Parkinson's and Fall Prevention

By: Lisa Bailey, PT Exercisabilities, Krystal Corrette, Nate Fremstad, Chris Lee, and Sean Thomez SPT Mayo Clinic Student PTs
Outline

• What is a Fall?
• The Statistics
• Will a Fall Prevention Program Help?
• Strategies, Tips, and Treatment to Prevent Falls
• Common Tools Used on Site
• Walking Sticks
• Literature Review
What is a Fall?

- Clinical Definition
  - a fall to the ground
  - found lying on the ground
  - unintended contact with support surface to recover balance or prevent fall
Key Notes

- 25% of Individuals with Parkinson’s Fall in the First Year
  (Barros, 2017)

- Anywhere between 45-68% of Individuals with PD fall annually
  (Bloem et al., 2001) and (Paul et al. 2013)

- 76% of falls in individuals with PD require health care services and 33% result in fractures…
  there is a mortality rate of 10.6% among those with fractures
  (Kalilani et al., 2016, p. 2)

- $432 saved per fall prevented within New Zealand
  (Watts et al., 2008, p. 8)
The Statistics

- 45-68% of individuals with PD fall yearly
  - 50-86% have more than one fall

- Risk Factors
  - Freezing of Gait
  - Cognitive Impairment
  - Leaning Balance
  - Fear of Falling
  - Lower Limb Weakness
  - Slow Gait Speed

- Postural Instability and Gait Instability
  - PIGD: 94%
  - Non-PIGD: 6%
Will a Fall Prevention Program Help?

• It depends…
  • Stage of PD
    • Mild to Moderate (1-3) - Yes
    • Severe (4-5) - No
  • Type of Training/Strategies
    • Physical Therapy
    • LSVT Big
    • Tai Chi
    • Safer Home
  • Overall Health
    • Cardiovascular Benefits
    • Fear Reduction
    • Balance and Mobility
Importance of Addressing PD and Falls Prevention
Fall Prevention: Strategies & Tips
(1) Set up for Success at Home

- **Remove clutter**
  - on the stairs, in hallways, or in path from bedroom to bathroom

- **Install items to help**
  - Grab bars in the shower
  - Nightlights in the hallway
  - Railings: Both sides of stairs

- **Keep common items in reach**
  - Bring your favorite mug down from the top shelf
  - Light switches near your bed
(2) One Thing at a Time

- Focus on walking
  - Avoid multitasking by talking on the phone, looking for your keys
- Use a backpack or fanny pack
  - Allows your hands to be free instead of holding objects
  - Makes balance easier
(3) Slow and Steady

- **Change positions slowly**
  - Slow, deliberate movements when standing up, sitting down
  - “10 Second Rule”: Count to at least 10 after standing up before walking to help avoid feeling dizzy

- **Turns**
  - Wide, U-turns instead of sharp, narrow turns
  - Do your best to focus on picking feet up off the floor
(4) Walking Strategies

- Try your best to swing your arms while walking
  - Might require conscious effort and attention
  - Will help maintain balance and posture

- Keep your feet shoulder-width apart
  - A narrower stance is less stable
(4) Walking Strategies

- If you feel stuck in place or “frozen” while walking
  - “Sensory Cues” can help
  - Visualize stepping over an imaginary shoebox in front of you
  - Try not to have family/friends pull you forward
Gait Aids

- Your physical therapist might advise a cane, walking stick, or walker
- Consider asking your PT about using one of these if you feel balance is a consistent problem or have concerns
Fall Prevention: Strategies & Tips

Common Tools Used by Clinicians at ExercisABILITIES
Why Assess Fall Risk?

- Fall risk is modifiable
- There are some actions you can take to be aware of and lessen your risk of falling.
Why Assess Fall Risk?

- **1st Step** = talk to your healthcare team
  - Doctor, nurse, physical therapist, occupational therapist, and other trained professional
Why Assess Fall Risk?

- A healthcare professional can help you:
  - Assess factors that may contribute to risk of falls
    - Medication
    - Physical condition
    - Stress
    - Environmental hazards
  - Evaluate balance using outcome measures (assessments/tests)
  - Detect, interpret, and correct any gait and balance disturbances
How Do We Assess Your Fall Risk?
How Do We Assess Your Fall Risk?

Outcome Measures Used by The Clinicians, examples

- Balance During Activities → Berg Balance Scale
- Balance During Walking → Dynamic Gait Index
- Confidence in Balance During Activities → ABC Scale

Helps Us Quantify Your Fall Risk and Track Progress
Definitions

Static Balance
The ability to maintain the body in a fixed posture.

Standing In Place

Dynamic Balance
The ability to maintain posture and stability while in motion.

Walking
Berg Balance Scale

Examples:

• Sitting to standing
• Standing unsupported
• Standing with eyes closed
• Standing with feet together
• Reaching forward with outstretched arm
Berg Balance Scale
Dynamic Gait Index

Examples:

- Walking on level surface
- Changing speed
- Walking with head turns
- Stepping over obstacle
- Steeping around obstacle
Dynamic Gait Index
Activities-Specific Balance Confidence Scale

How confident are you that you will not lose your balance or become unsteady when you…

Examples:

- Walk up or down stairs
- Reach for a small can off a shelf at eye level
- Get into or out of a car
The Activities-Specific Balance Confidence (ABC) Scale

Patient Name: ___________________________ DOB: _______ Date: ____________

For each of the following activities, please indicate your level of self-confidence by choosing a corresponding number from the following rating scale:

<table>
<thead>
<tr>
<th>%</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No confidence</td>
<td>Completely confident</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*How confident are you that you will not lose your balance or become unsteady when you…*

1. Walk around the house? _____ %
2. Walk up or down stairs? _____ %
3. Bend over and pick up a slipper (or item) from the front of a closet floor ____ %
4. Reach for a small can off a shelf at eye level? ____ %
5. Stand on your tiptoes and reach for something above your head? ____ %
6. Stand on a chair and reach for something? ____ %
7. Sweep the floor? _____ %
8. Walk outside the house to a car parked in the driveway? ____ %
9. Get into or out of a car? ____ %
10. Walk across a parking lot to the mall (store)? ____ %
11. Walk up or down a ramp? ____ %
12. Walk in a crowded mall where people rapidly walk past you? ____ %
13. Are bumped into by people as you walk through the mall? ____ %
14. Step onto or off an escalator while you are holding onto a railing? ____ %
15. Step onto or off an escalator while holding onto parcels such that you cannot hold onto the railing? ____ %
16. Walk outside on icy sidewalks? ____ %

**Instructions for Scoring:**
The ABC is an 11-point scale and ratings should consist of whole numbers (0-100) for each item. Total the ratings (possible range = 0 – 1600) and divide by 16 to get each subject’s ABC score.

Total Score: ___________________________
Why Are These Measures Important?

• Baseline assessment
• Recommendation for future services and/or safe exercise and activities
• Able to periodically reassess:
  • Is the current program going well and slowing progression of PD?
  • Has there been a significant decline warranting change and additional interventions?
• Help you and the clinicians track your journey!
Fall Prevention: Walking Sticks

The Use of Walking Sticks and Evidence to Support them.
1

PD & Ambulating with Hiking Sticks aka Nordic Walking
What is it good for?

• Sorry, Edwin Starr, but walking sticks have been gaining popularity for good reason!
  • Nordic Walking classes and walking with others (socially distanced, of course) increases motivation
  • Lowered level of perceived exertion
  • Can be used year round
  • Activate and work more musculature
  • Some report they look ‘better’ than using a cane or walker
Sounds great?! But…

- A **systematic review with meta-analysis** of 4 randomized control trials were performed looking at Nordic Walking vs control groups

- Participants:
  - 73 patients with PD in the active group
    - Hoehn and Yahr scale: 1-4 (mild-advanced)
  - Treatment time: 8-24 weeks
  - Treatments/week: 2-3x/week
  - Duration/sessions: 60-70 min  
    (Bombieri et al., 2017)
**What were the results?**

- Improved in Time Up and Go (TUG) speed and Self-selected walking speed (SSW)
- Improved 6 Minute Walk Test (6MWT), TUG, and more...
- Increase stride length, decreased gait variability, lowered resting heart rate, improved concentration & attention
- Improved cued reaction time

**Forest Plot:**

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>IV, Std. M</th>
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<tbody>
<tr>
<td>Cugusi, 2016</td>
<td>-0.1</td>
</tr>
<tr>
<td>Ebersbach, 2010</td>
<td>-0.2</td>
</tr>
<tr>
<td>Monteiro, 2016</td>
<td>-1.0</td>
</tr>
<tr>
<td>Reuter, 2011</td>
<td>-0.7</td>
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</tbody>
</table>

**Total (95% CI)**: -0.6

**Heterogeneity: Tau² = 0.00;**

**Test for overall effect: Z = 3.1**

**Limits:**
- Small size
- Only 1 study had a follow-up
- Did not account for age, PD progression
References


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