

# EFFECT OF SELECTED RESISTANCE TRAINING AND ACCELERATION DRILLS ON SPEED PERFORMANCE OF WOMEN ATHLETES

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## ABSTRACT

*Speed is determined not only by mobility and well synchronized neuro muscular response but also by the frequency of the precise nerve impulses and strong concentration. Resistance training is a form of strength training in which each effort is performed against a specific opposing force generated by resistance (ie. resistance to being pushed, squeezed, stretched or bent). Speed and acceleration are not the same thing. Speed is how fast an athlete can sprint at maximum velocity. Acceleration is reaching top speed as quickly as possible. The purpose of the study was to find out the effect of selected resistance training and acceleration drills in the development of speed among women sprinters. To achieve this purpose, 30 women athletes from Prime Sports Academy, Chennai were selected. Their age was from 16 to 20 years. Subjects were selected at random and on the basis of their initial performance in 50 m dash, they were equated into two groups, namely, the control group and the experimental group. Control group did not undergo resistance and acceleration training but experimental group was given four times per week of six weeks of both training. After the six weeks training period post test was conducted and the obtained data were recorded for the control group and the experimental group. The mean, mean differences, standard deviation, standard error of the mean were computed for both the groups separately. The obtained independent 't' ratio value was subjected to the test at significance at 0.05 level of confidence. The initial and final performances in 50 m dash of the experimental group were interpreted statistically. The study reveals that resistance training and acceleration drills had a significant effect on the performance of speed among women athletes.*

**Key words:** Resistance training, Acceleration Drills, Speed

## INTRODUCTION

Speed is more than a product of nature. A person is born with muscles capable of working at speed. Some people in sports term such muscles as fast twitch. This means that, when the muscle is called upon to work at maximum capacity fast acting fibers also have to receive spherical nerve impulses, (David H Clarke and H Harrison Clarke, 1970) which probably more refined in some people than other. Teachers and coaches are all very well aware that the most sports are looking for the same basic speed skills.

Speed is the ability to perform a particular movement very rapidly. It is a function of distance and time. As almost any coach will tell you, the fastest way to improve speed is to improve your skill. As your co-ordination and efficiency in a sports movement improves, your speed increases. If you watch a beginning

class in tennis, soccer or martial arts, you can readily observe that speed follows mastery and skill is well learned that simply practicing and refining the skill no longer yields increases in speed. Speed has a complex nature as it depends to a considerable extent on the central nervous system.

Resistance training (Lockie RG, Murphy AJ and Spinks CD, 2003) is a form of strength training in which each effort is performed against a specific opposing force generated by resistance (ie. resistance to being pushed, squeezed, stretched or bent). Exercises are isotonic if a body part is moving against the force. Exercises are isometric if a body part is holding still against the force. Resistance exercise is used to develop the strength and size of skeletal muscles. Properly performed, resistance training can provide significant functional benefits and improvement in overall health and well-being. Acceleration is the rate at which the speed of an object is changing. Acceleration takes place the first 0-30 meters or to about 3-4 seconds from the start of a sprint. After approximately 30 meters acceleration turns into maximum velocity and top speed is hit. Workouts to improve the acceleration of an athlete will follow in the same distance parameters. Running repeat sprints of 20 meters for example with full recovery is an option for an acceleration workout.

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## STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of selected resistance training and acceleration drills in the development of speed among women athletes.

## HYPOTHESIS

It was hypothesized that there would be no significant difference due to selected resistance training and acceleration drills in the development of speed among women athletes.

## METHODOLOGY

To achieve this purpose, 30 women athletes from Prime Sports Academy, Chennai were selected. Their age was from 16 to 20 years. Subjects were selected at random and on the basis of their initial performance in 50 m dash, they were equated into two groups, namely, the control group and the experimental group. Control group did not undergo resistance and acceleration training but experimental group was given four times per week of six weeks of both training. After the six weeks training period post test was conducted and the obtained data were recorded for the control group and the experimental group.

The mean, mean differences, standard deviation, standard error of the mean were computed for both the groups separately. The obtained independent 't' ratio (Henry E. Garret, 1960) value was subjected to the test at significance at 0.05 level of confidence. The initial and final performances in 50 m dash of the experimental group were presented graphically for clarity and they were also interpreted statistically.

**RESULTS AND DISCUSSIONS****TABLE I**

**MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' RATIO VALUE OF PRE-TEST SCORES OF CONTROL GROUP AND EXPERIMENTAL GROUP**

Test	Mean	Mean Difference	Standard Deviation	't' Ratio
Pre-test	9.11		0.6437	
		0.04		1.670
Pre-test	9.07		0.6187	

Not Significant at 0.05 level.

As shown in the Table I the obtained 't' ratio value of 1.67 was lower than the required table value of 2.05 at 0.05 level with 28 degrees of freedom. Hence, there was no significant difference between the pretest scores of control group and experimental group.

**TABLE II**

**MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' RATIO VALUE OF POST TEST SCORES OF CONTROL GROUP AND EXPERIMENTAL GROUP**

Test	Mean	Mean Difference	Standard Deviation	't' Ratio
Post Test	9.13		0.6423	
		1.11		10.183*
Post Test	8.02		0.3241	

**\* Significant at 0.05 level**

As mentioned in the Table II the obtained 't' ratio value of 10.183 was higher than the required table value of 2.05 at 0.05 level with 28 degrees of freedom. Hence, the null hypothesis was rejected. It shows that the experimental group had improved the speed performance due to the resistance training and acceleration drills than the control group on post-test.

**DISCUSSION ON FINDINGS**

It was discussed from the result of the study that there was significant difference between control group and experimental group in speed due to selected resistance and acceleration drills

The pre-test and post-test mean values 9.11 and 9.13 of control group showed no significant improvement on speed. The experimental group which underwent six weeks resistance training and acceleration drills showed significant improvement between the pre-test mean value 9.07 and post-test mean value of 8.02 respectively. Statistically it was proved by the experimental group that six weeks resistance training and acceleration drills improved speed of the women athletes.

## CONCLUSIONS

Within the limitations and delimitations of this study, the following conclusions were drawn. It was observed that there was improvement in the performance of 50 meters speed through the selected resistance training and acceleration drills. It is concluded that the improvement of speed may be due to the co-ordination of neuromuscular system and improvement on the strength, power and speed of the leg muscles hence, there was improvement in the 50 meters speed among women sprinters.

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