

# The Effectiveness of Circuit Training in Enhancing Muscle Endurance among Students

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## Abstract

The aim of this study is to determine the effectiveness of circuit training in enhancing muscle endurance among boys in a senior secondary school. This study involved 40 boys. 20 subjects (n=20) were randomly chosen as the control group whereas the other 20 subjects (n=20) were selected as the experimental group. The objective of this experiment is to ascertain the effectiveness of circuit training in improving muscle endurance among boys in a senior secondary school. The subject group consisted of 40 boys. The group was divided into the control group (n<sub>1</sub>=20) and experimental group (n<sub>2</sub>=20) at random. The training executed for the experimental group was Sit-up with the period of 5 weeks. The 'intact sampling' method was adopted. The control group was not treated with any training. The significant difference was indicated by t-test at 0.05 level of significance. The findings revealed that the treatment improved the muscle endurance of the students.

## Keywords: Circuit Training, Muscle Endurance

## Introduction

Circuit training is a form of body conditioning or high intensity aerobics resistance training. It's aimed at increasing strength and muscle endurance. A 'circuit' exercise is a completion of all specified exercises. Circuit training requires a variety of strength exercises with incomplete recovery. The objective of circuit training is to increase lactic acid and release growth hormone throughout the body. Training children on a circuit is a safe and time-efficient way to achieve the fitness goals we need them to accomplish. Circuit training is a "high volume, low resistance workout with short rest intervals and is geared mainly at improving muscle tone towards cardiovascular fitness. This workout involves all major muscle groups in one continuous cycle, alternating between the different areas to allow for

muscle recovery and to force your heart to work harder in pumping blood to these constantly changing areas. In other words, through circuit training, children will be able to completely hit the most important cylinders of physical fitness.

### **Selection of Subjects**

The aim of this study is to find out the effect of circuit training on selected variables among school boys. To achieve the purpose of this study 40 boys are selected from a senior secondary school, Coimbatore from Tamil Nadu, They are selected randomly as subject and their age group was between 15 to 17 years.

## **Experimental Design**

The subjects (N=40) selected for the study are segregated into two groups equally and randomly. Experimental Group I underwent Circuit training and Group II acted as Control Group. The circuit training group I are attended with their respective training for one and half hour per day for three days a week and for a period of five weeks. The post tests are conducted on the above said dependent variables after the experimental periods for the two groups. The differences between the initial and final means of the selected variables are the effect of circuit training among school boys.

Group With Training	Treatment
Experimental Group	Circuit Training
Control Group	No Training
Circuit Training : Training Duration for circuit training One and Half Hours (90 minutes)	Warm up 15 minutes, Instruction Treatment (training) 60 minutes Cool Down, Correction and Clarification 15 minutes
Circuit Training Session per week	Three days (Tuesday, Thursday & Saturday)

### **Structure of Training Programme**

### **Training Schedule**

Circuit training	Intensity (Pulse rate)	Repetition	Set	Frequency	Each Exercise	Rest in Between Exercise
Sit-up	60 %	10 times	5	3 days	60 Seconds	30 seconds
	70 %	8 times	6	3 days	90 Seconds	30 seconds
	80 %	6 times	7	3 days	120 Seconds	30 seconds

#### Muscular Strength Endurance: Sit-Ups

The purpose of the study is to find out the muscular strength endurance of the subjects. Gymnastic Mats, stop watch and score sheet are the materials required.

The subject being tested should be in supine lying position with bent knees, feet flat about 18 inches from the buttocks, and the hands touching the side of the head. A partner holds knee with each sit up. The subject performs as many sit ups in one minute as possible. The score is recorded in numbers of correct repetitions for one minute.

Test	Group	Mean	SD	t- Value	
Pre Test	Experimental	24.07	2.48	2 70*	
	Control	21.05	2.67	5.70*	
Post Test	Experimental	28.65	2.85	0 60*	
	Control	21.06	2.65	0.00	

\*significant at 5% level.

From the above table it is understood that the t-value of pre test analysis 3.70 is significant at 5% level and the t-value of post test analysis 8.68 is significant at 5% level. Hence the significant difference is observed before and after the circuit training. It is further concluded that the mean scores proved that the experimental group's muscle endurance is influenced by the sit-ups in the circuit training.

### Conclusion

The purpose of this study is to find out at what extent the effectiveness of the circuit training included in the subject of physical education will enhance muscular endurance among students. The study result showed that the 5-week circuit training is capable of increasing muscle endurance among students. It means that an intended effect may arise when an external technique is incorporated into a teaching session, such as the additional exercise. The circuit training exercise must therefore be instilled in all schools in the physical education sessions to improve muscular endurance for the pupils.

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