

## THE EFFECT OF RESISTANCE TRAINING AND CIRCUIT TRAINING ON VITAL CAPACITY AMONG COLLEGE MALE BASKETBALL PLAYERS



Patel Amit D.



Joshi Makarand S.

\*Research Scholar, SGSU, Gandhinagar (G.J)-INDIA.

\*\*MSM, College of Physical Education, Aurangabad (M.S)-INDIA.

E. Mail: patelamit@gmail.com

### Abstract:

The main objective of this study was to find out the Effect of Weight Training and Circuit Training on vital capacity of college male basketball players. To achieve the purpose of the study, sixty male Basketball Players were randomly selected as subjects from Veer Narmad South Gujarat University Surat Affiliated College Students. The age of the subjects were ranged between 18 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:** Weight Training; Circuit training, Vital Capacity & ANACOVA.

### Introduction:

The Weight Training has two primary functions in a workout program: instability and support. Instability during an exercise forces you to engage your core muscles to maintain your balance, making the exercise more difficult. Training the core with instability helps develop a strong support system for your legs and back, which prevents injuries and helps you get the most out of your exercise routine. The Training can also be used to support your back as you work on developing core stability. For instance, you can place the ball against the wall and lean your back against it as you do a squat. To add lower back support to an abdominal crunch, sit on the ball, walk your feet out in front of you until you are lying back on the ball with a neutral spine, and do crunches from there. Rutherford and Jones (1986) suggested that adaptations from Resistance training resulted in better coordination of synergistic and stabilizer muscles. Behm (2002) and colleagues reported the effect of unstable conditions, as induced by sitting on Swiss ball on force production of the knee extenders. Robert examined the effect of Swiss ball exercises on core stability and stated that there is a improvement in core strength among the subjects.

### Objective of the Study:

- The main objective of this study was to find out the purpose of the study will be to find out the effect of weight training and circuit training on vital capacity of college male basketball players.
- To analyses to compare the superiority between weight training and circuit training on male basketball players.
- Effect of weight training on college male basketball players.
- To prepare appropriate circuit training program at basketball players.

### Methodology:

**Selection of Subjects:** Sixty male Basketball players were selected from area of Affiliated colleges of Veer Narmad south Gujarat university, Surat who have represented at inter collegiate tournament Twice were randomly selected as subjects for the study. This experimental study was administered to only two experimental groups and one control group of 20 subjects each. The age of subjects ranged from 18 to 25 years only.

**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 in three alternative days for Six weeks.

### 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 - Ab Crunches, 4-Squat, 5 –Dynamic Lunges, 6- Leg Standing calf rise.

#### 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).

#### Results of Vital Capacity:

Table no. I show the analysis data on Vital capacity. The pre-test means of Vital capacity were 2.02for 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).

**Table No: II**

**Ordered Scheffe’s Post Hock test Mean Differences  
On Vital Capacity among Three Groups  
(Scores in lit.min<sup>-1</sup>)**

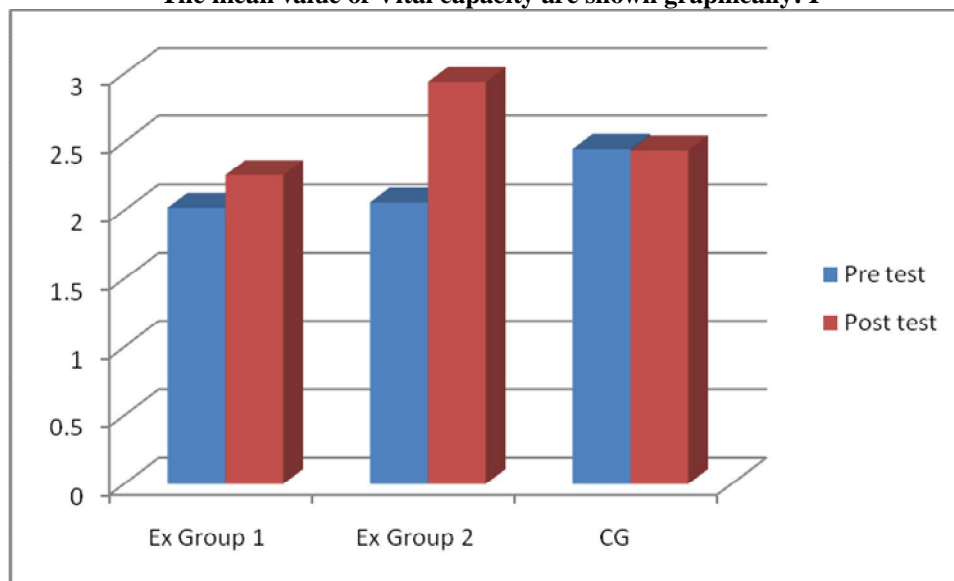
Experimental Group I	Experimental Group II	Control Group	Mean Difference	Confidence Interval Value
2.41	3.04	-	0.63	0.23
2.41	-	2.18	0.24*	0.23
-	3.04	2.18	0.87	0.23

\*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.

**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.

**Conclusion:**

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

**References:**

- Argus, Christos K; Gill, Nicholas D; Keogh, Justin WL; Hopkins, Will G; Beaven, C Martyn (2009) Changes in Strength, Power, and Steroid Hormones During a Professional Rugby Union Competition. *Journal of Strength & Conditioning Research*. 23(5):1583-1592.
- Bartholomew, John B; Stults-Kolehmainen, Matthew A; Elrod, Christopher C; Todd, Janice S (2008) Strength Gains after Resistance Training: The Effect of Stressful, Negative Life Events. *Journal of Strength & Conditioning Research*. 22(4):1215-1221.
- Ben Abdelkrim, Nidhal; Castagna, Carlo; Jabri, Imed; Battikh, Tahar; El Fazaa, Saloua; Ati, Jalila El (2010) Activity Profile and Physiological Requirements of Junior Elite Basketball Players in Relation to Aerobic-Anaerobic Fitness. *Journal of Strength & Conditioning Research*. 24(9):2330-2342.
- Bloomfield J, Polman R, O'Donoghue P, McNaughton L. (2007) Effective speed and agility conditioning methodology for random intermittent dynamic type sports. *Journal of Strength Cond Res*.
- Bogdanis, Gregory C; Papaspyrou, Aggeliki; Souglis, Athanasios G; Theos, Apostolos; Sotiropoulos, Aristomenis; Maridaki, Maria (2011) Effects of Two Different Half-Squat Training Programs on Fatigue During Repeated Cycling Sprints in Soccer Players. *Journal of Strength & Conditioning Research*. 25(7):1849-1856.