



## **EFFECT OF PLYOMETRIC AND WEIGHT TRAINING ON VERTICAL JUMPING ABILITY**

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### **INTRODUCTION**

"In Sports training, nothing happens by accident, rather by planning the training program". So, in order to plan a very good training program, a sound knowledge of specific qualities needed to the sports and the methods of training to develop those qualities are essential. Various training methods have been influencing the performance of sports and games. Plyometrics and weight training are the modern methods of training among them. This study aims at finding out the effect of plyometrics and weight training on vertical jumping ability.

### **METHODS**

Forty five men subjects were selected at random to undergo the training. They were divided in to three groups namely plyometric training group (Experimental group I), weight training group (Experimental group II), and control group (group III) each consists of 15 subjects. The experimental groups (I & II) were subjected to six weeks plyometric and weight training respectively, and the group III acted as control. The weight training group was tested for 1RM prior to the training and their load was progressively increased from 50% of 1RM up to 80% of 1RM. The plyometric group used 45cms boxes for depth jumps and the load given were progressively increased from 100 foot contacts up to 250 foot contacts of moderate intensity plyometric drills. The training was given 3 days per week (alternate days) and every training session lasted for 45 to 60 minutes. The subjects of all the three groups were tested on vertical jumping ability prior to and after the training period.

### **DATA COLLECTION**

The data on vertical jumping ability were collected by administering Sargent vertical jump test. The pre-test data were collected two days before the training program and the post-test data were collected two days after the training program.

### **ANALYSIS OF DATA**

The data collected from forty five men subjects (i.e. the three groups) from pre-test and post-test experimentation on vertical jumping ability were statistically examined for

significant difference, if any, applying the analysis of co-variance (ANCOVA). Whenever the 'F' ratio was found to be significant for adjusted post-test means, Scheffe's test was followed as the post-hoc test to determine which of the paired means difference was significant.

## DISCUSSION ON FINDINGS

### ANALYSIS OF COVARIANCE FOR THE PRE AND POST TESTS DATA ON VERTICAL JUMPING ABILITY OF PLYOMETRIC TRAINING, WEIGHT TRAINING AND THE CONTROL GROUPS

Test	Plyometric Training Group (cms)	Weight Training Group (cms)	Control Group (cms)	Source of Variance	df	Sum of squares	Mean squares	'F' ratio
<b>Pre-test</b>								
Mean	57.067	49.133	50.067	B.M.	2	564.04	282.02	3.841*
S.D	8.880	8.139	7.776	W.G.	42	3083.60	73.42	
<b>Post-test</b>								
Mean	61.267	54.000	52.400	B.M.	2	669.91	334.96	5.851*
S.D	7.741	6.583	7.552	W.G.	42	2404.53	57.25	
<b>Adjusted Post-test</b>								
Mean	57.193	56.419	54.055	B.S.	2	75.59	37.79	4.56*
				W.S.	41	339.67	8.28	

\* Significance at .05 level

The table value required for significance at .05 level with df 2 and 42, and 2 and 41 are 3.22 and 3.23 respectively.

The analysis of the data showed that there was significant variance among the adjusted post-test means of plyometric training, weight training and control groups. Further, to determine which of the three paired means had a significant difference, scheffe's test was applied.

### SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST-TEST PAIRED MEANS OF VERTICAL JUMPING ABILITY

Adjusted post-test means			Mean Difference	Confidence Interval at .05 level
Plyometric training Group (cms)	Weight Training Group (cms)	Control Group (cms)		
57.193	56.419		0.77	3.02
57.193		54.055	3.14	3.02*
	56.419	54.055	2.36	3.02

\* Significance at .05 level.

The scheffe's test showed that, the adjusted post-test mean difference in vertical jumping ability between plyometric and weight training groups was insignificant at .05 level, the adjusted post-test mean difference between plyometric training and control group was

significant at .05 level and the adjusted post-test means of weight training and control group was insignificant at .05 level. So, from the analysis of data it was understood that vertical jumping ability was improved on plyometric group than the control group up to significant level. Even though the post-test mean value of weight training group shows some improvement on vertical jumping ability, the improvement was not up to the significant level. Since there was no vast difference between weight training and plyometric training group, the improvement of vertical jumping ability between these two groups shows an insignificant difference.

## **CONCLUSION**

On the basis of findings of the study the following conclusions were drawn.

1. The vertical jumping ability was significantly improved by plyometric training when compared to the control group and no significant difference exists between the plyometric group and weight training group.
2. Vertical jumping ability was not significantly improved due to weight training and also no significant improvement exists on control group.

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