Community-Based Programs for Individuals with Parkinson’s

Rio Bentley, PT, DPT, ExercisAbilities
Nate Fremstad, SPT; Christopher Lee, SPT, MS; Krystal Corrette, SPT, MS;
and Sean Thomez, SPT: Mayo Clinic School of Health Sciences
Outline

- Nordic Walking
- LSVT Big Program
- Tai Chi Programs
WALKING STICKS
& THE RESEARCH BEHIND THEM
Parkinson’s Disease and 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
Forest Plot:

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

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

• “The Nordic Walking Queen”
  • http://lindalemke.com/
• Local resources and support
  • https://www.apdaparkinson.org/community/minnesota/local-resources-support/
• Parkinson’s Foundation Minnesota & Dakotas
  • https://www.parkinson.org/MinnesotaDakotas
LSVT BIG
WALK BIG, SPEAK LOUD
What is LSVT Big?

“LSVT BIG is an intensive, effective, one-on-one treatment created to help people with Parkinson's disease (PD) and other neurological conditions address walking, balance and other activities of daily living (for example, writing, dressing and getting up from low chairs) or even job-related tasks.”

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**History**

- LSVT = Lee Silverman Voice Treatment
- “If only we could hear and understand her”
  
  – Husband and Children

- Began in 1897 when Dr. Lorraine Ramig met Mrs. Lee Silverman
- Started as LSVT LOUD and progressed to LSVT BIG
Population Group

- Parkinson’s Disease\(^2\)
  - Bradykinesia/Hypokinesia
  - Inadequate Muscle Activation
  - Dual Tasking
  - Dyskinesia
  - Fall History
  - Freezing of Gait and Festination
  - Shuffling and small scaled gait
  - Difficulty with transfers

- Other Population Groups
  - Stroke\(^11,14\)
  - Idiopathic Normal Pressure Hydrocephalus\(^4\)
  - Cerebral Palsy\(^9,10\)
Benefits

- Improvement in **UPDRS motor score** than Nordic Walking and domestic training\(^3\)
- Associated with improvements in **reaction time**\(^3\)
- Better performance in **balance, gait, and bed mobility**\(^8\)
- **Decrease** the negative impact of **hypokinesia on mobility and cognitive performance**\(^7\)
- Improved ability to **dual task**\(^7\)
- Significant improvement in 10m Walk, TUG, and stride length\(^4\)
- Improved client perceptions of **occupational performance**\(^6\)
- Recalibration of proprioceptive processing\(^13\)
Benefits (Cont’)

• Non-motor symptoms improved with depression, anxiety, and fatigue.\(^2\)
• Decreased the incidence of “wearing off in PD”.\(^{15}\)
• Stage I patients, achieved MCID in gait speed, balance, motor symptom rating, and quality of life up to 3 months after LSVT BIG.\(^{11}\)
• Stage IV patients, demonstrated improvements with balance and gait after completing LSVT BIG combined with T’ai Chi.\(^{12}\)
LSVT BIG Neuroplasticity

- Specificity
- Intensity
- Repetition
- Saliency
Pretreatment

Problem in self-perception/awareness: 
do not recognize movements 
are soft, small, or slow

Self-cueing deficits: 
continue scaling reduced amplitude 
of speech and movement patterns

Produce soft voice, 
small, slow movements

Reduced 
amplitude of motor output
Treatment Focus

1. Improve self-perception/awareness of amplitude required to produce normal vocal loudness and movement amplitude

2. Improve self-cueing/attention to action: habitually scale increased amplitude of speech and movement patterns

3. Increase amplitude of motor output

4. Produce louder voice, larger movements
LSVT BIG
Treatment Fundamentals

- **Frequency:**
  - Daily Carry Over Assignments
  - Daily Homework
  - Minimum 15 Repetitions

- **Intensity:**
  - “Intensive, High Effort Therapy”

- **Time:**
  - 4 Consecutive Days/Week for 4 Weeks
  - 16 Sessions/Month
  - 60 Minute Sessions

- **Type of Training:**
  - Large Amplitude Whole Body Movements
LSVT BIG Treatment Session

- Maximal Daily Exercises
  - 7 Exercises
  - 1 Set x 8 Repetitions
- Functional Component Tasks
  - Patient Driven Movements
- Hierarchy Tasks
  - Patient Identified Tasks
- Walking Big
Exercises$^{9,10,11}$

- Maximum Sustained Movements
- Multidirectional Repetitive Movements
- Functional Component Tasks
  - Patient Driven Movements
TAI CHI

“TAI” = BIG OR GREAT
“CHI” = ULTIMATE ENERGY
What is Tai Chi?

- Ancient practice created in China
- Form of physical activity focusing on:
  - Controlling stability of movement
  - Speed of breath
  - Peace of mind
- Low-impact
- Moderate-intensity
- Low center of gravity
- Slow, graceful, and precise movements
Tai Chi: Purposes

- Used widely to promote mental and physical health, and prevent chronic disease among individuals of all ages¹
- Improves strength, flexibility, coordination, and balance²
- “Combines mind, body, soul together in one workout”²
5 Major Styles of Tai Chi

- Sun
- Yang
- Chen
- Wu
- Hai
5 Major Styles of Tai Chi

Sun - unique footwork with gentle, flowing circular hand movements

Yang - expanding and contracting the body using big, exaggerated movements executed slowly and gracefully

Chen - explosive movements including jumps, kicks, and strikes; silk-reeling spiral movements; powerful stances; more akin to martial arts

Wu - emphasis on extension of the body by leaning forward and backward away from center

Hao - emphasis on internal “qi” or “chi”; practice internally and make significant internal movements to trigger subtle outer movements
Examples

Sun Style Tai Chi (Standing & Seated)

Unique footwork with gentle, flowing circular hand movements
Examples
Yang Style Tai Chi (Standing)

expanding and contracting the body using big, exaggerated movements executed slowly and gracefully
Examples
Yang Style Tai Chi (Seated)

expanding and contracting the body using big, exaggerated movements executed slowly and gracefully
Benefits: Evidence of Improvement

“Exercise interventions, especially aerobic exercise, dance, and **Tai Chi**, significantly improved quality of life in PD patients”\(^{19}\)

“**Tai Chi** is a relatively safe activity that can result in gains in general motor function and improve bradykinesia and balance”\(^{20}\)

“**Tai Chi** and Qigong therapy have a beneficial influence on motor and non-motor function”\(^{18}\)
Benefits: Flexible and Affordable

• Many Tai Chi classes now have virtual options using Zoom

• Many community-based, low-cost options
  • Med City Tai Chi
  • YMCA
References

2. Bogard, C. (n.d.). *Parkinson Disease Exam Presentation* [PowerPoint]. Mayo Clinic Blackboard. [Link](https://eduonline.mayo.edu/webapps/blackboard/content/listContent.jsp?course_id=_14797_1&content_id=_968179_1&mode=reset)
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References (Cont’)


