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Evaluation Of Aerobic Capacity Among Dissimilar Team Game Players

[1]Dr. Gajendra B. Raghuwanshi
Director of Physical Education & Sports
Smt. K. L. College, Amravati. (M.S.)

Abstract:

The objective of the investigation was to compare the aerobic capacity of among different male team game players such as volleyball, basketball, handball and korfball players. For this study researcher randomly selected sixty (N=60) team games male players (volleyball=15, handball=15, basketball=15 and korfball=15) were studying in colleges affiliated to Sant Gadge Baba, Amravati University those who have represented inter-university tournaments were randomly selected as subjects for this study. The age of the subjects were ranged from 18-25. The aerobic capacity was measured by applying Modified Queens College step test.The data on aerobic capacity obtained from the subjects was statistically analyzed by using one-way analysis of variance. Post–Hoc test was applied f-ratio was found significant. For the hypothesis, level of significance was set at .05 level. It was concluded that when aerobic capacity was assessed among players of team games like volleyball, handball, basketball and korfball, it was found that there were significant differences across the games. Basketball players had higher aerobic capacity than players of other team games like handball, volleyball and korfball. This could be because basketball is a very dynamic game in which arms and legs are constantly used, which may increase their aerobic capacity.

Keywords: aerobic capacity, games

1.Introduction:

The physical activities or bodily functions which are performed with oxygen are called aerobic activities. Whenever aerobic exercise is performed, more amount of oxygen is used by the body to produce energy. Energy is very important for performing any work, for which the body takes in more oxygen, due to which the cardiovascular system has to work more. During all these physical activities, the cardiovascular system has to work harder, due to which its muscles become more capable. To improve cardiovascular fitness using aerobic exercise, all the players are given proper training, due to which the cardiovascular fitness of the players improves. Aerobic exercise, also known as cardiovascular exercise, uses the large muscle groups of the body to perform regular physical activities, in which the lower part of the body is used the most. Muscles require extra energy to perform the same activity for a long time, for which large amounts of oxygen is taken in and carbon dioxide is released. Oxygenated blood is sent by the heart to the muscles of the legs and other muscles that are used more and they get enough energy or fuel to perform their activities. This increased need for more oxygenated blood makes the heart beat faster and pump more blood. Increasing your heart rate exercises the heart muscles and makes them stronger. During sports, many such situations arise in which more and more activity has to be done, in such a situation more load is created on the heart and the heart has to work faster. Jogging for more than 15 minutes is a good example of an aerobic exercise. Jogging uses large muscle groups such as your leg and arm muscles to move you forward. These muscles need a fresh supply of oxygenated blood to replace the energy used. To meet these demands, your heart rate increases. When an athlete uses his arms and legs for long periods of time during a game, large muscle groups are used more, which leads to a higher heart rate. Aerobic exercise involves continuous activity such as jogging, walking, skipping, cycling and swimming to improve cardiovascular fitness. Aerobic exercise is not necessarily a long duration of exercise when team sports are played, so the researchers conducted this study out of curiosity to know whether

there might be differences in the aerobic capacity of athletes according to different sporting groups and sports circles.

2.Methodology:

The objective of the investigation was to compare the aerobic capacity of among different male team game players such as volleyball, basketball, handball and korfball players. For this study researcher randomly selected sixty (N=60) team games male players (volleyball=15, handball=15, basketball=15 and korfball=15) were studying in colleges affiliated to Sant Gadge Baba, Amravati University those who have represented inter-university tournaments were randomly selected as subjects for this study. The age of the subjects were ranged from 18-25. The aerobic capacity was measured by applying Modified Queens College step test.

3. Statistical Techniques:

The data on aerobic capacity obtained from the subjects was statistically analyzed by using one-way analysis of variance. Post–Hoc test was applied f-ratio was found significant. For the hypothesis, level of significance was set at .05 level.

Table 1: Descriptive statistics of different team game players

Groups	Count	Sum	Average	Variance
Volleyball	15	2367	157.80	167.029
Handball	15	2229	148.60	101.543
Basketball	15	2149	143.27	37.6381
Korfball	15	2415	161.00	91.2857

Table 2: Analysis of Variance (ANOVA) of the means of different team game players with compare to aerobic capacity

Source of Variation	*SS*	*df*	*MS*	*F*
Between Groups	3010.40	3	1003.47	10.098*
Within Groups	5564.93	56	99.37	

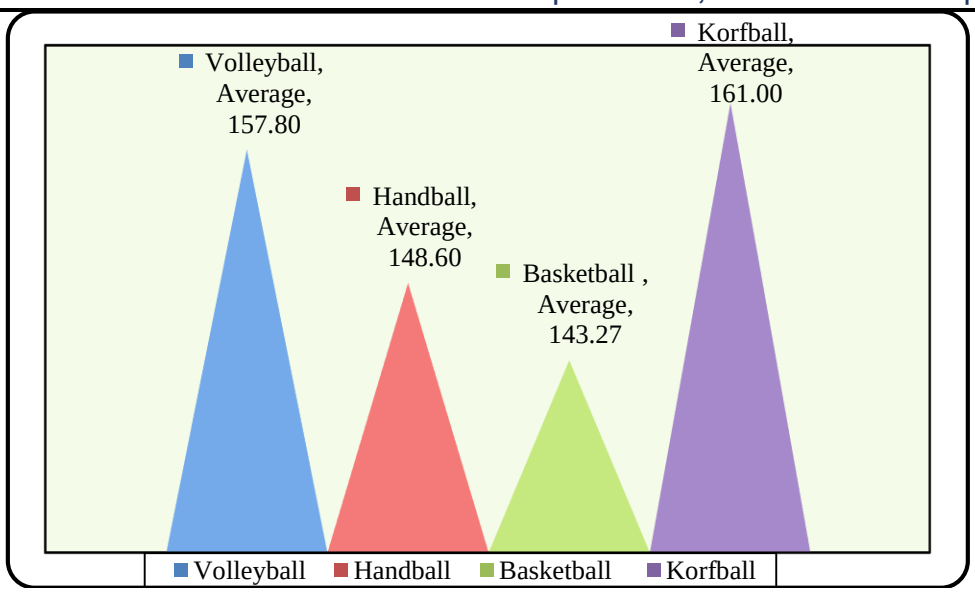
*Significant at 0.05 level F0.05 (3,56) = 2.769

The analysis of data in table-2 revealed that there was significant difference in aerobic capacity of volleyball, handball, basketball and korfball players group as the obtained F-ratio was 10.098 which was higher than that of required tabulated ‘F’ value of 2.769 at .05 level significance with (3,56) degree of freedom. Since the one-way analysis of variance was found significant in related to aerobic capacity, the least significant difference (L.S.D.) was applied to the paired means difference among the different team game players.

Table-3: Post hoc test table showing mean difference of all groups in aerobic capacity

Volleyball	**Handball**	**Basketball**	**Korfball**	**M.D.**	**C.D.**
157.80	148.60			9.20*	7.43
157.80		143.27		14.53*	7.43
157.80			161.00	3.20	7.43
	148.60	143.27		5.33	7.43
	148.60		161.00	12.40*	7.43
		143.27	161.00	17.73*	7.43

Table-3 clearly revealed that significant difference was found between the means of volleyball and handball, volleyball and basketball, handball and korfball, basketball and korfball as the mean difference of above four was greater than the critical differences. Insignificant difference was found between the means of volleyball and korfball, handball and korfball as the mean difference was less than the critical difference. The sequence of aerobic capacity in all four groups was (161.00) korfball > (157.80) volleyball > (148.60) handball > (143.27) basketball. As mean value is less than aerobic capacity is more and vice versa.



Graph-1: showing mean difference of all groups in aerobic capacity

Conclusion:

It was concluded that when aerobic capacity was assessed among players of team games like volleyball, handball, basketball and korfball, it was found that there were significant differences across the games. Basketball players had higher aerobic capacity than players of other team games like handball, volleyball and korfball. This could be because basketball is a very dynamic game in which arms and legs are constantly used, which may increase their aerobic capacity.

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