

Introduction / Background

Parkinsonism

- The clinical diagnosis of parkinsonism is “the presence of at least two of the four cardinal signs: resting tremor, rigidity, bradykinesia, and postural instability”^{1,2}
- Symptoms often lead to limited functional mobility³
- Patients who have unilateral bradykinesia with hypokinesia, changes in gait, balance, and decreased quality of life have positively responded to Lee Silverman Voice Technique (LSVT) BIG treatment according to Rehabilitation Research and Practice⁴

LSVT-BIG

- Focuses on increasing movement amplitude to achieve bigger, faster, and more precise movements in an attempt to restore normal movement patterns⁵
- 16 session protocol: 1-hour session 4 days per week for 4 weeks
- Protocol includes high effort, intensive amplitude-based exercises for the limb motor system to recalibrate sensory perception and promote re-education of the sensorimotor system⁶
- Fundamental treatment principle is based on neuroplasticity and research⁷
- Has been shown to improve gait speed, the Functional Gait Analysis, the Berg Balance Scale (BBS), and the United Parkinson’s Disease Rating Scale (UPDRS)⁴
- Certifications can be obtained by Physical Therapists (PT) Occupational Therapist (OT) or a respective student practicing under certified professional; Student PT (SPT)



Purpose

The purpose of this case study is to describe interdisciplinary treatment of LSVT-BIG on a patient with parkinsonism and its effectiveness in both gross motor and fine motor outcome measures.

Case Description

- Retired 77-year-old married white male, diagnosed with parkinsonism two years prior
- Patient presentation: right-handed resting tremor, bradykinesia, hypokinesia, difficulty with sit to stands, turning, decreased amplitude of movements, posteriorly shifted posture with decreased functional base of support and decreased balance
- Patient’s main concerns: decreased walking speed, trouble getting out of a chair, getting in and out of the car, “fixing things around the house”, and picking items up off the floor
- This patient was a good candidate for this case report based on his diagnosis of parkinsonism and participation in the LSVT-BIG program provided by a LSVT-BIG certified OT and PT

Interventions

- Each exercise, as listed in Table 1, is completed with high intensity, with a focus on BIG movements, with a BIG mindset.
- Carryover tasks were assigned for each day to encourage BIG movement in activities of daily living.
- Exercises were completed at home once on session days and twice on off days

Table 1: Daily Exercises

Maximum Sustained Movements: Seated	Exercise 1: Floor to Ceiling (Figure 1) Exercise 2: Side to Side (Figure 2)
Repetitive / Directional Movements: Standing	Exercise 1: Step Forward (Figure 3) Exercise 2: Step Sideways (Figure 4) Exercise 3: Step Backwards Exercise 4: Forward Rock and Reach Exercise 5: Sideways Rock and Reach
Functional Component Movements	Sit to Stand Foot to Step Pick Up Items from Floor Don/Doff Jacket Using Tool with Both Hands
Walking BIG	With verbal cues for increased stride length, arm swing, and upright posture

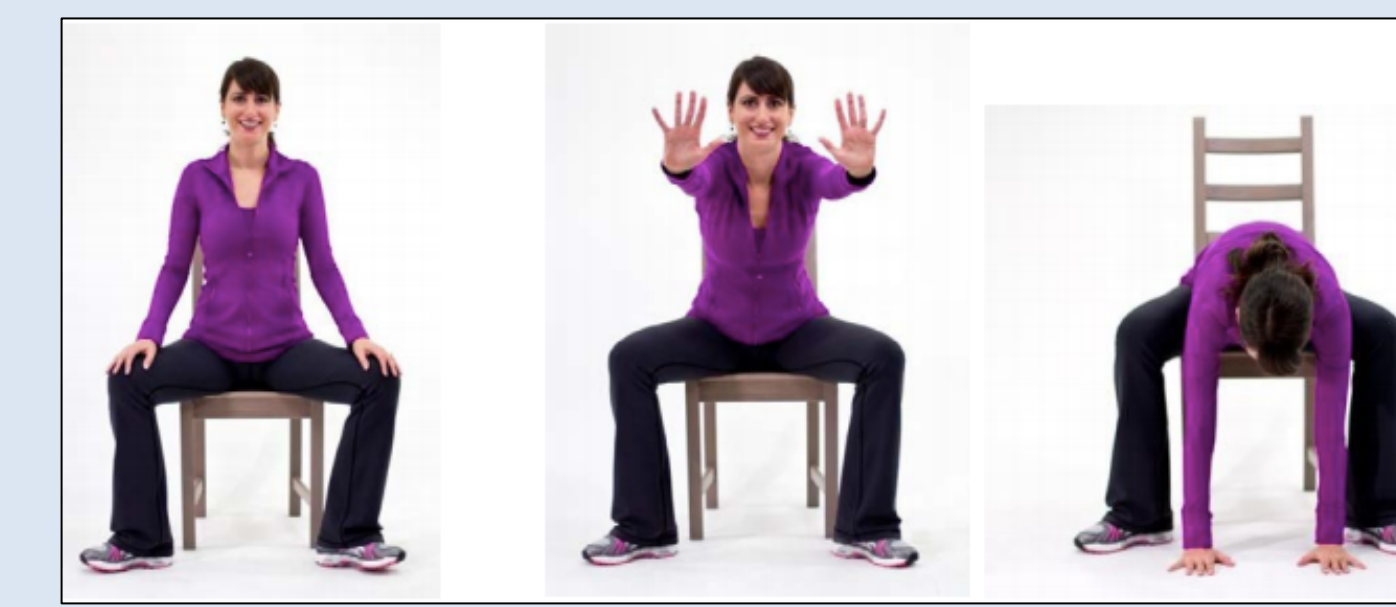


Figure 1⁸

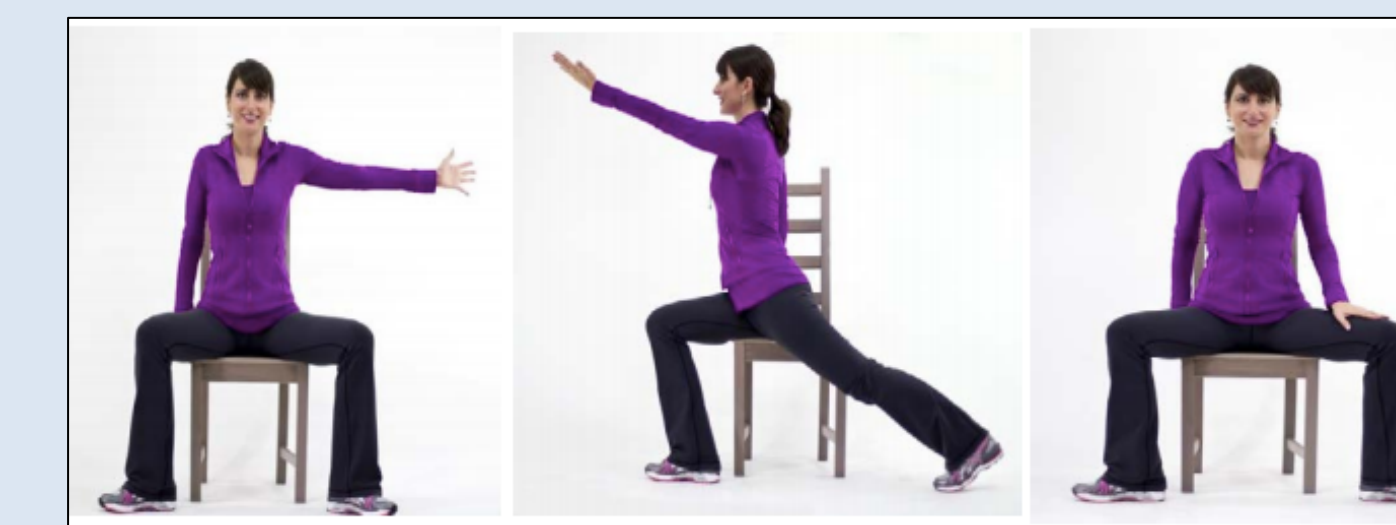


Figure 2⁸

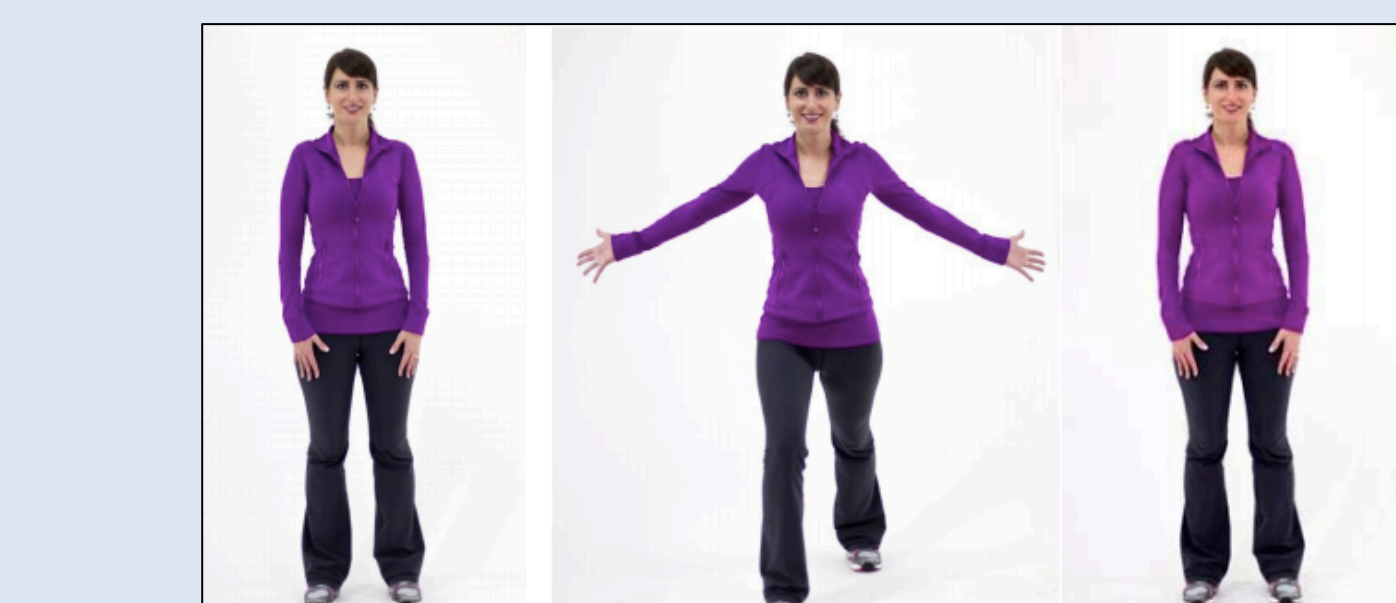


Figure 3⁸

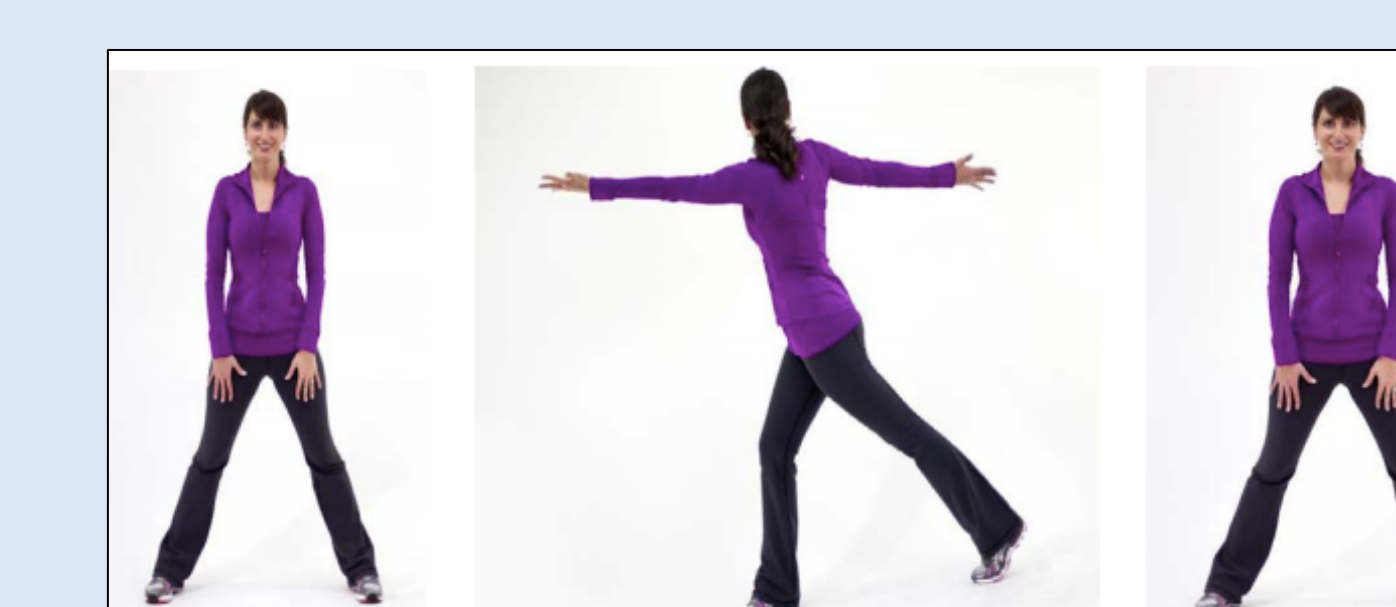


Figure 4⁸

Discussion / Conclusion

Discussion

- Effective approach of LSVT-BIG was provided by an interdisciplinary team of certified PT, SPT, and OT
- Diverse perspectives while administering the LSVT-BIG protocol yielded focus and improvements in gross and fine motor skills
- In other LSVT-BIG studies, improvements have been noted on various outcome measures including the UPDRS,⁴ the five time sit to stand,³ the BBS,⁴ and gait speed⁴

Conclusion

- This case study supports the conclusion that an interdisciplinary approach to LSVT-BIG for a patient with parkinsonism is effective
- The primary takeaway from this case report is the value of an interprofessional approach to administering LSVT-BIG, which had previously not been documented
- Provides rationale to support LSVT-BIG certification
- Research with eligible LSVT-BIG participants treated by individual OTs and PTs, compared with a group treated by an OT/PT team would be beneficial to determine specific benefits of the interdisciplinary team

Strengths / Limitations

Strengths

- Patient attendance at sessions
- Increased patient participation toward the end of treatment,
- Patient participation in group exercise after discharge
- Interdisciplinary treatment including licensed OT, PT, and SPT

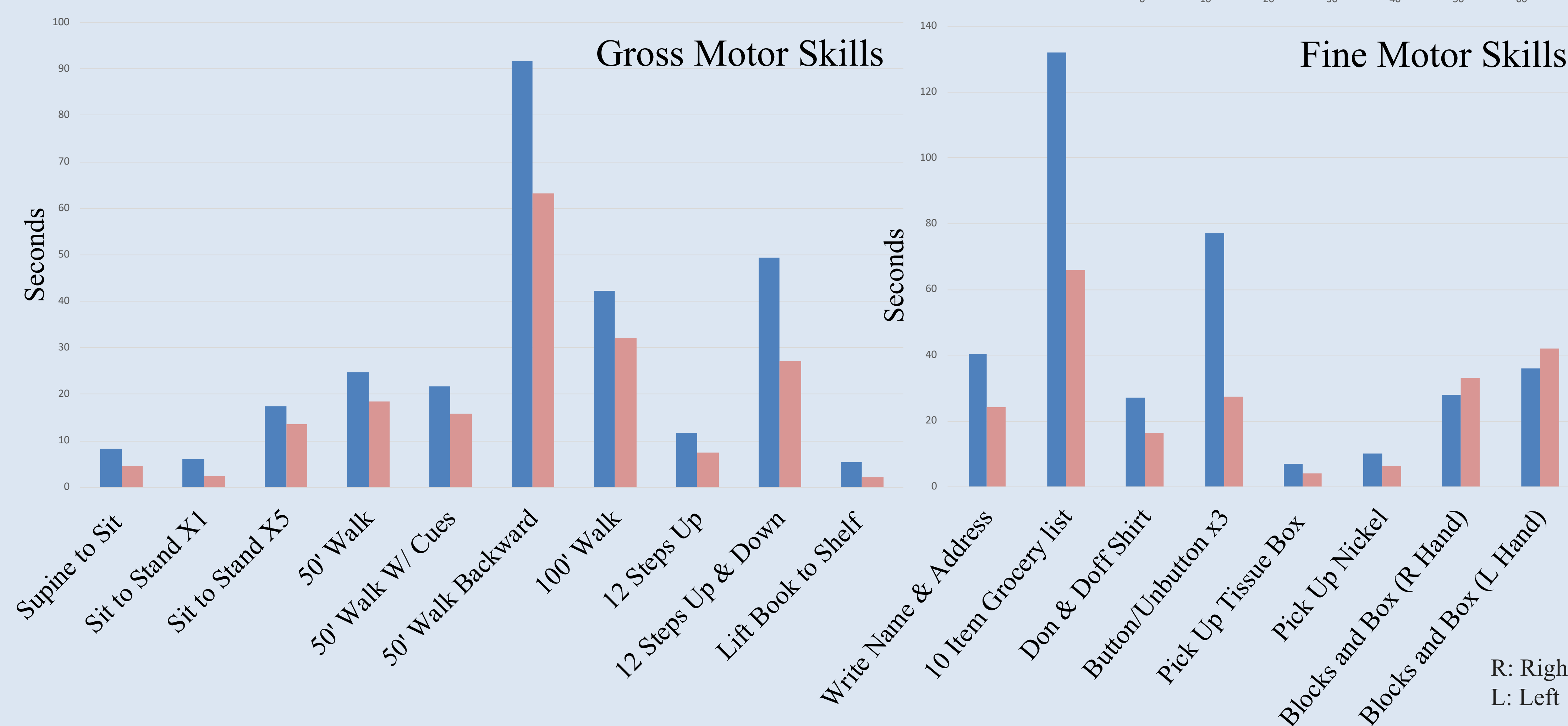
Limitations

- Discharge testing during the last two days of treatment
- Moderate patient compliance with home exercise program

Outcomes

Initial Evaluation Discharge

- Additional measures were compared objectively for the amount of assistance required and time taken to complete functional activities
- The patient improved on 19 of 25 timed tasks
- The patient also made improvements on Gait Speed (0.67 m/s to 0.79 m/s and the 2 Minute Walk Test (247’ to 312)
- Modified Physical Performance Test: (MPPT)



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- Figures 1-4 Photos of the LSVT-BIG® Exercises are displayed with written permission from LSVT Global, Inc., 2019