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PHYSICAL EDUCATION

EFFECT OF INTENSIVE AND EXTENSIVE CIRCUIT WEIGHT TRAINIG ON SELECTED ANTHROPOMETRIC VARIABLE OF PHYSICAL EDUCATION STUDENTS

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Abstract

The purpose of the study was to find out the effect of different intensity circuit weight training on selected anthropometric variable. To achieve the purpose of the study, 45 male students from the department of physical education and sports sciences, Annamalai University, Chidambaram, Tamilnadu, India were selected at random as subjects, in the age group of 18 to 20 years. The chosen subjects were randomly assigned into three groups of 15 each. Group-I acted as control, group-II followed intensive circuit weight training and group-III subjects underwent extensive circuit weight training.both experimental groups have significantly increased the fore arm girth as compared to control group. Further, the improvement of fore arm girth is significant for intensive circuit weight training group than extensive circuit weight training group.

Key Word: Fore arm girth, Circuit Training.

INTRODUCTION

All forms of physical activities which through casual or organized participation aim at improving physical fitness and mental well being, forming social relationships or obtaining results in competition at all levels. (Council of Europe). To develop a healthy, disciplined, united and productive society through greater participation in sport and physical recreation by all members of the society. In this regard, special opportunities are to be made available to children, young people, women, girls, senior citizens and the specially challenged. Circuit weight training is a form of exercise that uses a number of weight training exercise sets separated by short intervals. The cardiovascular effort to recover from each set serves a function similar to an aerobic exercise, but this is not the same as saying that a weight training set is itself an aerobic process.

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the study was to find out the effect of different intensity circuit weight training on selected anthropometric (Fore arm girth). To achieve the purpose of the study, 45 male students from the department of physical education and sports sciences, Annamalai University, Chidambaram, Tamilnadu, India were selected at random as subjects, in the age group of 18 to 20 years. The chosen subjects were randomly assigned into three groups of 15 each. Group-I acted as control, group-II followed intensive circuit weight training and group-III subjects underwent extensive circuit weight training.

SELECTION OF VARIABLES

Experimental Variables

The experimental variables used in the present study were two intensities of circuit weight training such as:

- Intensive circuit weight training
- Extensive circuit weight training

Criterion Variables

The criterion variables chosen for the present research were anthropometric measurement.

Anthropometric Measurements

a. Forearm girth

TABLE 1
TESTS USED FOR CRITERION VARIABLES

S.No.	Criterion Variables	Instrument/Test / Method / Formula	Unit of Measurement
Anthropometric measurements			
1	Forearm girth	Flexible measuring tape	Centimetrs

EXPERIMENTAL DESIGN

The experimental design used for the present study was random group design involving 45 volunteers as subjects. This study consisted of two experimental variables such as intensive circuit weight training and extensive circuit weight training. Among the three groups, group-I was treated as control group, group-II was followed intensive circuit weight training and group-III performed extensive circuit weight training group. Each group consists of 15 subjects and they were tested prior and after ten weeks of circuit weight training. To examine the effect of intensive and extensive circuit weight training on anthropometric measurements of fore arm girth, analysis of covariance (ANCOVA) was computed (Clarke & Clarke, 1972) for the data collected from the control and experimental groups during pretest and posttest separately for each variable. Further, since three groups were involved, whenever the 'F' ratio was significant, Scheffé S post hoc test was used to determine which of the paired mean differed significantly.

TABLE II
PRETEST, POSTTEST, AND FOUR CESSATION MEAN AND SD VALUE ON FORE ARM GIRTH OF CONTROL AND EXPERIMENTAL GROUP

Groups		Pre Test	Post Test	Cessation			
				I	II	III	IV
Control Group	**M**	29.13	29.13	29.13	29.13	29.13	29.10
	SD	1.094	1.093	1.093	1.093	1.093	1.089
Intensive Circuit Weight Training Group	**M**	29.73	34.20	32.80	31.87	30.80	29.87
	SD	0.799	1.014	0.862	0.743	0.775	0.915
Extensive Circuit Weight Training Group	**M**	29.67	32.67	31.93	31.20	30.07	29.53
	SD	0.724	0.900	1.884	1.082	0.961	0.743

TABLE III
ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON FORE ARM GIRTH OF CONTROL AND EXPERIMENTAL GROUPS

Control Group		Intensive Circuit Weight training Group	Extensive Circuit Weight Training Group	So V	Sum Of Squares	Df	Mean Square	F Ratio
Pretest								
M	29.13	29.73	29.67	**B**	3.23	2	1.61	2.059
SD	1.09	0.79	0.72	**W**	33.01	42	0.78	
Posttest								
M	29.13	34.20	32.67	**B**	202.53	2	101.26	100.15*
SD	1.09	1.01	0.90	**W**	42.46	42	1.011	
Adjusted post Test								
M	29.52	33.97	32.50	**B**	141.33	2	70.66	375.75*
				W	7.71	41	0.188	

*Significant of 0.05 level of confidence

The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 41 is 3.226 and degree of freedom 2 and 42 is 3.222.

Table-3shows that the pretest means on fore arm girth of control group, intensive circuit weight training group and extensive circuit weight training group are 29.13, 29.73 and 29.67 respectively. The obtained 'F' ratio value of 2.059 for pretest mean is lesser than the required table value of 3.222 for significance at 0.05 level. It reveals that there is statistically insignificant difference among control and experimental groups on fore arm girth before the commencement of circuit weight training. It inferred that the random assignment of subjects for the three groups is successful. The posttest mean on fore arm girth of control group, intensive circuit weight training group, and extensive circuit weight training group are 29.13, 34.20, and 32.67 respectively. The obtained 'F' ratio value of 100.15 for post-test data is greater than the required table value of 3.222 for significance at 0.05 level. The adjusted posttest mean on fore arm girth of control group, intensive circuit weight training group, and extensive circuit weight training group are 29.520, 33.972, and 32.507 respectively. The obtained 'F' ratio value of 375.746 for adjusted posttest data is greater than the required table value of 3.226 for significance at 0.05 level. It reveals that there is significant difference among the groups on fore arm girth as a result of circuit weight training. Since, the obtained 'F' ratio for adjusted means is significant, the Scheffe'S post-hoc test was applied to find out the significant paired mean difference, and it is presented in table-4.

TABLE IV
SCHEFFÉ S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON FORE ARM GIRTH OF CONTROL AND EXPERIMENTALGROUPS

Adjusted posttest Mean			Mean Difference	Confidence Interval
Control Group	Intensive Circuit Weight Training Group	Extensive Circuit Weight Training Group		
29.52	33.97		3.45	0.40
29.52		32.50	2.98	0.40
	33.97	32.50	1.46	0.40

The confidence interval required for 0.05 level of significance is 0.40.

Table 4 shows that the mean differences on fore arm girth between control group and intensive circuit weight training group is 3.45; between control group and extensive circuit weight training group is 2.98; and between intensive circuit weight training group and extensive circuit weight training group is 1.46 are significant, since the obtained mean difference are higher the confidence interval value 0.40 at 0.05 level of significance.

RESULT

It reveals that both experimental groups have significantly increased the fore arm girth as compared to control group. Further, the improvement of fore arm girth is significant for intensive circuit weight training group than extensive circuit weight training group.

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