

## EFFECTS ON DOWNHILL TRAINING ON SPRINTERS

**\*ANIKETPOLSAI**

(M.P.Ed. student, P.G.G.I.P.E., Banipur)

**\*SOMNATHRAKSHIT**

M.P.Ed. student, P.G.G.I.P.E., Banipur

**\*\*\*BISWABANDHUNAYEK**

Guest Lecturer, Dept of Physical Education Sreechaitanyamahavidyalaya, North 24 Pgs. W.B

**Abstract:** Life will not be life without physical activities. Through physical activities alone people were able to survive in this world. The story of evolution throws some light on the nature and types of activities which are an essential part of modern physical activities which are to be fit for day-to-day existence and to meet the occasional emergencies that arise. The purpose of the study was to compare the effects of six weeks downhill training on the performance of the sprinters. For the purpose of the study 20 female sprinters of Nadia district and Burdwan district of West Bengal, India were selected randomly as the subjects for this study. The age of the subjects was between 16-18 years. 50 Yards dash was the only variable of the study. 't' test was applied to calculate the collected data at 0.05 level of significance. The results of this study showed that there was significant difference on downhill training found in the sprinters.

**Keywords:** Downhill training, Sprinter.Speed, Female

### INTRODUCTION

Sports are not merely fun, games and diversion or entertainment in sports athletes often strive for perfection just as many persons do in religious order. In sports as in religion there are heroes and heroines who provide models to the perfection to be strived for, who are admired for what they did becoming almost like saint such as the religious nature of sports.

Sincere ancient times, sports activities in the shape of running, jumping and throwing have been a natural part of man's existence whether it was hunting animals for food or escaping from the wild and dangerous species. However, latterly these activities became pleasurable and competitive, leading to desire for improving his own speed of movement or ability to complete in these competitions.

The ability to efficiently accelerate and reach maximum running velocity is essential for athletic success. An athlete's running velocity is increased by improving the physical, metabolic, and neurological components associated with sprinting. Speed can be enhanced in a variety of ways including using either resisted or assisted techniques. Training at supra maximal running speeds might have positive implications on the adaptation of the human neuromuscular system. More specifically, research has shown that assisted methods such as towing, high-speed treadmill sprinting, and downhill sprinting produce a running velocity greater than what can be achieved under unassisted conditions, potentially as a result of increasing stride length or frequency. Downhill sprinting is also an efficient and cost-effective method for increasing an athlete's maximum velocity. Nonetheless, the optimal slope for over speed training has not been determined.

Sprint running (sprinting) is a high-speed locomotion mode. The winner of the 100-m race at the highest competitive level is considered the fastest man or woman in the world at that time. The 100-m race time is strongly correlated with maximal sprinting speed during the race and the time during which the sprinter can accelerate with maximal effort is limited to 5-7 seconds. Because the maximal sprinting speed depends on the preceding increase in speed in the acceleration phase, the ability to accelerate is critical to 100-m race performance.

When the acceleration phase is of sufficient length and optimum value of running speed, the sprinter is not able to maintain the maximum speed and a long deceleration phase occurs. Top level sprinters reach their maximum speed between 50 m and 70 m and are able to carry on for another 20 m, although very seldom for 30 m. Thus, a third transition sub-phase (35-60 m) takes place only at the elite level. It lasts until the sprinter achieves the level of maximum running speed. In this phase the sprinter reaches peak stride length, stride frequency, and maximum velocity. There is lot of dispute is there on developing acceleration speed and maximum speed, some athletes are weaker in acceleration zone, some sprinters are failed in maintaining the maximum speed, the author

found a solution to solve this type of problems by a package of training to improve both acceleration and maximum speed through the training of uphill & downhill.

sprinting and sled sprint training. Each individual or team which participates in any sports participates in any sports events wants to win because society attached great significance to winning according to Renwas (1972) "Performance is the key note of all sports-its basic principle. Since sports have because a prestigious aspect to prove one's superiority the philosophy of participate in games & sports has under gone a great change" sports are in any form of playful competition whose outcome is determined by physical skills, strategy or chance employed hand ball is no exception and also has been considered as games & sports as it involves competition use of physical skill and strategy hand ball game in the sense is defined here.

### PURPOSE OF THE STUDY

The purpose of the study was to compare the effects of six weeks downhill training on the performance of the sprinters.

### METHODOLOGY

For the purpose of the study 20 district level sprinters were taken randomly, age ranged from 16-18 years, from Nadia district and Burdwan district of West Bengal, India. To measure the changes in sprint performance through application of six weeks downhill training (3 days a week) and Speed was measured by 50 yards dash. To calculate the collected data 't' test was applied at 0.05 level of significance.

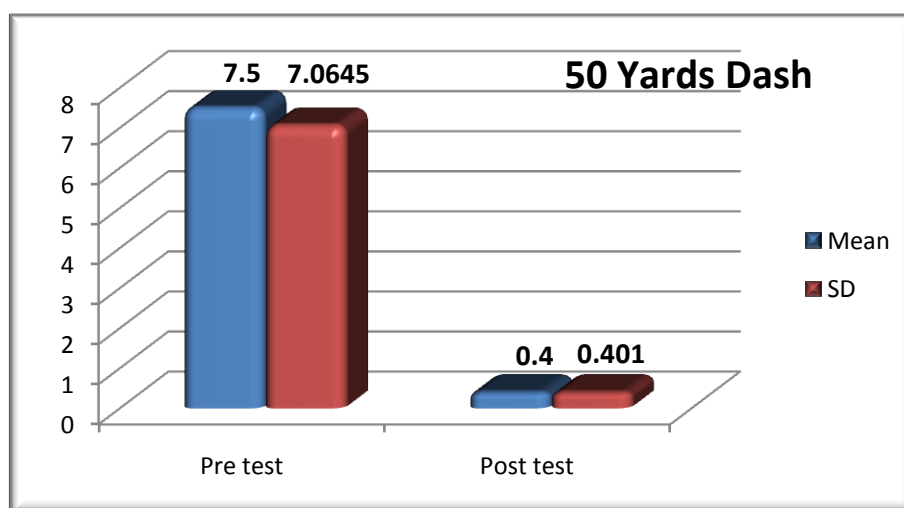
The mean values along with standard deviation, and 't'-ratio of the sprinters (Pre and Post tests) are shown in Table-1

**TABLE-1**

**Mean Standard deviation and 't' value of 50 Yards dash Pre and Post Test of the sprinters**

variable	Source of variance	Mean	Standard Deviation	't' ratio
50 Yards dash	Pre Test	7.50	0.4	3.021*
	Post Test	7.0645	0.401	

\*= Significance at 0.05 level of confidence,  $t_{0.05}(38) = 2.021$



**Fig--1**

Comparison of Barrow Motor Ability Test between Body and Non-Body Contact Game Players

### RESULTS & DISCUSSION

From the above results of the study it was found that the mean and standard deviation of 50 Yards dash (Pre and Post test) of the sprinters which has been found  $7.50 \pm 0.40$ , and  $7.0645 \pm 0.401$ , whose 't' ratio was 3.021\*, which was higher than the table value so it was significant between the Pretest and Posttest of the sprinters.

It might think running up a hill is the best way to train, but running down a hill has awesome benefits, too. They are an example of what's known as over-speed training, which is the opposite of resistance training. Downhill Runs let you run faster than normal while expending less energy.

This has a large number of benefits. Your muscles elongate to help you control your speed, and your body gets used to proper running technique at maximum velocity, which ultimately helps you run faster. It's important to know which hills are fit for Downhill Runs.

As for a specific workout? Sharman suggests finding a steep, technical section of hill that will take at least one minute to run down fast. Do fast, one-minute reps to push the envelope on your technical downhill technique. Alternatively, you can find a slightly longer section (Sharman suggests one that will take five minutes) to do a single, longer rep "at an uncomfortably fast pace," he says, to improve your form as you fatigue from longer downhill.

Another study found that a combination of uphill and downhill training is the most effective way to improve running speed, according to a November 2006 issue of the "Journal of Strength and Conditioning Research." The researchers found that after six weeks of training, participants who performed a combination of uphill and downhill training improved their running speed by 3.5 percent, while those who participated in downhill training alone improved their running speed by only 1.1 percent.

### **CONCLUSION**

The following conclusions have been drawn after statistical calculation and analysis:

Significant difference was found between the Pre test and Post test of the sprinters in respect of 50 Yards dash.

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