INFLUENCES OF AEROBIC TRAINING AND AQUATIC TRAINING ON MUSCULAR STRENGTH OF WORKING WOMEN

DIRAVIA GLADINA.I[1] & Dr. JACKSON SUTHARSINGH[2]

[1]Ph.D., Research Scholar, YMCA College of Physical Education, Chennai, Tamilnadu, India.
[2]Assistant Professor, YMCA College of Physical Education, Chennai, Tamilnadu, India.

ABSTRACT

The purpose of the study was to find out the influences of aerobic training and aquatic training on muscular strength of working women. To achieve the purpose of the present study, eighty working women from Tiruchirappalli district, Tamilnadu, India were selected as subjects at random and their ages ranged from 30 to 40 years. The subjects were divided into four equal groups of twenty each. This initial test scores formed as pre test scores of the subjects. Experimental Group I was exposed to aerobic training, Experimental Group II was exposed to aquatic training, Experimental Group III was exposed to combined training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses. The combined training had shown significant improvement on muscular strength among working women than the other experimental and control groups.

KEYWORDS: Aerobic Training, Aquatic training, Muscular Strength, Working Women.

INTRODUCTION

Aerobic exercise is a moderate-intensity workout that lasts for a set amount of time and involves the utilisation of oxygen. Aerobics has become the most popular form of exercise among teenagers. Aerobic exercise is not only entertaining, but it is also extremely helpful to one's health. Aerobics include activities such as fitness walking, jogging, swimming, kickboxing, inline skating, bicycling, and so on. Inline skating, often known as rollerblading, is a popular activity that attracts millions of people to try it (Markov et al. 2021). Aquatic training provides efficiency, comfort, and safety, as well as training at any intensity level. Exercising in the vertical plane (axis) maximises resistance while also increasing turbulence and drag, which aids in the strengthening of the working muscle. Because of the buoyancy that water provides, it is also believed that the damage rate will be lower in water. Aquatic training also allow individuals to exercise almost every muscle and joint in the body at the same time, while conducting heat away from the body more efficiently than air (Onur et al. 2021).

METHODOLOGY

The purpose of the study was to find out the influences of aerobic training and aquatic training on muscular strength of working women. To achieve the purpose of the present study, eighty working women from Tiruchirappalli district, Tamilnadu, India were selected as subjects at random and their ages ranged from 30 to 40 years. The subjects were divided into four equal groups of twenty each. This initial test scores

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RESULTS

TABLE I
THE SUMMARY OF MEAN AND PAIRED 'T' TEST FOR THE PRE AND POST TESTS ON MUSCULAR STRENGTH OF EXPERIMENTAL GROUPS AND CONTROL GROUP

Mean	Aerobic training Group -I	Aquatic training Group -II	Combined training Group-III	Control Group Group-IV
Pre- test mean	28.22	28.55	27.99	28.11
Post-test mean	34.62	33.97	39.86	28.35
't'-test	4.34*	2.32*	7.18*	0.07

** Significant at 0.05 level.*
(Table value required for significance at .05 level for 't'-test with df 19 is 2.09)

Table - I shows that the pre-test mean on Muscular strength of Aerobic training group, Aquatic training group, Combined training group and Control group were 28.22, 28.55, 27.99 and 28.11 respectively. The post-test mean are 34.62, 33.97, 39.86 and 28.35 respectively. The obtained paired t-ratio's for Aerobic training group, Aquatic training group and Combined training group were 4.34, 2.32 and 7.18 respectively which were greater than the table value 2.09 of the degrees of freedom (19) and it was found to be statistically significant at 0.05 level of confidence. The obtained paired t-ratio for control group was 0.07, which was lesser than the table value 2.09 of the degrees of freedom (19) it was found to be statistically insignificant.

TABLE – II
ANALYSIS OF COVARIANCE ON MUSCULAR STRENGTH OF EXPERIMENTAL GROUPS AND CONTROL GROUP

Test	Aerobic training Group -I	Aquatic training Group -II	Combined training	Control Group -IV	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Pre Test Mean	28.22	28.55	27.99	28.11	Between	0.08	3	0.01	1.08
					Within	1.33	76	0.02	
Post Test Mean	34.62	33.97	39.86	28.35	Between	2729.65	3	909.88	18.44 *
					Within	2763.20	76	49.34	
Adjusted Post Test Mean	34.62	33.95	39.57	28.30	Between	2751.63	3	917.21	39.44 *
					Within	1278.99	75	23.25	

** Significant at 0.05 level of confidence* Muscular strength Scores in mg/dL)
Table value for df (3, 76) at 0.05 level = 2.72 Table value for df (3, 75) at 0.05 level = 2.72

The above table-II shows that the pre-test mean values on Muscular strength of Aerobic training group, Aquatic training group, Combined training group and Control group were 28.22, 28.55, 27.99 and 28.11 respectively. The obtained 'F' ratio of 1.08 for pre-test scores was lesser than the table value of 2.72 for degrees of freedom 3 and 76 required for significance at 0.05 level of confidence. The post test mean values on Muscular strength of Aerobic training group, Aquatic training group, Combined training group and Control group were 34.62, 33.97, 39.86 and 28.35 respectively. The obtained 'F' ratio of 18.44 for post-test scores was greater than the table value of 2.72 for degrees of freedom 3 and 76 required for significance at 0.05 level of confidence. The adjusted post-test means on Muscular strength of Aerobic training group, Aquatic training group, Combined training group and Control group were 34.62, 33.95, 39.57 and 28.30 respectively. The obtained 'F' ratio of 39.44 for adjusted post-test scores was greater than the table value of 2.72 for degrees of freedom 3 and 75 required for significance at 0.05 level of confidence.

TABLE – III
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON MUSCULAR STRENGTH

Adjusted Post-test Means				Mean Difference	Confidence Interval
Aerobic training Group -I	Aquatic training Group -II	Combined training Group-III	Control Group -IV		
34.62	33.95	--	--	0.67	2.27
34.62	--	39.57	--	4.95*	2.27
34.62	--	--	28.30	6.32*	2.27
--	33.95	39.57	--	5.62*	2.27
--	33.95	--	28.30	5.65*	2.27
--	--	39.57	28.30	11.27*	2.27

** Significant at 0.05 level of confidence*

Table-III shows that the adjusted post test mean differences on muscular strength between Aerobic training group and Combined group, Aerobic training group and Control group, Aquatic training group and Combined group, Aquatic training group and Control group, Combined group and Control group were 4.95, 6.32, 5.62, 5.65 and 11.27 respectively, which are greater than the confidence interval value of 2.27 at 0.05 level of confidence. Further the table explains that the adjusted post test mean differences between Aerobic training group and Aquatic training group was 0.67, which was lesser than the confidence interval value of 2.27.

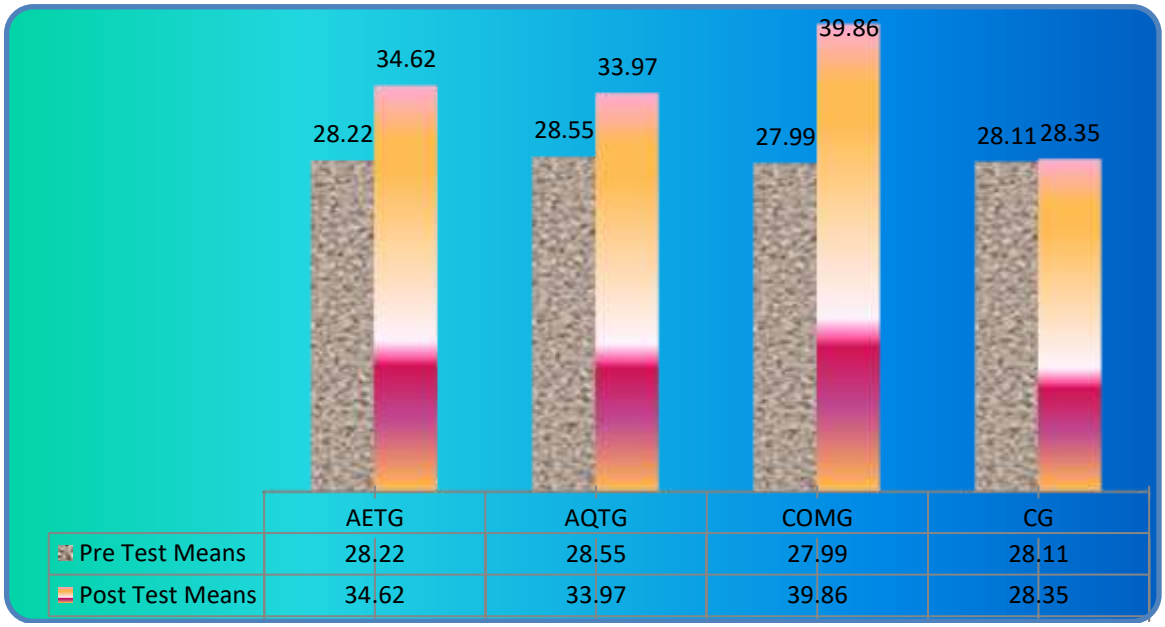

FIGURE I
THE PRE AND POST TEST MEAN VALUES OF AEROBIC TRAINING GROUP, AQUATIC TRAINING GROUP, COMBINED GROUP, AND CONTROL GROUP ON MUSCULAR STRENGTH

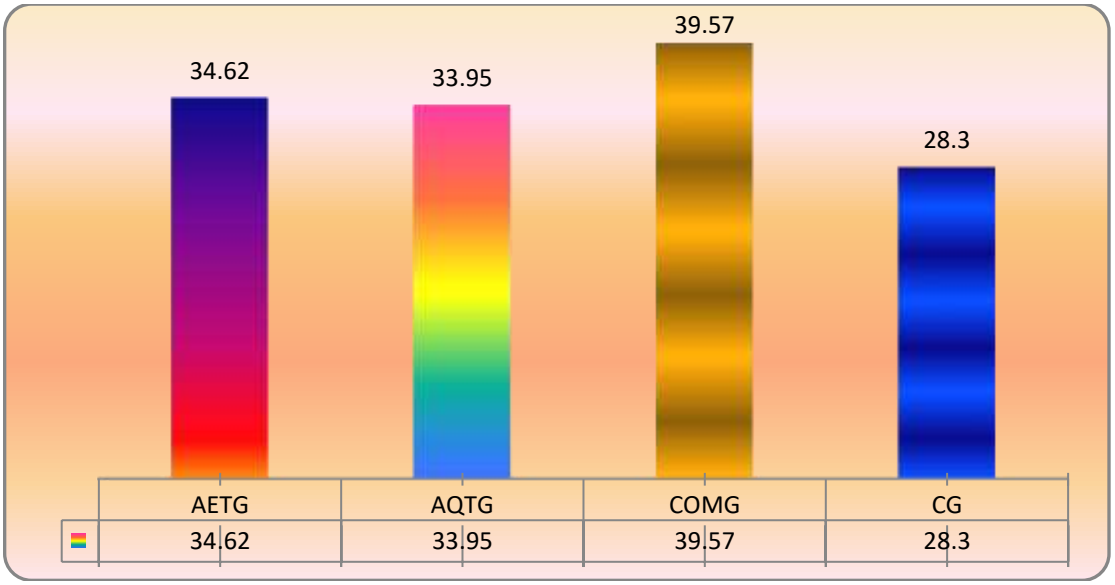

FIGURE II
THE ADJUSTED POST MEAN VALUES OF AEROBIC TRAINING GROUP, AQUATIC TRAINING GROUP, COMBINED GROUP, AND CONTROL GROUP ON MUSCULAR STRENGTH

CONCLUSION

1. The combined training had shown significant improvement on muscular strength among working women than the other experimental and control groups.

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