



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 10th 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. 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 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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Publisher's Desk

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EFFECT OF PRANAYAMA ON SELECTED PHYSIOLOGICAL VARIABLES AMONG INTER-COLLEGIATE MEN VOLLEY BALL PLAYERS

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Abstract

The purpose of the study was to find out the effect of pranayama on selected physiological variables among inter-collegiate men volleyball players. Twelve inter-collegiate men volleyball players were selected from Department of Physical Education, Bharathiar University Coimbatore considered as experimental group. Data were collected from each subject before and after the six weeks of training. The collected data were statistically analyzed by dependent 't' test. It was found that there was a significant improvement on pulse rate and breath holding time due to the practice of pranayama.

Keywords: pranayama, Volleyball, Bharathiar University

INTRODUCTION

The word Yoga is derived from the Sanskrit root Yuj. Yoga means to "Yoke", to "Bind", to "Link" to "connect" or to "Merge". Yoga joins body and mind together. The merger of soul with god and the experience of oneness with him-yoga. It is possible only through the control over sense organs and through continued practice and detachment. According to the great sage Patanjali, "The withdrawal of sense organs from their worldly objects and control is yoga." "Yoga is a system of integrate education of the body, the mind and the inner spirit. It is a way to attain salvation and to get oneself freed from the cycle of birth and death. Its

main purpose is the elimination of the forces harmful to the soul.

Pranamaya means a pause in the movement of breath. In Sanskrit "prana" means "Breath" and Ayama" means a "Pause". In modern literature on yoga prana, even in the compound pranayama has been often interpreted to mean a "Subtle psychic force (or) a subtle cosmic element". Pranamaya is a scientific mental and Physical exercise. In this exercise the diaphragm and abdominal muscles get good exercise by controlled movements and by their alternate contraction and relaxation

respectively. The heart, lungs and digestive organs like stomach, liver and the nervous and endocrine system like brain, the spinal cord, and spine nerves gets the massage and the rejuvenating exercise. It helps to normalize the circulation of blood.

METHODOLOGY

To achieve the purpose of this study twelve inter-collegiate men volleyball players were selected from Department of Physical Education, Bharathiar University Coimbatore were randomly selected as subjects. The selected subjects were undergone six weeks of pranayama practice (Anuloma-Viloma, Surya Bhadana Pranayama, Chandra Bhendana Pranayama, Nadi Suddhi Pranayama Nada Anu santhana Pranayama, A-Kara, U-Kara, M-Kara, Aum, Om). The following physiological variables such as resting pulse rate and breath holding time were selected.

S. No	Variables	Test Name
1	Resting Pulse Rate	Pulse Beats
2	Breath Holding Time	Nose Holding

The selected variables resting pulse rate and breath holding time was

tested through pulse beats and nose holding method. The pre test data were collected before the training programme and the post-test data were collected after the training programme. In both the cases the data were collected in single day the same.

From the table, the dependent 't' test values of resting pulse rate between the pre and post test means of experimental group was greater than the table value of 1.79 with df 11 at 0.05 level of confidence. Due to the effect of pranayama practice the experimental group had significant improvement on resting pulse rate.

The mean values of pre and post inter-collegiate men volleyball players for resting pulse rate are presented in figure I

From the table, the dependent 't' test values of breath holding time between the pre and post test means of experimental group was greater than the table value of 1.79 with df 11 at 0.05 level of confidence. Due to the effect of Pranayama practice the experimental group had significant improvement on breath holding time.

The mean values of pre and post inter-collegiate men volleyball players for breath holding time are presented in figure II

TABLE II THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND „t“ RATIO OF INTER-COLLEGIATE MEN VOLLEYBALL PLAYERS ON RESTING PULSE RATE

PHYSIOLOGICAL VARIABLES	TEST	MEAN	S.D	S.E	“t” ratio
Resting Pulse Rate	Pre	69.5000	6.4456	1.8607	4.468*
	Post	59.0000	4.2212	1.2185	

*Significant $t_{.05} (11) = 1.79$

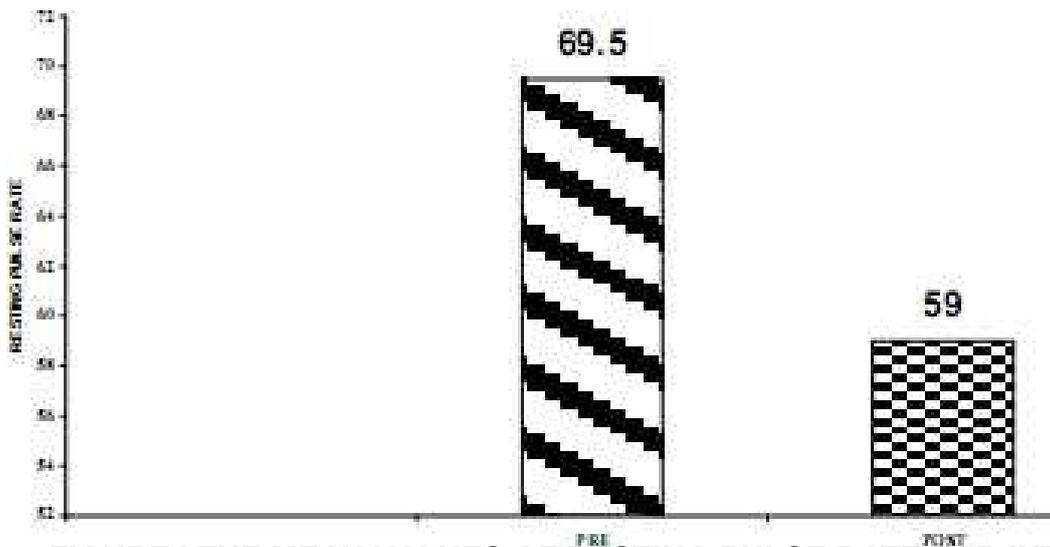


FIGURE I THE MEAN VALUES OF RESTING PULSE RATE FOR INTER-COLLEGIATE MEN VOLLEYBALL PLAYERS

TABLE III THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND „t“ RATIO OF INTER-COLLEGIATE MEN VOLLEYBALL PLAYERS ON BREATH HOLDING TIME

PHYSIOLOGICAL VARIABLES	TEST	MEAN	S.D	S.E	“t” ratio
Breath Holding Time	Pre	24.5392	5.6163	1.6213	6.303*
	Post	65.2500	25.2195	7.2802	

*Significant $t_{.05} (11) = 1.79$

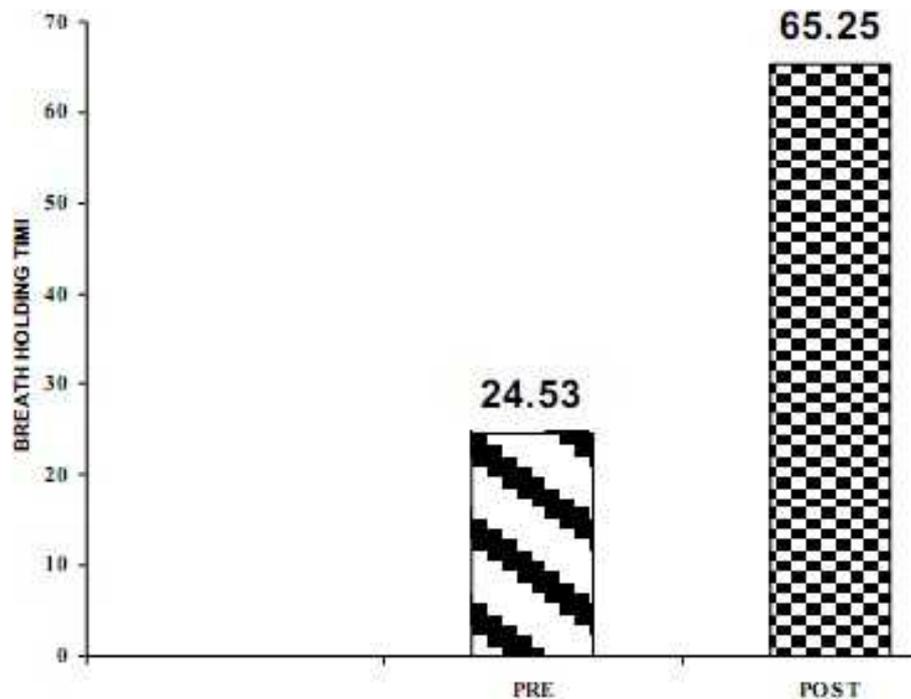


FIGURE II THE MEAN VALUES OF BREATH HOLDING TIME FOR INTER-COLLEGIATE MEN VOLLEYBALL PLAYERS

CONCLUSIONS

From the analysis of the data, the following conclusion were drawn

1. Six weeks of Pranayama practices improves on resting pulse rate.
2. Six weeks of Pranayama practices improves on breath holding time.

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EFFECT OF SELECTED YOGIC PRACTICES ON PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES AMONG TEACHER TRAINING STUDENT

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Abstract

The purpose of the study was to find out the effect of selected Yogic practices on selected physiological and psychological variables of Teacher Training Student, Twenty students were selected from Selvam Teacher training Institute, Namakkal. Data were collected from each subject before and after the 56 days of yogic practices. The collected data were statistically analyzed by dependent test. It was found that there was a significant improvement on selected Physiological and Psychological variables due to the effect of yoga.

Keywords: Yogic practices, Physiological, Psychological

INTRODUCTION

The word Yoga is derived from the Sanskrit root Yuj. Yoga means to “Yoke” to “Bind”, to “Link” to “connect” or to “Merge” Yoga joins body and mind together, According to the great sage Patanjali, “The withdrawal of sense organs from their worldly objects and control is yoga.”“Yoga is a system

METHODOLOGY

To achieve the Purpose of this study twenty students were selected from Selvam Teacher training Institute, Namakkal were randomly selected as subjects. The selected subjects were undergone 56 days of selected yogic practices (Meditation, Pranayama, kriyas

and selected Asanas) the following physiological variables such as resting heart rate, respiratory rate and vital capacity and psychological variables such as stress, visual perception and self-esteem were selected. The selected physiological and psychological variables were tested with standardized tests. The data were collected before and after the training programme. The data of pre and post test were collected in a single day at the same time.

STATISTICAL ANALYSIS

The collected data were statistically analyzed with dependent’t’ test to find out the significant difference between the pre and post test.

Table -1

TABLE SHOWSTHATTHE COMPUTATION OF 'T' TESTS BETWEEN PRE AND POSTTEST MEANSOF THE FOLLOWING VARIABLES

S.No	Variables	Pre test		Post test		't'
		Mean	SD	Mean	SD	
1	Resting heart rate	69.80	1.58	68.40	1.23	5.09*
2	Respiratory rate	16.00	1.21	14.60	0.68	6.66*
3	Vital capacity	4.31	0.19	4.81	0.07	14.07*
4	Stress	30.50	3.76	26.30	4.47	5.13*
5	Visual perception	27.90	5.74	23.70	4.99	5.43*
6	Self-esteem	13.70	1.45	11.60	1.85	4.90*

*significant Table Value for 0.05 Level fordf (1,19) = 2.09

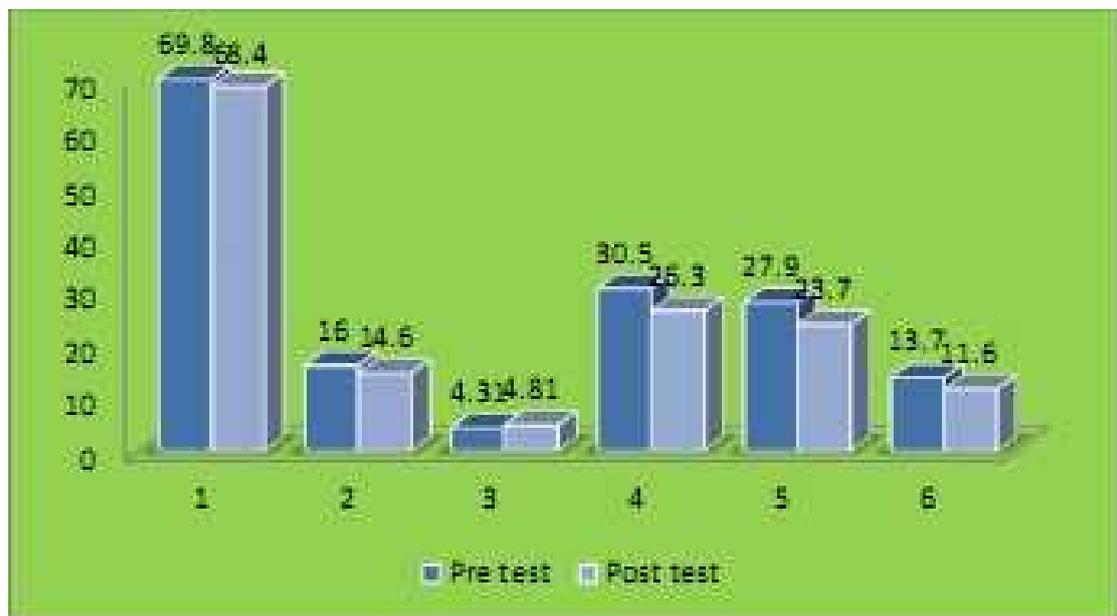


FIGURE -1 GRAPHICAL REPRESENTATION OFTHE MEAN VALUE OF PRE AND POSTTEST ON RESTING HEART RATE, RESPIRATORY RATE, VITAL CAPACITY, STRESS, VISUAL PERCEPTION AND SELF ESTEEM

An examination of table I indicates that the obtained 't' ratios 5.09, 6.66,14.07, 5.13, 5.43 and 4.90 for resting heart rate, respiratory rate, vital capacity of physiological variables and stress, visual perception and self-esteem of psychological variables respectively were found to be greater than the required table value of 2.09 at 0.05 level of

significance for 19 degrees of freedom. Hence it was found to be statistically significant. The result of the study reveals that the selected yogic practices significantly improved all the selected physiological and psychological variables of the yogic practices group.

DISCUSSION ON FINDINGS

Results of the study indicated that the physiological variables such as resting heart rate, respiratory rate and vital capacity and psychological variables such as stress, visual perception and self-esteem were improved due to the participation in the 56 days of selected yogic practices.

CONCLUSION

Through this study we find out that the selected yogic practices improves the physiological variables such as resting heart rate (2.02%), respiratory rate (5.6%) and vital capacity (4.59%), and psychological variables such as stress (12%), visual perception (17.72%) and self-esteem (18%). The investigator suggests the yogic practices to all the physical education students for improving the selected physiological and psychological variables among them.

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Effects of Resistance Training on Physiological Variable of Adolescent Boys Kabaddi Players

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Abstract

The study was to find out the effects of resistance training on physiological variables of adolescent boys kabaddi players. To achieve the purpose of the study 30 adolescent boys kabaddi players will be selected from Vidya Mandir Higher Secondary school, Ariyalur and their age will be ranged between 14 and 17 years. The subjects was randomly assigned to two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent resistance training for a period of twelve week sand group-II acted as control who did not participate in any special training other than the regular routine. The physiological variables such as breath holding, resting heart rate, and vital capacity. Were selected as dependent variables. Breath holding time was tested by digital stop watch test resting heart rate time was tested by bio monitor, and vital capacity was tested by wet spirometer. Pre and post- tes trandom group de sign was used for this study. The dependent „t“ test was applied to determine the difference between the mean soft wo group. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05levelof confidence was fixed. The result of the study shows that, there was a significant improvement takes place on breath holding time, resting heart rate and vital capacity of adolescent boys kabaddi players. Due to the effect of twelve week so resistance training and also concluded that, there was a significant difference exists between experimental and control groups on breathe holding time, resting heart rate and vital capacity. Thecontrolgroupdidnotimprovetheselectedcriterionvariables.

Keywords: Resistance training, Breath holding time, Resting heart rate and Vital capacity,

INTRODUCTION

The origin of the game dates back to pre-historic times played in different forms. The modern kabaddi game was played all over India and some parts of South Asia from 1930. The first known frame work of the rules

of kabaddi as an indigenous sport of India was prepared in Maharashtra in the year 1921 for kabaddi competitions on the pattern of Sanjeevani and Gemini in a combined form. There after a committee was constituted in the year 1923, which amended the rules framed in 1921. The amended rules were

applied during the All-India Kabaddi Tournament organized in 1923 (kabaddiikf.com) Kabaddi was introduced in the Indian Olympic games at Calcutta in 1938. an all India Kabaddi federation came into existence during 1950. Regular national championship commenced from the year 1952.

RESISTANCE TRAINING

Resistance training is any exercise that causes the muscles to contract against an external resistance with the expectation of increases in strength tone mass and/or endurance. The external resistance can be dumbbells ,rubber exercise tubing, your own body weight ,bricks of water ,or any other object that cause the muscle to contract. When you lift weight at the gym to get stronger or bigger or more toned, you are performing resistance exercise occasionally you will hear the term “strength training” associated with lifting weight. Technically, it’s incorrect to refer to resistance exercise as strength training Instead; strength training would more accurately be described as resistance exercise that builds strength. In this article, the term resistance exercise will refer to the general type of the weight lifting that you do in the gym to get bigger, stronger, more toned or to increase your muscular endurance (Weil, 2000).

METHODS SIGNIFICANCE OF THE STUDY

The study may be significance in the following respects.

1. The study also helpful to find the physiological variables of adolescent boys Kabaddi players.
2. The study would be helpful to the player to know their status.
3. The result of the study would be great in designing and administrating physiological variables like resting heart rate breathe holding and vital capacity.
4. The finding of the study may provide guidance to physical education teacher and coaches to prepare training schedule for specific events on basis of their capacity.
5. It may be useful to understand the resistance training changes that take place on different variables at different specific training.
6. The result of the study helps the government to formulate standardized format in connection which, physiological variables which would help them for easy identification.

Selection of Subject and Variables

The present study was designed to examine the effects of resistance training on physiological variables of adolescent boys kabaddi players. 30 Vidya Mandir Higher Secondary School, Ariyalu racted as subjects.

The age of the subjects ranges between 14-17 years. The selected variables were Breath holding time, resting heart rate and vital capacity. Tests were conducted to all the selected subjects before and after the training. The experimental group underwent a twelve week perceptual training program.

Experimental Design

In these study 30 adolescent boys kabaddi players will be selected from super Government Higher Secondary School madathukulam, tirupur and their age will be ranged between 13 and 17 years. The subjects was randomly assigned to two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent resistance training for a period of twelve weeks and group-II acted as control who did not participate in any special training other than the regular routine.

Test Procedure

The following tests were chosen for testing variables. Breath holding time was tested by digital stop watch test resting heart rate time was tested by Bio monitor, and Vital capacity was tested by wet spirometer.

Breath Holding Time *Purpose:* To measure the breath holding time *Equipment:* Stop watch *Procedure:* The subjects stand at ease and inhale deeply after which he hold his

breath for a length of time possible for him. The index figure of the respondent serves as a indicator to the research scholar to make known the start and end of the recording time. The thumb and middle fingers are used to hold the nose to avoid letting the air by opening the mouth apparently is considered while recording the breath holding time. *Scoring:* The breath holding time was recorded with the hope of the stop watch. After a rest of three minutes, another trail was taken. The best time was recorded in seconds as the score.

Resting heart rate *Purpose:* To measure the heart rate. *Equipment:* Stop watch. *Procedure:* Resting heart rate was calculated by the number of hearts beats in one minute, when a player was in resting condition. "Ten minutes before taking the heart rate, the subjects were asked to lie down and rest themselves. The radial pulse was taken by placing three fingers on the radial artery on the thumb side of the wrist". The heart beat was counted for 30 seconds and multiply by two for heart rate per minute. *Scoring:* Just counted the heart beat for 30 seconds.

Vital Capacity *Purpose:* To measure lung volume. *Equipment:* and materials Wet Spirometer, mouthpieces and nose clips. *Procedure:* Vital capacity was measured by means of wet Spirometer consisted of six litter container, filled with water upon one inch from the land balanced by a chain, which

passed over a free running pulley. The Wet Spiro meter was placed at a height that allowed the subject to stand erect, before the test, each subject was asked to take the slowly and forcefully expelled all to possible air into the rubber house through the mouth piece. 100 There was taken to prevent air from escaping through the nose by using nose clips. The point of the indicator at the top of the drum indicated volume of air expelled in cubic centimetre. It was ensured that assured breath was not taken by the subject during the test. There was taken to lower drum without spilling the water each time after use. *Scoring:* Three trails were given and the test was recorded in cubic centimetre.

Training programme

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks duration.

These 45 minutes included 10 minutes warm up, plyometric training for 25 minutes and 10 minutes warm down.

Statistical Analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of Resistance training was statistically analysed with „t“ test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence.

Result of the Study

analysed with „t“ test was applied to determine whether the training program produced any significant difference by improvements in Breath holding time, resting heart rate and vital capacity among adolescent boys kabaddi players. The analysis is presented in the following tables.

Weeks	Resistance training	Sets x repetition	Rest in between sets	Rest in between exercise
I-II Weeks	Bench press Squats Leg extension Biceps curl Back extension	2x2	90 seconds	30 seconds
III-IV Weeks	Military press Squats Leg curl triceps curl Back extension	3x2	90 seconds	30 seconds
V-VI Weeks	Bench press Squats Leg extension Biceps curl Back extension	3x2	90 seconds	30 seconds

VII-VIII Weeks	Military press Squats Leg curl triceps curl Back extension	3x3	90 seconds	30 seconds
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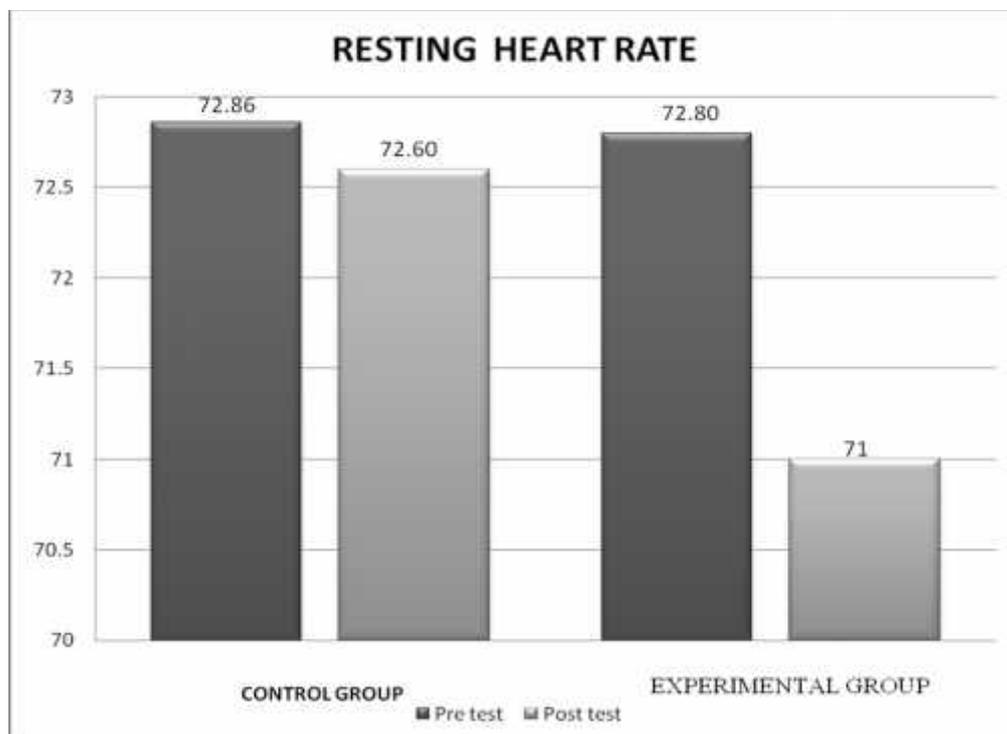
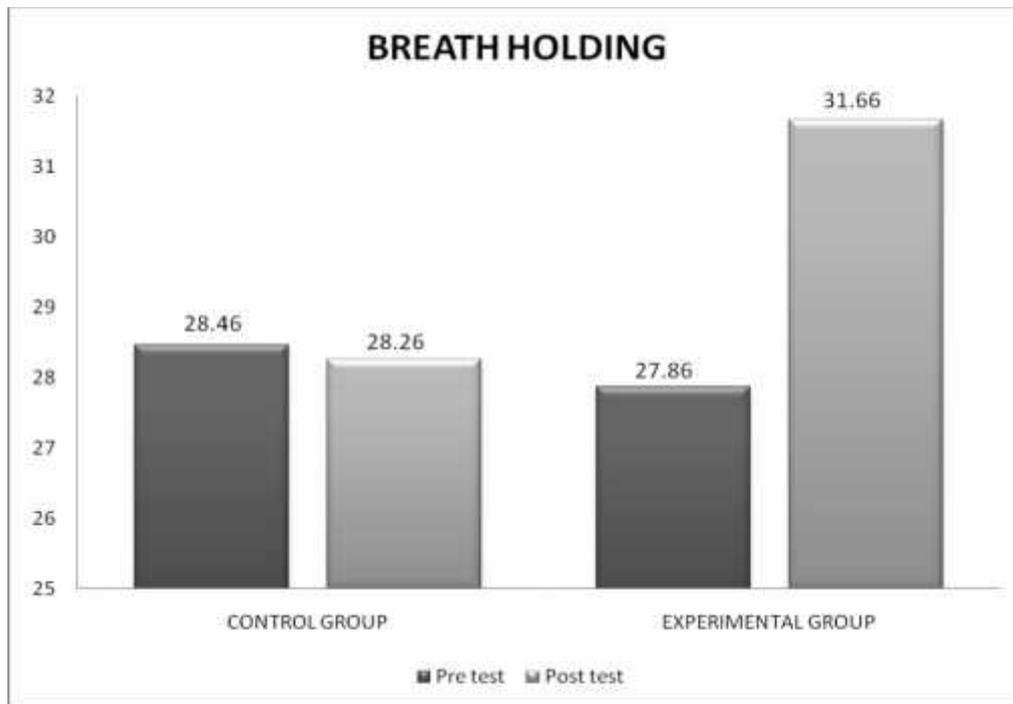
Table I Computation of 'T' Ratio on Selected physiological variables of adolescent boys kabaddi players. on Experimental Group and Control Group

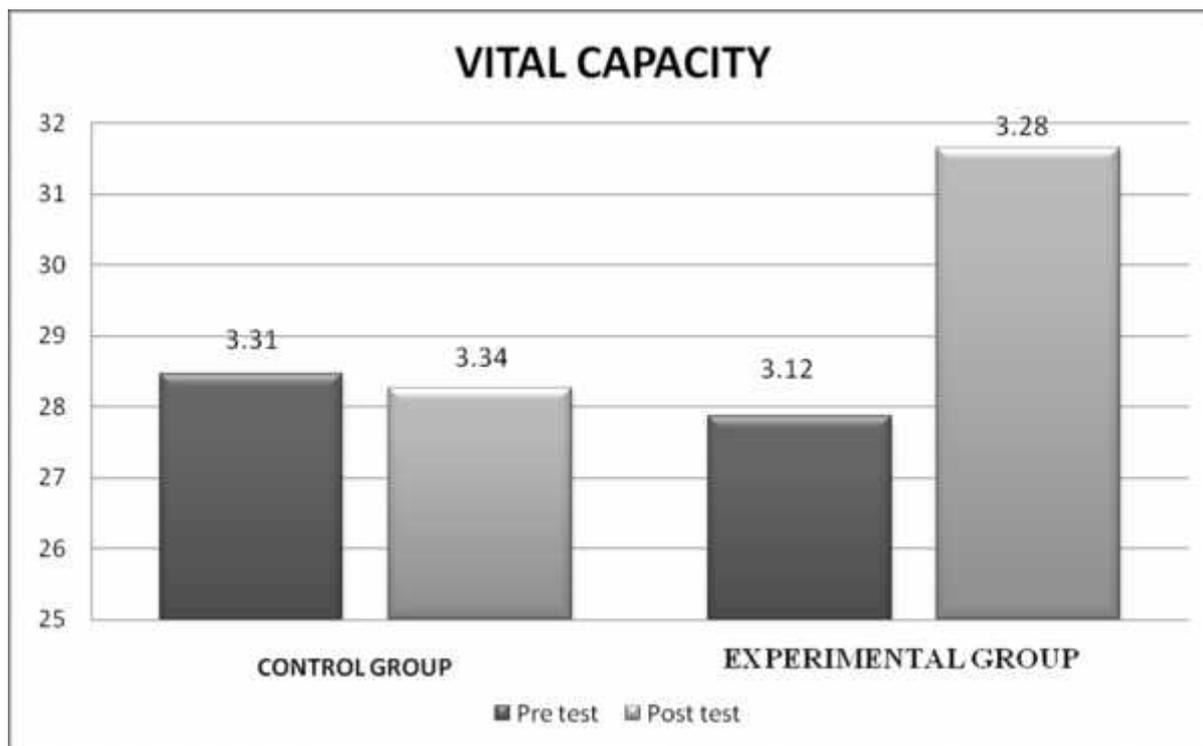
Group	Variables	Mean	N	Std. Deviation	Std. Error	t ratio	
Experimental Group	Breath Holding	Pre	27.86	15	1.76	0.66	5.72*
		Post	31.66	15	2.89		
	Resting heart rate	Pre	72.80	15	1.42	0.48	3.67*
		Post	71.00	15	1.81		
	Vital Capacity	Pre	3.12	15	0.36	0.026	5.69*
		Post	3.28	15	0.39		
Control group	Breath Holding	Pre	28.46	15	2.16	0.49	0.40
		Post	28.26	15	2.54		
	Resting heart rate	Pre	72.86	15	2.06	0.37	0.718
		Post	72.60	15	2.47		
	Vital Capacity	Pre	3.31	15	0.23	0.02	1.54
		Post	3.34	15	0.25		

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

Table I reveals the computation of Breath Holding, Resting heart rate and Vital mean, standard deviation and „t“ ratio on Capacity experimental group. The obtained „t“ selected physiological variables namely ratio on Breath Holding, Resting heart rate

and Vital Capacity were 5.72, 3.67 and 5.69 respectively.





DISCUSSIONS OF FINDINGS

The results of the study indicated that the selected physiological variables resting heart rate, breath holding, and vital capacity were improved significantly after undergoing resistance 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 the investigations referred in this study.

Balamurugan et al., (2010) reported that the effect of nine weeks resistance training program on physiological variables. Devaraju et al., (2011) it was suggested that

effect of resistance training on vital capacity among hockey players Swaroop et al., (2013) reported that the effect of resistance training and pranayama on physiological variables college men student Rahul kumar et al., (2013) reported that the effect of resistance training on selected physiological variables of university kabaddi players. Balakrishnareddy et al., (2015) suggested that effect of resistance training and endurance . Training in parallel on heart rate at rest and explosive power

However the subjects participated in the control group did not improve their resting heart rate, breath holding, and vital capacity.

The results of the present study indicates that the resistance training methods

is appropriate protocol to improve resting heart rate, breath holding, vital capacity of school level boys kabaddi players.

From the results of the present study it is very clear that the physiological variables resting heart rate, breath holding, and vital capacity improvement significantly due to resistance training.

Conclusion

Based on the findings and within the limitation of the study it is noticed that practice of Resistance training helped to improve physiological variables of adolescent boys kabaddi players. It was also seen that there is progressive improvement in the selected criterion variables of experimental group of adolescent boy's kabaddi players after twelve weeks of training program. Further practice of drills also helps to improve other physiological variable i.e. Breath holding time, Resting heart rate vital capacity.

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Effect of Turbulence Training on Physical Fitness Variables Among Men Kabaddi Players

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Abstract

To achieve the purpose of the study, twelve (12) Kabaddi players those who represented the intercollegiate tournament were selected as subjects. The age of the subjects ranged from 18 to 25 years. The speed was selected as dependent variable. The selected dependent variables speed and strength for the study were assessed by the following standardized test items. The speed was assessed by 50m run and the unit of measurement in seconds and strength was assessed by sit-ups and the unit of measurement in numbers. To find out the speed among Kabaddi players were tested on selected criterion variable, the data pertaining to the variable was examined by using dependent 't' test for each variables to determine the difference if any, among the means. The level of significance was fixed at 0.05 level of confidence for all cases. The result of the study it was hypothesized that the Turbulence Training had significantly increased speed and strength level when compared to pre test.

Keywords: Turbulence Training, Kabaddi, Speed & Strength.

Introduction

Sport training is a systematic process extending over a long period. For best results the system of training has to be based and conducted on scientific facts and lines. Where it is not possible to do that, the training has to be based on the results of successful practice which has withstood the test of time. Sports science has still not been able to provide a scientific base for all the aspects and elements of training. Many things are still based on the results of successful practice which on deeper analysis is also a method of science to prove or disprove a theory. Moreover, the principal characteristic of a science is the existence of a systematized body of knowledge. (Singh, 1991)

Turbulence training is a form of exercise that can be performed using bodyweight, weights or dumbbells and interval training to burn fat and build muscle. It is a combination of resistance and interval training. The idea behind turbulence training is to use your body in the ways that allow it to burn the fattest. It is the mixture of resistance and turbulence that allows this to

happen. Turbulence training also features variety. The body naturally hits a plateau after doing the same exercises over and over. Turbulence training features a mix of exercises that helps the body not reach that plateau. Intensity is another important factor of turbulence training. The Turbulence Training workouts are 45 minutes to 1 hour in length because they utilize super-sets, circuits and interval training. Most of the workout plans are based on 3-4 day workouts per week for 4 weeks. The design of Turbulence training is depend on the objective or goal. i.e. to improve cardiovascular fitness or to develop strength. Normally, this workout is done by order or in a consecutive sequence in which involves "super settings", where one exercise followed immediately (no rest) by the next exercise.

Review on Related Papers

According to Jagdish Yadav, The present investigation was conducted to determine the effects of 4-week Turbulence Training on

Physical Fitness of female Kabaddi players. Methods: Thirty female players were selected as subjects for the present investigation, aged were ranging from 17- 24 years. To investigate the influence, Turbulence Training was imparted to the subject of group A (Experimental group) and B (control group). The 4-week of Turbulence Training includes (i) Lying Hip Extension, (ii) Plank (iii) Prisoners Squat (iv) Bird Dog (v) Kneeling Push up (vi) Side Plank (vii) Band Pull (viii) Ab Curl-up. Statistical Analysis: In order to find out the effect of turbulence Training on physical fitness, the analysis of co-variance was applied at 0.05 level of significance. Results: The Turbulence Training leads to significant development of all physical fitness variables such as Standing broad jump (Feet & inches), Flex Arm Hang (Minutes & Seconds), Sit -ups (Minutes), Shuttle run (6*10 M) (Second), and 600 yard run/walk (Minutes). No significant differences were found in 50 M dash (Seconds) of female players at 0.05 level of significance.

Statement of the Problem

The purpose of the study was to find out **effect of Turbulence training on speed and strength among college men Kabaddi players.**

Hypotheses

1. It was hypothesized that there may be significant difference on speed due to the effect of Turbulence training among college men Kabaddi players.

2. It was hypothesized that there may be significant difference on strength due to the effect of Turbulence training among college men Kabaddi players.

Methods and Materials

To achieve the purpose of the study, twelve men inter collegiate Kabaddi players studying from St.Johns College of Physical Education, Veeravanallur, Tirunelveli were selected as subjects. The selected subjects would underwent to the Turbulence training, the duration of the training period would fixed for six (6) weeks and the number of training session per weeks were confined three alternative days. The age of the subjects were ranged from 18 to 25 years. Before and after the training period the subjects were instructed to take the pre and post test on the selected criterion variables. The criterion variables speed and strength would select as dependent variables for the study. The Turbulence training was selected as independent variables. The investigator reviewed the available scientific literature and on the basis of discussion with experts, feasibility criteria, availability of equipment and the relevance of variables to the present study, the strength was selected for the study. The design would select for this study is pre and post test single group design. The data were collected from the experimental group prior to and immediately after the training period on selected criterion variables were statistically analyze with dependent "t" test to find out the significant improvement between pre and post-test means of experimental group. In all the cases .05 level of significant was fixed to test the hypotheses.

Training Schedule for Resistance Training

Exercises	Repetition/Frequency	Recovery/Duration	Sets/Cycles
Lying Hip Extension	8 reps	no rest	2
Plank	15 seconds	30 seconds	3
Prisoner Squat	12 reps	no rest	1
Bird Dog	5 reps	30 seconds	3
Kneeling Pushup	8 reps	no rest	1
Side Plank	5 seconds	30 seconds	3
Band Pull	15 seconds	no rest	1
Ab Curl-up	15 seconds	30 seconds	3

Training Schedule for Interval Training

1. Jog for 8 minutes
2. Fast run for 4 minutes
3. Sprint for 20 seconds
4. Walk for 1 minute
5. Sprint for 30 seconds
6. Walk for 1 minute
7. Sprint for 10 second
8. Walk for 1 minute
9. Jog for 5 minutes.
10. Complete a fast run for 1 minute to the finish, and then cool down by walking for 5-10 minutes at the end.

Results

The analysis of dependent ‘t’ test on the data obtained speed among kabaddi players have been analyzed and presented in table I.

The table I shows that the obtained pre and post test mean values of experimental group was 7.231 and 7.193 respectively and the obtained dependent ‘t’-ratio values between the pre and post test means of experimental group was 14.165. The table value required for significant difference with df 11 at .05 level is 2.201. Since, the obtained ‘t’ ratio value of experimental group are greater than the table value, it is understood that Turbulence training had significantly improve the performance on speed among college men kabaddi players.

Table I The summary of means, standard deviations and dependent ‘t’-test for the pre and post tests on speed of experimental group

	Test	Number	Mean	Standard Deviation
Speed	Pre test	12	7.231	0.260
	Post test	12	7.193	0.258
	‘t’-test	14.165*		

*Significant at .05 level.
 (Speed in Seconds)
 (The table value required for .05 level of significance with df 11 is 2.201)

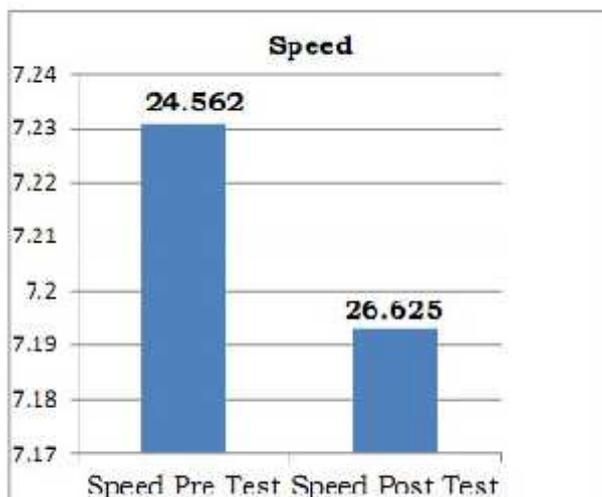


Figure – 1 Mean values of turbulence training group on speed

Results of the Study

The table I shows that the obtained pre and post test mean values of experimental group was 7.231 and 7.193 respectively and the obtained dependent 't'-ratio values between the pre and post test means of experimental group was 14.165. The table value required for significant difference with df 11 at .05 level is 2.201. Since, the obtained 't' ratio value of experimental group are greater than the table value, it is understood that Turbulence training had significantly improve the performance on speed capacity among men college Kabaddi players.

The analysis of dependent 't' test on the data obtained strength among Kabaddi players have been analyzed and presented in table II.

The table II shows that the obtained pre and post test mean values of experimental group was 24.562 and 26.625 respectively and the obtained dependent 't'-ratio values between the pre and post test means of experimental group was 33.0 The table value required for significant difference with df 15 at .05 level is 2.131. Since, the obtained 't' ratio value of experimental group are greater than the table value, it is understood that Turbulence training had significantly improve the performance on strength among college men Kabaddi players.

TABLE II The summary of means, standard deviations and dependent 't'-test for the pre and post tests on strength of experimental group

	Test	Number	Mean	Standard Deviation
Strength	Pre test	16	24.562	3.949
	Post test	16	26.625	3.981
	't'-test	33.00*		

*Significant at .05 level.
 (Strength in Counts)
 (The table value required for .05 level of significance with df 15 is **2.131**)

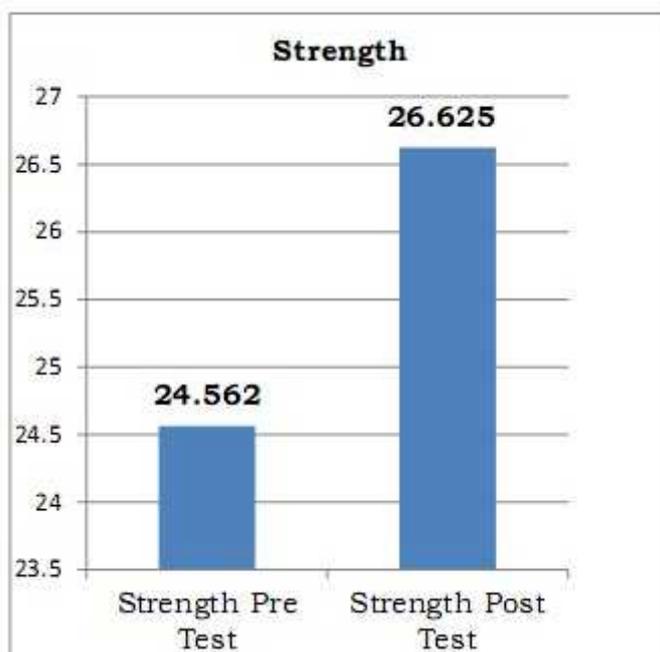


Figure – II Mean values of turbulence training group on

Summary of testing Hypothesis

1.The statistical results confirmed the hypothesis showing that there would be significant improvement on speed between pre and post tests means among college Kabaddi players. Hence, the researcher's hypothesis was accepted and null hypothesis was rejected

2.The statistical results confirmed the hypothesis showing that there would be significant improvement on strength between pre and post tests means among college Kabaddi players. Hence, the researcher's hypothesis was accepted and null hypothesis was rejected.

Discussion on Findings

The results of the study indicated that there was significant difference exists between pre and post test on speed and strength due to Turbulence Training.

Discussion on Hypothesis

In the beginning of the study, in the first hypothesis it was hypothesized that there would be significant difference between pre and post test on speed. The results of the study showed the results accordance with researcher research hypothesis, there was significant difference exists between pre and post test on speed the post test had better performance on speed when compared to pre test. Hence, the researcher first research hypothesis was accepted and the null hypothesis was rejected.

In the beginning of the study, in the second hypothesis it was hypothesized that there would be significant difference between pre and post test on Strength. The results of the study showed the results accordance with researcher research hypothesis, there was significant difference exists between pre and post test on Strength the post test had better performance on Strength when compared to pre test. Hence, the researcher first research hypothesis was accepted and the null hypothesis was rejected.

Conclusion

From the results of the study, following conclusion was drawn

1. The experimental group namely Turbulence training has made significant improvement on speed among men college Kabaddi players.
2. The experimental group namely Turbulence training has made significant improvement on strength among men college Kabaddi players.

Recommendation

The results of the study necessitate the following recommendations.

1. It is recommended to the coaches, trainers and physical educators to adopt these findings to improve the selected parameters among their Kabaddi players.
2. A similar study may be attempted by selecting the state or national level Kabaddi players as the subjects.
3. A similar study may be conducted on the female subjects.
4. A similar study may be conducted by selecting the Physiological, bio chemical, hematological and psychomotor variables as criterion variables.

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Conflict of interest

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

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Influence of tapering packages on selected physical fitness components among basketball players

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Abstract

The present study has been designed to find out the influence of tapering packages on selected physical fitness components among basketball players. This experiment studied the influence of tapering training packages on selected physical fitness components namely Maximum speed, Leg explosive strength, Arm explosive strength and Cardio vascular endurance among basketball Players. The experimental design used in this study was random group design involving players attended summer camp trails in this thirty six (36) men basketball players were selected irrespectively of positions from various colleges affiliated to the University of Madras, Chennai. The players' age ranged from seventeen (17) to twenty seven (27) years. They were divided into three (3) groups of equal numbers, that is, twelve members (12) in each group. The groups were named as Group – I (Linear tapering training group - LTTG), Group – II (Step-by-Step Tapering training Group - SSTTG), Group – III (Control Group - CG). The subjects underwent their respective training programmes. The data collected from the three groups before and after the experimental period were statistically examined to find out the significant differences. The results were statistically analyzed with analysis of covariance (ANCOVA). To determine which of the paired mean differences were significant at 5% level using Scheffe's Post hoc test. After the analysis the researcher found out that both Linear tapering group and Step by step tapering group had achieved significant improvement on selected physical fitness components such as speed, Leg explosive strength, Arm explosive strength and Cardio vascular endurance when compared with control group. The step by step tapering group had better training effect when compared with Linear tapering group on Speed. In the Physical fitness components leg explosive power had significant differences among all the three groups. It was concluded that the step by step tapering concept is the better training protocol than the linear tapering group for the development on selected dependent variable on speed.

Keywords: Tapering, Linear, Step by step, Training

Introduction

Tapering is a marked reduction in training load in the days before the competition. It has been proved that tapering has the paradoxical effect of optimizing performance.

Inigo Mujika and Sabino Madilla are responsible for much of the available research on tapering. According to them tapering is 'a progressive nonlinear reduction of the training load during a variable period of time, in an attempt to reduce the physiological and psychological stress of daily training and optimize sports performance'.

The primary aim of tapering should be to minimize the accumulated fatigue rather than to attain additional physiological adaptations or gaining fitness. This goal should be achieved without compromising the already acquired adaptations and fitness level.

Basketball players should possess the basic qualities of physical fitness like speed, speed endurance, agility, explosive power, flexibility and coordination. Only with the basic qualities they can improve their performance level during the game. With this quality and the player's

anthropometric variables like height, arm length and leg length also play a vital role in deciding the efficiency of the Basketball player.

Selection of Subjects

For this study, one hundred (100) players attended summer camp trails out of this thirty six (36) men basketball players were selected irrespectively of positions from various colleges affiliated to the University of Madras, Chennai.

The players' age ranged from seventeen (17) to twenty seven (27) years. They were divided into three (3) groups of equal numbers, that is, twelve members (12) in each group. The three groups were named as Group – I (Linear Tapering Group - LTG), Group – II (Step-by-Step Tapering Group - STG), and Group – III (Control Group - CG). The subjects underwent their respective training programmes.

Computation of analyses of co variance of pre test and post test linear tapering training, step by step tapering training and control group for physical fitness variables

VARIABLE S	Test	Linear Tapering Training Group	Step by Step Tapering Training Group	Control Group	Sources of variance	Sum of squares	df	MS	F
SPEED	Pre Test	6.85	6.65	6.83	between	0.284	2	0.142	2.23
					Within	2.104	33	0.063	
	Post Test	6.60	6.37	6.75	between	0.877	2	0.438	7.27*
					Within	1.989	33	0.060	
	Adjusted Post Test Mean	6.55	6.47	6.71	between	0.355	2	0.177	6.58*
					Within	0.863	32	0.026	
LEG EXPLOSIVE POWER	Pre Test	59.08	59.91	57.67	Between	31.055	2	15.527	2.94
					Within	174.5	33	5.287	
	Post Test	63.83	64.58	58.83	Between	234.5	2	117.25	23.27*
					Within	166.25	33	5.037	
	Adjusted Post Test Mean	63.68	63.75	59.82	Between	105.192	2	52.596	32.25*
					Within	52.184	32	1.630	
ARM EXPLOSIVE STRENGTH	Pre Test	3.83	3.90	3.80	between	0.062	2	0.031	0.75
					Within	1.380	33	0.041	
	Post Test	3.95	4.06	3.82	between	0.330	2	0.165	4.98*
					Within	1.095	33	0.033	
	Adjusted Post Test Mean	3.96	4.01	3.86	between	0.135	2	0.067	22.17*
					Within	0.097	32	0.003	
CARDIO VASCULAR ENDURANCE	Pre Test	2600	2545.83	2508.33	between	50972.22	2	25486.11	0.33
					within	2571458.33	33	77922.98	
	Post Test	2708.33	2795.83	2512.5	between	505138.88	2	252569.4	4.31*
					within	1932083.33	33	58547.98	
	Adjusted Post Test Mean	2668.89	2800.34	2547.43	between	382874.63	2	191437.3	25.54*
					within	239825.76	32	7494.555	

* Significant at 0.05 level

Table value required for significant at 0.05 level of confidence for Degrees of freedom (df) 2 and 33 =3.28; 2 and 32 =3.30

Scheffe's Post HOC test for the differences between the adjusted post paired mean of physical fitness variables					
VARIABLES	Linear Tapering Training Group	Step by Step Tapering Training Group	Control Group	Mean Deviation	Confidential Interval
SPEED	6.55	6.47	-	0.08	0.17
	6.55	-	6.71	0.16	
	-	6.47	6.71	0.24*	
LEG EXPLOSIVE POWER	63.68	63.75	-	0.07	1.34
	63.68	-	59.82	3.86*	
	-	63.75	59.82	3.93*	
ARM EXPLOSIVE STRENGTH	3.96	4.01	-	0.05	0.06
	3.96	-	3.86	0.10*	
	-	4.01	3.86	0.15*	
CARDIO VASCULAR ENDURANCE	2668.89	2800.34	-	131.44*	90.80
	2668.89	-	2547.43	121.47*	
	-	2800.34	2547.43	252.91*	
*Significant at 0.05 level					

Selection of Variables

Maximum speed, Leg explosive strength, Arm explosive strength, Cardio vascular endurance

Statistical Technique

The subjects were tested on the selected criterion variables prior to and after the training programme. The data collected from the three groups prior to and after the training programmes on the selected criterion variables were statistically analyzed with analysis of covariance (ANCOVA). Whenever the 'F'- ratio for adjusted post test means were found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired mean differences were significant. In all the cases 0.05 level of confidence was fixed as the level of confidence to test the hypotheses.

The differences among pre test scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained. It was found that the obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.18.

- Physical Fitness Comp

The post hoc analysis through Scheffe's Confidence test proves that due to twelve weeks treatment the linear tapering training group and step by step tapering training group improved Speed, Leg Explosive Power, Agility and Cardio Vascular Endurance than the control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group, namely step by step tapering training group and linear tapering training group prove that there was no significant difference among them.

Conclusion

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

1. Both Linear tapering group and Step by step tapering group had achieved significant improvement on selected physical fitness components such as speed, Leg explosive strength, Arm explosive strength and Cardio vascular endurance when compared with control group.
2. The step by step tapering group had better training effect when compared with Linear tapering group on Speed,

3. In the Physical fitness components leg explosive power had significant differences among all the three groups.

4. It was concluded that the step by step tapering concept is the better training protocol than the linear tapering group for the development on selected dependent variable on speed.

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Effect of Yoga Practices on Selected Health Related Physical Fitness Components among Assistant Conservator of Forests Trainees Players

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Abstract

The purpose of the study was to investigate the effect of yoga practices on selected health related physical components of assistant conservator of forests trainees. To achieve the purpose of the study 30 assistant conservator of forests trainees were selected from Central Academy for State Forest Service, Coimbatore. The subjects was randomly assigned to two equal groups (n=30). Group- I underwent yoga training (YTG) and group - II was acted as control group (CG). The yoga training 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 physical parameters of muscular strength (sit ups), flexibility (sit and reach test) were measured 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 muscular strength, flexibility speculated significant improvement due to influence of yoga training with the limitations of (diet, climate, life style) status and previous training. The result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. yoga training significantly improved muscular strength, flexibility of assistant conservator of forests trainee.

Keywords: Yoga training, Muscular strength, Flexibility

Introduction

"Yoga" the very word radiates peace and tranquility. This feeling probably stems from the etymology of the word. The word Yoga is derived from the Sanskrit word 'Yuj' which essentially means to join or unite. The union referred to is that of the individual self-uniting with Cosmic Consciousness or the Universal Spirit. Yoga is a means to achieving this goal.

Yoga as we identify it today is the product of a complex spiritual evolution that has taken place over centuries, the exact history of Yoga is uncertain. The earliest signs of Yoga can be traced to Stone Age Shamanism, both Shamanism and Yoga has cultural similarities. The shamanistic civilization revered the sacred art of discern the cosmic order through inner vision; they used rituals to create shifts in their perceptual

field to communicate with the spirit world. Shamans were the precursors of the Yogis. Evidence of yoga postures were found on stone drawings dating from these times. Archaeological findings from the Indus Valley Civilization, revealed a portrait of a Yogi meditating in what looks like an Asana, it is known as the Pashupati seal.

Born in India, almost 26,000 years ago, Yoga is believed to have evolved during the period of the 'Sat Yuga', also called the Golden age. This period became known as a time of everlasting peace and abundant blessings, filled with seekers of the Eternal Truth. That is why, probably, even today we associate yoga with sages and hermits. It was not until the discovery of the Indus- valley civilization, the largest

civilization that knowledge about the origin of Yoga surfaced. Excavations give evidence of yoga's existence during this period; yogi -like figures engraved on soapstone seals have been unearthed. In fact, it was the Aryans, migrating from the north- west, who were instrumental in discovering yoga. Yoga's long rich history can be divided into five main periods: Vedic Yoga, Pre-Classical Yoga, Classical Yoga, Post-Classical Yoga and Modern Yoga.

Yoga and Health

Yoga and Health are closely related. Yoga is a popular aid in improving both physical and mental health. This is basically the most common goal of people who practice Yoga - for health reasons. They want to ease their back pain, find a method to ease stress, or learn ways to deal with their health problems. This section takes a closer look on how one's body functions and how Yoga practice can benefit one's body. Yoga practice is beneficial - whether physically, mentally, or emotionally. Just keep in mind that there are guidelines in doing Yoga Exercises. Make sure that one do not push yourself in doing poses which are beyond one's limits. Moreover, Yoga is not the sole treatment to many health problems.

Swami Sivananda recognised that every Yogi, or human being for that matter, possesses and identifies with each of these elements: Intellect, heart, body and mind. Although many people think this term refers to union between body and mind or body, mind and spirit, the traditional acceptance is union between the Jivatman and Paramatman that is between one's individual consciousness and the Universal Consciousness. Therefore Yoga refers to a certain state of consciousness as well as to methods that help one reach that goal or state of union with the divine. Yoga is a scientific system of physical and mental practices that originated in India more than three thousand years ago. Its purpose is to help each one of us achieve our highest potential and to experience enduring health and happiness. With yoga, we can extend our healthy, productive years far beyond the accepted norm and, improve the quality of our lives. Health related physical fitness of a person is

dependent on both lifestyle related factors such as daily physical activity levels, nutritional habits and genetic factors and is an important indicator of health status (Takken, 2003). Low physical fitness is associated with a high mortality rate, a higher risk of certain forms of cancer, obesity, decreased mental health, diabetes, hypertension and a lower quality of life (Booth, 2002).

Yoga promote health and well-being through physical exercise. The regular practice of asanas, and breathing exercises (pranayama), makes the body strong, supple and healthy. It has a profound effect on the circulation and on the functioning of the inner organs, glands and nerves, keeping all systems in radiant health and leading to greater energy, better concentration, and a happier, more fulfilling life. Many common physical ailments can also be improved through the regular practice of yoga, and it is never too late or too early in life to take it up. Anyone can practice yoga. Yoga and Health are closely related. Yoga is a popular aid in improving both physical and mental health. This is basically the most common goal of people who practice Yoga - for health reasons. Some of the important Yoga benefits include anti-ageing, balance and flexibility of body, increase in knowledge and wealth, improvement in mental health and development of personal and social values. Yoga also helps in improving strength, sexual life and reducing weight. Yoga makes you feel good. Yoga is relaxing. It's energizing. It's strengthening. Yoga cures different incurable diseases (Ruchita, 2011).

The purpose of the study was to investigate the effect of yoga practices on selected health related physical components of assistant conservator of forests trainees.

Hypotheses

It was hypothesized that there would be significant improvement due to yogic practices on selected health related physical components of assistant conservator of forests trainees.

Methodology

The purpose of the study was to find out the effect of yogic practices on assistant conservator

of forests trainees. To achieve the purpose of the study, thirty men trainees from central academy for state forest service, Coimbatore was randomly selected. Their age ranged between 24 and 30 years. The selected sixty subjects were randomly divided into two equal groups consist of 30 each such as experimental group and control group. Pre-test was conducted on muscular strength and flexibility,. For the two groups the readings were carefully regarded in their respective unit as pre-test score. After pretest experimental group was treated with yoga practices, for duration of 45 minutes, three days per week for a period of six weeks on morning and evening session. The control group was not treated with any special training. After 12 weeks of training post test was conducted and the reading were carefully regarded in their respective units as post test score. The pre and post-test were taken for analysis.

Criterion Measures

S. NO	Variables	Test items	Unit of measurement
1	Muscular Strength	Sit – Ups	In Counts
2	Flexibility	Sit and Reach	In Centimeters

Statistical Analysis

The collected data before and after training period of 6 weeks on the above said variables due to the effect of yoga training was statistically analyzed with paired sample 't' test to find out the significant improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$).

Table I reveals the computation of mean, standard deviation and 't' ratio on selected health related parameters, namely flexibility and muscular strength of experimental group. The obtained 't' ratio on flexibility and muscular strength were 4.29 and 19.35 respectively. The required table value was 2.045 for the degrees of freedom 29 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

Table II reveals the computation of mean, standard deviation and 't' ratio on selected power parameters, namely flexibility and muscular strength of control group. The obtained 't' ratio on flexibility and muscular strength were 1.72 and 1.18 respectively. The required table value was 2.045 for the degrees of freedom 29 at the 0.05 level of significance. Since the obtained t values were lesser than the table value it was found statistically not significant.

4.4 Findings

1. The result of the study reveals that there was significant improvement on selected health related physical fitness components namely Muscular Strength and Flexibility among assistant conservator of forests trainees on experimental group.
2. The result of the study reveals that there was significant improvement on selected health related physical fitness components among assistant conservator of forests trainees on Muscular Strength, Flexibility on Control Group.

Discussion on Findings

The present study experimented the impact of twelve weeks yoga training on the selected physical parameters of the assistant conservator of forests trainees. The results of this study indicated that yoga training is more efficient to bring out desirable changes over the agility, flexibility of assistant conservator of forests trainees. The finding of the present study had similarity with the findings of the investigators referred in this study. **Amandeep et al., (2011)** provide more evidence to support the beneficial effect of yoga asana training on agility and muscular strength. **Ramesh et al., (2014)** demonstrated that due to the effect of twelve weeks of yogic practices the selected physical fitness components such as flexibility, agility, muscular endurance and cardio-respiratory endurance of school girls are significantly improved. **Malipatil et al., (2014)** effect of selected yogasana on physical fitness and Anxiety level among post graduate female students. **Baljinder et al., (2010)** the 8-week pranayama training programme had significant effect on vital capacity and maximal ventilatory volume.

TABLE- I Computation of T ratio on selected healthy related parameters of assistant conservator of forests trainees on experimental group						
Experimental Group						
		Mean	N	Std. Deviation	Std. Error Mean	T ratio
MS	Pre test	17.36	30	1.71	0.31	4.29*
	Post test	19.06	30	2.30	0.42	
Flexibility	Pre test	17.94	30	0.69	0.12	19.35*
	Post test	21	30	1.27	0.20	
*significant level 0.05 level (degree of freedom 2.14,1 and 14)						

TABLE- II Computation of T ratio on selected healthy related parameters of assistant conservator of forests trainees on control group						
CONTROL GROUP						
		Mean	N	Std. Deviation	Std. Error Mean	T ratio
MS	Pre test	17.10	30	1.80	0.32	1.72
	Post test	16.93	30	1.76	0.32	
Flexibility	Pre test	17.94	30	0.75	0.13	1.18
	Post test	17.91	30	0.76	0.13	
*significant level 0.05 level (degree of freedom 2.045,1 and 29)						

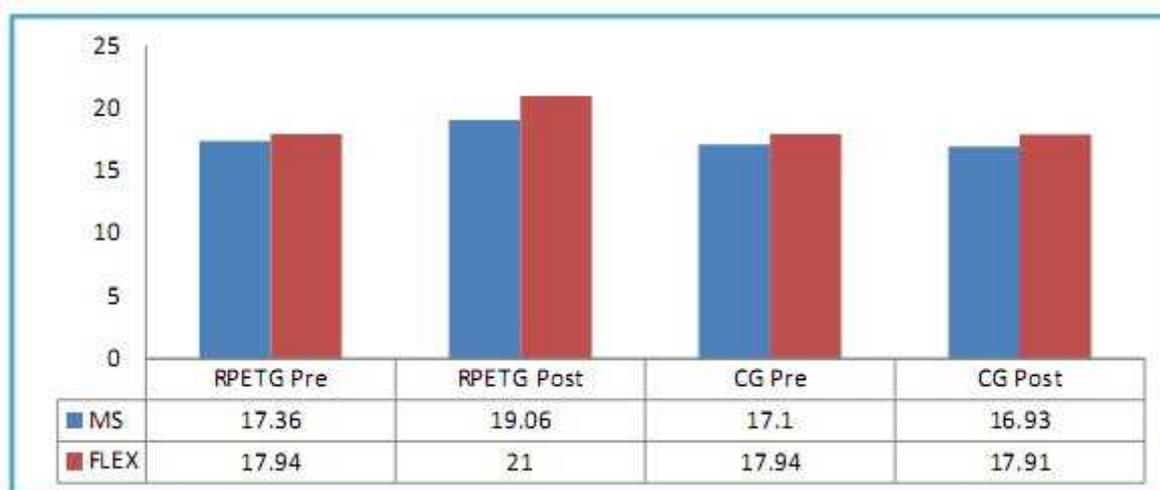


FIGURE- I Bar diagram showing the mean value on selected healthy related parameters of assistant conservator of forests trainees on experimental and control group

Sunil et al., (2015) Twelve weeks Yoga training significantly improved pulse rate, vital capacity & peak flow rate of physical education students. **Shankarappa et al., (2012)** Pranayama training causes an increase in the voluntary breath holding time. **Pradnya et al., (2013)** It also

improves cardiac efficiency as indicated by significant decrease in pulse rate & highly significant increase in 40 mmHg endurance time. **Keerthi et al., (2013)** the Pranayama procedures the only respiratory parameter that will reduce is the rate of respiration and all the other parameters

including volumes and capacities will increase depending on the regularity of practice. **Rahul et al., (2015)** conclude that pranayama exercises have positive effect on the selected physiological variables resting pulse rate, maximum breath holding.

From of result of the present study, it is speculated that the improvement in the Muscular Strength, flexibility of the subjects may be due to the yogic practices. Further, the planned programme yoga practices might have influenced the Muscular Strength, flexibility of the subjects involved in this study.

Conclusion

1. It was concluded that 12 weeks Yogic practices showed significantly improved the muscular strength and flexibility of the assistant conservator of forests trainees.
2. A yogic practice was one among the most appropriate means to bring about the desirable changes over selected health related components of assistant conservator of forests trainees. Hence, suggested that trainers and the experts deal with assistant conservator of forests trainees to incorporate yogic practices as a component in their training programme.

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Conflict of interest

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

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