UNIVERSITY OF ST. AUGUSTINE
FOR HEALTH SCIENCES

# Power Up with Parkinson's: A Case Report

**Sean Ekekwe, SPT and Anne Boddy, PT, DPT, NCS**

## PURPOSE:

Parkinson's Disease (PD) is a common neurodegenerative disease that affects up to 1 million Americans. Low back pain affects up to 80% of adults in their lifetime and is more frequent in patients with PD compared to their same age counterparts.[2,3] The combined annual medical cost of both PD and low back pain is over $110 billion.[4,5]

***The purpose of this study is to highlight the use of power training in a patient with low back pain and Parkinson's disease.***

## CASE DESCRIPTION:

**Activity Limitations**
Transfers
Ambulation with Rollator
Bathing
Household Chores

**Body Function and Structure**
Lumbar ROM deficits
Tremors
Lower Extremity Strength Deficits
Posture

**Participation Restrictions**
Social events
Blueberry Picking
High Fall Risk

**Environmental Factors**
Lives Alone
Supportive Family

**Personal Factors**
Female
71 years old
High Blood Pressure
Diabetes
Parkinson's Disease

## METHODS:

**Phase One**
Posterior Pelvic Tilts
Lumbar Trunk Rotations
Double knee to Chest
Transverse Abdominal Contractions

**Phase Two**
Multifidus Curldowns
Glute Bridges
Shuttle Press

**Phase Three**
Sit to Stand with Medicine ball

## RESULTS:

| Outcome Measures | Initial | Visit 10 | Visit 16 Discharge |
|---|---|---|---|
| Oswestry Disability Index | 29/50 | 18/50 | 6/50 |
| 10-meter walk test (self-paced) | 29.55 seconds (0.20 m/s)<br>With Rollator Walker: 22.51 seconds (0.26 m/s) | 16.6 seconds (0.36 m/s) | 5.59 seconds (0.93 m/s) |
| Timed Up and Go | 14.58 seconds | 13.92 seconds | 9.35 seconds |
| Lumbar Range of Motion | L. lateral flexion- 20% with pain | L. lateral flexion- 50% with pain | L. lateral flexion- 75% with pain |
| | R. Rotation - 20% with pain | R. Rotation - 75% with pain | R. Rotation - 75% |
| | Extension - 15% with pain | Extension - 50% with pain | Extension - 75% |
| Numeric Pain Rating Scale | 4/10 | 2/10 | 0/10 |
| Manual Muscle Test | R L<br>Hamstrings 4/5 3+/5<br>Quadriceps 4/5 3+/5<br>Hip Flexors 3+/5 3+/5 | R L<br>Hamstrings 3/5 5/5<br>Quadriceps 4+/5 4/5<br>Hip Flexors 4/5 4/5 | R L<br>Hamstrings 4+/5 4+/5<br>Quadriceps 5/5 5/5<br>Hip Flexors 4+/5 4+/5 |

## CONCLUSION:

Power training demonstrated a more significant change in gait speed, mobility, and function compared to other phases in rehabilitation. After power training was implemented at visit 11, there was a dramatic increase gait speed with the 10-meter walk test, a reduction in Oswestry Disability Index score (ODI), and a decrease in Timed Up and Go (TUG) time. The increase in 10 MWT gait speed and reduction in ODI and TUG score were greater than their MDC values of 0.18m/s, 4.8 points, and 3.5 seconds, respectively. [6,7,8]

## CLINICAL APPLICATION:

The improvement in function suggests that power training lower extremity muscles is beneficial at improving gait speed and mobility in geriatric patients with back pain and Parkinson's Disease. Power training is a viable tool and should be implemented when treating this population.

## References

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