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## THE EFFECT OF SELECTED PLYOMETRIC EXERCISES ON EXPLOSIVE POWER

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Teacher: Kusumtai Chavan D.T.ed. Collage Nanded.

### Abstract:

*Human Being have consistently tried to run faster, jump higher and exhibit greater strength endurance and skill. We are naturally competitive and ambitious for excellence in athletic performances.*

*By exercising regularly the muscles of the vital organs functioning is also get effected. Muscular Strength could be developed by systematic exercises on explosive power. Training represents a long-term Endeavour's. Athletes are not developed over night and coach cannot create miracle by cutting corners through over looking scientific and methodical theories.*

### INTRODUCTION :-

Most of the athletes accepting various methods to develop the physical compoments . Explosive power is one of the required quality of the muscle which exact from one time contraction of the muscle. for jumping events it is most essential requairment. so for the development of various means are used I am using the specific exercises I.e. plyometric exercises which I feel is the most useful one.

### \*IMPORTANCE OF SUBJECT :-

Sports training is a process of Athletic improvement which is conducted on basis of scientific principles and which through systematic development of mental and physical efficiency, capacity and motivation enables the Athletes to produce outstanding and record breaking athletic performances.

Physical training is one of the most important ingredients and in some cases the most important ingredients in training to achieve high performance. The objectives of physical training are to increase the Athlete's physiological potential and develop biomotor abilities to the highest standards.

Strength gains can be transformed into power only by applying specific power training .Perhaps one of the most exciting training innovations of past years has been plyometric training.

Physical training is one of the most important ingredients in training to achieve high performance. Athlete from a wide range of sports use plyometric training to help them reach peak physical condition. One of the most important training innovations has been plyometric training.

### WHAT IS PLYOMETRIC TRAINING?

The term plyometric has been derived from the Greek word "plyo" means "to increase" metric means "to measure". The idea of plyometric is to develop the greatest amount of force in shortest amount of time. Plyometrics are generally used in Athletes but can be tried by anyone looking to gain strength, speed and power.

Title: THE EFFECT OF SELECTED PLYOMETRIC EXERCISES ON EXPLOSIVE POWER PROGRAMME.  
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- \*Scope of subject :-
- \* A form of strength \resistance training.
- \* Designed to impart a load on the muscles.
- \* Inteended to have the muscles respond with.
- \* Maximal strength.
- \* As quickly as possible.

Power can be defined as the force applied multiplied by the velocity of movement. Power is rate of performing work.

Explosive power output is main determinant of performance in activities requiring one movement sequence to produce a high velocity at release. It is essential that explosive power play a large role in training as it is not a mean of developing strength but also a method of raising physical fitness that is directly towards solving a specific sports task. Explosive power actions are required in throwing, jumping and striking activities. Such type of plyometric exercises can be used for various physical components and are very much easy to perform.

#### **HYPOTHESIS**

It has been scientifically accepted that any systematic training means over a continuous period of time would produce changes on athletic qualities, based on this concept the following hypothesis was drawn .

There would be a significant improvement on explosive power due to the application of selected plyometric exercise.

#### **\*Aim and Objective :-**

Plyometric training techniques are used by Athletes in all types of sports to increase strength and explosiveness. Researchers have shown that plyometric training when used with aperiodized strength training programme can contribute to improvements in vertical jump, acceleration, leg strength, joint awareness and muscular power. It is necessary for Broad jump performer to have a good explosive power in leg muscles. As it is essential for performing. Using plyometry as a progressive training approach help developing explosive power. Plyometry is based on fast stretch of the muscles, just before contraction. This leads to a powerful explosive contraction. Plyometry is a set of jumping exercises that develop explosive power throw putting the muscles into a stretching state just before the explosive contraction. There for objectives are :

1. To see the effect of plyometric exercises on Explosive strength.
2. To measure the difference taken place due to specific plyometric exercise

Therefore the purpose of study was to determine the effect of 6 week plyometric program on explosive power.

#### **\*Limitation :-**

Following limitations will be taken into consideration while interpreting the data.

Participant's day to day works will not restrict.

Motivation of the subjects during test and training will not be control.

Atmospheric conditions will not be taken in to consideration.

The previous experience of the students in the field of sports and games which might be influenced on the training and data collection will not be considered.

Food habits, life style will not be control.

While doing research, researcher is not responsible if the changes may occur due to individual habits, atmospheric condition, individual inclusion of exercises pattern rather than given plyometric exercises and diet.

#### **\*Delimitation :-**

- \* To attain the purpose of the study only boys will selected on Random basis.

- \*The data will collect prior to and immediately after the experimental period
- \*The duration of the training will restrict for 6 weeks and the number of sessions per week will confine to three.
- \*Students age range from 18 to 22 years.
- \*The criterion variable test will explosive power.

#### REVIEW OF RELATED LITERATURE :-

- 1] Quantification of vertical ground reaction forces of popular bilateral plyometric exercises. Brian J Wallace, Thomas W Kernozek, James M White, Dennis E Kline, Glenn A Wright, Hsien-Te Peng, in The Journal of Strength & Conditioning Research (2010)  
The purpose of this study was to quantify the vertical ground reaction forces (VGRFs) developed during the performance of popular bilateral plyometric movements. Fourteen power-oriented track and field men of...
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- 3] Effect of Plyometric Training on Developing the Explosive Power of Leg Muscles to Enhance the Performance Level of Some Acrobatic Elements on the Balance Beam Apparatus . Mervat Ahmed, Kamal Mohamed in Training (2010)
- 4] Comparison of land- and aquatic-based plyometric training on vertical jump performance. John D Stemm, Bert H Jacobson in The Journal of Strength & Conditioning Research (2007)  
Plyometric training is a popular method by which athletes may increase power and explosiveness. However, plyometric training is considered a highly intense and potentially damaging...

#### RESEARCH METHODOLOGY

In this chapter , the selection of subjects , selection of variables, Selection of tests ,testers competency, reliability of the data ,orientation to the subjects ,collection of the data ,administration of the tests ,experimental Design have been explained.

#### DESIGN OF RESEARCH

##### \*subject

25+25 two groups Subjects will participate . Subjects will randomly assign to two groups. A plyometric group and a control group. Subjects will be of 18 to 22 years of age .  
In the present study physical variable Explosive power will select .In this study the dependent variable will test by standing broad jump test.

##### \*Procedure

All subjects will agree not to change or increase their current exercise habits during the course of the study .The plyometric training group participate in a 6 week training program performing a variety of plyometric exercise design for lower extremity. While control group will not participate in any plyometric exercises. All subjects will instruct not to start any lower extremity strengthening program during the 6 week period and to only perform activities of normal daily living. Pre test and post test will be taken due it due time  
A 6 week plyometric training program will develop using two training sessions per week. During the training, all subjects will under supervision and will instruct on how to perform each exercise.

##### \*Collection of Data:-

##### Testing Procedure

Test conduct both pre and post training will use to determine explosive power out comes .the standing broad jump will use to determine the explosive power.  
Purpose \* to measure explosive power in horizontal direction.  
Equipment\* steel measuring tape .

Procedure \* A take of line will mark on the run way at a distance of meter from the nearer edge of pit .The subjects will stand behind the line facing the pit feet parallel and his arms forward and backward assuming a crouched position with knees bent at about right angles test in between .

Scoring \*Distance between the nearest break point to the horizontal line will record as his performance in the nearest centimeter .The best performance will record as the test score.

standing broad jump test of AAHPER will use to determine the explosive power .

#### STATISTICAL PROCEDURE ANALYSIS :-

##### Experimental Design

The pre and post test random group design will be use as experimental design in which subject will divide into two groups. {1} Control group {2} Experimental group.

The subjects will test on select criterion variable such as explosive power in terms horizontal distance prior to and immediately after the training programme to find out the influence of plyometric exercise on explosive power. 't' ratio will uses to show comparison and result.

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