

Do the number of turns matter?

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BACKGROUND

- Presentation of Parkinson's Disease (PD) includes impaired gait parameters, decreased balance, and cognitive deficits. PD can also lead to the phenomenon of freezing of gait (FoG) or festination of stepping which can limit activities and restrict participation.
- FoG can be triggered by various environments such as narrow spaces, open spaces, crowded places, changes in surface and/or turning.¹
- The 6 Minute Walk Test (6MWT) is a valid and reliable outcome measure to assess walking endurance.²
- Many clinicians and clinics are constrained in space when administering the 6MWT, and may utilize a different configuration other than the standardized 100 foot (or ~30 meters) test. To this point, this discrepancy has not yet been addressed in current literature.

RESEARCH AIMS

- Primary: To determine if the configuration of the 6MWT (25 feet vs 100 feet) matters in the amount of distance an individual with PD will accomplish.
- Determine if FoG has an effect on distance covered during a 6MWT for individuals with PD when compared to those who do not experience FoG.

HYPOTHESES

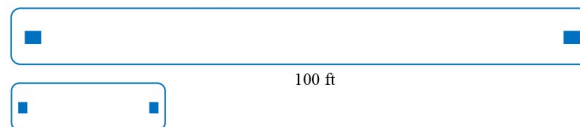
- For individuals with PD, a 25 foot distance 6MWT configuration will show a decreased distance covered compared to the typical 100 foot distance due to increased number of turns.
- For individuals with PD and FoG, a 25 foot and 100 foot distance 6MWT configuration will show a decreased distance covered compared to individuals with PD without FoG.

PARTICIPANTS

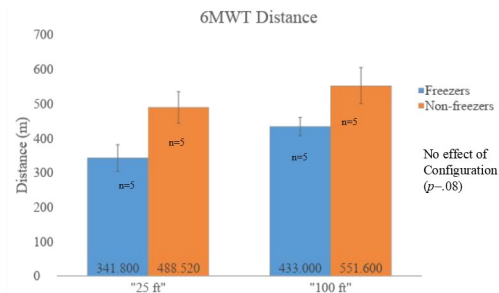
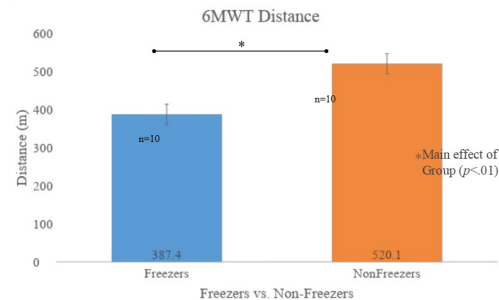
- Inclusion Criteria
 - 18+ years old, Hoehn and Yahr Stage 1-3, understand and speak English
 - Able to understand task instructions
- Exclusion Criteria
 - Unable to ambulate 6 minutes, contraindications to exercise, or comorbidities that inhibit ability to participate in study
- Mean age of 71.3 +/- 5.96
- 5 Freezers and 5 Non-Freezers
 - Based on New Freezing of Gait Questionnaire (NFOG-Q)

METHODS

- Participants were placed in either "Freezer" or "Non-Freezer" group according to score on NFOG-Q, a score of 0 placed participant as "Non-Freezer" and a score of 1 or greater placed them as a "Freezer."³
- Mean NFOG-Q= 18.6 +/- 6.77
- The order of presentation of the 25 foot or 100 foot configuration was pseudorandom, counterbalanced, and were performed at least one week apart.
- Participants were fitted with COSMED diagnostic equipment to analyze metabolic demands while performing the 6MWT as part of a simultaneous research study. Results from COSMED presented elsewhere.
- Participants were given 6MWT instructions per the standardized protocol and completed 6MWT with tester following to measure distance and possibly additional tester following if patient was a fall risk.



RESULTS



RESULTS (cont.)

Comparison	Average difference (meters)
Freezers vs. Non-Freezers regardless of configuration	133*
Freezers vs. Non-Freezers in 25ft configuration	147*
Freezers vs. Non-Freezers in 100ft configuration	119*
Freezers in 25ft vs. 100ft configuration	91*
Non-Freezers in 25ft vs. 100ft configuration	63

- 6MWT Minimal Detectable Change (MDC) = 82 meters for individuals with PD⁴
- * indicates the average difference is greater than the reported 6MWT MDC for individuals with PD

DISCUSSION/CONCLUSIONS

- Our hypotheses were only partially supported:
 - The configuration of a 6MWT did not significantly affect the distance covered by the individual performing the test. However, there was a trend for less distance covered when the configuration involved more turns compared to a configuration with less turns.
 - For individuals with PD, those who experience FoG cover less distance during a 6MWT when compared to individuals who do not experience FoG.
- Research application:
 - It may be important to indicate specific information about 6MWT configurations when reporting outcomes in scholarly articles.
- Clinical application:
 - It is essential to perform not only the 6MWT, but all outcome measures consistently for patients in the clinical setting in order to achieve an accurate assessment of patient performance and progress/regression.
 - In order to accurately assess patients' walking endurance, the standardized protocol configuration of 100 ft. should be utilized in order to maximize performance potentials and to improve the reliability of results when compared to the normative values.

ACKNOWLEDGEMENTS

The individuals with Parkinson's Disease who volunteered for this study.

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