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EFFECT OF EXPLOSIVE RESISTANCE TRAINING ON SELECTED MOTOR FITNESS COMPONENTS AMONG POLYTECHNIC STUDENTS

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Abstract

The purpose of the present study was to find out the effect of explosive resistance training on motor fitness components 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. Group I acted as explosive resistance training group and Group II acted as control group. The experimental group participated explosive resistance training programme for eight weeks duration. The control group was not undergone any training other than their daily routine. The criterion measures speed was measured by 50 metres dash, agility was measured by 'T' agility run and balance was measured by stork stand. The two groups were statistically analysed by using analysis of covariance (ANCOVA) at 0.05 level. 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 resistance training group. The explosive resistance training group has showed better performance on speed, agility and balance than the other control group.

Key words: *Explosive Resistance Training, Motor Fitness, Polytechnic Students.*

Introduction

Explosive exercise training routines are one way to increase power output. The goal of explosive exercise training is to ultimately move heavy weights very quickly without any risk of injury. Explosive exercises are often used by athletes who need to generate a quick burst of maximal effort. The types of exercises used to build the quick movement that requires a maximum power output from the athlete in a short amount of time. Resistance training increases muscle strength by pitting muscles against a resistance. A rubberized band can even be used. Resistance training can increase muscle strength and bone density and reduce body fat. Resistance training, also called weight training or strength training is pitting muscles against a resistance such as a weight or other type of resistance, to build the strength, anaerobic endurance and increase size of skeletal muscles. A well rounded program of physical activity includes strength training, to improve bone, joint function, bone density, muscle, tendon and ligament strength, as well as aerobic exercise, to improve our heart and lung fitness. These activities should work all the major muscle groups of our body. Full range of motion is important in resistance training because muscle overload occurs only at the

specific joint angles where the muscle is worked **(Baechle, 1994).**

Methodology

The purpose of the present study was to find out the effect of explosive resistance training on motor fitness components 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. Group I acted as explosive resistance training group and Group II acted as control group. The experimental group participated explosive resistance training programme for eight weeks duration. The control group was not undergone any training other than their daily routine. The criterion measures speed was measured by 50 metres dash, agility was measured by 'T' agility run and balance was measured by stork stand. 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 Motor Fitness Components among Polytechnic Students

S.No	Variables	ERTG					CG				
		Pre	SD (±)	Post	SD (±)	Adjusted Mean	Pre	SD (±)	Post	SD (±)	Adjusted Mean
1	Speed	7.53	0.31	7.12	0.20	7.08	7.41	0.23	7.40	0.25	7.44
2	Agility	11.88	0.80	10.80	0.55	10.66	11.46	0.60	11.45	0.61	11.60
3	Balance	10.72	1.07	12.76	1.20	12.52	10.19	0.74	10.41	0.93	10.65

ERTG = Explosive Resistance Training Group
CG = Control Group

The table I shows that the pre and post test means and standard deviation of two groups on selected motor fitness components among polytechnic students.

Table - II
Analysis of Variance of Pre Test Scores on Selected Motor Fitness Components among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	**Speed**	**BG**	0.10	1	0.10	1.37
		WG	2.12	28	0.07	
2	**Agility**	**BG**	1.32	1	1.32	2.61
		WG	14.19	28	0.50	
3	**Balance**	**BG**	2.09	1	2.09	2.46
		WG	23.71	28	0.84	

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

In table II, the results of analysis of variance of pre test scores on speed (1.37), agility (2.61) and balance (2.46) 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 Motor Fitness Components among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Speed	BG	0.58	1	0.58	10.87*
		WG	1.49	28	0.05	
2	Agility	BG	3.14	1	3.14	9.22*
		WG	9.55	28	0.34	
3	Balance	BG	41.51	1	41.51	35.91*
		WG	32.36	28	1.15	

***** 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 speed (10.87), agility (9.22) and balance (35.91) were greater 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.

Table-IV

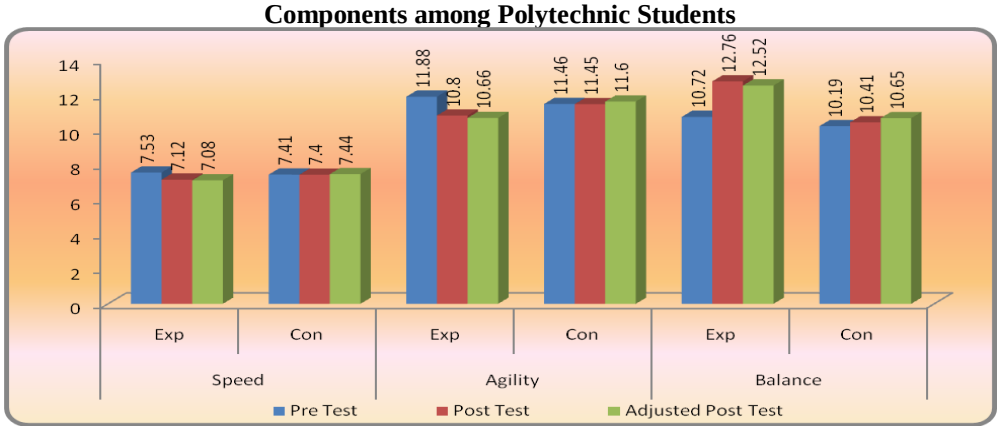
Analysis of Covariance of Adjusted post test scores on Selected Motor Fitness Components among Polytechnic Students

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Speed	BG	0.94	1	0.94	66.87*
		WG	0.38	27	0.01	
2	Agility	BG	6.10	1	6.10	64.34*
		WG	2.56	27	0.09	
3	Balance	BG	23.88	1	23.88	54.41*
		WG	11.85	27	0.43	

***** 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 speed (66.87), agility (64.34) and balance (54.41) were greater 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.

Figure-I Shows the Mean Values of Experimental and Control Groups on Selected Motor Fitness Components 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 resistance training group.
2. The explosive resistance training group has showed better performance on speed, agility and balance than the other control group.

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