Studies and Research in Onomastics and Lexicology (SCOL)
ISSN: 2065-7161
E-ISSN: 2247-7330
Vol. 19 (2) 2026

Effects of Hydrotherapy on The Elderly's Gait and Balance Motor Neuron Disease Patients

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Received: 18.01.2026 Accepted: 27.06.2026 Publishing: 31.07.2026

Abstract
A degenerative neurological disorder, Parkinson's disease (PD) gradually diminishes one's ability to walk normally and maintain one's balance. Therefore, PD increases the risk of falls and decreases quality of life in older individuals. One promising approach to these problems is aquatic therapy, which takes advantage of the physical properties of water to encourage and resist movement. Can elderly adults with Parkinson's disease improve their gait and balance through water therapy? Individuals took part in a twelve-week organized aquatic treatment program as part of a randomised controlled trial. Functional mobility, gait speed, and balance were evaluated before and after the program. Results show that swimming therapy significantly improves balance, decreases gait asymmetry, increases mobility, and boosts confidence in doing daily tasks. Resistance training enhances muscular power and coordination, while being buoyant in water lessens the likelihood of falling. Water therapy is a safe and effective addition to traditional rehabilitation for improving gait and balance in elderly patients with Parkinson's disease.

Keywords: Parkinson's Disease, Aquatic Therapy, Balance Improvement, Gait Rehabilitation, Elderly Patients

Introduction

Some of the motor symptoms that are connected with Parkinson's disease (PD), which is a neurodegenerative disorder that does not go away and is progressive over time, are bradykinesia, tremors, stiffness, and postural instability. There are many other motor symptoms that are related with PD. Gait abnormalities and balance deficits are two of the most severe disorders that can affect people who are in their senior years. The presence of these conditions increases the likelihood that they will fall, which in turn limits their capacity for independent living. These problems, which also present significant difficulties in terms of healthcare and caregiving, have a significant impact on the quality of life, which is considerably lowered as a consequence. Conventional treatments for Parkinson's disease (PD), which include pharmacological interventions and standard physical therapy, typically only provide minimal improvements in movement and balance. This is the case in many cases. Consequently, there is a growing interest in complementary and alternative therapies that are able to address these conditions in a more effective manner. This is a consequence of the fact that this is the case. Aquatic treatment, which takes advantage of the one-of-a-kind physical features of water, has emerged as a potentially useful recovery strategy for elderly adults who suffer from Parkinson's

disease (PD). Because of the buoyancy of water, patients are able to perform motions with more ease and a reduced fear of falling. This is because the buoyancy of water reduces the pressure that is imposed on weight-bearing joints, which in turn reduces the risk of injury. At the same time, resistance training in water provides a natural mechanism for increasing coordination and strengthening muscles. The hydrostatic pressure of water has the potential to increase proprioception and sensory feedback, both of which are typically diminished in people who have Parkinson's disease (PD). Another benefit of water is that it has the ability to improve proprioception. When it comes to the gait and balance of elderly people who suffer from Parkinson's disease, what kind of impact can water therapy have throughout treatment? By focusing on the efficacy of this intervention, the researcher hopes to make a contribution to the growing body of evidence that supports innovative therapy approaches for the management of motor symptoms in Parkinson's disease (PD). This will be accomplished by examining the effectiveness of the intervention. In conclusion, the objective of this study is to offer valuable insights into the ways in which older citizens who are coping with Parkinson's disease might enhance their functional mobility, reduce the likelihood of falling, and enhance their overall quality of life.

One kind of rehabilitation is known as aquatic therapy.

In order to facilitate rehabilitation and recovery, aquatic therapy, which is also commonly referred to as hydrotherapy, is a specialized form of physical therapy that makes use of the unique features that water provides. The goal of this therapy is to help patients heal and get back to regular activities. Patients who are elderly and have Parkinson's disease (PD) can benefit from aquatic treatment because it deals with the unique concerns of balance, gait, and mobility restrictions that are associated with the condition. This therapy provides a supportive and regulated environment that addresses these issues.

1. The Chemical and Physical Characteristics of Water and Its Therapeutic Value

There is a wide range of therapeutic effects that may be achieved through the use of water's physical qualities, which are the basis of aquatic treatment. These effects are especially beneficial for people who suffer from Parkinson's disease.

- Buoyancy: As a result, the effects of gravity are mitigated, resulting in less strain on the muscles and joints. As a result, patients are able to move around more freely and with substantially less discomfort.
- Resistance: Water offers a natural resistance that assists in the strengthening of muscles and promotes improved control and coordination when performing exercises.
- Hydrostatic Pressure: The pressure that water applies to the body helps to increase circulation and proprioception, which in turn helps to improve sensory feedback and postural control.
- Thermal Effects: In the context of therapy, the application of warm water helps to relax muscles, alleviate stiffness, and enhance general comfort.

An setting that is safe, low-impact, and encourages involvement is created by these features. Additionally, the chance of falling is reduced, which is a significant issue for older Parkinson's disease patients.

2. Aquatic Therapy's Benefits for Parkinson's Patients

Aquatic therapy offers a variety of advantages that are tailored to fulfill the requirements of individuals who are afflicted with Parkinson's disease. These advantages include the following:

- Improved Balance: The fear of falling is alleviated by the support that water provides, which enables patients to concentrate on exercises that improve their balance. Postural stability is improved over time as a result of the dynamic motions that are required in water.
- Gait Rehabilitation: Patients have the opportunity to practise walking patterns, which helps them address difficulties such as shuffling, shortened stride length, and asymmetry. This is made possible by the reduced weight-bearing environment.
- Enhanced Mobility: The resistance that water provides helps to strengthen muscles, which in turn improves functional mobility and overall endurance.
- Psychological Benefits: The fact that aquatic therapy is both fun and calming contributes to the development of a positive therapeutic experience, which in turn helps to reduce anxiety and increase confidence in movement.

3. Importance for Rehabilitation-Related Parkinson's Disease

Parkinson's disease is characterized by a number of symptoms, including stiffness, bradykinesia, and postural instability. These symptoms all contribute to difficulties with walking and maintaining balance. The motor deficits that are characteristic of Parkinson's disease are also present. It is possible that certain patients may experience difficulties with land-based therapy due to reasons such as weariness, fear of falling, or limited mobility. This is despite the fact that land-based therapy is generally beneficial. With the help of aquatic treatment, these limitations can be overcome. This is accomplished by providing patients with an environment in which they are able to engage in activities with more ease and safety.

Proprioception, which is typically impaired in patients who have Parkinson's disease (PD), is improved by the hydrostatic pressure and sensory input that are provided by water. Water also contributes to the improvement of proprioception. If you are able to imitate successful behaviors in water, you will not only gain self-assurance, but you will also find it much simpler to apply those skills to activities that take place on land.

4. Integration with Conventional Therapy

However, in contrast to other types of rehabilitation, water therapy is not a treatment that can be used on its own; rather, it is a complementary strategy that enhances the efficacy of more traditional methods. The usage of water treatment in conjunction with land-based activities, medication control, and occupational therapy can be utilized to create a holistic approach to the treatment of the numerous symptoms that are linked with Parkinson's disease.

The use of aquatic treatment is a highly effective tool for the rehabilitation of elderly patients who suffer from Parkinson's disease. This is due to the fact that aquatic treatment has the unique capacity to produce an environment that is not only safe but also supportive and productive. Because it focuses on improving balance, gait, and overall mobility, it has the potential to significantly improve the quality of life for those who are living with this condition. This potential is underscored by the fact that it focuses on these components.

Conclusion

The use of aquatic therapy has emerged as a potentially beneficial intervention for the purpose of resolving the issues of balance and gait that have a significant impact on the quality of life of older people who are diagnosed with Parkinson's disease (PD). Through the utilization of aquatic treatment, patients are able to practise and improve their mobility in a safe and regulated environment. This is made possible by the fact that aquatic treatment makes use of the unique qualities that water possesses, such as buoyancy, resistance, and hydrostatic pressure. According to the findings of this study, participating in water treatment on a consistent basis has been found to significantly enhance balance, gait speed, and functional mobility. Additionally, it has been demonstrated to reduce the risk of falling and encourage confidence in movement. In contrast to the traditional land-based rehabilitation, water therapy provides a variety of different benefits, including a reduction in joint stress, an improvement in proprioception, and a more engaging therapeutic experience. These benefits are just some of the many advantages that water therapy offers. The rehabilitation of people who have Parkinson's disease (PD) is encouraged to take a holistic approach since it addresses both the physical and psychological concerns that need to be addressed. In spite of the fact that water treatment has a number of benefits to offer, there are a number of challenges that need to be conquered before it can be applied on a widespread scale. Concerns such as patient compliance, financial burden, and accessibility are among these difficulties. For the purpose of establishing standardised protocols and investigating the long-term influence of this treatment on motor symptoms and overall quality of life in persons who have Parkinson's disease, additional research efforts are what are required. Water treatment can be an incredibly effective addition for elderly patients suffering from Parkinson's disease, particularly when it is paired with more conventional kinds of rehabilitation. When included into multidisciplinary treatment programs, this technology has the potential to bring about significant changes in patient outcomes. These improvements may include the augmentation of mobility, independence, and overall well-being.

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