



## **EFFECT OF PLYOMETRIC AND CROSS TRAINING IN PARALLEL ON SELECTED PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN STUDENTS**

**G. Selvam\* & Dr. S. Arul\*\***

\* Research Scholar, Department of Physical Education, Annamalai University, Chidambaram, Tamilnadu

\*\* Associate Professor, Department of Physical Education, Annamalai University, Chidambaram, Tamilnadu

**Cite This Article:** G. Selvam & Dr. S. Arul, "Effect of Plyometric and Cross Training in Parallel on Selected Physiological Variables among College Men Students", *International Journal of Current Research and Modern Education*, Volume 6, Issue 1, Page Number 24-26, 2021.

**Copy Right:** © IJCRME, 2021 (All Rights Reserved). This is an Open Access Article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### **Abstract:**

The purpose of the study was designed to examine the effect of Plyometric and cross training in parallel on breath holding time and resting pulse rate of college men students. For the purpose of the study, thirty men students from the colleges in Karur district were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent Plyometric and cross training in parallel 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 breath holding time and resting pulse rate were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using holding the breath for time and radial respectively 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. The results of the study showed that there was a significant difference between Plyometric and cross training in parallel group and control group on breath holding time and resting pulse rate. And also it was found that there was a significant improvement on breath holding time and resting pulse rate due to twelve weeks of Plyometric and cross training in parallel.

**Key Words:** Plyometric, Cross Training, College Men

### **Introduction:**

Plyometrics defined is "exercises which enable a muscle to reach maximum strength in as short a time as possible". This speed, strength ability is known as power. "One of the many benefits of plyometric training is that it can be organized into circuits". Plyometrics is a method of training that developed in the 1950's in the Soviet Union. It incorporates exercise which develops explosive power. In all sports some form of explosive power is used. Power is defined as a combination of speed and strength. Plyometric training develops a stronger and quicker contraction in the muscles by stimulating the neuromuscular system. The end result of plyometric training is a faster and more powerful athlete.

It is an advanced training which must be based on strength. Cross-training is athletic training in sports other than the athlete's usual sport. The goal is improving overall performance. It takes advantage of the particular effectiveness of one training method to negate the shortcomings of another.

### **Methodology:**

The purpose of the study was designed to examine the effect of Plyometric and cross training in parallel on breath holding time and resting pulse rate of college men students. For the purpose of the study, thirty men students from the colleges in Karur district were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent Plyometric and cross training in parallel 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 breath holding time and resting pulse rate were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using holding the breath for time and radial respectively 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:**

#### **Breath Holding Time:**

The analysis of covariance on breath holding time of the pre and post test scores of Plyometric and cross training in parallel group and control group have been analyzed and presented in Table 1.

Table 1: Analysis of covariance of the data on breath holding time of pre and post tests scores of plyometric and cross training in parallel and control groups

Test	Plyometric and Cross Training in Parallel Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
<b>Pre Test</b>							
Mean	39.93	40.13	Between	0.30	1	0.30	0.14
S.D.	1.39	1.96	Within	60.67	28	2.17	
<b>Post Test</b>							
Mean	46.33	40.47	Between	258.13	1	258.13	20.70*
S.D.	1.45	1.50	Within	349.20	28	12.47	
<b>Adjusted Post Test</b>							
Mean	46.41	40.39	Between	271.03	1	271.03	139.51*
			Within	52.45	27	1.94	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 1 shows that the adjusted post-test means of Plyometric and cross training in parallel group and control group are 46.41 and 40.39 respectively on breath holding time. The obtained "F" ratio of 139.51 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on breath holding time. The results of the study indicated that there was a significant difference between the adjusted post-test means of Plyometric and cross training in parallel group and control group on breath holding time.

**Resting Pulse Rate:**

The analysis of covariance on resting pulse rate of the pre and post test scores of Plyometric and cross training in parallel group and control group have been analyzed and presented in Table 2.

Table 2: Analysis of covariance of the data on resting pulse rate of pre and post tests scores of plyometric and cross training in parallel and control groups

Test	Plyometric and Cross Training in Parallel Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
<b>Pre Test</b>							
Mean	73.13	72.87	Between	0.53	1	0.53	0.70
S.D.	0.88	0.95	Within	21.47	28	0.77	
<b>Post Test</b>							
Mean	69.40	72.60	Between	76.80	1	76.80	21.94*
S.D.	0.81	0.71	Within	98.00	28	3.50	
<b>Adjusted Post Test</b>							
Mean	69.34	72.66	Between	81.11	1	81.11	135.51*
			Within	16.16	27	0.60	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively). The table 2 shows that the adjusted post-test means of Plyometric and cross training in parallel group and control group are 69.34 and 72.66 respectively on resting pulse rate. The obtained "F" ratio of 135.51 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on resting pulse rate. The results of the study indicated that there was a significant difference between the adjusted post-test means of Plyometric and cross training in parallel group and control group on resting pulse rate.

**Conclusion:**

- There was a significant difference between Plyometric and cross training in parallel group and control group on breath holding time and resting pulse rate.
- And also it was found that there was a significant improvement on selected criterion variables such as breath holding time and resting pulse rate due to Plyometric and cross training in parallel.

**References:**

1. Baid, Controlled Exercise for Physical Fitness. Washington: The Executive Club Spokane, 1998.
2. Clarke, Harrison, Physical Fitness Research Digest. Washington D.C.: President's Council on Physical Education and Sports, 1991.
3. Dick, Frank W., Carl Johnson and Walf Paish, Strength Training for Athletics. London: British Amateur Athletic Board, 1998.

4. Fleishman, The Structure and Measurement of Physical Fitness. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1995.
5. Singh, Hardayal., Science of Sports Training. New Delhi: D.V.S. Publications, 1991.
6. Strukic, Basic Physiology, New York: Spring Envellong Inc.,1981