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A comparative study on strength, agility and dynamic balances between volleyball and basketball players

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Abstract

The purpose of this study is to compare Strength ability, Agility and Dynamic balances between Volleyball and Basketball players. For the purpose of the study total 40 players (20 Volleyball and 20 Basketball players) were selected randomly from Tensen Athletic club of Durgapur. 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 age of the subject was between 15-17 years. The collected data was analysed using independent 't' ratio to find out the significant difference between volleyball and basketball players. 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.

Keywords: Volleyball, Basketball, Strength, Agility and Dynamic balances

Introduction

Modern life is now stiffly comparative. To lead a prosperous and fruitful life everyone has to fight against heavy odds in every sphere and stages of life. The field of games and sports is no exception. In this field a sportsman has to against the opponent, environment condition and against himself and thus he can reach at the top and still he has to continue his work to remain at the helm for a long period. Evaluation goes on, those who prove themselves fitter in the struggle for existence and adaptation, remain and those who could not were subjected to extinction.

A comprehensive fitness program tailored to an individual typically focuses on one or more specific skills, and on age- or health-related needs such as bone health. Many sources also cite mental, social and emotional health as an important part of overall fitness. This is often presented in textbooks as a triangle made up of three points, which represent physical, emotional, and mental fitness. Physical fitness can also prevent or treat many chronic health conditions brought on by unhealthy lifestyle or aging. Working out can also help people sleep better. To stay healthy it is important to engage in physical activity.

The phenomenon testing of athletes has always been a popular endeavor. There are numerous factors which are responsible for the performance of a sportsman. Performance in any game or sports not only depends on physiological, psychological, sociological and scientific training factor but also depends on good physique, Anthropometry, body composition, endurance, flexibility, good reaction time, co-ordination, agility, speed, strength and good body balance.

Strength is one of the main fitness components important for success in many sports. Certain sports, such as weight lifting, wrestling and weight throwing, it is the most important physical attribute. In many other sports, including team sports like rugby, Volleyball, Basketball good strength is also very important as part of the overall fitness profile.

Strength is the property of being physically strong (you can do, say, 100 push-ups) or mentally strong (you can calculate percentages in your head while people are shouting at you). Strength has several shades of meaning. The strength of something can be the measure of how much force or pressure it can withstand over time (like a flood wall). Or its potency (like a pesticide). Or its intensity level (like a radio signal). Its fighting capabilities (like an army). Or its speciality: A chameleon's strength is actually in its ability to blend in with its surroundings.

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Agility is the ability to be quick and graceful. You might have agility on the basketball court or in the courtroom, or even with your gaming remote. The noun agility can be used for both mental and physical skills in speed and grace. Your mental agility might allow you to follow both conversations at once.

In sports agility is often defined in terms of an individual sport, due to it being an integration of many components each used differently (specific to all of sorts of different sports). Sheppard and Young (2006) defined agility as a "rapid whole body movement with change of velocity or direction in response to a stimulus".

Agility is also an important attribute in many role playing games both computer games and pen-and-paper or tabletop games such as Dungeons and Dragons. Agility may affect the character's ability to evade an enemy's attack or land their own, move more quickly, navigate uneven terrain, or engage in stealthy activities such as lock picking or pick pocketing.

Dynamic balance (aeronautics) the state of equilibrium in which centrifugal forces due to a rotating mass (e.g., a propeller) do not produce force in the shaft and so vibration is reduced.

Dynamic balance is the branch of mechanics that is concerned

with the effects of forces on the motion of a body or system of bodies, especially of forces that do not originate within the system itself.

Statement of the problem

The main purpose of the study was to compare the Strength ability, Agility and Dynamic balances between Volleyball and Basketball players.

Methodology

For the purpose of the study total 40 player (20 Volleyball and 20 Basketball players) were selected randomly from Tensen Athletic club of Durgapur. 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 age of the subject was between 15-17 years. The variables of the study were Strength, Agility and Dynamic balances. 't' Test was applied to calculate the collected data at 0.05 level of significances.

Finding

Table 1: Mean, Standard deviation and t-ratio of Strength ability between Volleyball and Basketball players

variable	Source of variance	Mean	Standard Deviation	't' -Ratio
Strength ability	Volleyball players	0.473	0.071	2.455*
	Basketball Players	0.527	0.045	

*= Significance at 0.05 level of confidence, $t_{0.05}(38) = 2.086$

From the above Table – 1 it is clearly evidence that the calculated 't' value (2.455) is greater than tabulated 't' value (2.086), so we can say that significant difference is observed between Volleyball and Basketball players in respect of

Vertical jump test (sargent jump). Table - 1 also shows that the Basketball players have higher level of Strength ability in compared to Volleyball players.

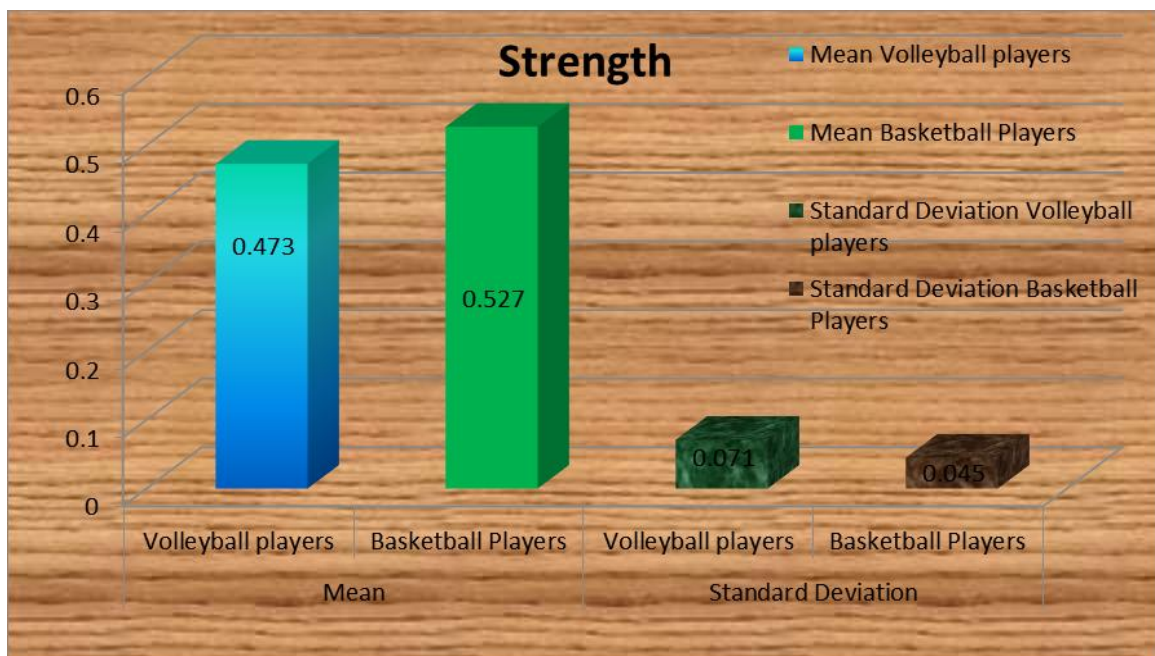


Fig 1: Mean and Standard Deviation of Strength of Volleyball and Basketball players.

Table 2: Significant of Mean, Standard deviation and t-ratio of Agility between Volleyball and Basketball players

variable	Source of variance	Mean	Standard Deviation	't' -Ratio
Agility	Volleyball players	13.92	0.613	4.271*
	Basketball Players	13.10	0.488	

*= Significance at 0.05 level of confidence, $t_{0.05}(38) = 2.086$

From the above Table – 2 it is clearly evidence that the calculated ‘t’ value (4.271) is greater than tabulated ‘t’ value (2.086), so we can say that significant difference is observed

between Volleyball and Basketball players in respect of Semo agility test. Table-2 also shows that the Basketball players have higher level of agility in compared to Volleyball players.

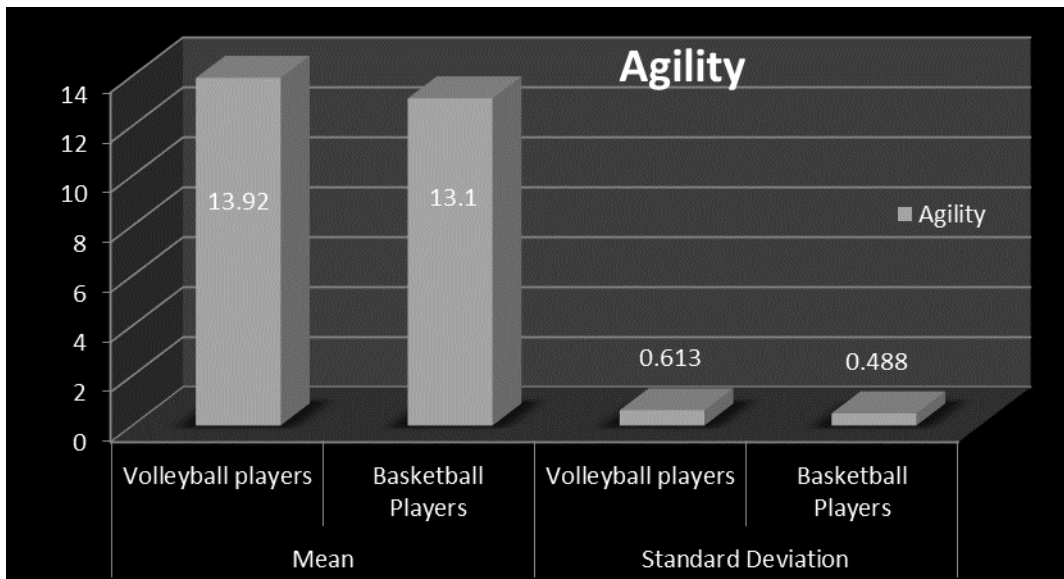


Fig 2: Mean and Standard Deviation of agility test of Volleyball and Basketball players.

Table 3: Significant of Mean, Standard deviation and t-ratio of Dynamic balances between Volleyball and Basketball players

variable	Source of variance	Mean	Standard Deviation	‘t’ -Ratio
Dynamic Balances	Volleyball players	56.48	5.45	2.628*
	Basketball Players	51.96	5.16	

*= Significance at 0.05 level of confidence, $t_{0.05}(38)=2.086$

From the above Table – 3 it is clearly evidence that the calculated ‘t’ value (2.628) is greater than tabulated ‘t’ value (2.086), so we can say that significant difference is observed between Volleyball and Basketball players in respect of

Modified Bass test. Table-3 also shows that the Volleyball players have higher level of Dynamic balances in compared to Basketball players.

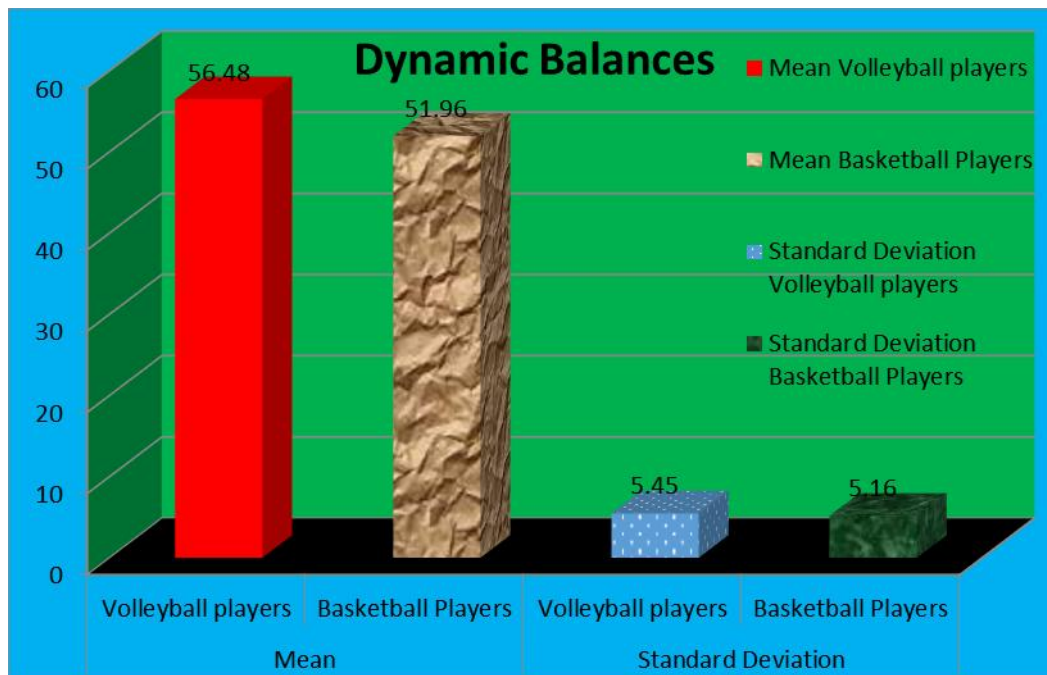


Fig 3: Mean and Standard Deviation of Dynamic Balances of Volleyball and Basketball players.

Discussion

Table- 1 reveals that strength ability of Basketball player (0.527) was higher than volley ball player (0.473), Table- 2 reveals that the Agility of Basketball player (13.10) was

higher than volleyball player (13.92), Table- 3 reveals that Dynamic Balances of Volleyball player (56.48.) was higher than Basketball players (51.96), The result may be due to more involvement in more labour intensive activity of

Volleyball players than Basketball players.

The result shows that the strength of Basketball players was better than the Volleyball players. The Basketball players are having the better Strength i.e. 0.527 compare to the Volleyball players are 0.473 and there is a difference .054. From the table -1 it is shows that statistically significant difference exists at 0.05 level of confidence between Basketball players and Volleyball players in respect of Strength. The possible reason could be explained in terms of nature and skills of the game. The game Basketball is actively involved in skills like quick jump blocking, jumping service, quick jump smashing etc. Hence, it is attributed this different types of skills as mentioned above, the basketball players are the superior than their counterpart of volleyball players.

The result shows that the Agility of Basketball players was better than the Volleyball players. The Basketball players are having the better Agility i.e. 13.10sec compare to the Volleyball players are 13.92sec and there is a difference 0.82sec. From the table -2 it is shows that statistically significant difference exists at 0.05 level of confidence between Basketball players and Volleyball players in respect of Agility. It is revealed that the male basketball players were more agile in comparison to the male volleyball players. Therefore, the difference occurs between the male basketball and volleyball players in comparison to agility due to the basketball players move continuously in the court for attacking and defence but in the case of volleyball players move less and so have less agility in relation to the male basketball players. The above results are supported by (Vishnu Datt and Dr. Manohar Mane, 2013).

The result shows that the Dynamic balances of Volleyball players were better than the basketball players. The Volleyball players are having the better Dynamic balances i.e. 56.48compare to the Basketball players are 51.96 and there is a difference 4.52. From the table -3 it is shows that statistically significant difference exists at 0.05 level of confidence between Basketball players and Volleyball players in respect of Dynamic balances

Evidence suggests that the improvement in joint proprioception after skill training and learning to pay attention to biomechanical cues (e.g., joint acceleration) may be one of the mechanisms for this change. Sports training improves neuromuscular coordination, range of motion (ROM) and joint strength, are also likely mechanisms that lead to improved balance. Ground reaction force of soccer players and volleyball players for some skill maneuvers may be greater compared with Basketball players. Hence, balance scores difference among players in this study may be due to differences in joint strength. volleyball is an invasive game wherein the players requires more of dynamic balance in order to change direction. Volleyball player must make rapid changes of direction constantly throughout the game to hit the ball. Volleyball required high muscular endurance in both upper and lower body, as the player has to make high intensity intermittent sprints throughout the game. There is requirement of good dynamic balance during the sequence of passing, setting, spiking and blocking in volleyball. Although such an action is less seen in Basketball players. The above factors justify the reason for the significant difference in the dynamic balance the three different sports players where volleyball have superior dynamic balance Basketball players.

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