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Can Treadmill Training with Musical Cueing in Individuals with Progressive Parkinson's Disease Improve Ambulation?

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Can treadmill training in combination with musical cueing in individuals with progressive Parkinson's disease improve ambulation?

Kristen Barta, Derrick Campbell, Sharon Dunnivan-Mitchell



PURPOSE

Subject H&Y stage III

PARTICIPANTS

Convenience sample-4 subjects with Parkinson's disease. 3 of 4 subjects completed the study. Subject 1- Hoehn and Yahr stage III; Subject 2 and 3 were rated stage IV.

Inclusion Criteria:

Hoehn and Yahr stage 3-4 Parkinson's disease

Exclusion Criteria:

Brain stimulator < 12 months or changes to brain stimulator; Score 26 < on Montreal Cognitive Assessment; Acute orthopedic injuries; Current PT or musical therapy program; Hearing impairments; Hoehn and Yahr stage 1,2 & 5 as diagnosed by a physician.

METHODS

Single subject series research of A₀-B-A₁ design.

A₀ and A₁ phases-6 weeks; no intervention.

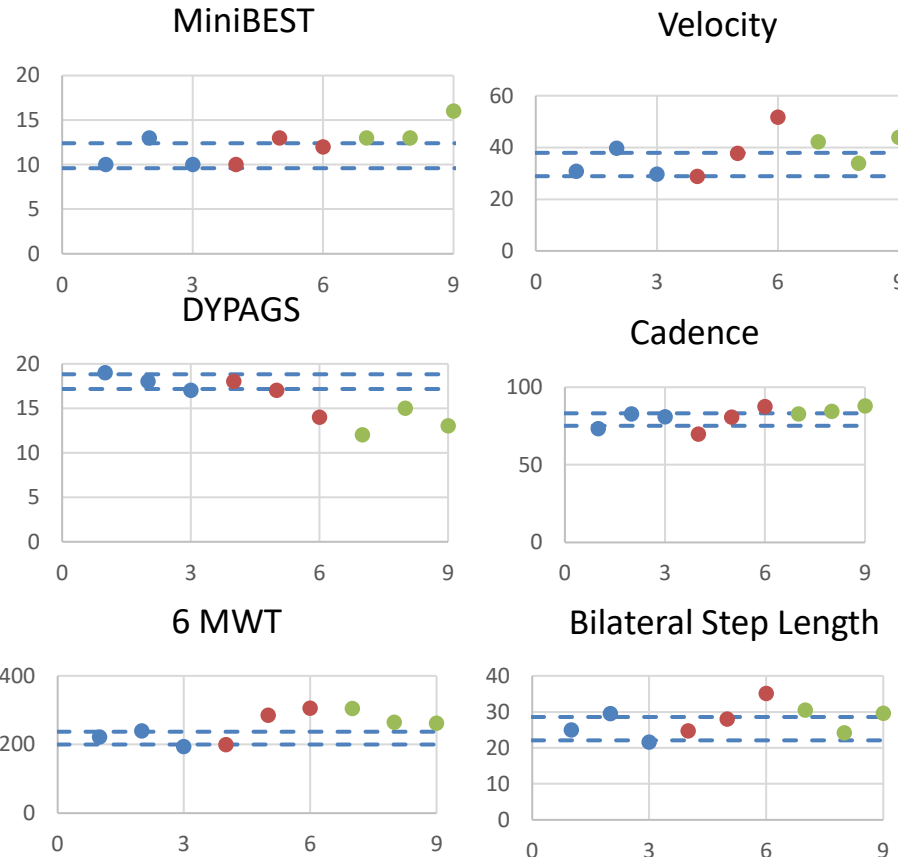
B phase- treadmill training with musical cueing 3x per week x 6 weeks

20-30 minute treadmill training with auditory cues of the music.

Biodex treadmill with harness.

Tempo initially set at 80-90% of the measures cadence on the Zeno Walkway System with graduated 2-5% weekly increases.

Tested 3X during each phase using the following outcome measures: MiniBest, Dynamic Parkinson Gait Scale (DYPAGS), Activities Balance Confidence Scale, 6-minute walk test (MWT), velocity, cadence, and step length. Data analyzed using 2 SD band to demonstrate statistical significance



Subjects H&Y stage IV

Less consistent improvements in all areas

Initial baseline testing was more variable with larger standard deviations that made comparisons difficult

DISCUSSION

Highest functioning person showed the greatest improvements

Two participants H&Y stage IV had less overall improvement – yet more fluctuation at baseline in the outcome measures

Possibly the outcome measures chosen weren't the best for people in H&Y stage IV

CLINICAL RELEVANCE

Use of a specialized musical composition with TM training could be an effective intervention for improving gait and balance in people with PD earlier in the disease process

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