

# Parkinson's Disease and Forced Exercise In a Community Setting: A Feasibility Study



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## Background

- ❖ Parkinson's disease (PD) is a neurodegenerative disorder that increases an individual's fall risk.
- ❖ In recent studies, an 8-week tandem bike forced exercise program was effective in reducing overall parkinsonian symptoms.
- ❖ The feasibility of a tandem bike forced exercise program in a community setting has not been studied previously.
- ❖ Additionally, there has not been a published study evaluating balance and health outcomes after participation in a forced exercise program.

## Aims

- ❖ **Aim 1:** To assess the feasibility of an 8-week tandem bike forced exercise protocol conducted in community setting for individuals with PD.
- ❖ **Aim 2:** To assess balance and health outcomes of a 6-week tandem bike forced exercise protocol conducted in community setting for individuals with PD.

## Methods

**Design:** Quasi-experimental pre- and post-test

Pre-test	6-week Intervention	Post-test
Sept. 9 – 12, 2013	Sept. 16 – Oct. 24, 2013	Oct. 28 – Nov. 1, 2013

**Setting:** Medically Oriented Gym (MOG)



- Specialized fitness center
- Wellness focused
- Members with complex health conditions
- Inter-professional team

**Participants:** 5 individuals with early to mid-stage PD (3 male, 2 female, 72 ± 6 years)

**Measures:**

Feasibility	Quantitative	Qualitative
Attendance	Mini-BESTest	Participant GRC*
Satisfaction	Brief-BESTest	"Captain" GRC*
Exercise Tolerance		

\*Global Rate of Change

**Intervention:**

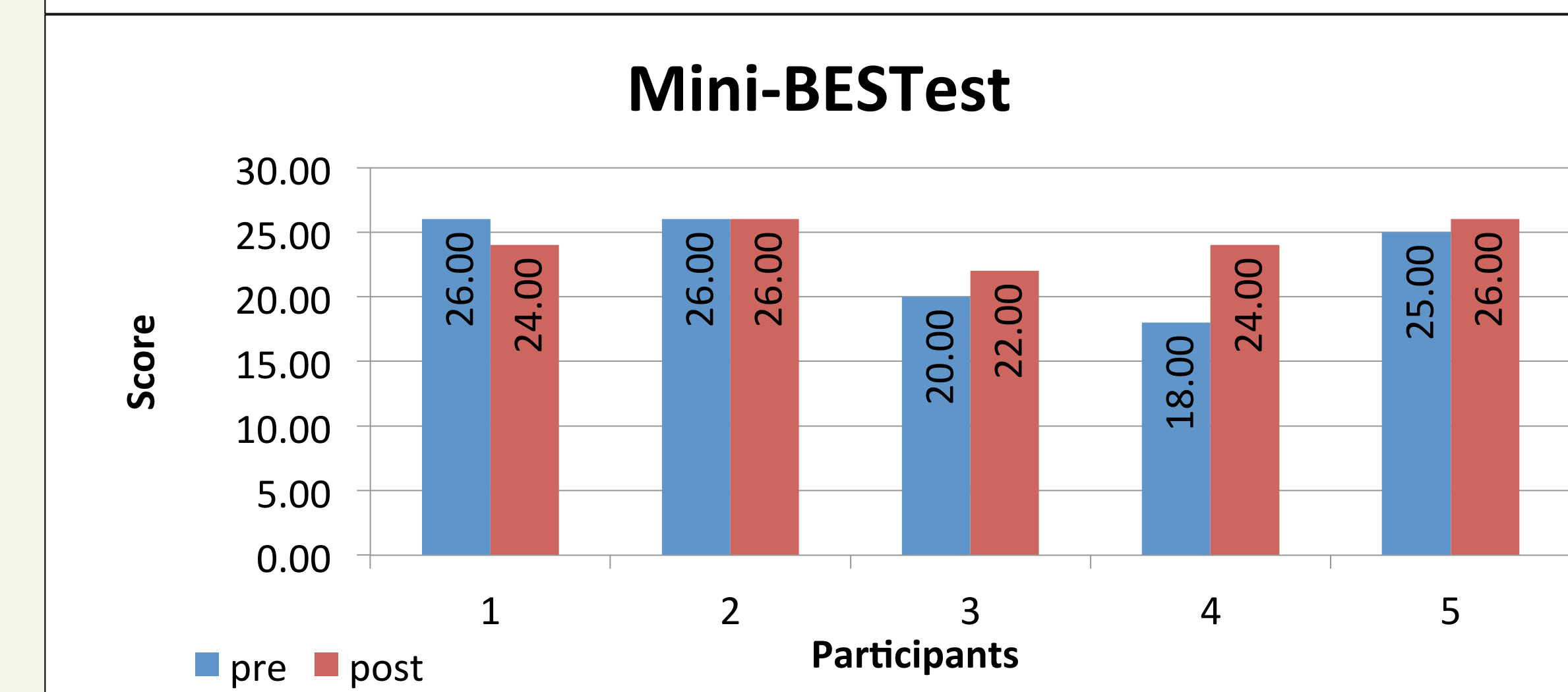
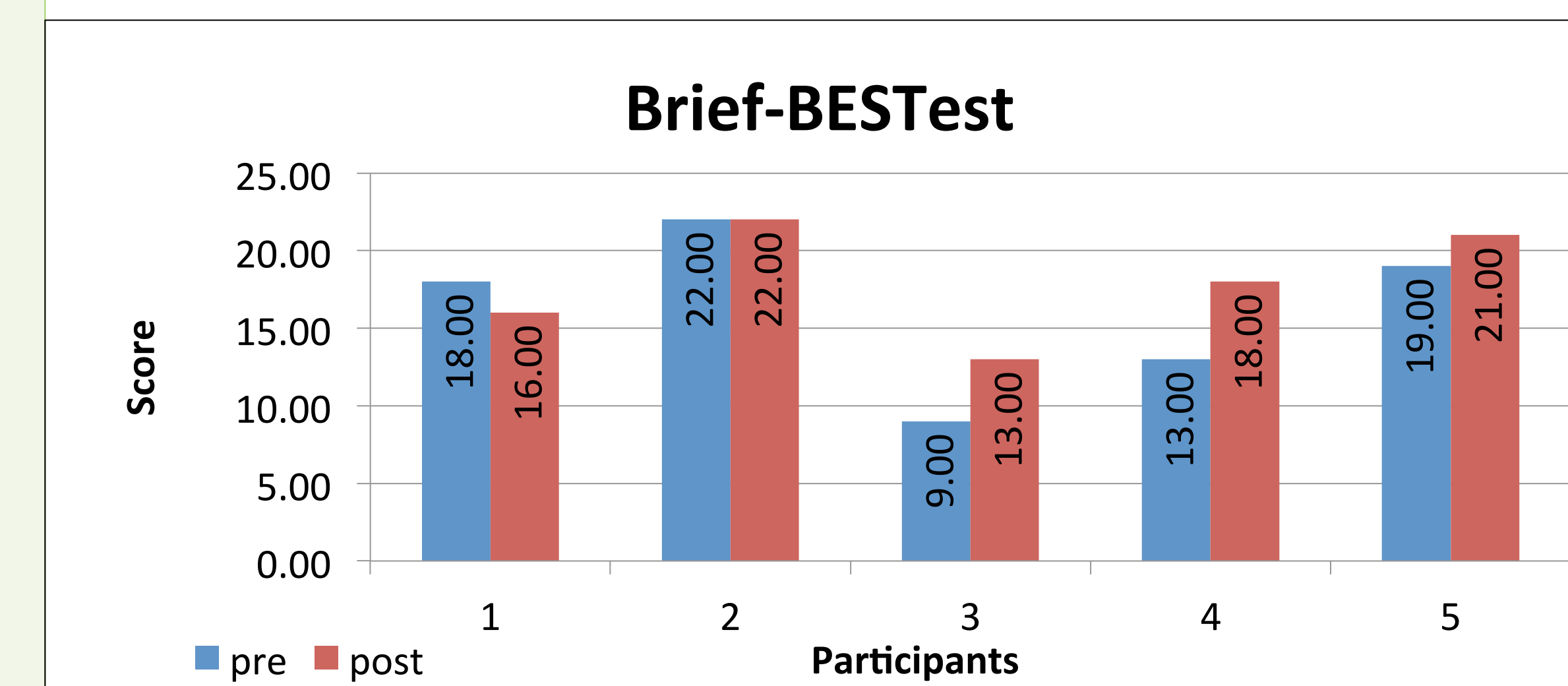
- ❖ Bi-Weekly 1 hr tandem bike forced exercise
- ❖ Intensity: 80-90 RPM at target HR
- ❖ Community member on front seat (Captain)
- ❖ Person with PD on rear seat (Stoker)

## Results

**Aim 1: Feasibility**

- ❖ Satisfaction: All participants viewed program as valuable.
- ❖ Attendance: 85%
- ❖ Avg. ex. tolerance per session: 39.65 min

**Aim 2: Balance Outcomes**



- ❖ 4/5 participants perceived no significant change in balance (mean GRC = 1.42) or ADLs (mean GRC = 0.32).

**Secondary Health Outcomes**

- ❖ No decrease in health (5/5)
- ❖ Improved health (4/5)
- ❖ Program was valuable (5/5)

## Discussion

- ❖ Data supported the feasibility of a tandem bike program in a community setting.
- ❖ Data did not support the effectiveness of forced exercise for improving balance.
- ❖ Brief-BESTest items seem to be more sensitive to the observed changes.

## Limitations

- ❖ Difficulty recruiting Captains
- ❖ Electronic data collection and storage errors
- ❖ High staffing requirements
- ❖ Scheduling biking sessions

## Recommendations and Future Research

- ❖ Recommendations for future implementation in a community setting:
  - Appropriate staff training in data collection and management
  - Partnership with local biking clubs for recruitment of experienced riders as captains
  - Appoint exclusive staff coordinator
- ❖ Future Research:
  - Forced exercise on a tandem bike involving individuals with PD as both the captain and the stoker