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## Comparative study on agility and explosive strength of college level basketball players and volleyball players

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### Abstract

The study was to undertaken to compare the agility and explosive strength of college level basketball players and volleyball players. Total 20 players were selected for the study. Their age ranged from 17-21 years. Before conducting the test, all the subjects were given proper instruction. For assessing agility, shuttle run test were conducted and for explosive strength, standing broad jump test were conducted. The collected data on selected criterion variables was statistically analyzed. T-test was used to interpret the result. To compare the significance of difference, the level of significance chosen was 0.05. The result of the study shows that there was significant difference in agility and explosive strength between the basketball players and volleyball players.

**Keywords:** comparative study, agility, explosive strength, college level basketball players, volleyball players

### Introduction

A sport is defined as an activity involving the exercise of a useful physical skill recreationally. It is for a purpose other than its practical application in daily life. Sport is a very important part of our life and it is becoming more and more popular. Doing sports keeps us healthy, relaxed, as well as maintains our figure and strengthens our patience and endurance. In sports, physical fitness is the most important factor for everyone. Participation in games and sports helps to maintain good health, fitness and freedom from the illness and diseases. Also, unless the human body is kept in smooth trim and in an overall fit condition, even the brain will refuse to co-operate after some time.

Explosive strength is a specific motor ability. The explosive strength performance is always combined 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.

Agility is a common term used in strength and conditioning and is often considered an essential element of many sports and activities. However, individuals involved in the development and improvement of sports performance often regard agility as a locomotors skill whereby an athlete changes direction. This type of movement is frequently observed in most field and court sports such as soccer, basketball, football, and volleyball. Agility is defined as an ability to change the direction quickly and rapidly.

Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. 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.

Basketball is an extremely popular game, played in all parts of the world and at every conceivable level. Basketball requires that an athlete have coordination 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

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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 minimized and optimum results obtained.

In many sports, performance depends on the ability of the player to generate the force rapidly. In volleyball and basketball, this is particularly prominent in those technical-tactical elements which gain most points in a game. Volleyball and Basketball are remarkable level of popularity all over the world with both men and women. Both games are multifaceted team sport that requires well-developed physical fitness to be played successfully. The agility and explosive strength are one of the important factors in physical fitness of both volleyball and basketball players which determine their performance level. Hence, it is thought worthwhile to compare the status of agility and explosive strength of college level volleyball and basketball players.

**Statement of the proposed problem**

The purpose of the study was to compare the agility and explosive strength of college level basketball players and volleyball players.

**Delimitations**

The following were delimitations of study:-

1. The subjects were college level male volleyball players and basketball players from Christ College, irinjalakuda and Sree Sankaracharya University of Sanskrit, kalady.
2. In this study 10 basketball players and 10 volleyball players were selected.
3. The age group of the subjects was 17-24.

**Limitations**

The following were limitations of the study:-

1. Performance level while testing may have been influenced by the environmental condition and dietary habits of subjects.
2. Psychological factors may have been influenced during the administration of test.
3. Performance level while testing may have been influenced by the injuries or illness.

**Hypothesis**

On the basis of the literature reviewed, it was hypothesized that there would be significant difference in agility and explosive strength among volleyball players and basketball players.

**Significance of the study**

The study was significant in the following were:-

1. The study helps to understand the level of agility and explosive strength of the college level volleyball players and basketball players.
2. It may help to understand the importance of agility and explosive strength in volleyball and basketball games.
3. It may help to motivate the players to improve their agility and explosive strength for the better performance.

**Methodology**

This chapter describes that the methodology and procedure adopted. Precisely this including the selections of subjects, selection of variables, collection of data, experimental design, orientation of subjects, administration of the test, tester reliability and the statistical technique.

**Selection of subjects**

Ten male volleyball players and ten male basketball players from Ernakulam and Thrissur districts. The selected subjects were studying at Christ College Irinjalakuda, Thrissur and Sree Sankaracharya university of Sanskrit, Kalady, Ernakulam.

**Selection of Variables**

The variables selected for the study were:-

- Agility
- Explosive strength

**Experimental design**

The experimental design was ‘double group’ design; one group was 10 basketball players and another group was 10 volleyball players.

**Test items**

The test items to assess the agility and explosive strength were:-

- Shuttle run (to assess agility)
- Standing broad jump (to assess explosive strength)

**Collection of Data**

The necessary data were collected by administering the test for the chosen variable. All the tests were administrated in the Christ College Irinjalakuda, Thrissur and Sree Sankaracharya University of Sanskrit Kalady, Ernakulam.

**Statistical Techniques**

The study was about the comparison of two variables among college level basketball and volleyball players. So the independent T-test was used to interpret the result. To compare the significance of difference, the level of significance chosen was 0.05.

**Findings**

The findings pertaining to the selected variables that were agility and explosive strength were presented in Tables below.

**Computation of mean, standard deviation and t-ratio of agility performance on basketball players and volleyball players**

Variable	Groups	N	Mean	S.D	t-ratio
Agility	Basketball players	10	10.546	0.145	2.255
	Volleyball players	10	10.879	0.102	

\*0.05 level of significance, degree of freedom = 18, value = 2.101

Required table value at 0.05 level of 2.101 for 18 degree of freedom

M1	M2	t-ratio	Degree of freedom	Significant level, 0.05
10.546	10.879	2.255	18	2.101

**T-ratio of agility of basketball players and volleyball players**

Tables shows that the mean (M1) agility of basketball players was 10.546 and the mean (M2) agility of volleyball players was 10.879. The obtained value of t-ratio was 2.255. The required value to show significant difference between the groups at 0.05 levels is 2.101. Since the obtained value is greater than the required value. There is significant difference found between two groups in their agility.

### Computation of mean, standard deviation and t-ratio of explosive strength performance on basketball players and volleyball players

Variable	Groups	N	Mean	S.D	t-ratio
Explosive strength	Basketball players	10	2.277	0.046	0.949
	Volleyball players	10	2.308	0.092	

\*0.05 level of significance, degree of freedom = 18, value = 2.101  
Required table value at 0.05 level of 2.101 for 18 degree of freedom

### T-ratio of explosive strength of basketball players and volleyball players

M1	M2	t-ratio	Degree of freedom	Significant level, 0.05
2.277	2.308	0.949	18	2.101

Table's shows that the mean (M1) explosive strength of basketball players was 2.277 and the volleyball players (M2) were 2.308. The obtained value of t-ratio was 0.949. The required value to show significant difference between the groups at 0.05 levels is 2.101. Since the obtained value is greater than the required value. There is significant difference between two groups in their explosive strength.

### Discussion of Findings

The result of the study shows that there was significant difference in agility and explosive strength between the basketball players and volleyball players. The basketball players [M1] had more agility than the volleyball players [M2], i.e. [M1=10.546] [M2=10.879]. The explosive strength of volleyball [M2] had more than the basketball players [M1], i.e. [M1=2.277] [M2=2.308]. The importance of agility and explosive strength is very much required in basketball and volleyball games.

### Discussion of Hypothesis

The study was based on the Hypothesis that, there would be significant difference in agility and explosive strength among college level basketball players and volleyball players was accepted. The basketball players had more agility than the volleyball players and volleyball players had more explosive strength than the basketball players.

### Summary

The study was to compare the agility and explosive strength of college level basketball players and volleyball players. The subjects of the study were 20 students from Christ College Irinjalakuda and Sree Sankaracharya University of Sanskrit Kalady. 10 basketball players and 10 volleyball players were chosen as subjects. All the subjects were tested in the selected variables such as, agility and explosive strength.

Administering the appropriate tests and measurement procedure collected the data pertaining to selected variables. For the assessment of the selected variables among college level basketball players and volleyball players, the descriptive statistics such as mean, standard deviation were employed. To compare and analysis of collected data for the selected variables, independent 't' ratio were computed.

### Conclusions

From the above analysis of research findings, discussion and within the limitations of the study the following conclusion

may be drawn.

1. There was significant difference in agility and explosive strength among college level basketball players and volleyball players.
2. The basketball players have more agility than the volleyball players.
3. The basketball players have less explosive strength than the volleyball players.

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