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. The combined annual medical cost of both PD and low back pain is over $110 billion. The purpose of this study is to highlight the use of power training in a patient with low back pain and 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
  - Oswestry Disability Index: Initial 29/50, Visit 10 18/50, Visit 16 Discharge 6/50
  - 10-meter walk test (self-paced): Initial 29.55 seconds (0.20 m/s), Visit 10 16.6 seconds (0.36 m/s), Visit 16 Discharge 5.59 seconds (0.93 m/s)
  - Timed Up and Go: Initial 14.58 seconds, Visit 10 13.92 seconds, Visit 16 Discharge 9.35 seconds
  - Lumbar Range of Motion: Lateral flexion-20% with pain, Lateral flexion-50% with pain, Lateral flexion-75% with pain, Rotation-20% with pain, Rotation-75% with pain, Extension-15% with pain, Extension-50% with pain, Extension-75% with pain
  - Numeric Pain Rating Scale: Initial 4/10, Visit 10 2/10, Visit 16 Discharge 0/10
  - Manual Muscle Test: Hamstrings, Quadriceps, Hip Flexors

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 in 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.

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.