

COMPARISON OF MAXIMUM LEG STRENGTH AND EXPLOSIVE LEG STRENGTH BETWEEN SPRINTERS AND LONG DISTANCE RUNNERS

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INTRODUCTION

The term “ATHLETICS” is derived from the Greek word “ATHLON” which means a contest, and the word “ATHLETE” denotes a person who takes part in sort of contest involving physical activity (Malhotra and abhay singh,1999). Track and field has become a popular sport in the world almost all the nations play the game both for enjoyment and competition, modern sports is every fast by its nature and its demands high level of special fitness. The spectators and the players enjoy the sport with a great amount of merriment. It is a sport of constant action and requires continuous adaptation to the changing situation by the team as well as the individual player (Renstrom,1994). Today is an era of minimum input and maximum output and for this every possible work is being done to increase efficiency. Every perspective angle is being thoroughly scrutinized by researchers and scientists together, so that sportsmen can get maximum mechanical advantage to improve their performances, clear insight of sports during Greek period was reflected in the epic poems of Homer, games were a part of the daily life of the people. Any important event saw the culmination of the event and a general sportsmeet (Gardiner,1995). From the earliest times running has been a natural part of mans existence, whether he was catching animals for food or escaping from predators. However, he also began to run for pleasure and then competitively, leading to a desire to improve on his speed or ability to run further (Rizgoli,1985). Sprinting is perhaps the oldest and simplest of all sports, and the 100mts sprint remains one of the glamorous events of track and field. It is also the shortest sporting competition in existence. Usually a sprint is all over in seconds, where as a Wimbledon tennis final can take five hours. Nonetheless, that 10-second sprint might have been a decade in preparation. The successful elite champions in this event can justifiably call themselves the “fastest men on earth” there is a lifetime of prestige from being the 100m Olympic champion that is probably not matched by success in any other event (Lawson). In ancient days the saying “sprinters are never made they are born” used to carry might which is now being modified as sprinter is born with some inherited speed, but he can be shaped into a skilled better runner as a result of scientific training (Carlet,1975). There are so many motor components like strength, speed, endurance, flexibility, co-ordinative abilities etc. strength is a conditional ability i.e. it depends largely on the energy liberation processes in the muscles. Strength is also perhaps the most important motor ability in sports as it is a direct product of muscle contractions (Hardayal singh,1984). Strength is also one of key to success in Modern games and sports. Such as a statement may sound extreme, but nevertheless it is true strength, however is the key element because it is more improved than other elements. It is infact the only element that can only be improved with one hundred percent success (Hooks,1965).

OBJECTIVE OF THE STUDY

The purpose of study was to compare the maximum leg strength and explosive leg strength between sprinters and long distance runners.

MATERIAL AND METHOD

Sixty (60) male players of university of track& field of Visva-Bharati Santiniketan west Bengal were selected as subjects for the present study. From the Sixty subjects, thirty (30) subjects were sprinters of Visva-Bharati Santiniketan west Bengal for the year 2009-10 and remaining thirty (30) subjects were long runners distance Visva-Bharati Santiniketan west Bengal, for the year 2009-10, were selected as the subjects for the present study. The subject's age ranged from 18 to 25 years.

VARIABLES

Following variable were selected

- (a) Maximum leg strength
- (b) Explosive leg strength

The maximum leg strength and explosive leg strength was measured by leg dynamometer and standing broad jump respectively.

STATISTICAL ANALYSIS

To Compare the Maximum leg strength and Explosive leg strength between sprinters and long distance runners mean difference method (t ratio) 't' test was used. The level of significance was set at 0.05 levels.

RESULTS AND DISCUSSION

Table No. 1
Mean comparison of Maximum Leg Strength between Sprinters and Long Distance Runners

	Sprinters	Long Distance Runners	"t" ratio
Mean	136.7167	130.9000	4.346*
SD	3.64995	7.0019	

*Significant at 0.05 of significance $t_{(0.05)(58)} = 2.000$

The above table-1 reveals that significant difference was found in Maximum leg strength between sprinters and long distance runners, as the calculated value of 't'=4.346 was greater than the tabulated $t_{0.05 (58)} = 2.000$ hence Sprinters were have more Maximum leg strength than long distance runners. Graphical representation of above table is made in figure no.1.

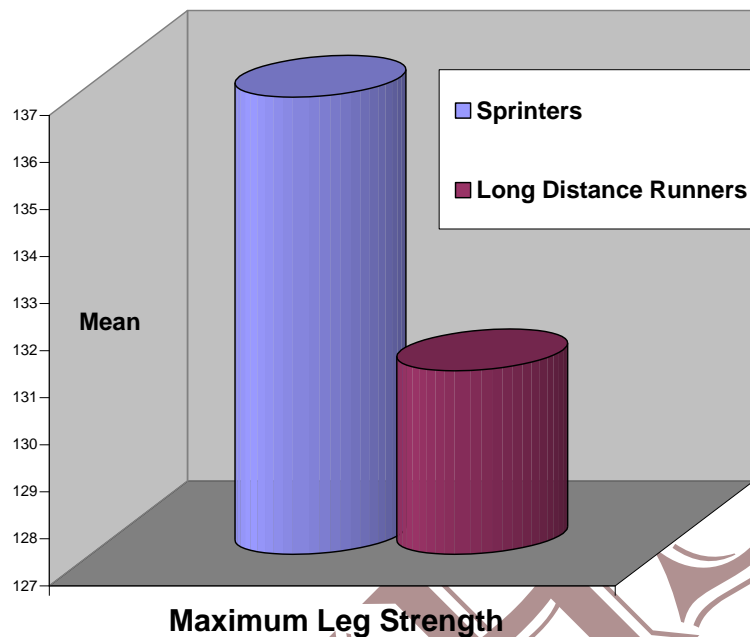


Fig. 1: Graphical Representation of Maximum Leg Strength between Sprinters and Long Distance Runners

Table-2
Mean comparison of Explosive Leg Strength between Sprinters and Long Distance Runners

	Sprinters	Long Distance Runners	“t” ratio
Mean	2.0343	1.9423	4.008
SD	.08669	.07824	

Significant $t_{0.05}(58) = 2.000$.

The above table-2 reveals that significant difference was found in Explosive leg strength between sprinters and long distance runners, as the calculated value of ‘t’=4.008 was greater than the tabulated $t_{0.05}(58) = 2.000$ hence Sprinters were have more Explosive leg strength than long distance runners. Graphical representation of above table is made in figure no.2.

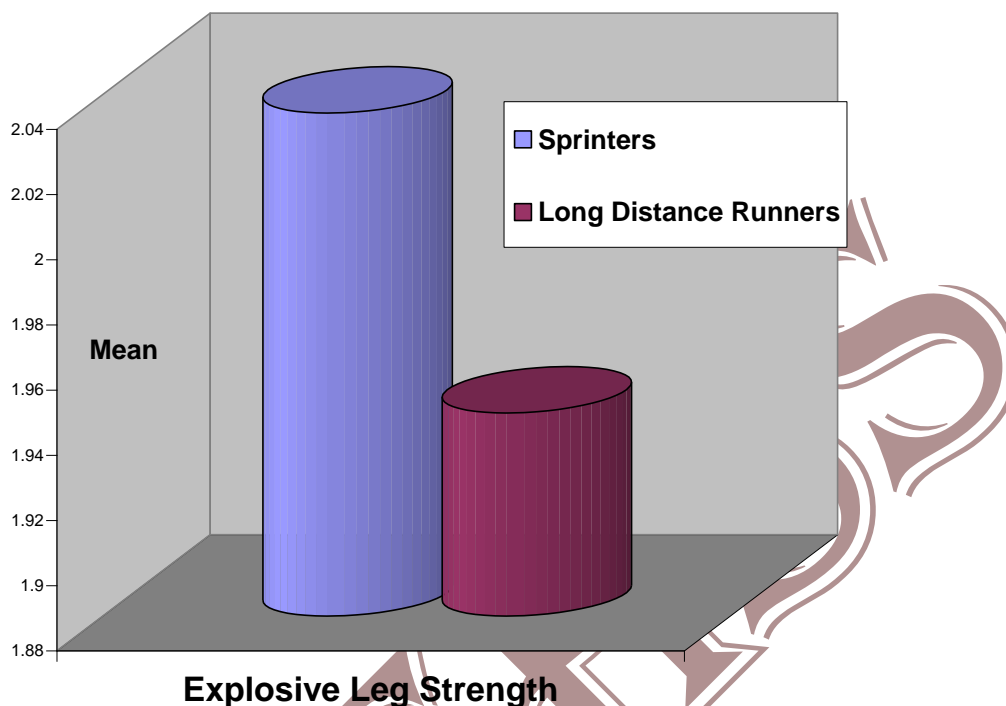


Fig. 2: Graphical Representation of Explosive Leg Strength between Sprinters and Long Distance Runners Sprinters.

CONCLUSION

On the basis of results and within the limitation of study, the following conclusions are drawn:-

- i. The Maximum leg strength has shown significant relationship between Sprinters and Long Distance Runners.
- ii. The Explosive leg strength has shown significant relationship between printers and Long Distance Runners.

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