



“A COMPARATIVE STUDY OF EXPLOSIVE LEG STRENGTH AND MAXIMUM LEG STRENGTH OF DIFFERENT CATEGORIES OF MEN SPINTERS”



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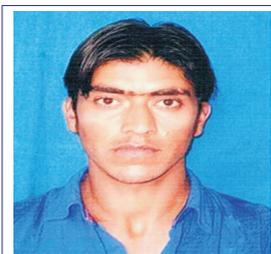
ABSTRACT:

Sprinting is one of the popular events in track and field. 100m, 200m, 400m etc are some of the events which demands supreme efforts, excellent physical fitness, sufficient strength and speed. These events have different form of start from the other events such as 800m and above, which have standing starts. The sprinters of these events use blocks to start because of its mechanical advantages. Proper standing is one of the most important fundamentals of good sprinting and often races are decided by inches made or lost on at the start.

KEY WORDS: Men Sprinters, excellent physical fitness, sufficient strength, mechanical advantages.

INTRODUCTION:

There are so many motor components like strength, speed, endurance, flexibility, coordinative 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



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contractions.

Strength is also one of the key to success in modern games and sports. Such as 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 in fact the only element that can only be improved

with one hundred percent success.

Strength training is no on limited to competitive sports. Strength training for prevention and rehabilitation, as well as strength training as a leisure time activity in gym, is now quite common, strength training was, and still it is a major part of athletics training with the aim to improve performance.

HYPOTHESIS:

It is hypothesized that there may not be significant difference in explosive and maximum leg strength of different categories of sprinters.

METHODOLOGY:

In this chapter selection of subjects, criterion measures, collection of data and



statistical treatment of data has been described.

SELECTION OF SUBJECTS

The subjects for this study were randomly selected from the Annual athletic meet of Nagpur SharirikShikshanMahavidyalaya, Nagpur for the year 2015-2016. Thirty men athletes who were participated in the events of 100mts and 400mts sprinters were acted as subjects. The athletes were divided into two groups. Group A was consisted of the athletes of 100mts sprinters and group B of athletes who participated in 400mts sprints. Each group had fifteen sprinters. The age of subjects was ranged from 18-25 years.

CRITERION MEASURES

The following tests were selected and their sources were considered as criterion measures for this study:-

- 1.Explosive leg strength was measured by standing broad jump, the performances were recorded in meters.
- 2.Maximum leg strength was measured by Leg dynamometer, the scores were recorded in kilograms.

STATISTICAL METHODS

Comparison between the means of 100mts and 400mts sprinters on the basis of ‘t’-ratio for explosive leg strength in meters.

<i>Component</i>	<i>M-1</i>	<i>M-2</i>	<i>MD</i>	<i>SE</i>	<i>‘t’ Ratio</i>	<i>Required ‘t’ Ratio</i>
<i>Explosive leg strength</i>	02.42	02.69	00.27	00.50	00.54	02.05

*Significant at 0.05 level of confidence

M1 = Mean of 100mts sprinters

M2 = Mean of 400mts sprinters

An examination of tablereveals that the means for 100mts sprinters and 400mts sprinters are 02.42 and 02.69 respectively. Similarly, an examination of the same table reveals that there is no significant difference in the means of 100mts sprinters and 400mts sprinters as the obtained ‘t’-ratio value 00.54 isless than the required ‘t’-ratio value 2.05 at 0.05 level of confidence.

TABLE-2

Comparison between the means of 100mts and 400mts sprinters on the basis of ‘t’-ratio for Maximum leg strength in kilogram.

<i>Component</i>	<i>M-1</i>	<i>M-2</i>	<i>MD</i>	<i>SE</i>	<i>‘t’ Ratio</i>	<i>Required ‘t’ Ratio</i>
<i>Maximum leg strength</i>	145.20	161.20	15.70	27.55	00.56	02.05

*Significant at 0.05 level of confidence

M1 = Mean of 100mts sprinters

M2 = Mean of 400mts sprinters

An examination of table 2 reveals that the means for 100mts sprinters and 400mts sprinters are

145.20 and 161.20 respectively. Similarly, an examination of the same table reveals that there is no significant difference in the means of 100mts sprinters and 400mts sprinters as the obtained 't'-ratio value 00.56 is less than the required 't'-ratio value 2.05 at 0.05 level of confidence.

DISCUSSION OF FINDINGS

The analysis of data reveals that no significant difference in explosive leg strength and maximum leg strength of two categories of sprinters namely 100mts sprinters and 400mts sprinters were found at the selected level of significance which establishes that both the categories of sprinters possess more or less equivalent explosive leg strength and maximum leg strength. This may be probably due to the fact that similar nature of training and pre-requisite components for sprinters. Such results may also due to small size of the sample and absence of sophisticated instruments used for the study.

SUMMARY CONCLUSION AND RECOMMENDATION

The purpose of the study was to compare the explosive leg strength and maximum leg strength of two categories of sprinters.

The subjects for this study were randomly selected from the Annual athletic meet of Nagpur SharirikShikshanMahavidyalaya, Nagpur for the year 2015-2016. Thirty men athletes who were participated in the events of 100mts and 400mts sprinters were acted as subjects. The athletes were divided into two groups. Group A was consisted of the athletes of 100mts sprinters and group B of athletes who participated in 400mts sprints. Each group had fifteen sprinters. The age of subjects was ranged from 18-25 years.

Their explosive leg strength performances were recorded by standing broad jump in meters and maximum leg strength performances were measured by leg dynamometer in kilograms respectively.

In order to measure the explosive leg strength and maximum leg strength, the standing broad jump and the leg dynamometer tests were used. All the subjects were assembled at the 400mts track of Nagpur SharirikShikshanMahavidyalaya, Nagpur for standing broad jump and for leg dynamometer test in the research laboratory of the Nagpur SharirikShikshanMahavidyalaya, Nagpur. The subjects were briefed about the procedure of the test. The data were collected during Annual Athletic Competition with the help of assistants. The subjects were asked to take three trails in both the tests and best was recorded as score.

With a specific end goal to think about the scores of t he subjects of Men sprinters took part in the occasions of 100mts and 400mts sprints, the scores acquired from the tests of touchy leg quality and greatest leg quality the information, "t" Ratio was utilized for factual treatment. The outcomes have demonstrated that the sprinters took an interest in 100mts and 400mts did not vary fundamentally in the hazardous leg quality and most extreme leg quality. The chose level of centrality was 0.05.

CONCLUSION

Within the restrictions of the study the accompanying conclusions are drawn:-

1. The sprinters took part in the occasions of 100mts and 400mts did not vary from one another in unstable leg quality.
- 2.The sprinters took part in the occasions of 100mts and 400mts did not likewise contrast from one another in most extreme leg quality.

RECOMMENDATIONS

1. Similar types of study may be conducted on women sprinters.
2. The similar types of study may be conducted for different games and sports.
3. The study may be conducted utilizing the athletes of different levels and events.
4. The study may be conducted on large sample.

REFERENCES:-

1. C.N Gardiner, "Athletics of Ancient World". (London: Oxford clarendon press, 1955). P, 24 .
2. Encyclopaedia Of Track And Field 2nd Ed. (Prentice Hall-Press, New York: 2985), by Rizgoli Editor.
3. Vinay Malhotra and Abhay Singh, "Track And Field a Guide To Playing and Coaching", (Delhi friends publications, 1999) p, 14
4. Hardayalsingh, "Science of Sports Training", (Patiaia : N.S.N.I.S, 1984) P-85
5. Donald K. Mathews, D.P.Ed. "Measurement in physical education fifth edition" (W.B. Saunders company Philadelphia London, Toronto. 1978) p. 105.
6. Sudarshan Biswas, "A Comparative study of Anaeboric and physical characteristics of soccer players a different field position in soccer". (unpublished M.Phil thesis, Jiwaji University, Gwalior)2008.