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The effect of aerobic and anaerobic interval training combined with yogic practices on selected physiological variable of inter-University Kabaddi players

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Abstract

Kabaddi performance has high progressed over the past few years. Performance levels unimaginable before are now common place, and the number of kabaddi players are capable of outstanding results is increasing. One factor is that kabaddi is a challenging game and group game. Coaching has become more sophisticated, partially from the assistant of sports specialists and scientists. A broader base of knowledge about kabaddi players now exists, which is reflected in training methodology.

Keywords: physical education, kabaddi and yogic practices

Introduction

Sports in the present world have become extremely competitive. It is not the mere participation or the practice that brings out victory to an individual. Therefore, sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and psychology, etc. All the coaches, trainers, physical educational personals and doctors are doing their best to improve the performance of the players of their country. Kabaddi players of all the Universities are also trying hard to bring medals for their University and Inter-University Competitions. Coaching has become more sophisticated. Partially from the assistance of sports specialists and scientists. A broader base of knowledge about kabaddi players now exists, which is reflected in training methodology (Cassidy, Jones and Potrac, 2008)

Game of Kabaddi

Kabaddi is basically a combative sport, with seven players on each side: played for a period of forty minutes with a five minutes break (20-5-20). The core idea of the game is to score points by riding into the opponents courts and touching as many defence players as possible without getting caught on a single breathe.

History of Kabaddi

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)

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Aerobic Training

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

Anaerobic Training

Anaerobic exercise is used by sports person in non-endurance sports to build power and by body builders to build muscle mass. Muscles that are trained under anaerobic conditions develop biologically differently giving them greater performance in short duration, high intensity activities.

Aerobic exercise, on the other hand, includes lower intensity activities performed for longer periods of time. Activities like walking, running, swimming, and cycling require a great deal of oxygen to generate the energy needed for pro-longed exercise.

Interval Training

In 1956, Olympic games at Melbourne, four athletes created a new Olympic record in 800mtr and nine athletes in 1500mtr race. This record breaking effort in middle distance and many other events has been the recent trend in Olympics and World Championship is the scientific training method which was then and he is now being as interval training specific to each sports and games.

Yoga

Yoga means the experience of oneness or unity with inner being. This unity comes after dissolving the duality of mind and matter into supreme reality. It is a science by which the individual approaches truth. The aim of all Yoga practice is to achieve truth where the individual soul identifies itself with the supreme soul or god. Yoga has the surest remedies for man's physical as well as psychological ailments. It makes the organs of the body active in their functioning and has good effect on internal functioning of the human body. Yoga is a re-education of one's mental process, along with the physical process.

Physiological Variables

For the physiological system of body to be fit, they must function well enough to support the specific activity the individual is performing. Moreover, different activities make different demands upon the organism with respect to circulatory, respiratory, metabolic and neurological process which are specific to the activities. The lungs, heart and blood perform a vital function on the body's supply system. The supply to the muscle with necessary fuels, oxygen and carry waters such as carbon di-oxide and lactic acid. Consequently, the cardio-respiratory system in the athlete needs to be developed. The various physiological variables are resting heart-rate, blood pressure, vital capacity, breath holding time anaerobic power etc. The pulse rate and anaerobic power were the two variables selected for this study (Morehouse and Miller, 1976).

Objective of the Study

The objective of the study was to make a status analysis of physiological variables resting pulse-rate among Inter-Collegiate Kabaddi players. The study was also to find out the effects of interval training of aerobic exercises with yogasanas and anaerobic exercise with yogasanas on selected physiological variables among Inter-Collegiate Kabaddi players.

Statement of the Problem

The purpose of the study was to find out "The effect of aerobic and anaerobic interval training combined with yogic practices on selected physiological variables of Inter-University male kabaddi players".

Methodology

The purpose of the study was to find out whether there would be any significant improvement on selected physiological variables as a result of aerobic and anaerobic interval training combined with yogic practices. Selection of subjects, experimental variables, tester reliability, instrument reliability, orientation of the subject, test administration and statistical techniques were discussed.

Selection of Subjects

Ninety Inter-University Kabaddi players, who had represented their universities in the Inter-University competitions were selected as subject's for this study at random. The Inter-Collegiate male kabaddi players from different Universities in Karnataka state and their age group was between 18 to 25 years. The kabaddi players had a similar academic work and regular activities in accordance with the requirements of their college curriculum and followed the schedule of training for preparation of the Inter-University competitions. The selected subjects were randomly divided into three groups and each group contains 30 subjects. Group 1 acted as experimental group-1 Group 2 acted as experimental group-2 and group 3 acted as control group. Experimental group-1 was given 12 weeks aerobic interval training combined with yogic practices. Experimental group-2 was given 12 weeks anaerobic interval training combined with yogic practices and the control group was not given any treatment except of their routine.

Selection of Variables

The researcher reviewed the available scientific literature pertaining to the study from books, journals, periodicals, magazines and other research papers. Taking into consideration of the feasibility variables the following variables were selected.

Independent Variables

1. Aerobic interval training with yogic practices.
2. Anaerobic interval training with yogic practices.

Dependant variables

1. Physiological Variables
2. Resting pulse-rate.

Experimental Design

The study was formulated as a true random group design, consisting of a pre-test. The subjects (n-90) were randomly assigned to three equal groups of 30 men Inter-University kabaddi players. The groups were assigned as experimental groups-1, second and control group respectively. Pre-tests

were conducted for all the subjects on selected physiological variables, such as Resting pulse rate. The experimental groups participated in their respective aerobic interval training combined with yogic practices and anaerobic interval training combined with yogic practices for a period of 12 weeks. The post-tests were conducted on the above said dependant variables after a period of 12 weeks training on all the 3 groups, namely Experimental group-1, Experimental group-2 and control group. The differences between the initial and final scores on selected dependant variables were considered as the effect of selected experimental treatments. To test the statistical significance, the obtained data were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the hypothesis.

Resting Pulse Rate

The time from the end of one contraction to the end of the next contraction is a complete heartbeat or pulse or cardiac cycle. The complete cardiac cycle takes less than one second (about 0.08 sec) in a normal adult at rest and it shortened by exercise.

Objective: The purpose of this test was to record the number of heart beat per minute.

Equipment: A stop watch (1/100 of a second) and a chair.

Procedure and Scoring: The resting heart rate of all the subjects was recorded in sitting position in the morning session. Before taking the resting heart rate, the subjects were asked to sit in a chair inside a room and relax for 20 minutes. To record the heart rate, finger tips were placed on the radial artery at the subjects wrist in such a manner that palpation was clear and the number of palpation was counted for one minute.

Results on Resting Pulse Rate

The statistical analysis comparing the initial and final means of resting pulse rate due to aerobic interval training with yogic practices and anaerobic interval training with yogic practices among kabaddi players is presented in

Table 1: Computation of analysis of covariance of resting pulse rate

	Aerobic Interval Training With yogic Practices	Anaerobic Interval Training With Yogic Practices	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained DF
Pre-Test Mean	61.67	59.10	62.53	Between	191.27	2	95.63	2.07
				Within	4028.83	87	46.31	
Post-Test Mean	60.13	56.03	62.67	Between	672.29	2	336.14	11.37*
				Within	2573.10	87	29.58	
Adjusted Post-Test Mean	59.92	56.79	62.12	Between	411.33	2	205.67	8.88*
				Within	1991.63	86	23.16	
Mean Diff	-1.53	-3.07	0.13					

Table F- ratio at 0.05 level of confidence for 2 and 87 (df)=3.10, 2 and 86 (df)=3.10.

*Significant

As shown in Table-1, the obtained pre test means on Resting Pulse Rate on Aerobic interval training with yogic practices group was 61.67, Anaerobic interval training with yogic practices group was 59.10 was and control group was 62.53. The obtained pre-test F-value was 2.07 and the required table F-value was 3.10, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Resting Pulse rate on aerobic interval training with yogic practices group was 60.13, Anaerobic interval training with yogic practices group was 56.03 was and control group was 62.67. The obtained post-test F-value

was 11.37 and the required table F-value was 3.10, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of co-variance was done and the obtained F-value 8.88 was greater than the required value of 3.10 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe’s confidence interval test. The results were presented in

Table 2: Scheffe’s confidence interval test scores on resting pulse rate

Means				Required C I
Aerobic interval Training with yogic practices Group	Anaerobic interval training with yogic practices Group	Control Group	Mean Difference	
59.92	56.79		3.12*	3.09
59.92		62.12	2.20	3.09
	56.79	62.12	5.33*	3.09

*Significant

The post-hoc analysis of obtained ordered adjusted means proved that there was no significant differences existed between aerobic interval training with yogic practices group and control group (MD: 2.20). There was significant difference between anaerobic interval training with yogic practices group and control group (MD: 5.33). There was significant difference between treatment groups, namely, aerobic interval training with yogic practices group and anaerobic interval training with yogic practices group (MD:

3.12).

Discussion on Findings on Resting Pulse Rate

The effect of Aerobic interval training with yogic practices and Anaerobic interval training with yogic practices on Resting Pulse Rate is represented in Table-1. The analysis of co-variance proved that there was significant difference between the experimental group and control group as the obtained F-value 8.88 was greater than the required table F-

value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table-2 proved. There was no significant difference between Aerobic interval training with yogic practices group and control group (MD: 2.20). And there was significant difference between anaerobic interval training with yogic practices group and control group (MD: 5.33). Comparing between the treatment group, it was found that there was significant difference between aerobic interval training with yogic practices and anaerobic interval training with yogic practices group among kabaddi players. Thus, it was found that anaerobic interval training with yogic practices was significantly better than aerobic interval training with yogic practices and control group in reducing Resting Pulse Rate of the kabaddi players.

Discussions on Hypotheses

It was hypothesized that there may be a significant improvement in selected physiological variables, resting pulse rate due to the result of aerobic and anaerobic interval training with yogic practices when compared to control group. The formulated hypotheses stated that there would be a significant improvement in selected physiological variables, resting pulse rate as a result of aerobic and anaerobic interval training with yogic practices when compared to Control group. The results presented in Tables-1 showed the results of ANCOVA on physiological variables resting pulse rate. The results proved that comparing to control group, the aerobic and anaerobic interval training combined with yogic practices significantly contributed for the improvement of resting pulse rate of Inter-University kabaddi players and the formulated hypothesis was accepted at 0.05 level. The formulated hypotheses stated that comparing between the effects of the experimental protocols suggested, it was hypothesized that there would be no significant differences on selected physiological variables, Resting Pulse Rate. The post-hoc analysis results were presented in Table-1 and second on resting pulse rate respectively. The results proved that there were significant differences between treatment groups aerobic and anaerobic interval training combined with yogic practices on resting pulse rate and the formulated null hypotheses was rejected at 0.05 level. However, as there was no significance difference between the treatment groups on cardiovascular endurance, the null hypotheses was accepted at 0.05 level for this variable.

Conclusion

The aerobic interval training combined with yogic practices and anaerobic interval training combined with yogic practice significantly improved physiological variable such as, resting pulse rate of Inter-University kabaddi players and considering between the treatment groups, it was found that anaerobic interval training with yogic practices was significantly better than aerobic interval training with yogic practices in reducing resting pulse rate.

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