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ORIGINAL ARTICLE

ANALYSIS OF MOTOR FITNESS COMPONENTS BETWEEN VOLLEYBALL AND BASKETBALL PLAYERS

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Abstract:

The purpose of the study is to find out the analysis of motor fitness components between volley ball and basketball players. Today every sport including volleyball and basketball is played in a very organized manner with specificity of playing and preparation of participant in various international events. The physical and physiological symptoms such as slowing of reaction time, loss of strains in joints, muscle etc., could be minimized through improvement in physical and motor fitness where endurance, strength, flexibility, power, speed, agility etc are the more important components in volleyball and basketball. A descriptive study was conducted to compare the selected motor fitness components between basketball and volleyball players. The subjects for this study were 100 volleyball and 100 basketball male players chosen randomly from 500 players of each disciplines of volleyball and basketball clubs in and around Chennai with average age of 14 to 17 years respectively. The data were collected by administering the test on the selected motor fitness variables of endurance, agility and co-ordination abilities. The collected data were analyzed by using independent sample t-test to compare the selected motor fitness variables of volleyball and basketball players. Results: The results of the study showed that the endurance and co-ordination ability of basketball players are superior to volleyball players and the agility of the volleyball players is superior to the basketball players.

KEYWORDS:

Motor fitness, Agility, endurance, coordination, volleyball, basketball.

INTRODUCTION

Motor fitness refers to the development of general body control, fine motor skills of large muscle movements such as running, jumping and throwing. Motor fitness is a term that describes a game's ability to perform effectively during sports or other physical activity. Malhotra and Subraminiam (1982) have claimed that a high level of general fitness with motor abilities like strength, aerobic endurance, speed of moment, jumping ability, agility flexibility etc. are the essential qualities required to be developed by the basketball players. Tancred (1995) Optimum physical performance is a combination of all the components of motor fitness; depending on the specific demands of the sports or activities. The skills can never assure victory, as a player one has to posses requisite fitness components which helps to elevate the skills to higher levels of performance in the game.

Basketball is one of the most popular sports in the world and is a fast moving game that involves a variety of skills namely including shooting, dribbling, passing, rebounding and much more. It is equally important for the athlete to be able to perform these skills in a variety of directions and in a controlled manner to ensure injuries do not ensue (Scott Lucett, 2013). Basketball is a team game, individual execution of fundamental skills is essential for team success (Hal Wissel, 2012).

Volleyball is an olympic sport played by two teams consisting of 12 players each on playing court, divided by a net. The object of the game is to send the ball over the net in order to ground it on the opponent's

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court and to prevent the same effort by the opponent. The team has three hits or contacts to return the ball. There are fundamental skills such as pass, service, attack-hit, setting and dig. Mastering over these skills will help the individual to play an extraordinary game.

Endurance is the ability of an athlete to withstand external physical pressures over time, or to maintain competitive and training focus under pressure. Agility may be defined as the ability to change direction accurately and quickly moving as nearly possible at full speed. Coordination is the ability to link precise movements of different parts of the body. Motor fitness status of team games player is that endurance, agility and coordination abilities between volleyball and basketball players are essential.

Malhotra and Subraminiam (1982) have claimed that a high level of general fitness with motor abilities like strength, aerobic endurance, speed of moment, jumping ability, agility flexibility etc. are the essential qualities required to be developed by the basketballers. Tancred (1995) optimum physical performance is a combination of all the components of motor fitness; depending on the specific demands of the sports or activities. Some components will require more attention than other, but each should be present as an integrated part of training programme.

According to Ambler (1979) fast starting, stopping, dodging, darting and acceleration are the fundamental requirements to a good court play since court game often involve at a vigorous rate a high level of anaerobic endurance and also good jumping ability is of great importance. The game volleyball requires greater vertical jump performance (Gladden and Colacino 1978; Fleck et al. 1985; Marques, et al. 2006 and 2008) for spiking, blocking and jump serve. Similarly basketball requires vertical jump performance (Hoffman et al. 1996; Hoffman and Maresh 2000) for rebound, jump shot and dunking. So both games require greater degrees of explosive power in terms of vertical jump.

There are many studies done to improve the level of motor fitness of volleyball and basketball players but many few have done the study to find out the difference in motor fitness in volleyball and basketball players. Therefore this study is undertaken to compare and find out that there was any difference in motor fitness between volleyball and basketball by selecting some motor fitness components and performing their test on the players.

The objective of this study is to study the variables of the agility, endurance and co-ordination abilities between volleyball and basketball players of different clubs in and around at Chennai.

The hypotheses of this study are as follows:

H_1 : The co-ordination ability of basketball players would be superior to volleyball players.
H_2 : The agility of volleyball players would be superior to basketball players.
H_3 : The endurance of basketball players would be superior to volleyball players.

MATERIALS AND METHODS

The research scholar has undertaken this descriptive study to compare the motor fitness variables endurance, agility and co-ordination abilities between volleyball and basketball players. For this study the scholar has taken the help of descriptive method and followed the method as described by different research scholars and physical educationists. The data were collected by conducting endurance test, agility test and coordination test on the subjects.

The Harvard step test is a kind of cardiovascular endurance test. The test computes the capability to exercise continuously for extended intervals of time without tiring. It also is a good measurement of fitness and a person's ability to recover after a strenuous exercise. The Shuttle run test is a simple method for testing aerobic fitness. Good aerobic fitness is important in sports that require endurance. Eye–hand coordination Test is the coordinated control of eye movement with hand movement, and the processing of visual input to guide reaching and grasping along with the use of proprioception of the hands to guide the eyes. It is part of the mechanisms to execute hand-eye coordination in the sport field.

The subjects for this study were 100 volleyball and 100 basketball male players chosen randomly from 500 players of each disciplines of volleyball and basketball clubs in and around at Chennai with average age of 14 to 17 years respectively. All the subjects selected for the study were clinically, physically, and mentally fit for the study. It was observed that the students having good behavior were taken care from different classes of the same sports clubs. The variables endurance, agility, coordination abilities were assessed by Harvard step test, Shuttle run test and eye-hand coordination test (Table 1) respectively. All the tests were measured in seconds.

Table 1 – Unit of Measurement

Variables	Test	Unit of Measurement
Cardio Respiratory Endurance	Harvard Step Test	Seconds
Agility	Shuttle Run Test (6x10 M)	Seconds
Coordination Abilities	Eye-Hand Coordination Test	Seconds

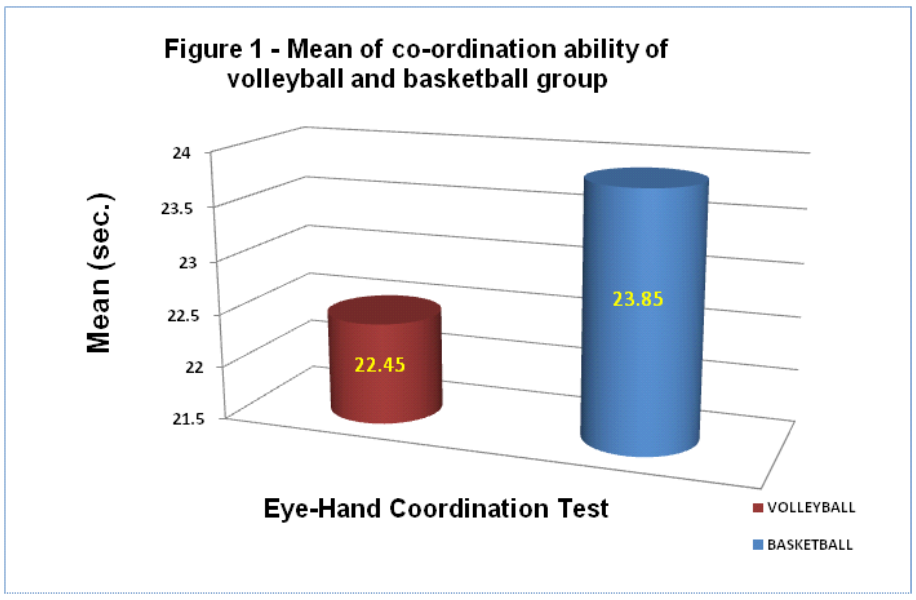
The collected data were analyzed by using independent sample t-test to compare the selected motor fitness variables of volleyball and basketball players.

RESULTS AND DISCUSSION

Comparison of coordination ability mean difference between the volleyball and basketball Group: Table 2 shows that the comparison of coordination ability mean difference and standard error (SE) in selected variables between volleyball group and basketball group (n=100). In the Table 2 also shows that the case of eye-hand co-ordination test, the mean difference of the volleyball group and basketball group is 22.45 and 23.85 respectively, whereas the difference in the mean of both group is -1.40 which is in favor of volleyball group where as the 't' value of the same is -4.20 which is significant at 0.05 level. The results have also been represented graphically in the Figure 1.

Table 2 - Comparison of coordination ability mean difference and SE of motor fitness variables between volleyball and basketball group (n=100).

Variables	Group Compared	Mean	Mean Difference	Standard Error	't' Value	Significance
Coordination Ability	Volleyball	22.45	-1.40	0.33	-4.20	0.000 (p<0.05)
	Basketball	23.85				

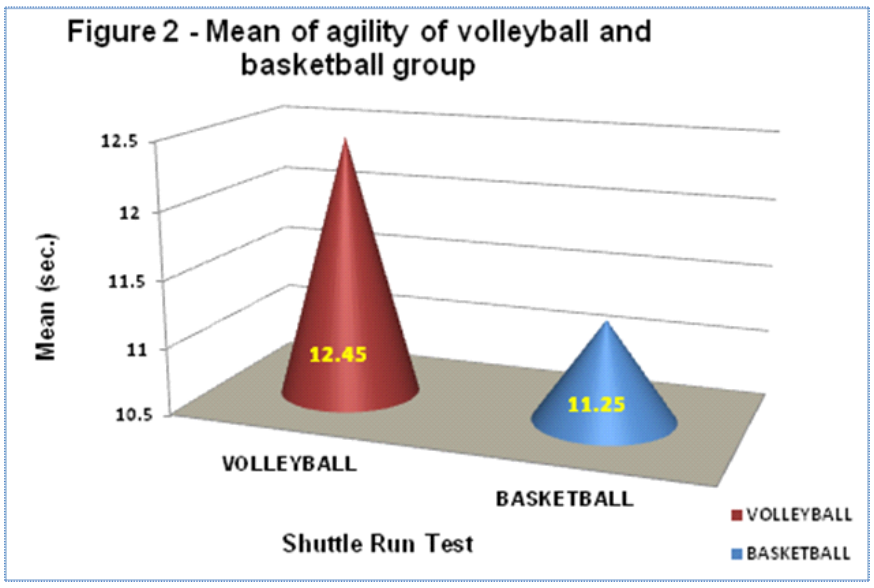


The findings that basketball players have superior co-ordination ability than volleyball players. The hypothesis H_1 is refuted.

Table 3 - Comparison of agility mean difference and SE of motor fitness variables between volleyball and basketball group (n=100).

Variables	Group Compared	Mean	Mean Difference	Standard Error	't' Value	Significance
Agility	Volleyball	12.45	1.20	0.32	3.17	0.000 ($p<0.05$)
	Basketball	11.28				

Comparison of agility mean difference between the volleyball and basketball group: Table 3 shows that the comparison of agility mean difference and standard error (SE) in selected variables between volleyball group and basketball group (n=100). In the Table 3 also shows that the case of shuttle run test, the mean of the volleyball group and basketball group is 12.45 and 11.28 respectively, whereas the difference in the mean of both group is 1.20 which is in favor of volleyball group where as the 't' value of the same is 3.17, which is significant at 0.05 level. The results have also been represented graphically in the Figure 2.

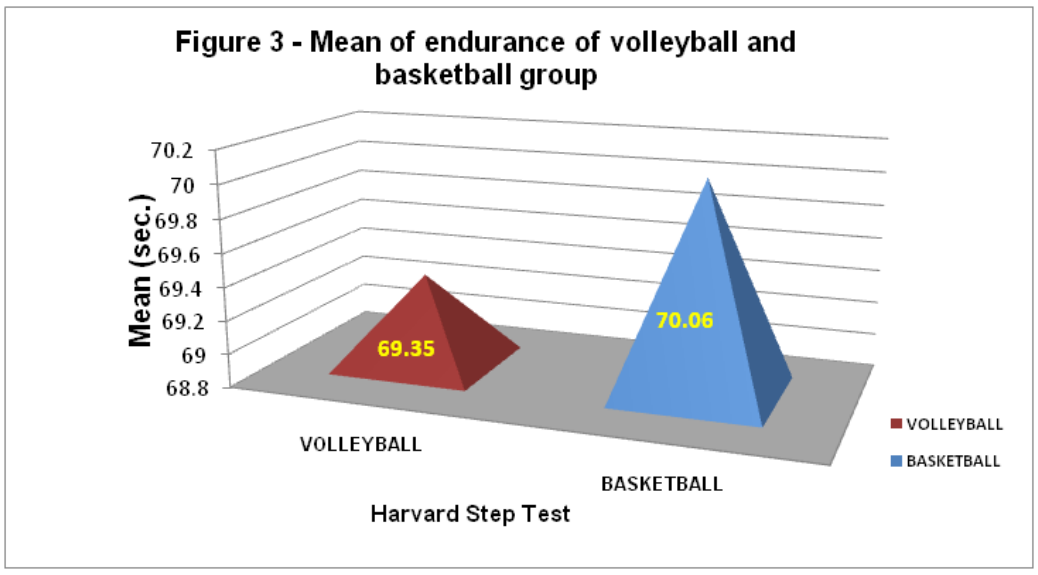


The findings that volleyball players have superior agility than basketball players. The hypothesis H_2 is refuted.

Table 4 - Comparison of endurance mean difference and SE of motor fitness variables between volleyball and basketball group (n=100).

Variables	Group Compared	Mean	Mean Difference	Standard Error	't' Value	Significance
Endurance	Volleyball	69.35	-0.71	1.14	-0.62	0.000 ($p<0.05$)
	Basketball	70.06				

Comparison of endurance mean difference between the volleyball and basketball group: Table 4 shows that the comparison of endurance mean difference and standard error (SE) in selected variables between volleyball group and basketball group (n=100). In the Table 4 also shows that the case of harvard step test, the mean of the volleyball group and basketball group is 69.35 and 70.06 respectively, whereas the difference in the mean of both group is -0.71 which is in favor of Basketball group where as the 't' value of the same is -0.62 which is significant at 0.05 level. The results have also been represented graphically in the Figure 3.



The findings that basketball players have superior endurance than volleyball players. The hypothesis H_3 is refuted.

CONCLUSION

It is concluded that the basis of the findings of the motor fitness components, the endurance status of a basketball players is superior to volleyball players; the agility status of the volleyball players is superior to that of a basketball players; and the coordination ability status of the basketball players is superior to volleyball players. It is suggested that basketball players and volleyball players must be given sports training in the ground to achieve the good physical ability. Similar studies can be conducted on females and also other sports and games.

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