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Relationship of selected performance physical fitness components to the performance of jumpers

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Abstract

The purpose of the study was to find out the relationship of selected performance physical fitness components to the performance of jumpers. Data was collected from 50 male athletes of Junior National level representation of Andhra Pradesh state were selected for this study. The age group of the subjects were ranged from 18 years to 20 years. The selected performance physical fitness components are Locomotor Speed (50Mts Sprint), Leg Explosive Strength (Standing Broad Jump), Agility (10x4-shuttle-run), Flexibility (Bridge-up), and Orientation Coordinative ability (orientation test). Analysis was done using Pearson's Product Moment Correlation was set at 0.05 level of significance. The findings showed that a significant relationship on long jump ability indicate that there was significant relationship was obtained between Explosive strength (0.35234), Locomotor Speed (0.24914), Agility (0.29106) with long jump ability. Whereas no significant relationship was obtained between Orientation Coordinative ability (0.12491) and Flexibility (0.91665), which shows that these components were not so important components for talented Pole vaulters. Pole vault ability indicated that there was no significant relationship was obtained between Locomotor Speed (0.21597), Explosive strength (0.2648260), Orientation coordinative ability (0.1334) Agility (0.14014), Flexibility (0.12) with high jump ability, which shows that these components were not so important components on which the assuagement of Pole vault depend.

Keywords: Performance physical fitness components, horizontal jumps and vertical jumps

1. Introduction

Running and jumping and are inborn characteristics of child. Height and weight are the main features which effects the growth and performance of a child. Anthropometric measurements of an individual, his level of motor abilities, performance or skill related physical fitness components and cardio-vascular fitness are the main features which are playing a significant role in sports performance.

The scientific selection of sportsmen at their young age may increase the number of participation in various sports events (Hirata, 1979). Therefore, the searching of the most talented children from a large number of school boys and girls in the various sports disciplines on the basis of sportswomen and helps to uplift the standards in the various disciplines of sports.

It is the common belief that heredity factors are considered to be the most important to achieve better. The researchers have described that some of the physiological factors which helps to improve sports performance such as anthropometric measurements, body composition, pulse rate, recovery time, skill related physical fitness and strength measurements i.e. leg strength, arm strength, jumping ability with both leg together, agility, mobility influenced by the heredity factors.

Performance in physical activity or sports not only demands systematic training and physiological variables but also demands training and consideration of psychological characteristics for success in this field. The success or failure of an individual athlete depends on the blending of physical ability, conditioning, training mental preparation and the ability to perform well under pressure.

The poor performance of Indian athletes and sportsmen at the international competitions has been of great concern, especially to the coaches, physical educationists and sports scientists.

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Efforts have been made to improve the standards of our sportsmen since long; however, little success has so far been achieved in this respect. There are numerous factors which are responsible for the performance of a sports-man. The physique and body composition, including the size, shape, physical fitness, performance physical fitness components and form are known to play a significant role in this regard.

2. Methodology

2.1 Purpose of the Study

The purpose of the study was to find out the relationship of selected performance physical fitness components to the performance of jumpers.

2.2 Selection of Subjects

Fifty male athletes of Junior National level representation of Andhra Pradesh state were selected for this study. The age group of the subjects were ranged from 18 years to 20 years.

2.3 Selection of Performance Components and Criterion Measures

2.3.1 Locomotor Speed: It was measured by administering 50Mts Sprint to the nearest 1/100th of a second.

2.3.2 Agility: It was measured by administering 10x4Mts-shuttle-run to the nearest 1/100th of a second.

2.3.3 Leg Explosive Strength: It was measured by administering Standing Broad Jump and was recorded to nearest in centimeter.

2.3.4 Flexibility: It was measured by administering bridge up test and was recorded to nearest in centimeter.

2.3.5 Orientation coordinative ability: It was measured by administering Orientation test and was recorded to nearest in centimeter.

2.4 Analysis of the Data and Results of the Study

The statistical analysis of data pertaining to selected performance related components i.e. Locomotor Speed, Leg Explosive Strength, Flexibility, Agility and Orientation Coordinative ability were collected on fifty male athletes of Junior National level representation of Andhra Pradesh state. The data on Jumps i.e. Vertical and Horizontal (Pole vault and Long jump). The performance physical components were analyzed by Pearson’s Product Movement Correlation to find out the relationship of the criterion variables to each indent variables separately. The level of significance to determine the relationship acquired by Pearson’s Product Movement Correlation was set at 0.05 level of confidence.

The analysis of data pertaining to this is presented in table 1.

Table 1: Relationship of performance physical fitness components to Long jump ability

Variables Correlated	Coefficient of Correlation(r)
Locomotor Speed	0.32914*
Orientation Coordinative	0.12491
Leg Explosive Strength	0.35234*
Agility	0.29106*
Flexibility	0.091665

*Significant at 0.05 level of confidence. N=50, r 0.5(48) =0.273.

The analysis of data in table -1 reveals that Long jump ability is significantly related to Locomotor Speed (0.32914), Leg Explosive Strength (0.35234) and Agility (0.29106). It is therefore, evident that long jump ability is influenced by Locomotor Speed, Leg Explosive Strength and Agility. Orientation Coordinative ability (0.12491) and Flexibility (0.091665) are not found to be significantly related to long jumper’s ability. Therefore Locomotor Speed, Leg Explosive Strength and Agility may predict the quality of long jumper’s ability. It will be advantage to take into consideration these three performance components when spotting talented long jumpers.

The analysis of data pertaining to this is presented in table 2.

Table 2: Relationship of performance physical fitness components to Pole vault ability

Variables Correlated	Coefficient of Correlation(r)
Locomotor Speed	0.21597
Orientation Coordinative	0.1334
Leg Explosive Strength	0.264826
Agility	0.14014
Flexibility	0.12

*Significant at 0.05 level of confidence. N=50, r 0.5(48) =0.273.

The analysis of data in table-2 reveals that Locomotor Speed (0.21597), Leg Explosive Strength (0.264826), Orientation Coordinative ability (0.1334), Agility (0.14014) and Flexibility (0.12) didn’t found to be significantly related to Jumpers ability.

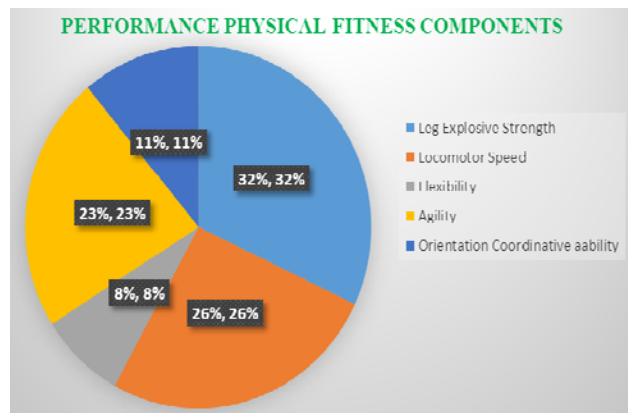


Fig A: Correlation Coefficient of selected Performance Physical Components to Long Jump Ability

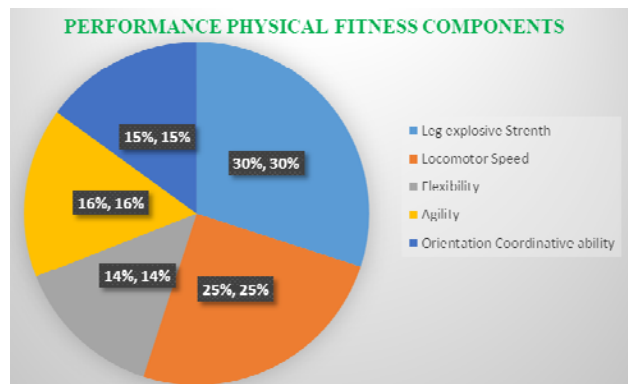


Fig B: Correlation Coefficient of selected Performance Physical Fitness Components to Pole vault

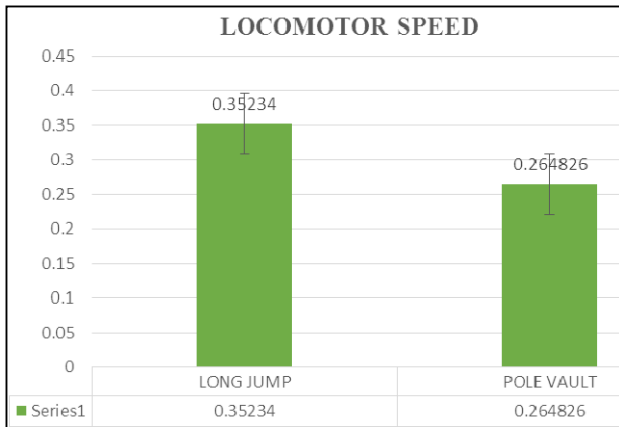


Fig C: Relationship between Locomotor Speed and Jumping Ability

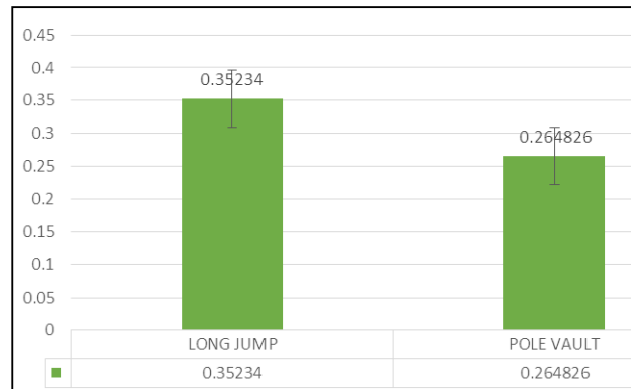


Fig G: Relationship between Leg Explosive Strength and Jumping Ability

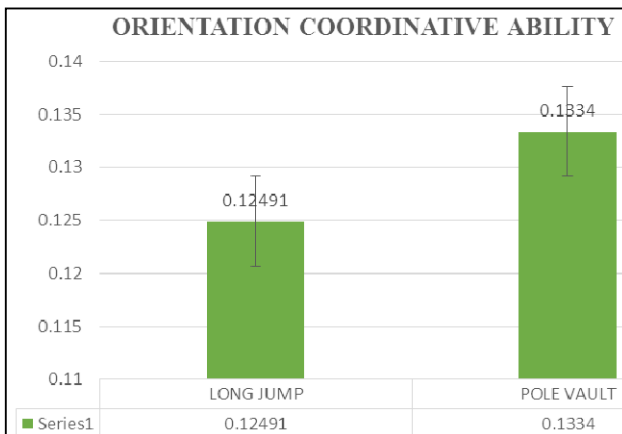


Fig D: Relationship between Orientation Coordinative Ability and Jumping Ability

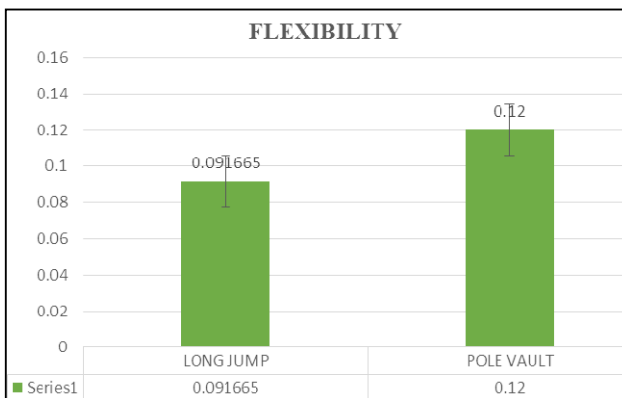


Fig E: Relationship between Flexibility and Jumping Ability

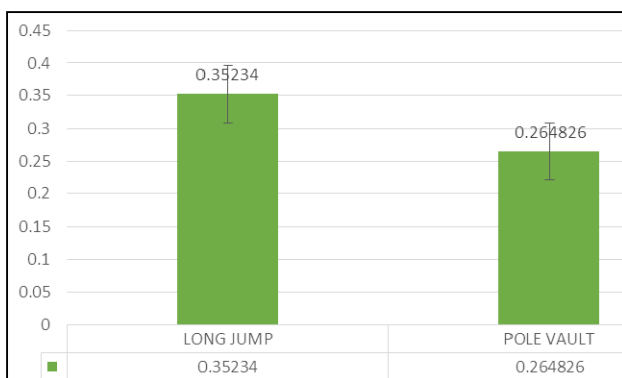


Fig F: Relationship between Agility and Jumping Ability

3. Conclusions

Findings of performance physical fitness Components on Long jump ability indicated that there was significant relationship was obtained between Leg Explosive Strength, Agility and Locomotor Speed with Long jump ability. Therefore, it is evident that these physical variables affected to long jump ability. Whereas no significant relationship was obtained between Flexibility and Orientation Coordinative ability were not important for spotting talented Long jumpers. Flexibility and Orientation Coordinative ability were significant relationship to Pole vault Jumpers.

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