

Effect of Assisted and Resisted Sprint Training on Speed Performance among College Athlete in Andhra Pradesh

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ABSTRACT

The purpose of the study was to find out the effect of assisted and resisted sprint training on Speed performance among college athlete in Andhra Pradesh. For the purpose of the study sixty(N=60) athletes studying various affiliated college to Sri Venkateswara University, Tirupatti, Andhra Pradesh state, India, were randomly selected as subjects. The subjects were assigned at random into four groups of fifteen each (n=15). Group-I underwent Assisted Sprint Training (n=15), Group-II underwent Resisted Sprint Training (n=15), Group-III underwent combined Assisted and Resisted Sprint Training (n=15) and Group-IV acted as Control. Speed only selected as a dependent variable and it was assessed by 50 meters sprint test. The Experimental groups underwent their respective training for 10 weeks duration. And the number of session was conformed into six days per week. All the subjects were tested prior to and immediately after the training for the selected variable. Data were collected and statistically analyzed using ANCOVA. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference among all the Experimental groups' namely assisted training, resisted training and assisted and resisted training. Further the results showed combined assisted and resisted training group was found to have greater impact on the group concerned than the assisted training group, resisted training group and control group in enhancing the performance of Speed.

Keywords: Assisted Training, Resisted Training, Combined Training, Speed

INTRODUCTION

Sprint training burns massive calories, increases your cardiovascular health, builds muscle, and boosts your speed and power. Sprint workouts are also a big time saver. Although many exercise guidelines recommend up to 60 minutes of moderate exercise three times a week, most people fail to get that much exercise for many reasons, including lack of time.

Sprint training can be used effectively by both elite athletes and recreational exercisers. Sprint training enhances endurance performance. In one study, participants who completed eight weeks of sprint interval training saw improvements in maximal oxygen uptake, also known as VO_2 max. This test is one way to measure a person's cardiovascular fitness. Sprinting is one of the most physically demanding tasks that the human body can perform. It requires an incredible amount of explosive power, tissue resilience (Litleskare et al., 2020).

Resisted sprint (RS) preparing is usually utilized as a way to enhance speed and increasing speed in running. This strategy for preparing may include the competitor run with an additional heap utilizing a weighted sledge, a weighted vest, or a speed parachute, or performing tough or sand rise preparing. The basic presumption in RS preparing is that it will in the end lead to increments in walk length amid typical un opposed running, by expanding the power and quality. In spite of the fact that RS preparing is regularly drilled over a wide assortment of games, review of the writing indicates constrained logical proof to help the utilization of RS preparing as a strategy for speed advancement. Different examinations have concentrated on the impact of RS preparing on the kinematics of dashing, however there is little research looking at the more extended term impacts of RS preparing program on quality and running rate execution (Costello, 1985).

On the track and in team sports, resisted sprinting is a common means of providing a sprint-specific overload stimulus. While there are several methods of applying resistance, the most common are sleds. Unfortunately, in both research and practice the way loads are regularly prescribed is still years behind the gym-based approach (Cahill, 2019).

METHODOLOGY

For the purpose of the study sixty (N=60) athletes studying various affiliated college to Sri Venkateswara University, Tirupatti, Andhra Pradesh state, India, were randomly selected as subjects. The subjects were assigned at random into four groups of fifteen each (n=15). Group-I underwent Assisted Sprint Training (n=15), Group-II underwent Resisted Sprint Training (n=15), Group-III underwent combined Assisted and Resisted Sprint Training (n=15) and Group-IV acted as Control. Speed only selected as a dependent variable and it was assessed through 50 meters sprint test. The experimental groups underwent their respective training for 10 weeks duration. And the number of session was conformed into six days per week. All the subjects were tested prior to and immediately after the training for the selected variable.

ANALYSIS OF THE DATA

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The results of the Analysis of Covariance on Speed of the pre, post, and adjusted test scores of Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group and Control group are presented in Table –1.

Table – 1
Analysis of Covariance on Speed of Experimental Groups
and Control Group

Test	Assisted Sprint Training Group	Resisted Sprint Training Group	Combined Assisted and Resisted Sprint Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Adjusted Post Test Mean	7.15	7.02	6.71	7.75	Between	8.14	3	2.71	68.17*
					Within	2.19	55	0.04	

* Significant at 0.05 level of confidence
(Speed Scores in Kilograms)

Table value for df (3, 56) at 0.05 level = 2.76 Table value for df (3, 55) at 0.05 level = 2.78

The table-1 shows adjusted post-test means on Speed of Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group and Control group are 7.15, 7.02, 6.71 and 7.75 respectively. The obtained 'F' ratio of 68.17 for adjusted post-test scores was higher than the table value of 2.78 for degrees of freedom 3 and 55 required for significance at 0.05 level of confidence on Speed.

The results of the study indicate that there are significant differences among the adjusted post test means of Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group and Control group in Speed performance.

To determine which of the paired means have a significant difference, the Scheffe's test is applied as Post hoc test and the results are presented in Table – 2.

Table – 2

The Scheffe's test for the differences between the adjusted post test paired means on Speed

Adjusted Post-test Means				Mean Difference	Confidence Interval
Assisted Sprint Training Group	Resisted Sprint Training Group	Combined Assisted and Resisted Sprint Training Group	Control Group		
7.15	7.03			0.13	0.21
7.15		6.71		0.45*	0.21
7.15			7.75	0.59*	0.21
	7.03	6.71		0.32*	0.21
	7.03		7.75	0.72*	0.21
		6.71	7.75	1.04*	0.21

* Significant at 0.05 level of confidence

Table-2 shows that the adjusted post test mean differences on Speed between Assisted Sprint Training group and Combined Assisted and Resisted Sprint Training group, Assisted Sprint Training group and Control group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group, Resisted Sprint Training group and Control group and Combined Assisted and Resisted Sprint Training group and Control group are 0.45, 0.59, 0.32, 0.72 and 1.04 respectively, which are greater than the confidence interval value of 0.21 on Speed at 0.05 level of confidence.

Further the table-2 shows that the adjusted post test mean differences on Speed between Assisted Sprint Training group and Resisted Sprint Training group is 0.13, which is less than the confidence interval value of 0.21 on Speed at 0.05 level of confidence.

The results of the study showed that there was a significant difference between Assisted Sprint Training group and Combined Assisted and Resisted Sprint Training group, Assisted Sprint Training group and Control group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group, Resisted Sprint Training group and Control group and Combined Assisted and Resisted Sprint Training group and Control group on Speed. Further the results of the study showed that there was no significant difference between Assisted Sprint Training group and Resisted Sprint Training on Speed.

The above data also reveal that Combined Assisted and Resisted Sprint Training group had shown better performance than Assisted Sprint Training group, Resisted Sprint Training group and Control group in Speed.

The adjusted post mean values of Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group and Control group on Speed are graphically represented in the Figure –1.

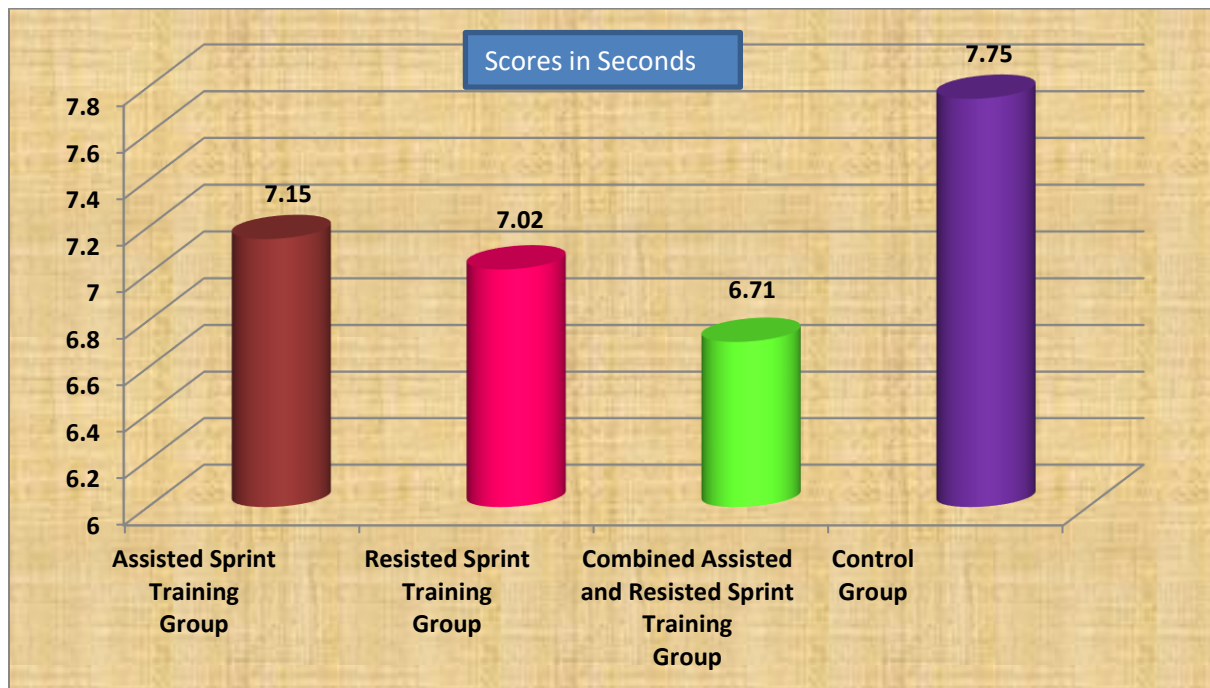


Figure: 21 The Adjusted Post Mean values of Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group and Control group on Speed

CONCLUSIONS

From the analysis of the data, the following conclusions were drawn.

- 1) The experimental groups namely, Assisted Sprint Training group, Resisted Sprint Training group and Combined Assisted and Resisted Sprint Training group had significantly improved in Speed.
- 2) The Combined Assisted and Resisted Sprint Training group was found to have greater impact on the group concerned than the Assisted Sprint Training group, Resisted Sprint Training group and Control group in enhancing the performance of Speed.

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