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# Long Term Benefits of LSVT-BIG Program for Individuals with Parkinson's Disease

Emily Sandberg, OTS & Katelyn Weiandt, OTS

## Case

A 60 year old, male has been diagnosed with Parkinson's Disease for 5 years. Referral received from MD stating deficits in the following areas: balance, perception, gait, postural instability, coordination, swallowing, tremors, rigidity, bradykinesia, hypokinesia, and loss of higher cognitive functions.

Currently there is not a cure, but there are treatment options for Parkinson's Disease. LSVT-BIG is one type of treatment that Occupational or Physical Therapist can implement. This program uses high amplitude movements to overcome bradykinesia and hypokinesia. The client attended 16 sessions in total (1 hour sessions, 4 days a week, for 4 weeks). The client has been discharged from the LSVT-BIG program for 6 months now and is benefiting from the long term affects of the LSVT-BIG program such as improved gait speed and the speed of reaching across limbs, decrease depression, anxiety, and fatigue. By participating in this program, the client can engage in occupations he finds meaningful.



## 1 Ask: Research Question

Do clients with Parkinson's Disease still maintain long term benefits of the LSVT BIG program, 6-12 months after stopping the routine program?

## 2a Acquire: Search Terms

**Patient/Client Group:** Patients with Parkinson's Disease, **Intervention (or Assessment):** LSVT BIG program, **Comparison:** none, **Outcome(s):** to implement amplitude movements in routine activities in order to improve gait speed and the speed of reaching across limbs, decrease depression, anxiety, and fatigue.

## 2b Acquire: Selected Articles

**Dashtippour et al. (2015):** A systematic review assessed the effectiveness between general exercise and LSVT BIG therapy with patients who have PD.

**Ebersbach et al. (2015):** A systematic review compared the effects of LSVT-BIG standard protocol of 16 sessions to a shorter training protocol comprising of 10 sessions.

**Ebersbach et al. (2010):** A systematic review compared the effects of LSVT-BIG, Nordic walking, and unassisted home exercises with patients who have mild-moderate PD.

## 3a Appraise: Study Quality

**Dashtippour et al. (2015):** Suggestive: Double-blinded. Several measures were utilized in the study: UPDRS, BDI, BAI, and MFIS at baseline, after 4 weeks, 3 and 6 months' follow up. Limitations include: small sample (N=11), all patients were at the early stages of PD, all of the patients with PD are at a different level of progression meaning their abilities to participate fully could affect their assessment scores.

**Ebersbach et al. (2015):** Suggestive: Systematic review, rater-blinded study, blinded assessments. Outcome measures consisted of: UPDRS-III, CGI-C, PDQ-39, Walk 10 m, Walk 6 min, TUG, Step Length, and the box and block test. Limitations include: possible bias of the laboratory conditions on motor performance and effects of exercise. Eight participants dropped out, only 34 subjects completed the study and participated in the follow-up at week 16.

**Ebersbach et al. (2010):** Suggestive: Systematic review, rater-blinded study, blinded for group allocation and at time-point of assessment. The main outcome measure consisted of motor performance assessed by blinded video ratings of the UPDRS motor section. Other outcome measures consisted of (PDQ-39), TUG, and time to walk 10 meters (assessed with stopwatch). Limitations include: additional exercise and adjustments of participants medications throughout the trial. All participants were encouraged to exercise outside of the program to have increased outcomes.

**3b Appraise: Study Results** The findings of these studies suggest that the LSVT-BIG program by certified LSVT-BIG therapists can implement amplitude movements in occupational activities improving motor performance. The treatment was still effective at the 6 month follow up of discontinuing the LSVT-BIG program. All groups made improvements at each follow up with statistically significance for UPDRS, BDI, MFIS ( $P < 0.05$ ). In both of Ebersbach 2010 and 2015 studies, at the 16 week follow up, the score of the UPDRS-III declined ( $P < 0.001$ ).

**4 Apply: Conclusions for Practice** Based on the evidence of benefits of LSVT-BIG, occupational therapists and physical therapists would find it effective to implement this program into their practice. We believe it was successful because there may have been a carryover effect from participants integrating their program into their activities of daily living. The results show improvement in motor performance in terms of gait speed and the speed of reaching across upper and lower limbs. Results also show an improvement in the following nonmotor outcomes: depression, anxiety, and fatigue. Evidence suggest LSVT-BIG could have long term benefits because of the integrated nature of the program.

## References:

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Ebersbach, G., Grust, U., Ebersbach, A., Wegner, B., Gandor, F., & Kuhn, A. (2015). Amplitude-oriented exercise in Parkinson's disease: a randomized study comparing LSVT-BIG and short training protocol. *Cochrane Database of Systematic Reviews*. 122(2): 253-256. Doi: 10.1007/s00702-014-1245-8

**Clear:** Long term benefits of the LSVT-BIG program after discontinuing the program consist of improved gait speed and the speed of reaching across limbs, decrease depression, anxiety, and fatigue. More research would be beneficial to determine the benefits of LSVT-BIG after 6 months.

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