

# Comparative analysis of speed and strength among athletes of different events

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## Abstract

**Background:** The purpose of the study was to compare the speed & strength level among the athletes of different events. **Methods:** For the present study 10 sprinters, 10 middle & 10 long distance runners (male) were selected randomly from C.S.J.M. University, Kanpur. Their age ranging from 18-25years. 50 meter Dash was used to measure the speed & leg lift Dynamometer for strength. The data was analyzed by applying One Way Analysis of Variance (ANOVA) technique to compare speed & strength level among athletes of different events. The level of significance was set at 0.05 **Results:** The result of the present study has proved that there was no significant difference found among sprinters, middle distance runners and long distance runners in case of speed. The speed ability has found at different level in the athletes different events. In case of strength there was significant difference found among sprinters, middle distance runners and long distance runners. **Conclusion:** In the light of the findings, it was concluded that. The result of the study indicated that the speed ability of the Sprinters has dominated on the middle & long distance runners. But no significant difference found among them. While other physical characteristic, strength ability of long distance runners has overcome on the sprinters & middle distance runners at different level in different events of the athletes.

**Keywords:** Speed & strength level

## INTRODUCTION

Most sports outside of track sprinting do not offer the platform to showcase maximum running speed, yet sprint training does underlie the foundation of numerous sports activities. Just think how many critical game situations in various sports are won or lost by the ability or lack thereof to shift into higher gear when needed (Brown Lee and Ferringo Vance, 2000). If strength is your goal, you need to use relatively heavy resistance to perform fewer repetitions per set, Rest for two to three minutes between sets. The goal of hypertrophy type of training is to increase the overall strength of muscle or group of muscles. Strength training usually includes exercises that work the major muscle groups, such as the bench press (Sandler Devid, 2003).

The anaerobic (without oxygen) a lactic (without lactate) energy system is best challenged as an athlete approaches top speed between 30 and 60 meters while running at 95% to 100% of maximum. This speed component of anaerobic metabolism lasts for approximately eight seconds and should be trained when no muscle fatigue is present (usually after 24 to 36 hours of rest). Today we live in a world where athletes need to be explosive, smooth, and agile this is looked upon with great admiration. Speed of muscle contraction is an inherited quality but it can be greatly improved through training by proper techniques and practicing speedy movements and their proper coordination. Speed is greatly affected by one's age, height, weight, muscle viscosity and mechanical and structure features. "It

was very difficult to earn a goal against such a team whose each player reacted with so fast a speed in highly coordinated manner to all the offences" (Kansal Devinder, 2008).

## Objective of the study

The objective of the study was to compare the Speed & strength level among the athletes of different events.

## METHODOLOGY

The purpose of the present study was to compare the speed and strength among the athletes of different events. 10 sprinters, 10 middle and 10 long distance runners (male) were selected randomly from C.S.J.M. University, Kanpur. Their age ranged from 18-25years. The physical variables-speed and strength were measured 50 meter Dash and leg lift Dynamometer. The data was analyzed by applying One Way Analysis of Variance (ANOVA) Technique. The level of significance was set at 0.05.

## Selection of subject

For the present study 10 sprinters, 10 middle & 10 long distance male runners from C.S.J.M. University were selected randomly as the subject of the study. Their age were ranging from 18-25 years.

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## Selection of variables

Keeping the feasibility criterion in mind, the following variables were selected for the present study.

S.No.	Physical Variables	Criterion Measures
1	Speed	50 Meter Dash
2	Strength	Leg Lift Dynamometer

## STATISTICAL TECHNIQUE

The data was analyzed by applying One Way Analysis of Variance (ANOVA) technique to compare speed and strength level

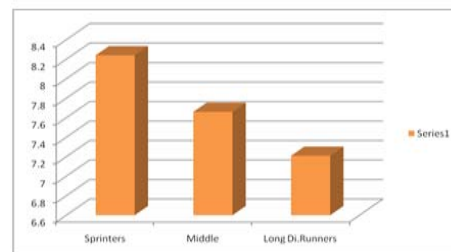
among athletes of different events. The level of significance was set at 0.05.

Table-1: Analysis of Variance on the Mean of Physical Variable-Speed-Obtained from Sprinters, Middle distance and Long distance Runners of the Athletes of different events.

Mean	Athletes Events			SV	SS	df	MS	F
	Sprinter	Middle	Long Distance Runner	A	5.33	2	2.67	1.74*
	8.24	7.66	7.21	W	41.15	27	1.52	

\*Significant level at 0.05, df (2, 27) =3.35

Analysis of Variance for physical variable-speed indicated that the resultant F-ratio of 1.74 was insignificant. It is clear to above this table that the calculated value (1.74) lesser than the tabulated value (3.35). It means there is no significant difference among sprinters, middle distance runners and long distance runners.



Graphical Presentation of Speed.

Table 2. Analysis of Variance on the Mean of Physical Variable-Strength-Obtained from Sprinters, Middle distance and Long distance Runners of the Athletes of different events.

Mean	Athletes Events			SV	SS	df	MS	F
	Sprinter	Middle	Long Distance Runner	A	52999.8	2	26499.9	26.79*
	137.5	198.7	239.8	W	26700.2	27	988.89	

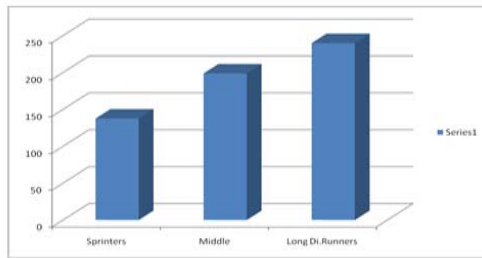
\*Significant level at 0.05, df (2, 27) =3.35

Analysis of Variance for psychological variable-Anxiety indicated that the resultant F-ratio of 26.79 was significant. It is clear to above this table that the calculated value (26.79) lesser than the tabulated

value (3.35). It means there is significant difference found among sprinters, middle distance runners and long distance runners among athletes of different events.

Table 2.1. Post Hoc Test Means Differences among Sprinters, Middle distance and Long distance Runners in Relation to Strength.

Long Distance Runner	Sprinter	Middle	MD	CI
239.8	137.5		102.3*	0.405
239.8		198.7	41.1*	0.405
	137.5	198.7	61.2	0.405



Graphical Presentation of Strength

## DISCUSSION AND FINDINGS

The finding of the study, the data proved that there is no significant difference found in case of speed. It is clear that the different events of the athlete the sprinters were quite successful between the middle distance runners and long distance runners. In case of strength there is significant difference found, long distance runners more dominated other than sprinters and middle distance runners. The present investigation also supports earlier findings by Moor et al. (2005), Uchihashi et al. (2011).

## CONCLUSION

In the light of the findings, it was concluded that. The result of the study indicated that the speed ability of the Sprinters has dominated on the middle and long distance runners. But no significant difference found among them.

While other physical characteristic, strength ability of long Distance runners has overcome on the sprinters and middle distance runners at different level in different events of the athletes.

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