



## COMPARISON OF EXPLOSIVE STRENGTH OF INDIAN INSTITUTE OF TECHNOLOGY BANARAS HINDU UNIVERSITY BASKETBALL AND VOLLEYBALL PLAYER

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### ABSTRACT

The purpose of this study is to compare explosive strength between male basketball and volleyball players of Indian Institute of Technology, Banaras Hindu University. To achieve the purpose of this study, thirty male players, that is fifteen basketball players and fifteen volleyball players were selected as participant and their age ranged from 18 to 24 years. These participants were tested for explosive strength by vertical jump test. Independent 't' test to find out the significant difference between volleyball and basketball players. The result of the study showed that there was no significant difference on explosive power (Tabulated value=2.048,  $p < 0.05$ ) between volleyball and basketball players. It is concluded that both games demands greater explosive power for better performance. The nature of both games varies, although the skills like spiking, jump shot etc. require explosive strength.

**Keywords:** Basketball, Volleyball, Explosive strength and Indian Institute of Technology

### INTRODUCTION

Explosive strength is the specific motor ability which is used as combined terminology of strength and speed. It can be defined as the ability to overcome resistance with high speed (Singh, 1995). Explosive strength is fundamental requirement where the athletic movements are performed with greater force in minimal possible time. The explosive strength performance is always combined with the specific load and movement structure of an exercise or motor action (Nazarudeen, Singh, Chandrasekar & Anand, 2017). Explosive strength is the essential component for anaerobic sports performance to attain more and more vertical jumps, turns, spikes, throws, fakes and feints while participating in sports such as Basketball and Volleyball. Basketball is a high-intensity team sport with alternative phrases of high load, and success in basketball requires technical, tactical and physical preparation. In basketball, explosive power is manifested through various variants of jumps, starting acceleration, sudden changes in direction of movement, deceleration, sudden stops and passing.

Volleyball is the versatile type of sports in terms of changing pace, which requires certain motor qualities such as speed, explosive power, agility, quickness (reaction) co-ordination and muscular endurance as fitness qualities in complex playing situation. Involvement in systematic and scientific programs of conducting the training will bring about desirable changes in physical and physiological variables.

Basketball and Volleyball sports are associated with jumping movements vastly. As basketball player required good jumping ability as in the action of shooting, rebounding, stealing, interception; and a volleyball player also required high level of jumping qualities for spiking, blocking, etc. which required more and more anaerobic power in lower extremity. It can also define as explosive strength which can be stated as the ability of a player to reach out the maximum force in minimum possible time. Vertical jump in the single effort by pushing the floor is depend on the combination of strength and speed. Various studies were conducted to know the effect of anaerobic power and explosive strength of basketball and volleyball players at different levels (Nazarudeen, Singh, Chandrasekar &



Anand, 2017; Dhake, 2017; Ramkumar, 2014; Rani, Chauhan & Kalsi, 2013). However no similar study is available to know the status and comparative graph of explosive power or strength of basketball and volleyball players of engineering stream who are participating at inter IIT level competitions. Which may be helpful to know the performance and fitness status of players and it also makes the choice of methods easier for the coach, along with the process of planning and programming (Aksovic & Beric, 2020).

## METHODOLOGY

The study was designed to compare the explosive strength male basketball and volleyball players. To achieve the purpose of study thirty male Volleyball and Basketball players (fifteen players in each group) from Indian Institute of Technology, Banaras Hindu University, Varanasi and their age ranged from 17 to 24 years. In the present study explosive power was measured by Sargent jump test as prescribed by kansal D.K. They were provided with three trials, among best was selected.

## FINDING AND RESULTS

To analysis collected data 't' test was applied to find out the significant difference.

TABLE 1  
MEAN, STANDARD DEVIATION & MEAN COMPARISONS OF EXPLOSIVE STRENGTH OF  
BASKETBALL AND VOLLEYBALL PLAYERS

Sports	Mean	S.D.	Mean Difference	T Test
Basketball	49.46667	6.610237	2.2666	0.88
Volleyball	51.73333	7.459095		

Tabulated value=2.048,  $p < 0.05$

The mean shown in table -1 of explosive strength of Basketball players the mean is 49.46667 and the standard deviation is 6.610237 whereas in case of Volleyball players the mean is 51.73333 and standard deviation is 7.459095 and the mean difference was 2.2666. It reveals that insignificant difference was found in explosive strength ( $t$ ) = 0.88,  $p$ -value is 0.385 of Basketball player and Volleyball player. The calculated value = (0.88) which was less than the tabulated value = (2.048). Hence in case of explosive strength between basketball player and the volleyball player there is insignificance difference was found.

## DISCUSSION OF FINDINGS

It is clear in table 2, Mean comparison of explosive strength between basketball and volleyball players shows that mean value of basketball players was 49.46 and volleyball players was 51.73, with mean defERENCE between the Explosive strength of basketball and volleyball players of 2.266 where the mean value of volleyball players was more than the mean value of basketball players but if we see the obtained 't'- value 0.88 is less than the required T-table value 2.048 for degree of level of significance 0.05.

Thus the result of the study is revealed that in Explosive strength in the term of vertical jump, when it was compared between basketball and volleyball players, there was insignificant defERENCE. There are numerous studies which are supported the result of this study i.e. Dhake (2017) Ramkumar (2014) and Rani, Chauhan & Kalsi (2013) found insignificant difference in explosive strength between volleyball players and basketball players. This might be attributed to the fact that the Basketball and Volleyball demand the high level of explosive strength in the term of vertical jump for rebounding, jump- shot and dunking and for Blocking, Spiking and jump service respectively.



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