

THE PHARMA INNOVATION - JOURNAL

The effect of circuit training and circuit weight training with and with out protein supplementary on thigh girth

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Abstract

The purpose of the study is to find out the effects of circuit training and circuit weight training with and without protein supplementation on Thigh Girth Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent Circuit Training with supplementation of protein, Group-II underwent Circuit Training without supplementation of protein, Group-III underwent Circuit weight training with supplementation of protein and Group-IV underwent Circuit weight training without supplementation of protein for duration of twelve weeks for three days a week. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences. The level of confidence was fixed at .05 level for all the cases. it is learnt that the dependent 't' test values between the pre and post test means of Circuit Training with supplementation of protein (placebo), Circuit Training without supplementation of protein and that of between Circuit weight training with supplementation of protein (placebo) and Circuit weight training without supplementation of protein are 7.59, 6.03, 13.93 and 8.39 respectively. Since the obtained 't'-test value of experimental groups is greater than the table value 2.15 with df 14 at .05 level of confidence, it is concluded that Circuit Training with supplementation of protein (placebo), Circuit Training without supplementation of protein, Circuit weight training with supplementation of protein (placebo) and Circuit weight training without supplementation of protein have registered significant improvement in performance of Thigh girth.

Keyword: Circuit weight training with and with out supplementation of protein, circuit weight, and, thigh girth

Introduction

Circuit training is a method of physical conditioning that employs both apparatus resistance training and calisthenics' conditioning exercises. It provides a means of achieving optional fitness in a systemized controlled fashion. The intensity and vigour of circuit training are indeed challenging and enjoyable to the performer. The system produces positive

changes in motor performance, general fitness, muscular power, endurance and speed

Circuit training is resistance training or weight training that maximizes the volume of work done in a short period of time. Circuit training is a great tool to use for people who are interested in weight loss, muscle gain and overall strength increase.

Protein supplements have gained favour with athletes as a means of increasing their body's

ability to develop and maintain skeletal muscle. Protein is one of the three essential components of the human diet, along with carbohydrates and fats. Protein, which is composed of various types of amino acids, provides the raw material for muscle construction and repair. It also plays an important role in the immune system, the endocrine (hormone production) system, and the transmission of nerve impulses throughout the nervous system as well. A supplement is any addition to an athlete's regular diet to achieve a particular nutritional goal; a supplement may be a natural or a synthetic product. Supplements are available in fluid, powder, and solid food formulations.

Methodology

The purpose of the study is to find out the effects of circuit training and circuit weight training with and without protein supplementation on Thigh Girth Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent Circuit Training with supplementation of protein, Group-II underwent Circuit Training without supplementation of protein, Group-III underwent Circuit weight training with supplementation of protein and Group-IV underwent Circuit weight training without supplementation of protein for duration of twelve weeks for three days a week.

Thigh Girth

Purpose

To measure thigh circumference of the subject. The circumference of the thigh 1 cm distal to the Gluteal fold site, perpendicular to its long axis.

Facility and Equipments required are
Measuring tape, pen and paper.

Subject position

The subject assumed a relaxed standing position with the arms folded across the thorax. The subject stood with the feet slightly apart and mass equally distributed on both feet.

Procedure

The researcher passed the tape between the lower thighs and then slides the tape up on the correct plane. The stub of the tape and the housing were both held in the right hand while the researcher used the left hand to adjust the level of the tape to the target level. The researcher resumed control of the stub with the left hand and positioned the tape, using the cross-hand technique so that it is held in a perpendicular plane. The tape was then readjusted as necessary to ensure it had not slipped and did not indent the skin.

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences.

Result

The analysis of dependent 't'-test on the data obtained for Thigh girth of the subjects in the Pre-test and Post-test of experimental groups and control group has been presented in Table I.

Table 1: The summary of mean and dependent 't' test for the pre and post tests on thigh girth of experimental groups

Mean	Circuit Training with supplementation of protein Group – (I)	Circuit Training without supplementation of protein Group – (II)	Circuit weight Training with supplementation of protein Group – (III)	Circuit weight training without supplementation of protein Group – (IV)
Pre- test mean	59.27	59.13	59.20	59.07

Post-test mean	63.33	62.60	65.87	63.87
't'-test	7.59*	6.03*	13.93*	8.39*

* Significant at .05 level.

(Table value required for significance at .05 level for 't'-test with df 14 is 2.15)

From table I it is learnt that the dependent 't' test values between the pre and post test means of Circuit Training with supplementation of protein (placebo), Circuit Training without supplementation of protein and that of between Circuit weight training with supplementation of protein (placebo) and Circuit weight training without supplementation of protein are 7.59, 6.03, 13.93 and 8.39 respectively. Since the obtained 't'-test value of experimental groups is greater than the table value 2.15 with df 14 at .05 level of

confidence, it is concluded that Circuit Training with supplementation of protein (placebo), Circuit Training without supplementation of protein, Circuit weight training with supplementation of protein (placebo) and Circuit weight training without supplementation of protein have registered significant improvement in performance of Thigh girth.

The Analysis of covariance (ANCOVA) on Thigh girth of experimental groups has been presented in Table -II.

Table 2: Values of analysis of covariance for experimental groups on thigh girth

Adjusted Post test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Circuit Training with supplementation of protein Group – (I)	Circuit Training without supplementation of protein Group – (II)	Circuit weight Training with supplementation of protein Group – (III)	Circuit weight training without supplementation of protein Group – (IV)					
63.27	62.62	65.84	63.93	Between	87.20	3	29.07	26.97*
				With in	59.27	55	1.08	

* Significant at .05 level of confidence

(Thigh girth Scores in Centimeters)

(The table value required for Significance at .05 level with df 3 and 55 is 2.77)

Table II shows that the adjusted post test mean value of Thigh girth for Circuit Training with supplementation of protein (placebo), Circuit Training without supplementation of protein, Circuit weight training with supplementation of protein (placebo) and Circuit weight training without supplementation of protein are 63.27, 62.62, 65.84 and 63.93 respectively. The obtained F-ratio of 26.97 for the adjusted post test mean is more than the table value of 2.77 for df 3 and 55

required for significance at .05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of experimental groups on the increase of Thigh girth.

To determine which of the paired means have a significant difference, Scheffe's test has been applied as Post hoc test and the results are presented in Table III.

Table 3: The scheffe’s test for the differences between the adjusted post tests paired means on thigh girth

Adjusted Post test Means				Mean Difference	Confidence Interval
Circuit Training with supplementation of protein Group – (I)	Circuit Training without supplementation of protein Group – (II)	Circuit weight Training with supplementation of protein Group – (III)	Circuit weight training without supplementation of protein Group – (IV)		
63.27	62.62	--	--	0.65	1.08
63.27	--	65.84	--	2.57*	1.08
63.27	--	--	63.93	0.66	1.08
--	62.62	65.84	--	1.31*	1.08
--	62.62	--	63.93	1.30*	1.08
--	--	65.84	63.93	1.92*	1.08

* Significant at.05 level of confidence

Table III shows that the adjusted post test mean differences between Circuit Training with supplementation of protein (placebo) group and Circuit weight training with supplementation of protein (placebo) group, between Circuit Training without supplementation of protein group and Circuit weight training with supplementation of protein (placebo) group, between Circuit Training without supplementation of protein group and Circuit weight training without supplementation of protein group and between Circuit weight training with supplementation of protein (placebo) group and Circuit weight training without supplementation of protein (placebo) group are 2.57, 1.31, 1.30 and 1.92 respectively and they are greater than the confidence interval 1.08, which shows significant differences at .05 level of confidence.

The differences between Circuit Training with supplementation of protein (placebo) group and Circuit Training without supplementation of protein group and those between Circuit Training with supplementation of protein (placebo) group and Circuit weight training without supplementation of protein group are 0.65 and 0.66. The value is less than the confidence interval 1.08, which shows insignificant difference at 0.5 level of confidence.

The results of the study have further disclosed that there is a significant difference in Thigh girth between the adjusted post test means of Circuit Training with supplementation of protein (placebo) group and Circuit weight training with supplementation of protein (placebo) group that of between Circuit Training without supplementation of protein group and Circuit weight training with supplementation of protein (placebo) group, that of between Circuit Training without supplementation of protein group and Circuit weight training without supplementation of protein group, that of between Circuit weight training with supplementation of protein (placebo) group and Circuit weight training without supplementation of protein (placebo) group.

The differences between Circuit Training with supplementation of protein (placebo) group and Circuit Training without supplementation of protein group, and those between Circuit Training with supplementation of protein (placebo) group and Circuit weight training without supplementation of protein group have shown insignificant differences.

However, the improvement in Thigh girth is significantly higher for Circuit weight training

with supplementation of protein (placebo) group than other Experimental Groups.

It may be concluded that the Circuit weight training with supplementation of protein

(placebo) group is better than the other experimental groups in improving Thigh girth.

The mean values of experimental groups on Thigh girth are graphically represented in the Figure -I

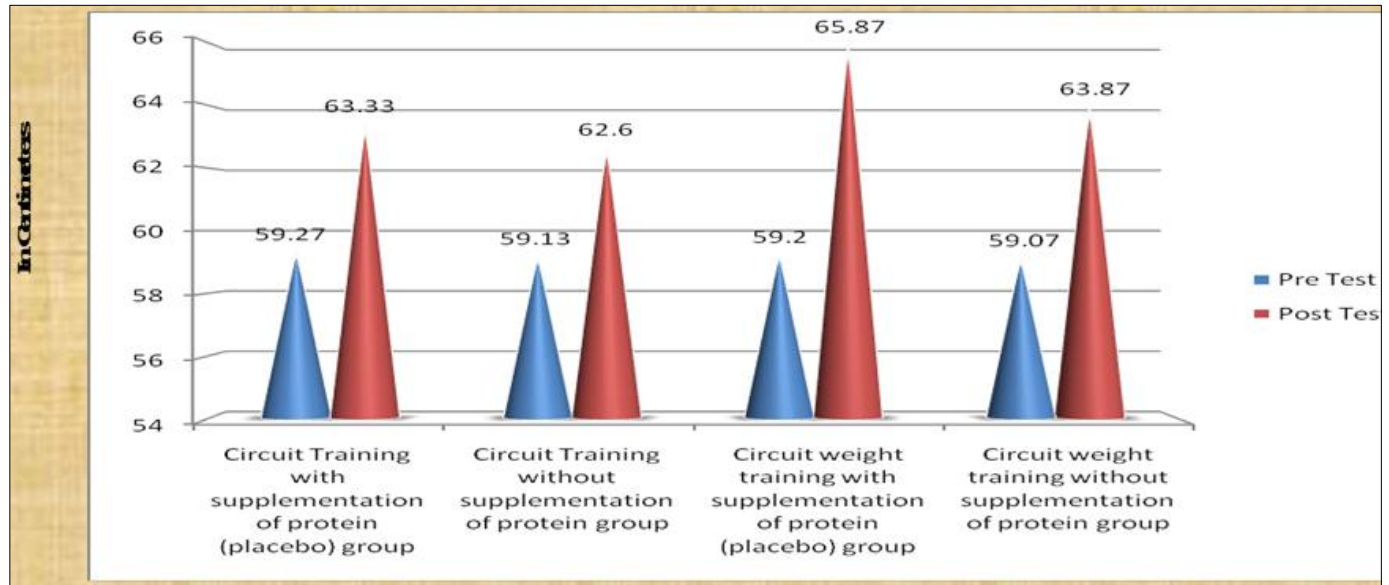


Fig 1: Mean values of experimental groups on thigh girth

Conclusion

The Experimental groups namely, Circuit Training with supplementation of protein (placebo) group, Circuit Training without supplementation of protein group, Circuit weight training with supplementation of protein (placebo) group and Circuit weight training without supplementation of protein group have significantly increased High Density Lipoproteins Cholesterol (HDL), Vital capacity and Thigh girth.

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