



International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

Assessment of agility among amateur Volleyball and Basketball players

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Abstract

In Volleyball and Basketball Agility is most important movement for attacking as well as defensive players. The aim of the study to examine the performance of volleyball and basketball players on agility test. Both the games requires a high degree of running manoeuvre agility and total body agility so that players is able to gain good court position and compete with her/her opponents on both offensive and defensive manoeuvres. Total 60 Young amateur Volleyball and Basketball Players having age group between 18-30 years and who fulfil the criteria were taken for study. They were assessed for agility by T-Test. The results shows that Basketball players have agility mean (10.94) which fall into Good Category. And Volleyball players also have agility mean (10.78) which shows players falling into Good Category (10.5-11.0). Also there was no significant difference on agility between volleyball and basketball players. Moreover it concluded that female volleyball and basketball players have better agility skills than male players.

Key words: Agility, Basketball, T-test, Volleyball.

Introduction

Each sport likely requires different levels of sensorimotor processes to perform skills and protect the neuromuscular system from injury..¹

Basketball players often perform upper extremity passing, shooting, and dribbling skills while wearing shoes on flat, stiff surfaces. Their skills require great joint acceleration and cutting maneuvers.² Volleyball players also exposes to a variety of movements such as speeding jumps and leaps, forearm pass, overhead pass, spike, block, dig, dink and serve.³

543 | Received: 8 February Revised: 17 February Accepted: 24 February

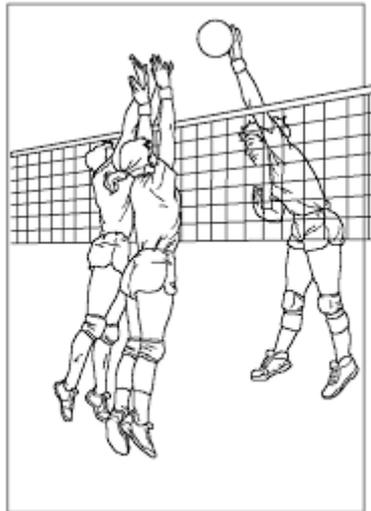
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March 2019 Volume 9 Number 3

UGC Approved Journal



Volleyball



The movements of Volleyball are a complex combination of agility, and finesse. Each of these components is comprised of intricate, small movements, the summation of which are coordinated acts of striking the volleyball in a desired fashion. Due to the many aspects related to the biomechanics of volleyball, not every strike of the ball is perfect. Many times, mistakes made by athletes are due to the impossibility of executing hundreds of tiny movements perfectly every single time.

The jump serve requires an approach, jump, as well as shoulder and arm motion all working together to strike the ball at the right time in the proper manner. The list of muscles involved in these movements is very long. Among them are the quadriceps and hamstrings in the legs, deltoids in the shoulders, and triceps, biceps, and the muscles of the hand and forearm. ⁴

Leg muscles are the foundation of volleyball. There is recruitment of all of them at one point or another during the game. Calves, quadriceps, hamstrings, glutes and hip flexors are all essential for running, but they also play a vital part in quick, explosive jumps. Strong leg muscles give the power which is required for elevation during jumps for effective jump serves, setting, spiking and blocking.

Upper body is where a lot of essential volleyball action happens. Biceps and forearms engage to move the arms during any ball-hitting action like the serve or receiving, setting, passing and spiking. Chest engages during forceful forward and upward arm movements. With the full range of motion, the arms go through in a game, the fact that there is engagement of shoulder muscles is no surprise. They even work with the back muscles to keep arms from moving back when blocking a ball. Strong back muscles, such as the scapular stabilizers around shoulder blades, help with arm movement and stabilization, and the latissimus dorsi muscles, which run down the back from just below the shoulder blades till the waist, are useful for stabilizing in addition to moving the upper body. ⁵



Basketball



Leg muscles are critical for playing basketball. Guards can improve their explosiveness and have a quicker first step by strengthening their calves, hamstrings and quads. Leg muscles are also important when shooting a basketball. Strong thigh muscles provide the boost needed to power a player off the ground and allow him to shoot the ball with proper technique. The calves are critical for rebounding, as they provide the initial spring that lifts the toes off the ground.

The upper-body muscles are used in basketball to shoot the ball along with providing strength to fight through players to get rebounds or absorb contact when driving to the basket. The shoulder, chest, biceps and triceps are all muscle areas that basketball players use during play. The triceps are a critical muscle when shooting long-range baskets such as three-pointers. Building triceps muscles helps players who shoot well from close distances but struggle with deep shooting.





In Volleyball and Basketball Jumping Agility is also a most important movement for attacking as well as defensive players. In case of volleyball in the row must be blocking position ready to jump or move each time the opponent touches the ball. In the time of attack horizontal and diagonal footwork normally fills this position and simultaneously a vertical jump also needed to obstructed or defense the ball which is passed by the opponents. On the other hand, in basketball also any type of attack or lay-up shot horizontal and diagonal footwork are needed and simultaneously a vertical jump is required to push up the ball towers the basket. The game of volleyball and basketball required agility, which influence the performance of the game. That is why it is important to compare of agility between volleyball and basketball players. ¹⁴ To compare the Agility between Volleyball and Basketball T-Test was administered. The interclass reliability of T Test is 0.98.

Suman Mondal, Biswabandhu Nayek and Dr. Kallol Chatterjee (2016) has studied "A comparative study on strength, agility and dynamic balances between volleyball and basketball players". and concluded that "To compare the Strength, Agility and Dynamic balances between Volleyball and Basketball Vertical jump test (sargent jump), Semo agility test and Modified Bass test was administrated to the subject. The result of the study showed that there was significant difference on Strength, Agility and Dynamic balances ($t = 0.136$, $p > 0.05$) between volleyball and basketball players' . .

To understand how players from volleyball and basketball perform on agility test since both the games requires a high degree of running maneuverability total body agility so that players is able to gain good court position and compete with her/her opponents on both offensive and defensive maneuvers. The need of the study was to suggest some guidelines to the concerned professionals in context of assessing, classifying and understanding the level of performance in volleyball and basketball players. So the aim of the study was focused to examine agility amongst Volleyball and Basketball players.

Method

The ethical approval was taken from the committee and the subjects who fulfilled the criteria were taken for study. The aim of the study was explained to the subjects and the preformed consent (Appendix-I) was taken from them. They were assessed for agility by T-Test. The cross sectional study was done at Campus of Dr. D. Y. Patil Vidyapeeth ,Pune. Total 60 Amateur Young (18-30) Volleyball and Basketball Players selected in the study on the basis of inclusion and exclusion criteria. Players with the Age group between 18-30 years, who have History of being a player at least from last one year and who Plays sports minimum one hour per day (5 days per week) were included in study. The players with current injury to the upper extremity or lower extremity, Any degenerative, inflammatory, musculoskeletal, or neuromuscular Conditions in the upper extremity or lower extremity and Subjects with Cardio respiratory insufficiency were excluded form the study. Materials required were Cones, Whistle, Stop watch, and Flat surface.

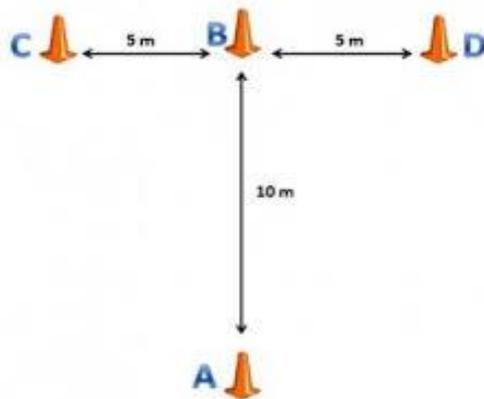


Agility T-Test:

Specific Purpose:

The T-Test is a test of agility for athletes, and includes forward, lateral, and backward running. The T-Test is an effective way for coaches to assess their players' ability to change direction at speed.

Equipment and Materials: The equipment needed for the T-test was 4 cones, a timer, and a tape measure to measure the distances between each cone. There are several techniques/skills that need to be learned in order to participate in this test. First the person must know how to run in a forward and backwards direction. The first part of the T-test requires forward running and the last section of the test requires backwards running. A second skill the participant needs to know is how to shuffle from side to side. The middle part of this test requires that the participant shuffle to the left and right in order to touch the outside cones.



Instructions/Procedures:

For the person administering the test, four cones should be set up in the shape of a "T". Cone A and B should be set up 10 yards (9.14 m) apart from each other. Cones B and C should be set up 5 yards (4.57m) apart from each other. Cones B and D should be set up 5 yards (4.57 m) from each other as well. The subject starts at cone A. On the command of the timer, the subject sprints to cone B and touches the base of the cone with their right hand. They then move left and shuffle sideways to cone C, and also touches its base, this time with their left hand. Then shuffling sideways to the right to cone D and touching the base with the right hand. They then shuffle back to cone B touching with the left hand, and run backwards to cone A. The stopwatch is stopped as they pass cone A.



Scoring Procedures:

Scoring Procedures are based on time. The individual completes the test and receives a score in seconds. From this score we were able to rank the individual as poor, average, good, and excellent. The trial didn't count if the subject failed to touch the base of the cone or crossed one foot in front of the other while shuffling.

Standards:

	Males (Seconds)	Females(seconds)
Excellent	<9.5	<10.5
Good	9.5-10.5	10.5-11.5
Average	10.5-11.5	11.5-12.5
Poor	>11.5	>12.5

Results

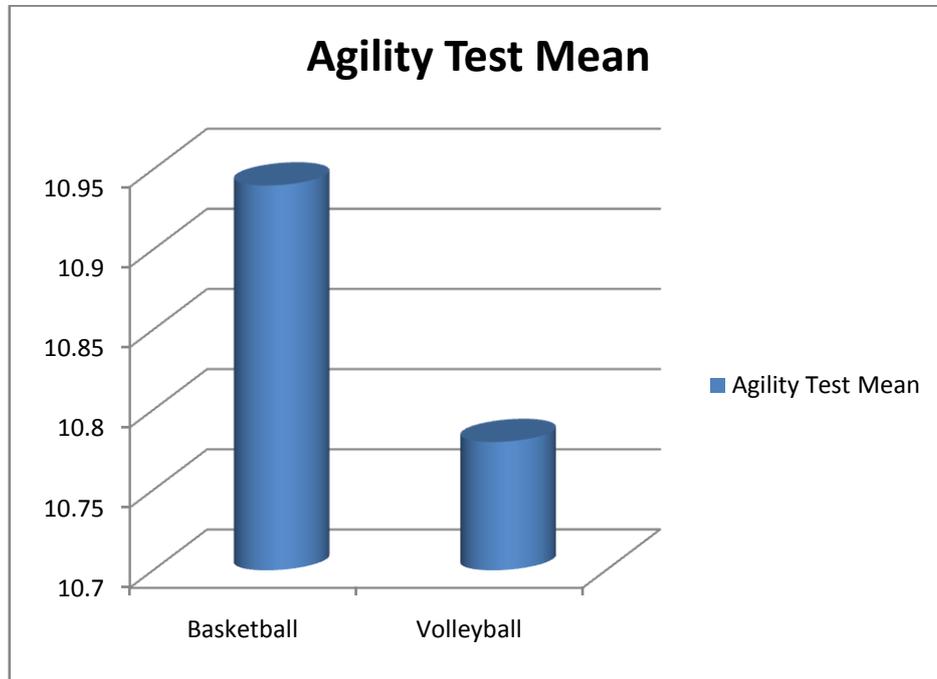
The study consists Of 60 Sample which has 60 players,30 From Basketball And 30 from Volleyball which comprise 48 female and 12 male players who were assessed on Agility T test. Agility T Test Shows Most of The players Falling Into 'Good' Category.

Table 1: The comparison of mean of Agility Skill Of Basketball and Volleyball Players On Agility T Test.

Agility Test		P Value
Sport	Mean	0.473
Basketball Players	10.94	
Volleyball Players	10.78	



Graph 1: The comparison of Agility Skills On Agility T Test.



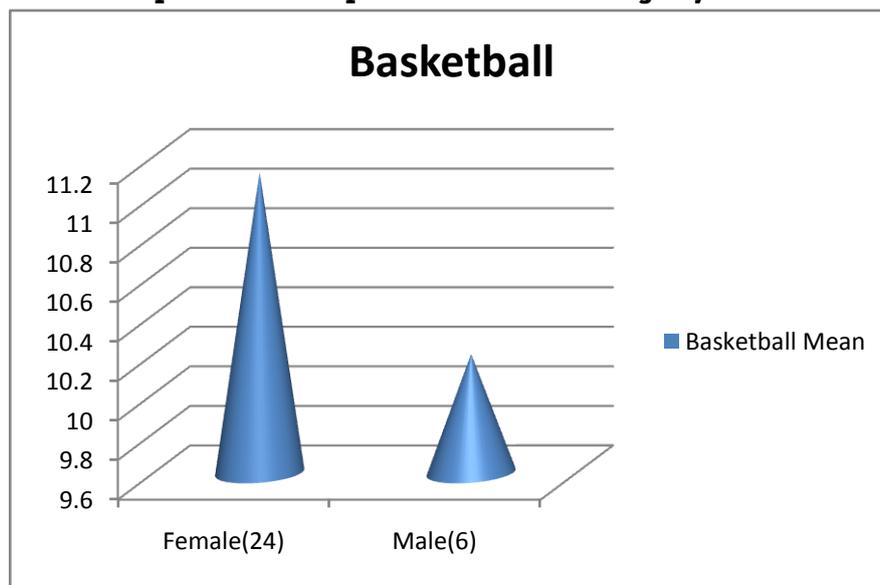
The comparison of mean of Agility Skill Of Basketball and Volleyball Players On Agility T Test where $p = 0.473$ So the test is not significant as $p > 0.05$.



Table 2: The comparison of means of Agility Skill Of Basketball Male and Female Players On Agility T Test.

Agility T Test Basketball Players			P Value
Gender	Mean	SD	0.029
Female(24)	11.12	0.9185	
Male(6)	10.2	0.7014	

Graph 2: The Comparison Of Means of Agility T Test



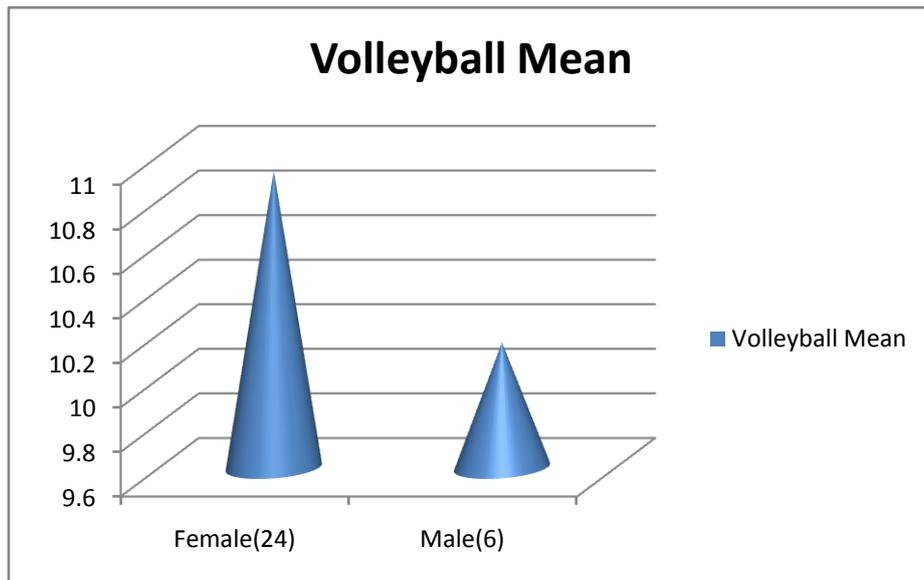
The Comparison Of Mean of Agility T Test among Female And Male Basketball Players where $p = 0.029$ So the test is significant as $p < 0.05$.



Table 3: The comparison of means of Agility Skills Of Volleyball Male and Female Players On Agility T Test

Agility T Test			P value
Volleyball Players			
Gender	Mean	SD	0.013
Female(24)	10.93	0.6233	
Male(6)	10.16	0.8091	

Graph 3: The Comparison Of Means of Agility T Test



The Comparison Of Mean of Agility T Test among Female And Male Volleyball Players where $p = 0.013$ So the test is significant as $p < 0.05$.



Discussion

The present study examined the Agility amongst volleyball players and basketball players, as these abilities are considered critical to success in both the sports. In this , the study has been conducted on amateur players who lacks efficient training to improve agility. Amateur players are not consistent with the hours of play and almost end up playing the game without any prior conditioning. This in consequence result in no significant differences amongst players of both the sports and in amongst each other.

There was no significant difference on agility between volleyball and basketball players. In Both the sports this components is omnipotent and both case moves are more over same so the researcher thinks that's why this present study find no significant difference between volleyball and basketball.

In Volleyball and basketball horizontal and diagonal movement with jump or horizontal jump and agility are there and both the sport players need quality of agility. Both the games requires a high degree of running maneuverability total body agility so that the players is able to gain good court position and compete with his /her opponents on both offensive and defensive maneuvers. Also, it requires fast acceleration in order to be able to sprint to advantageous position while attacking and counter- attacking.

A study done by Dr. Sadashiv Kotyal On' Comparison of agility volleyball and basketball players' In International Journal Of Physical Education, Sports And Health concluded that there was no significant difference on agility between volleyball and basketball players.

As we have seen that Graph 1 shows the comparison of mean of Agility Skill Of Basketball and Volleyball Players On Agility T Test where $p = 0.473$ So the test is not significant as $p > 0.05$ but it reveals that Agility of Basketball player(10.94) was higher than volley ball player(10.74). Therefore, the difference occurs between the basketball and volleyball players in comparison to agility due to the basketball players move continuously in the court for attacking and defense but in the case of volleyball players move less and so have less agility in relation to the basketball players.

In Graph 2 and 3: In Agility Test when stratified by Gender shows significant (P-value = 0.02954) difference in Basketball players with females showing better agility than males. At The same time Amongst Volleyball players there's a significant difference (P-value = 0.01318) with female players showing better performance. This could be because of innate characteristics determined by genetics and hormones. These include height, weight, muscle mass, body fat and aerobic capacity.



Conclusion

This Study concludes that Basketball players has agility average score of 10.9 which falls into Good Category and Volleyball players also falls into Good Category as agility average score is 10.78 .

Also there was no significant difference on agility between volleyball and basketball players. Moreover it concluded that female volleyball and basketball players have better agility skills than male players.

Limitation

Amateur Players Only from single Campus were assessed.

Future scope

In Future research, studies can be carried out among qualified players to assess their skills, differences from players of other sports and further training can be done on that basis for better performance.

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International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

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