Research Paper
Impact Factor: 7.352
Peer Reviewed Monthly Journal
www.ijmdrr.com

IJMDRR
E- ISSN –2395-1885
ISSN -2395-1877

EFFECT OF CIRCUIT TRAINING ON MUSCULAR ENDURANCE AMONG COLLEGE STUDENTS

Dr. Parvati Tambake
Physical Education Director, UG (NEP) Department, Karnataka State Akkamahadevi Women University, Vijayapura.

Abstract
The purpose of the study was to find out the Effect of Circuit training on Muscular Endurance among College Students. It was hypothesized that there would be significant differences on physical fitness variables due to the effect of circuit training among College Students. For the present study the 30 Female College Students from Government PUC College for Girls Vijayapura, District of Karnataka State were selected at random and their age ranged from 16 to 19 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group „A" and Group „B". Group „A" underwent circuit training and Group„B" has not undergone any training. The data was collected before and after Eight weeks of training. The data was analyzed by applying dependent „t" test. The level of significance was set at 0.05. The circuit training had positive Effect on muscular endurance among College Students.

Key Words: Circuit Training, Muscular Endurance College Students.

Introduction

Circuit training was developed by R. E. Morgan and G. T. Anderson in 1953 at the University of Leeds in England (Sorani, 1966). The term circuit refers to a number of carefully selected exercises arranged consecutively. In the original format, 9 to 12 stations comprised the circuit. This number may vary according to the design of the program. Each participant moves from one station to the next with little (15 to 30 seconds) or no rest, performing a 15- to 45-second workout of 8 to 20 repetitions at each station (using a resistance of about 40% to 60% of one repetition maximum). The program may be performed with exercise machines, hand-held weights, elastic resistance, calisthenics or any combination.

The term "circuit training" describes the way a workout is structured rather than the type of exercise performed. It typically consists of a series of exercises or stations completed in succession with minimal rest in between. Circuit routines allow the athlete or coach to create an endless number of workouts and add variety to routine training programs.

Circuit training involves a number of carefully selected exercises with stations that are arranged in a specific pattern around a gymnasium or field, enabling one to perform them from one station to another. Different exercises with a specified number of repetitions and load is pre-determined depending on an individual's ability to decrease the time for completing one or more circuits. Further, overload is applied by increasing the load and/or the number of repetitions.

Now-a-days the circuit training has become increasingly popular among men and women. This type of training provides a one-stop total body exercise session, combining aerobic and strength training into a time efficient workout. Circuit Training reduces body weight and inches and is one of the most versatile methods of exercising. It provides excellent all round fitness, builds lean muscle tone,

increases strength and aerobic endurance. The benefits of Circuit Training can be summed up in a few words: Maximum results in the minimum amount of time

The aim of Circuit Training is a progressive development of the muscular respiratory systems. (Circuit Training Exercise achieves all round fitness). Circuit training improves all round physical fitness, as opposed to fitness for a specific sport. It is generally assumed that a course of circuit training will improve both aerobic fitness and strength, thus making it a very useful conditioning method. It must be recognized that only through work (assuming adequate rest and nutrition are taken) can a muscular and respiratory system be improved on. Endurance training for which circuit training is a firm base to work from must be regular and sustained over a long period. Starting at a low level, appertaining from the standard of the class or individual, intensity should be gradually increased, with a progressive load being placed on the cardiovascular system.

Circuit training is an efficient and challenging form of conditioning that develops strength, endurance (both aerobic and anaerobic), flexibility and coordination all in one exercise session. It is one of the few forms of fitness training that has been shown to effectively develop both strength and cardiovascular fitness in the same exercise session.

Statement of the Problem: The purpose of the present investigation is to find out Effect of Circuit training on Muscular Endurance among College Students.

Objective of the Study: To find out the significant difference in Muscular Endurance of the subjects by Circuit training among experimental group.

Hypotheses: It was hypothesized that there would be a significant difference in Muscular Endurance of the subjects by Circuit training among experimental group.

Methodology: The purpose of the study was to find out the Effect of Circuit training on Muscular Endurance among College Students. It was hypothesized that there would be significant differences on physical fitness variables due to the effect of circuit training among College Students. For the present study the 30 Female College Students from Government PUC College for Girls Vijayapura, District of Karnataka State were selected at random and their age ranged from 16 to 19 years. For the present study pre test - post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group „A" and Group „B". Group„A" underwent circuit training and Group „B" has not undergone any training. The data was collected before and after Eight weeks of training. The data was analyzed by applying dependent „t" test. The level of significance was set at 0.05.

Results and Discussions: After the six weeks Circuit training there would be significant decreases in Muscular Endurance. The data on Muscular Endurance before and after the Circuit training of experimental and control groups are analyzed and presented in Table-1.

Hypothesis: It was hypothesized that there would be a significant difference in Muscular Endurance of the subjects by Circuit training among experimental group.

Table No.1 Showing the Pre-test and Post–test for Circuit training Experimental Group on Muscular Endurance

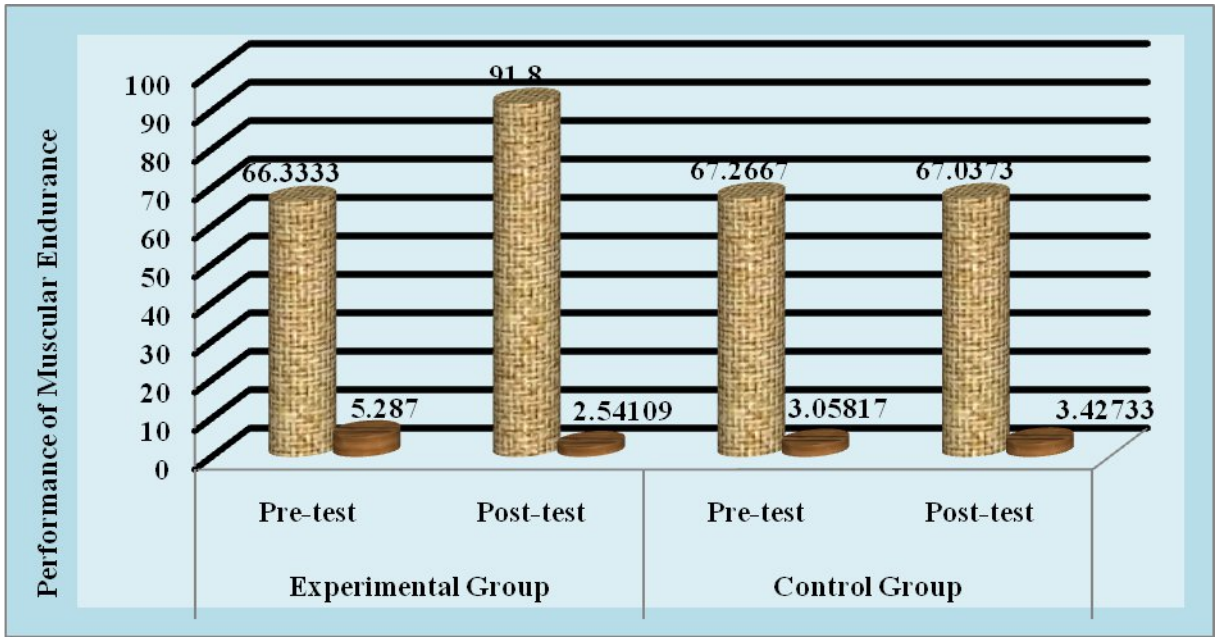
Variable	Group	Test	Mean	SD	t- Value
Muscular Endurance	Experimental Group	Pre-test	66.3333	5.28700	**18.790***
		Post-test	91.8000	2.54109	
	Control Group	Pre-test	67.2667	3.05817	**1.446**
		Post-test	67.0373	3.42733	

***Significant at 0.05 level**
(Table value required for significance at 0.05 level for‘t’-test is 1.697)

Table-1 shows the result about the comparison of Muscular Endurance among Circuit training experimental and control groups of College Students. The mean of pre and post-test of Circuit training experimental group are 66.3333 and 91.8000 with SD of 5.28700 and 2.54109 respectively. Table1 also reveals that there is the significant difference in the experimental pre-test and post-test observations on the Muscular Endurance of College Students as the obtained t-value of the experimental group on Muscular Endurance is 18.790 and p-value is more than 0.05 level of significance. Whereas in the case of control group Mean 67.2667 and 67.0373 and SD 3.05817 and 3.42733 on Muscular Endurance are not found to be significant at 0.05 level of significance, as they obtained t-value is control group 1.353 and p-value is lesser than 0.05 level of significance.

The comparison of Muscular Endurance mean scores of pre and post tests among groups is shown in graphical representation in Fig.1

Figure No.1 Showing the Pre-test and Post–test for Circuit training Experimental Group on Muscular Endurance Performance.



The above figure 1. Indicates that the post test values of Experimental group significantly improved the performance of Muscular Endurance and also the post test values of Muscular Endurance were

more than the pre test values due to Eight weeks of Circuit training. The Control group pre- test and post- test performance of Muscular Endurance no improvement.

Discussion

The raw data was computed and analysis of data showed that the Circuit training improved significantly in the Muscular Endurance of experimental group. The reason for better performance in experimental group may be continues participation in training and the load which was experienced by the subjects in the training programme was adequate to produce significant development in the Muscular Endurance. In case of control group it may be due to their non-participation in the training programme. Circuit training is used as the latest methodology for developing the Muscular Endurance. The activities which activate the stretch reflex mechanism affect the body power and come under the category Circuit training.

Discussion of Hypothesis

On the basis of the above findings, it is obvious that the treatment contributed to the development of Muscular Endurance. Hence, the hypothesis framed for the study is accepted.

Conclusion

Eight weeks of Circuit training has shown significant improvement on Muscular Endurance among College Students.

Reference

1. Abraham, George, Shafeeq V. A.and Abraham Thomas (2012). Effect of high and low intensity circuit resistance training on explosive strength of adolescents, International Journal of Physical Education, Sports and Yogic Sciences, 1 (2), 25-28.
2. Babalola, J.F. (2011). Effects of 8-weeks circuit training programme on physiological and performance characteristics of university racket game players, Journal of Asian Scientific Research, 1(4), 143-149.
3. Babalola, J.F. (2011). Effects of 8-weeks Circuit Training Programme on Physiological and Performance Characteristics of University Racket Game Players. Journal of Asian Scientific Research, 1(4), 143-149.
4. Brar, G.S. (1985). Comparative Effects of Circuit Training and Interval Training on Selected Physiological Measurements and Running Performance of Females. Chandigarh: Punjab University.
5. Brook L. S., Margaret T. J., Mark B. and Tracey D.M. (2012). Acute effects of three different circuit weight training protocols on blood lactate, heart rate, and rating of perceived exertion in recreationally active women, Journal of Sports Science and Medicine, 11, 660-668.
6. Chittibabu, B. and Akilan, N. (2014). Effect of sports specific endurance circuit training on sprinting performance and leg explosive power of high school male basketball players during competitive. Global Journal for Research Analysis, 3(12), 1-2.

IJMDRR
E- ISSN –2395-1885
ISSN -2395-1877