

The Impact Of Clinical Pilate Exercise On Balance And Functional Mobility In Idiopathic Parkinson Disease Patients: A Case Study

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ABSTRACT

Physiotherapy has been recommended for a 68-year-old retired farmer (female) who has been diagnosed as initial idiopathic Parkinson's disease. A summary of the major outcomes is included in the case study, as well as documentation of her intake assessment through a 5-week follow-up.

INTRODUCTION:

Parkinson's (PD), the world's second most common neurodegenerative illness, with significant social and health consequences¹. Parkinson's (PD) is a neurological condition that affects million of people throughout the world. Unfortunately, majority of existing Parkinson's disease clinical treatments are symptomatic, but there is currently no cure that can stop the condition from advancing. Various types of exercise have been shown to lessen the risk of Parkinson's disease and its clinical signs, both motor and non-motor. The capacity of a person to hold their centre of gravity inside the base of support or to restore their centre of gravity to that position under the

force of gravity is referred to as balance. Balance is important when standing or walking since it affects stability.² The effects of pilate on balance and walking are significantly enhanced in walking and balance factors.³ Pilate exercises promote balance and functional abilities in a safe and straightforward manner⁴. Pilate is an important activity that promotes skill acquisition, additional motor recruitment, muscle utilisation, and balance recovery by allowing for proper physiological adaptation⁵. Pilate is an exercise treatment that concentrates on strengthening the core musculature of the body in order to increase flexibility and axial stabilization. Unlike other fitness regimens, it is predicated on the performance of coordinated movement sequences rather than simply repetitive movements⁶. Pilate has been shown to aid in the improvement of balance in older people⁷. It's a mind-body training programme developed by Joseph Pilate to help those who are already fit improve their fitness. Pilate has progressed where only a quality contemporary version can assist both healthy and unfit people⁸. The Pilate method uses neuromuscular approaches to improve posture and movement control, which are thought to increase lumbar stability by concentrating on the lumbar region's local stabiliser muscles⁹. There are two fundamental approaches to Pilates in the realm of physical rehabilitation. The first is called "Mat Pilates," and it entails doing exercises on a mat on the floor. On occasion, the second is referred to as "Equipment"¹⁰.

AIM:

The aim of this study was to evaluate whether clinical Pilate exercises benefited Parkinson's patients' balance and functional mobility.

OBJECTIVE:

1. To determine the impact of a fall on a parkinson's patient.
2. To see if clinical Pilates may improve dynamic balance in older individuals.
3. To find out how dynamic balance affects functional mobility.

METHODOLOGY:

STUDY DESIGN: single case study.

STUDY SETTING: saveetha medical college, Thandalam, Chennai.

SAMPLING TECHNIQUE: convenient sampling

INCLUSION CRITERIA: Parkinson patient with balance impairment.

EXCLUSION CRITERIA: Above 70 years of age will be excluded.

OUTCOME MEASURES: Because it is among the most important results in people's daily lives, physical mobility is a widespread disease-related trait that may provide useful information on therapeutic response and disease progression¹¹. Clinical examination is difficult due to variations and complexities of Parkinson's disease, including its volatile nature and uncertain response to therapy in advanced stages of the disease, necessitating continuous long-term examination to obtain an accurate reflection of symptoms and their fluctuations¹². The time-up-and-go (TUG) test was utilised in most PD study looking at functional mobility. However, no consensus exists on whether diagnostic measures or results are the most beneficial for monitoring physical mobility¹³.

[15-minute time limit] Balance Scale by Berg

The purpose of this test is to determine a person's balance both in static and dynamic conditions. It can be used to assess postural control and predict the likelihood of fall. It was a 14-question questionnaire with each item scored sequentially from 0 to 4. A higher score suggests that you have a greater sense of balance. The overall score is a number between 0 and 56.

Time limit: 5 minutes Test that has been timed and is ready to go

When given the task, the patient rises from a conventional armchair, walks 3 metres, rotates back, and return to his seat. The countdown begins when the job is given and finishes when the participant arrives at their seat.

[5-minute time frame] Reach test (functional)

A test method is a balancing test that determines a person's limitations of stability. The patient is encouraged to extend the dominant arm far as forward possible without sacrificing motion or balancing in the feet by raising it 90 degrees and placing it at shoulder level. Reduced reach indicates a greater likelihood of future falls.

CASE DESCRIPTION:

The victim in this case was a 68-year-old woman. She's a retired farm worker who lives alone in her house with her dog. Three months ago, she experienced a minor fall after tripped over the dog and landed on an extended right hand, resulting in wrist pain. She went to her family doctor for her wrists, but she also indicated recent balance concerns, trouble doing functionalities, and a minor hand tremor. She was referred to a specialist and diagnosed with early-stage idiopathic Parkinson's Disease. She was sent to physiotherapist in order to assess her risk of fall, maintain her balancing, maintain her functional ability, and resolve her concerns about her condition.

Patient Profile (PP): a 68-year-old suffering from a chronic illness. HPI (History of Present Illness): Left-hand tremors (over 5 months), right-hand dominant and shorter writing (for five months), and poor balance were all symptoms of idiopathic Parkinson's Disease (for 1 year).

Previous medical history: 3 months ago, I had a right wrist injury that was treated. Medications for depression: None at the moment; received a medication and instruction for Levadopa (doesn't think she requires it yet); Advil for headaches as needed.

Psychosocial: The patient expresses loneliness, isolation, and frustration as a result of the diagnosis. Depressive symptoms are present. She has avoided seeing her friend for three months because she is shaky and afraid of falling. The daughter lives about two hours away and visits once or twice a month.

As of today, the following features are available:

Since the onset of the signs of Parkinson's disease: When necessary, he drives; however, he is less confidence in his response time and stepping outside; however, he has no difficulties dressing or washing, no stair problems, and only minimal concerns about bed movement.

OBJECTIVE:

GENERAL: Slightly masked face, mild muscular deconditioning, mild tremors, and modest left resting hand tremor that exacerbated while presenting the diagnosis' history.

Gait abnormalities include bradykinesia (mild bradykinesia).

INTERVENTION: over the course of five weeks, the exercise was performed twice a week. Postural exercises, mini squats, spine stretch, and chest stretch are all good warm-up exercises. Standing balance exercise, block leaps, side walking, cross walking, and tandem walking are the main workouts. One leg stretch, hip twist, and side kick on the mat. Cat stretch, spine stretch, and chest stretch are all good cool-down exercises.

Pre / post balance and functional mobility values are shown in Table 1.

RESULTS:

Table 1 shows the results of balance and functional mobility tests. Among the balance and functional mobility tests, progress has been observed in all tests.

DISCUSSION:

The CP treatment for a person with idiopathic Parkinsonism is described in this case report. Due to the concepts it contains, CP exercises focus specifically on training deep postural muscle of

the spine, providing trunk stabilisation; in addition, it has been demonstrated to enhance flexibility, balance, and pain level. Because of these effects, this approach was chosen as an intervention for a patient with idiopathic Parkinsonism who was experiencing balance and functional difficulties. Most of outcome indicators in our situation showed improvement at various degrees.

CONCLUSION:

Physiotherapy-based clinical Pilates exercise improved balance, flexible, strength, functional mobility, and pain level in patients with idiopathic Parkinson's disease, suggesting that it could be a useful and safe intervention technique. Although our findings are intriguing, we are unable to apply them to the entire illness population. To make specific conclusions and raise the level of proof, more research replication with larger samples is required.

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Table 1. Pre and post balance and functional mobility values.

Measurement	Pretest values	Post test values
Time up and go test	7.9 sec	6.5 sec
Functional reach test	34.4cm	36.9cm
Berg Balance scale	52	54