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Effect of six weeks waterobics program on muscular endurance of obese women

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Abstract

Objective: To examine the effect of six week waterobics programme on muscular endurance of 15 obese women aged 20 – 25 yrs from Greater Gwalior, Madhya Pradesh.

Methods: The subjects were selected using random sampling method. The pre test was taken before the intervention and post data was collected after six weeks. The data was taken by the help of the sit ups performed in 1 min the data obtained was analyzed using paired 't' test.

Results: There was a significant improvement in the muscular endurance ($p=0.00$), was found after undergoing six weeks of waterobics programme.

Conclusions: This study suggested a clear evidence of improvement in muscular endurance of obese women after the completion of six week water exercise programme.

These results are important for future investigations in clinical studies to identify better ways for improving health condition of obese children.

Keywords: Muscular endurance, waterobics, obese women

1. Introduction

Now a days, the typical aerobics classes which are carried out in gym is not the only option for fitness – based workouts. Water-based activities are great alternative for it. Water-based activities have a wide spectrum of benefits in the field of physical, mental, and social. As exercising in water is very much common for both healthy and differently abled people, it is also prescribed to obese, middle-aged, or elderly individuals. As well as pregnant women. Infact, aquatic exercises are safer than land workouts. It is so, because, the load-bearing compression on the joint minimizes, reducing the risk of injury to the musculoskeletal system. The elder population may get difficulties in performing the traditional gym classes, resulting it less effective than expected. Infact, when a body immerse in water it weight up to 90% less than on land This reduction of weight diminishes the load on the joints and spine and allows movement amplitude to increase as compared with normal land conditions. Moreover, propelling within water overcoming the resistance (with or without aquatic resistance) causes an increase in energy expenditure. Thus, the effects of aquatic exercises, such as an increase in muscle strength, is greater than the effects of similar exercises performed on land. Studies have also found out, that, the heart rate may be slower by 10-15 beats per minute (bpm), depending on the depth of immersion and water temperature, compared with similar exercises performed on land Advancing age is generally accompanied by a progressive decline in physical activity, with physical inactivity associated with a higher risk for metabolic diseases such as cardiovascular disease and Type 2 diabetes. In addition, aging and physical inactivity may contribute to increased abdominal obesity, thereby increasing risk for cardiovascular disease, and to the loss of muscle strength. Although it is accepted that sedentary habits are associated with an increased risk of numerous chronic diseases, there is continued debate as to the optimal volume, frequency, intensity, duration and mode of physical activity required to reduce disease risk.

2. Methods and Materials

2.1 Participants

Total number of 15 obese women were randomly selected from the aged ranged from 20 to 25 yrs from Gwalior, Madhya Pradesh.

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To be included, participants were healthy, not suffering from any acute or chronic disease, and were not receiving any kind of medical treatment. All the participants were fully informed of the risks and discomforts associated with the experimental procedures, and the subjects had signed an informed consent form for participation in the study. Baseline testing was done by using BMI Index.

2.2 Procedures

2.2.1 Training intervention

The subjects participated in 5 sessions of regular water aerobics classes per week over 6 weeks. Training usually took

place from Monday to Friday. Each session was comprised of a short dynamic warm-up followed by 30–45 min of water aerobics. The small-sided games were also included on alternate days with varying rules.

2.2.2 Measurements and testing

The pre test was taken before the intervention and post data was collected after six weeks. The data was taken by the help of the hand grip dynamometer.

3. Results

Table 1: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre	23.3267	15	2.59298	.66950
	post	25.5000	15	2.24976	.58089

Table 1: The values of the mean, standard deviation, and standard error of the mean for the data on aerobic fitness components on before and after the water aerobics

programme are shown in the table 1. These values can be used to draw the conclusion as to whether the 6 weeks water aerobics programme was effective or not.

Table 2: Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre - post	2.17333	.62503	.16138	-2.51947	-1.82720	-13.46	14	.000

Table 2: It can be seen from the above table that the value of the t- statistics is-13.46. This t – value is significant as the p – value is 0.000 which is less than.05. thus, the null hypothesis of equality of average values muscular strength on before and after the water exercise programme is rejected and therefore it may be concluded that the average effect on the muscular strength on before and after the water exercise programme is not the same.

Further, by looking to the values of the mean of the muscular strength on before and after the water aerobics programme in table 1 one may note that the average muscular strength have improved before the after the water aerobics programme. Since the null hypothesis has been rejected, it may be concluded that the improvement in the muscular strength has been significantly improved due to the water aerobics programme.

4. Discussion

Post-intervention effect of muscular strength of obese women had shown a significant change after the water aerobics programme of obese women when compared with baseline values that were observed in the study.

Aerobics, in general, focuses on large muscles such as those in our limbs. Combine it with water resistance and one is left with stronger muscles. The force of water from all directions on the body's surface acts like weights tied all over the body, doing what dumbbells and kettle bells would do if were working out on land – but on a larger scale. What's more, you can work 2 opposing muscle groups simultaneously in water, whereas on land one will probably need to focus on one group at a time. In the basic pull and push movements of the arms and legs in water, one will be able to develop more stamina without feeling the brunt of it. Water buoyancy will be the new best friend.

The water offers buoyancy, taking pressure off your joints and bones during aerobic moves. The added resistance of the

water is also good for building muscles as you exercise. It's harder to move your body through water, which makes your muscles work harder with each move. Exercising in the pool also lowers your risk of injuries. Water is a flowing and constantly changing product of nature, and as such can be very unpredictable in its movements. Since water flows in multiple directions, the resistance in the pool can range from four to 42 times greater than air, ensuring the body's muscles get a rigid workout. Because of its increase density, water provides approximately 12 times more resistance that air. Working against this increased resistance gradually and steadily strengthens the muscles and builds up better muscular endurance and tone. We can see quicker results when exercising in the water, compared with the same exercise routine on land. Due to the fat the water surrounds and resists the movements in all directions, we can build up opposite muscle groups by moving the joints through their complete range of motion while strengthening the muscles.

5. Conclusion

In the study “the effect of six week water aerobics programme on muscular strength of obese women” it can be understood that the effect water exercises on muscular strength had shown positive effect after the duration of 6 weeks.

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