International Journal of Multidisciplinary Research and Development
Online ISSN: 2349-4182 Print ISSN: 2349-5979
www.allsubjectjournal.com
Volume 2; Issue 11; November 2015; Page No. 670-671

Comparison of cardiovascular endurance and muscular strength among basketball & badminton players

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Abstract
This study was designed to investigate the comparison of health related physical fitness components among basketball and badminton players. A sample of 24 players, 9-14 years of age group has been selected randomly from both games. In which 12 subject basketball players (boys & girls) and 12 subjects badminton players (boys & girls). Only two most required health related physical fitness components (cardiovascular endurance & muscular strength) were taken. The mean & S.D for cardiovascular endurance of Badminton players (boys & girls) 51.58/44.48 and 11.1/4.17 whereas mean & S.D of Basketball players (boys & girls) 45.3/48.1 and 2.53/5.66 respectively. The mean & S.D for muscular strength of Badminton players (boys & girls) 2469.16/1948 and 1074.29/390.40 whereas mean & S.D of basketball players (boys & girls) 1887.66/2037.83 and 478.64/469.05 respectively. The statistical analysis revealed that there is no significant difference in cardiovascular endurance & muscular strength of basketball & badminton players (boys & girls both).

Keywords: Cardiovascular Endurance, Muscular Endurance, Badminton & Basketball, Boys & Girls.

1. Introduction

Physical fitness is the natural outcome of a rich programme of physical education. Thomas (1964) [3] remarked that it is the sum of the condition of one's body judged in the terms of Age, Height, Weight and Chest expansion, Absence of defects, Constructional defection or bodily introit, full physical development, vigor and radian health should be seen in one who is physically fit.

To measure the health related physical fitness components at school level childhood is the right step, because children are said to be the citizens of tomorrow and builders of nation. They must be given right guidance and training to promote the health & fitness at the right time. Today everyone is concerned with the school health and Health-Related Fitness of school going children.

The health related physical fitness is not only significant in general aspect but also from the sports point of view. A large number of national and international players are coming out from school level. The researcher have proved that potentiality of the child can be gauged when the child reaches early teenage. World class athletes and their performances can be picked-up at the age of 12 to 15 years in some of the sports like gymnastic, swimming, diving, badminton, table tennis and lawn tennis etc. Moreover, potentialities and anthropometric characteristics of children at different stages of their growth and development, physical appearance and mental caliber help to guess or channelize in different games & sports.

These components of the physical fitness i.e. Muscular endurance and Cardiovascular endurance were describe as commonly accepted elements of physical fitness as muscular power, agility, speed, flexibility and balance. On the basis of the above term it can be said that "Physical fitness provides capacity for activity" the greater physical fitness the better the physical endurance and precision of movement which are essential for every sports. This is the result of the degree of strength, speed, endurance, agility, power and flexibility one possesses. Since physical fitness covers one's fitness, the program of physical fitness should intervene development of certain basic elements like strength, speed, agility, power, flexibility and endurance. These physical fitness elements are useful for different games and sports.

Cardiovascular endurance is one of the major physical fitness components required for the game of basketball as this game is fast and exciting & it involves continues movements and actions with or without ball. Since basketball require almost constant movement over a longer period of time, one must try to attain muscular and cardiorespiratory endurance.

The problem is stated as "Comparison of cardiovascular endurance and muscular strength among basketball & badminton player."

The purpose of the research was to discover answers to questions through the application of scientific procedures. The main aim of research was to find out the truth which was hidden and which has not been discovered as yet.

The main objectives of the present study conducted in school were:

- To compare the cardiovascular endurance among basketball & badminton players (boys).
- To compare the cardiovascular endurance among basketball & badminton players (girls).
- To compare the muscular strength among basketball & badminton players (boys).
- To compare the muscular strength among basketball & badminton players (girls).
- To identify the most preferable methods of reducing the difference in both groups if find.

Keeping in view the objective of the study, it was framed that there would be proper difference in the cardiovascular endurance and muscular endurance among basketball & badminton players.

- The study was delimited to 9-14 years age group only.
- The study was delimited to only cardiovascular endurance and muscular strength.
- The study was delimited to Basketball and Badminton (boys & girls) group only.
- The data was collected from the Manav Rachna International School, Faridabad district of Haryana State.

2. Methods and Materials

2.1. Subject

The data was collected randomly selected Basketball (N-12 boys & girls) and Badminton (N-12 boys & girls) players of Manav Rachna International School from Faridabad district of Haryana. Their age was 9-14 years age group. Only those players were taken into consideration in this study, has been practicing from minimum of 1 year.

2.2. Tools

All the important and required information was given to participants. The physical fitness battery included only 2 required components of health related fitness in both games for their suitability in field conditions, specifically for ease of administration without extensive equipment. All tests were administered during the school day. Detailed descriptions of each fitness test are described given below:

- Harvard Step test for cardiovascular endurance
- Vertical Jump for muscular strength

2.3 Statistical Analysis

The values of mean, standard deviations of all the variables was computed on SPSS and 'T' test was applied to find out significance of differences between the scores of the selected variables and groups. To test the hypothesis the significance level was set at .05 percent.

3. Results

Table 1: Comparison of Cardiovascular Endurance among Badminton & Basketball players (Boys)

Group	N	Mean	Std. Dev.	Mean Diff.	Df	T value	Tabulated value
Badminton	6	51.58	11.16	6.22	10	0.106	1.812*
Basketball	6	45.36	2.53				

Table 2: Comparison of Muscular Strength among Badminton & Basketball players (Boys)

Group	N	Mean	Std. Dev.	Mean Diff.	Df	T value	Tabulated value
Badminton	6	2469.16	1074.29	581.5	10	0.126	1.812*
Basketball	6	1887.66	478.64				

Table 3: Comparison of Cardiovascular Endurance among Badminton & Basketball players (Girls)

Group	N	Mean	Std. Dev.	Mean Diff.	Df	T value	Tabulated value
Basketball	6	48.1	5.66	3.7	10	0.118	1.812*
Badminton	6	44.4	4.17				

Table4: Comparison of Muscular Strength among Basketball & Badminton players (Girls)

Group	N	Mean	Std. Dev.	Mean Diff.	Df	T value	Tabulated value
Basketball	6	2037.83	469.05	89.83	10	0.362	1.812*
Badminton	6	1948	390.40				

***** Significance at .05 level

4. Discussions

- There is no significance difference in cardiovascular endurance of (BOYS) Basketball & Badminton players as calculated value of 't – 0.106' found insignificant at .05 level.
- There is no significance difference in cardiovascular endurance of (GIRLS) Basketball & Badminton players as calculated value of 't – 0.118' found insignificant at .05 level.
- There is no significance difference in muscular strength of (BOYS) Basketball & Badminton players as calculated value of 't – 0.126' is insignificance at .05 level.
- There is no significance difference in muscular strength of (GIRLS) Basketball & Badminton players as calculated value of 't – 0.362' is insignificance at .05 level.
- In hypothesis it was framed that there would be difference in the cardiovascular endurance & muscular strength of both games players but after result our hypothesis is rejected so we can concluded that in both games playing conditions & surfaces are different but cardiovascular endurance & muscular strength required/used in both games at same pace/amount.

5. References

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