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Compression of Explosive Leg Strength among Sprinters and Jumpers University Level Athletes of Gwalior

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Abstract

The aim of the study was comparison of leg strength among sprinter and jumpers in athletics. For this purpose thirty students were selected who were studying in department of Physical Education, Jiwaji University, Gwalior M.P. Selected subjects were tested their leg strength by using Standing Broad Jump test and score were recorded in meter and centimeters, paired 't' test was applied among Sprinters and Jumpers Mean performance. Within the limitations of the present study it is concluded that there is significant different among sprinters and Jumpers explosive legs strength.

Keywords: Comparison of leg explosive strength among sprinters and Jumpers.

1. Introduction

Sports and games are competitive in nature and meant for a particular age group. The participation is only enjoyed by the talented and gifted youngsters. So the process of channelization of athletes in to various sports and games should be according to their ability and interest, after various investigation made by the sports experts. Today all the world, physical education, educators and coaches are facing their greatest challenges to handling problems in scientific way i.e., to given their sports person proper and progressive guideline based on scientific approach which lead to desired scientific results. Proficiency in sprinters and jumpers required that an ATHLETE has co ordinations and develops fitness along with speed. They should be capable of repeated sprints of short distance, has agility enabling him to rapidly change direction without losing momentum and has endurance to perform sustained period of activity. Over all we can say that all the major discipline required vary much the involvement of this motor component, I.e. leg muscular endurance, and leg explosive strength. Jumping or leaping is a form of locomotion or movement in which an organism or non-living (e.g., robotic) mechanical system propels itself through the air along a ballistic trajectory. Jumping can be distinguished from running, galloping, and other gaits where the entire body is temporarily airborne by the relatively long duration of the aerial phase and high angle of initial launch.

Explosive strength, a component of speed strength, refers to acceleration or rate of force development, or "the neuromuscular system's ability to generate high action velocities.

Sprinting is the act of running over a short distance at (or near) top speed. It is used in many sports that incorporate running, typically as a way of quickly reaching a target or goal, or avoiding or catching an opponent. Human physiology dictates that a runner's near-top speed cannot be maintained for more than 30–35 seconds due to the depletion of Phosphocreatine stores in muscles, and perhaps secondarily to excessive Metabolic as a result of Anaerobic glycolysis.

Methodology

The subject of this study was the students of School of Study of Physical Education and Sports Sciences, Jiwaji University, Gwalior (M.P.). For the purpose of the study 30 students were selected. The selected students are intervarsity level Athletes there age ranged between 18 to 25 years. To compare the leg strength of JUMPERS AND SPRINTERS, Standing Broad Jumps test was organized by researcher and pretest mean was compare so one shot designed was used to facilitate the study, "t-test" was employed as statistical technique at the

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0.05 level of significance for reached up to the valid conclusion.

Analysis of data and results of the study

In order to determine the compare of leg strength among JUMPERS AND SPRINTERS data was compared by using “t-test”

Table I: Comparative Analysis of Leg Strength among Jumpers and Sprinters

Players	Mean	S.D.	D.F.	D.M.	‘t’-test
Sprinters	2.25	0.189			
			28	0.09	1.27
Jumpers	2.16	0.199			

‘t’ is significance at 0.05 level with degree of freedom 28 = 0.225

Table no 1 clearly revealed that there is significant difference of leg strength among JUMPERS AND SPRINTERS as the obtained ‘t’ value 1.27 is significantly higher than the tabulated ‘t’ value 0.225 at the 0.05 level O significance.

The graphical representation of data in presented figure I

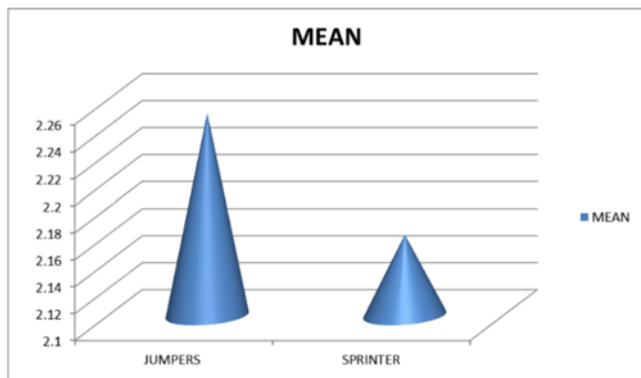


Fig 1: Mean and S.D. For Jumpers and Sprinters

Discussion of finding

Finding of the study show that there is significance difference in JUMPERS AND SPRINTERS in the mean of leg strength. The reason for better performance in the both case are continuous participation in same type of training program but the involvement of leg strength may be differ in these two groups or we can say that in the JUMPERS ATHLETES needed explosive leg strength and SPRINTERS ATHLETES needed strength Endurance.

Conclusion

The entire null hypotheses were rejected as there was significant difference in leg strength among JUMPERS and SPRINTER at 0.05 level of significance.

Recommendations

1. It is recommended that coaches and physical educationist must take into consideration the anthropometric measurements such as leg strength while selecting SPRINTERS AND JUMPERS
2. Similes study may be conducted by taking other variables
3. Similar types of the study can be conducted on other different level of subjects

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