Moving Forward: Treating Gait and Balance Issues in Parkinson’s

Anne Kloos, PT, PhD, NCS
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Objectives

At the end of the presentation participants will be able to:

- Describe common gait and balance problems in Parkinson’s disease (PD).
- Identify evidence-based treatments to improve gait and balance in PD.
- Access exercise-related resources (fitness classes, research, rehabilitation professionals) to assist individuals with PD to lead active and healthy lifestyles lifelong.
Gait and Balance Problems in Parkinson’s

- Occur at any stage of the disease.
- Lead to falls.
- Common problems:
  - Slow balance reactions.
  - Slow and effortful walking.
  - Small and variable step lengths.
  - Reduced trunk rotation and difficulty turning.
  - Difficulty initiating or sustaining movements.
  - Difficulty with dual tasking.
Rehabilitation Treatments to Improve Gait and Balance in PD

- Treadmill Training
- Task-specific gait and balance training
  - LSVT BIG
- Cueing and attentional strategies
- Tai chi / Dance
- Virtual reality and video games
- Assistive walking devices
  - Robotic devices
  - Ambulatory aids
Treadmill Training

- Strong evidence that TT in people with PD improves gait speed and stride length.
  - Intensity: 30-60 mins, 3-4X per week for 4-8 weeks; speed was increased progressively.
  - Body weight support showed no additional benefit over standard TT. Use only if needed for safety.
  - Mechanisms for improvements are probably through pace retraining and motor learning, and not through strength and aerobic gains.

Task-Specific Gait and Balance Training

- Repetitive practice of challenging gait and balance tasks (e.g., walking taking large steps, with large arm swings, turning, going around and over obstacles, walking with sudden stops and changes in direction, over unstable surfaces, backwards, faster, and dual-tasking) can improve gait and balance performance.

- Intensity: 30-60 mins, 2-3X per week, for 8 weeks


http://ablebodies.org/workshops/
LSVT BIG Program

- 1 hr. sessions 4X/wk for 4 wks resulted in improved mobility and gait speed in people with early to mid-stage PD.
- LSVT “BIG” Exercise website: http://www.lsvtglobal.com/

Cueing and Attentional Strategies

- **Auditory**
  - Saying “big step”; use of rhythmic music set at faster than normal cadence, counting or singing.

- **Visual**
  - Stepping over stripes or laserlight on floor.

- **Tactile**
  - Use of vibrating wrist band.

- **Cognitive**
  - Mental image of appropriate step length, then person does step.

Tai Chi and Dance Therapy

- Tai chi, tango, and ballroom dance help people with PD to learn movement sequences and quickly switch tasks.
- Leads to improved balance and gait in people PD.
- Intensity: 60 mins, 2-3X per week, 12 or more weeks.

Virtual Reality (VR) and Video Games

- VR technology is promising new rehabilitation tool that stimulates movement in simulated real-life environments.
- Commercial VR systems (Nintendo Wii or Xbox Kinect), and customised VR tools specifically designed to address PD symptoms, are used.
- Cochrane review found that VR interventions improve gait, balance, and quality of life in people with PD.

Robotic Device Use in PD

- Robotic devices deliver high repetition stepping training.
- Robot-assisted treadmill training improves walking speed and endurance, freezing of gait, and quality of life.
- Honda Walking Assist device (HWA) may improve overground walking.
OSU Study of Robotic Walking Device

- Use of a robotic walking device to improve home and community mobility in people with Parkinson’s disease
  - Treatment: 8-week training program using HWA device in home.
  - Untrained group: usual care.
  - Eligibility: ambulatory adults (50-80 yrs) with PD.
  - Must attend 2 one-hour assessment sessions at OSU.
- Interested?
  - See me for flyer today.
  - Contact Raquel Minarsch at 614-685-5399.
Assistive Walking Devices

- Our lab conducted a study in 27 PWP to compare gait parameters when ambulating in 8 different conditions:
  - No device
  - Cane
  - Laser cane
  - Walking sticks
  - Standard walker
  - 2 wheeled walker
  - 4 wheeled rollator walker
  - U-Step walker
Assistive Devices for Fall Prevention/Safety

- Four wheeled rollator walker produced less variability in gait measures and had less impact on spontaneous unassisted gait patterns compared to canes and other types of wheeled walkers in individuals with PD.

Helpful Adaptations

- Add visual cue to assist with freezing
- Platforms help people stay upright
LifeGlider™ Hands Free Walking Device

For information about the LifeGlider, go to https://www.mylifeglider.com/
Laser Shoes for Parkinson’s Disease

- With ground contact, each shoe projects a colored line on the floor in front of the other shoe to provide visual target to step over with the other foot.
- Laser shoes significantly reduce FOG severity (both number and duration of FOG episodes).

OSU PD Fitness Classes

- Columbus Dance for Parkinson’s
  - Flux + Flow Dance and Movement Center, 200 Crestview Road, Cols, OH
    - Tuesday 11:30-12:30 pm
    - NOTE: Class time will be changing to FRIDAYS from 9:30-10:30 am beginning the third week in August.
  - Parkside Village Senior Living, 730 N. Spring Rd., Westerville, OH
    - Thursday 1:30-2:30 pm
- All classes are FREE!
- Contact Chloe Napoletano at: 330-564-3481
OSU PD Fitness Classes

- Forced Effort Aerobics at Healthy New Albany
  - Fridays 12-1:00 pm, 8 weeks
- Moving with Purpose at Healthy New Albany
  - Wednesdays 2-4, 8 weeks
- Shout! Voice Classes
  - Wednesdays 12-1:00 pm, Powell YMCA
- Outdoor Nordic Pole Walking
- Contact Jessica Pfister at Jessica.pfister@osumc.edu or 614-366-2758 for information.
MEND Lab Exercise Videos

- **MEND Lab PD Exercise Videos**
- Go to go.osu.edu/mendlab to access the following exercise videos that can be performed at home:
  - Parkinson’s Exercise Video
  - Movement to Music for Parkinson’s and Other Diseases Video
OSU Parkinson’s Research

- OSU Speech, Language and Music (SLAM) lab is recruiting volunteers to participate in rhythm and movement-based therapies for Parkinson’s to study its effects on language skills.
  - See me for flyer today.
  - Contact the SLAM Lab at 614-292-1743 or SLAM@osu.edu
Other Resources

- National Parkinson Foundation Helpline
  - 1-800-4PD-INFO (473-4636) or email helpline@Parkinson.org
  - Ask about Chapters and/or exercise classes in your area.
  - Find out if there is a physical therapist who has completed the ATTP (Allied Team Training for Parkinson’s) program or who is experienced in treating clients with PD.

- American Physical Therapy Association
  - Visit www.moveforwardpt.com or call 1-800-999-2782 to find a physical therapist near you. Click “Find a PT” and search based on location and specialty (choose Geriatrics or Neurological).
Questions??