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Comparative study on arm and leg explosive power between volleyball and basketball players

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Abstract
The purpose of the study was to find out the Arm and leg explosive power between Volleyball and Basketball players at college level. To achieve the purpose of this study, the investigator randomly selected 40 men Volleyball and Basketball players each consist of 20 players from Bharathiar University affiliated Colleges, Coimbatore district. The selected subjects age ranged between 18 to 24 years. A repeated measure single group research method was followed for this research. Before conducting the tests, the investigator informed the subjects the purpose of the study to get maximum co-operation from the subjects. The tests were explained and demonstration and constant orientation was employed throughout the periods of investigator. The Arm explosive power was measured by six pound medicine ball put and leg explosive power was measured by using vertical jump. In this study the collected data was analyzed by descriptive and independent't' test. In all the cases, 0.05 level of significance was fixed to test the significance was considered as appropriate.

Keywords: Arm explosive power, leg explosive power and volleyball and basketball

Introduction
The word 'Sport' is derived from two words _Dis' and _ porter' meaning —carrying away from work‖, two points out such recreational activities which are relaxing in nature and it is for the sake of seeking only. Basically sports are individual activities born out of nature urges for movement. Sports are part are parcel of human as well as animal life. In the modern times, it has now become an integral part of education process and social activities, millions of sports fans participate in sports for fun adventure, health, physical fitness and financial benefits linked with a high degree of popularity.

Volleyball
The game Volleyball was invented by William G. Morgan in the year 1895 at YMCA, Holyoke (Massachusetts), USA. Initially Morgan introduced this game by the name Mintonette''. The game was mainly developed as a competitive recreational game for old people, as it was less violent and less intense. He developed it from his own sports training methods and his practical experience at Y.M.C.A, gymnasium.

Basketball
Basketball is a very physically demanding sport… Muscle strength important in basketball because while gaining strength, speed and endurance you are also tendon and ligaments which will reduce the changes of injuries, such as sprain and tears. One of the main benefits of strengthening your core is increased balance and stability. A strong core consists of muscles that work together in coordination to stabilize and support your body. Having strong core stabilizers enables you to maximize strength in your arms and legs.

Arm Explosive Power
According to Arm Explosive Power was the ability to release maximum muscular force in the shortest possible time, a sin executing a Six Pound Medicine Ball Put

Leg Explosive Power

It is a combination of strength and speed abilities. It can be defined as the ability to overcome resistance with high speed. Depending on the nature of combination of speed the explosive strength can be further sub divided into start strength, Strength speed (power) and speed strength, start strength is the ability to develop maximal muscle force during the starting phase of the movement sprint, start, weight lifting etc. Strength speed is the ability to overcome heavy resistance with high speed e.g team games, compact sports (lower weight categories). The explosive strength is of different nature in cyclic and acyclic movements. Explosive strength always finds expression in motor movement. It is a form of dynamic strength explosive strength performance.

Objective of study

To find out the Arm and leg explosive power between Volleyball and Basketball players at college level

Hypothesis

- It was hypothesized that there would be a significant difference in Arm explosive Power between volleyball and basketball Players.
- It was hypothesized that there would be a significant difference in leg explosive Power between volleyball and basketball Players.

Samples

40 men Volleyball and Basketball players each consist of 20 players from Bharathiar University affiliated Colleges, Coimbatore district. The selected subjects age ranged between 18 to 24 years.

Dependent variables

1. Arm Explosive Power
2. Leg Explosive Power

Independent variables

1. Volleyball Players
2. Basketball Players.

Experimental design

A repeated measure single group research method was followed for this research. Randomly selected 40 men Volleyball players and Basketball player from Bharathiar University affiliated colleges, Coimbatore district only subject were assed Arm explosive power measured by medicine ball throw and leg explosive power measured by vertical jump.

Table 1: Criterionmesures

S.no	Variables	Equipment/test	Unit of Measurement
1.	Arm Explosive Power	Six Pound Medicine ball Put	Meters
2.	Leg Explosive power	Vertical jump	Centimeter

Scoring

The distance between the stand mark line and jump mark line by centimeter.

The maximum distance (among all the trial) between the reaching height provide the score of the test. However, to get the power in foot-pound units, the above distance is multiplied by the subject‘s body weight. But majority of testers routinely use directly the distance jumped irrespective of body weight as the score of test.

Table 2: Shows independent_t -value on arm explosive power variable between volleyball and basketball players (scores in meters)

Variable	Subjects	N	Mean	SD	T - value
Arm explosive power	Volleyball players	20	5.54	0.49	3.31*
	Basketball players	20	6.13	0.63	

*Significant at 0.05 level df (1.38) =2.03.

From table 2, it is understood that the obtained `t‘ value on Arm explosive Power is 3.31, which is greater than the required table value of 2.03 at 0.05 level of significance. It shows that there was a significant difference in Arm explosive Power between the Volleyball and Basketball Players.

By observing the mean value, Basketball players have high arm explosive power when compared with volley ball players

Table 3: Shows independent t- value on leg explosive power variables between volleyball and basketball players (Scores in centimeters)

Variable	Subjects	N	Mean	SD	T - value
Leg explosive power	Volleyball players	20	51.70	5.88	5.74*
	Basketball players	20	63.20	6.75	

*Significant at 0.05 level df (1.38) =2.03

From table 3, it is understood that the obtained `t‘ value on Leg explosive Power 5.74 was greater than the required table value of 2.03 at 0.05 level of significance. It shows that there was a significant difference in Leg explosive Power between the Volleyball and Basketball Players.

By observing the mean value, the basketball players have more Leg explosive power than the volleyball players.

Discussions on Findings

The result of the study indicates that there was significant difference on Arm and leg explosive Power between volleyball and Basketball Players

Discussions on Hypotheses

It was hypothesized that there would be a significant difference in Arm explosive Power between volleyball and Basketball Players. From the result of this study that there was significant difference in Arm explosive Power between volleyball and Basketball Players. Hence the research hypothesis was accepted at 0.05 levels of significance.

It was hypothesized that there would be a significant difference in leg explosive Power between volleyball and Basketball Players. From the result of this study that there was a significant difference in leg explosive Power between volleyball and Basketball Players. Hence the research hypothesis was accepted.

Conclusions

The results show that there was a significant difference in Arm explosive Power between the Volleyball and Basketball Players. The Basketball Players had more Arm explosive Power than Volleyball Players.

The results show that there was a significant difference in Leg explosive Power between the Volleyball and Basketball Players. The Basketball Players had more Leg explosive Power than Volleyball Players.

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