

## Relationship of Leg Explosive Strength with Speed of Volleyball Girls

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### Abstract

The purpose of the study was to find out the relationship of leg explosive strength with speed of u-16 girls under the scheme of SPEED of Haryana govt. the sample consists of 30 girls who were just started the game of volleyball. 20mtrs. Dash, Sargent jump, standing broad jump and 3 consecutive broad jumps tests were taken. All the measurements were taken by using standard technique and equipment. The data were computing using Pearson's product moment coefficient correlation (zero order). The analysis showed that non-significant relation of leg explosive strength with speed ability.

### INTRODUCTION

Volleyball is an excellent all round team sport and has been widely accepted as a highly competitive game. It has not only developed from a slow moving game into a fast one, but has also become a game of high interest and joy to player and spectators alike. It is interesting to note that the speed of powerfully spiked ball in the game of volleyball is about 45mtrs/sec. this is much faster than the other ball game.

The game offers a wide opportunity for the development of strength, speed, endurance, agility, neuro-muscular skills and coordination of all parts of the body by the action involved in the game, such as running, jumping, bending, stretching and other movements. The game situation demands coordinative team work there by instilling in every player a sense of personal and group responsibilities by his individual performance and his ability to combine with the rest of the team

Volleyball is a game which is played on such a high net. So the requirements for volleyball player are different from other sports. The contact with the ball is away and very high over the net, plays a dominating role. So conditioning is the most affective factor in volleyball to achieve high performance. Contact point is important in volleyball. About 60% of training is done without ball.

Quickness and agility is required in all phases of game. So different type of exercises should be designed for effective training. Special speed, agility, power and power endurance are highly required. A volleyball player must be able to leap with agility and power but they also need to be able to hit nine ounce volleyball with a thunderous force While suspending in midair. They must be able to leap to the net and block a spike that travels as fast as 100 miles per hours. They must go from leaping to diving to the floor in a matter of seconds. They must be able to react immediately and constantly throughout a two hour match in a manner unique to the sports. Because volleyball players' fitness needs differ from those of other athletes, they must train differently from other athletes. To express these motor abilities flexibility is very much required.

According to Barrow (1997) motor fitness has been defined as "A readiness or preparedness for performance with special regards for big muscle activity without

under fatigue it includes the capacity of an individual to move efficiently and with strength and force over a reasonable length of time".

"Motor fitness is one's ability to perform efficiently basic motor skill involving such elements as power, agility, speed and balance". (Johnson and Nelson, 1982)

Generally motor fitness thought as one's current performance level as influenced by factors such as movement, speed, agility, balance, coordination and power.

Speed is the ability to cover maximum distance in a shortest possible time.

### **AIM OF THE STUDY**

Purpose of the study is to find out the relationship of leg explosive strength with speed ability.

### **LIMITATIONS**

1. Different training state of girl may affect the study.
2. Health status may affect the study
3. Technical aspect of the tests may affect the study.

### **DELIMITATIONS**

1. Study is to be delimited to the 30 girl's trainees.
2. Study is to be delimited to three tests of leg explosive strength and one test for speed.

### **METHODOLOGY**

#### **SELECTION OF SUBJECT**

Subject for the study are 30 u-16 girls under the scheme of **SPEED** of Haryana govt. who were just started the game of volleyball.

#### **SELECTION OF VARIABLES AND TESTS**

To measure the leg strength following tests have been used:

1. Sergeant jump test
2. Standing broad jump
3. 3 consecutive jumps

To measure the speed ability following test has been used:

1. 20 meter dash test

#### **STATISTICAL ANALYSIS**

The relationship between leg strength and speed is established through computing Pearson's Product Moment Coefficient Correlation (Zero order) statistical technique. Mean and standard variation is computed to interpret the data's.

## ANALYSIS AND INTERPRETATION OF DATA

### Mean and standard deviation of all the variables

	Sergeant jump (cm)	SBJ (cm)	3 consecutive jump (cm)	20 meter dash (sec.)
Mean	34.46	151.53	454.53	3.90
SD	6.73	10.12	45.53	0.24

TABLE 1

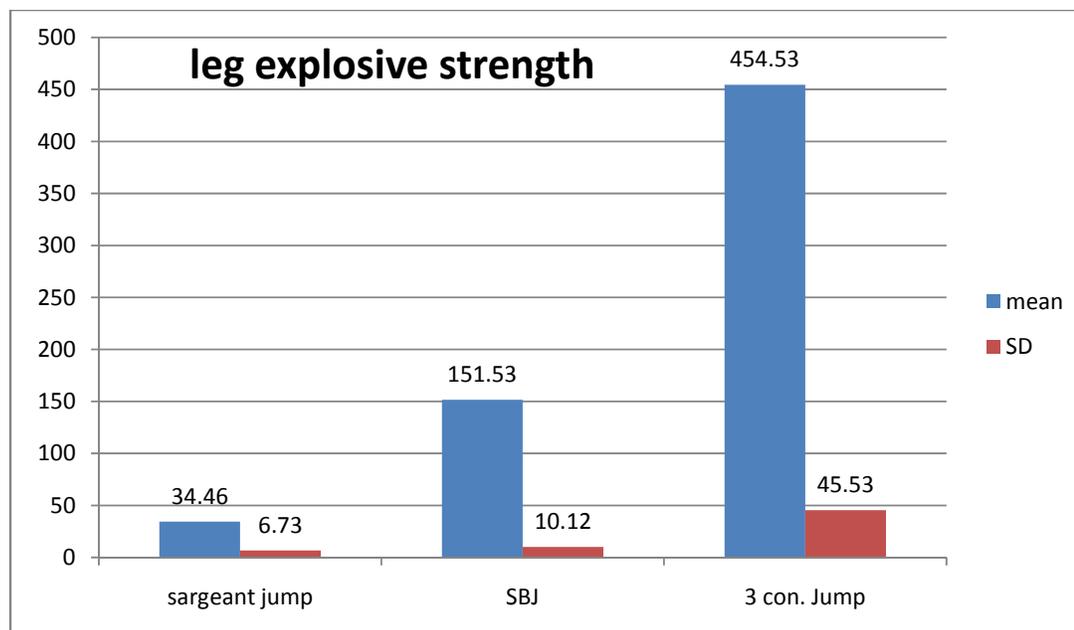


CHART 1

### Correlation of speed ability with leg strength

	Sergeant jump	SBJ	3 consecutive jump
20 meter dash	-0.192	-0.310	-0.003

Table 2

**CONCLUSION** The values -0.192, -0.310 and -0.003 in table no 2 show non-significant relationship of leg explosive strength with speed ability of come and play volleyball girls, however study conducted by Gray in 1962 on male college students and Dintiman 1978 reported significant relationship of leg power with leg speed. These girls are beginners having different training state and technical aspect of the leg explosive test contribute a lot in the performance that why some of them may not be able to convert the leg strength in to jump, Whereas running is not as difficult as jumping, most of the girls know the running technique and may perform according to their ability. Girls having good jumping technique may perform better than those girls who have good leg power but poor jumping technique.

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