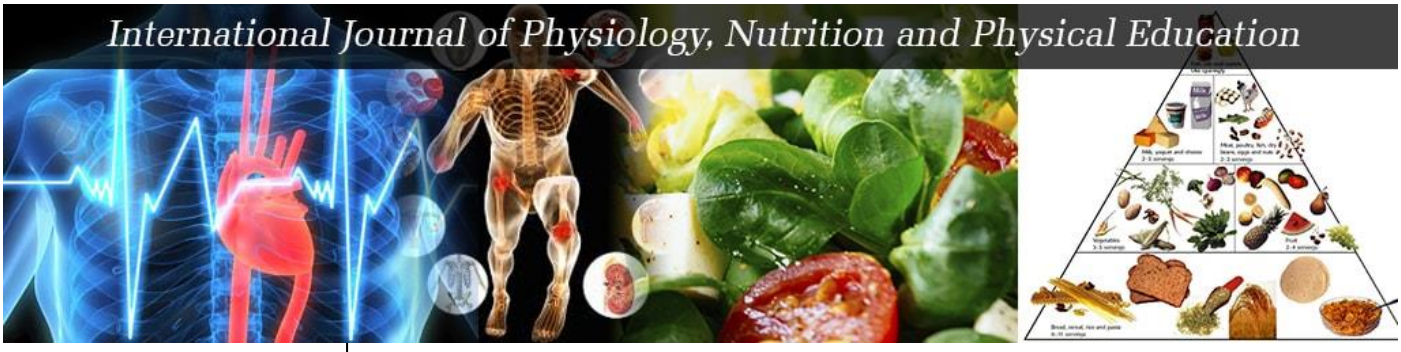

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Effect of plyometric training and plyometric training with weight training on explosive power

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Abstract
The purpose of the study was to find out the effect of plyometric training and plyometric training with weight training on explosive power. To achieve the purpose of this study, forty five subjects were selected. The age, height and weight of the subjects ranged from 18 to 22 years respectively. They were divided into three groups; each group consisted of fifteen subjects. Group-I underwent plyometric training, group-II underwent plyometric training with weight training and group-III acted as control who does not participate in any training programme. The data collected from the three groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). The experimental group had significant improvement on explosive power when comparing to the control group plyometric training with weight training showed better improvement than other two groups.

Keywords: Plyometric training, plyometric training with weight training and explosive power

Introduction
The sports performance in international competition and tournaments not only denote the high level of efficiency of an individual sportsmen but also give expression to the overall efficiency of a nation. Society and culture to which she or he belongs.

There are so many factors to improve high level performance of a player or an athlete. Here investigator mentions few things which are required for high level performance. Especially, facilities, fitness components, physiological factors, psychological effects and particular skills. These factors play vital role in improving high level performance.

Physical fitness is defined as the ability of the body to adapt and recover from strenuous exercises. The sports performance depends largely on physical fitness, i.e., strength, speed, endurance, flexibility and various co-ordinative abilities. The process of improvement of motor abilities is also called conditioning.

Methodology
The purpose of the study was to find out the effect of plyometric training and plyometric training with weight training on explosive power. To achieve the purpose of this study, forty five subjects with age, of 18 to 22 years, were selected respectively. They were divided into three groups; each group consisted of fifteen subjects. Group-I underwent plyometric training, group-II underwent plyometric training with weight training and group-III acted as control who does not participate in any training programme. The explosive power was assessed by vertical jump test. The data collected from the three groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).

Training programme
The group–I & II involved on plyometric training, Intensity starting from low to high @ 60 foot contact to @ 110 foot contact with 10 to 14 repetition and 2 to 3 sets followed from first week to twelve weeks. Additionally group – II had weight training g.

Table 1: Analysis of covariance on explosive power of experimental and control group

	Plyometric Training	Plyometric Training with Protein Supplements	Control Group	SOV	Sum of Squares	df	Mean squares	'F' ratio
Pre-test Mean	37.26	37.40	37.53	B	0.53	2	0.26	0.25
SD	1.03	0.98	1.06	W	44.26	42	1.05	
Post-test Mean	41.60	42.60	37.46	B	222.17	2	111.08	62.26*
SD	0.98	1.80	1.06	W	74.93	42	1.78	
Adjusted Post-test Mean	41.66	42.60	37.40	B	228.62	2	114.31	72.42*
				W	64.71	41	1.57	

The adjusted post test means on explosive power of plyometric training, plyometric training with weight training groups and control groups are 41.66, 42.60 and 37.40 respectively. The obtained 'F' ratio value of 72.42 on explosive power were greater than the required table value of 3.23 for the degrees of freedom 2 and 42 at 0.05 level of confidence. It is observed from this

Discussion and Findings

The result of the study showed that significant differences exist among the experimental and control groups on explosive power. Hence among the experimental group the plyometric training with weight training group had high improvements on explosive power. The following studies are supporting my finding of the study.

Fabian, *et al.,* (2017) investigated the effects of a plyometric training program, with or without beta-alanine supplementation, on maximal-intensity and endurance performance in female soccer players during an in-season training period. Result showed that plyometric training groups improved in explosive jumping. Ramirez, *et al.,* (2015) examined the effects of plyometric training and creatine supplementation on maximal intensity exercise and endurance in female soccer players. Results showed that plyometric training groups improved jumps.

References

1. Foure A, Nordez A, McNair P, Cornu C. Effects of Plyometric Training on Both Active and Passive Parts of the Plantar flexors Series Elastic Component Stiffness of Muscle-Tendon Complex, European Journal of Applied Physiology. 2011; 111(3):539-48.
2. George Abraham. Effect of Plyometric Training with and without Weight Jacket on Elastic Strength and Explosive Power, International Journal of Physical Education. 2011; 4(1):41-4.
3. Exercise and Sport, 59:1-8.
4. Grieco C, Cortes N, Greska E, Lucci S, Onate J. Effects of a Combined Resistance/Plyometric Training Program on Muscular Strength, Running Economy and VO2peak in Division-I Female Soccer Players, Journal of Strength and Conditioning Research, 2011.
5. Herrero AJ, Martín J, Martin T, Abadia O, Fernandez B, Garcia-Lopez D. Short-term Effect of Plyometrics and Strength Training With and Without Superimposed Electrical Stimulation on Muscle Strength and Anaerobic Performance: A Randomized Controlled Trial. Part II, Journal of Strength and Conditioning Research. 2010; 24(6):1616-22.
6. Ismail MM, Ibrahim MM, Youssef EF, El Shorbagy KM. Plyometric Training Versus Resistive Exercises after Acute Lateral Ankle Sprain, Foot Ankle International. 2010; 31(6):523-30.
7. Khlifa R, Aouadi R, Hermassi S, Chelly MS, Jlid MC, Hbacha H *et al*. Effects of a Plyometric Training Program With and Without Added Load on Jumping Ability in Basketball Players, Journal of Strength and Conditioning Research. 2010; 24(11):2955-61.
8. Lin CF, Huang TH, Tu KC, Lin LL, Tu YH, Yang RS. Acute Effects of Plyometric Jumping and Intermittent Running on Serum Bone Markers in Young Males, European Journal of Applied Physiology. 2012; 112(4):1475-84.
9. Lloyd RS, Oliver JL, Hughes MG, Williams PC. The Effects of 4-Weeks Plyometric Training on Reactive Strength Index and Leg Stiffness in Male Youths, Journal of Strength and Conditioning Research, 2011.
10. Loern Seagrave. Introduction to Sprinting, New Studies in Athletics. 1996; 2:3.
11. McDonald CJ, Lamont HS, Garner JC. A Comparison of the Effects of 6 Weeks of Traditional Resistance Training, Plyometric Training, and Complex Training on Measures of Strength and Anthropometrics. Journal of Strength and Conditioning Research. 2012; 26(2):422-31.
12. Maffiuletti NA, Dugnani SM, Folz E, Pierno DI, Mauro F. Effect of Combined Elector Stimulation and Plyometric Training on Vertical Jump Height, Medicine and Science in Sports and Exercise. 2002; 34(10):1638-1644.
13. Mahaboobjan A. Effects of Plyometric Training on Leg Explosive Power of Handball Players, Journal of Physical Education and Allied Health Sciences. 2012; 2:1.
14. Makaruk H, Winchester JB, Sadowski J, Czaplicki A, Sacewicz T. Effects of Unilateral and Bilateral Plyometric Training on Power and Jumping Ability in Women, Journal of Strength and Conditioning Research. 2011; 25(12):3311-8.