

## Effects of Plyometric Exercise on Vertical Jump of Football Players

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### Abstract

The main purpose of the study was to find the effects of plyometric exercise on vertical jump of Football players the data was collected purposively from thirty (n=30) football players of SGGGS Khalsa College the age of the subjects ranged between 18-24 years. To determine the significance difference on vertical jump among pre-test and post-test in experimental group and controlled group the dependent 't' test was used. The level of significance was set at 0.05 level of confidence. Statistical calculation on gathered data showed that there was significant difference found on vertical jump among football players of experimental group where as there was no significance difference found in control group.

**KEYWORD:** Plyometric and Vertical Jump

### Introduction

Today there is not a single sport in the world at the competitive level for which resistance training in some or the other form is not used as conditioning exercises. The term muscular power has had common usage to indicate the ability to release maximum muscular force in the shortest possible time. The best widely used involving the leg musculature are the vertical jump and standing broad jump. A pure power movement of the leg muscles would restrict the take off for a jump to set position, such as crouch, eliminate the use of arms to assist the jump. Sport training is a process of athletics improvement, which is organized on the basic of scientific principles through systematic development of mental and physical efficiency, capacity and motivation to enable the athletes to produce outstanding and record breaking athletic performance. The athlete's personality develops in accordance with the norms and standards of the society through a positive and conscious approach to the problem arising in the course of the training.

Plyometric (plyo-more or greater, metric-measured or quantity) exercise based upon the belief that a rapid lengthening of muscle just prior to the contraction will result in a much stronger contraction. Plyometric training may be viewed as an extension of the "shock" method of strengthening muscles for athletic performance recommended by Verkhoshanski of Russia (1968). The shock method advocate by Verkhoshanski consisted of rebounded jumps from a height to develop the reactive neuro-muscular apparatus of the athlete. The term plyometric involves the muscles working both concentrically and eccentrically.

Origin of the term 'plyometrics' is derived from word plyetheyein which means to increase or from Greek word 'plio' and 'metric' which means 'more' and 'measure' respectively, Other terms used in conjunction with plyometric are depth jumping, box jumping and jump training. Plyometric training is an excellent method of developing body power and it is proved a very effective method for improving explosive strength. It offer rich variation of exercise and load structure any activity that actives that stretch reflex mechanism is plyometric exercise. Plyometric is based upon the belief that a rapid

lengthening of muscles just prior to the contraction will result in much stronger contraction. The added contractile strength is believed to be due to a stretch of muscle spindles involving the myotatic reflex and resulting in an increased frequency of motor unit discharge. Plyometric training is one of the best methods to develop explosive power for sports. Basically plyometric's provide a method to train for the optimum relationship between strength and speed which will ultimately manifest itself as explosive power. Today plyometric movements are performed in almost all sports. Depth jump is one of the many plyometric exercises. In depth jumping the athlete stands on a shelf generally 2m., of height above the ground, stepping of the shelf they immediately perform a maximal effort vertical or horizontal jump after landing on the ground.

Basic strength level must be attained before starting a plyometric training programme. The choice of exercise must correspond to age, sex and biological development of sports person. There should be a gradual increase of stress during a complete training cycle. Body weight should be the determining factor in assigning the value of jumps in work out. Generally the number of sessions to devote the plyometric the plyometric training is 2 or 3 times per week. Plyometric exercise is a relatively new concept of training that applies the specificity principle regarding the present stretch conditions of the muscle prior to explosive contraction. The effect of plyometric exercise in increasing vertical jumping ability has studied experimentally, but no attempt has been made if they are more effective than 150 kinetic exercises.

All over the world the coaches of various teams have conducted many researches and experiments to find an appropriate way of plyometric training programme for their team to improve the shoulder and leg power.

### **Procedure and Methodology**

The objective of the present study was to find the effects of plyometric exercise on vertical jump of Football players. For the purpose of 30 Football players of SGGS Khalsa College were selected randomly. The age range of the subjects was 18- 24 years. There were two groups i.e controlled & experimental. 15 subjects were participating in each group. The treatment was received by experimental group only. The difference between initial reacting (Standing) and final reacting (Jump) was calculated and this was considered the score of vertical jump. The data was collected before and after the six weeks of training. For analysis and interpretation of data dependent 't' test was used. The level of significance was set at 0.05 level of confidence.

### **Results and Discussion**

The significance of mean difference between pre-test and post-test on vertical jump of experimental group has been given in table 1

**TABLE I**

Significance of mean difference of vertical jump between pre-test and post-test experimental group

S.No.	TEST	NO. OF SUBJECTS	MEAN	OBTAINED 'T' VALUE	TABULATED 'T' VALUE
1.	PRE-TEST	15	24	5.58	2.262
2.	POST-TEST	15	37		

Significance at 0.05 level of confidence

From the table 1, it is evident that the obtained t value 5.58 which is significant at 0.05 level, with df=14 As the value is greater than tabulate t value 2.262.

**TABLE II**

Significance of mean difference of vertical jump between pre-test and post-test control group

S.No.	TEST	NO. OF SUBJECTS	MEAN	OBTAINED 'T' VALUE	TABULATED 'T' VALUE
1.	PRE-TEST	15	23	1.25	2.262
2.	POST-TEST	15	23		

Significance at 0.05 level of confidence

From the table 2, it is evident that the obtained t value 1.25 which is significant at 0.05 level, with df=14. As the value is less than tabulate t value 2.262. It may be said that there is no difference in pre-test and post-test on plyometric exercise.

**Conclusion**

On the basis of the findings of the study, the following conclusion was framed:

- 1 Significant difference was found by effect of plyometric training in the vertical jump abilities of experimental group.
- 2 There is No significant difference was found in the vertical jump abilities of controlled group.

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