



## COMPARISON OF PHYSICAL FITNESS COMPONENTS BETWEEN BASKETBALL AND VOLLEYBALL PLAYERS AT COLLEGE LEVEL

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### Abstract

The present study efforts were made to analyse the physical fitness variables at college level players between basketball and volleyball. To achieve this purpose, hundred ( $n = 100$ ) college students were selected at random, fifty ( $n = 50$ ) from basketball and fifty ( $n = 50$ ) from volleyball as subjects and their age ranged between 18 and 24 years. Explosive power and speed were selected as criterion variables for this study and they were assessed by using standing broad jump and 50 meter run. The significance level was set to priority at 0.05. The collected data were analysed by independent  $t$  ratio to find out the significant difference if any between the groups. The results of the study showed that there was an insignificant ( $p \geq 0.05$ ) difference on explosive power and significant difference ( $p \leq 0.05$ ) on speed between basketball and volleyball players.

**Keywords:** Physical fitness, explosive power, standing broad jump, speed, basketball players, volleyball players.

### Introduction

Regular exercise is one of the best things you can do for your health. It has many benefits, including improving your overall health and fitness, and reducing your risk for many chronic diseases (medlineplus.gov). Physical fitness is one of the components of the total fitness of the individual, which also includes mental social and emotional fitness. Total fitness is essential (Fitness) for healthful living. Physical education is potentially a powerful force in the present day society to develop total fitness (Robert, 1972). Fitness is determined by what we do twenty four hours a day. To live, work, sit, walk, think, eat and sleep. Fitness helps to enjoy the life (Lawrence, 1975). Physical fitness is not a static factor and it varies from individual to individual and with the same person from time to time depending on various factors (Harrison, 1976). In the context of physical fitness, 'exercise' refers to any activity involving a fairly high degree of physical movements that makes one breathless and sweaty if it is done vigorously during physical exercise one has to breathe more deeply to get more oxygen into the lungs and the heart must beat harder and faster to pump blood to the muscles (Dorgo, 2009). The physical benefits are unarguable but there are physiological benefits also, many people have sound sleep after exercise, wake up more refreshed and are more alert and better able to concentrate than when they are unfit. Exercise of the right sort should make one feel better live longer and have less illness (Tony Smith, 1983).

The jumpers need greater leg strength and power while jumping. Explosive power is the ability to release maximum muscular force in the shortest time (Baugartner *et al.* 1991). It is one of the most important features of athletes. The biological basis is represented only by the energy aspects of substrate utilization, as many investigators believe. Indeed, the most peculiar factors for explosive power development must be formed in neuromuscular properties (Bosco *et al.* 1992). The length of the jump will depend to a greater degree upon the force or push the jumpers can generate the ability to outline the force is explosive power. In turn, the explosive power mainly depends upon one's leg strength (Paulson, 2003). Standing broad jump is used as a test to measure the explosive power in this study.

Muscles are made up of a combination of fast-switch and slow-switch fibers. Fast-switch fibers contract rapidly and slow-switch fibers contract more slowly and with lower level of force. Speed is an ability to execute motor action under given condition in maximum possible time (Clarke & Clarke, 1987). If all other things are equal, athletes with longest muscle fibers and greater percentage of fast switch fiber should have the ability to run faster (Jarver, 1978) than an athlete with shorter slow-switch fibers. Eicher (1975) pointed out that speed is the product of two factors, stride length and stride frequency. Increasing either factor automatically increases a runners sprinting speed. Stride frequency is an inborn quality; it might be possible to improve it slightly through training (Astrand & Rodahe, 1970). But the stride length can be increased by increasing the leg strength and power. In this study fifty meters sprint has been taken as a test for measuring the speed of the subjects.

### Materials and Methods

The purpose of the study was to analyse the physical fitness variables of the college level players between basketball and volleyball. To achieve this purpose, hundred ( $n = 100$ ) college students were selected from the constituent colleges of University of Allahabad, Prayagraj, Uttar Pradesh at random, fifty ( $n = 50$ ) from basketball and fifty ( $n = 50$ ) from volleyball as subjects and their age ranged between 18 and 24 years. Explosive power and speed were selected as criterion variables for this study and they were assessed by using standing broad jump and 50 meter run. The significance level was set to priority at 0.05. The collected data were analysed by independent  $t$  ratio to find out the significant difference if any between the groups. The selected variables were assessed by using standard test and procedures, such as explosive power and speed by using standing broad jump test and 50



meters run respectively. The collected data from the two groups were statistically examined by using an independent *t* ratio to find out the significant difference between the basketball and volleyball players on explosive power and speed.

**Results and Discussion**

Table I

**Mean, Standard deviation and *t* ratio on Explosive Strength of Basketball and Volleyball Players**

Group	Mean	S D	<i>t</i> value
Basketball Players	2.23	0.23	1.61
Volleyball Players	2.18	0.21	

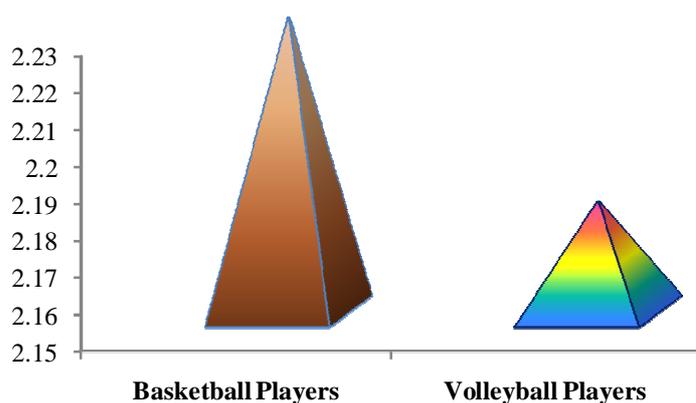
Table-II

**Mean, Standard deviation and *t* ratio on Speed of Basketball and Volleyball Players**

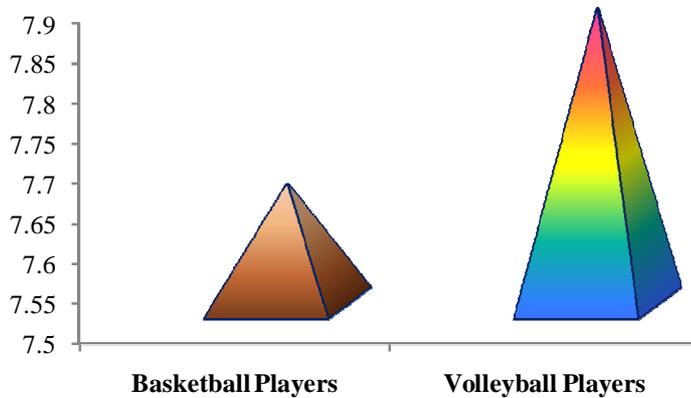
Group	Mean	S D	<i>t</i> value
Basketball Players	7.65	0.31	3.52
Volleyball Players	7.87	0.56	

Table –I showed that the mean values of explosive power of basketball and volleyball players are 2.23 and 2.18 respectively. The obtained *t* ratio of 1.61 is lesser than the table value 1.99 for df 98 required for significance at 0.05 levels ( $t = 1.61, p \geq 0.05$ ), which means there was an insignificant difference occurred in explosive power between basketball and volleyball players. The mean values of basketball and volleyball players on explosive power is graphically represented in figure 1.

Table –II showed that the mean values of speed of basketball and volleyball players are 7.65 and 7.87 respectively. The obtained *t* ratio of 3.52 is greater than the table value 1.99 for df 98 required for significance at 0.05 levels ( $t = 3.52, p \leq 0.05$ ), which means there was a significant difference occurred in speed between basketball and volleyball players. The mean values of basketball and volleyball players on speed is graphically represented in figure 2.



**Figure 1: The Mean Values of basketball and volleyball players on Explosive Power**



**Figure 2: The Mean Values of basketball and volleyball players on Speed**

Explosive power depends on one's leg strength and speed. Standing broad jump will depend to a greater degree upon the force or push the jumpers can generate the ability to outline the force. Research in the field of sports and games had provided that the future performance of an individual or team could be predicted through the analysis of certain variables, which were found to be the basis for total performance (Dick.1980, Fogelholm, 2008). Individual motor ability gains more importance as a factor that decides the performance (Ghuman *et al.* 2000). Speed is the product of stride length and stride frequency. Basic fitness is very needed for the adolescent period (Robert, 1993). Based on the results of the study it indicates that there was an insignificant difference between basketball and volleyball players on explosive power and there was a significant difference between the basketball and volleyball players on speed.

### Conclusion

Based on the results of the study, it was concluded that there was an insignificant difference between basketball and volleyball college level players on explosive power and there was a significant differences between the basketball and volleyball players on speed. We can conclude from the result of the study that there was little difference between the basketball and volleyball players on physical fitness status.

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