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EFFECT OF DIFFERENT INTENSITIES OF PLYOMETRIC EXERCISES ON EXPLOSIVE POWER OF COLLEGIATE ATHLETES

*** T. Asaithambi ** Dr. S. Sundararajan *** Dr. I. John Parthiban**

*Research Scholar, Dravidian University, Kuppam, Andhra Pradesh.

**Deputy Director of Physical Education, Madras Institute of Technology Campus,Chrompet,, Chennai.

***Physical Training Instructor, Government College of Engineering, Salem, Tamil Nadu, India.

ABSTRACT

The purpose of the study was to find out the effect of different intensities of plyometric exercises on explosive power of Collegiate athletes. To achieve the purpose 40 College athletes studying various colleges in Chennai, Tamilnadu, India were selected as subjects. Their age was ranged from 18 to 25 ears. The subjects were divided into two groups of twenty each (n=20). Group-I underwent low intensity plyometric training (LIPTG) and Group-II underwent High intensity plyometric training (HIPTG). The duration of the training period will be restricted to twelve weeks and the number of sessions per week was confined to three. Explosive Power was selected as criterion variable and it was assessed by vertical jump test. The data was collected from the experimental groups were statistically examined with using Analysis of covariance (ANCOVA). Explosive power showed significant difference between the groups.

Keywords
Vertical Jump,
Low Intensity
Plyometric Training,
High Intensity
Plyometric Training

INTRODUCTION

Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors, like Physiology, Biomechanics, Sports Training, Sports Medicine, Sociology and Psychology etcetera. All the coaches, trainers, physical education personnel and doctors are doing their best to improve the performance of the players of their country. Athlete/players of all the countries are also trying hard to bring laurels/medals for their countries in International competitions(Ghuman and B.S. Dhillon, 2000).

Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities are equal consideration (Singh, 1984).

Physical training refers to the processes used in order to develop the components of physical fitness as for example, how to improve aerobic endurance, to stretch and relax muscles, to increase arm and shoulder strength to related exercise

and programmes to specific requirements or individual sports (Hazeldine, 1985).

The actual term plyometrics was first coined in 1975 by Fred Wilt, American Track and Field coach. The elements ply and metric come from Latin roots for "increase" and "measure" respectively, the combination thus means 'measurable increase".

Plyometrics became known to coaches and athletes as exercises or drills aimed at linking strength with Speed movement to produce power, presently may coached and athletes have successfully used the plyometric type exercises as a method of training to enhance performance in spite of its potential benefits in improving strength and overall conditioning of the athletes.

Explosive power exercises should be taught and supervised by fitness professionals to reduce the risk of injury. They should also be done in conjunction with a regular workout program to ensure that the athlete is balanced in all exercise areas.

METHODOLOGY

The study was conducted on forty (N=40) male College athletes who were participated in the Anna University Chennai athletic meet held during the year 2010-2011 were selected as subjects . Subjects were randomly divided equally into two groups of twenty each (n=20). Group-I underwent Low Intensity Plyometric Training (LIPTG) and Group-II underwent High Intensity Plyometric Training (HIPTG). The duration of the training period will be restricted to twelve weeks and the number of sessions per week was confined to three. Based on the foot contact of the each plyometric exercises intensity was fixed. Explosive Power was selected as criterion variable and it was assessed by vertical jump test.

To analysis Explosive power between experimental groups one way analysis of variance (ANOVA) was computed. The level of confidence was fixed at .05 level for all the cases.

RESULTS

The analysis of variance on of Explosive Power of Low intensity plyometric training group and High intensity plyometric group have been analyzed and presented in Table – I.

Table – I
Analysis of Variance on selected variables between Low and High Intensity Plyometric Training Group

Test	Low Intensity Plyometric Training Group (LIPTG)	High Intensity Plyometric Training Group (HIPTG)	Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pre Test							
Mean	24.55	24.10	B	3.75	1	3.75	
S.D	1.94	1.32	W	361.90	38	9.52	0.39
Post Test							
Mean	26.25	28.65	B	268.81	1	268.81	
S.D	1.78	6.16	W	230.17	38	6.06	44.36*
Adjusted Post Test							
Mean	25.71	28.46	B	231.74	1	231.74	74.75*
			W	114.73	37	3.10	

**** Significant at.05 level of confidence***
(The table value required for Significance at .05 level with df 1 and 38 is 4.10 & 1 and 37 is 4.09)

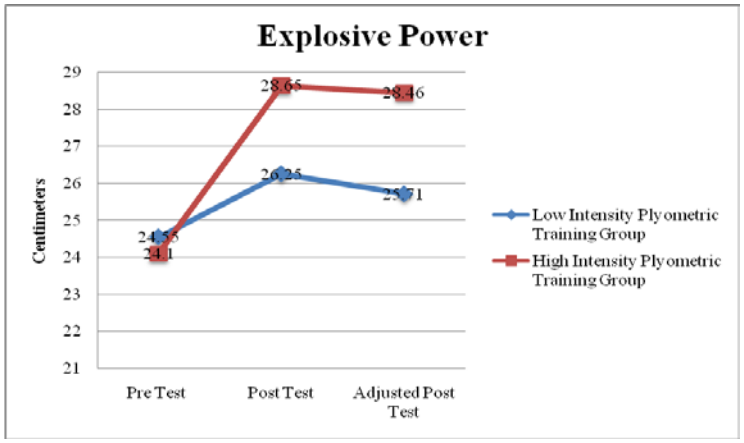
Table I shows that the pre test mean value of Explosive Power 24.55(± 1.94) Centimeters for Low Intensity Plyometric Training Group, 24.10(± 1.32) Centimeters for High Intensity Plyometric Training Group. The obtained F-ratio of 0.39 is not significant at 0.05 level of confidence. The differences between the post test means 26.25(± 1.78) Centimeters for Low Intensity Plyometric Training Group, 28.65(± 6.16) Centimeters for High Intensity Plyometric Training Group resulted in an F-ratio of 44.36 is significant at 0.05 level of confidence.

The differences between the adjusted post test means 25.71 Centimeters for Low Intensity Plyometric Training Group, 28.46 Centimeters for High Intensity Plyometric Training Group resulted in an F-ratio of 74.75 is significant at 0.05 level of confidence.

The mean values of Explosive power of Low Intensity Plyometric Training Group and High Intensity Plyometric Training Group were graphically represented in the Figure-1.

Figure–1

The mean values of Low Intensity Plyometric Training Group and High Intensity Plyometric Training Group on Explosive power



DISCUSSION ON FINDINGS

Berger (1963) pointed out performance of squat jumps at the lowest load of maximum resulted in greater increases in vertical height. **Gehri et.al,(1998)** established that Plyometric Training techniques were the best for improving vertical jumping ability, positive energy production and elastic energy utilization.

According to **Adams(1995)** Plyometric Training improves hip and thigh power production as measured by vertical jumping ability. **Maffiuletti, (2002),** pointed out that combined Plyometric Training increases vertical jump performance.

From the results of the present study and literature, it is concluded that significant differences exist between Low Intensity Plyometric Training and High Intensity Plyometric Training in developing dependent variables such as Explosive Power.

CONCLUSIONS

From the analysis of the data, the following conclusions were drawn.

1. It was concluded that there was a significant difference among the Low Intensity Plyometric Training Group and High Intensity Plyometric Training Group in Explosive Power.

2. Further it was concluded that among the selected group's High Intensity Plyometric Training Group shows the best performance in Explosive Power than Low Intensity Plyometric Training Group.

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