EFFECT OF EXPLOSIVE PLYOMETRIC TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES AMONG POLYTECHNIC STUDENTS

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Abstract

The purpose of the present study was to find out the effect of explosive plyometric training on physiological variables among polytechnic students. To achieve the purpose of the present study, thirty men students from KLN Polytechnic College, Madurai, Tamilnadu, India were selected as subjects at random and their ages ranged from 16 to 19 years. The selected subjects are divided in to two groups. The experimental group participated explosive plyometric training for eight weeks. The control group was not undergone any training other than their daily routine. The criterion measures such as anaerobic power, vital capacity and resting pulse rate were tested before and after eight weeks and statistically analysed by using analysis of covariance (ANCOVA) at 0.05 level. The explosive plyometric training group showed better performance on anaerobic power, vital capacity and resting pulse rate than the control group

Key words: Explosive Plyometric Training, Anaerobic Power, Vital Capacity.

Introduction

Explosive training move with more weights instantly to generate a quick burst of movement. Plyometric exercises were intended to bring fast and powerful movement to improve functions of the nervous system and for improving sports performance. It consists of explosive exercises where a muscle is initially loaded first and then contracted in speedy sequence. This causes the muscle strength, elasticity and innervations to jump higher, faster and throw efficiently. Plyometric is used by the coaches and physical educationist for more decades for multidisciplinary sport specific activities. The polytechnic students were from teenagers and they may get adapted from this type of explosive training for elite sports performance. **(Donald, 1998).**

Methodology

The purpose of the present study was to find out the effect of explosive plyometric training on physiological variables among polytechnic students. To achieve the purpose of the present study, thirty men students from KLN Polytechnic College, Madurai, Tamilnadu, India were selected as subjects at random and their ages ranged from 16 to 19 years. The selected subjects are divided in to two groups. The experimental group participated explosive plyometric training for eight weeks. The control group was not undergone any training other than their daily routine. The criterion measures anaerobic power was measured by Margaria Kalamen Anaerobic Power test and the unit is in watts, vital capacity was measured by Spirometer and the unit is in litres and resting pulse rate was measured by Stethoscope and the unit is in beats/minute. The two groups were statistically analysed by using analysis of covariance (ANCOVA) at 0.05 level.

Results and Discussion

The detailed procedure of analysis of data and interpretation were given below,

Table-I
Summary of Descriptive Statistics on Selected Physiological Variables among Polytechnic Students

S.No	Variables	EPTG					CG				
		Pre	SD (±)	Post	SD (±)	Adjusted Mean	Pre	SD (±)	Post	SD (±)	Adjusted Mean
1	Anaerobic Power	1211.53	91.62	1437.00	49.89	1437.47	1195.26	90.28	1209.53	66.72	1209.05
2	Vital Capacity	4.24	0.41	4.79	0.25	4.87	4.49	0.57	4.50	0.44	4.42
3	Resting Pulse Rate	72.66	1.54	70.13	0.99	69.94	71.73	1.38	71.33	1.63	71.51

EPTG = Explosive Plyometric Training Group
CG = Control Group

The table I shows that the pre and post test means and standard deviation of two groups on selected physiological variables among polytechnic students

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Table - II

Analysis of Variance of Pre Test Scores on Selected Physiological Variables among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Anaerobic Power	BG	1984.53	1	1984.53	0.24
		WG	231672.66	28	8274.02	
2	Vital Capacity	BG	0.48	1	0.48	1.95
		WG	6.93	28	0.24	
3	Resting Pulse Rate	BG	6.53	1	6.53	3.03
		WG	60.26	28	2.15	

***** P < 0.05 Table F, df (1,28) (0.05) = 4.19

In table II, the results of analysis of variance of pre test scores on anaerobic power (0.24), vital capacity (1.95) and resting pulse rate (3.03) were lesser than the table value of 4.19 indicating that it was not significant for the degrees of freedom (1,28) at 0.05 level of confidence indicating that the random sampling was successful.

Table-III

Analysis of Variance of Post Test Scores on Selected Physiological Variables among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Anaerobic Power	BG	388058.13	1	388058.13	111.81*
		WG	97179.73	28	3470.70	
2	Vital Capacity	BG	0.61	1	0.61	4.64*
		WG	3.73	28	0.13	
3	Resting Pulse Rate	BG	10.80	1	10.80	5.92*
		WG	51.06	28	1.82	

***** P < 0.05 Table F, df (1,28) (0.05) = 4.19

In table III, the results of analysis of variance of post test scores on anaerobic power (111.81), vital capacity (4.64) and resting pulse rate (5.92) were greater than the table value of 4.19 indicating that it was significant for the degrees of freedom (1,28) at 0.05 level of confidence.

Table-IV

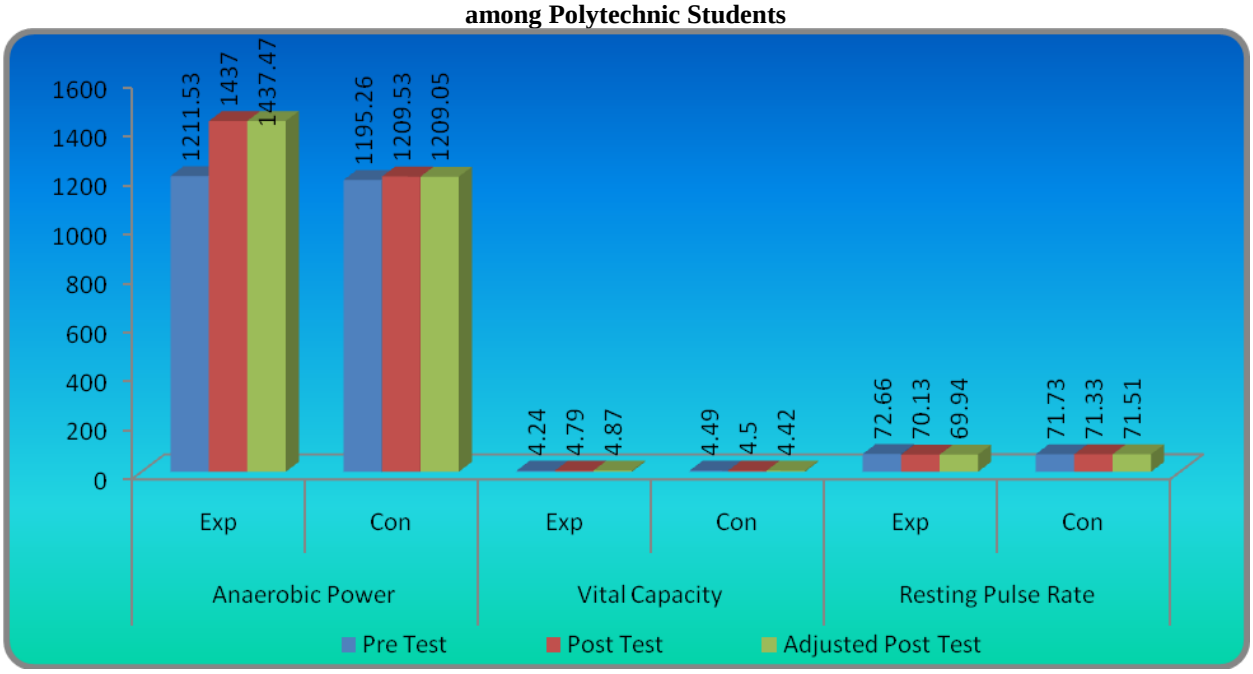
Analysis of Covariance of Adjusted post test scores on Selected Physiological Variables among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Anaerobic Power	BG	387987.10	1	387987.10	108.68*
		WG	96387.44	27	3569.90	
2	Vital Capacity	BG	1.40	1	1.40	40.05*
		WG	0.95	27	0.03	
3	Resting Pulse Rate	BG	16.71	1	16.71	10.87*
		WG	41.50	27	1.53	

***** P < 0.05 Table F, df (1,28) (0.05) = 4.19

In table IV, the results of analysis of covariance of adjusted post test scores on anaerobic power (108.68), vital capacity (40.05) and resting pulse rate (10.87) were greater than the table value of 4.19 indicating that it was significant for the degrees of freedom (1,28) at 0.05 level of confidence.

Figure-I Shows the Mean Values of Experimental and Control Groups on Selected Physiological variables among Polytechnic Students



Conclusions

In the light of the study undertaken with certain limitations imposed by the experimental conditions, the following conclusions were drawn.

1. The result of the study reveals that there was a significant improvement in the experimental group on selected variables when compared to the control group after the completion of eight weeks of explosive plyometric training.
2. The explosive plyometric training group has showed better performance on anaerobic power, vital capacity and resting pulse rate than the control group.

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