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Comparative study of explosive strength and speed of long jumpers and high jumpers

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Abstract

This investigation was undertaken to compare the explosive strength and speed between long jumpers and high jumpers. For the purpose of the study, 30 male subjects aged 17 to 25 years were selected as subjects were the subjects of SAI centers and state sports council hostel around Kerala. The selected variables for the study were explosive strength and speed. The test administered to assess the explosive strength standing long jump and to assess speed was 50m dash test were administered. The experimental group was double group design. To find out the significant difference between long jumpers and high jumpers on selected variables, the t-ratio was employed. The level of significant was kept at 0.05 level. The results revealed that, there were significant difference in both explosive strength and speed among the selected groups. The descriptive statistics shows that the long jumpers have more explosive strength and speed compared to the high jumpers.

Keywords: Comparative study, explosive strength, long jumpers, high jumpers

Introduction

The present day scenario of sports of national and international level is being characterized by professionalism leading to intense competition. The contributing force behind this is a sports person's desire to excel in sport and thereby earning name, fame and wealth. Scientific investigation of the performance of sports persons is playing a vital role in evaluating their success. Athletes are sweating hard to exhibit greater strength, endurance and proficiency in sports skills to establish supremacy over others. Almost every day new records are being created by sports persons; new techniques and strategies are being developed by the researchers and coaches to enable players to have upper hand against their opponents. In the last few decades, sports have gained a place of prominence and are becoming tremendously popular with the masses. Media is playing a vital role in making sports a world phenomenon. The opponent of doctors, physiotherapists, physical trainers & psychologists is a clear indication of the insatiate desire of every nation to establish its supremacy in this magical field.

The long jump is the only known jumping event of Ancient Greece's original Olympics' pentathlon events. All events that occurred at the Olympic Games were initially supposed to act as a form of training for warfare. The long jump emerged probably because it mirrored the crossing of obstacles such as streams and ravines. After investigating the surviving depictions of the ancient event it is believed that unlike the modern event, athletes were only allowed a short running start. To gain maximum power the athlete must reach an optimum maximum speed in their approach. By gaining maximum speed you will gain greater power at take off. Maximum speed will initiate maximum momentum and will in turn give you more height (arched flight path) and a resulting greater flight time. Having longer in the air (flight) will result in more time to adjust to a long flight shape, and enable a greater leg shoot. Overall this will result in a greater distance. As well as speed, power requires strength. At the point of take off an explosive downward force (explosive strength) is required on the take-off board.

American coaches, including two-time NCAA champion Frank Costello of the University of Maryland, flocked to Russia to learn from Brumel and his coaches.

Dick Fosbury, who would bring the high jump into the next century. Taking advantage of the raised, softer landing areas by then in use, Fosbury added a new twist to the outmoded Eastern

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Cut-off. He directed himself over the bar head and shoulders first, sliding over on his back and landing in a fashion which would likely have broken his neck in the old, sawdust landing pits.

Methodology

This chapter describes the methodology and procedure adopted for the selection of subjects, selection of variables, administration of test, collection of data and statistical technique employed for the analysis of data.

Selection of Subjects

The purpose of the study was to compare explosive strength and speed in long jumpers and high jumpers. To achieve this purpose, 15 long jumpers and high jumpers from SAI Centers and State sports council around Kerala were selected as subjects. The investigator explained the purpose and nature of the study and seeks the willingness of the subjects to volunteer for the study. Both male and female subjects aged between 17 to 25 years were selected for the study.

Selection of Variables

Variables are the conditions or characteristics that the researcher manipulates or observe. The variables selected for this study were

1. Explosive strength
2. Speed

Experimental Design

The experimental design used in the study was the purposive random group design. Since the study was delimited to two groups, (long jumpers and high jumpers) the experimental design was double group design.

Reliability of Data

The reliability of data was measured by ensuring instrument reliability and tester reliability. To ensure that investigator was well versed with the techniques of conducting the test, the investigator had a number of practice session in testing procedure under the guidance of an expert.

Orientation of the subjects

Before the test, the researcher gave a brief explanation and demonstrates the tests which were administered. The orientation about the test helped the subjects to get a thorough knowledge about what they want to perform. All were asked to warm-up and were given a chance to get familiar with test. It also helped to minimize the effort of the researcher by reducing the error during the course of test.

Collection of Data

For data collection 15 long jumpers and 15 high jumpers between aged from 17-25 years, from SAI Centers and state sports council hostel around Kerala were selected. For testing their explosive strength and speed, standing broad jump and 50m dash was used.

Test Administration

50m sprint- Sprint test

Purpose: The aim of this test is to determine acceleration and speed.

Equipment required: measuring tape or marked track, stopwatch, cone markers, flat and clear surface of at least 70 meters.

Procedure: The test involves running a single maximum

sprint over 50 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary standing position (hands cannot touch the ground), with one foot in front of the other. The front foot must be behind the starting line. Once the subject is ready and motionless, the starter gives the instructions "set" then "go.". The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and the participant should be encouraged to not slow down before crossing the finish line.

Results: Two trials are allowed, and the best time is recorded to the nearest 2 decimal places. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

Standing Broad Jump

Purpose of the test: To measure the explosive strength of the subject.

Equipment: Standard measuring tape, jumping pit, whistle and marking powder.

Procedure: A take off board is set in front of the jumping pit. The tester is asking to jump the athlete. The athlete should stand on the take off board. Both leg of subject should place parallel on the take off board. He can take a swinging action or bent knee action but he is not allowed to step a single foot in order to get a momentum. After the jump the mark in jumping pit is measured. Mark for measurement will be the closed point from takeoff board. Two chances are given for the subject.

Scoring: The length between the take off board and nearest point to take off board is noted and trial is record.

Statistical Tool

In order to find the significance of difference among two groups on selected variables the t-ratio was applied

Table 1: Descriptive analysis of the data of explosive strength among selected groups

Groups	Mean	Standard Deviation	N	Df	T
Long Jumpers	3.073	0.06091	30	28	8.37
High Jumpers	2.393	0.3087			

Significant at .05 level
t .05(28)= 2.048

Table 1 indicate that the t-ratio obtained from the scores of standing long jump to assess the explosive strength of subjects were 8.37. This value was significant as it was greater than the t-value of 2.048 that required for the significance at 0.05 levels. So the statistical analysis shows that there was significant difference in explosive strength between long jumpers and high jumpers. The descriptive analysis of the data shows that the mean score of explosive strength of long jumpers and high jumpers.

Table 2: Descriptive analysis of the data of speed among selected groups

Groups	Mean	Standard Deviation	N	Df	T
Long Jumpers	5.733	0.1449	30	28	3.42
High Jumpers	5.88	0.7277			

Significant at .05 level
t .05(28)=2.048

Table 2 indicate that the t-ratio obtained from the scores of 50m sprint to assess the speed of subjects were 3.42. This value was lesser than the t-value of 2.048 that required for the significance at 0.05 level. So the statistical analysis shows that there was a significant difference in speed between long jumpers and high jumpers. The descriptive analysis of the data shows that the mean score of speed of long jumpers are more than that of high jumpers.

Summary

This investigation was undertaken to compare the explosive strength and speed between long jumpers and high jumpers. For the purpose of the study, 30 male subjects aged 17 to 25 years were selected as subjects were the subjects of SAI centers and state sports council hostel around Kerala. The selected variables for the study were explosive strength and speed. The test administered to assess the explosive strength standing long jump and to asses speed was 50m dash test were administered. The experimental group was double group design. To find out the significant difference between long jumpers and high jumpers on selected variables, the t-ratio was employed. The level of significant was kept at 0.05 level. The results revealed that, there were significant difference in both explosive strength and speed among the selected groups. The descriptive statistics shows that the long jumpers have more explosive strength and speed compared to the high jumpers.

Conclusions

The result of the study revealed that there would be significant difference in the explosive strength and speed among long jumpers and high jumpers.

References

1. Ashok Kumar Sharma. "comparison of flexibility and explosive strength among throwers and jumpers", IJAR 2015; 1(4):120-122
2. Dr. Mantubaro, AINU Sonowal. "Effect of plyometric Exercises on Explosive strength, speed and agility" International Journal of Science and Research (IJSR). 2014, 3(8).
3. Nandalal Sing TH, Nonngdern RK. "Explosive strength through standing broad jump and vertical jump test between inter-college level volleyball and basketball players". Education practice and innovation, 2014; 1(2):ISSN: 2372-3106.