

# Leg and Shoulder Strength Comparison between Handball and Basketball Players

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**Abstract—** Leg and shoulder strength Comparison between Handball and Basketball players was the main objective of this study. Male subjects who have participated at Mysore University intercollegiate tournament of Hassan district for the year 2016-17 were considered in this study. With the simple random sampling method 15 players from each game totally 30 Subjects were selected. Shoulder strength and leg strength were measured by pull-ups and standing broad jump respectively. Using statistical technique 't' test for interpretation of data and statistical analysis. For testing the hypothesis level of significance was 0.05. Leg strength between the Handball and Basketball players there was no significant difference found. In shoulder strength between the Handball and Basketball players there was a significant difference.

**Index Terms—** Basketball, Handball, Leg strength, Shoulder strength.

## I. INTRODUCTION

Physical fitness, as it relates to the concept of Total Force Fitness (TFF), is defined as a set of health or performance-related attributes relating to the activities and condition of the body. It was universally accepted that physical fitness is very important part of the universal growth and development of a child. Physical fitness can be defined as a way which helps in the successful completion of a work. Physical fitness covers organic fitness of individuals. The main components of physical fitness are Speed, Strength, Endurance, Flexibility, Agility, Cardio-vascular fitness and Coordinative ability [1].

Now a day's sports and games have taken various forms and they play important role in the life of human beings. Sports and games are thought of as products of culture of every society, sports and games reflect the culture of a society. Research in sports is important for talent identification and its improvement. In sports due to sudden increase in participation and performance density, which person have ability that person will stand a chance of winning award in an international competition [2].

Among various sports Handball and Basketball is an Olympic sports, in the ball games fast pace of offensive and defensive action is considered. To play team-handball, especially to control factors that influence performance is challenging, because playing handball is complex and multi-factorial. Handball players have to match up their movements with jumping, running, change of direction and specific movements of throwing, catching, checking, passing and blocking. Concentrations during the game constantly change

between walking and standing, jogging and running, sideward, forward and backward movements, sprinting and fast forward, [3].

Basketball has extended global popularity and charmed players and viewers with its dynamic appearances as a team game. Basketball involves approximately 450 million registered participants from over 200 national federations belonging to the Federation International de Basketball (FIBA). In a 40-min game of basketball, players approximately run about 4-5km with a variety of movements such as dribbling, passing, throwing, feinting at variable velocities and jumping [4].

There are many tools and devices to test, measure and evaluate one's abilities and performances. The factors of performance can be basic performance traits, personality, socio – economic conditions, emotion make up, body build, structure, hereditary endowments and, so on. On general opinion of majority researchers, authors will not included the components such as Power, Balance, Speed and Agility (which are more significant for achieve in specified sports) as necessary modules of elementary physical fitness.

On the other hand, in this study author has undertaken Leg and Shoulder Strength comparison between Handball and Basketball players. Male subjects participated at the Mysore University inter-collegiate tournament of Hassan district during 2016-17 were considered in this study.

## II. STATEMENT OF THE PROBLEMS

Objective of the present study was to compare Leg and Shoulder Strength of Handball and Basketball players.

## III. METHODOLOGY

### A. Sources of data

In the present study male subjects were considered. The sources of data were the Handball and Basketball Players; those who are participated at Mysore university intercollege tournament of Hassan district for the year 2016-17.

### B. Assortment of Subject

From handball and basketball event 15 players were selected in Mysore University inter collegiate Tournament.

### C. Sampling Method

Simple random sampling method used to select 30 Subjects.

### D. Variables used for collection of data

- Leg strength: Standing Broad Jump
- Shoulder strength: Pull-Ups.

### E. Shoulder strength

The student's take a straight arm hangs position (hands directly above shoulders) on the horizontal bar with his body fully extended. Using the forward grip (palm forward), he raises his body until he can place his chin over the bar without kicking or swinging. He then lowers his body to the original position. He repeats the procedure as many times as possible.

### Scoring

The score is the total number of pull-ups correctly performed in succession. Pull-ups done in correctly count half [5].

### F. Leg strength

The students stand with his feet, a comfortable distance apart and his toes just behind the takeoff mark. He crouches, leans forward, swings his arms backward, and then jumps horizontally as far as possible, jumping from both feet and landing on both feet.

### Scoring

The best of three jumps is measured to the nearest inch. The measurement is taken from the back of the takeoff mark to the nearest point where the student touches the floor at the completion of the jump [6].

IV. RESULTS AND DISCUSSION

A. Statistical analysis:

The data for the investigation was collected, interpretation and statistical analysis of the data was done by using descriptive statistics and ‘t’ test. Testing the hypothesis level of significance was 0.05.

TABLE I: LEG STRENGTH COMPARISON BETWEEN HANDBALL AND BASKETBALL PLAYERS

Group	Mean	SD	SE	MD	Ot	Df	Tt
Handball	2.229	0.396	0.0915	0.025	0.18	28	2.04
Basketball	2.204	0.314					

\*Level of Significance =0.05, tabulated ‘t’ 0.05(28) =2.04

Table (I) shows that there is difference between handball and basketball players means. Handball players mean is 2.229 is greater than the mean of basketball players which is shown to be 2.204 and so mean difference is 0.025. Standard deviation was found to be 0.396 and 0.314 respectively for handball and basketball players. Data was again analyzed by using ‘t’ test to find out the significant difference, calculated value of ‘t’ is 0.18, less than tabulated ‘t’ which is 2.04 at 0.05 level of significance. This indicates that there was no significance difference in leg strength between the Handball and Basketball players.

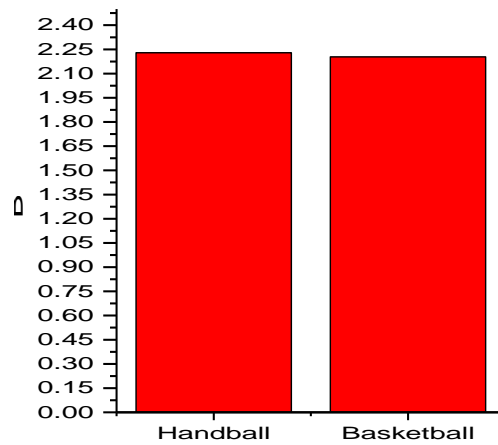


Figure 1: Leg Strength Mean difference between Handball and Basketball players.

TABLE II: SHOULDER STRENGTH COMPARISON BETWEEN HANDBALL AND BASKETBALL PLAYERS.

Group	Mean	SD	SE	MD	Ot	Df	Tt
Handball	26.067	4.455	5.959	4.537	2.10	28	2.04
Basketball	21.530	4.980					

\*Level of Significance =0.05, tabulated ‘t’ 0.05(28) =2.04

From Figure 2 and Table (II) it was clearly indicated the difference between means of handball and basketball players which was found to be 26.067 and 21.530 consecutively. and therefore mean difference is 4.537. Data was again analyzed by using ‘t’ test to find out the significant difference, standard deviation is calculated between handball and basketball players which is 4.455 and 4.980 respectively and then the calculated value of ‘t’ is found as 2.10, is greater than tabulated ‘t’ which is 2.04 at 0.05 level of significance. It implies that Handball players are having more Shoulder Strength than Basketball players.

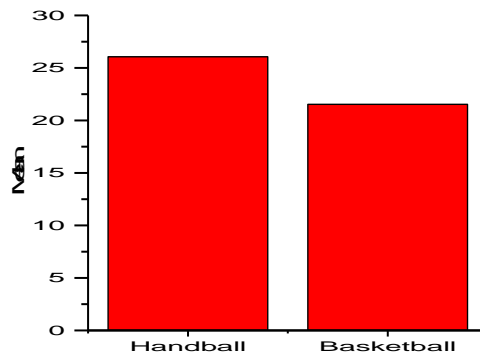


Figure 2: Shoulder Strength Mean difference between Handball and Basketball in graph

## V. CONCLUSION

On the basis of finding and within the limitation of the present study following conclusions are made. There was no significant difference in leg strength between the Handball and Basketball players taken for the study. Significance difference was found in shoulder strength between Handball and Basketball players. Handball players are having more Shoulder Strength than Basketball players.

## ACKNOWLEDGEMENT

Authors are thankful to Principal and Management of R.V. College of Engineering for their support during the work. Authors are also thankful to Hassan District Handball and Basketball players for their cooperation during data collection.

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