

## **EFFECT OF CIRCUIT RESISTANCE TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG UNIVERSITY WOMEN STUDENTS**

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### **ABSTRACT**

The purpose of the study was designed to examine the effect of circuit resistance training on selected physical fitness components such as shoulder strength and strength endurance. To achieve this purpose of the study thirty women students studying Department of Physical Education, Annamalai University were selected as subjects were randomly selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent circuit resistance training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables namely shoulder strength and strength endurance were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered as an appropriate

### **INTRODUCTION**

Sports is one of the factors which bring people together, either as partners or rivals, establish contacts between themselves and stay together.

Physical education is the way of education through motor activity and related experiences and its matter is primarily ways of behaving physical

training refers to the process used in order to develop the components of physical fitness.

Sports is a dynamic, creative continuous process of shared activities which give meaning to life and reflect and embody the values, beliefs and ethics of participants.

Training is the process of preparation for some task. The term “training is widely used in sports. But there is some disagreement among coaches and sports scientists regarding the meaning of the word.

## **METHODOLOGY**

The purpose of the study was designed to examine the effect of circuit resistance training on selected physical fitness components such as shoulder strength and strength endurance. To achieve this purpose of the study thirty women students studying Department of Physical Education, Annamalai University were selected as subjects were randomly selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent circuit resistance training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables namely shoulder strength and strength endurance were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the ‘F’ ratio obtained by the analysis of covariance, which was considered as an appropriate.

## ANALYSIS OF THE DATA

The influence of circuit resistance training on each criterion variables were analysed separately and presented below.

### Shoulder Strength

The analysis of covariance on shoulder strength of the pre and post test scores of circuit resistance training group and control group have been analyzed and presented in Table I.

**TABLE I**  
**ANALYSIS OF COVARIANCE OF THE DATA ON SHOULDER STRENGTH OF PRE AND POST TESTS SCORES OF CIRCUIT RESISTANCE TRAINING AND CONTROL GROUPS**

Test	Circuit Resistance Training group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained 'F' Ratio
<b>Pre Test</b>							
Mean	15.20	14.30	Between	0.83	1	0.83	
S.D.	0.81	0.92	Within	30.17	28	1.078	0.769
<b>Post Test</b>							
Mean	17.30	14.40	Between	45.66	1	45.66	
S.D.	0.79	0.92	Within	1.189	28	1.189	37.85*
<b>Adjusted Post Test</b>							
Mean	17.70	14.70	Between	51.87	1	51.87	
			Within	33.01	27	1.222	42.45*

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

The table III shows that the adjusted post-test means of circuit resistance training group and control group are 17.70 and 14.70 respectively on shoulder strength. The obtained "F" ratio of 42.45 for adjusted post-test means is more than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on shoulder strength. The results of the study indicated that there was a significant difference

between the adjusted post-test means of circuit resistance training group and control group on shoulder strength.

### Strength Endurance

The analysis of covariance on strength endurance of the pre and post test scores of circuit resistance training group and control group have been analyzed and presented in Table II.

**TABLE II**  
**ANALYSIS OF COVARIANCE OF THE DATA ON STRENGTH ENDURANCE**  
**OF PRE AND POST TESTS SCORES OF CIRCUIT RESISTANCE**  
**TRAINING AND CONTROL GROUPS**

Test	Circuit Resistance Training group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained 'F' Ratio
<b>Pre Test</b>							
Mean	20.40	19.80	Between	0.01	1	0.01	0.02
S.D.	1.12	1.24	Within	11.51	28	0.41	
<b>Post Test</b>							
Mean	24.50	20.10	Between	119.64	1	119.64	291.80*
S.D.	1.01	1.22	Within	11.41	28	0.41	
<b>Adjusted Post Test</b>							
Mean	24.30	19.90	Between	119.67	1	119.67	221.61*
			Within	14.68	27	0.54	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

The table II shows that the adjusted post-test means of circuit resistance training group and control group are 24.30 and 19.90 respectively on strength endurance. The obtained "F" ratio of 221.61 for adjusted post-test means is more than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on strength endurance. The results of the study indicated that there was a significant difference between the adjusted post-test means of circuit resistance training group and control group on strength endurance.

## **CONCLUSIONS**

1. There was a significant difference between circuit resistance training group and control group on shoulder strength and strength endurance.
2. And also it was found that there was a significant improvement on selected criterion variables such as shoulder strength and strength endurance due to circuit resistance training.

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