

# Effects of Isolated and Complex Weight and Plyometric Training on Anaerobic Power

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**Abstract – The research basically aimed to analyse the effect of isolated, complex weight and plyometric training on anaerobic power. Sixty male students studying at the Department of Physical education, Annamalai University, Annamalainagar, Chidambaram were randomly selected as. The selected subjects were divided into four equal groups of fifteen subjects each, such as weight training group, plyometric training group and control group. The group I underwent weight training program and group II underwent plyometric training program for three days per week for twelve weeks, group III underwent weight training for first six weeks and plyometric training for remaining six weeks. And Group IV categorized belonged to the control group who were not allowed to participate in any special training program but for the regular Physical education classes as required by the curriculum. Anaerobic power was the predetermined criterion variable. All the four groups were tested on the selected dependent variable both predetermined pre and post training. After establishing significance at 0.05 level of confidence as per the 'F' ratio for the adjusted posttest of the paired mean differences, the analysis of covariance was used to analyze the significant difference. The Scheffe's test to find out the paired mean differences, if any. 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. Through the results of the present study it can be stated as there existed significant difference among the selected groups- weight training group, plyometric group, complex weight training and the control group in aerobic power.**

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## INTRODUCTION

The term 'Training' in common terms can be explained as preparation being done for enhanced performance. Training in sports can also be stated as pedagogical process designed on the basis of sound scientific principles oriented towards realization of enhanced performances of a targeted sportsman in a competition. Participation in sports will yield optimum physical fitness and positive health for all. Today's mostly depends upon science and technology. In such circumstance people need more exercise to keep the body and mind fit to execute the activity efficiently.

Resistance training as the term states is the method of training wherein training is done with properties such as weights, resistance bands and other materials which resists the free movement of the particular muscle groups there by resulting in strengthening of the same. Resistance training has been prominent part of the training schedules of activities which are based on strength and is mostly performed by breaking down anaerobic reserves of energy.

Plyometric training refers to those forms of exercises wherein the muscle groups achieves its maximum

strength in shortest possible time. These trainings are designed with varieties of jumps.

## METHODOLOGY

The purpose of the study was to find out the effects of isolated and complex weight and plyometric training on anaerobic power. To achieve this purpose of the study, sixty men students studying in the Department of Physical Education, Annamalai University, Annamalainagar, Chidambaram were selected as subjects at random. The selected subjects were divided into four equal groups of fifteen subjects each, such as weight training group, plyometric training group and control group. The group I underwent weight training programme and group II underwent plyometric training programme for three days per week for twelve weeks, group III underwent weight training for first six weeks and plyometric training for remaining six weeks. And Group IV categorized belonged to the control group who were not allowed to participate in any special training program but for the regular Physical education classes as required by the curriculum. Anaerobic power was the predetermined criterion variable. All the four groups were tested on the selected dependent variable both predetermined pre and

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**ANALYSIS OF THE DATA**

The analysis of covariance on anaerobic power of the pre and post test scores of weight training group, plyometric training group, complex weight and plyometric training group and control group have been analyzed and presented in Table I.

**TABLE I**

**ANALYSIS OF COVARIANCE OF THE DATA ON ANAEROBIC POWER OF PRE AND POST TESTS SCORES OF WEIGHT TRAINING, PLYOMETRIC TRAINING, COMPLEX WEIGHT AND PLYOMETRIC TRAINING AND CONTROL GROUPS**

Test	Weight Training Group	Plyometric Training Group	Complex weight training and plyometric training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F Ratio
<b>Pre Test</b>									
Mean	94.24	94.25	94.28	94.29	Between	0.01	3	0.03	0.75
S.D.	0.43	0.42	0.42	0.40	Within	2.27	56	0.04	
<b>Post Test</b>									
Mean	95.83	99.30	96.10	94.29	Between	191.4	3	63.8	167.89*
S.D.	0.02	0.30	0.44	0.41	Within	25.43	56	0.30	
<b>Adjusted Post Test</b>									
Mean	95.93	98.83	96.10	94.28	Between	169.17	3	56.39	48.61*
					Within	61.42	55	1.16	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 3 and 56 and 3 and 55 are 2.776 and 2.78 respectively).

The table I shows that the adjusted post-test means on anaerobic power of weight training group, plyometric training group, complex weight and plyometric training group and control group 95.93, 98.83, 96.10 and 94.28 respectively. the obtained "F" ratio of 48.61 for adjusted post-test means is greater than the table value of 2.78 for df 3 and 55 required for significance at .05 level of confidence on anaerobic power.

The results of the study indicated that there was a significant difference between the adjusted post-test means of weight training group, plyometric training group, complex weight and plyometric training group and control group on anaerobic power.

Since, four groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

**TABLE II**

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON ANAEROBIC POWER**

Weight Training Group	Plyometric Training Group	Complex Weight and Plyometric Training Group	Control Group	Mean Differences	Confidence Interval Value
95.93	98.83	-	-	3.20*	0.87
95.93	-	96.10	-	0.17	0.87
95.93	-	-	94.28	1.65*	0.87
-	98.83	96.10	-	2.73*	0.87
-	98.83	-	94.28	4.55*	0.87
-	-	96.10	94.28	1.82*	0.87

\* Significant at .05 level of confidence.

The table II shows that the mean difference values between weight training group and plyometric training group, weight training group and control group, plyometric training group and complex weight and plyometric training group, plyometric training group and control group and complex weight and plyometric training group and control group 3.20, 1.65, 2.73, 4.55 and 1.82 respectively on anaerobic power which are greater than the confidence interval value 0.87 at .05 level of confidence. And also the table shows that the mean difference value between weight training group and complex weight and plyometric training group 0.17 which is less than the confidence interval value 0.87 at .05 level of confidence on aerobic power.

**CONCLUSIONS**

1. There was a significant difference among weight training group, plyometric training group, complex weight and plyometric training group and control group on anaerobic power.
2. There was a significant improvement on selected criterion variables such as anaerobic power due to weight training group, plyometric training group, complex weight and plyometric training whereas the improvement was in favour of plyometric training group.

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