



## An Experimental Study on Explosive Strength between Inter Collegiate Volleyball and Basketball Players

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### Abstract

*This experimental research mainly emphasised on the study of explosive strength between inter collegiate volleyball and basketball players. Participants of the study were collectively 50 male volleyball and basketball players who have keenly participated in Panjab University inter collegiate tournament. The data were furnished through standing broad jump and vertical jump test. The data was statistically analyzed by using 't' test. For testing the significance in explosive strength, the level of significance chosen was 0.05. The comparisons of mean scores on explosive strength by standing broad jump were not significant. But in case of explosive strength while quantified by vertical jump test, it was found to be significant as evidenced by 't' with degrees of freedom at 0.05 probability level of significance. The result of the present study shows that explosive strength through vertical jump of the volleyball players was superior to those of the basketball players.*

**Keywords:** Explosive strength, volleyball, basketball, collegiate.

### Introduction

Explosive strength is a highly specific motor ability. The explosive strength performance is always coupled with the specific load and movement structure of an exercise or motor action. A high percentage of movements in sports is of explosive nature and involves overcoming of some external resistance or of one's own body weight. Explosive strength is the combination of strength and speed abilities. It can be defined as the ability to overcome resistance with high speed<sup>1</sup>. Explosive strength is a highly specific motor ability. The explosive strength performance is always coupled with the specific load and movement structure of an exercise or motor action. As a result explosive strength is mainly developed through special and competition exercises. The explosive strength performance depends largely on muscle cross section, contraction speed and inter and intra muscular co-ordination. As explosive strength is highly movement specific, therefore, the role of technique or skill should never be under estimated.

Volleyball is a game played indoors or outdoors by teams whose members seek to score points in the course of hitting a ball back and forth across the net<sup>2</sup>. The physiological responses and requirements of participation in volleyball vary a great deal depending on the level of competition and the skill of the players. It can be a mild, low energy cost activity to a very explosive, high energy cost activity. And also special qualities are needed for each potential player.

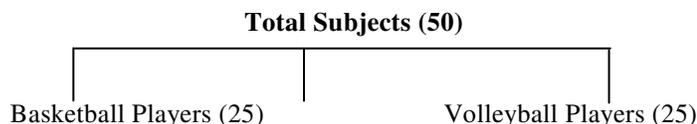
Proficiency in basketball requires that an athlete have co-ordination and develop fitness along with speed. He should be capable of repeated sprints of short distances, have agility

enabling him to rapidly change direction without losing momentum and have endurance to perform sustained periods of activity. In basketball, the grouping athlete must be done on a physiological development basis. In this way deleterious factors will be minimised and optimum results obtained. Explosive strength is very much required in various sports. In the games like basketball and volleyball this type of strength is very required. For volleyball and basketball players they need such strength. A volleyball player needs explosive strength while he or she smashes the ball to his or her opponent court. Likewise a basketball needs explosive strength when he or she is going to dunk the ball into the basket not only at this point he or she need such strength while collecting the rebound.

Explosive strength therefore is important in most of the sports. Explosive strength always finds expression in motor movements i.e., it is a form of dynamic strength. Explosive strength performances are markedly influenced by the level of motor co-ordination required for movement e.g. inter and intra muscular coordination. As a result explosive strength is highly specific to the nature of a movement and for its development of specific movements have to be used as exercises. So explosive strength are very important for various sportsperson involved in different games. So sportsperson should aware about explosive strength and they should involve in various training programmed to improve their explosive strength. Hence, it was thought worthwhile to compare the status of explosive strength of volleyball and basketball players, who have participated in the inter collegiate competitions of the Panjab University, Chandigarh.

## Methodology

**Selection of Subjects:** For the purpose of this study, fifty (50) male volleyball and basketball players who have played Panjab University inter collegiate tournament were selected.



**Collection of data:** The necessary data was collected by administering the test for the chosen variables. The data was collected individually, from the players seeking their cooperation as and when the time was available with them. They were told the purpose of the investigation and were requested to render full cooperation in completing the study and were made clear that the results of the investigation would be useful in furthering the cause of sports performances in general and may be beneficial to them also. All basketball and volleyball players were given a chance to practice and to get familiar with the desired test. The apparatus and the procedure were explained prior to the administration of the test.

**Administration of tests:** All the subjects were properly oriented to the testing procedure and therefore were allowed a few trials so that the learning effect could be minimized while finally collecting data. For the purpose of establishing reliability of the data, standing broad jump and vertical jump were given three trials and highest was recorded as the final data for the test of explosive strength<sup>3,4</sup>.

**Classical statistics employed:** The necessary data were furnished through SPSS. To compare the significant difference between the male inter collegiate volleyball and basketball players on explosive strength, 't' test was employed. The level

of significance was also chosen at 0.05<sup>5,6</sup>.

## Results and Discussion

The comparison between the male inter collegiate volleyball and basketball players for the explosive strength measured by standing broad jump and vertical jump variables were statistically analyzed using 't' test.

As highlighted in the table 1, it can be depicted that the calculated 't' values (0.419) of inter collegiate volleyball and basketball were not found to be statistically significant at .05 level of significance. The statistical analysis of data also shows that the performances of male inter collegiate volleyball players and basketball players were not found statistically significant with regards to standing broad jump. The probable reason might be that the both games i.e. volleyball and basketball equally demands and requires jumping movements, sudden stopping and at same time these required lots of coordination. Henceforth, the Standing Broad Jump of volleyball and basketball players could not be differentiated<sup>7,9</sup>.

It is also depicted from table 2 that the calculated 't' values 3.192 in case of male inter collegiate volleyball and basketball players were found to be statistically significant at .05 level of significance. This shows the significant difference on Vertical Jump Test between male inter collegiate volleyball and basketball players. The result also highlighted that the vertical Jump of the volleyball players were superior when compared to the basketball players<sup>9,10</sup>. The possible reason could be explained in terms of nature and skills of the game. Besides, the game of volleyball actively involved the skills like quick jump blocking, jumping service, quick jump smashing etc. which may leads the volleyball players more superior than their counterpart of basketball players in explosive strength measured by vertical jump.

**Table-1**  
**Comparison on Explosive Strength (Standing Broad Jump) between Inter Collegiate Male Volleyball and Basketball Players**

Variable	Group	N	Mean	S D	M D	S E	't' ratio
Explosive Strength	Volleyball	25	2.25	0.26	0.27	0.65	0.419
	Basketball	25	2.27	0.19			

**Table-2**  
**Comparison on Explosive Strength (Vertical Jump) between Inter Collegiate Male Volleyball and Basketball Players**

Variable	Group	N	Mean	S D	M D	S E	't' ratio
Explosive Strength	Volleyball	25	0.92	0.12	0.18	0.056	3.192*
	Basketball		0.74	0.25			

\*Significant at 0.05 level, 't' .05 (48) = 2.02

## Conclusion

In the light of the above findings of the present study, the following conclusions can be drawn: i. There were no significant differences obtained in the explosive strength as evidenced by standing broad jump between inter-collegiate male volleyball and basketball players. ii. Volleyball players were found to have more explosive strength than basketball players while quantified by vertical jump.

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