

A study on the effect of a plyometric training program on the performance of long jumpers

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Abstract

Plyometric effect on long jump performance of long jump athletes. The subjects (N=20) were randomly assigned to two equal groups of ten each on experimental and control. In the experimental group was considered as plyometric training. The inter school long jump athletes those played inter school long jump tournament from Pune. Independent variable plyometric training and dependent variable was long jump performance. Tools for data collection long jump measured by performance skill tests of long jump performance. Pre-test was conducted for experimental and control group on long jump. After pre-test experimental groups underwent plyometric training for eight weeks. Completion of training, duration subjects were measured of their post-test. The difference between the pre and post scores was considered the effect of respective treatments. The statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance level. It concluded was plyometric training significantly improved long jump performance of experimental group athletes compared by control group.

Keywords: Plyometric training, long jump performance, control group, jump athletes

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Introduction

The long jump is a track and field event that requires competitors to sprint along a runway until they reach a take-off board. From here, they jump as far as possible into a sandpit. The distance travelled, from the edge of the board to the closest indentation in the sand, is then measured and the winner is the athlete who jumps the farthest.

The Four Phases

- **Approach:** Sprint down a 40-meter runway to build maximum controlled speed.
- **Takeoff:** Plant the foot flat on the board to convert forward speed into upward and forward lift without stepping over the foul line.
- **Flight:** Use air techniques like the hang, sail, or hitch-kick to keep balance and prepare for landing.
- **Landing:** Bring both feet forward and fall into the sand so the distance is measured from the board to the closest mark in the sand.

Plyometric training is one of the best methods of developing explosive power in sports. Basically, plyometrics provide a method of training for the optimum relationship between strength and speed which will ultimately manifest in self as explosive power. Today plyometric movement are performed in almost all sports. Basic strength level must be attained before starting plyometric training programme. Plyometric exercises

are the rapid deceleration and acceleration of muscles that create a stretch shortening cycle. The exercise trains the muscles, connective tissue and nervous system to effectively carry out the stretch shortening cycle, thereby improving an athlete's performance.

Materials and Methods

Purpose of this study to examine the effect of a plyometric training program on the performance of long jumpers. The study was formulated as a true random group design consisting of a pre-test and post-test. The subjects (N=20) assigned to two equal groups of 10 long jump athletes. The subjects were divided into two groups randomly, one is experimental group considered as plyometric training, and control group was not involved in any special treatment. In this study long jump athletes those participated DSO under inter school competition as well as regularly practiced on N.S.P.T. academy, Baburao Sanas ground, Pune. In this study independent variable plyometric training and dependent variable was long jumper. Tools for data collection long jump variables measured by jump performance. Pre-test was conducted for experimental groups and control group after those experimental groups underwent the respective plyometric training for eight weeks. Immediately after the completion of training, all the subjects were measured of their post-test scores on the selected criterion variables. The difference between the pre and post scores was considered the effect of respective treatments. To find out

statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance of the study.

Schedule of Training Program

Table 1: Plyometric Exercise

Sr. No.	Exercise	Rest
1	Squat Jumps	90 Seconds
2	Jump to Box	90 Seconds
3	Lateral Jump to Box	90 Seconds
4	Bounding	90 Seconds
5	Bounding with Ring	90 Seconds
6	Depth Jump	90 Seconds
7	Medicine Ball Chest Pass	90 Seconds
8	Box Drill with Rings	90 Seconds

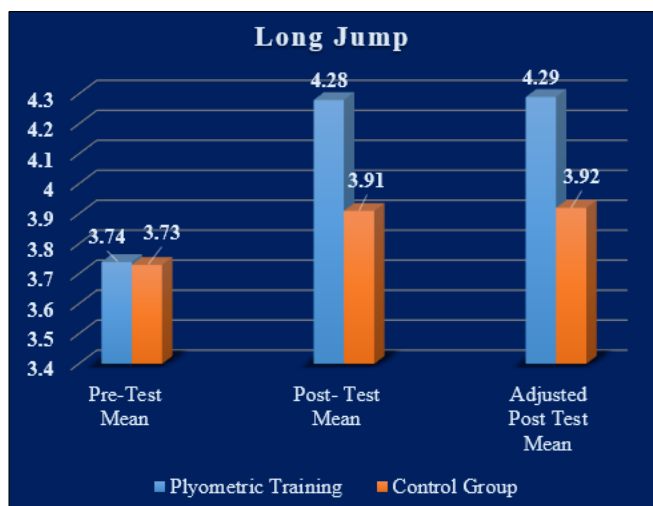
Results of the study

Table 2: Analysis of covariance of long jump

Test	Plyometric Training	Control Group	Obtained-F
Pre-Test Mean	3.74	3.73	0.38
Post-Test Mean	4.28	3.91	3.10
Adjusted Post Test Mean	4.29	3.92	11.58*
Mean Difference	0.55	0.19	

Table 3: Post HOC Scheffe's test

Means			
Plyometric Training	Control Group	Mean Difference	Required CI
3.74	3.73	0.1*	0.89
4.18	3.91	0.27*	0.89
4.29	3.92	0.37*	0.89



Graph 1: Improvement in long jump performance after plyometric training

Discussion of Findings

In order to find out plyometric training on long jump performance the obtained pre and post-test means were subjected to analysis of covariance and post hoc through Scheffe's confidence interval test. Thus, it was found that plyometric training was significantly better improved the long jump performance of inter school long jump athletes.

Conclusion

Concluded that plyometric training significantly improved

long jump performance of athletes of long jump event on experimental group inter school long jumper compared to control group.

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