Assessing Gait and Cognitive Outcomes in Individuals with Parkinson's Disease After a Six-Year Dance Intervention

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INTRODUCTION

- Parkinson's disease (PD) is a neurodegenerative disorder associated with several motor and non-motor manifestations.[1]
- Gait and mild cognitive impairments (MCI) are prominent features that may become more evident as the disease progresses.[1,2]
    - May lead to greater fall risks and progression of MCI to dementia, respectively.[1,3]
- Research shows physical activity, such as dance, may delay the progression of PD.[4]
    - A recent study found that extended periods of high intensity exercise may help to improve motor and non-motor symptoms.[4]

The aim of this study is to examine the relationship between cognition and gait post dance intervention in persons with PD (PwPD).

METHODS

Participants

- N_{PwPD} = 44, M_{age} = 69.43; $N_{Controls}$ = 18, M_{age} = 61.00

Measures

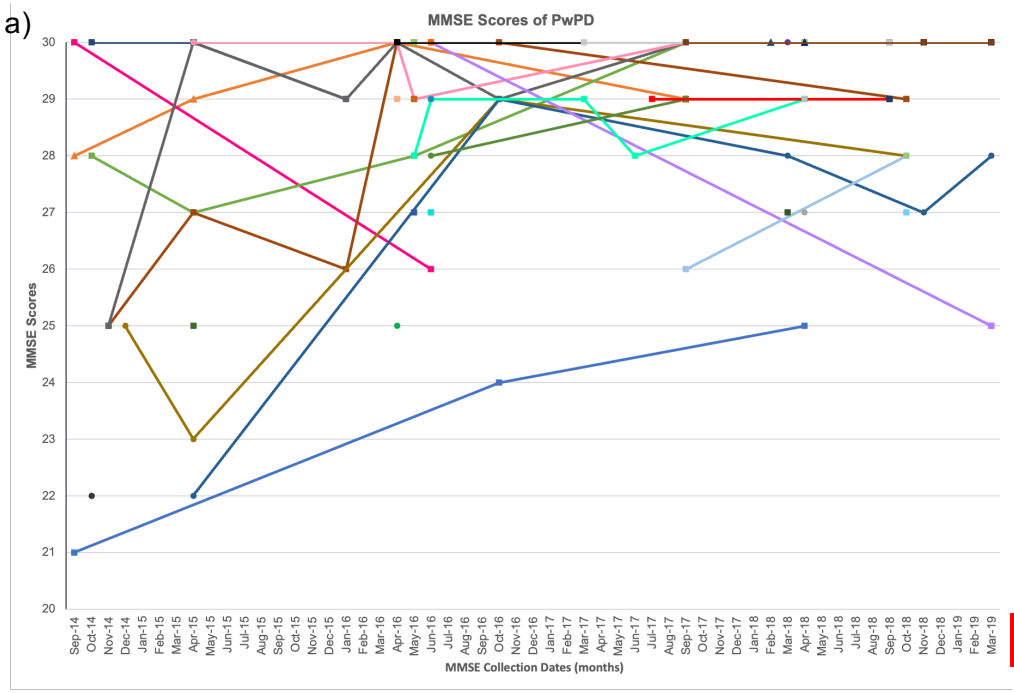
- Dance Class (1.25 hours) at Canada's National Ballet School
- Mini-Mental State Examination (MMSE)
- Movement Disorders Society–Unified Parkinson's Disease Rating Scale (MDS–UPDRS I-IV)
- Electroencephalogram (EEG)
    - Pre- and post- intervention

SCAN ME

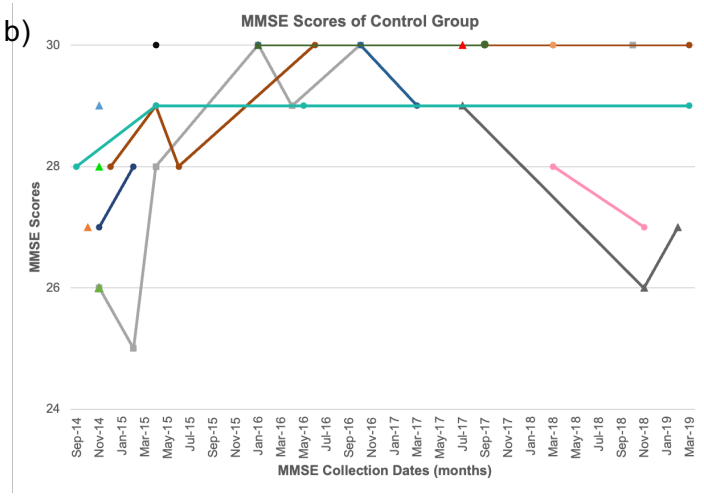
FULL DANCE PROCEDURE

RESULTS

a)



b)



Note. Females, males, and unknown sex is represented by a circle, square, and triangle, respectively. MMSE scores of 26 or higher indicate normal to MCI.

- Majority of PwPD scores fluctuated but stayed within the MCI to normal range (26-30).
    - The upward trend in the PwPD graph indicates cognitive preservation.
- The control group shows a similar pattern of fluctuating scores but remaining within the MCI to normal range (26-30).
    - The control group had one outlier whose score dropped below 26 at one timepoint, however, their scores improved across the intervention.
- We expect to see a positive correlation between gait and cognition by comparing MDS-UPDRS and MMSE scores, as well.

FUTURE DIRECTIONS

- We plan on continuing with a dance intervention with different measures and inclusion criteria.
- MRI data will be collected at various time points to measure critical thickness.

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