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**Jaiveer Singh Rawat**

Faculty, Department of Sports  
Coaching and Management,  
LNIPE, Gwalior, Madhya  
Pradesh, India

**Dr. Deepak Sharma**

Assistant Professor, LNUPE,  
Gwalior, Madhya Pradesh, India

**Dr. Narendra Gangwar**

Assistant Professor, SAI  
LNCPE, Thiruvananthapuram,  
Kerala, India

## A comparative study of selected motor fitness parameters between female basketball and handball players

**Jaiveer Singh Rawat, Dr. Deepak Sharma and Dr. Narendra Gangwar**

### Abstract

The purpose of present study was to compare the selected motor fitness parameters between basketball and handball players. A total number of 20 females (10 basketball and 10 handball players) from LNIPE, Gwalior were selected as subjects and the age ranged from 18-25 years. The variables selected for the present study were basketball and handball players (independent variables) and selected motor fitness parameters (dependent variables). The data was collected through applying the tests; 10x4 meter shuttle run test for agility ability and 50 meter dash run test for speed ability. For comparing the means of selected motor fitness parameters, descriptive analysis and independent t- test were applied at 0.05 level of significant. All the statistical analysed was carried out using SPSS version 16.0. The result of the present study showed that there was significant difference found in agility ability ( $t=3.0482.07$ ) between female basketball and female handball players of LNIPE, Gwalior. On the basis of the findings it was concluded that the basketball players have more fitness ability in agility ability ( $t=3.0482.07$ ).

**Keywords:** Basketball, handball and motor fitness parameters

### Introduction

Physical fitness is the ability to carry out daily tasks with vigorous and alertness without undue fatigue, and with ample energy to engage in pursuits and to meet emergency situation. Clarke (1957) <sup>[1]</sup>. Basketball and Volleyball is a unique sport that can improve overall fitness and confidence for players of all age groups. It requires upper and lower body speed, agility, flexibility and strength.

Motor fitness is a term that describes an athlete's ability to perform effectively during sports or other physical activity. Improving this form of fitness is an indirect result of training in any of these attributes. The six components of motor skills related to fitness are agility, balance, coordination, power, reaction time and speed, according to Glencoe/McGraw-Hill Education. A motor skill is associated with muscle activity.

Towards this, Clark (1976) highlighted on the concept of motor fitness which included elements involving all the component of health fitness in addition to few more components of agility, power, flexibility, speed essential for effective movement and agility while excluding elements of hand-eye; foot-eye coordination specific to sports skills. Identification of talent, based on the components of motor fitness and measurement of it at regular intervals would help in development of effective pool of potential talents and differentiate members who intend for elite performance from those who cart of the selection. Research work in promotion of motor fitness by Albuquerque & Farinatti (2007), Franks, James, & Plowman (1988), Runhaar, Collard, Singh, Kemper, Van Maechelen, & Chinapaw (2009) provided a rationale for identification of fitness components. Fitness components associated to youth between 17-25 years (Sharma & Ajit, 2012) provided further extension with identified of 11 components related to motor fitness to be further verified by experts.

Basketball is one of the world's most popular and widely viewed sports. Basketball was originally played with a soccer ball. The first balls made specifically for basketball were brown, and it was only in the late 1950s that Tony Hinkle, searching for a ball that would be more visible to players and spectators alike, introduced the orange ball that is now in common use. Basketball is a sport played by two teams of five players on a rectangular court.

**Correspondence**

**Jaiveer Singh Rawat**

Faculty, Department of Sports  
Coaching and Management,  
LNIPE, Gwalior, Madhya  
Pradesh, India

The objective is to shoot a ball into the ring for getting points. Daya Nand Singh (2014). Handball is a team sport in which two teams of seven players each pass a ball using their hands with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team that scores more goals wins. The famous Greek philosopher Aristotle stated “Every individual should be physically fit to enjoy the life fully. In intellectual as well as physical work, a sound heart and lungs, good digestion, well-developed physique, all are the great assets for living a happy and satisfying life.” Sunil Sen, Kamlesh Sen and K. R. Bhagat (2014).

**Methodology**

**Selection of subjects**

For the present study the researcher selected 20 females (10 basketball and 10 handball players) from LNIPE, Gwalior as subjects and the age ranged from 18-25 years.

Selection of variables

Independent variable	Dependent variable
Basketball players	Agility ability
Handball players	Speed ability

**Criterion measures**

Selected variables and their criterion measures

Variables	Test items	Measurements
Agility	5*10 shuttle run	Seconds
Speed	50m dash	Seconds

**Statistical Analysis**

To find out the significance difference of selected motor fitness parameters of basketball and handball female players of LNIPE, Gwalior in comparison to agility and speed ability the data were analysed by applying Descriptive statistics and Independent sample t- test. The level of significance was set at 0.05.

**Result of the study**

The scores were obtained by applying the 5x10 shuttle run test and 50 meter dash run test to judge the speed and agility of the subjects.

**Table 1:** Comparative and descriptive table of female basketball and handball players in relation to agility

Game	N	Mean	SD	MD	SED	t-value
Basketball	10	7.22	0.116	0.232	0.62	2.058*
Handball	10	8.03	0.121			

Significant at 0.05 levels (DF 18 = 2.04)

Table 1 indicates that the calculated t-value 2.058 on agility observed “t” value is compared with the critical value 2.04, 18 degree of freedom. It was observed that the value 2.058 was found as higher than the table value 2.04. This confirms that significant difference exists between the means of female basketball and handball players in relation to agility.

**Table 2:** Comparative and descriptive table of female basketball and handball players in relation to speed

Game	N	Mean	SD	MD	SED	t-value
Basketball	10	6.28	0.106	0.172	0.74	2.455*
Handball	10	7.54	0.114			

\*Significant at 0.05 level (DF 18 = 2.04)

Table 2 indicates that the calculated t-value 2.455 on agility observed “t” value is compared with the critical value 2.04, 22 degree of freedom. It was observed that the value 2.455 was found as higher than the table value 2.04. This confirms that significant difference exists between the means of female basketball and handball players in relation to speed

**Discussion of finding**

The results of the study revealed that there was significant mean difference between the female basketball and handball players in the scores of agility and speed of the players from LNIPE, Gwalior. Further, it is revealed that the female basketball players were more agile and had better speed ability in comparison the female handball players. The difference occurred because basketball players are involved more in short running and agility types of movement during the game. The above results is supported by (Prمود Kumar 2014) and (Harpatap Singh 2014).

**Conclusion**

On the basis of result following conclusions have been made

1. Significant difference was found between the female basketball and handball players of LNIPE, Gwalior in relation to agility ability.
2. Significant difference was found between the female basketball and handball players of LNIPE, Gwalior in relation to speed ability.
3. The female basketball players were having greater agility and speed ability than the female handball players.

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