

## TWELVE WEEKS OF CIRCUIT TRAINING ON MUSCULAR ENDURANCE AND CARDIO RESPIRATORY ENDURANCE OF PHYSICAL EDUCATION YOUTHS



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### Abstract:

The purpose of the study was to find out the twelve weeks of circuit training on muscular endurance and cardio respiratory endurance of physical education youths. To achieve the purpose of the study, thirty ( N=30) men students aged between 18 to 22 years studying Sreenarayana college, Chemazhantny, Trivandrum, Kerala were randomly selected as subjects. They were equally divided into two groups. Experimental Group I (n=15) underwent circuit training for three session per week for twelve weeks. Group II (n=15) acted as control group however they underwent their regular physical education activities. The data were collected prior and immediately after the training programme on muscular endurance and cardio respiratory endurance. The ANCOVA was used as statistical tool. The finding of this study showed that there was a significant improvement on muscular endurance and cardio respiratory endurance in favor of circuit training group.

**Keywords:** Circuit training, muscular endurance, cardio respiratory endurance.

### Introduction:

Sport training is the basic form of preparation of sportsman. The word Training has been a part of a human language since ancient times. It denotes the preparation of some task. This process in variably extends to number of days and even more than years. The term Training is widely used in sports. There is however, some disagreement among coaches and also among sports scientist regarding the exact meaning of this word some example especially belonging to sports medicine, understand sports training as basically doing physical exercises. Circuit training is a comparatively new addition in the field of physical training making its appearance in the mid 1905s, with new varieties, such as exercise box exercise and body pump, coming on the scene each year. The aim of circuit training is a progressive development of the muscular respiratory systems. (Circular training exercise achieves all round fitness). Throughout this type of training participants are treated as individuals and not as a mass, pushing themselves to their own limits with minimum directions from the instructor.

Circuit training has long been used into improve strength and fitness. It was first for analysis studied has refined by R.E Morgon and G.E Anderson in 1953 at university of Leeds' but had been a staple of military training for far long. The core objectives of circuit training are to increase muscular strength, muscular endurance, flexibility, and co-ordination. Studies at Baylor University and the Cooper institute have suggested the circuit training is the

most time efficient way in which to improve cardiovascular endurance and muscular endurance (www.youdomedical.co.uk).

**Methodology:**

The purpose of the study was to find out the twelve weeks of circuit training on muscular endurance and cardio respiratory endurance of physical education youths. To achieve the purpose of the study, thirty (N=30) men students aged between 18 to 22 years studying sreenarayana college, Chemazhanty, Trivandrum, Kerala were randomly selected as subjects. They were equally divided into two groups. Experimental Group I (n=15) underwent circuit training for three session per week for twelve weeks. Group II (n=15) acted as control group however they underwent their regular physical activities. The experimental group underwent the following training exercises are rope skipping, pushups, high knee action, hyper extension, jumping jack, pull ups and low hurdle jump. Repetitions: 8 to 12, set: 2, recovery: station-30 to 45 seconds, set-4to5 minutes, warming up and limbering down periods were excluded from the training. The data were collected prior and immediately after the training programme on muscular endurance and cardio respiratory endurance. The ANCOVA was used as statistical tool. The level of confidence fixed to the test the significance was 0.05. Muscular endurance and cardio vascular endurance were measured by sit-ups and coopers 12 minutes run/walk test.

**Results:**

ANCOVA (Jerry1996) was used to find out the training effect and the level of significance was fixed at 0.05.

**Table 1. Results of ANCOVA for muscular endurance and cardio respiratory endurance**

Variables	Test	Circuit training group	Control group	Sources of variance	Sum of squares	Df	Mean square	Obtained 'F' ratio
Muscular endurance	Adjusted post test mean	36.45	32.95	Between	91.45	1	91.45	12.98*
				Within	190.17	27	7.04	
Cardio respiratory endurance	Adjusted post test mean	2489.14	2398.86	Within	60276.13	1	600276.13	52.32*
				Between	31104.65	27	1158.02	

\*P>0.05, TV: df 1 and 27=4.20

From the table the mean values are clearly stated twelve weeks of circuit training improves the muscular endurance and cardio respiratory endurance for experimental group than control group. Hence it was concluded that, circuit training improves muscular endurance and cardio respiratory endurance of youths.

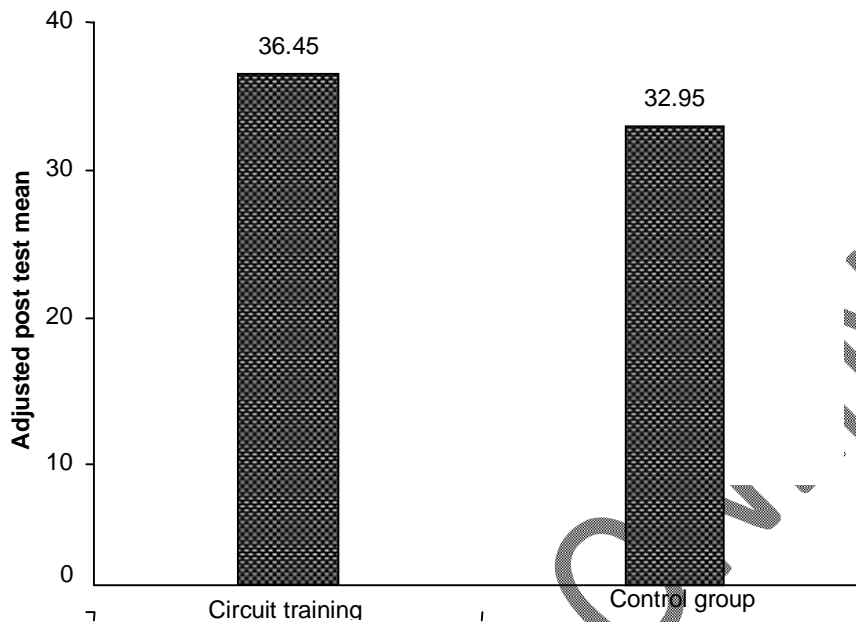
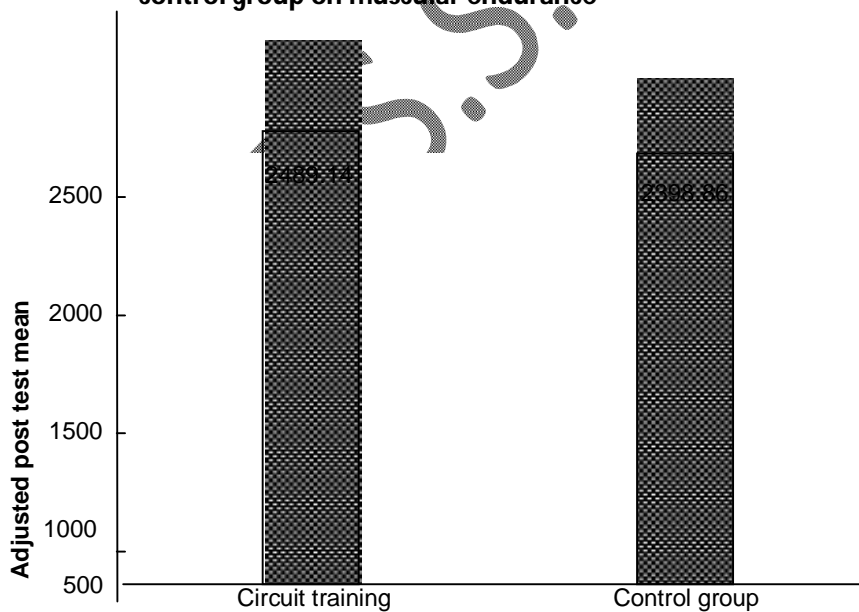


Figure 1: The adjusted post test mean value of circuit training group control group on muscular endurance



**Discussion:**

The results of the study indicate that the circuit training had significantly improved the muscular and cardio\_respiratory endurance. The control group did not show improvement of the

selected variables. It was not involved in any of the specific training means. These findings are in line with the findings of Taylor (1963), Vaithianathan (1998), Mosher (1998), Andrew Maiorane (2000), Padmanaban (2000), Glen Engene Fincher (1990). It is inferred from the results of the present study that all the dependent variables were significantly improved due to the influence of traditional circuit training programme.

### Conclusion:

It was concluded that the circuit training program has resulted in significant increase muscular endurance and cardio respiratory endurance.

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