



BHARATHIAR NATIONAL JOURNAL OF
PHYSICAL EDUCATION AND EXERCISE SCIENCES
BNJPEES

DOUBLE – BLIND REFERRED JOURNAL



From the Editors' Desk

Whilst we are striving hard to manage the new normal post Covid pandemic, there is a great realisation on health fitness and wellness. The department of Physical Education, Bharathiar university with societal responsibility publishes this 12th volume of 'The Bharathiar National Journal of Physical Education and Sports Sciences'. In spite of the pandemic break the editorial team had put in tremendous efforts to bring out this volume of research works and articles.

The Bharathiar National Journal of Physical Education and Exercise Science (BNJPEES) is an open access quarterly journal, double blind refereed journal with ISSN – 0976-3678 which publishes original articles, commentary, editorials, review articles and case reports covering recent innovative high quality researches on sports published by the Department of Physical Education, Bharathiar University Coimbatore since June 2010. The purpose of this journal is to enrich the field of physical education and sport with literary base dynamic latest research and articles. The field of sport and physical education with its dynamic nature needs a literary back up to keep the masses informed of the latest changes that are happening across this field. Since the Sports Climate is experiencing a wide range of change and is very much essential that we stretch ourselves to meet the key challenges on sports and games. Since the inception of the new editorial team from 2019, the journal has been upgraded online to increase the vicinity across the globe and provide a wider citation opportunity scaling up research heights. The journal has been indexed with google scholar, world cat, core and road.

We appreciate the research scholars for stepping forward to get their works published in our university journal. Volume 12 has brought out 40 articles in total out of the 73 articles submitted. After thorough plagiarism check using Ithenticate and Turnitin, the articles are subjected to a double blind referee system for review. Based on the reviewers report the articles are accepted. Being a quarterly journal in this volume we have four issues of 10 articles each. We are also working hard towards quality control of the articles in par with the international standards.

From the editorial desk we submit to you that BNJPEES, with immense pleasure is working for the development of research in the field of Physical education and sports sciences which is the need of the hour. We encourage the authors to submit evidence based realtime research results which would benefit the society.



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Effects of Functional High Intensity Interval Training Circuit on Peak Oxygen Consumption in Sedentary College Men

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Abstract

The aim of this study was to investigate the effectiveness of six weeks of functional high intensity interval training circuit on peak oxygen of sedentary men. Thirty college sedentary men students were randomly selected from Coimbatore district. Their age ranged between 18 and 25 years. The subjects were divided into two equal groups consisting of fifteen each. Treatment group I (n = 15) underwent high intensity interval circuit training (HIITCG) for a period of 6 weeks and group II (n = 15) acted as control group (CG). Data obtained were evaluated in SPSS package. The t value revealed that the peak oxygen consumption was significantly improved due to the effect of high intensity interval training circuit. As a result, six weeks of HIIT can be said to increase the peak oxygen consumption in sedentary college men.

Keywords: Circuit, high intensity interval training, peak oxygen consumption, sedentary men, t ratio.

Introduction

People are paying more attention to their health these days. This has resulted in the rapid growth of the health industry and the establishment of exercise businesses, both of which have grown steadily. Physical fitness is now regarded as one of the most important health indicators in childhood. In many cases, schools have been regarded as the best setting for identifying children with low fitness levels and promoting a healthy lifestyle.¹

Regular exercise has long been known to improve health and lower a number of risk factors for chronic disease.² Normally, exercise participation follows a traditional approach of separate resistance and aerobic exercises. This combination of exercise training modalities improves body composition and cardiovascular fitness in both sedentary and overweight people.³

High-Intensity Interval Training (HIIT) entails intermittent maximal or supramaximal exercise (85-95% HRmax), interspersed with recovery periods.⁴ As a result, HIIT is a viable alternative to traditional endurance training because it takes less time and allows for a higher volume of high-intensity exercise than continuous exercise.⁵ Programs designed to improve

cardiovascular, metabolic, and psychological health have begun to replace low-intensity exercise with short-to-long bouts of high-intensity exercise separated by recovery intervals.⁶ In addition to allowing an infinite number of protocols with different work-to-rest ratios, order of loading, and distribution of training intensity, HIIT takes less time than low-intensity-high volume training, which is appealing given that lack of time appears to be one of the most common reasons for not exercising.⁷

Strength training, such as Circuit HIIT, is well known for increasing muscle mass and, as a result, potentially lowering a variety of risk factors for cardiovascular disease.⁸ Low-intensity endurance exercise, on the other hand, has been shown to increase plasma volume⁹, muscular blood flow¹⁰, and capillary and mitochondrial densities¹¹ thereby improving peak oxygen uptake.¹² Improved cardiorespiratory fitness (e.g., maximum oxygen uptake) has been linked to better health and a lower risk of death.¹³ Functional strength training in the form of Circuit HIIT combined with low-intensity endurance exercise (Circuit combined) may lead to synergistic improvements in cardio-respiratory parameters

due to the different responses elicited. To the best of my knowledge, HIIT has not yet been investigated in detail with respect to sedentary men in India.

Table 1 Details of HIIT intervention

WEEKS	SESSION	WORKOUT + RECOVERY	SETS	
1,2,3	1	30 secs skipping + 30-s recovery 30 secs burpees + 30-s recovery 30 secs pull-ups + 30-s recovery 30 secs push-ups + 30-s recovery 6 Mins Shuttle run	5	
	2	30 secs run/burpees +30-s recovery 60 secs lunges + 1-min isometric squat 8x20 secs burpees/plank + 10-s recovery 45 secs rows + 1-min recovery	3	
	3	30 secs crunches + 30-s recovery 30 secs push-ups + 30-s recovery 30 secs 1-legged squats + 30-s recovery 30 secs burpees + 30-s recovery	4	
4,5,6	1	20 secs isometric pull-up/push-up + 40-s run + 30-s recovery 30 secs squats/squat jumps + 30-s run + 30-s recovery	10	
		45-s rows + 45-s burpees + 3x 30-s lunges + 30-s run + 30-s recovery 60-s leg levers + 30-s recovery	3	
	2	60-s pull-ups + 30-s recovery 60 secs jump rope + 30-s recovery 60 secs push-ups + 30-s recovery 60 secs leg levers + 30-s recovery 60 secs rows + 30-s recovery 60 secs burpees + 30-s recovery 800-m run	3	
		3	45 secs lunges/sprints + 30-s recovery 45 secs isometric squat + 30-s recovery 60 secs 1-legged squats + 30-s recovery 45 secs side lunges/sprints + 30-s recovery 45secs isometric sumo squat + 30-s recovery 45secs pushups + 30-s rows + 30-s recovery	4

I will presume that by following the HIIT routine, I will achieve better peak oxygen uptake. The hypothesis argued in this paper is that college men students can significantly increase the peak oxygen uptake by practicing HIIT over a consecutive six weeks period. As a result, the goal of this study was to look into the changes in parameter that occurred during a six-week HIIT regimen in thirty college men.

Materials and Methods

Participants

I have selected 30 college students from the Coimbatore city of Tamil Nadu, India as subjects to test the hypothesis stated here. Their ages ranged from 18 to 25 years.

All the subjects were healthy and physically active, but did not do any kind of specific training on a regular basis. They were all asked to maintain the diets they were following at the time and not to take any supplements. Both the subjects and their parents were informed about this research and written consent was obtained from them. The selected subjects were divided into two groups. The treatment group (n=15), and group II was considered as control group (n=15). Other than

their daily activities, the participants in the control group did not participate in any exercises. The participants were free to withdraw their consent at any time during the study if they felt uncomfortable, but there were no dropouts. All procedures performed in studies involving human participants were in accordance with 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Research Design

The Standard protocol was used to test the parameter. The participants warmed up with a five minutes low-intensity aerobic run and a ten minutes active and passive stretching of upper and lower extremity muscles before the test. The subjects were then taken to a sports hall where they performed the Yo-Yo test. The Yo-Yo test was used to indirectly measure maximum oxygen uptake by running a series of calculations afterward.¹⁴ This test consisted of running a distance of 20 meters and back, with breaks of 10 seconds in between each shuttle. To establish distances, we used a tape measure and employed a computer with speakers so that the subjects could hear properly. The test ended when each individual could no longer keep up pace.

Training Protocol

The training was delivered over the course of forty-five to sixty minutes in each session. The HIIT protocol consisted of a five minutes preparation and a five minutes relaxation procedure. The participants were given the protocol for a total of six weeks, three days per week.

Statistical Analysis

SPSS 16.0 for Windows was used to evaluate the collected data. To assess substantial differences, a 5% threshold was used. Data amounts were not usually distributed, according to normality checks. The 't' test was used to determine whether there was some individual impact from initial to post-test.

RESULTS

Table 2 indicates that in the treatment group, the obtained 't' values on peak oxygen uptake was 28.58. These values were found to be statistically

significant at the 0.05 level of confidence for degrees of freedom 1 and 14.

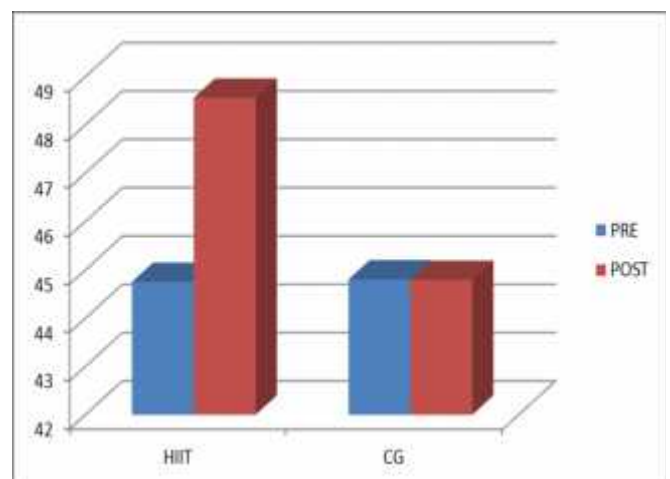
Table 2 - Calculation of 't' ratio on peak oxygen uptake of college men students

Variables	Pre – test mean	Pre – test S. D (±)	Post – test mean	Post – test S. D (±)	't' ratio
TREATMENT GROUP					
Peak Oxygen Uptake	44.75	0.46	48.56	0.35	28.58*
CONTROL GROUP					
Peak Oxygen Uptake	44.80	0.34	44.79	0.33	0.86

*Significant at 0.05 level (2.14)

It was higher than the minimum table value of 2.14. The obtained 't' ratios between pre- and post-test in the control group were 0.86, which was less than the necessary table value of 2.14 and were found to be not statistically significant.

Figure 1 Pre- and post-test results for peak oxygen uptake in the treatment and control groups are shown in a bar diagram



Discussion

The effects of HIIT on peak oxygen uptake in college men were investigated in this research. HIIT for six weeks improved peak oxygen uptake in

college men, according to the findings. Other research studies have found that HIIT improves cardiovascular and metabolic parameters. The type of activity, intensity, and duration of the periods of activity and recovery vary across HIIT protocols. The majority of previous studies used HIIT workouts with cycle ergometers and bursts of exercise lasting 10-30 seconds at 90-100 percent HRmax, repeated 4-6 times with recovery periods of 1-4 minutes.¹⁵

Whyte et al. looked into the effects of HIIT on metabolic and vascular risk factors in sedentary men. A significant reduction in body weight and waist circumference was observed, as well as an increase in VO₂max and improved insulin sensitivity.¹⁶ Rodas¹⁷ examined changes in aerobic and anaerobic metabolism caused by an HIIT workout programme on a cycle ergometer after two weeks of daily training involving bouts of maximum intensity lasting 15-30 seconds with breaks of 45-30 seconds, discovering significant increases in VO₂max and peak power. According to the findings of this research, HIIT has beneficial effects on the peak oxygen consumption of college men.

Limitations

The study's limitations include a small sample size and a restricted age range, limiting the study's ability to generalize its findings. Furthermore, since no college women were included in the sample, any gender-related variations in the findings and associated factors could not be investigated.

Conclusions

Within the limitations of the study and based on the results, it was clear that HIIT for six weeks (three days per week) peak oxygen uptake in college men. These findings may have important implications for the way in which personal trainers and fitness specialists design sessions and plan training

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Volleyball Players Stress Level Output in Response to Asanas and Meditation

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Abstract

The purpose of the study was to effect of asanas and meditation on stress level of volleyball players of Karpagam University, Coimbatore, Tamilnadu were constituted the population of the study. For this study 30 male volleyball players were selected constituted the population of the study were randomly selected as a subject and their age ranged between 18 to 25 years. They were divided group into two equal groups namely Experimental group (n=15) and Control group (n=15) Perceived Stress scale Questionnaire for the analysis of results the level of significance to test t-ratio was set at 0.05 level of confidence for this study. The collected data on Stress was analysed by computing mean and standard deviation. The collected data were analysed statistically by 't' test from the analysis of data proved that there is significant difference between Experimental group and Control group. The study has painted the requirements of the college level male volleyball players to need exact and suitable evidence approximately mental health to survive.

Keywords: Stress, Asana, Meditation and volleyball players.

Introduction

Volleyball is a group activity where two groups of six players are isolated by a net. Each group attempts to score focuses by establishing a ball in the other group's court under coordinated guidelines. It has been a piece of the authority program of the Summer Olympic Games since 1964. The total standards are broad. Be that as it may, just, play continues as follows: a player in one of the groups starts a 'rally' by serving the ball (throwing or delivering it and afterward hitting it with a hand or arm), from behind the back limit line of the court, over the net, and into the accepting group's court. As volleyball match-up includes a greater amount of expertise execution. Which construct the parts for the game, as an exploration researcher extraordinary arranged plyometric preparing program for the school level young men volleyball players (Holyoke, 1985).

Material and Methods

Subjects

Totally 30 male volleyball players were randomly selected those are study from from

Karpagam University, Coimbatore, Tamilnadu for the present study. Their aged ranged between 18 to 25 years. They were divided into two equal group experimental group (N=15), and Control Group (N=15). The experimental and control group were tested for stress level before and after asanas and Meditation program for six weeks.

Valuation Implements and Organization

To collect data, the questionnaire of PSS-21 (Perceived Stress Scale-21) was used. The validity and reliability of this standard questionnaire was examined by Sahebi et al. and Cronbach's alpha was estimated 0.76 for stress, respectively. In a study entitled "validation of stress scale for an Iranian population". Each of the above mentioned states are assessed with seven questions. Asanas and meditation exercises and training sessions were held 3 time/weeks; 60-70 min each (postures, breathing techniques, meditation) by a specialist. Before the intervention, questionnaires were completed by volleyball players. The intervention lasted 12 sessions. At the end of the 12th session, the

questionnaire of PSS-21 was again completed by college level male volleyball players.

Statistical Procedures

The obtained data were analyzed using SPSS version 20. According to the established normality, paired sample t-test was used for comparing the results before and after the intervention. The threshold of significance was set at $P < 0.05$.

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on Stress of experimental group. The obtained ‘t’ ratio on Stress were 5.8 respectively. The required table value was 2.09, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant. Further the table reveals the computation of mean, standard deviation and ‘t’ ratio on selected psychological parameters namely stress of control group. Since the obtained ‘t’ values were greater than the table value it was found to be statistically not significant.

Results

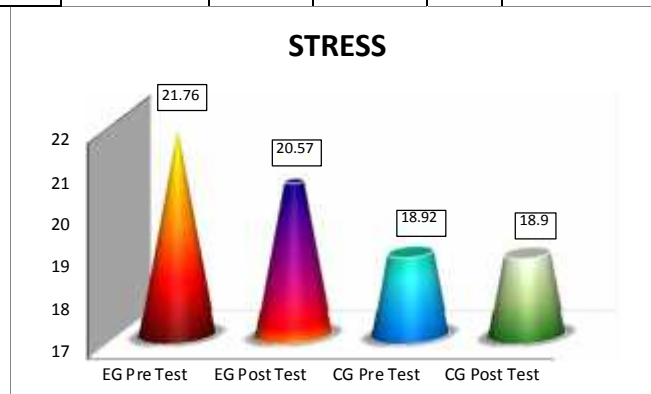
The result of the study proved the different beneficial asanas and meditation practices on stress. The post readings of parameters such as Stress extended notably (<0.05) following asanas and Meditation practices. This suggests that some asanas help them to come out of stress. The meditation practice readings of stress level would possibly reduce their stress level and are also statistically significant results shown in table I.

Discussion on Findings

The results of the study indicated that the psychological variable such as stress level was improved significantly after undergoing asanas and meditation training. The changes in the selected parameters were attributed the proper planning, preparation and execution of the training package given to the volleyball players. The findings of the present study had similarity with the findings of Eswari (2021), Freitas (2013).

Table-I
Computation of “t” Ratio on Stress Level of Volleyball Players on Experimental Group and Control Group (Scores in Points)

Group	Variables	Test	Mean	N	Std. Deviation	Std. Error Mean	t ratio
Experimental Group	Stress	Pre	21.76	15	5.12	0.62	5.80*
		Post	20.57	15	5.08		
Control Group	Stress	Pre	18.92	15	2.65	0.54	1.63
		Post	18.90	15	2.86		



Bar diagram showing the mean value of Stress pre and post test of Experimental and Control group

The result of the present study indicates that the asanas and meditation training methods is appropriate protocol to improve stress level of college level male volleyball players. From the result of the present study it is very clear that the psychological variable such as stress level decreased significantly due to asanas and meditation training.

Conclusion

In the present world Eye deficiency is a very For this purpose the study is created and after six weeks of Asanas and Meditation practices the readings of Stress showed improvement in mental health. From the present study we may additionally conclude that asanas and meditation can be recommended to enhance the team sports, IT professionals and humans working mechanically and subsequently maintain their family situation to prevent their mental health in future. These really useful effects of different asanas and Meditation practices can be used as a stress level. The daily practice should also be components of mentally health and life style changing applications in conserving better intellectual health. asanas and Meditation practices improves the stress level.

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Impacts of Asanas and Pranayama on Flexibility and Vital Capacity among Cricketers

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Abstract

This examine evaluated the Effects of Asanas and Pranayama on Flexibility and Vital Capacity. The current research was conducted at the V.C.V. Shishu Vidyodaya Matric. Hr. Sec. School, Coimbatore, Tamilnadu. The age of the subjects were ranged between 13 to 16 years. The subjects active were randomly assigned to two equal groups. Group - I (n=20) underwent yogic training group and Group - II (n=20) control group. Tools and Technique i.e. flexibility and vital capacity were used and measured in this study to know the effects of asanas and pranayama on its. Measurements for the variables were taken at the pre test and at the end of the treatment period, after eight weeks post test the data were collected for all the variables from treatment group, for three days. During this period the subject were not allowed to participate in any training. The information was analyzed using paired't' test to compare the before and after yogic training programme values of treatment group. P value of less than 0.05 was accepted as indicating significant difference between the compared values. The results of this investigation indicate that eight weeks of asanas and pranayama practice can significantly improve flexibility and vital capacity in school level cricketers

Keywords: Asanas, Pranayama, Flexibility, Vital Capacity and Cricketers.

Introduction

Yoga treatment can include a variety of approaches or a grouping of techniques. These can include the use of asanas, pranayamas, meditation techniques, stress reduction and entertainment techniques (Anithya bhava), and mindfulness. Depending on the health condition or the basic cause of illness, a yoga can be used with specific techniques or a arrangement of methods to repair balance in the body and mind. yoga helps people make conscious movements or positional changes in their body, also known as proprioception or kinesthesia, to find the areas of limitation and build energy and strength there. In turn, this will help balance the way the body moves and functions to relieve stress, pain and tension in areas that are stale.

1.1 Flexibility

Flexibility is the ability to complete a wide range of progress in the joints while for repetition of work done in natural speed. Flexibility is most

important. Flexibility helps to move bodily parts easily, takes less time, energy to perform a task. stretch in muscle reduces tension and provides greatest length, thus yielding passive physical' stretch.

1.2 Vital Capacity

The total volume of air that can be willingly moved in one breath, from full inspiration to maximum expiration or vice versa, is termed the forced vital capacity. This consists of the tidal volume plus the aspiratory and expiratory reserve volume. Although' values for vital capacity vary considerably with body size as well as 15 with the position of the body during the measurement. Average values are usually 4 - 5 liters in young women. Vital capacities of 6 - 7 liters are not rare for tall individuals and values of 7.6, 8, 8.1 liters have been reported for a comparative football player and an Olympic gold medal list in cross country race and skipping respectively. Swimming

and diving may be more conducive to the development of larger than normal vital capacities.

2. Methodology

The current investigation was conducted at the V.C.V. Shishu Vidyodaya Matric. Hr. Sec. School, Coimbatore, Tamilnadu. The age of the subjects were ranged between 13 to 16 years. The subjects active were randomly assigned to two equal groups. Group - I (n=20) underwent yogic training group and Group - II (n=20) control group. Tools and Technique i.e. flexibility and vital capacity were used and measured in this study to know the effects of asanas and pranayama on its. Measurements for the variables were taken at the pre test and at the end of the treatment period, after eight weeks post test the data were collected for all the variables from treatment group, for three days. During this period the subject were not allowed to participate in any training.

Asana (a) and Pranayama (p)	1 st to 3 rd Week		4 th to 6 th Week	
	Set	Duration of Exercise in seconds	Set	Duration of Exercise in Seconds
Warming Up	-	250	-	250
Tada – (a)	3	190	2	190
Urdhva – hasta (a)	3	190	2	190
Vriksha – (a)	3	120	3	120
Vajra (a)	3	120	3	120
Paschima – uttana – (a)	4	120	2	120
Padma – (a)	4	160	2	160
Sarvanga – (a)	3	120	2	120
Hala – (a)	3	120	1	120
Karna – pida – (a)	3	120	2	120
Bhujanga – (a)	3	120	2	120
Dhanur (a)	3	120	2	120
Shawa – (a)	1	180	1	180
Kapalbhati	2	240	2	240
Anulom vilom pranayam	2	240	2	240
Nadi shodhana	2	240	2	240
Ujjayi-(p)	2	240	2	240
Simhasana-(p)	2	240	2	240
Shawa – (a)	1	180	1	180

2.1. Selection of Variables And Tests

The subjects were tested on the following variables.

Name of Variables	Test	Unit
Flexibility	Sit and Reach	In Centimeters
Vital Capacity	Spiro meter	in liters

2.2. Statistical Analysis

The information was analyzed using paired't' test to compare the before and after asanas and pranayama training programme values of treatment group. P value of less than 0.05 was accepted as indicating significant difference between the compared values.

3. Results

Table-3 reveals that the mean values of per test and post test of control group for flexibility were 17.50 and 17.90 respectively; the obtained t ratio was 1.68 respectively. The tabulated t value is 1.73 at 0.05 level of confidence for the degree of freedom 19. The calculated t ratio was lesser than the table value. It is found to be insignificant change in flexibility of the men school level cricketers. The obtained mean and standard deviation values of pre test and post test scores of yogic training group were 18.00 and 21.80 respectively; the obtained t ratio was 10.37. The required table value is 1.73 at 0.05 level of confidence for the degree of freedom 19. The obtained t ratio was greater than the table value. It is found to be significant changes in flexibility of the school level cricketers. The mean values on yogic training group and control group are graphically represented in figure-1.

Table-4 reveals that the mean values of per test and post test of control group for vital capacity were 2.00 and 2.14 respectively; the obtained t ratio was 1.08 respectively. The tabulated t value is 1.73 at 0.05 level of confidence for the degree of freedom 19. The calculated t ratio was lesser than the table value. It is found to be insignificant change in vital capacity of the school level cricketers. The obtained mean and standard deviation values of pre test and post test scores of yogic training group were 2.15 and 3.22 respectively; the obtained t ratio was 16.41. The required table value is 1.73 at 0.05 level of confidence for the degree of freedom 19. The obtained t ratio was greater than the table value. It is found to be significant changes in vital capacity of the school level cricketers. The mean values on yogic training group and control group are graphically represented in figure-2.

Table-3 Relationship of Mean, SD and 't'-Values of the Flexibility Between Pre & Post Test of the Yogic Training Group and Control Groups of School Level Cricketers

	Groups	Test	Mean	S.D	't' Values
Flexibility	Control Group	Pre Test	17.50	1.31	1.68
		Post Test	17.90	1.49	
	Yogic Training Group	Pre Test	18.00	1.45	10.37*
		Post Test	21.80	0.89	

*Significant at 0.05 level of confidence

Table-4 Relationship of Mean, Sd and 't'-Values of the Vital Capacity between Pre & Post Test of the Yogic Training Group and Control Groups of School Level Cricketers

	Groups	Test	Mean	S.D	't' Values
VITAL CAPACITY	Control Group	Pre Test	2.00	0.14	1.08
		Post Test	2.14	0.21	
	Yogic Training Group	Pre Test	2.15	0.19	9.41*
		Post Test	3.22	0.38	

*Significant at 0.05 level of confidence

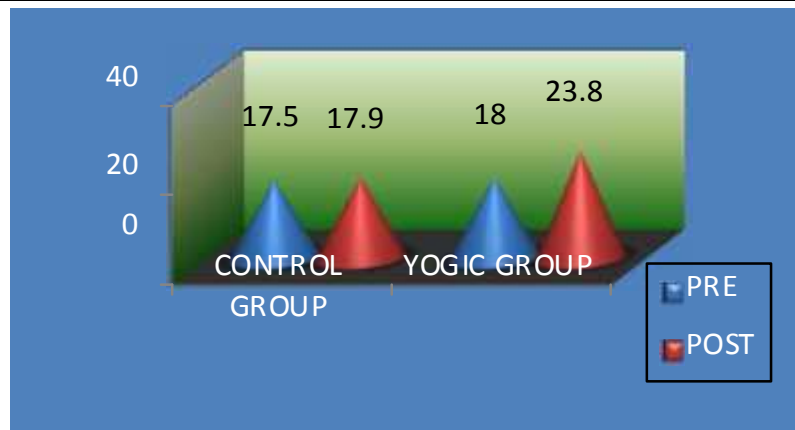


Figure-1: Bar Diagram showing the Pre Test & Post Test on Flexibility of Control and Yogic Training Groups

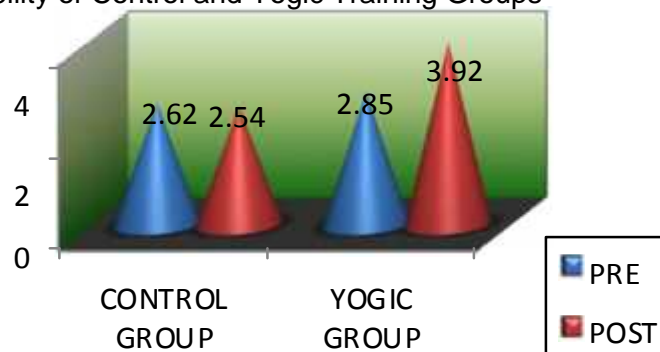


Figure-2: Bar Diagram showing the Pre Test & Post Test on vital capacity of Control and Yogic Training Groups

4. Discussion on Findings

The outcome of the study indicates that the experimental group namely game yogic training group (asanas and pranayama) had shown significant improvement in flexibility and vital capacity among the school level cricketers. The control group school level cricketers had not shown significant changes in any of the flexibility and vital capacity. The analysis of the study indicates that the yogic training group (asanas and pranayama) had shown significant level difference in flexibility and vital capacity among school level cricketers.

It is conditional from the literature and from the result of the current study. That systematically considered training develops dependent variables are very importance quills for superior performance in almost all sports and games. Hence it is concluded that systematically designed training may be programmes of all the discipline in order to achieve highest given due recognition and implemented properly in the training performance. These findings are in accordance with the findings of Eswari et al (2021)¹, Senthil Kumaran (2018)², Bandi Hari Krishna (2014)⁸, Jayachandran (2014)⁶ and Sree (2012)⁵.

Conclusion

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

1. The school level cricketers of control group had not shown significant changes in any of the flexibility and vital capacity.
2. The yogic training group (asanas and pranayama) shown significant enhancement in flexibility and vital capacity among school level cricketers.
3. There school level cricketers who had undergone eight weeks of yogic training (asanas and pranayama) showed significant enhancement in flexibility and vital capacity when compared with control group.

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Combination of Specific Basketball Skill Training and Pranayama Practices on Basketballers' Systolic Blood Pressure

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Abstract

The point of the present study was to find out the combination of specific basketball skill training and pranayama practices on systolic blood pressure among basketballers. To achieve the purpose of the study men basketball players were selected from various clubs, Madurai, Tamil Nadu, India. The subject's age ranges from 18 to 25 years. The selected subjects were divided into two equal groups consists of 15 basketball men each namely experimental group and control group. The experimental group underwent a specific basketball skill training and pranayama package programme for twelve weeks. The control group was not taking part in any training during the course of the study. Systolic blood pressure was taken as criterion variable in this study. The selected subjects were tested on Systolic blood pressure was measured through sphygmomanometer. Pre-test was taken before the training period and post- test was measured immediately after the twelve-week training period. Statistical technique 't' ratio was used to analyze the means of the pre-test and posttest data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variable. The difference is found due to specific basketball skill training and pranayama package given to the experimental group on Systolic blood pressure when compared to control group.

Keywords: Specific skill training, Pranayama, Systolic blood pressure and basketballers.

Introduction

Basketball is one of the fastest games in which high level conditioning and coordinative abilities with technical and tactical potentials are essential to perform every skill at desired or required level. (James Naismith, 1897). In basketball is a same agile. Specific skill training is a program includes fitness and performance training designed specifically for athletic performance enhancement. Training programs for game performance enhancement could include such areas as dribbling, passing, shooting and other than to developing in strength, speed, power, endurance, flexibility, mobility, agility, mental preparedness (including goal setting), sleep, recovery/regeneration techniques and strategies, nutrition, rehabilitation, and injury risk reduction. A general program should include all of these components and a more specific program may only include a few, depending upon the athlete's specific needs (based on strengths,

weaknesses and/or imbalances) and the demands of the sport they participate in. Sports performance training is exercising with the specific goal of improving your effectiveness as an athlete in your particular sport. A traditional type of fitness training might include some cardio work, strength training and some stretching for flexibility. Specific skill training might get someone in general shape and have them improve as an athlete somewhat. In sport, the team training refers the set of physical exercise used to develop either physical or motor fitness aspects of a player. When the training for players at higher level or above the basic level, they have to trained with specific objectives in sport, the training program should designed specifically based on the components that are needed for the particular skill or technique in sport. Thus such type of Specific skill training program is a need for the player to excellent in sport. Thus the present

study has been carried out to study the combination of specific basketball skill training and pranayama practices on systolic blood pressure among basketballers.

Methodology

Selection of Subjects

The point of the present study was to find out the combination of specific basketball skill training and pranayama practices on systolic blood pressure among basketballers. To achieve the purpose of the study men basketball players were selected from various clubs, Madurai, Tamil Nadu, India.

Selection of variable

Independent Variable

- Specific Basketball Skill Training with Pranayama Practices

Dependent Variable

- Systolic blood pressure

Experimental Design and Implementation

The selected subjects were divided into two equal groups consists of 15 basketball men each namely experimental group and control group. The experimental group underwent a specific basketball skill training and pranayama package programme for twelve weeks. The control group was not taking part in any training during the course of the study. Systolic blood pressure was taken as criterion variable in this study. The selected subjects were tested on Systolic blood pressure was measured through sphygmomanometer. Pre-test was taken before the training period and post- test was measured immediately after the twelve-week training period.

Statistical Technique

The 't' test was used to analysis the significant differences, if any, difference between the groups respectively.

Level of Significance

The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of The Data

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent 't' test was used with 0.05 levels as confidence.

The Table-I shows that the mean values of pre-test and post-test of the control group on Systolic blood pressure were 122.4 and 122.6 respectively. The obtained 't' ratio was 0.59 since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on Systolic blood pressure were 122.33 and 117.93 Respectively. The obtained 't' ratio was 9.78* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in Systolic blood pressure. It may be concluded from the result of the study that experimental group improved in Systolic Blood pressure due to twelve weeks of combined specific basketball skill training with pranayama.

Discussion on Findings

The outcome of the study indicates that the experimental group, namely combined specific basketball skill training and pranayama practices group had significantly improved the selected dependent variable, namely systolic blood pressure, when compared to the control group. It is also found that the progress caused by specific basketball skill training and pranayama practices when compared to the control group.

It is inferred from the literature and from the result of the present study. That systematically designed training develops dependent variables are very importance quilts for better performance in almost all sports and games. Hence it is concluded that systematically designed training may be programmes of all the discipline in order to achieve maximum given due recognition and implemented properly in the training performance.

Table I Analysis of t-ratio for the Pre and Post Tests of Experimental and Control Group on Systolic Blood Pressure (Scores mmHg)

Variables	Group	Mean		SD		df	't' ratio
		Pre	Post	Pre	Post		
Systolic blood pressure	Control	122.4	122.6	2.32	1.68	14	0.59
	Experimental	122.33	117.93	2.60	1.86		9.78*

*Significance at 0.05 level of confidence.

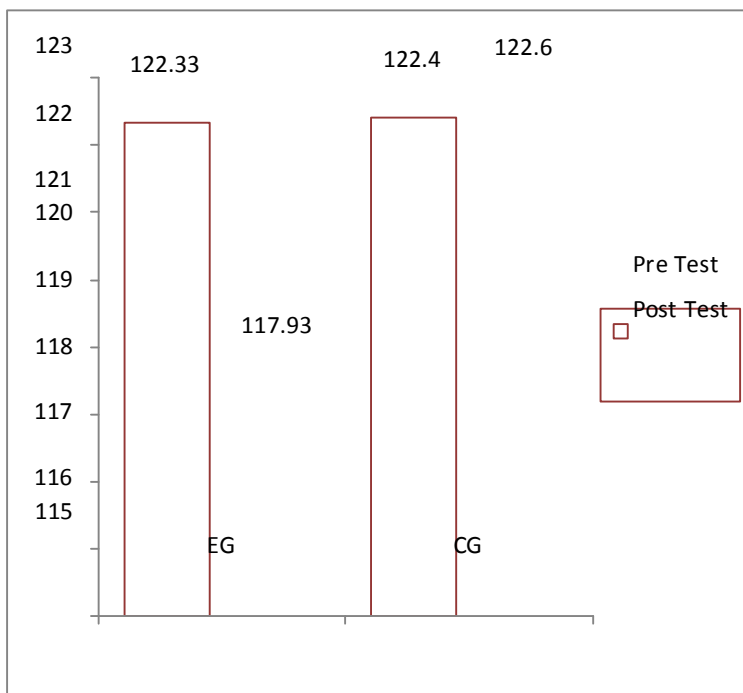


Figure-1 Bar Diagram Showing, the Pre and Post Mean Values of Experimental and Control Group on Systolic blood pressure

These findings are in accordance with the findings of Vallimurugan and Vijay (2021), Vallimurugan (2020), Srikumar et al (2016) and Vijayarani et al (2012).

Conclusion

On the basis of the results obtained the following conclusions are drawn,

- [1] There was a significant variation between experimental and control group on Systolic blood pressure after the training period.
- [2] There was a significant improvement in Systolic blood pressure. However, the improvement was in favor of experimental group due to twelve weeks of specific basketball skill training and pranayam practices.

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Conflict of interest

None of the authors have any conflicts of interest to declare.

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Athlete's Leg Strength and Muscular Strength Output in Response to Kettlebell Training

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Abstract

The main principle of this study was to discover the athlete's leg strength and muscular strength output in response to kettlebell training. To accomplish this purpose of the study thirty college level men athletes from Agricultural College and Research institute, Eachangkottai, Thanjavur, Tamilnadu, India were randomly selected as subjects. Their age ranged in between 18 and 25 years. The subjects were separated into two groups namely kettlebell group and control group. The kettlebell group was subjected to kettlebell training (for weekly three days monday, wednesday, friday) at evening session for six weeks. Leg strength and muscular strength was selected as dependent variable. After the compilation of proper data, it was statistically analyzed by using paired't' test. The level of significance was set at 0.05. The result of the current study showed that the kettlebell training has significant development on leg strength and muscular strength of athletes.

Keywords: Kettlebell Training, Leg strength, muscular strength and Athletes.

1. Introduction

Kettlebell is a cast-iron or cast steel load (resembling a cannonball with a handle) used to carry out all types of exercises, including but not imperfect to ballistic exercises that merge cardiovascular, strength and flexibility training. They are also the primary equipment used in the weight lifting sport of kettlebell lifting. It's well-known that compound, whole body actions typical of kettlebell exercises are better to machines that isolate muscles for improving muscle tone, body composition, and strength. Further, kettlebells strengthen the tendons and ligaments, making the joints tougher and less-susceptible to injury. Strengthens every muscle from head-to-toe. Kettlebell training consists of whole-body movement exercises. It's well-known that complex, whole body actions typical of kettlebell exercises are superior to machines that isolate muscles for improving muscle tone, body composition, and strength. kettlebell training should be implemented in the condition program of all sports, not just strength sports. The expand in leg strength, muscular strength and muscular endurance will advantages of every sport. As

athletes involves more of muscular contraction. Which build the components for the game, as a researcher special planned kettlebell training programme for the college level men athletes.

2. Methodology

The main principle of this study was to discover the Athlete's Leg Strength and Muscular Strength Output in Response to Kettlebell Training. To accomplish this purpose of the study thirty college level men athletes from Agricultural College and Research institute, Eachangkottai, Thanjavur, Tamilnadu, India were randomly selected as subjects. Their age ranged in between 18 and 25 years. The subjects were separated into two groups namely kettlebell group and control group. The kettlebell group was subjected to kettlebell training (for weekly three days monday, wednesday, friday) at evening session for six weeks. Leg strength and muscular strength was selected as dependent variable. After the compilation of proper data, it was statistically analyzed by using paired't' test. The level of significance was set at 0.05.

3. Training protocol

For kettle group underwent their training programme as three days per week for six weeks. Training was specified in the evening session. The training session includes warming up and cool down. All day the workout lasted for 50 to 60 minutes roughly. The subjects underwent their training programmes as per the schedules such as pistol squat, biceps curl, row and front raise under the strict regulation of the researcher. During experimental period control group did not supply in any of the outstanding training.

4. Results

Table-I reveals that the mean values of per test and post test of control group for leg strength were 72.80 and 72.86 respectively; the obtained t ratio was 0.26 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in leg strength of the athletes. The obtained mean and standard deviation values of pre test and post test scores of kettlebell group were 73.73 and 78.46 respectively; the obtained t ratio was 8.38. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in leg strength of the athletes. The mean values on kettlebell group and control group are graphically represented in figure-1.

able-II reveals that the mean values of per test and post test of control group for muscular strength were 31.46 and 31.33 respectively; the obtained t ratio was 0.48 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in muscular strength of the athletes. The obtained mean and standard deviation values of pre test and post test scores of kettlebell group were 32.66 and 37.80 respectively; the obtained t ratio was 5.19. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in muscular strength of the athletes. The mean values on kettlebell group and control group are graphically represented in figure-2.

5. Discussion on Findings

The kettlebell training is an implausible training which has been found to be useful of the athletes. To study the kettlebell training on leg strength and muscular strength of college level men athletes, it was tested under to differentiation between kettlebell group and control group. The kettlebell training includes on selected physical fitness components. The kettlebell exercises are namely pistol squat, biceps curl, row and front raise.

Table-I Relationship of Mean, SD and 't'-values of the Leg Strength Between Pre & Post Test of the Kettlebell and Control Groups of Athletes

	Groups	Test	Mean	S.D	't' Values
Leg Strength	Control Group	Pre Test	72.80	17.12	0.26
		Post Test	72.86	17.27	
	Kettlebell Group	Pre Test	73.73	11.84	8.38*
		Post Test	78.46	12.18	

*Significant at 0.05 level of confidence

Table-II Relationship of Mean, SD and 't'-Values of The Muscular Strength between Pre & Post Test of The Kettlebell and Control Groups of Athletes

	Groups	Test	Mean	S.D	't' Values
Muscular Strength	Control Group	Pre Test	31	6.42	0.48
		Post Test	32	6.52	
	Kettlebell Group	Pre Test	32	5.16	5.19*
		Post Test	37	5.73	

T *Significant at 0.05 level of confidence

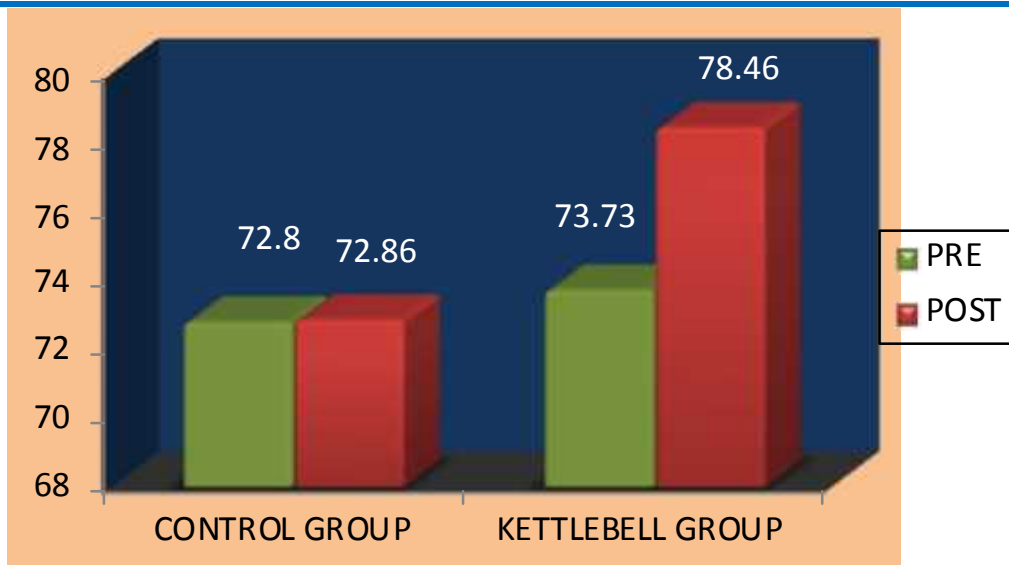


Figure-1: Bar diagram showing the Pre Test & Post Test on Leg Strength of Control and Kettlebell Groups

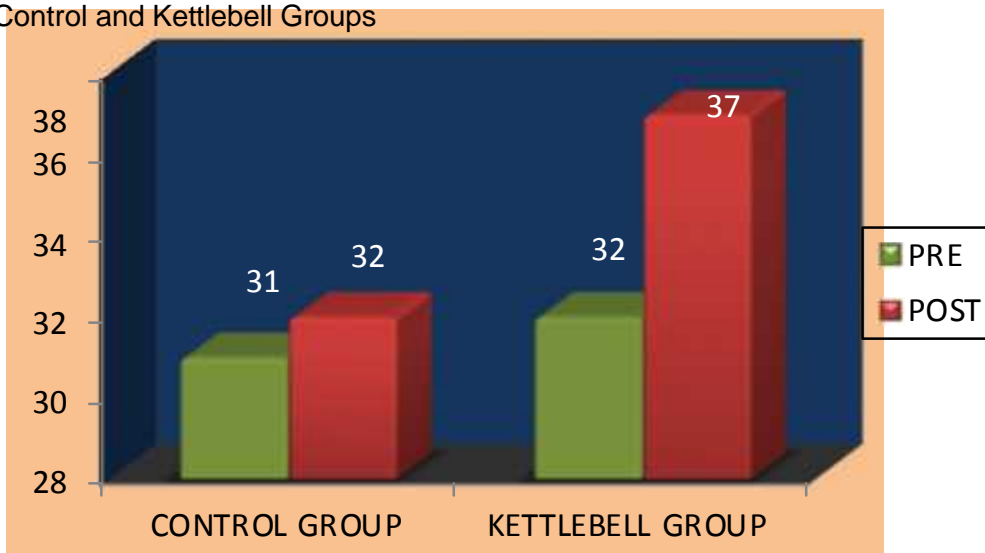


Figure-2: Bar diagram showing the Pre Test & Post Test on Muscular Strength of Control and Kettlebell Groups

It also improves the leg strength, muscular strength, muscle size and other than some physical fitness components are namely speed, agility, and power. The obtained result proved positively the kettlebell group significantly improved. The result of the present study showed that the kettlebell training has significant improvement on leg strength and muscular strength of athletes. The results of the study are in line with the studies of Vijay and Vallimurugan (2021), Abdul Halik et al (2021), Ooraniyan and Senthil Kumaran (2018).

The result of the study showed that the control group was not significantly improved kettlebell training on leg strength and muscular strength of college level men athletes.

Conclusion

Based on the result and within the limitation of the study it is noticed that practice of kettlebell training helped to get better leg strength and muscular strength of college level men athletes. It was also seen that there is progressive improvement in the selected criterion variables of

kettlebell group of athletes after six weeks of kettlebell training programme. Further, it also helps to improve leg strength and muscular strength.

1. It was concluded that individualized impacts of kettlebell group showed a statistically significant optimistic sign over the path of the treatment period on leg strength and muscular strength of college level men athletes.
2. It was done that individualized impacts of control group showed a statistically insignificant positive sign over the course of the period on leg strength and muscular strength of college level men athletes.
3. The outcome of relative effects direct to conclude that kettlebell group had enhanced significant development on leg strength and muscular strength of college level men athletes as compared to their performance with control group.

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Strength Endurance and Agility to the Persuade of Complex Training on Hockey Players

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Abstract

The rationale of the study was to find out the result of complex training on selected physical fitness variables along with hockey players. To achieve this purpose, thirty men hockey players were selected as subjects, their aged between 18 to 25 years, they are studying in the National Engineering College, Lakshmi Ammal Sports Academy, KR nagar, Kovilpatti, Thoothukudi District, Tamilnadu. The selected subjects were divided into two equal groups of fifteen subjects each, namely Complex training group and control group. The complex training group trained for three sets per exercise per session at 60 to 80% with a progressive increase in load with the number of weeks. Strength endurance and agility were selected as criterion variables and they were tested by using sit-ups and shuttle run respectively. ANCOVA was used to find out the significant difference if any between the groups. The results of the study showed that there was a significant difference on strength endurance and agility between complex training group and control group.

Keywords: Complex Training, Physical Fitness, Strength Endurance, Agility, Hockey Players.

1. Introduction

Physical fitness is one of the parts of the complete wellness of the person, which additionally incorporates common, social and enthusiastic wellness. It is one of the basic prerequisites of life comprehensively talking it implies the capacity to do every day assignments without under weakness. Strength perseverance is needed in all games development, regardless of whether quick or moderate, developments must be done under lesser or higher states of weakness. Eagerness is a blend of a few athletic attributes like strength, response time and speed of development, force and co-appointment. Its presentation becomes fundamental in such developments as avoiding, crisscross running, halting and beginning and evolving body positions rapidly. Complex is a technique for creating touchy force, a significant segment of the athletic presentation as Complex developments are acted in a wide range of sports. In hockey players, it tends to be played all the more capably when players have the force that consolidates with

strength and speed to foster hazardous force for partaking in different games exercises. The Complex activities further develop essentially in creating actual wellness factors of hockey players.

Methodology

The underlying principle of the study was to find out the result of complex training on selected physical fitness variables along with hockey players. To achieve this purpose, thirty men hockey players were selected as subjects, their aged between 18 to 25 years, they are studying in the National Engineering College, Lakshmi Ammal Sports Academy, KR nagar, Kovilpatti, Thoothukudi District, Tamilnadu. The selected subjects were divided into two equal groups of fifteen subjects each, namely Complex training group and control group. The selected criterion variables such as strength endurance and agility were assessed using standard tests and procedures, before (pre test) and after (post test) training regimen for both experimental and

control groups by using sit-ups and shuttle run respectively. The selected subjects had undergone the Complex training for eight weeks, with three days per week in alternate days. After 10 to 15 minutes of warm-up the subjects underwent their respective Complex training programme and the subjects performed Complex exercises. The control group did not participate in any specialized training during the period of study.

Experimental Design and Statistical Procedure

The experimental design used for the current investigation was random group design involving 30 subjects for training effect. Analysis of Covariance (ANCOVA) was used as a statistical technique to settle on the significant difference, if any, existing between pre test and post test data on selected dependent variables separately and presented in Table-I.

Strength Endurance

The post test mean of complex training group and control group on strength endurance (52.92 ± 2.16 Vs 47.52 ± 2.10) resulted in a 'F' ratio of 48.34.

The adjusted post test mean of complex training group and control group on strength endurance (52.94 Vs 47.52) resulted in 'F'ratio of 112.55. The results of the study indicate that there was a significant difference between complex training group and control group on strength endurance.

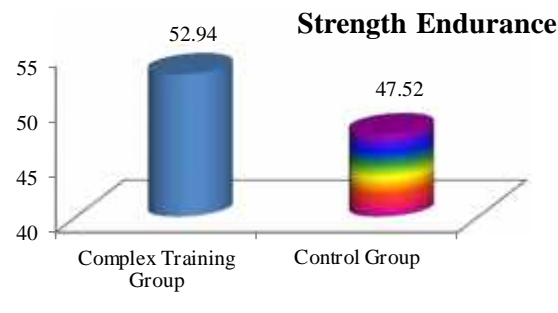


Fig 1: Adjusted mean values of strength endurance of complex training group and control group.

Agility

The post test mean of complex training group and control group on agility (10.73 ± 0.123 Vs 10.96 ± 0.14) resulted in a 'F' ratio of 22.04. The adjusted post test mean of complex training

Table-I F-ratio for pre-test and post-test among the complex training group and control group on strength endurance and agility.								
Variables	Test	Complex Training Group	Control Group	Source of Variance	SS	df	Mean Square	"F" Ratio
Strength endurance	Pre test	47	47.07	Between Within	0.53 132.92	1 28	0.53 4.75	0.11
	Post test	52.92	47.52	Between Within	218.70 126.67	1 28	218.70 4.53	48.34*
	Adjusted post test	52.94	47.52	Between Within	233.78 56.08	1 27	233.78 2.07	112.55*
Agility	Pre test	10.93	10.99	Between Within	0.03 1.25	1 28	0.03 0.04	0.74
	Post test	10.73	10.96	Between Within	0.38 0.49	1 28	0.38 0.01	22.04*
	Adjusted post test	10.73	10.96	Between Within	0.33 0.44	1 27	0.33 0.01	20.30*

Significance value 0.05 level

group and control group on agility (10.73 Vs 10.96) resulted in a 'F'ratio of 20.30. The results of the study indicate that there was a significant difference between complex training group and control group on agility.

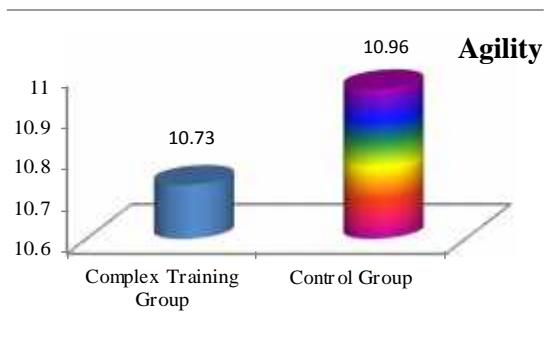


Fig 2: Adjusted mean values of agility of complex training group and control group

Discussion on Findings

The results of the study indicated that the selected physical fitness variables such as strength endurance and agility were improved significantly after undergoing complex training. The changes in the selected parameters were attributed the proper planning, preparation and execution of the training package given to the players. The findings of the present study had similarity with the findings of Jenith (2021)², Abdul Halik et al., (2021)¹, Senthil kumaran (2018)³, Abraham (2015)⁴, Behpour (2012)⁶. The results of the present study indicate that the complex training methods is appropriate protocol to improve strength endurance and agility of college level men hockey players. From the result of the present study it is very clear that the physical fitness variables such as strength endurance and agility improvement significantly due to complex training.

Conclusion

Based on the result and within the limitation of the study

1. It was noticed that practice of complex training helped to improve physical fitness variables of college level male hockey players.
2. It was also seen that there is progressive improvement in the selected criterion variables of complex training group of college

level male hockey players after six weeks of complex training programme.

3. Further, it also helps to improve physical fitness variables strength endurance and agility.

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Effect of Cardiac Circuit Training on Physical Fitness Variables of High School Kho-Kho Players

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Abstract

The purpose of the study was designed to find out the effect of cardiac circuit training on physical fitness variables of high school kho-kho players. To achieve this purpose of study 30 high school male kho-kho players were selected from T.N.G.R Hr. Sec. School Coimbatore. The subjects were randomly assigned to two equal groups (n=15). Group - I underwent (CCT) group (CCTG) and group - II was acted as a control group (CG). The cardiac circuit training was given to the experimental group for 3 days per week (Monday, Wednesday, and Friday) for the period of eight weeks. The control group was not given any sort of training except their routine work. Speed (50 mts dash) agility (shuttle run 4*10) and muscular strength and endurance (modified sit-ups) were measured. Before and after the training period the data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at a 0.05 level of confidence. The result of the speed, agility, and muscular strength, and endurance speculated significant improvement due to influence of cardiac circuit training with the limitations of (diet, climate, lifestyle) status and previous training.

Keywords: Cardiac circuit, Speed, Agility, Muscular strength, Endurance.

1. Introduction

Kho-kho ranks as one of the most popular traditional sports in India. The origin of Kho - Kho is difficult to trace, but many historians believe, that it is a modified form of 'Run Chase', which in its simplest form involves chasing and touching a person. With its origins in Maharashtra, Kho - Kho in ancient times, was played on 'raths' or chariots and was known as RATHERA. Like all Indian games, it is simple, inexpensive, and enjoyable. It does, however, demand physical fitness, strength, speed and stamina, and a certain amount of ability. Dodging, feinting and bursts of controlled speed make this game quite thrilling. To catch by pursuit – to chase, rather than just run – is the capstone of Kho - Kho. The game develops qualities such as obedience, discipline, sportsmanship, and loyalty between team members. The rules of the game were framed at the beginning of the 20th century. At Gymkhana Poona, a Committee was formed in 1914, to frame its rules. The first-ever rules on Kho-Kho

were published from Gymkhana Baroda, in 1924. In 1959-60, the first national Kho-Kho championship was organized in Vijayawada (Andhra Pradesh). The Government has initiated the following awards for the game: Arjuna Award, Eklavya Award for men, Rani Laxmi Bai award for women, Veer Abhimanyu award for boys under 18, and Janaki award for girls under 16. Each team consists of twelve players, but only nine players take the field for a contest. A match consists of two innings. An innings consists of chasing and running turns of 7 minutes each. Eight members of the chasing team sit in their eight squares on the central lane, alternately facing the opposite direction, while the ninth member is an active chaser, and stands at either of the posts, ready to begin the pursuit. Members of the chasing team have to put their opponent out, touching them with their palms, but without committing a foul. All the action in Kho-Kho is provided by the defenders, who try to play out the

7 minutes, and the chasers who try to dismiss them. A defender can be dismissed in three ways: 1) if he is touched by an active chaser with his palm without committing a foul, 2) if he goes out of the limits on his own, 3) if he enters the limit late.

Cardio Circuits

You can make your cardiovascular workout more interesting by performing a cardio circuit. A cardio circuit might include a quick succession of moves such as jumping jacks, speed skaters, jump squats, burpees, and jumping rope. Another alternative is to perform a circuit by visiting five or more different cardio machines – doing a short burst on each to raise your heart rate. For example, warm-up on the treadmill and then sprint for two minutes. Immediately move to the step mill and step up at a rapid pace for two minutes. Jump on the stationary bike and pedal up a very steep hill for two minutes. Move to the elliptical and hit your stride speed as fast as possible for another two minutes. Finish the circuit with two minutes of intense rowing on the rowing ergometer. Complete this circuit two to three times for a complete 20- to 30-minute routine.

Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength-building and muscular endurance. An exercise "circuit" is one completion of all prescribed exercises in the program. When one circuit is complete, one begins the first exercise again for the next circuit. Traditionally, the time between exercises in circuit training is short, often with rapid movement to the next exercise.

The program was developed by Morgan and Anderson in 1953 at the University of Leeds in England.

Methods

Experimental Approach to the Problem

The objective of the study was to analyze the effect of cardiac circuit training on physical fitness variables of high school male kho-kho players. Thirty high school male kho-kho players were randomly selected as a subject and were classified into randomly two equal groups namely

experimental group (n=15) and control group (n=15). The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of eight weeks. The control was not given any sort of training except their routine.

Design

The evaluated speed was assessed by 50 mts dash and unit of measurement was in seconds, agility was assessed by shuttle run and unit of measurement was in seconds, muscular strength and endurance were assessed by modified sit-ups unit of measurement were in counts. The parameters were measured at baseline and after eight weeks of cardiac circuit training.

Training program

The training program was lasted for 60 minutes per session a day, 3 days in a week for a period of eight weeks duration. These 60 minutes included 10 minutes of warm-up and 10 minutes warm down remaining 40 minutes allotted for a seven-station cardiac circuit training programme. Every two weeks of training 5% of intensity was increased from 65% to 75% of the workload.

Statistical analysis

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

Table I reveals the computation of mean, standard deviation, and 't' ratio on speed, agility, and muscular strength and endurance of the experimental group. The obtained 't' ratio on speed, agility, and muscular strength and endurance were 12.39, 15.51, and 19.03 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Table 1: computation of 't'-ratio on speed, agility, and muscular strength and endurance of high school male kho kho players on experimental group and control group (score in numbers)

Group		Mean	N	Std. Deviation	Std. Error Mean	T ratio
Experimental group	Speed	Pre test	8.48	15	0.31	12.39*
		Post test	8.39	15	0.30	
	Agility	Pre test	11.88	15	0.69	15.51*
		Post test	11.70	15	0.72	
	Muscular strength and endurance	Pre test	36.53	15	6.20	19.03*
		Post test	41.40	15	6.16	
Control group	Speed	Pre test	9.78	15	0.53	0.22
		Post test	9.78	15	0.53	
	Agility	Pre test	13.15	15	0.64	0.46
		Post test	13.15	15	0.64	
	Muscular strength and endurance	Pre test	22.53	15	6.54	0.26
		Post test	22.66	15	7.74	

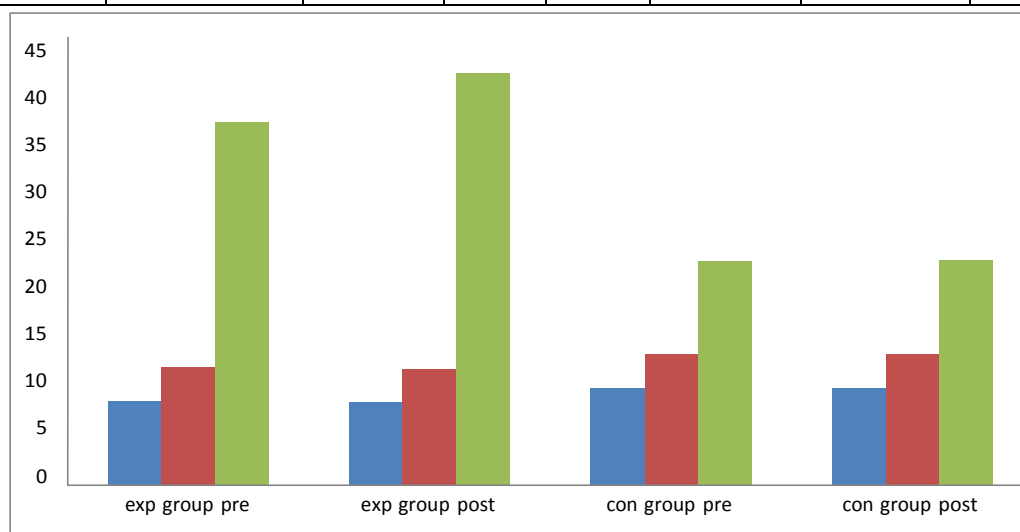


Fig 1: Bar diagram showing the mean value on speed, agility, and muscular strength and endurance of high school male kho kho players on experimental and control groups (Scores in numbers)

Further, the reveals the computation of mean, standard deviation, and 't' ratio on speed, agility, and muscular strength and endurance of control group. The obtained 't' ratio on speed, agility, and muscular strength and endurance were 0.22, 0.46, and 0.26 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance.

Since the obtained 't' values were greater than the table value it was found to be not statistically significant.

Discussions on Findings

The results of the study indicated that the selected physical fitness variables, speed, agility,

and muscular strength, and endurance were improved significantly after undergoing cardiac circuit training. The changes in the selected parameters were attributed to the proper planning, preparation, and execution of the training package given to the players.

The findings of the present study had similarities with the findings of the investigations referred to in this study.

However, the subjects who participated in the control group did not improve their speed, agility and muscular strength, and endurance.

Vega et.al., (2013) reported that the circuit training program was effective to increase and maintain both muscular endurance among schoolchildren, Ta kin (2009) indicated that the circuit training, which is designed to be performed 3 days a week during 10 weeks of training, improves sprint-agility and anaerobic endurance, Hofstetter et.al, (2012) indicated that the circuit training session per week led to greater improvements in total physical fitness score, but did not increase injury rates.

The results of the present study indicate that the circuit training methods are appropriate protocol to improve speed, agility, and muscular strength and endurance of high school male kho-kho players.

Conclusion

1. It was concluded that eight weeks of cardiac circuit training significantly improvement the speed, agility, and muscular strength endurance of the high school male kho kho players
2. The cardiac circuit training is an appropriate training protocol to bring out desirable changes over fitness variables.

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Effect of Small-Sided Game Intervention on Speed and Self-Confidence Among Men Intercollegiate Soccer Players

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Abstract

Aim of the present study was to find the impact of Small-Sided Game intervention programme on speed and self-confidence among intercollegiate soccer players. The 30 participants (age range, 18-24) were recruited from Bharathiar University, Coimbatore, Tamil Nadu, India by random sampling method. Selected participants further randomly divided into two groups each 15 participants. Group I as Experimental group underwent 12 weeks of Small-Sided Game. However, Group II act as control group. Speed and Self-confidence was selected as dependent variable for this study. 50 meters dash was used to test the speed of the participants and Self-confidence was assessed by Agnihotri's Self Confidence Inventory (ASCI), developed by Dr. Rekha Agnihotri. In this study we used Probability sampling technique were used. Based on that Parametric Statistics were selected such as Descriptive statistics used to find the nature of the data, paired sample t test used to find the improvement between pre and post test and Univariate Analysis of Covariance (ANCOVA) used to find the difference among the groups. Statistical significance was established as $P < 0.05$. Concluded that there is significance improvement exists between pre and post test mean on speed and self-confidence among experimental group.

Keywords: Small-Side Game, Speed, Self-confidence, and Soccer players.

INTRODUCTION

Small-sided games (SSGs) also referred to as skill-based conditioning game (Gabbett, 2006) or game-based training (Gabbett, Jenkins, & Abernethy, (2009) are modified game formats in which the coach changes the number of players, ground size, (Davids, Araújo, Correia, & Vilar, 2013) coach encouragement, training regimen (continuous vs interval training (Hill-Haas,

Dawson, Impellizzeri, & Coutts, 2011) or specific game rules to introduce a tactical difficulty to team sports participants (Davids, Araújo, Correia, & Vilar, 2013; Hill-Haas, Dawson, Impellizzeri, & Coutts, 2011). The modification of these constraints has an immediate impact on players' responses, such as tactical behaviours (Clemente, Ramirez-Campillo, Nakamura, & Sarmiento, 2021), technical performance (Clemente, & Sarmiento, 2020), or

physical and physiological demands (Clemente, Ramirez-Campillo, Sarmento, Praça, Afonso, Silva, & Knechtle, 2021).

For all positions in soccer, speed is essential (Taskin, 2008). In sports, speed is a critical aspect in deciding success (Kalinowski, Jerszynski, & Nowakowska, 2021). Self-confidence is a broad phrase that refers to an athlete's belief in his or her capacity to succeed in sports. It is most commonly quantified as trait sport confidence (Vealey, 1986).

It seems evident from the literature that there are many different training protocols. According to Meckel, Gefen, Nemet, & Eliakim, (2012), conducted with Sprint training, Upton, (2011) conduct with resisted sprinting & assisted sprinting, Jovanovic, Sporis, Omrcen, & Fiorentini, (2011) with SAQ drills, and Diallo, Dore, Duche, & Van Praagh, (2001) with plyometrics training conducted to improve speed ability and also Shaker, Nehma, & Odah, (2021) found improvement on self-confidence and tactical knowledge of football players. In this present study SSGs were used as treatment variable to improve the speed and self-confidence among intercollegiate men Soccer players.

Materials and methods

Participants

The 30 participants (age range, 18-24) were recruited from Bharathiar University, Coimbatore, Tamil Nadu, India by random sampling method. Selected participants further randomly divided into two groups each 15 participants. All participants are required to return a signed informed consent letter prior to their participation in this trial.

Measures

Speed was selected as dependent variable for this study. 50 meters dash was used to test the speed of the participants (Mohammad, & Tareq, 2016). The test involves running a single maximum sprint over 50 metres while keeping track of the timing. A complete warm-up should be given, with some practise starts and accelerations thrown in for good measure. Begin in a standing position with one foot in front of the other (hands need not contact the ground). Behind the starting line, the front foot must be. The starter delivers the orders "set" and "go" once the subject is ready and unmoving. The tester should give tips for increasing speed (such as staying low and driving hard with the arms and legs) and encourage the participant not to slow down until reaching the finish line (Wood, 2010).

Dr. Rekha Agnihotri created the Agnihotri Self-Confidence Inventory (ASCI). This questionnaire has 56 items that are simple to score by hand. For making cross (X) to wrong response to item number 2, 7, 23, 31, 40, 41, 43, 44, 45, 53, 54, 55, and for making cross (X) to right response to the rest of the items, a score of 1 is given. As a result, the lower the score, the higher the level of self-confidence, and vice versa (Ghaonta, 2015). The author has given the following classification criteria: 7 and below- very high self-confidence, 8-19 - High self-confidence, 20-32 - Average self-confidence, 33-44 - Low self-confidence and 45 and above very low self-confidence.

Procedures

Initially Pre-test were conducted for experimental and control groups on Speed. After that experimental group underwent the SSGs intervention. This study was completed Three days per week over Twelve weeks with 60-90 mins of each session. After the 12 weeks of training

periods the post test were conducted for all the participants.

Intervention

Participants in the experimental group performed the SSGs intervention for 60-90 min per day, three alternative days per week for twelve weeks. The SSGs interventions was done as follows: Start with warm up' Dynamic Warm-Up, playing duration of the SSG (i.e., 3 bouts x 4 minutes with a rest between bouts of 3 minutes (Rampinini, Impellizzeri, Castagna, Abt, Chamari, Sassi, & Marcora, 2007). Scores were considered valid only if made with the first touch, and in all SSGs the relative pitch size was 85 m². Goalkeepers were considered for the calculation of the relative pitch size, while floaters (players off the field) were excluded. All SSGs were played with coach encouragement and without the offside

Results and Discussion

Table 1 Descriptive Statistics & paired sample t test.

Speed							
Group	Test	Mean	N	SD	t test	df	P value
Experimental Group	Pre-test	7.67	15	0.12	21.33	14	0.00
	Post test	7.00	15	0.14			
Control Group	Pre-test	7.71	15	0.14	0.37	14	0.72
	Post test	7.71	15	0.12			
Self-confidence							
Experimental Group	Pre-test	29.13	15	1.25	60.65	14	0.00
	Post test	17.80	15	1.70			
Control Group	Pre-test	29.20	15	0.94	0.37	14	0.71
	Post test	29.27	15	1.27			

Speed

Paired sample t test value of experimental group is P=0.00 which is less than the P=0.05. The result indicates there is a significance improvement between pre and post-test mean among experimental group participants and control group is P=0.72 which is greater than the P=0.05 it clearly shows that there is no significant improvement between pre and post test mean on

rule being enforced (Arcos, Vázquez, Martín, Lerga, Sánchez, Villagra, & Zulueta, 2015). Control group did not under went any Specific activity during the training period (Sethu, & Ramakrishnan, 2020; Ramakrishnan, & Sethu, 2018).

Design and Statistical Analysis

In this study pre and post randomised control design was used. In this study we used Probability sampling technique were used. Based on that Parametric Statistics were selected such as Descriptive statistics used to find the nature of the data, paired sample t test used to find the improvement between pre and post test and Univariate Analysis of Covariance (ANCOVA) used to find the difference among the groups. Statistical significance was established as $P < 0.05$.

speed among the control group participants at 0.05 level of significance.

Self-confidence

Paired sample t test value of experimental group is P=0.00 which is less than the P=0.05. The result indicates there is a significance improvement between pre and post-test mean among experimental group participants and control group is P=0.71 which is greater than the P=0.05 it

clearly shows that there is no significant improvement between pre and post test mean on

self-confidence among the control group participants at 0.05 level of significance.

Figure 1 & 2 shows the mean value of Speed and Self-confidence pre and post test among experimental and control Group.

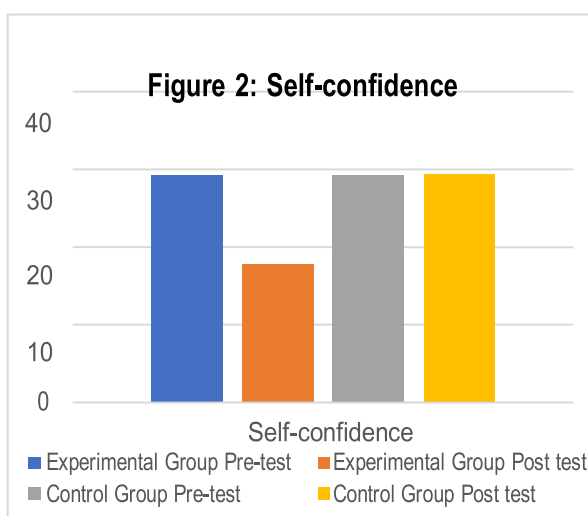
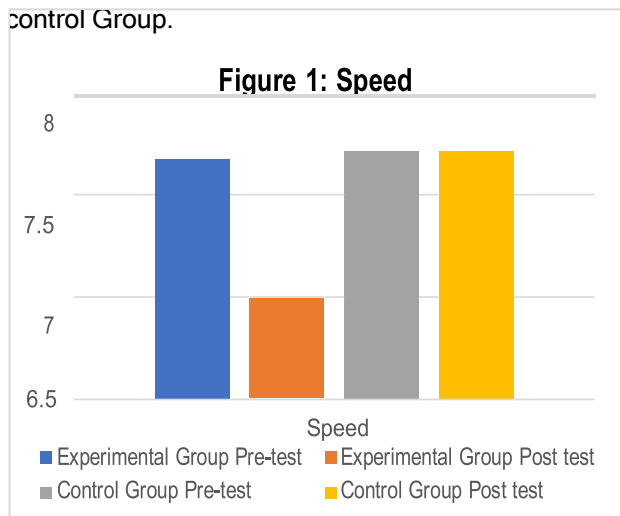


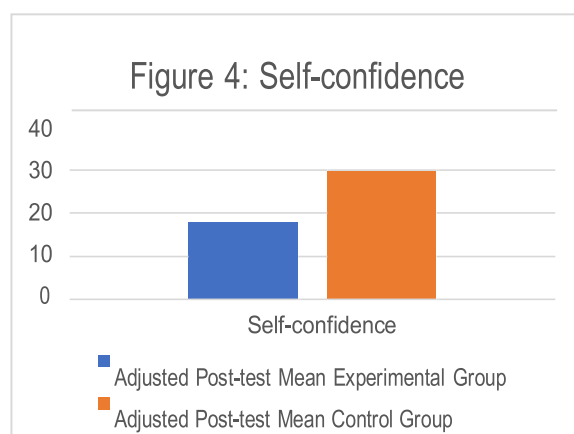
Table 2 Univariate ANCOVA Comparing two groups

Variable	Adjusted Post-test Mean		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
	Experimental Group	Control Group						
Speed	7.01	7.70	0.24	27	0.09	398.33	0.00	0.937
	17.84	29.23	971.26	1	971.26			
Self-confidence			12.63	27	0.468	2075.78	0.00	0.987

Table 2 shows that the univariate ANCOVA value on Speed $P=0.00$ which is less than the $P=0.05$ and Self-confidence $P=0.00$ which is less than the

$P=0.05$, it indicates that there is significance improvement difference exist between experimental and control group on speed and self-confidence at 0.05 level of significance.

Figure 3& 4 shows the adjusted post-test mean value of Speed and Self-confidence among experimental and control Group.



The obtained results also supported by previous studies, According to Katis, & Kellis, (2009) found improvement on physical conditions among soccer players. Karahan, (2020) found improvement on physical performance among soccer players, and Nehma, & Odah, (2021) found improvement on self-confidence among football players

Conclusion

1. Statistical results shows that the 12 weeks of SSGs intervention had found significant improvement on speed and self-

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Conflict of interest

How to Cite this Article

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Influence of Cross Training with Medicine Ball Exercises on Selected Strength Parameters of Throwers

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Abstract

This study was investigated the impact of cross training with medicine ball exercises on selected strength parameters of throwers. To achieve the purpose of the study 40 throwers were selected from Bharathiar university inter collegiate athletes in Coimbatore. The subjects were randomly assigned to two equal groups (n=20). Group- I underwent cross training with medicine ball exercises (CTWMB) and group - II was acted as control group (CG). The cross training with medicine ball exercises was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The strength parameters of strength endurance (burpees test) and muscular strength (modified setups) before and after training period. The data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the present study cross training with medicine ball exercises significantly improved selected strength parameters of throwers.

Keywords: Cross Training with Medicine Ball Exercises, Throwers, Strength endurance and muscular strength

1. Introduction

The athletics meeting forms the backbone of the Summer Olympics. The foremost international athletics meeting is the World Athletics Championships, which incorporates track and field, marathon running and race walking. Other top level competitions in athletics include the World Athletics Cross Country Championships and the World Half Marathon Championships. Athletes with a physical disability compete at the Summer Paralympics and the World Para Athletics Championships. The word athletics is derived from the Ancient Greek sporting competition based primarily on human physical feats. In the 19th century, the term athletics acquired a more narrow definition in Europe and came to describe sports involving competitive running, walking, jumping and throwing. This definition continues to be prominent in the United Kingdom and the former British Empire. Related words in Germanic and Romance languages also have a similar meaning. education is defined as an instructional method that uses physical

exercise as a potential to assist a person to gather skills, fitness, knowledge, and attitudes that make contributions to their most reliable development of body and well-being. Our sport consultants can help you learn and effectively apply these and other sport psychology skills so you can maximize your training and performances. We also can work with teams to help them improve their communication, leadership, cohesion, and overall performances. We also understand, though, that you are not just sport performers – you are students, sons/daughters, friends, workers...etc. who will experience a wide range of stressors and interpersonal concerns (e.g., relationships, anger) that can be detrimental. You also may experience more severe problems, such as depression, anxiety, drug/alcohol abuse, and eating disorders, which can affect you on and off the field. Our sport consultants can help with these types of concerns as well, and help you reclaim success, fun, and satisfaction in your sport. (Ziegler, 1997).

2. Cross Training

Cross training is a really flexible way to work out as you can incorporate a great variety of exercises into your workout. This is useful as not only does it mean it can be adapted to suit everyone, but also that you're less likely to get bored of your routine. In turn, this means you're more likely to stick with it and therefore, you're more likely to reach your goals. Here, we'll take you through everything you need to know about cross training, from the benefits of a cross training regime, what an effective routine comprises of, how you can work out, both at home and at your local Everyone Active centre. We'll also look at the differences between cross training and CrossFit, how a cross trainer differs from cross training and how this workout regime can help runners.

3. Medicine Ball Exercises

Medicine Balls come in a variety of sizes and weights. In most cases, athletes should start out with lighter medicine balls, and as higher athletic ability levels are obtained, increase the weight of the balls. The standard "rule of thumb" is to always use a medicine ball whose weight allows the correct technique of the drill to be performed. Using a ball that is too heavy will cause breakdown in skills. Sets, reps and recovery time are also important and are specific to the athlete's individual needs. Too many sets or reps, or not enough recovery time could cause fatigue and improper skill performance. In general we suggest use of basic sets and reps. (For example: 3 sets of 8 reps or 4 sets of 6 reps is an excellent place to begin). It is also important to perform each drill with both sides of the body.

4. Methodology

In order to address the hypothesis presented herein, we selected 40 Throwers from Bharathiar University Inter Collegiate Athletes, Coimbatore. Their age ranged from 18 to 23 years. The subjects were randomly assigned in to two equal groups namely, Cross training with Medicine ball exercises Group (CTWME) (n=20) and Control group (CG) (n=20). The respective training was given to the experimental group the 6 days of the weeks for the training period of ten

weeks. The control group was not given any sort of training except their routine. The evaluated performance Strength endurance was assessed by burpees test the unit of measurement in counts, and muscular strength assessed by modified sit-ups and the unit of measurement in counts. The parameters were measured at baseline and after 10 weeks of complex training were examined. The intensity was increased once in two weeks based on the variation of the exercises. The training programme was lasted for 60 minutes' session in a day, 6 days in a week for a period of 10 weeks' duration. These 60 minutes included warm up for 5 minutes, 30 minutes cross training, 20 minutes medicine ball exercises and 5 minutes warm down. The equivalent in Cross training with Medicine ball exercises is the length of the time each action in total 6 days per weeks..

Table I reveals the computation of mean, standard deviation and 't' ratio on selected variables namely strength endurance of experimental group. The obtained 't' ratio on strength endurance were 20.85 respectively. The required table value was 2.09 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on selected variables namely strength endurance of control group. The obtained 't' ratio on strength endurance were 1.68 respectively. The required table value was 2.09 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

Table I reveals the computation of mean, standard deviation and 't' ratio on selected variables namely muscular strength of experimental group. The obtained 't' ratio on muscular strength were 16 respectively. The required table value was 2.09 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Table – I Computation of ‘T’ Ratio on Strength Endurance on Experimental Group and Control Group (Scores in Numbers)

GROUPS	PRE TEST	POST TEST	NUMBERS	SEM	“T” RATIO
Experimental Group	5.23	6.23	20	0.70	20.85*
Control group	5.03	4.90	20	0.15	1.68

*significant level 0.05 level (degree of freedom 2.09, 1 and 19)

Table – II Computation of ‘T’ Ratio on Muscular Strength on Experimental Group and Control Group (Scores in Numbers)

GROUPS	PRE TEST	POST TEST	NUMBERS	S.D	“T” RATIO
Experimental Group	24.83	25.90	20	1.97	16.00*
Control group	24.83	24.80	20	2.98	0.1

*significant level 0.05 level (degree of freedom 2.09, 1 and 19)

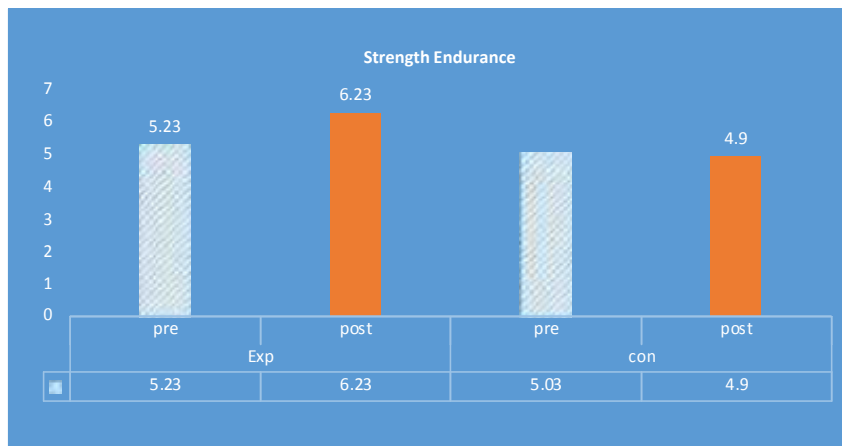


Figure – I Bar Diagram Showing the Mean Value on Strength Endurance of Throwers on Experimental and Control Group

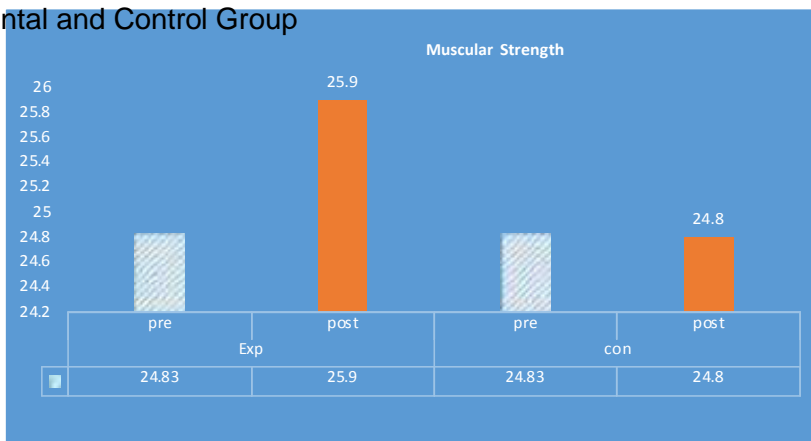


Figure – II Bar Diagram Showing the Mean Value on Muscular Strength of Throwers on Experimental and Control Group

Further the computation of mean, standard deviation and 't' ratio on selected variables parameters namely muscular strength of control group. The obtained 't' ratio on muscular strength were 0.1 respectively. The required table value was 2.09 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

5. Discussion and Findings

The present study experimented the influence of ten week's Cross training with medicine ball exercises on the strength parameters of throwers. The results of this study indicated that Cross training with medicine ball exercises is more efficient to bring out desirable changes over the variables of throwers. Salameh, H. B. (2017). The effect of a proposed training program using medicine balls on some physical variables and the digital achievement of throwing events in athletics for students of physical education. Marnewick, M. (2008). Can a cross training program improve rugby skills in adolescent male rugby players. Keogh, J. W. et al., (1999). A cross-sectional comparison of different resistance training techniques in the bench press. Hence, it was concluded that for strength endurance and muscular strength of improvement on Cross training with medicine ball exercises of throwers.

6. Conclusion

Based on the findings and within the limitation of the study it is noticed that practice of Cross training with medicine ball exercises helped to strength parameters of throwers. Finally, the Cross training with medicine ball exercises due to the influence on strength parameters for strength endurance and muscular strength. Further, it was concluded that the 10 weeks of Cross training with medicine ball exercises significant improvement in the strength endurance and muscular strength of throwers.

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Conflict of interest

None of the authors have any conflicts of interest to declare.

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Impact of Vision Training on Playing Ability of Inter Collegiate Women Football Players

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Abstract

Football Players need terrific vision, stability, tracking, eye movements, peripheral awareness, eye leg coordination, and near -far focusing are all mandatory to perform well in their game situation. Vision training programs as a system to develop their traditional training schedule for improve their concert. The objective of the present research was to examine the impact of vision training on playing ability of inter collegiate women football players. To attain the intention of the study 40 inter collegiate women football players from Coimbatore district were selected using purposive random sampling technique. The age of the subjects ranges between 19 - 23 years. The pre-test was conducted on the selected skills (Passing – Mor S and Cristian V (1979), Dribbling – Warner Soccer test, shooting- Mor S and Cristian V (1979)). After completion of pre-test the subjects were randomly allocate into two groups evenly so that each group has 20 subjects. The first group was named as the vision training group (VTG) subjects were treated with vision training and the second group was control group did not undergo any specific training other than the daily routine. The training period was scheduled for 8 weeks. After 8 weeks of the training period post test was conducted on the selected skills for both groups. To analyse the treatment effect of pre and post-test training 't' ratio was used. The vision training group (VTG) was notably enhanced ($P < 0.05$) the selected skills of passing, dribbling and shooting. The experimental group (VTG) was healthier than the control group. The control group did not show any noteworthy enhancement on the selected skills. Based on the results it was over and done with that the repercussion of vision training might have been the sources of its power on the improvement of (passing, dribbling and shooting) playing ability of inter collegiate women football players.

Keywords: vision training, passing, dribbling, shooting, inter collegiate women football players.

Introduction

Football is an admired and extremely energetic game in the globe. The difference between a great and good player is simply their efficiency of their ocular abilities on the playing field. Teaching a player with vision, Depth acuity and peripheral vision is the important task for

recuperating their visual consciousness. In modern scenario, the sports vision or sensory training as well as football specific brain jogging is utterly necessary for reach the top performance levels in football. The physical conditioning, technical mastery and proper diet

make all the difference, particularly when there is so little to choose between the competitions **(Perter Schreiner 2011)**.

Football Players need tremendous vision to execute well in their games situation, and vision training programs as a way to augment their traditional exercise routine. The growing practice of 'sports vision training' relies on the belief that practice with serious visual perceptual, cognitive, or motor tasks can get better the potential to process and respond to what is seen, in that way getting better sport performance **(Gregory 2018)**. Vision plays an key role in response time, leg eye body coordination, balance, spatial orientation and expectation which could manipulate the sports performance **(Binu A 2020)**. When vision training is make the first move as a team wide work out, the rate of concussion declines in players who take part in exercise evaluated to players who do not get the vision training **(Joseph 2015)**.

An usual progress of other visual capabilities (transfer effects) as a effect of training, such as the capability to track at the same time altered items in the central and peripheral visual field and to recognize and discriminate individual objects, as it is in the numerous object tracking task, could not be verified in this fastidious study **(Sebastian 2012)**. Football Players need terrific vision, stability, tracking, eye movements, peripheral awareness, eye leg coordination, and near -far focusing are all mandatory to perform well in their game situation. Sports vision

training facility on getting better the visual ability of a player that is most essential for superiority in their games. Some of these capabilities include eye-leg coordination, dynamic visual acuity, tracking, focusing, visual reaction time, and peripheral vision.

Methods

To achieve the purpose of the study 40 inter collegiate women football players from Coimbatore district were selected using purposive random sampling technique. The age of the subjects ranges between 19 - 23 years. The pre test was conducted on the selected skills (Passing - McDonald soccer test, Dribbling - crew soccer test, Shooting- Loughborough Soccer Shooting test). After completion of pre test the subjects were randomly assigned into two groups equally so that each group has 20 subjects. The first group was named as the vision training group (VTG) subjects were treated with vision training and the second group was control group did not undergo any specific training other than the daily routine. The training period was scheduled for 8 weeks. After 8 weeks of the training period post test was conducted on the selected skills for both groups. To analyse the treatment effect of pre and post test training 't' ratio was used.

Training Programme

Vision training: Experimental group (VTG) was given 45 minutes of Vision Training for eight weeks as one session a day for 5 days a week.

S.No.	Exercise	Rep	Set	Rep rest	Set rest	Time
1.	Dynamic Visual Acuity Exercise	5*30 sec	2	20 sec	30 sec	8.17 min
2.	Eye Tracking Exercise	5*30 sec	2	20 sec	30 sec	8.17 min
3.	Eye Focusing Exercise	5*30 sec	2	20 sec	30 sec	8.17 min
4.	Peripheral Awareness Exercise	5*30 sec	2	20 sec	30 sec	8.17 min
5.	Eye-Leg Coordination Exercise	5*30 sec	2	20 sec	30 sec	8.17 min
Total						41.15 sec

Load was increased gradually throughout the eight weeks program.

Results

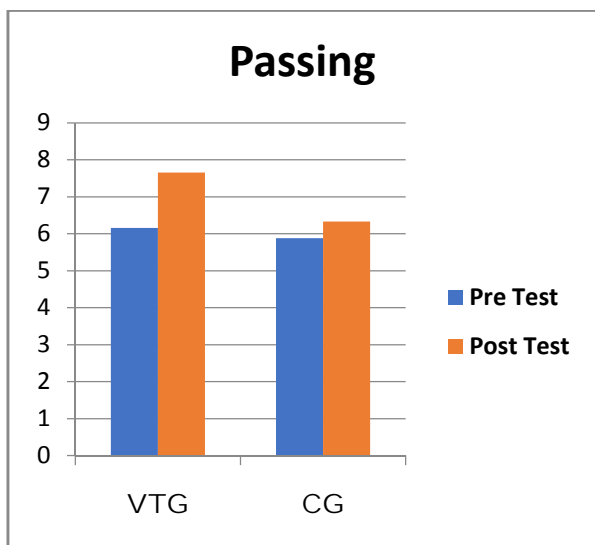
To find out if any noteworthy difference exists in between the pre and post training, t-ratio was applied. This study confirms that vision training had produced improvements ($P < 0.05$) the selected skill related physical fitness

variables (Passing, dribbling, shooting). The control group did not prove any noteworthy development on the selected skills. The experimental group (VTG) was better than the control group

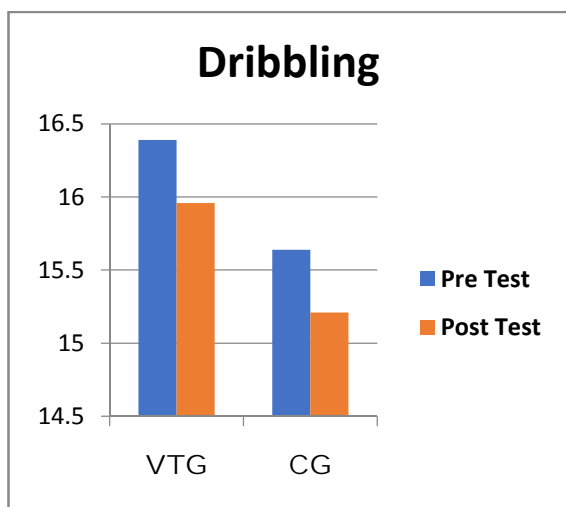
Table Showing obtained Mean Values for the Selected Variables

Variable	Group	Test	Mean	SD	MD	SEM	T ratio
Passing	Experimental	Pre test	6.16	0.85	1.15	0.14	10.29
		Post test	7.66	1.02			
	control	Pre test	5.88	0.67	0.45	0.25	
		Post test	6.33	0.68			
Dribbling	Experimental	Pre test	16.39	0.79	0.43	0.28	15.11
		Post test	15.96	0.77			
	control	Pre test	15.64	0.83	0.43	0.30	
		Post test	15.21	1.48			
Shooting	Experimental	Pre test	48.55	9.86	7.33	0.06	12.12
		Post test	55.88	9.08			
	control	Pre test	48.77	6.44	2.77	1.51	
		Post test	46.00	5.98			

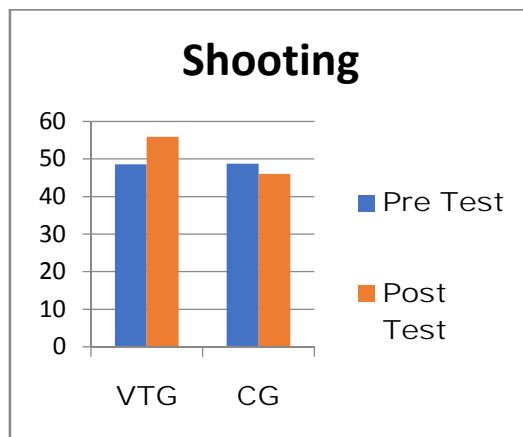
Graphical Representation of the Pre and Post Test Mean Values of Vision Training Group and Control Group on **Passing**



Graphical Representation of the Pre and Post Test Mean Values of Vision Training Group and Control Group on **Dribbling**



Graphical Representation of the Pre and Post Test Mean Values of Vision Training Group and Control Group on **Shooting**



Discussion

The terrific visual demands in different positions of football vary by the particular needs and activities. In the game of soccer/football the use of vision is high, when a player has the ball his vision goes to the opponent, his teammates and the target. On that this study confirms that vision training had produced enrichment in playing ability (passing, dribbling, shooting) of the intercollegiate women football players. Thus passing, dribbling and shooting skill had significantly enhanced from pre test to post test of experimental group and no notable changes in control group. The result of the present study is in line with previous study (Nithin et.al (2019) studied that the perceptual training improves Passing, Dribbling, Shooting skill for men football players.

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Conflict of interest

None of the authors have any conflicts of interest to declare.

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