

# The Potential Effect of Aquatic Exercises Weight Management and Overall Well-Being

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## Abstract:

## Background:

The aim of the study is to investigate the effects of aquatic exercises on human physiology and examine the possible beneficial results of this innovative therapy as a treatment for obese and overweight patients.

## Materials and Methods:

In conducting this review, relevant studies were selected based on specific criteria. The search of the literature was undertaken using a range of databases, including the US National Library of Medicine (PubMed), Scopus, MEDLINE, Embase, Web of Science, and SportDiscus. ScienceDirect, and Cochrane Library were searched using keywords including "aquatic exercise", "weight management", "land exercise", "obesity," and "overall well-being." Studies that investigated the effects of aquatic exercise on obesity and overall health outcomes were included in the review, while those that did not meet these criteria were excluded. It is important to acknowledge potential limitations or biases in the literature search process, such as language restrictions or publication bias, which may have influenced the findings.

## Results:

Among the many types of physical activities that can be done for a healthier life, aquatic exercise is a very popular choice with its own versatile metabolic contributions. It is thought that aquatic exercise, where the gravity feature is almost zero, ensures that all muscles work in harmony and increases body resistance without creating a wearing effect because it is done against the resistance of water. This could be considered an important health contribution of aquatic exercise. Therefore, aquatic exercise could be defined as a sport that allows physical development to reach the ideal level in the most effective way and is effective in the prevention and treatment of obesity.

## Conclusion:

It is understood that aquatic exercise is an efficient and effective exercise method for weight loss and obesity treatment. Exercising in water helps lose more weight with less tiredness in a shorter period compared to land exercises while increasing muscle endurance and strength. Aquatic exercise also beneficial for cardiovascular health. Along with these benefits, it may

also be stated that it makes exercising easier for people in psychological terms. Aquatic exercise is a more preferable exercise method than land exercise for obese people and it should be popularised.

**Keywords:** aquatic exercise, land exercise, overall well-being, weight management, and obesity

## **Introduction**

It is becoming more widely acknowledged that aquatic exercise can play a beneficial role in the management of obesity and overall health and wellbeing. It is becoming increasingly clear that obesity represents a significant global health problem with far-reaching consequences. This highlights the need to consider ways of promoting physical activity as a means of addressing this concern. The goal of aquatic exercise is to provide support for weight management and to offer positive effects on general well-being, with a particular focus on its potential benefits for obesity management and general health improvement. It seems reasonable to suggest that physiological adaptations may potentially contribute to the efficacy of weight loss programs that include dietary regimens and exercise routines. Research by Kraemer et al. (1997) indicated that a weight loss regimen combined with exercise programs may potentially lead to significant physiological changes, suggesting that structured interventions may be a promising approach to achieving the desired results. Diet composition, energy intake, and physical activity levels are key determinants of body fatness in both men and women. Rippe and Hess (1998) outlined the interaction of diet quality, calorie consumption, and exercise participation in influencing body composition outcomes. They also emphasize their holistic approach to weight management, which is certainly a valuable contribution to the field. Similarly, van Baak et al. (2021) underline the importance of the impact of different types of regular exercise on physical fitness in overweight or obese adults.

There are a variety of ways to engage in physical activity and exercise. If I might suggest a simple way of understanding the different types of exercise, they could be divided into two groups based on their location: land exercise and water exercise. It is perhaps fair to say that land exercise is more common among people. Many people find that jogging and walking are effective ways to lose weight. However, water exercise, also known as aquatic exercise, is a relatively new therapeutic exercise method that we believe may be a more efficient weight-loss method for obese people. Aquatic exercises may offer a promising new approach to obesity treatment. Aquatic exercise provides several advantages over traditional forms of physical activity, particularly for individuals with obesity. Firstly, the buoyancy of water reduces the impact on joints, minimizing the risk of injuries and joint stress. This is especially crucial for adolescents, whose skeletal systems are still developing. Secondly, the hydrostatic pressure exerted by water improves blood circulation, which can positively impact cardiovascular health. Additionally, the resistance of water enhances muscular strength and endurance, contributing to overall physical fitness ((Meredith-Jones et al., 2011; Pereira Neiva et al., 2018).

There are a number of reasons why people may choose to exercise in water. Some are interested in losing weight, while others are focused on enhancing their fitness levels. It is thought that water exercise may be a useful approach to rehabilitation for some chronic nervous system and muscular disorders, as well as recovery from injuries (Delevatti, Marson E & Kruel 2015;

Veldema & Jansen 2021). In recent years, there has been a growing body of research exploring the potential benefits of aquatic exercise on human physiology (Reichert et al., 2018). Many studies have indicated that aquatic exercise may help to increase flexibility, burn fat, increase body strength, and improve cardiovascular endurance. It is thought that aquatic exercise could be a beneficial therapy with very promising results (Nikolai et al., 2009; Brody & Geigle 2009).

### **Materials and Methods:**

In order to gain a comprehensive understanding of the topic, a literature search was conducted using various databases, including the US National Library of Medicine (PubMed), Scopus, MEDLINE, Embase, Web of Science, and SportDiscus. In order to gain a comprehensive understanding of the topic, ScienceDirect and the Cochrane Library were searched using a number of keywords, including "aquatic exercise," "weight management," "land exercise," "obesity," and "overall well-being." In addition, a number of keywords related to aquatic exercise, land exercise, overall well-being, weight management, and obesity were also included. The search was limited to peer-reviewed articles published in English between 1997 and 2022. In order to focus on human research, animal model studies were excluded. The criteria for inclusion in this review were that the studies examined the association between weight control management and overall healthy aging, were published in a peer-reviewed journal, and were written in English. After careful consideration, a total of 27 studies were selected for inclusion.

### **Discussion:**

It may be helpful to consider the role of weight management as part of obesity treatment. It is thought that aquatic exercise may be a valuable addition to the toolkit for achieving this goal. It is widely acknowledged that weight management plays a pivotal role in the treatment of obesity. Similarly, there is a growing recognition of the importance of regular exercise habits in maintaining a healthy weight. It is thought that water exercises may also have an important part to play in achieving this goal, and the potential benefits of swimming in particular for weight loss have been the subject of some investigation. It would seem that findings from scientific research studies indicate that individuals who participate in regular swimming sessions may experience significant reductions in body weight and BMI. Furthermore, swimming has been regarded as a potentially beneficial approach to maintaining a healthy weight, as it offers a low-impact and enjoyable form of physical activity (Bure, 2019; Haskell et al., 2007; Moffatt, 2017; Takeshima et al., 2002).

It seems reasonable to suggest that physical activity could be a beneficial addition to the treatment of a number of different diseases. With this in mind, the effects of aquatic exercise on obesity have been the subject of a great many studies, with a view to understanding the various factors that may influence its effectiveness. Furthermore, aquatic exercise offers psychological benefits and provides an environment where individuals can exercise without worrying about their physical appearance. Aquatic exercise has recently emerged as a promising therapeutic approach that may prove effective in treating obesity (Darley, 2020; Luan et al., 2019). Its distinctive qualities, including density and resistance, make it an excellent option for individuals with obesity, offering calorie reduction with reduced fatigue compared to land-based exercises. It would seem that studies have demonstrated the effectiveness of

aquatic exercise, with water aerobics being highly recommended as an alternative to land exercise (Benelli, Ditroilo & De Vito 2004; KC, 2005. Raffaelli et al., 2016). It seems that aquatic exercise may help to improve flexibility, burn fat, increase body strength, and enhance cardiovascular endurance. It is thought that its impact on muscle strength, body composition, respiratory and circulatory systems makes it especially beneficial for obese individuals, with the buoyant force in water providing stability and a more comfortable exercise environment (Kravitz & Mayo 2006; Torres-Ronda & i del Alcázar 2014).

A review of existing literature suggests that there is a growing body of evidence to support the efficacy of aquatic exercise as a method for weight loss. In a study by Lee and Oh, it was observed that obese elementary school students who participated in a 12-week aquatic exercise program showed encouraging improvements in body composition and fat percentage compared to a control group (Lee & Oh, 2014). Another study by Farahani et al. indicated that elderly obese patients may experience improvements in resting blood pressure following a 10-week aqua aerobic program (Farahani et al., 2010). Similarly, researchers studying university students found that both on-land aerobic and water aerobics participants showed improvements in BMI following a six-week study, which suggests that aquatic exercise may be a viable alternative for weight loss (Meredith-Jones et al., 2011).

Furthermore, some studies have suggested that flotation equipment may play a role in improving physiological outcomes during aquatic exercise (Barbosa et al., 2009; Katsura et al., 2010). In addition to these findings, research by Pinto et al. suggests that flotation equipment may also have the potential to enhance cardiovascular and respiratory responses to aquatic exercise (Pinto et al., 2011).

## **Conclusion**

It is becoming increasingly clear that regular physical activity plays an important role in maintaining good health. There is growing evidence that it can have a positive effect on both physical and psychological well-being. Among the various physical activities available to support health, aquatic exercise is notable for its multifaceted metabolic contributions. Given the low-impact nature of aquatic exercise and the unique characteristics of training the whole body against water resistance, it could be considered an effective physical activity method for achieving optimum physical development. It might be said that aquatic exercise is an affordable activity that individuals of all ages can access throughout their lives, and that it also provides significant contributions to both physical and psychological health. This form of physical activity is distinguished by its comprehensive training of the whole body against water resistance, which makes it a promising option for maintaining fitness and well-being. Clinical studies have indicated that regular aquatic exercise may be an effective method for preventing and treating obesity, a condition that can be associated with a sedentary lifestyle and significant health risks. It may also be a useful approach for addressing numerous chronic health problems that can be caused by excess weight. In addition to its role in weight management, there have been suggestions that consistent aquatic exercise could be an effective treatment method. There is also empirical evidence showing its benefits in regulating blood pressure and managing diabetes. The scientific literature suggests that regular aquatic exercise may play a beneficial

role in promoting both physiological endurance and psychological well-being, particularly for individuals with sedentary lifestyles. It has also been demonstrated in scientific literature that regular aquatic exercise can have a beneficial impact on cardiovascular health, improve heart function, and assist in the management of hypertension by promoting healthier blood flow.

Moreover, aquatic exercise provides a supportive avenue for addressing musculoskeletal concerns, particularly in the elderly population. It seems that aquatic exercise may have particular benefits in alleviating joint discomfort in the back and lumbar regions. It is also worth noting that consistent aquatic exercise has been associated with significant improvements in reaction time and balance among individuals, beyond the skeletal system.

A growing body of evidence from a variety of scientific studies suggests that integrating regular physical activity into a healthy lifestyle may be beneficial. It would be remiss of us not to acknowledge the significant contributions that incorporating water exercise into practical physical activity regimes can make to nourishing all aspects of health, including metabolic, psychological and physical, and to promoting a strong and vibrant life.

A review of the literature suggests that water exercise may be an effective and efficient method for weight loss and obesity treatment. It seems that exercise in water may help to lose more weight in a shorter time with less fatigue compared to land-based exercises. It is also worth noting that muscle endurance and strength may also be increased. It seems that many people prefer water exercise to land-based exercises. This may be because it is supportive of cardiovascular health and facilitates exercise habits for individuals with obesity and overweight problems from a psychological perspective.

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All the authors read and approved the final version of the manuscript.

## References

1. Barbosa, T. M., Marinho, D. A., Reis, V. M., Silva, A. J., & Bragada, J. A. (2009). Physiological assessment of head-out aquatic exercises in healthy subjects: a qualitative review. *Journal of sports science & medicine*, 8(2), 179.
2. Benelli, P., Ditroilo, M., & De Vito, G. (2004). Physiological responses to fitness activities: A comparison between land-based and water aerobics exercise. *The Journal of Strength & Conditioning Research*, 18(4), 719-722.
3. Brody, L. T., & Geigle, P. R. (Eds.). (2009). *Aquatic exercise for rehabilitation and training*. Human Kinetics.
4. Bure, A. (2019). *Physical Activity in the Water and the Human Body*.
5. Darley, T. (2020). Effectiveness of an Aquatic Exercise Program for Reducing Weight, Body Fat and Chronic Low Back and Joint Pain.
6. Delevatti, R., Marson, E., & Fernando Krue, L. (2015). Effect of aquatic exercise training on lipids profile and glycaemia: a systematic review. *Revista Andaluza de Medicina del Deporte*, 8(4), 163-170.
7. Farahani, A. V., Mansournia, M. A., Asheri, H., Fotouhi, A., Yunesian, M., Jamali, M., & Ziaee, V. (2010). The effects of a 10-week water aerobic exercise on the resting blood pressure in patients with essential hypertension. *Asian journal of sports medicine*, 1(3), 159.
8. Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., ... & Bauman, A. (2007). Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*, 116(9), 1081.
9. Katsura, Y., Yoshikawa, T., Ueda, S. Y., Usui, T., Sotobayashi, D., Nakao, H., ... & Fujimoto, S. (2010). Effects of aquatic exercise training using water-resistance equipment in elderly. *European journal of applied physiology*, 108, 957-964.
10. KC, V. K. (2005). *Comparative Study Between Land Based Training and Aquatic Based Training for Enhancing Endurance in Normal Individuals* (Master's thesis, Rajiv Gandhi University of Health Sciences (India))
11. Kraemer WJ, Volek JS, Clark KL, Incledon T, Puhl SM, Triplett-McBride NT, McBride JM, Putukian M, Sebastianelli WJ. Physiological adaptations to a weight-loss dietary regimen and exercise programs in women. *J Appl Physiol* 1997;83:270-279.
12. Kravitz, L., & Mayo, J. J. (2006). The physiological effects of aquatic exercise. *Int J Med*, 332, 305311-.
13. Lee, B. A., & Oh, D. J. (2014). The effects of aquatic exercise on body composition, physical fitness, and vascular compliance of obese elementary students. *Journal of exercise rehabilitation*, 10(3), 184.
14. Lim, J. Y., Tchae, E., & Jang, S. N. (2010). Effectiveness of aquatic exercise for obese patients with knee osteoarthritis: a randomized controlled trial. *Pm&r*, 2(8), 723-731.

15. Luan, X., Tian, X., Zhang, H., Huang, R., Li, N., Chen, P., & Wang, R. (2019). Exercise as a prescription for patients with various diseases. *Journal of sport and health science*, 8(5), 422-441.
16. Meredith-Jones, K., Waters, D., Legge, M., & Jones, L. (2011). Upright water-based exercise to improve cardiovascular and metabolic health: a qualitative review. *Complementary therapies in medicine*, 19(2), 93-103.
17. Moffatt, F. (2017). The individual physical health benefits of swimming: a literature review. *The health & wellbeing benefits of swimming*, 8-25.
18. Nikolai, A. L., Novotny, B. A., Bohnen, C. L., Schleis, K. M., & Dalleck, L. C. (2009). Cardiovascular and metabolic responses to water aerobics exercise in middle-aged and older adults. *Journal of Physical Activity and Health*, 6(3), 333-338.
19. Pereira Neiva, H., Brandão Faíl, L., Izquierdo, M., Marques, M. C., & Marinho, D. A. (2018). The effect of 12 weeks of water-aerobics on health status and physical fitness: An ecological approach. *PloS one*, 13(5), e0198319.
20. Pinto, S. S., Cadore, E. L., Alberton, C. L., Silva, E. M., Kanitz, A. C., Tartaruga, M. P., & Kruel, L. F. M. (2011). Cardiorespiratory and neuromuscular responses during water aerobics exercise performed with and without equipment. *International journal of sports medicine*, 32(12), 916-923.
21. Raffaelli, C., Milanese, C., Lanza, M., & Zamparo, P. (2016). Water-based training enhances both physical capacities and body composition in healthy young adult women. *Sport Sciences for Health*, 12, 195-207.
22. Rippe, J. M., & Hess, S. (1998). The role of physical activity in the prevention and management of obesity. *Journal of the American Dietetic Association*, 98(10), S31-S38.
23. Reichert, T., Costa, R. R., Barroso, B. M., da Rocha, V. D. M. B., Delevatti, R. S., & Kruel, L. F. M. (2018). Aquatic training in upright position as an alternative to improve blood pressure in adults and elderly: a systematic review and meta-analysis. *Sports medicine*, 48, 1727-1737.
24. Takeshima, N., Rogers, M. E., Watanabe, E., Brechue, W. F., Okada, A., Yamada, T., ... & Hayano, J. (2002). Water-based exercise improves health-related aspects of fitness in older women. *Medicine & Science in Sports & Exercise*, 34(3), 544-551.
25. Torres-Ronda, L., & i del Alcázar, X. S. (2014). The properties of water and their applications for training. *Journal of human kinetics*, 44, 237.
26. van Baak, M. A., Pramono, A., Battista, F., Beaulieu, K., Blundell, J. E., Busetto, L., ... & Oppert, J. M. (2021). Effect of different types of regular exercise on physical fitness in adults with overweight or obesity: Systematic review and meta-analyses. *Obesity Reviews*, 22, e13239.
27. Veldema, J., & Jansen, P. (2021). Aquatic therapy in stroke rehabilitation: systematic review and meta-analysis. *Acta Neurologica Scandinavica*, 143(3), 221-241.