



**A COMPARATIVE STUDY ON SELECTED FITNESS COMPONENTS OF 13-19
YEARS FEMALE BASKETBALL AND VOLLEYBALL PLAYERS**

Piyali Mishra , Research Scholar. Department of physical Education, University of Kalyani, India.

Provash Das, Research Scholar. Department of physical Education, University of Kalyani, India.

Abstract

The Word 'Sport' comes from the old French word called Desport which means "Leisure", but this word has changed its connotation with the passing time. Now sports are no longer believed to be practiced only in leisure time. Today they are one of the major parameters to judge a country's development and growth and are fast becoming great career options for the future generations. The purpose of the study is to observe the Difference in Hand - Eye Co-Ordination, Accuracy, Agility Hand Explosive Strength, and Leg Explosive Strength between Female Basketball Players & Volleyball Players. A total of Twenty Two (22) Female subjects were selected for this study. Out of them 11 were from Basketball, 11 were from Volleyball. The ages of the subjects were 13-19 years old. Selected Fitness Components of the subjects were the criterion measure for the present study. Selected Fitness Components were: This included- leg Explosive Strength, Hand Explosive Strength, Hand Eye Coordination, Agility and Accuracy. The leg Explosive Strength was measured by Vertical jump. Hand Explosive Strength was measured by putting the Shot. Hand Eye Coordination was measured by Rebound Ball Test. Accuracy was measured by Accuracy test. Agility was measured by (4x10 mts.) Shuttle Run. In respect of Accuracy, Agility, Hand Explosive Strength, leg Explosive Strength, there were no significant difference Between Female Basketball and Volleyball Group. In respect of Hand – Eye coordination Female group of Basketball players were better than the volleyball players of Female group.

Keywords: *basketball, volleyball, fitness, female*

INTRODUCTION

The Word 'Sport' comes from the old French word called Desport which means "Leisure", but this word has changed its connotation with the passing time. Now sports are no longer believed to be practiced only in leisure time. Today they are one of the major parameters to judge a country's development and growth and are fast becoming great career options for the future generations. The motto of sports especially in the internationally meets is to bring and preach peace and unity among the nations and the prestige and honor of a country depend mainly on the behavior, culture and dignity of its sports persons. Today sports are becoming professional; players are earning a lot through games and sports. Sports in recent times are mainly of a competitive nature through their procreative values cannot be underestimated or denied. Despite the fighting attitude between the competitors, sports bring the different nations closer and establish brotherhood and friendship between the people of different countries. Sports now-a-days has changed with a lot of characteristics e.g. more scientific and mass oriented, well organized and mostly health directed, elevate mental and physical fitness of the participants, increase mental concentration, bring honor and social dignity to the successful participants. Sports, played practically in every nation at varying levels of competence. Successful participation in these sports requires from each player a high level of technical and tactical skills and suitable anthropometric characteristics. All ball games require comprehensive abilities including physical, technical, mental, and tactical abilities. Among them, physical abilities of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping (Tsunawake, 2003). Such physical abilities are important for both volleyball and basket ball players to achieve higher levels of performance. Basketball is one of the most popular games in USA, China, Russia, Canada, Argentina and Spain. The ruling body for the game is FIBA (International Basketball Federation). The NBA (National Basketball Association) is the richest and most popular basketball leagues in the world. NBA has close to 30 teams. Wining Olympics is considered to be the highest honor in International Basketball like any other sporting event. USA holds record for maximum number of Gold Medals in Olympics. Basketball is said to have

originated in North America. Volleyball is the National Sport of Sri Lanka and is very popular in United States, Brazil, Japan, China, India, Philippines, Russia and Poland. It is also a popular sport in southern India, North America, Eastern Europe and Brazil. The game of Volleyball is said to have been originated in Holyoke city of United States (US). Federation Internationale de Volleyball (FIVB) is the major body governing the game. FIVB organizes FIVB World League and the World Grand Prix (Women's Volleyball) championships.

The term "hand-eye coordination" describes the ability of your body's visual system to process information received through the eyes and use it to direct the movements of the hands. Tennis, golf, baseball, Cricket, Volleyball and basketball players obviously require this skill, but optimal interactions among the brain, the eyes and the limbs are also essential to simple, daily functional tasks. Power is the product of muscular force and velocity or as an instantaneous value during a given movement. The latter, often referred to as peak power (PP), is typically associated with explosive movements such as sprinting, jumping and may be an important variable associated with success in a given discipline.

Explosive Strength is the combination of strength and speed that means power. Leg Explosive Strength is called leg power; it is the maximum possible strength exerted by leg muscle within a short time interval leg power is considered as a vital physical fitness component for games and sports. Leg Power can be measured by field test like Standing Broad Jump, vertical jump etc. In the present study the jumping distance in the vertical Jump test was considered as the measure of Leg Power. Vertical jump is of considerable importance in numerous in Volleyball and Basketball game. Vertical jump is very important for the Spiker or Blocker. Hand explosive strength: is also called hand power. Hand power can be measured by putting the shot. In volleyball and basketball game hand power is important physical fitness to spiking, serving and blocking and also important in basketball shooting and passing.

Agility is the quickness and readiness of movement. It is the ability to change the position of the body with skill and control when faced with some sort of stimulus or opposing movement. Agility requires a combination of skill such as co-ordination, explosive strength and acceleration speed is measured by zigzag run. In the present study the time taken to complete 4 × 10m shuttle run was considered as the measure of agility. Basketball is very fastest game and to need to changes the direction in speed as quickly as possible and agility is less important in volleyball

games. Accuracy is an offensive attribute, and affects a character's ability to hit targets with physical attacks and skills. While Accuracy shares a name with the base attribute also known as Accuracy, there are some differences between the two attributes. Accuracy as it is described here affects a player's chance to hit with their currently equipped weapon, and does not affect their Critical Strike chance (unlike the Accuracy base attribute). Characters with higher Accuracy will have a better chance to hit targets with physical attacks and skills. All these fitness components are very much important in both games for performing such task effectively and efficiently. That way The Researcher intent to measure selected fitness components of Basketball and Volleyball players and find out the differences between the activities, if any. With this consideration present project was developed as a research work.

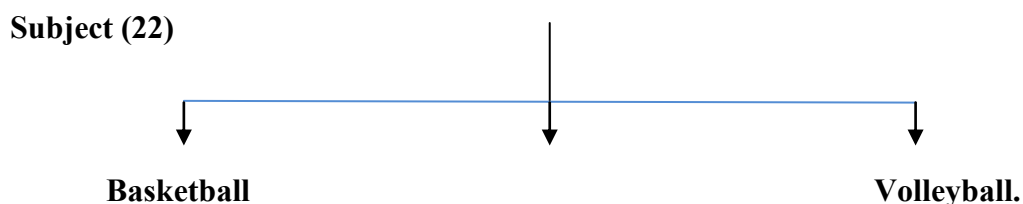
PURPOSE OF THE STUDY

- 1) To Observe the Difference in Hand - Eye Co-Ordination between Basketball Players & Volleyball Players.
- 2) To Observe the Difference in Accuracy between Basketball Players & Volleyball Players.
- 3) To Observe the Difference in Agility between Basketball Players & Volleyball Players
- 4) To Observe the Difference in Hand Explosive Strength between Basketball & Volleyball Players.
- 5) To Observe the Difference in Leg Explosive Strength between Basketball & Volleyball Players.

METHODOLOGY

The subject

A total of Twenty Two (22) Female subjects were selected for this study. Out of them 11 were from Basketball, 11 were from Volleyball. The ages of the subjects were 13-19 years old. The subjects were of District and State level participation. The subjects were from different socioeconomic conditions but they all were School and college students. The subjects were selected keeping in view their level at performance in the respective field. The distribution of the subjects has been shown in **Fig – 1**.



Girls (11)

Girls (11)

Fig- 1: Distribution of the subject

Criterion measure

Selected Fitness Components of the subjects were the criterion measure for the present study. Selected Fitness Components were: This included- leg Explosive Strength, Hand Explosive Strength, Hand Eye Coordination, Agility and Accuracy. The leg Explosive Strength was measured by Vertical jump. Hand Explosive Strength was measured by Putting the Shot. Hand Eye Coordination was measured by Rebound Ball Test. Accuracy was measured by Accuracy test. Agility was measured by (4x10 mts.) Shuttle Run.

PRESENTATION OF THE DATA RESULT AND DISCUSSION

The Data regarding selected Fitness components and their Statistical Analysis have been Presented in following section.

The Data: The selected Fitness Components were measured by different Test like- The leg Explosive Strength was measured by Vertical jump. Hand Explosive Strength was measured by Putting the Shot. Hand Eye Coordination was measured by Rebound Ball Test. Accuracy was measured by Accuracy test. Agility was measured by (4x10 mts.) Shuttle Run. These Test scores were expressed in numerical value.

Presentation of Data

The Data for different Parameters and their Statistical Analysis have been presented in following section.

Personal Data

The Personal Data of subjects mainly Age, Height, Weight- their Mean and SD have been Presented in Table-1

Table-1: the Personal Data of subjects mainly Age, Height, Weight- their Mean and SD

| Group | Sex | Parameters | Mean | SD |
|------------|--------|------------|--------|--------|
| Basketball | Female | Age | 16.17 | ± 1.36 |
| | | Weight | 48.59 | ± 3.13 |
| | | Height | 159.26 | ± 5.98 |
| Volleyball | | Age | 16.02 | ± 1.2 |
| | | Weight | 49.35 | ± 3.73 |
| | | Height | 157.45 | ± 6.27 |

Difference in Accuracy between Basketball & Volleyball Female Player

The Mean, SD & t-value of Accuracy for Female group between Basketball & Volleyball have been presented in Table No -2

Table No -2: Mean and S.D & ‘t’ value of Accuracy

| Group | Mean | SD | SED | T | Df | Significant |
|--------------------|-------------|-----------|------------|----------|-----------|--------------------|
| Basket ball | 8.18 | ±2.35 | | | | |
| Volleyball | 7.64 | ±2.98 | 1.12 | 0.45 | 20 | Not |

Table value at 0.05 level is 2.09

Table no. 2 Shown that the Means value for Accuracy of Basketball group & Volleyball group were 8.18 and 7.64 respectively, comprising the Mean value between groups it was found the Basketball group scored higher than the Volleyball group. To observe the significant different followed “t” test was calculated. “t” value was 0.45 that was not significant at 0.05 level.

So, Accuracy of the Basketball Female and Volleyball Female had no significant difference.

The Mean and SD value of Accuracy for Basketball and Volleyball Female also presented in fig.2

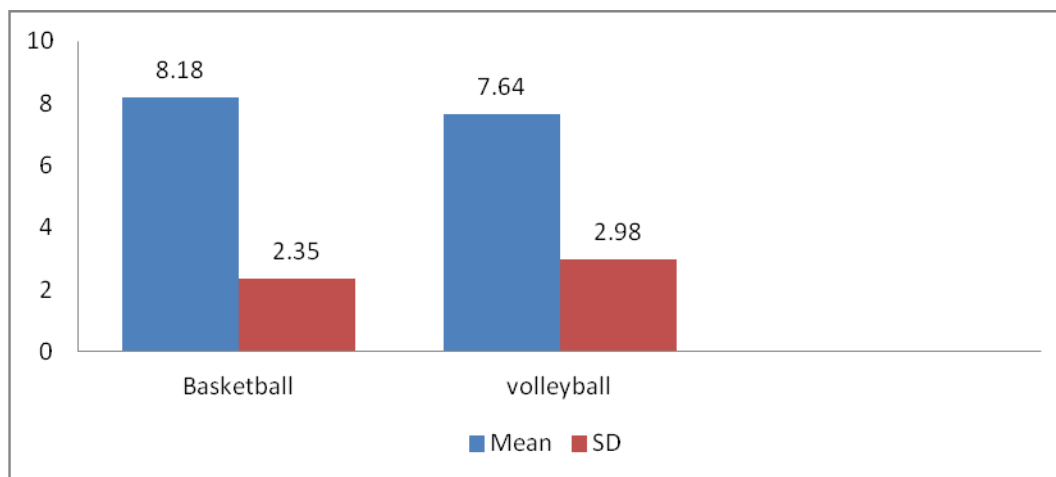


Figure- 2: represented the Mean and SD difference of Basketball & Volleyball female in Accuracy.

Difference in Hand Eye Coordination between Basketball & Volleyball Female player

The Mean, SD & t-value of Hand Eye Coordination for Female group between Basketball & Volleyball have been presented in Table No -3

Table No -3: Mean and S.D & ‘t’ value of Hand Eye Coordination

| Group | Mean | SD | SED | t | Df | Significant |
|--------------|-------------|-----------|------------|----------|-----------|--------------------|
|--------------|-------------|-----------|------------|----------|-----------|--------------------|

| | | | | | | |
|--------------------|-------|-------|------|------|----|---------------------|
| Basket ball | 24.64 | ±1.21 | | | | |
| Volleyball | 18.73 | ±2.42 | 0.87 | 6.79 | 20 | Yes (0.01 level) |

Table value at 0.05 level is 2.09

Table no-3 Shown that the Mean value for Hand Eye Coordination of Basketball group & Volleyball group were 24 .64 and 18.73 respectively, comprising the Mean value between groups it was found the Basketball group scored Higher than the Volleyball group. To observe the significant different followed “t” test was calculated. “t” value was found 6.79 that was significant at 0.01 level.

So, Hand Eye Coordination of the Basketball Female and Volleyball Female Was significant difference.

The Mean and SD value of Hand Eye Coordination for Basketball and Volleyball Female also presented in fig.3

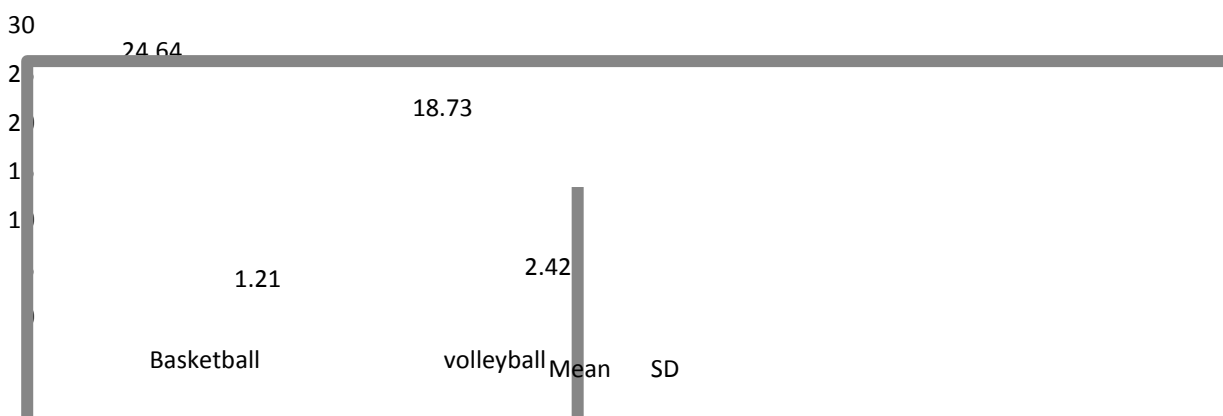


Figure- 3 represented the Mean and SD difference of Basketball & Volleyball Female in Hand-Eye co-ordination.

Difference in Agility between Basketball & Volleyball Female player

The mean, SD & t-value of Agility for Female group between Basketball & Volleyball have been presented in Table No -4

Table No -4: Mean and S.D & ‘t’ value of Agility

| Group | Mean | SD | SED | t | Df | Significant |
|--------------------|-------|-------|------|------|----|-------------|
| Basket ball | 11.45 | ±0.44 | | | | |
| | | | 0.21 | 0.57 | 20 | Not |
| Volleyball | 11.33 | ±0.49 | | | | |

Table value at 0.05 level is 2.09

Table no-4 Shown that the Mean value for Agility of Basketball group & Volleyball group were 11.45 and 11.33 respectively, comprising the Mean value between groups it was found the Basketball group scored Higher than the Volleyball group. To observe the significant difference “t” test was calculated. “t” value was found 0.57 that was not significant at 0.05 level.

So, Agility of the Basketball Female and Volleyball Female had no significant difference.

The Mean and SD value of Agility for Basketball and Volleyball Female also presented in fig.4

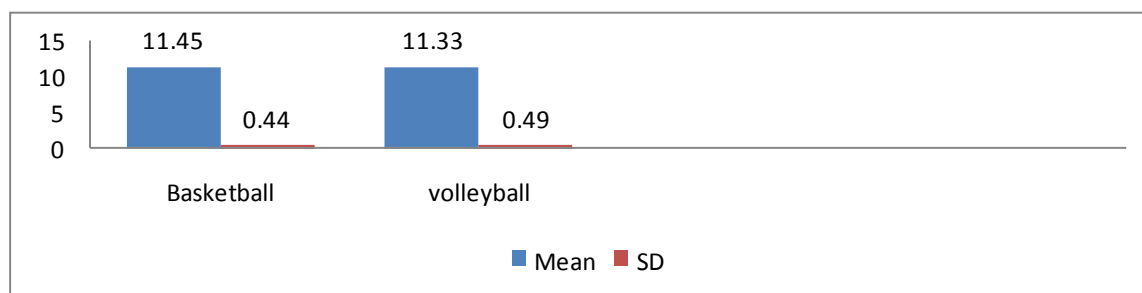


Figure- 4 represented the Mean and SD difference in Basketball & Volleyball Female in Agility.

Difference in leg Explosive Strength between Basketball & Volleyball Female player

Table No -5: Mean and S.D & ‘t’ value of leg Explosive Strength

| Group | Mean | SD | SED | t | Df | Significant |
|-------------|-------|-------|------|------|----|-------------|
| Basket ball | 30.90 | ±4.72 | 1.78 | 0.17 | 20 | Not |
| Volleyball | 30.60 | ±3.07 | | | | |

Table value 0.05 level = 2.09

Table no-5 Shown that the Mean value for leg Explosive Strength of Basketball group & Volleyball group were 30.90 and 30.60 respectively, comprising the Mean value between groups it was found the Basketball group scored Higher than the Volleyball group. To observe the significant difference “t” test was calculated. “t” value was found 0.17 that was not significant at 0.05 level.

So, leg Explosive Strength of the Basketball Female and Volleyball Female had no significant difference.

The Mean and SD value of leg Explosive Strength for Basketball and Volleyball Female also presented in fig.5

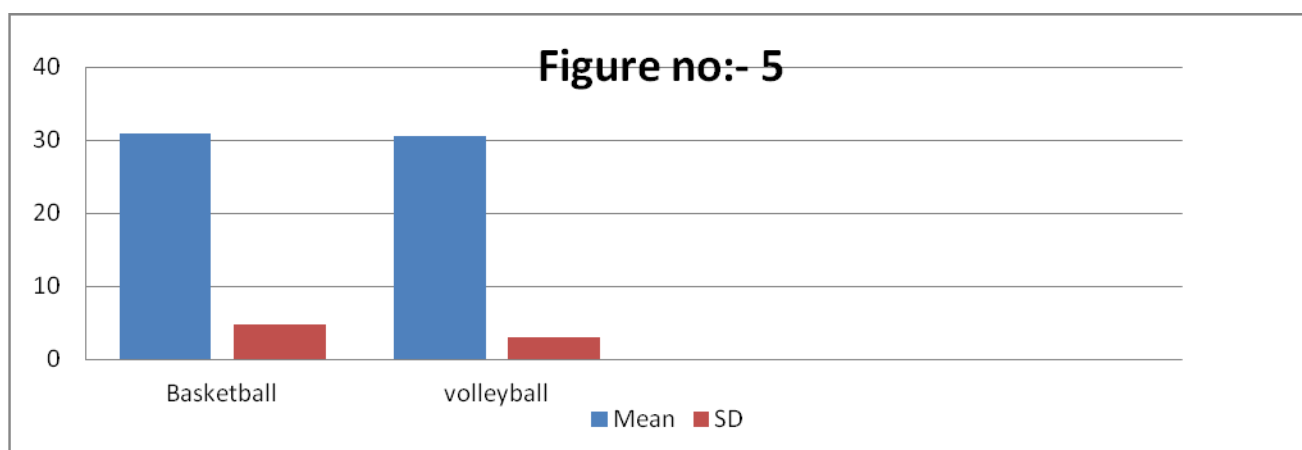


Figure- 5 represented the Mean and SD difference Basketball & Volleyball Female in leg Explosive Strength.

Difference in Hand Explosive Strength between Basketball & Volleyball Female player

The Mean, SD & t-value of Hand Explosive Strength for Female group between Basketball & Volleyball have been presented in Table No -6

Table No -6: Mean and S.D & ‘t’ value of Hand Explosive Strength

| Group | Mean | SD | SED | t | Df | Significant |
|-------------|------|-------|------|------|----|-------------|
| Basket ball | 4.36 | ±0.68 | 0.27 | 1.93 | 20 | Not |
| Volleyball | 4.88 | ±0.5 | | | | |

Table value at 0.05 level is 2.09

Table no-6 Shown that the Mean value for Hand Explosive Strength of Basketball group & Volleyball group were 4.36 and 4.88 respectively, comprising the Mean value between groups it was found the Basketball group scored Lower than the Volleyball group. To observe the significant difference “t” test was calculated. “t” value was found 1.93 that was no significant at 0.05 level.

So, Hand Explosive Strength of the Basketball Female and Volleyball Female had no significant difference.

The Mean and SD value of Hand Explosive Strength for Basketball and Volleyball Female also presented in fig.6

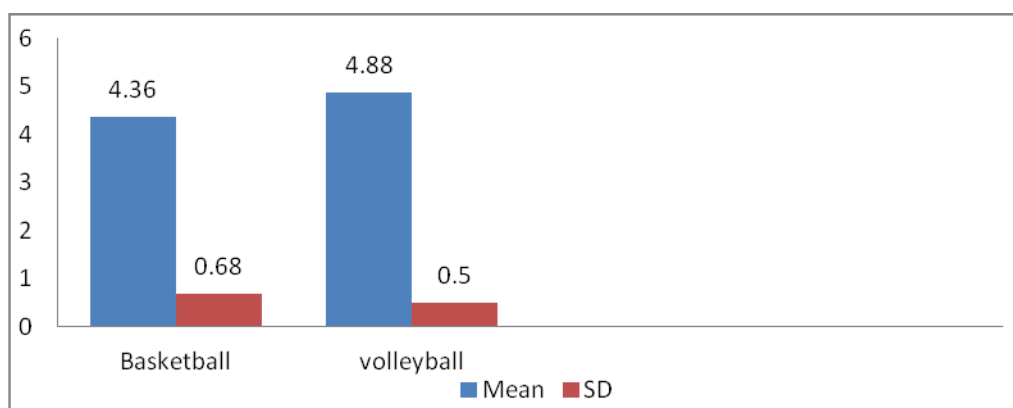


Figure- 6 represented the Mean and SD difference Basketball & Volleyball Female in Hand Explosive Strength.

CONCLUSION

In respect of Accuracy there were no significant difference Between Female Basketball and Volleyball Group.

In respect of Hand –Eye coordination there were significant difference Between Female Basketball and Volleyball Group.

In respect of Agility there were no significant difference Between Female Basketball and Volleyball Group.

In respect of leg Explosive Strength there were no significant difference Between Female Basketball and Volleyball Group.

In respect of Hand Explosive Strength there were no significant difference Between Female Basketball and Volleyball Group.

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