The present study was conducted to investigate the effect of six week Plyometric training and aerobic exercises on VO2 max parameter among college men students. To achieve the purpose of the study thirty college men students were selected from Alagappa University College of Physical Education, Karaikudi during the year 2019-20. The subject’s age ranges from 18 to 25 years. The selected players were divided into three equal groups consisting of 10 men students each namely experimental group-I, experimental group-II and control group. The experimental group-I underwent aqua aerobic exercise and experimental group-II underwent aerobic exercises for six weeks. The control group was not taking part in any exercise during the course of the study. The dependent variable VO2 max was taken as criterion variables and they were tested by using cooper VO2 max test for this study. Pre-test was taken before the exercise period and post-test was measured immediately after the six weeks of training period. Statistical technique ‘t’ ratio was used to analyze the means of the pre-test and post-test data of experimental groups and control group. The data were analyzed analysis of covariance (ANCOVA) technique was used with 0.05 levels as confidence. Analysis was performed using SPSS 20.0 (SPSS Inc Software). The results revealed that there was a significant difference found on the criterion variables. The difference found is due to Plyometric training and aerobic exercises groups when compare better than the control group on VO2 max.

**KEYWORDS**

Plyometric training, Aerobic exercises, VO2 max.

**INTRODUCTION**

According to Bucher (1983) aerobic exercise is any physical activity that requires the heart rate to reach at least 60% of the maximal heart rate for an extended period of time. Also it is an activity that can be sustained for an extended period of time without developing an oxygen deficit. The main objective of an aerobic exercise program is to increase the maximum amount of oxygen that the body can process within a given time. This is called “Aerobic capacity”. It is dependent upon an ability to (1) rapidly breathe a large amount of air, (2) forcefully deliver large volumes of blood and (3) effectively deliver oxygen to all parts of the body. In short, it depends upon efficient lungs, a powerful heart, and a good vascular system. Because it reflects the conditions of these vital organs, the aerobics capacity is the best index of overall physical fitness.

Plyometric exercise tends to be performed in a much more explosive way than traditional strength training. Plyometric training requires the athlete to rapidly develop force, promoting the development of muscular power. The dynamic nature of Plyometric training allows for greater improvements in the maximal rate of force development and thus power, in comparison to traditional weight training methods. Plyometric exercise do not involve a large deceleration phase during concentric movement, which occurs in traditional strength training, as the body does not have to achieve zero velocity at the end of the exercise. Thus plyometric exercise involves the production of high forces and accelerations throughout the entire range of motion, specific to most competitive movements. Plyometric exercise tends to be performed in a much more explosive way than traditional strength training. Plyometric training requires the athlete to rapidly develop force, promoting the development of muscular power. The dynamic nature of Plyometric training allows for greater improvements in the maximal rate of force development and thus power, in comparison to traditional weight training methods. 

Donald A. Chu, (1992)

**MATERIALS AND METHODS**

The purpose of the present study was to investigate the effect of six weeks Plyometric training and aerobic exercise on the VO2 max parameter of college men students. The achieve this study was randomly selected forty five college men students from Alagappa University College of Physical Education, Karaikudi, during the year 2016-17 and their age ranged from 18 to 25 years. The selected subjects (N=45) were divided into three groups equally and randomly. Forty five subjects from college men students were randomly selected and they were assigned into three equal groups. Each group consisted of fifteen subjects. Of which Experimental Group I underwent Plyometric training (PTG), Group II underwent Aerobic exercises (AEG) and Group III acted as Control Group (CG). The two experimental groups were treated with their respective training for one hour per day for three days a week for a period of six weeks.

Plyometric training group performed 10 drills namely Squat Jump, Burpee & Combination Bound, Drop Push-up, Plyometric Sit Ups, Depth Jump (45 cm Height). Aerobic exercises group performed 10 drills namely High-knee, jogging, side step, double step side, knee kick, kick forward, kick sideward. This exercise programme and aerobic exercises group starts with 3 set of 12-10 repetitions in the first two weeks and progressed to 4 set of 10-8 repetitions in the second two weeks and 5 sets of 8-6 repetitions in the last two weeks. 30sec rest was given in between the sets. As the intensity start with 60% for first four weeks, 10% of intensity was increased for every two weeks. The subjects of all the three groups were tested on VO2 max prior to and after the training period.

To ascertain VO2 max was used and accordingly cooper VO2 max test was administered mean value count by ml/min/kg.

**Statistical Technique**

The significance of the difference among the means of experimental group was found out by pre-test. The data were analyzed analysis of covariance (ANCOVA) technique was used with 0.05 levels as confidence. Analysis was performed using SPSS 20.0 (SPSS Inc Software).

**RESULTS & INTERPRETATION**

### Table 1. Analysis of Covariance for the Pre, Post and Adjusted Post Test Means Values for Plyometric training Group, Aerobic exercises Group and Control Group on VO2 Max (Cooper VO2 max test Mean value count by ml/min/kg)

<table>
<thead>
<tr>
<th>Test</th>
<th>Aerobic exercises group</th>
<th>Plyometric training Group</th>
<th>Control Group</th>
<th>Source of Variance</th>
<th>Sum of Square</th>
<th>Df</th>
<th>Mean Square</th>
<th>F’ ratio</th>
<th>Table value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Test Mean SD</td>
<td>33.56</td>
<td>2.02</td>
<td>32.89</td>
<td>1.50</td>
<td>33.066</td>
<td>1.29</td>
<td></td>
<td></td>
<td>.691</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3.711</td>
<td>2</td>
<td>1.856</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>112.795</td>
<td>42</td>
<td>2.686</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Test Mean SD</td>
<td>36.57</td>
<td>1.36</td>
<td>36.08</td>
<td>1.22</td>
<td>33.01</td>
<td>1.37</td>
<td></td>
<td></td>
<td>.691</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>112.035</td>
<td>2</td>
<td>56.017</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>73.486</td>
<td>42</td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted Post Mean</td>
<td>36.42</td>
<td>36.20</td>
<td>33.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.691</td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>105.923</td>
<td>2</td>
<td>52.962</td>
<td></td>
<td>39.25*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>55.32</td>
<td>1.349</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ABSTRACT**

The purpose of the present study was to investigate the effect of six week Plyometric training and aerobic exercises on VO2 max parameter among college men students. To achieve the purpose of the study thirty college men students were selected from Alagappa University College of Physical Education, Karaikudi during the year 2019-20. The subject’s age ranges from 18 to 25 years. The selected players were divided into three equal groups consisting of 10 men students each namely experimental group-I, experimental group-II and control group. The experimental group-I underwent aqua aerobic exercise and experimental group-II underwent aerobic exercises for six weeks. The control group was not taking part in any exercise during the course of the study. The dependent variable VO2 max was taken as criterion variables and they were tested by using cooper VO2 max test for this study. Pre-test was taken before the exercise period and post-test was measured immediately after the six weeks of training period. Statistical technique ‘t’ ratio was used to analyze the means of the pre-test and post-test data of experimental groups and control group. The data were analyzed analysis of covariance (ANCOVA) technique was used with 0.05 levels as confidence. Analysis was performed using SPSS 20.0 (SPSS Inc Software). The results revealed that there was a significant difference found on the criterion variables. The difference found is due to Plyometric training and aerobic exercises groups when compare better than the control group on VO2 max.
DISCUSSION OF FINDING

The investigator was convinced with the results that the group training in vo2 max with the Plyometric training and aerobic exercises improve vo2 max. The training given to the experimental group with Plyometric training and aerobic exercises had an influence on the experimental group and had shown improvement in vo2 max than the control group in the final test. The training given to the experimental group was planned by the investigator in consultation with his guide and with great care. The investigator felt that anyone could become good athletes if he has good vo2 max.

Most aerobic exercisers do not incorporate strength training into their schedules and therefore adding aquatic exercise can greatly improve their health. As stated by the U.S. Department of Health and Human Services (2008).

CONCLUSION

1. There was a significant improvement in vo2 max on college men students. However the improvement was in favour for experimental groups namely Plyometric training and aerobic exercises compare better than the control group due to six weeks of training programme.

2. However the improvement was in favour for experimental groups namely aerobic exercises group compare better than the Plyometric training and control group due to six weeks of training programme on vo2 max.

3. However the improvement was in favour for experimental groups namely Plyometric training compare better than the control group due to six weeks of training programme on vo2 max.

REFERENCES