



EFFECT OF CIRCUIT TRAINING ON MUSCULAR ENDURANCE OF SCHOOL BOYS

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ABSTRACT

The purpose of the study was to find out the effect of circuit training on muscular endurance of school boys. To achieve the purpose of this study, thirty school boys were selected from cuddalore, Tamilnadu, India. The age, height and weight of the subjects ranged from 12 to 13 years, 140 to 145 centimetres and 30 to 35 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent circuit training and group-II acted as control who does not participate in any training programme. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). The experimental group had significant improvement on muscular endurance when comparing to the control group.

Key words: Circuit Training and Muscular Endurance.

INTRODUCTION

Physical fitness is nowadays considered as one of the most important health markers in childhood. Consequently, in the last decades several countries have been promoting physical fitness improvement among young people in different. In many circumstances, schools have been considered the best setting in which children with low fitness levels can be identified and a healthy lifestyle can be promoted. Therefore, one of the main Spanish government strategies was focused on modifying school legislations in order to give health a more important role in the Educational System. Schools are mainly attempting to increase the pupils' health level by using measures such as the improvement of their physical fitness through physical education. It has been concluded that the health promotion policies and physical activity programs should be designed to improve physical fitness, where strength and cardiovascular endurance are the most important health-related physical fitness components (Ortega, *et al.*, 2008). One of the methodologies that meet these criteria could be the circuit training (Granacher, *et al.*, 2011). The circuit training effectively reduces the time devoted to training while allowing an adequate training volume to be achieved.

Methodology

The purpose of the study was to find out the effect of circuit training on muscular endurance of

school boys. To achieve the purpose of this study, thirty school boys were selected from cuddalore, Tamilnadu, India. The age, height and weight of the subjects ranged from 12 to 13 years, 140 to 145 centimetres and 30 to 35 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent circuit training and group-II acted as control who does not participate in any training programme. The muscular endurance was assessed by the sit-ups test for 30 seconds. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).

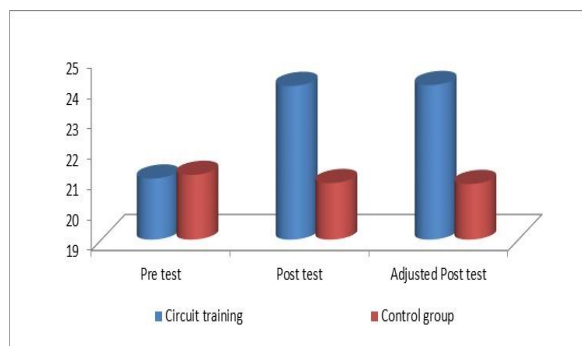
RESULTS

The adjusted post test means on muscular endurance of circuit training and control groups are 24.09 and 20.83 respectively. The obtained 'F' ratio value of 106.24 for adjusted post test means on muscular endurance of circuit training and control groups were higher than the required table value of 4.21 for the degrees of freedom 1 and 27 at 0.05 level of confidence. It is observed from this finding that significant differences exist among the adjusted post test means of experimental and control groups on muscular endurance. Due to the circuit training the muscular endurance significantly improved of the subjects.

TABLE - I Analysis of Covariance on Muscular Endurance of Circuit Training and Control Groups

	Experimental Group	Control Group	SoV	Sum of Squares	df	Mean squares	'F' ratio
Pre-test Mean SD	21.01	21.13	B	0.13	1	0.13	0.08
	1.19	1.30	W	43.73	28	1.56	
Post-test Mean SD	24.06	20.86	B	79.80	1	76.80	75.01*
	0.79	1.18	W	28.66	28	1.02	
Adjusted Post-test Mean	24.09	20.83	B	79.40	1	79.40	106.24*
			W	20.17	27	0.74	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 & 28 and 1 & 27 are 4.20 and 4.21 respectively) *Significant at .05 level of confidence

FIGURE - I Cylinder Diagram on Muscular Endurance of Circuit Training and Control Groups

DISCUSSION AND FINDINGS

The results of the study showed that there was a significant improvement on muscular endurance of circuit training group when compared to the control group. The following studies are supporting with my study results. The children performed an extra-curricular circuit training program confirmed a significant improvement on both muscular endurance (Annesi *et al.*, 2005; Wong *et al.*, 2008). In this line, Dorgo *et al.* (2009) carried out a circuit training program with adolescents in the physical education setting on muscular endurance. These authors found a statistically significant improvement for both muscular strength and cardiovascular endurance when the circuit training was complemented with endurance training.

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