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## A study on relationship between calf muscle girth and vertical jump ability

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### Abstract

The purpose of this investigation was to examine the contribution of calf muscle girth to vertical jump performance. Vertical jump plays vital role in the success of many sports. A vertical jump is the act of raising one's center of gravity higher in the vertical plane solely with the use of one's own muscles; it is a measure of how high an individual or athlete can elevate off the ground (jump) from a standstill. To achieve the purpose of the study thirty two (n=32) trained female sportspersons were selected as subjects. The simple random technique was used to select the subjects. The age of the selected subjects was 18-20. Chronological age was taken. The Sargent Vertical Jump test was performed by the subjects to measure the vertical jump ability. To assess the relationship between calf muscle girth and vertical jump ability, a correlation analysis was performed.

**Keywords:** Calf muscle, girth, vertical jump ability

### Introduction

Successful sporting performance at elite levels of competition often depends heavily on the explosive leg power of the athletes involved. The importance of strength and power in the majority of sports is well-accepted and early identification of high strength and power levels can be a useful tool for talent identification, strength diagnosis, development of sport specific profile, and to record the effects of training. In the vertical jump performance athlete jumps vertically high as high possible above the ground. Vertical jump performance is measured by the vertical displacement of the centre of mass between when one is standing on the ground and while at the apex of the jump. Vertical jump measurements are used primarily in athletic circles to measure performance. To develop vertical jump performance, then improve the explosive strength of the athlete. Explosive strength is the combination of speed and strength. It is also called as power. Power is an effort produced by the muscle with a single maximum contraction. This explosiveness is very essential for sport that requires speed, agility, quickness, and explosive power.

### Objective of the study

The objective of the present study was to find out the relationship between calf muscle girth and vertical jump ability.

### Methodology

The purpose of the study was to find out the relationship between girth of calf muscle and vertical jump ability. To achieve the purpose of the study thirty two (n=32) trained female sportspersons were selected as subjects. The simple random technique was used to select the subjects. They are all from different games and engaged in training continuously. The age of the selected subjects was 18-20. Chronological age was taken. The Sargent Vertical Jump test was performed by the subjects to measure the vertical jump ability. The scoring is taken in centimeters and calf muscle girth is also measured in centimeters.

### Statistical technique

Apart from descriptive statistics like mean, standard deviation, correlation coefficient between calf muscle girth and vertical jump ability were determined by employing Pearson correlation coefficient. Statistical package for social sciences was employed during data analyses.

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## Result

**Table 1:** shows that the mean, std. deviation of calf muscle girth of the females.

|                   | N  | Mean  | Std. Deviation |
|-------------------|----|-------|----------------|
| Calf Muscle Girth | 32 | 31.84 | 2.08           |
| Vertical Jump     | 32 | 45.38 | 4.11           |

Table-1 depicts that the mean value of calf muscle girth and vertical jump ability is 31.84 and 45.38 respectively and 2.08 and 4.11 is the standard deviation of calf muscle girth and vertical jump ability respectively.

**Table 2:** Correlation coefficient (r) between calf muscle girth and Vertical Jumping ability

| Parameter         | Jumping Ability |
|-------------------|-----------------|
| Calf muscle girth | 0.43*           |

\*Correlation significant at  $p < 0.05$

Table-1 depicts that the Correlation coefficient between calf muscle girth and the vertical jump ability is 0.43.

## Conclusion

On basis of findings of the study it may be conclude that the maximum vertical jump ability is very essential in many sports like volleyball, basketball, netball, high jump etc. according to the present study the calf muscle girth has a weak positive correlation with vertical jump ability of female sports persons. But the girth of the calf muscle may contribute to higher vertical jump.

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