

## A Study on the Effects of 6 Weeks of Plyometric and Speed Training on Long Jump

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### Abstract

**Purpose:** This study was designed to compare the effects of Weeks of plyometric and Speed training on Long Jump **Methodology:** 24 jumpers from Gwalior with age group of 17-25 years were selected randomly. Long jump was measured using standered technique was used to measure performance of the subjects. The subjects were divided into two Groups (Group-A, plyomertic Training group; Group-B, Speed Training Group) and each Group comprised of 12 Subjects. Mean and SD were calculated. It was hypothesized that there would be no significant a difference between the different heights on college girls. **Results:** Dependent Samples t-test was performed to test the hypotheses. Results showed that there was significant difference between the pre & post test groupsA (31.87) & group B (14.908):  $t(11) = 1.76, p > 0.05$ . **Conclusion:** It was concluded that both exercises have effective role play to increase the performance of long jump.

**Keywords:** Long Jump, plyometric training, Speed Training

### Introduction

Sports have a very important role in modern society. It is important for an individual, a group, a nation and indeed the world. Sports performance is the result and expression of the total personality of a sports man.

The aim of all strength training methods is help the sport person to jump higher or further, to run faster, throw further and lift heavier. To achieve these aims the most important quality the athlete needs to have is power. One of the most effective means of training for power is through plyometric training. All seasoned athletes know that plyometric training should be an important part of their workout, but most of them do not really understand what plyometrics is. Plyometrics, or plyos, is a kind of training that builds the explosive strength of your body using natural dynamic movements such as jumping. Most sports need intense energy bursts either throughout the whole activity as in sprinting or intermittently such as in field games. It is not so surprising then, to see that the athletes who train with plyometrics are normally the better sports men and women because they are much more explosive than their counterpart.

The long jump is one of the more complicated and challenging athletic events in track and field competition.

Verkhoshansky's first article on plyometrics was published in 1964. Because of his pioneering work in this field, Verkhoshansky is called "The Father of Plyometrics." Unfortunately, much of his early work was translated into textbooks that are extremely difficult to understand. However, in the '90s Verkhoshansky co-authored a much more readable textbook in English with the late Dr. Mel Siff. Their book, Super training,

discusses his plyometric training methods in great detail – and their sixth edition includes detailed 6- and 12-week plyometric programs that show a practical application of Verkhoshansky's training methods.

The approach run is for the athlete to reach optimal takeoff speed and position just as he/she reaches the takeoff board. For this to be achieved, a consistent and effective approach rhythm needs to be developed and practiced over and over again during the course of the training year. This section of technical development is the most important aspect of performance. Without an efficient approach run it is impossible to achieve a consistent and optimum takeoff action or actions. This style is not overly common among elite jumpers. However, there are a few who do it and who have done in the past with great success. Jonathan Edwards would be the most famous of them. As long as the early acceleration can be consistently replicated or the jumper is excellent at visual guidance to the board this approach can be successful. A major key to this style however is the transition to top speed and the running action over the final 10 meters of the approach. In all approach styles the final 5m should be similar with the same goals in mind.

### **Purpose**

The Purpose of the study was to compare the effects of 6 Weeks of plyometric and Speed training on Long Jump.

The study was delimited to female students in different college of Gwalior. To reach the purpose of the study 24 jumpers were selected randomly and their age was recorded. The subjects were study in different stream and colleges of Gwalior, of the age group of seventeen to twenty five years. Hence, purposive sampling technique was considered for selection of subjects.

Long Jump performance was measured through Standard jumping procedure during practice session in Green Park Stadium. Subjects were given proper instructions and after making them familiar and comfortable for the formal test, three trials were taken and recorded accordingly. Only the best trail recorded was considered as performance of the subjects, respectively.

### **Collection of Data**

The data for the long jump were obtained with the help of long jump pit by investigators. The other teachers (Physical Education Teachers) were requested to cooperate fully, which they did. Before the actual testing the subjects were given a complete demonstration of each test and the purposes of the test were explained in detail to them. After the demonstration and explanation, the subjects were allowed practice trails in the performance test in order to get familiarized with the test. The data were collected in best of three trails. The data were collected on during morning session for both variables.

It was hypothesized that there would be a significant the effects of 6 Weeks of plyometric and Speed training on Long Jump.

### Statistical Analysis

Keeping the objectives of the study, The subjects were divided into two groups, group A consist of 12 subjects and group B consist of 12 subjects and their jumping performance was recorded accordingly.

The mean and standard deviation was calculated by using Microsoft excel-07 and t-test was applied to find the statistical difference, if any, between the two groups.

### Result

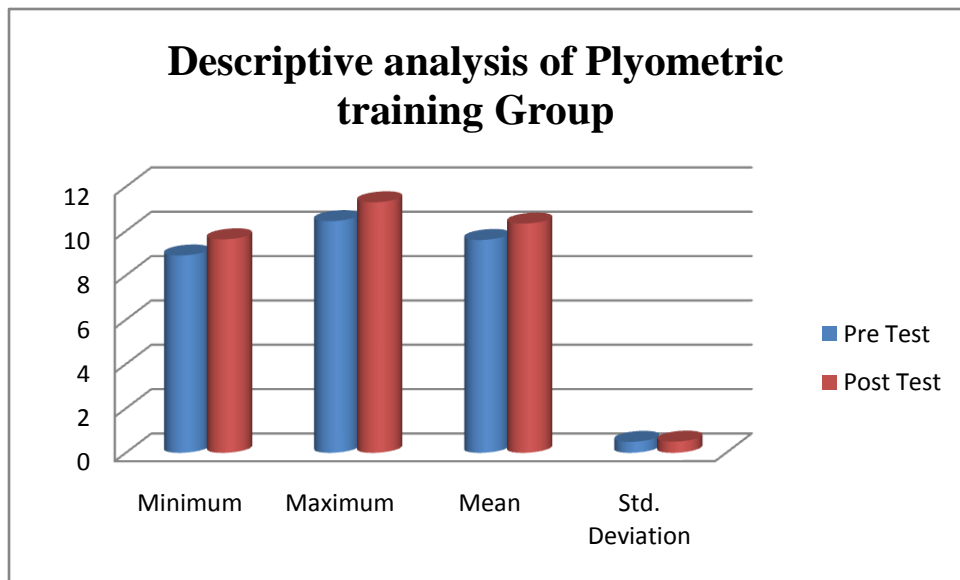
**Table - 1**

**Descriptive analysis of Plyometric training Group (Pre and Post test) in Long Jump**

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Test	12	8.90	10.45	9.60	.495
Post Test	12	9.63	11.30	10.34	.505

The descriptive statistics of Plyometric Training pre and post test in long jump are presented in Table-1.

The mean, standard deviation of long jump for pre test and post test in mts are as follows: Pre Test ( $9.60 \pm .495$ ), Post Test ( $10.34 \pm .505$ ). In the same long jump categories, the minimum and maximum values were: Pre Test (8.90 & 10.45 mt.) and Post Test (9.63 & 11.30 mt.)



**Figure 1: Graphical representation of descriptive analysis of plyometric training group in long jump.**

**Table – 2**  
**Significance of Difference between Pre Test and Post Test performance in plyometric training group on Long Jump**

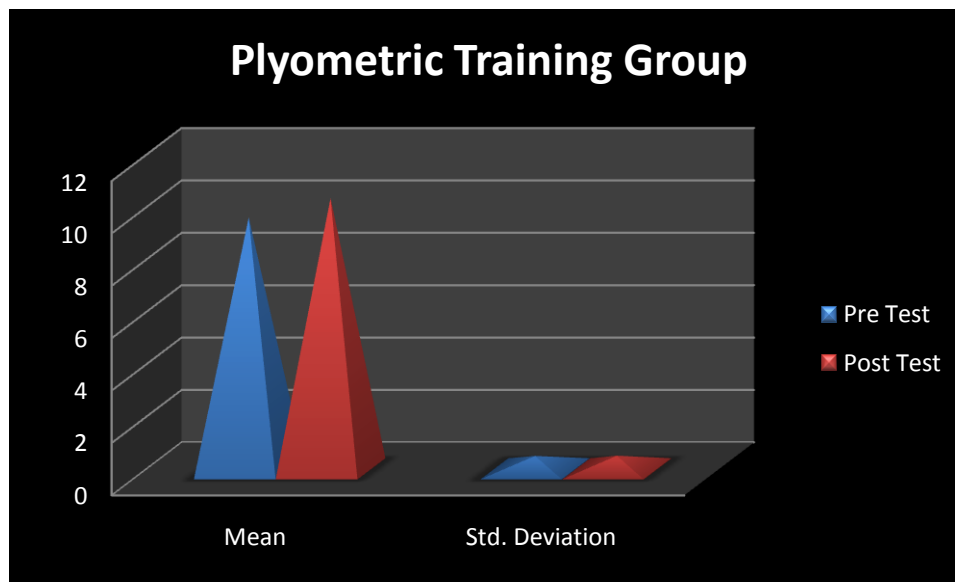
Groups	SE Mean	SE Difference	DM	“t” ratio
Pre Test	.142	.023	.74	31.87*
Post Test	.145			

**\*Significant at 0.05 level**  
 **$t_{.05(11)} = 1.76$**

Table-2 reveals the descriptive analysis of between pre test and post test performance in plyometric training on long jump. In case of pre test performance shows value of mean and value of standard deviation ( $8.93 \pm 0.778$ ) respectively and post test performance shows value of mean and value of standard deviation ( $9.38 \pm 0.760$ ) respectively.

It is evident from Table-1 that there was a significant difference between the means of the pre test and post test performance long jump since the obtained value of 't' (31.87) was higher than the tabulated value of 't' (1.76) which was required to be significant at (11) degree of freedom with 0.05 level of confidence.

The graphical representation of mean and standard deviation of pre and post test performance of plyometric training group in long jump has been presented in figure 2.



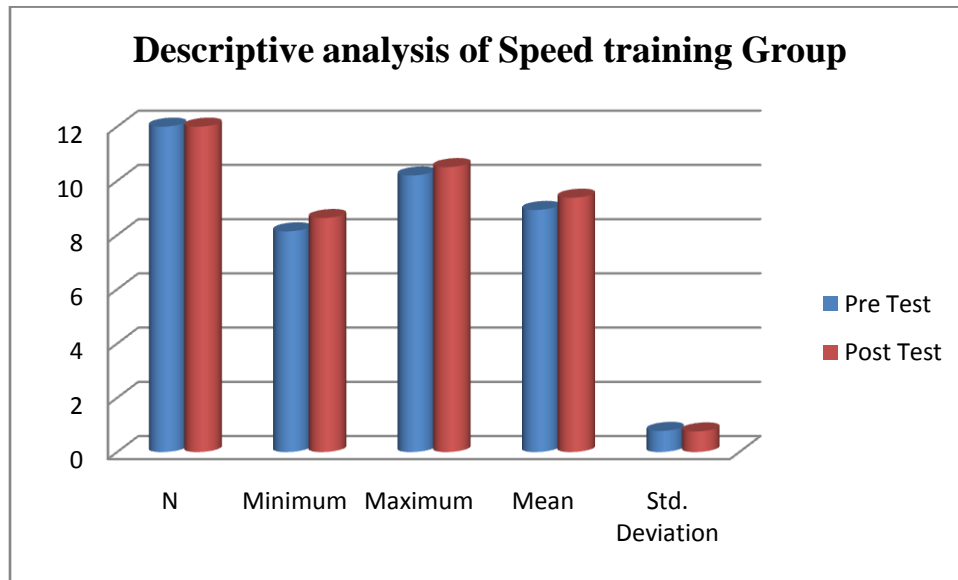
**Figure 2: Graphical representation of Mean plyometric training group of pre and post test performance.**

**Table - 3**  
**Descriptive analysis of Speed training Group (Pre and Post test) in Long Jump**

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Test	12	8.14	10.20	8.93	.778
Post Test	12	8.63	10.51	9.38	.760

The descriptive statistics of Speed Training pre and post test in long jump are presented in Table-3.

The mean, standard deviation of long jump for pre test and post test in mts are as follows: Pre Test ( $8.93 \pm .778$ ), Post Test ( $9.38 \pm .760$ ). In the same long jump categories, the minimum and maximum values were: Pre Test (8.14 & 10.20 mt.) and Post Test (8.63 & 10.51 mt.)



**Figure 3: Graphical representation of descriptive analysis of speed training group in long jump.**

**Table – 4**

**Significance of Difference between Pre Test and Post test performance in speed training group on Long Jump**

Groups	SE Mean	SE Difference	DM	“t” ratio
Pre Test	.224	.030	.45	14.90*
Post Test	.219			

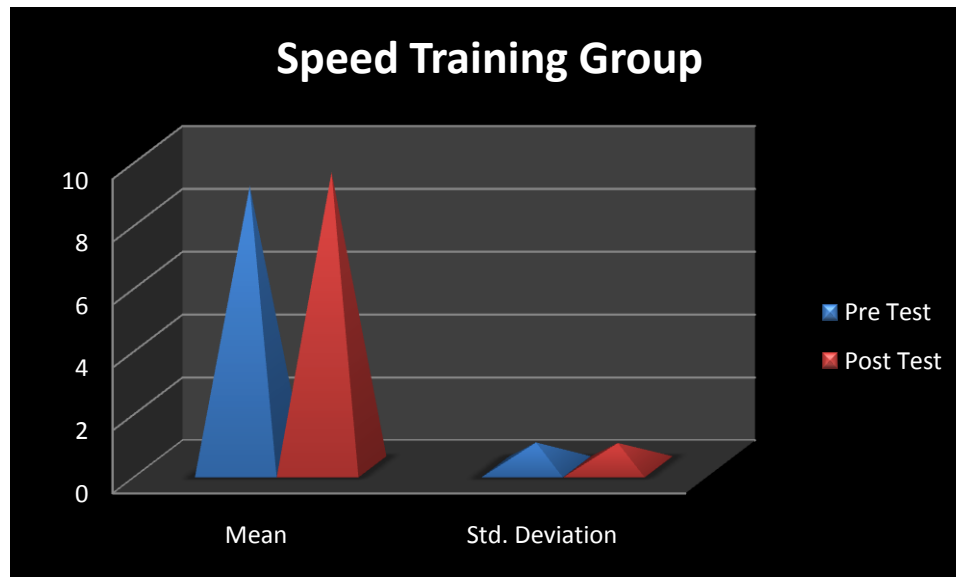
**\*Significant at 0.05 level**

**$t_{.05}(11) = 1.76$**

Table-4 reveals the descriptive analysis of between Pre Test and Post test performance in speed training group on Long Jump. In case of pre test performance shows value of mean and value of standard deviation ( $9.60 \pm 0.495$ ) respectively and post test performance shows value of mean and value of standard deviation ( $10.34 \pm 0.505$ ) respectively.

It is evident from Table-4 that there was a significant difference between the means of the pre test and post test performance in speed training group on long jump since the obtained value of 't' (14.90) was higher than the tabulated value of 't' (1.76) which was required to be significant at (11) degree of freedom with 0.05 level of confidence.

The graphical representation of mean and standard deviation of pre and post test performance of speed training group in long jump has been presented in figure 4.



**Figure 4-Comparison of mean and SD scores of pre and post test of Speed training group in long jump**

## Discussion of finding

The result of the study shows that the significant difference was observed in the means of the pre test and post test performance in speed training group on long jump. The results of the study was also supported by **Abdul Latif Shaikh (2017)** who examines the Impact of speed training and plyometric exercise on long jump performance among fewer than 17 boys. It is concluded that the impact of speed training on the long jump performance from pre test to post test had shown significant improvement among the selected participants. It was concluded that the Training Schedule of plyometric training have better and favorable effect and results when compared with the effects of two different types of training. The result also reveals that speed training requires more training periods to improve the long jump performance.

The result of the study shows that the significant difference was observed in the means of the pre test and post test performance in plyometric training group on long jump. The results of the study was also supported by The results of the study was also supported by **Makaruk et. al (2011)** who has examined the effects of unilateral and bilateral plyometric exercise on peak power and jumping performance during different stages of a 12-week training and detraining in women. The results suggested that unilateral plyometric exercises produce power and jumping performance during a shorter period when compared to bilateral plyometric exercises but achieved performance gains last longer after bilateral plyometric training. Practitioners should consider the inclusion of both unilateral and bilateral modes of plyometric exercise to elicit rapid improvements and guard against detraining. **In conclusion Martínez (2012)**, examined an eight week training program (with just two days per week) of EMS combined with plyometric exercises has proven useful for the improvement of every kind of vertical jump ability required for sprint and hurdles disciplines in teenage athletes. Regarding long jump, the results showed significant improvements in the performance of athletes who used both simultaneous combined training and used ES followed by plyometrics.

## Discussion of hypothesis

It was hypothesized that there would be a significant the effects of 6 Weeks of plyometric and Speed training on Long Jump are accepted.

## Conclusion

1. The findings shows that post test results have improvements in long jump than pre test results. The study leads to conclusion that speed training plays a pivot role for the development of long jump.
2. The findings shows that post test results have improvements in long jump than pre test results. The study leads to conclusion that plyometric training plays a pivot role for the development of long jump.

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