High Intensity Intervals and Gait Training for a Patient with Heart Failure and Parkinson Disease in a Skilled Nursing Facility: A Case Report

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The primary impairments of congestive heart failure (CHF) and Parkinson disease (PD) interact and present a unique challenge to rehabilitation. There is limited evidence on the PT management of both CHF and PD in the literature.

Present the PT management and outcomes of cardiovascular endurance training, gait training, therapeutic exercise, and balance activities for a patient with acute CHF and PD.

Unique
The primary impairments of congestive heart failure (CHF) and Parkinson disease (PD) interact and present a unique challenge to rehabilitation. There is limited evidence on the PT management of both CHF and PD in the literature.

Purpose
Present the PT management and outcomes of cardiovascular endurance training, gait training, therapeutic exercise, and balance activities for a patient with acute CHF and PD.

Foundation
- High-intensity interval training (HIIT) has been shown to be more effective than moderate intensity continuous exercise in CHF. 1
- Patients’ with mild to moderate PD can tolerate high intensity training.2,3
- Physical activity has been shown to improve motor performance, increase quality of life, and slow the progression of PD.2,3

Description
Goals

<table>
<thead>
<tr>
<th>Cardiovascular training</th>
<th>Gait training</th>
<th>Balance training</th>
<th>Therapeutic Exercise</th>
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<tr>
<td>• High intensity interval training</td>
<td>• Gait speed</td>
<td>• Static and dynamic in parallel bars</td>
<td>• Contract relax technique</td>
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<td></td>
<td>• Direction changes</td>
<td>• Stable and unstable surfaces</td>
<td>• Trunk stretches</td>
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<td>• Step length and toe clearance</td>
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Status

- 6 MWT: • Improved by 32.4 meters
- Gait speed: • Improved by 0.13 m/s
- TUG: • Improved by 1 second
- Tinetti: • Remained the same

Observation and Conclusion
- The patient reported feeling “stronger and healthier,” and the observed gait assessment improved from evaluation to discharge.
- The 6 minute walk test (6MWT), gait speed and timed up and go (TUG) improved.
- The patient appears to have benefited from cardiovascular training, gait training, balance training and therapeutic exercise.
- Future research on HIIT training in patients with PD and its benefits in the form of a randomized control trial is recommended. Further research on the PT management of CHF is also warranted.

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References
3. Cavanaugh J. Rehabilitation for Parkinson’s Disease. Lecture presented: Physical Therapy Management of Adults with Disorders of the Neuromuscular System at the University of New England; March 23, 2017; Portland, ME.