

Post-Pandemic Motor Performance Recovery Among People with PD in a Community-Based Wellness Center

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Results suggest that group exercise programs for people with Parkinson's disease (PWP) in a community-based center have long-term beneficial effects and that diminished motor function due to absence from regular exercise can be reversed or halted with returned participation to a community-based exercise regimen.

Introduction

Previous evidence has established that exercise is effective for PWP in staving off motor and non-motor symptoms, and can ameliorate conditions such as dyskinesia and wearing-off resulting from long-term Parkinson's medication.

Our research on exercise in a community center for PWP has shown short-term improvements or stability on a host of physical assessment measures used or adapted from the literature. (Stiles et al, 2020, Topics in Geriatric Rehabilitation.)

Objective

To assess the effects of a transition from in-person to online exercise-based intervention on participants and on the same participants when returning to in-person-only intervention.

Methodology

Enrollment in the program is ongoing. Participants carried a diagnosis of PD and were able to complete gait and balance assessments independently. Enrollment was otherwise unselected. We include all clients who completed a pre-lockdown assessment and all four assessments after lockdown. Statistical significance was determined using paired Wilcoxon sign test (t-tests were not appropriate due to the presence of outliers).

Results

The center was closed from March 2020 to May 2021 due to the COVID-19 pandemic. Programs were broadcast via Zoom so clients could continue to exercise using our protocol. When onsite classes resumed after lock-down, our standard periodic assessments showed a significant decline in 8 out of 9 metrics assessing gait (Timed Up-and-Go, Backward Mobility), balance (Berg lateral balance test, single arm press, single leg balance), functional mobility (sit-to-stand, rotational turns, stand-lie-stand) and cognition (Stroop). Our clients were subsequently assessed at 6-month intervals over the course of the next 16 months until October 2022.

Comparing the first assessment after lockdown (May 2021) to the most recent assessment (October 2022), clients improved or stabilized on seven of nine assessments, halting the trend of deterioration in most gait and balance tests and showing the strongest improvement in functional mobility.

Changes in Means Pre- Lockdown, First Assessment Post-Lockdown and Fourth Assessment Post-Lockdown

Assessment	n	Pre	Post	Post 4	Pre to Post	Post to Post 4
Functional Mobility						
Sit to Stand	28	40.4	32.2	34.1	362***	76.5*
Rotational Turns	27	53.9	44.9	47.4	343***	117.5*
Stand Lie Stand	25	4.8	6.5	6.2	22***	183
Gait						
Backward Mobility	27	15.8	19.9	19.9	22***	207
Forward Mobility (TUG)	28	9.3	10.5	12.1	182***	109@
Balance						
Standing Leg Balance	27	8.2	12.0	10.4	70.5*	163.5
Lateral Balance (Berg)	27	61.7	52.1	45.8	331.5***	219@
Standing Arm Press	27	33.1	30.7	32.4	214*	90.5*
Executive Function						
Stroop	27	29.1	27.2	28.3	250.5	145.5

Wilcoxon sign test (one-tailed, paired) (*p<=.05, **p<=.01, ***p<=.001, @p<.05 opposite of expected direction)

