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EFFECT OF RESISTANCE TRAINING AND CIRCUIT TRAINING ON VITAL CAPACITY AMONG INTERCOLLEGIATE MALE PLAYERS



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ABSTRACT

The main objective of this study was to find out the effect of resistance training and circuit training on vital capacity of intercollegiate male players. 60 male players were randomly selected as subjects from CSM University, Kanpur. The age of the subjects were ranged between 17 to 25 years. The study was formulated as pre and post test random group design, in which sixty subjects were divided into three equal groups. Experimental Group-I (N=20; CT Group) performed the Circuit training Group. The Experimental Group-II (N=20, WT group) performed Weight Training program. Control group (N=20; CG) did not undergo any specific training programmed but there practiced the regular game. The analysis of covariance was used to analyze the significant difference, if any among the groups. Three groups were compared, whenever they obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any. The 0.05 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. The result of the study indicates due to training on vital capacity has been improved significantly.

Keywords: Resistance Training, Circuit training, Vital Capacity & Players.

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INTRODUCTION

Resistance training (also called strength training or weight training) is the use of resistance to muscular contraction to build strength, anaerobic endurance and size of skeletal muscles. Resistance training is based on the principle that muscles of the body will work to overcome a resistance force when they are required to do so. When you do resistance training repeatedly and consistently, your muscles become stronger. A well-rounded fitness program includes strength training to improve joint function, bone density, muscle, tendon and ligament strength, as well as aerobic exercise to improve your heart and lung fitness, flexibility and balance exercises.

Circuit training is a form of body conditioning that involves endurance training, resistance training, high-intensity aerobics, and exercises performed in a circuit, similar to high-intensity interval training. It targets strength building and muscular endurance. An exercise "circuit" is one completion of all set exercises in the program. When one circuit is completed, one begins the first exercise again for the next circuit. Traditionally, the time between exercises in circuit training is short and often with rapid movement to the next exercise.

Lung volumes are also known as respiratory volumes. It refers to the volume of gas in the lungs at a given time during the respiratory cycle. Lung capacities are derived from a summation of different lung volumes. The average total lung capacity of an adult

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human male is about 6 liters of air. Lung volumes measurement is an integral part of pulmonary function test. These volumes tend to vary, depending on the depth of respiration, ethnicity, gender, age, body composition

OBJECTIVE OF THE STUDY

The main objective of this study was to find out the effect of resistance training and circuit training on vital capacity of intercollegiate male players.

DESIGN OF THE STUDY

60 male players were randomly selected as subjects from CSM University, Kanpur. The age of the subjects were ranged between 17 to 25 years. The study was formulated as pre and post test random group design, in which sixty subjects were divided into three equal groups. Experimental Group-I (N=20; CT Group) performed the Circuit training Group. The Experimental Group-II (N=20, WT group) performed Weight Training program. Control group (N=20; CG) did not undergo any specific training programmed but there practiced the regular game. The analysis of covariance was used to analyze the significant difference, if any among the groups. Three groups were compared, whenever they obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any.

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EXPERIMENTAL DESIGN

This experimental study was administered to only two experimental groups and one control group of 20 subjects each. For this purpose Group I underwent Circuit training, Group II underwent Weight training and Group III acted as control group.

TRAINING PROGRAMS:

Experimental group -1

Circuit Training – The Exercise as follows.

1-Patterstep 2- pivoting lateral clip 3- vertical jump 4- Zig-Zag dribble 5- lay upshot with right hand 6. Lay up shot with centre side 7. Lay up shot with left hand 8. Vertical jump 9. Side to side Running 7- forward sprint

Training period is 6 week, Duration in between 20 to 45 sec, Intensity – 60 % to 90% ,Rest time -2 min to 6 min.

Experimental group -2

Weight training - 1 – Pac fly, 2 – Bench press, 3 - Crunches, 4-Squat, 5 –Dynamic Lunges, 6-Leg Standing calf rise.

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STATISTICAL ANALYSIS AND INTERPRETATIONS OF THE DATA

Table No: I
Computation of Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test on Vital Capacity of Experimental Group I, Experimental Group II and Control Group (Scores in Lit.)

Test	Ex Group I	Ex Group II	Control Group	Sources of Variance	Sum of Square	df	Mean of Square	Obtain F ratio
Pre Test Mean	2.02	2.06	2.45	Between	3.4	2	1.70	2.26
	0.04	0.06	0.04	within	28.2	42	0.32	
Post Test Mean	2.26	2.94	2.44	Between	7.3	2	3.64	8.66*
	0.04	0.05	0.05	within	36.6	42	0.42	
Adjusted Post Test Mean	2.41	3.04	2.18	Between	11.5	2	5.75	45.76*
				within	10.8	41	0.13	

*Significance at .05 level of confidence

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.23 respectively).



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RESULTS ON VITAL CAPACITY

Table no. I show the analysis data on Vital capacity. The pre-test means of Vital capacity were 2.02 for experimental groups I, 2.06 for experimental groups II, and 2.45 for control group. The obtain “F” ratio of 2.26 was lesser than the table F-ratio 3.22. Hence the pre-test was not significant at 0.05 level of confidence for the degree of freedom 2 and 42.

The post –test mean of Vital capacity were 2.26 for experimental group I, 2.94 for experimental group II, 2.44 for control group. The obtained “F” ratio of 8.66 was higher than the table F-ratio 3.22. Hence the post –test was significant at 0.05 level of confidence for the degree of freedom 2 and 42.

The adjusted post –test mean of Vital capacity were 2.41 for experimental group I, 3.04 for experimental group II, 2.18 for control group. The obtained “F” ratio of 45.76 was higher than the table F-ratio 3.23. Hence the post –test was significant at 0.05 level of confidence for the degree of freedom 2 and 41.

Since, three groups were compared, whenever the obtain “F”-ratio for adjusted post test was found to be significant ,the Scheffe’s test to find out the paired mean difference and it was presented in Table VI (a).

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Table No: II
Ordered Scheffe’s Post Hock test Mean Differences on Vital Capacity among Three Groups (Scores in lit.min⁻¹)

Experimental Group I	Experimental Group II	Control Group	Mean Difference	Confidence Interval Value
2.41	3.04	-	0.63	0.23
2.41	-	2.18	0.24*	0.23
-	3.04	2.18	0.87	0.23

*Significance at .05 level of confidence.

Table 1.6.1 shows the Scheffe’s post –hoc test result .The ordered adjusted final mean difference for Vital capacity of experimental groups I, II and control group were tested for significant at 0.05 level of confidence against confidential interval value.

The mean difference between experimental group I and experimental group II 0.63, experimental group I and control group 0.24, experimental group II and Control group were 0.87 respectively and it was seen to be greater than the confidential interval value of 0.23 Hence the above comparisons were significant.

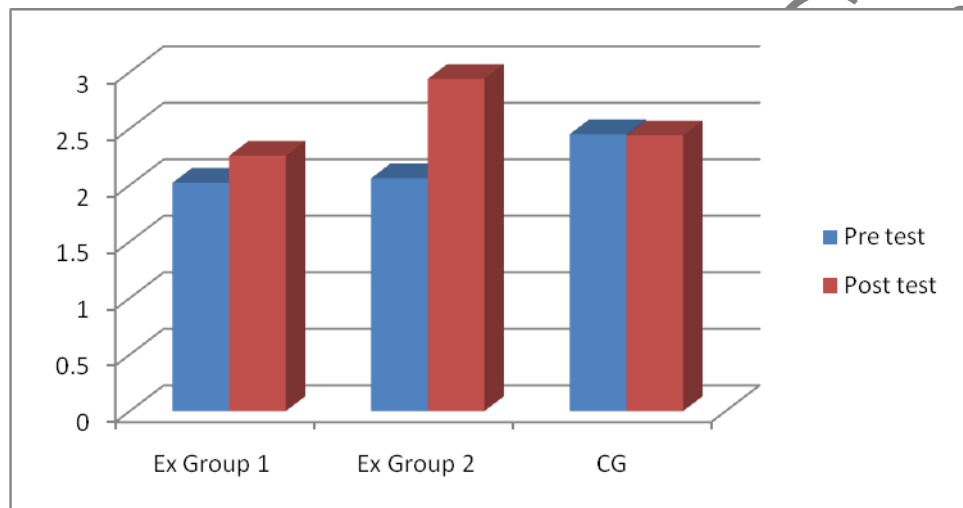
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The mean value of Vital capacity are shown graphically: I



VITAL CAPACITY

The experimental groups Circuit training and Weight training showed significant increase in the vital capacity: 2.41 and 3.04 respectively from pre to post training. The Circuit Training group was found significantly better than ($f < .05$) the Weight Training group and Control Group, Weight Training group was better than the Control group in increasing the vital capacity rate as measured by Digital Dry Spirometer therefore circuit training is more better to improve vital capacity among the basketball players.

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CONCLUSIONS

The following conclusions were drawn:-

1. The Weight training and Circuit training has produced significant improvement on performance variables Vital Capacity greater than control group of college male Basketball players.
2. .Vital capacity was favored to Circuit training greater than Weight training and control group of college male Basketball players.

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