of Kho-Kho players is 8.91 with 0.59 Std. Deviation and mean of the Kabbadi Players is 9.09 with 0.56 Std. deviation. The mean difference between agility of the Kho-Kho and Kabaddi players is 0.18. This implies that the as agility of Kho-Kho and Kabaddi players are significantly differs.

Conclusion:

It can be conclude that there is a significant difference between Kabaddi Players in Kho Kho Players. The Kho Kho Players is having better agility than Kabaddi Players.

Recommendations:

Based on analysis of collected data, the investigators would like to recommend the research work to extend further more as mentioned below.

1.Similar research work should be done on similar set of sports to validate the results. Use a variety of training to develop agility, focusing on the development of other mot ivations through all methods that have to do with each quality to be created.

2.Further research, as well as the published findings, will contribute to the Kabaddi and Kho Kho Coaching.

References:

Dr. Bhoj Ram Rawte and Buddhadev Kandar (2022) A comparative study of agility between Kabaddi and Kho-Kho University level male's players,International Journal of Physical Education, Sports and Health 2022; 9(4): 222-224

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