

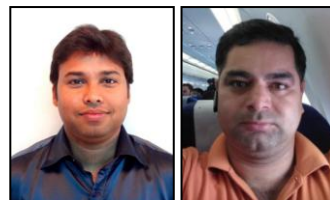
COMPARATIVE STUDY OF AEROBIC AND ANAEROBIC CAPACITY OF FOOTBALL, HANDBALL AND VOLLEYBALL PLAYERS

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INTRODUCTION

Fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserve of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him. Physical & physiological fitness is important at all levels of the game, whilst being essential for top level players, it is beneficial for beginners who will improve both their effectiveness and enjoyment through good standards of fitness. Football is a sport requiring high levels of physical fitness. It is one of those rare games which demands not only speed but agility, strength, power and endurance. Football players need a combination of technical, tactical and physical skills in order to succeed. Improving aerobic capacity and overall fitness boosts performance on the football field. Handball is a team sport in which two teams of seven players each (six outfield players and a goalkeeper on each team) pass a ball to throw it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team which scores the most goals wins. The game is quite fast and includes body contact which requires a high level of fitness. Volleyball is a sport in which both skill and fitness play a very significant part. Though there are different fitness requirements (physical and physiological) for the different playing positions, all players on a volleyball team need to be able to play in all positions at some time, so overall fitness would be relevant.

Aerobic capacity is the maximum amount of oxygen that the body can utilize during an exercise session, usually measured during a brief period of high-intensity exercise. It is possible for a person to improve his or her aerobic capacity over time. A person might also experience a decline in this measurement as a result of a variety of factors, including aging, illness and a decline in physical activity. For elite athletes, their aerobic capacity — also known as VO_2 max, short for volume of oxygen maximum — is an important aspect of their physical fitness. The anaerobic capacity is the total amount of energy from the anaerobic (without oxygen) energy systems, that is the combined amount of output for the ATP, phospho-creatine and lactic acid systems. The anaerobic system is maximally stressed in short duration high intensity activities (generally between 30 seconds and several minutes), and most of the following tests are over this time period. Aerobic exercise and fitness can be contrasted with anaerobic exercise, of which strength training and short-distance running are the most salient examples. The two types of exercise differ by the duration and intensity of muscular contractions involved, as well as by how energy is generated within the muscle. In most conditions, anaerobic exercise is accompanied by aerobic exercises because the less efficient anaerobic metabolism must supplement the aerobic system due to energy demands that exceed the aerobic system's capacity.

PURPOSE OF THE STUDY

Purpose of the study was to compare aerobic and anaerobic Capacity of Football, Handball and Volleyball.

SUBJECTS

Total thirty six (12 from football, 12 from handball and 12 from volleyball) male subjects were selected for this study from Mahatma Gandhi Kashi Vidyapith, Varanasi (U.P.) were taken as sample. Their age ranged between 17-25 years.

VARIABLES

- Aerobic : 12 min. Cooper run-walk test
- Anaerobic Capacity : 50 mt. dash

TEST

Data, to measure the aerobic and anaerobic capacity of players, were collected in the month of December-January, Session 2012-13 when they were attending camp for preparing themselves to Inter –University Tournaments.

STATISTICAL PROCEDURE

For analysis of the data to compare the aerobic and anaerobic capacity among the groups the analysis of variance was used at 0.05 level of significance.

RESULTS

Table - 1

ANOVA				
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Between Groups	1039839	2	519919.4	96.03*
Within Groups	178716.7	33	5415.657	

*Significant at .05 level of significance, $F_{0.05}(2,33) = 3.28$

Table-1 indicates comparison of aerobic capacity among football, handball and volleyball players which is highly significant as calculated f- ratio 96.03 was greater than tabulated 'f' value 3.28.

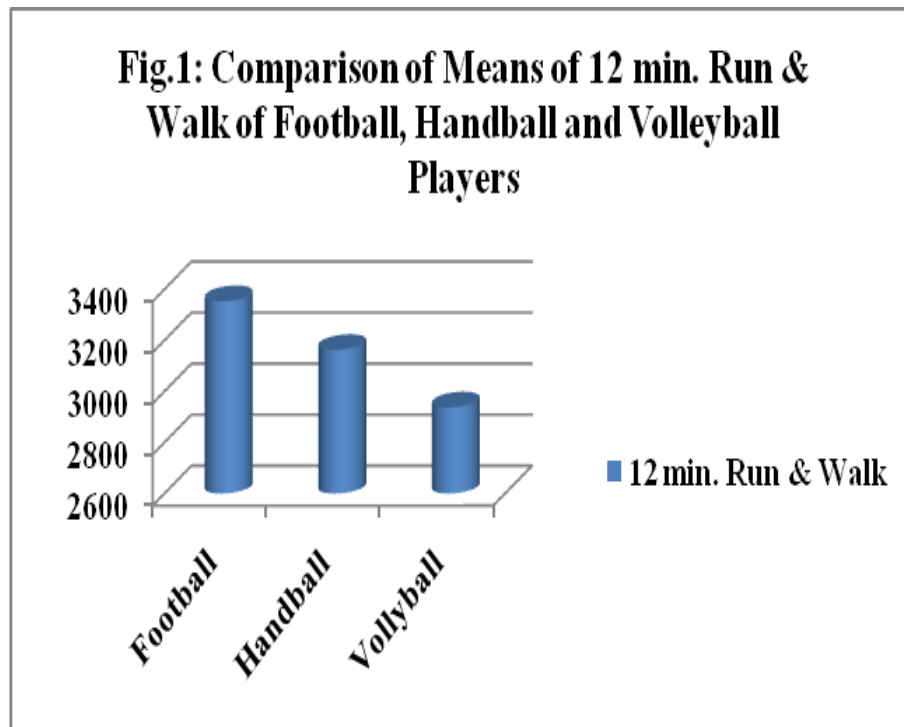
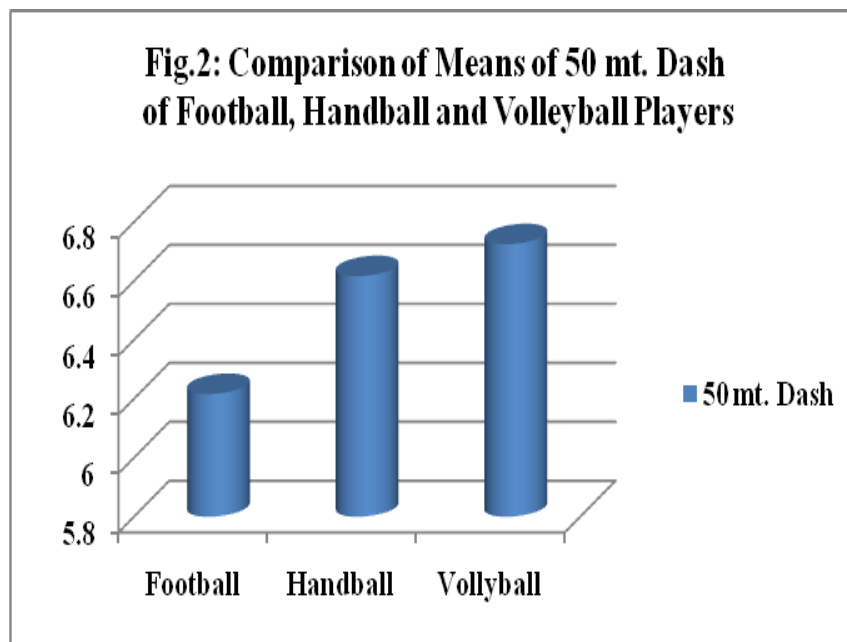


Table - 2

ANOVA				
Source of Variation	SS	df	MS	F
Between Groups	1.720556	2	0.860278	42.00617*
Within Groups	0.675833	33	0.02048	

*Significant at .05 level of significance, $F_{0.05}(2,33)=3.28$

It appears from the Table-2, that comparison of anaerobic capacity among football, handball and volleyball players was highly significant as 'f' ratio was found to be 42.006 is greater than tabulated 'f' value 3.28.



CONCLUSION

Within the limitation of the study following conclusions may be drawn-

- ◆ In relation to aerobic capacity significant difference was found among football, handball and volleyball players.
- ◆ In relation to anaerobic capacity significant difference was found among football, handball and volleyball players.

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