

Study of the Effect of Plyometric Exercise Training on Explosive Power of Leg

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INTRODUCTION

Sports in the present world have become extremely competitive. It is not the mere participation that brings out victory to an individual. Therefore, sports life is affected by various, like Sports Training, Sports Medicine, Sociology and Psychology etc. Coaches, trainers, Physical education personnel and doctors are doing their best to improve the performance of the players of their country. Athletes / players of all countries are also trying hard to bring laurels / medals for their countries in international competitions.

Performance outcomes are more likely to be achieved with what is done prior to and during a competition. By nature, human beings are competitive and aspire for excellence in every given field. Sports is not an exception. Not only individuals but nations also want to show their supremacy in the field of sports. This friendly rivalry has inspired and motivated all sweat and strive, to run faster, jump higher, throw longer and exhibit greater strength, endurance and skill in the competition. Sports play a major role in the lives of practically every one the players, the coaches, the officials and the spectators.

Sports is a worldwide phenomenon today. The need and importance of performance in sports has increased rapidly in the last few decades. In no period of world history were sports as popular, organised and important as it is today. It has a very

prominent role in modern society. It is important to individual, a group, a nation and indeed the world. There are more nations competing in the Olympic Games than participating in the United Nations. Throughout the World sports has a popular appeal among of all ages and both sexes. Now-a-days specific training has been playing a predominant role with emergence of different methods having sustained scientific knowledge for outstanding achievements in various levels of competition. The sportsman is able to achieve a high level of performance by concentrating on major areas like physical power, physiological efficiencies, psychological development, application of biomechanics and environmental adjustments.

There are a number of racket games which are popular in various competitors at national levels. Those games are organised in a highly developmental form culminating in the Though many methods prevail to develop strength and speed, the role of Weight Training, Plyometric Training, and combined Weight and Plyometric Training are accepted as the most effective. Weight Training and Plyometric Training are now popular activities utilized by both men and women of all ages as an attempt to improve physical condition. The physical capacities of strength and speed are important qualities for many sports. Strength and

power clearly discriminate athletes of different performance levels in such games as Basketball, Volleyball, Swimming and sprint running.

All the runners know that effort to achieve a little strength and speed can help to know the best possibility and subconscious mind. "Plyometric"-exercise is helpful in order to increase efficiency, speed and strength which is in reality "Icing on the cank" According to Dr. Donald A. Chu: "There are two kinds of physical activities : Hard work and Smart work, Plyometric is a smart work".

The exercises which are done in Plyometric training are done five times and it has two revisions. After one week the exercises are done for seven times. In third week exercises are done 10 times. In fourth week exercises are done for 10 times. But revision is done for three time rather than two times. In six week exercises are done for 15 times and it has three revisions. This training can be done till the completion of the competition.

"Plyometric training is based on the belief that before contraction of senile if the senile is expanded fast than it results into the strong contract of senile".

"Explosive strength is the combination of strength and speed. That's why explosive strength is the capacity to get control over hindrances.

Hypothesis

On the basis of the results of the available literatures and researcher's own understanding and opinion the following hypothesis is formed.

"There will be effectual difference in the explosive strength of the legs of the students through the training of plyometric exercise."

PROCEDURE

In this study 60 students of Ranchi University were selected through random method as subject. They were between the age group of 17 to 20 years. The following was the outline of the subject By selecting 60 subjects through random method the practical group was formed. The program was started by taking pre-test on practical group. Training program was kept for three days in a week (Monday, Wednesday, Friday). In this way for total 6 weeks, the training was given. At the end of the training final test was taken through data collection

Information indicating the outline of the subjects:

Group	Number of subjects	Total
Plyometric training	30	60
Control Group	30	

Standard of Measurement

Sl.n o.	Test	Variables	Measurement
1	Standing broad jump	Explosive strength of Leg	Measurement was done in inch
2	Vertical jump	Explosive strength of Leg	Measurement was done in inch

The following standards were selected for the selection of hypothesis.

Standing long jump was taken from AAHAPARD fitness test and vertical jump was taken from J.C.R test.

In order to check the effect of explosive strength of leg, through plyometric training, “t” ratio was applied in statistical process.

Data analysis- The information regarding subjects of the practical group was scrutinized through test. “T” test was applied in order to check the mean difference of pre- test and post-test.

Level of Significance “T” test was applied in this test for statistical process. In order

to measure relevance of mean difference the standard of relevance was taken at the level of 0.05 which is as per my opinion was sufficient and appropriate standard in order to observe the result of the study.

Findings

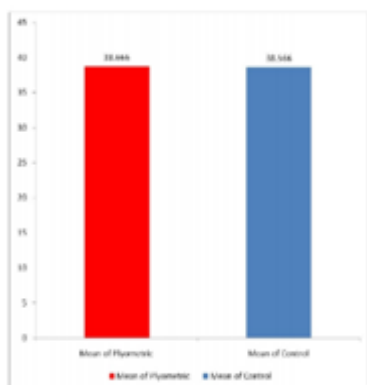
The pre test was taken before taking training program in order to measure the explosive strength of leg of the practical group. At the end of training program of six weeks the final test was taken. For statistical process “T” test was applied. The level of relevance was kept at the level of 0.05

Table: 1 The mean, mean difference and “t” proportion of subjects’ performance in standing long jump test

Test	Mean of Plyometrics	Mean of control	Mean difference	“t” proportion
Standing long jump	38.633	40.766	2.133	6.652*

The standard of relevance at 0.05 level “t” $0.05 (29) = 2.045$

Graph -1



The mean, mean difference and “t” proportion of subjects’ performance in

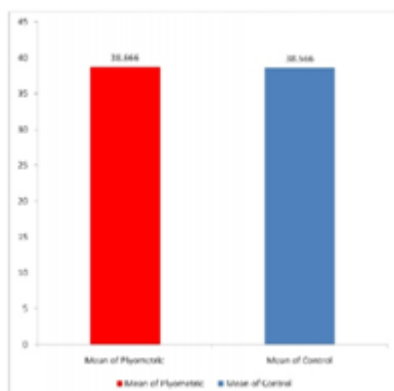
Standing long jump test. it has been observed that mean of the Plyometric group in the test of standing long jump was 38.633 and the mean of Control group was obtained 40.766. Mean difference 2.133 and “t” level was obtained at 6.652. Which was checked at $0.05 (29) = 2.045$ level and reliable difference was observed. It can be observed in the table no-1.

Table: 2 The mean, mean difference and “t” proportion of subjects’ performance in vertical jump test

Test	Mean of Plyometric	Mean of Control	Mean Difference	“t” proportion
Vertical Jump	38.666	38.566	0.1	1.139

The standard of relevance at 0.05 level “t” 0.05 (29) = 2.045

Graph – 2



The mean, mean difference and “t” proportion of subjects’ performance in vertical jump test

On the basis of table-2 it has been observed that mean of the Plyometric group in the test of standing vertical jump was 38.666 and the mean of Control group was obtained 38.566.

Mean difference 0.145 and “t” level was obtained at

1.139. Which was checked at 0.05 (29) = 2,045 level and

Reliable difference was observed. It can be observed in the table no-2.

Discussion of findings

The data analysis indicated that in Plyometric Group and Control Group of standing long jump reliable difference was observed. Thus it become clear that due to Plyometric test gradual improvement was observed in the explosive power of the extensor senile of the leg. In the vertical jump test the reliable different was observed in Plyometric group and Control group. Thus it becomes clear that due to Plyometric test gradual improvement was observed in the explosive power of the extensor senile of the leg. The result of this study was taken from the following references

Hypothesis	Test	“t” ratio	Level of Significance 0.05	Accepted/ rejected
There will be effectual difference in the explosive strength of the legs of the students through the training of plyometric exercise	1 standing long jump	6.652*	(29) = 2.045	Accepted

	2. vertical jump	1.139	(29) = 2.045	Not accepted
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Discussion of Hypothesis

The study of data analysis of above information it has been proved that through training of Plyometric exercise gradual improvement was observed in explosive strength of the leg.

Here it has been proved that due to training of Plyometric test improvement was observed in senile strength of the leg. By giving the training of the exercise of Plyometric drill for six weeks the improvement was observed in the mean of post- test than the mean of pre -test at the level of 0.05 in standing long jump and vertical jump.

Due to training remarkable improvement was observed. By implementing systematic training program of six weeks the remarkable improvement was observed in the performance and explosive strength of standing long jump and vertical jump.

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