



ISSN: 2456-0057
IJPNPE 2018; 3(1): 2286-2288
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www.journalofsports.com
Received: 21-11-2017
Accepted: 23-12-2017

Nisar Ahmad Hurah
Research Scholar, Swami
Ramanand Teerth Marathwada
University Nanded,
Maharashtra, India

Firdous Ahmad Lone
Lecturer, Youth Services and
Sports Jammu & Kashmir, India

A comparative study of cardiovascular endurance among volleyball and Kabaddi players of Srinagar city

Nisar Ahmad Hurah and Firdous Ahmad Lone

Abstract

Purpose: The purpose of this study was to Compare Cardiovascular endurance of Volleyball and Kabaddi Players of Srinagar City.

Methodology: The study was carried out on 240 male college level students, 120 volleyball players and 120 Kabaddi players of Srinagar city Jammu and Kashmir State. The age of the subjects ranged between 18 to 26 years. After due consideration of all the points, purposive sampling technique was employed. A total number of 240 samples were selected. The Cardio-vascular Endurance of Kabaddi players (group-I) and volleyball players (group-II) was measured by Cooper's 12minute Run & Walk Test. The data was analysed and compared with the help of statistical procedures in which mean, standard deviation (S.D.), and t-test were employed. The level of significant was set up at 0.05 level.

Result: It was determined that Volleyball players had the low mean score of Cardiovascular endurance and Kabaddi players had high total mean score. Examining the difference between the mean scores of Volleyball players and Kabaddi players, the statistically significant difference was found ($t=7.87 < 0.05$).

Conclusion: On the basis of the findings of present study, it was concluded that there is significant difference between Kabaddi and Volleyball male players in relation to cardiovascular endurance.

Keywords: cardiovascular endurance, Kabaddi players, volleyball players

Introduction

Today, sport has become cultural phenomenon of great magnitude and complexity. Its scope is awesome; nearly everybody has become involved in some or other way in it. It has got mass participation. Various research studies conducted by experts in physical education and sports have emphasized the importance of investigating the specific structures, co-related with the various sports activities, for the selection and development of talent in sports and for better performance at different levels of sports competition. There are numerous factors which are responsible for the performance of a sportsman. These are physical, mental, technical and tactical. Among them, physical abilities are most important. Performance also depends on skills, training, motivation and physiological factors. The poor performance of Indian athletes and sportsmen at the international competition has been of great concern, especially to the coaches, physical educationists and sports scientists. Efforts have been made to improve the standards of our sportsmen since long; how-ever, little success has so far been achieved in this respect. Kabaddi is basically a combative sport and its origin dates back to pre-historic times played in different forms. Kabaddi is played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is to score points by raiding into the opponent's court and touching as many defence players as possible without getting caught on a single breath. There has been a gradual but significant change in the trends of the game since the past 50 years. What was once considered a game of brawn is not so now. Volleyball is one of the most popularly played games in the world. It is the game of power agility as well as speed. Physical fitness is of para-mount importance in this game. Hence, the health-related aspects play a crucial role in the performance of the players. So, this present study was undertaken to measure certain basic physical fitness component like cardiovascular endurance of volley ball players and Kabaddi players to find out the gaps in the physical fitness level so that we can come up with some valuable suggestions to improve the performance level of Kabaddi and volleyball players. With this in mind a study was undertaken to assess and compare the

Correspondence

Nisar Ahmad Hurah
Research Scholar, Swami
Ramanand Teerth Marathwada
University Nanded,
Maharashtra, India

Cardiovascular endurance of Kabaddi and volleyball players of college team (players playing in college level tournament) in Srinagar city of Jammu and Kashmir.

Material and Methods

The purpose of the present study was to determine the difference in cardiovascular endurance Kabaddi players and cardiovascular endurance of Volleyball players. To conduct the study 120 male college level Volleyball players and 120 male Kabaddi players of Srinagar City. To collect the data pertaining to the present study the selected physical fitness component i.e. cardiovascular endurance, were measure in between 9:00 am to 5:00 pm by using Coopers 12-minute run and walk test. Surprisingly very few studies on cardiovascular endurance have been carried out on male Kabaddi and volleyball players in Srinagar; hence the present study planned to fill this gap by employing purposive sampling and selected male college level Kabaddi and volleyball players as subjects. Participation in the study was voluntary and informed written consent was taken from all subjects. To determine the differences between two groups the t-test statistical technique was employed and the level of significance was observed at 0.05 level of confidence.

Cooper’s 12-minute run and walk test

Purpose: To find out the Cardio Vascular Endurance of the subject.

Equipment: Stopwatch, measuring tape. Marking powder.

Procedure: The subjects were asked to stood behind the starting line after getting ready and upon the starting signal they started run or walk. The subjects were asked to cover

highest distance in twelve minutes either by running or walking on marked 400-meter track. At the end of eleventh minute during the course of test, the subjects were asked that the last one minute has been left. Upon the signal of the whistle to stop at the end of twelve minute, the subjects stopped long enough for the research scholar or his helper to take note of the distance covered. VO2 max from Cooper’s 12-minute run and walk test was estimated by using the following formula:

$$VO2max = (22.35 \times kms) - 11.288$$

Scoring: The distance was recorded kilometres.

Results and Discussion

Table 1: Mean score, standard deviation and t-value of selected physical fitness component with respect to Cardio Vascular Endurance between inter college level Volleyball and Kabaddi Players

Group	Sample size	Mean	SD	t-value
Volleyball players	120	34.18	4.22	7.87*
Kabaddi players	120	38.81	4.87	

* = Significant at .05 level. (t = 1.65), P < 0.05

From the Table No- 1 it is observed that the calculated t value of 7.78 is greater than the tabulated t (1.65) value of 2.0017. Hence, there is significant difference of means of composite score between college level Kabaddi players and volleyball players with respect to Cardio Vascular Endurance. The mean difference is shown in figure- 1

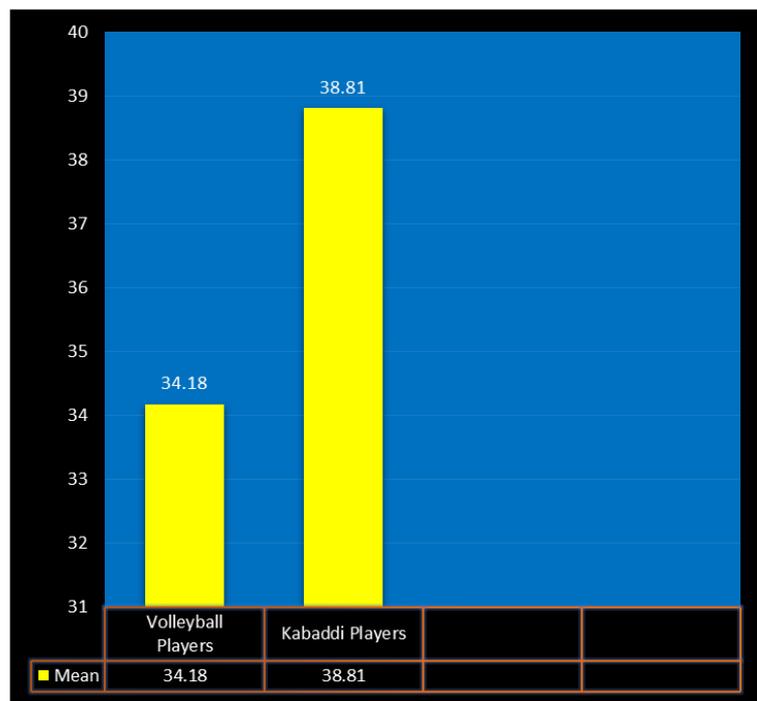


Fig 1: Showing the graphical presentation of Mean Scores of Cardio Vascular Endurance of Volleyball players and Kabaddi players

Discussion of findings

From the table no. 1 it was observed that there was significant difference of cardiovascular endurance between Volleyball players and Kabaddi players (7.87 > 1.65). From the mean value it was also clear that the Kabaddi players are far better than Volleyball players. Cardiovascular endurance is defined as the ability of the circulatory and respiratory systems to adjust and to recover from the effects of exercise or work. It

helps to classify persons by assessing their present physical condition, and predict success in certain activities. Cardio respiratory endurance is characterized by moderate contraction of large muscle groups for relatively long periods of time, during which maximum adjustment of the cardiorespiratory systems are heavily loaded because these two systems directly support muscle work. The effectiveness of these two systems then becomes the limiting factor in

endurance, thus in vigorous activities of long duration, oxygen supply to the tissue is the main limitation. Therefore, the primary objective of cardiovascular endurance training is to improve the supply of oxygen to the working muscles. Thus, cardiovascular endurance is one of the key components of physical fitness. Thus, heart rate provides a great deal of information about the body's reaction to the stress of exercise and it is quick and easy to measure. Hence, it can serve as a valuable tool to monitor the strenuousness of an exercise program and provide a valid indicator of an individual's condition in the measurement of cardiovascular fitness. Kabaddi and Volleyball games incorporates both aerobic and anaerobic components. Good Cardiovascular endurance is necessary for long duration matches or during tournament where the players have to play 3 to 4 matches in a day.

Conclusion

On the basis of the statistical findings there were significant differences in Cardiovascular Endurance among Kabaddi players and Volleyball players ($t 7.87 > 1.65$).

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