Gait Training

Produced by: Parkinson Disease Knowledge Translation Task Force

Fact Sheet

Physical therapists should implement gait training to reduce motor disease severity, and improve stride length, gait speed, mobility, and balance in individuals with Parkinson disease.

Types individuals with PD who would most/least benefit from the intervention

- Studies have been primarily conducted in individuals with mild-moderate PD (H&Y I-III); less is known about the effects of gait training on those with severe disease (H&Y IV-V).

How to perform the intervention

- Gait training consists of interventions such as treadmill training (with or without body weight support), robotic assisted gait training, and overground gait training.
- Optimal dosing has not been determined. However, many studies reveal a benefit of gait training when implemented 20-60 minutes, 3-5 days/week, for 4-12 weeks. Importantly, a functional decline occurred in most studies during a 3-6 month post-training period, indicating that gait training may need to be a continued activity to decrease the decline in functional outcomes.
- Given variability across studies, specific parameters (overground, treadmill with/without robotic assistance, cardiovascular intensity, and body weight support) cannot be identified. No single gait training intervention demonstrates greater improvement than other types of gait training.
- Nordic walking is a form of walking that utilizes 2 walking poles and is usually performed outdoors. The use of 2 walking poles provides total body activation and a training effect on the coordination of reciprocal upper extremity movement.

Considerations related to safety (precautions, contraindications; when should you NOT choose the intervention; consider including info from the CPG that has “Exclusion” sections)

- Individuals who are at high risk for falls may require a harness or safety device to optimize safety. Screening for the presence of comorbidities that may interfere with participation in gait training should be implemented.

Considerations for progression

- Gait training when implemented as recommended above may be needed to progress activity level and reduce decline in functional outcomes.
- The use of equipment or tapering away from equipment allows therapists to adjust progression for gait training. For example, reducing the amount of support provided overtime to mimic everyday walking including progressing to overground, uneven surfaces, and salient gait training specific to the individual’s needs.
- Progression of gait training can be done by manipulating variables such as cadence, incline, distance, walking surfaces, striving towards a more autonomous learning stage, altering the environment, and the addition of a dual motor and/or cognitive task.

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Considerations for cost, space

- Access to a facility with equipment and trained clinicians is needed for implementation including treadmill training (including body weight support treadmill training, circular treadmill training) and robotic assisted gait training.
- Gait training equipment may also be cumbersome requiring adequate space and maintenance for optimal safety.
- Overground gait training can be more readily incorporated into indoor and outdoor areas with less of a cost and training burden for the clinician and PD individual.

Type of Training	What it improves	FITT	Tools for assessment
Treadmill (may include forward and backward stepping, downhill walking, perturbations, and/or dual tasking) Results are mixed regarding benefit of body weight support	• Motor disease severity • Balance • Gait parameters including gait speed, stride length • Endurance • May improve freezing of gait • May reduce falls and fear of falling	• 3-5 days/week for 6-12 weeks • 30-60' sessions	• UPDRS III • Berg Balance Scale or Functional Gait Assessment • 10 Meter Walk Test (10MWT) • Six Minute Walk Test (6MWT) • Freezing of Gait Questionnaire • Activities-Specific Balance Confidence scale (ABC); Falls Efficacy Scale
Overground (i.e multi directional walking; with or without an assistive device; Nordic walking)	• Reduction of motor disease severity • Balance • Strength/ power • Gait parameters including stride and gait speed • Stability • Baroreflex sensitivity • Cognition	• 20-60 minute sessions • 3-5 days/week • total for 4-12 weeks	• UPDRS III • Six Minute Walk Test (6MWT) • Timed Up and Go (TUG) • Ten Meter Walk Test (10MWT) • Berg Balance Scale
Robotic	• General motor symptoms • Balance • Functional mobility • Gait parameters including velocity and step/stride length • May improve freezing of gait	• 3-5x/wk for 4-5 weeks • 30-45 minute sessions	• UPDRS III • Tinetti Assessment • Berg Balance Scale • Timed Up and Go (TUG) • Ten Meter Walk Test (10MWT) • Six Minute Walk Test (6MWT) • Activities-Specific Balance Confidence scale (ABC) • Freezing Of Gait Questionnaire

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