



EFFECT OF WATER AEROBIC AND AEROBIC ACTIVITY RESPONSES ON VO2 MAX PARAMETERS AMONG DELHI SCHOOL GIRLS

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ABSTRACT

The present study was to investigate the effect of water aerobics and aerobic activity responses on vo2 max parameter among Delhi school girls. To achieve this purpose of the study ninety (N=90) school girls were selected from DTEA Sr. Sec.School, Pusa Road, Delhi state, India, during the year 2021-22. The subject's age ranges from 13 to 18 years. The selected subject were divided into three equal groups consists of thirty subject each namely two experimental groups and control group from school girls students. The experimental group I underwent water aerobics group (AAG) and experimental group II underwent aerobic activity responses group (AARG) programme for six weeks. The control group III 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 8 Minutes Run and Walk 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 water aerobics group and aerobic activity responses group improve vo2 max level.

KEYWORDS : Water Aerobics, Aerobic Activity Responses and Vo2 Max

INTRODUCTION

According to Hoeger, W. K. (1992) said Water fitness is the latest fad in the world of fitness. Water exercise is any exercise done in water to complement and enhance your regular training and exercise. Water aerobics is refreshing as water calm and relaxes one's body. As a low impact exercise, anyone can do water 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 water 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 WaterFit or "water 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. Watertic 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 undue 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.

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 ninety (N=90) school girls' students were

selected from DTEA Sr. Sec.School, Pusa Road, Delhi state, India, during the year 2021-22. The subject's age ranges from 13 to 18 years. They were divided into three groups namely water aerobics group (Experimental group I), Aerobic activity response group (Experimental group II), and control group (group III) each consists of 30 subjects. The experimental groups (I & II) were subjected to six weeks of water aerobics and Aerobic activity response 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 marching on the spot, touch out, side to side, double side to side,grapevine,cross over step, jump on the spot, kick off but start with smaller number of reps) and the load given were progressively increased from 55%,65%,75% intensity level water aerobics and aerobic activity responses 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 8 Minutes Run and Walk Test formula unit of 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.

RESULTS & INTERPRETATION

Table No.1

Table No.1.Analysis of Covariance for the Pre, Post and Adjusted Post Test Means Values for Water aerobic group, Aerobic activity responsesgroup and Control group on Vo2 max

(Vo2 max mean value measure by ml/min/kg)

Test	Aerobic Activity group	Water Aerobic group	Control group	Source of variance	Sum of square	df	Mean square	'F' ratio
Pre test	1035.00	1033.17	1032.0	Between	964633.89	2	482316.94	2.44
Mean	23.39	20.46	0					
SD			19.73	Within	17197366.56	87	197670.88	

Post test Mean	1169.33	1318.67	1032.3	Between	395153	2	197576	49.23
SD	19.07	19.56	21.97	Within	349146	87	40131.7	*
					0.0		2	
Adjusted post test mean	1168.83	1317.37	1032.1	Between	305240	2	152620	52.61
			4	Within	249489	86	290110.	*
					1.7		37	

* Significant at .05 level of confidence. (The required table value for significant at .05 level of confidence are of 2 and 87 and 2 and 86 are 3.10 and 3.10).

Table –1 showed that the pre-test values on VO2 max for aerobic activity responses training, water aerobics training and control groups were 1035 ± 23.39, 1033.17 ± 20.46 and 1032 ± 193.64 respectively. The obtained 'F' ratio value of 2.44 for pre-test score of aerobic activity responses training, water aerobics training and control groups on VO2 max was less than the required table value of 3.10 for significance with df 2 and 87 at .05 level of confidence, which indicates that there was no significant variation on VO2 max among the three groups before the commencement of training.

The post-test mean values of VO2 max for aerobic activity responses training, water aerobics training and control groups were 1169.33 ± 19.07, 1318.67 ± 19.56, and 1032.33 ± 21.97 respectively. The obtained 'F' ratio value of 49.23 for post-test scores of aerobic activity responses training, water aerobics training and control groups was more than the required table value of 3.10 for significance with df 2 and 87 at .05 level of confidence. It indicates that there is a significant variation in VO2 max among the three groups after respective training for a period of 6 weeks.

The adjusted post-test mean values of VO2 max for aerobic activity responses training, water aerobics training and control groups were 1168.83, 1317.37 and 1032.14 respectively. The obtained 'F' ratio value of 52.61 for adjusted post-test scores of aerobic activity responses training, water aerobics training and control groups were more than the required table value of 3.10 for significance with df 2 and 86 at .05 level of confidence.

Table 2
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 activity group	Water Aerobic group	Control group	Mean difference	C.I value
1168.83	1317.37	-	136.69*	125.76
1168.83	-	1032.14	148.54*	
-	1317.37	1032.14	285.23*	

*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 water 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 water 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 water 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 vo2 max was significant for all the training groups, i.e. group – I (aerobic group) and group - II (aerobic activity responses 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:

1. Water aerobics group was possessed reduced Vo2 max than the Aerobic activity response group and control group.

Aerobic activity response group was possessed reduced vo2 max than the control group.

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