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**Research Article,**

## **Motor Relearning Program in Water: Surgery or Aqua-therapy?**

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### **Introduction:**

The use of hydrotherapy for healing has been practiced for centuries by the ancient Iranians, Greeks, Chinese and ancient Romans due to the unique properties of water. The use of hot springs was common among the people of that time to relieve and reduce all kinds of pain[1]. Today, different terms such as hydrotherapy (hydrotherapy), aqua-therapy, pool therapy, water sports, etc. are mentioned in different communities. Three important properties of water that cause the main difference between exercise in water and land: 1- Floating force, which causes weight loss in water. This weight loss can occur up to 90% (water depth to the neck), for example, a person who weighs 100 kg can lose up to 10 kg in water, which is the weight loss that causes the joints to overlap. Reduce the pressure on them and relieve and reduce pain. 2- Viscosity or adhesion of water, this property of water, causes water resistance against body movements and strengthens various muscles. On the other hand, the force of water adhesion helps maintain balance and reduces falls in the elderly. Various studies have shown that one of the most important reasons for the inactivity of the elderly on land is the fear of falling and bone fractures, which makes water safe for the elderly to exercise safely without any injuries or falls. 3- Hydrostatic pressure: It is the pressure that water puts on different organs of the body simultaneously and causes the return of blood from the lower extremities to the heart to increase, and this improves the function of the heart and lungs, so exercising in water. Due to its light weight, weight loss and easy and fast return of blood to the heart can be beneficial for cardiopulmonary patients[2].

The skin of the body is an important and essential organ that is stimulated by the collision of the skin's nerve receptors and has a positive effect on the central nervous system (brain and spinal cord) through the nerves, which ultimately calms the

mind and reduces stress. Numerous studies have shown that the stress factor is one of the most important causes of cardiovascular disease, stroke and eventually death, so exercising in water is a very good tool to prevent these risks[3]. Also, exercise in water due to heat and water resistance can consume up to about twice as many calories in dry time and is very effective in weight loss. On the other hand, due to weight loss in water, damage to various joints, including the knees and back, is greatly reduced. Therefore, people who are overweight or obese are strongly advised to exercise in order to prevent knee wear and joint injuries[4]. Follow yourself in the water until you reach your ideal weight. In addition to the benefits mentioned above, various studies have shown the beneficial effects of water exercise in reducing harmful blood fats, regulating blood sugar in diabetics, modulating blood pressure in hypertensive people, reducing joint pain such as rheumatoid arthritis, improving neurological disorders. Parkinson's and MS have been shown to reduce depressive symptoms and increase life expectancy[2].

Lumbar disc injury can be considered as an important complication of the 21st century. Many people in the lower to upper age range suffer from lumbar disc herniation due to various causes such as inactivity, obesity and overweight, unprincipled and intense exercise, poor nutrition, and various accidents. This complication is associated with severe and unbearable pain in the more severe stages. Unfortunately, today, surgery has become popular because in most cases, the results are not satisfactory, and with the examinations performed on these patients, it can be said that surgery is not the complete end of back pain. My advice after years of experience in hydrotherapy and working in specialized hydrotherapy centers and dealing with patients with lumbar disc disease before and after surgery is to refrain from surgery as long as they can still

Walk, and instead, consult your doctor for at least one to three months (three times a week) under hydrotherapy and rest. It should be noted that even after surgery, hydrotherapy courses should be used for postoperative rehabilitation, so it is better to do this before surgery. Due to the properties of water and its beneficial mechanisms for people mentioned above, hydrotherapy can be very effective and miraculously in reducing back pain caused by lumbar disc herniation [5]. Numerous feedbacks from such patients with me as well as research in this field are proof of this claim. Therefore, surgery should be the last resort. Today's use of other pool facilities such as sauna (dry and steam), Jacuzzi and cold water pool can also be considered as hydrotherapy supplements. The general public may consider the use of saunas as a means of weight loss, which is a misconception. When people use the sauna, especially dry ones, they lose a lot of body water, and when they drink water again, this water is replaced. The benefits of using saunas include its positive effects in increasing relaxation, reducing muscle spasms, opening skin pores, improving the airways and increasing blood flow. Jacuzzi and cold water pool also help relieve bruises and fatigue. Of course, the use of Jacuzzi, cold water and saunas should be observed in accordance with safety principles, and the elderly, patients with cardiovascular failure, people with respiratory problems and patients with neurological disorders should not use. It is also not advisable to use hydrotherapy in people with open wounds and infections until they have healed. People with cardiovascular failure and endocrine disorders should consult their doctor for hydrotherapy.

## References

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