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AQUA AEROBIC EXERCISE AND AEROBIC EXERCISE RESPONSES ON VO2 MAX RESPONSE AMONG COLLEGE MEN STUDENTS: EFFECT STUDY

KEYWORDS: Aqua aerobic exercises, Aerobic exercises and Vo2 Max

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ABSTRACT The present study was to investigate the effect of aqua aerobic exercises and aerobic exercises responses on vo2 max parameter among college men students. To achieve this purpose of the study sixty (N=60) college men students were selected from St.John's arts and science College, Palayamkottai, Tamil Nadu state, India, during the year 2016-17. The subject's age ranges from 17 to 25 years. The selected subject were divided into three equal groups consists of fifteen subject each namely two experimental groups and control group from college students. The experimental group I underwent aqua aerobic exercise group (AAEG) and experimental group II underwent aerobic exercise group (AEG) programme for six weeks. The control group was not taking part in any exercise during the course of the study. The dependent variable vo2 max parameter selected for the study, it was measured by cooper vo2 max test formula unit of ml/min/kg .Pre-test was taken before the exercise period and post- test was measured immediately after the six weeks exercise period. The data collected from the three groups were statistically analyzed for significance, the analysis of covariance (ANCOVA) was used and the F ratio was found out. The Scheffe's test is applied as post-hoc test to determine the paired mean differences. The level of significance will be fixed at .05 level of confidence for all the cases. These results suggest that both aqua aerobic exercises group and aerobic exercise group improve vo2 max level.

INTRODUCTION

According to **Hoeger, W. K. (1992)** said Aqua fitness is the latest fad in the world of fitness. Aqua exercise is any exercise done in water to complement and enhance your regular training and exercise. Aqua aerobics is refreshing as water calm and relaxes one's body. As a low impact exercise, anyone can do aqua aerobics. The body remains submerged in water and this acts a cushion and prevents any form of injury. Aerobic exercise performed in water, known as aqua aerobics. Water aerobics or "waterobics" is the performance of aerobic exercise in shallow water such as a swimming pool. In some areas it is known as AquaFit or "aqua aerobics", and is a type of resistance training. Water aerobic workouts usually combine a variety of techniques from land aerobics including walking or running backward and forward, jumping jacks, mimicking cross-country skiing along with various arm movements. The workout also may incorporate equipment such as flotation devices. The benefits of exercising in the water are many. Aquatic exercise is not only enhances cardiovascular fitness, but also can improve the muscular endurance and overall stretching. Because water provides bouncy and support for the body the likelihood of muscles, bones and joint injuries is significant reduced when exercise is performed in the water. Water provides more resistance than air because of its increased density. This increased resistance helps to promote better muscular endurance and tone. Water aerobics can improve flexibility without causing undo pressure to joints. Because of the lessened effects of gravity in the water, the joints can be more easily be moved through a wider range of motion. Water aerobics is cooler and more comfortable than exercise on land. There have been few training studies reported regarding the effects of floor aerobics and aqua aerobics on cardiovascular fitness and body composition, with its increasing popularity it is important to determine if aqua aerobics and floor aerobics will induce a motor fitness components and physiological training effects and changes in body composition.

Bowman A.J (1992) said Aerobic exercise refers to exercise that involves or improve oxygen consumption by the body. Aerobic means with oxygen and refers to the use of oxygen in the body's metabolic or energy generating process. The steps that can be choreographed in to an aerobic dance routine can be varied by impact (i.e, high impact versus low impact.) Aerobic dance exercise (ADE) can usually be completed easily by participants of all ages and fitness level. This is one of the unique characteristics of ADE, in that the same step can be modified by the participants to meet the needs of her individual workout. A typical ADE workout fulfils the cardio respiratory training principles (i, e frequency, intensity, duration, and type of activity continuous) and is similar to any cardio respiratory workout classes begins with a warm up of light activity and stretching exercise for 10 minutes, progress to the 20-30 minutes workout phase and then have a gradual cool down period for 10 minutes. Three parts of a typical 60 minutes program. A number of steps have been defined; walk, run, skip, two-steps, march, jog. Jumping jack, step touch, side kicks and touch backs.

Methods & Materials

This study was selected sixty (N=60) college men students were selected from St.John's arts and science College, Palayamkottai , Tamil Nadu state, India, during the year 2016-17. The subject's age ranges from 17 to 25 years. They were divided into three groups namely aqua aerobic exercise group (Experimental group I), aerobic exercise group (Experimental group II), and control group (group III) each consists of 20 subjects. The experimental groups (I & II) were subjected to six weeks of aqua aerobic exercise and aerobic exercise training respectively, and the group III acted as control. The experimental groups I used exercises of toning arms, water marching, jumping jacks, side stretch, waist trimmer, total body stretch, standing kick backs, leg adduction and abduction, crunch and floating on water and experimental group II used exercises v step, turn step, over the top, L step, basic straddle step, side to side, double step side, knee kick, kick forward, kick sideward., but start with smaller number of reps) and the load given were progressively increased from 50%,60%,70% intensity level water aerobic exercise and aerobic exercises drills respectively for one hour per day for three days a week for a period of six weeks. The subjects of all the three groups were tested on vo2 max prior to and after the training period.

To ascertain vo2 max parameter measured by cooper vo2 max test accordingly the 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).

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RESULTS & INTERPRETATION

Table No.1.Analysis of Covariance for the Pre, Post and Adjusted Post Test Means Values for Aqua aerobic exercise group, Aerobic exercise group and Control group on Vo2 max (Vo2 max mean value measure by ml/min/kg)

Test	Aerobic exercise group	Aqua Aerobic exercise group	Control group	Source of variance	Sum of square	df	Mean square	'F' ratio
Pre test				**Between**	95.081	2	47.54	.14
Mean	138.35	139.06	141.30					
SD	17.02886	20.5935	4.60486	**Within**	18544,34	57	325.339	
Post test				**Between**	3975.3	2	1987.65	8.93*
Mean	122.20	121.38	139.04					
SD	13.15383	15.99349	15.46583	**Within**	12.692.1	57	222.669	
Adjusted post test mean	123.0	14.7	137.9	**Between**	31.95.52	2	1597.76	22.31*
				Within	4010.051	56	71.608	

*Table value required for significant at 0.05 level with df 2 and 57 and 2 and 56 are 3.15 and 3.16 respectively.

The statistical analysis from the table shows that the pre-test means of aerobic exercise group, aqua aerobic exercise group and control group are 138.35, 139.06 and 141.30 respectively. The obtained F ratio .15 for pre-test is lesser than the table value of 3.15 for df 2 and 57 required for significance at 0.05 level. The post-test means of aerobic exercise group, aqua aerobic exercise group and control group are found 122.20, 121.38 and 139.04 respectively. The obtained F ratio 8.93* for post-test is greater than the table value of 3.15 for df 2 and 57 required for significance at 0.05 level. The adjusted post-test means of aerobic exercise group, aqua aerobic exercise group and control group are 123.0, 14.7 and 137.9 respectively. The F ratio obtained for adjusted post-test 22.31* is also greater than the table value of 3.15 for df 2 and 56 required for significance at 0.05 level.

Table II Scheffe's test for the differences between the adjusted post-test paired means on vo2 max

(VO2 Max means count by ml/min/kg)

Aerobic exercise group	Aqua Aerobic exercise group	Control group	Mean difference	C.I value
123.0	121.7	-	1.3	4.76
123.0	-	137.9	14.9	
-	121.7	137.9	16.2	

*Significance at 0.05 level.

In the above table, the results of Scheffe's Post hoc test are presented. From the table it can be seen that the mean difference between aerobic exercise group and the aqua aerobic exercise group was 1.3 (P<0.05) and the calculated C.I value is 4.76 (P>0.05). The mean difference between aerobic exercise group and the control group is 14.9 (P>0.05) and the calculated C.I value was 4.76 (P< 0.05). The mean difference between the aqua aerobic exercise group and the control group was 16.2 (P>0.05) and the calculated C.I value is 4.76 (P< 0.05). From that it can be clearly noticed that aqua aerobic exercises group responded to the training with more positive influences of vo2 max when compared with the aerobic exercise group and control group. The aerobic exercise group responded better when compared with the control group.

DISCUSSION OF FINDING

Improvement in vital capacity was significant for all the training groups, i.e. group – I (aerobic exercises group) and group - II (aerobic exercises group). P. Brubaker et al, (2011) found that there was a significant improvement in volume of oxygen after the land and water based aerobic training programme.

CONCLUSION

After completion of all work following conclusions were draw by the researcher:

- Aqua aerobic exercise group was possessed reduced Vo2 max than the aerobic exercise group and control group.
- Aerobic exercise group was possessed reduced vo2 max than the control group.

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