

BACKGROUND

Over the course of 8 weeks, the National Multiple Sclerosis Society's (NMSS) "Free from Falls" curriculum increases knowledge about fall prevention and shares strategies to decrease risk of falling. Each week's 2-hour program has two parts; a discussion component focused on the awareness of issues related to falls and an exercise component directed at improving postural alignment, balance, endurance, and mobility. We implemented this program at the University of South Florida (USF) School of Physical Therapy & Rehabilitation Sciences (SPTRS). Two Doctor of Physical Therapy (DPT) students who are also USF MS STEP UP Scholars led the program under the supervision of a faculty mentor. The MS STEP UP program is a collaboration between USF SPTRS and the NMSS Mid Florida Chapter to train DPT students with advanced knowledge and skills in working with people with MS.



OBJECTIVES

- Objectives of the "Free from Falls" program are to help people with MS to:
- Explore fears about falling and recognize these behaviors in everyday life
 - Practice strategies that help shift attitudes and behaviors caused by fear of falling in a way that will enhance self-efficacy
 - Learn the Stop/ Scan /Plan technique to identify/ navigate fall risks
 - Understand the role of exercise in reducing the risk of falls
 - Learn stretching exercises to help manage spasticity and improve flexibility/mobility
 - Practice center of gravity and postural control training
 - Integrate exercises into daily routine, and develop an ongoing home exercise program to maximize balance and mobility
 - Recognize how fatigue can affect falling and learn techniques to manage fatigue
 - Identify potential environmental hazards that may contribute to falls
 - Understand how to get up from the floor safely if a fall occurs

METHODS

Five participants with MS completed this 8 week program led by two physical therapy students and supervised by USF faculty. See Table 1. Participants were selected via convenience sampling, after being approved by a physician to participate in this fall prevention program. Participants were tested on the following outcome measures before and after participation in the FFF program: Berg Balance Scale, Timed up and Go and ABC Scale.

Table 1: Characteristics of Participants

Characteristic	Average	SD
Age (yrs.)	51.4	4.89
Gender (M/F)	3/2	NA
Time since MS Diagnosis (yrs.)	9.6	4.02
Number of falls in last year	1.4	0.93
Use of Gait Assistive Device	4/5	NA
Use of AFO	3/5	NA
Previous Physical Therapy	2/5	NA

RESULTS

The majority of participants demonstrated both objective and subjective improvement in balance after completing the 8 week program. Objective improvement was observed with cumulative increases in both the Berg Balance Scale (BBS) and Timed Up and Go (TUG) test scores (Fig.1 & 2). Subjective improvements were also noted in the Activities-Specific Balance Confidence (ABC) scale (Fig. 3).

Figure 1. Berg Balance Scale

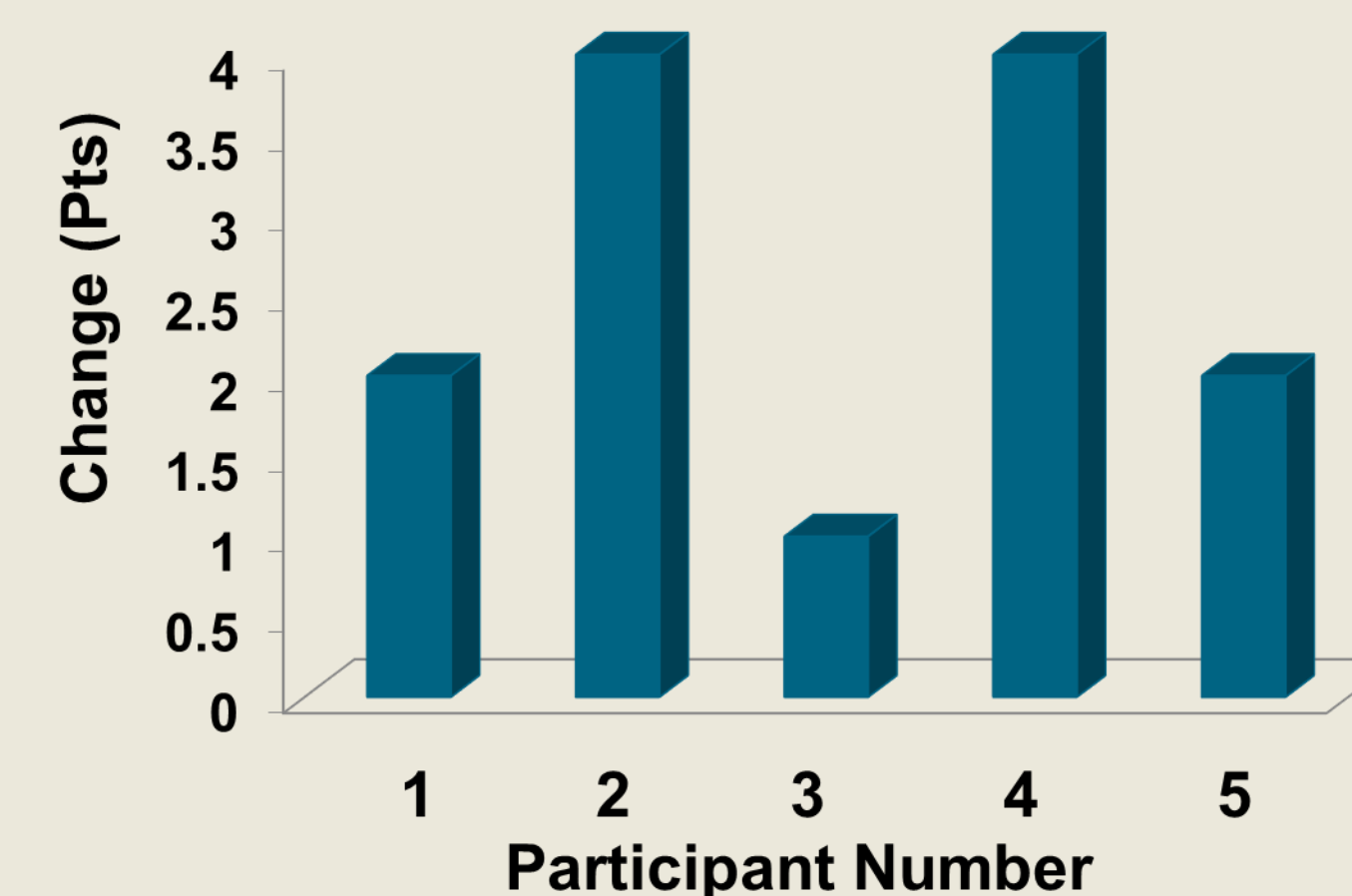


Figure 2. Timed Up and Go

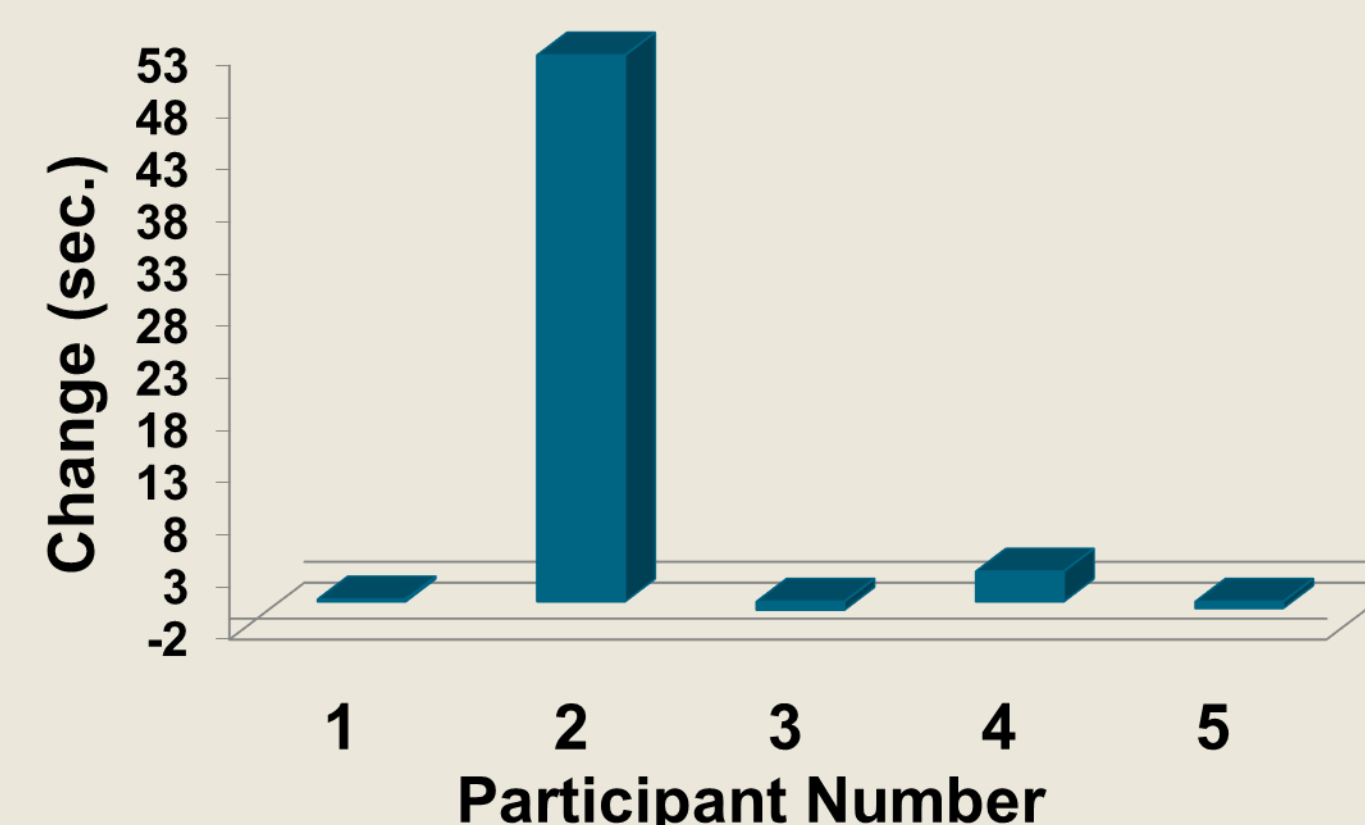
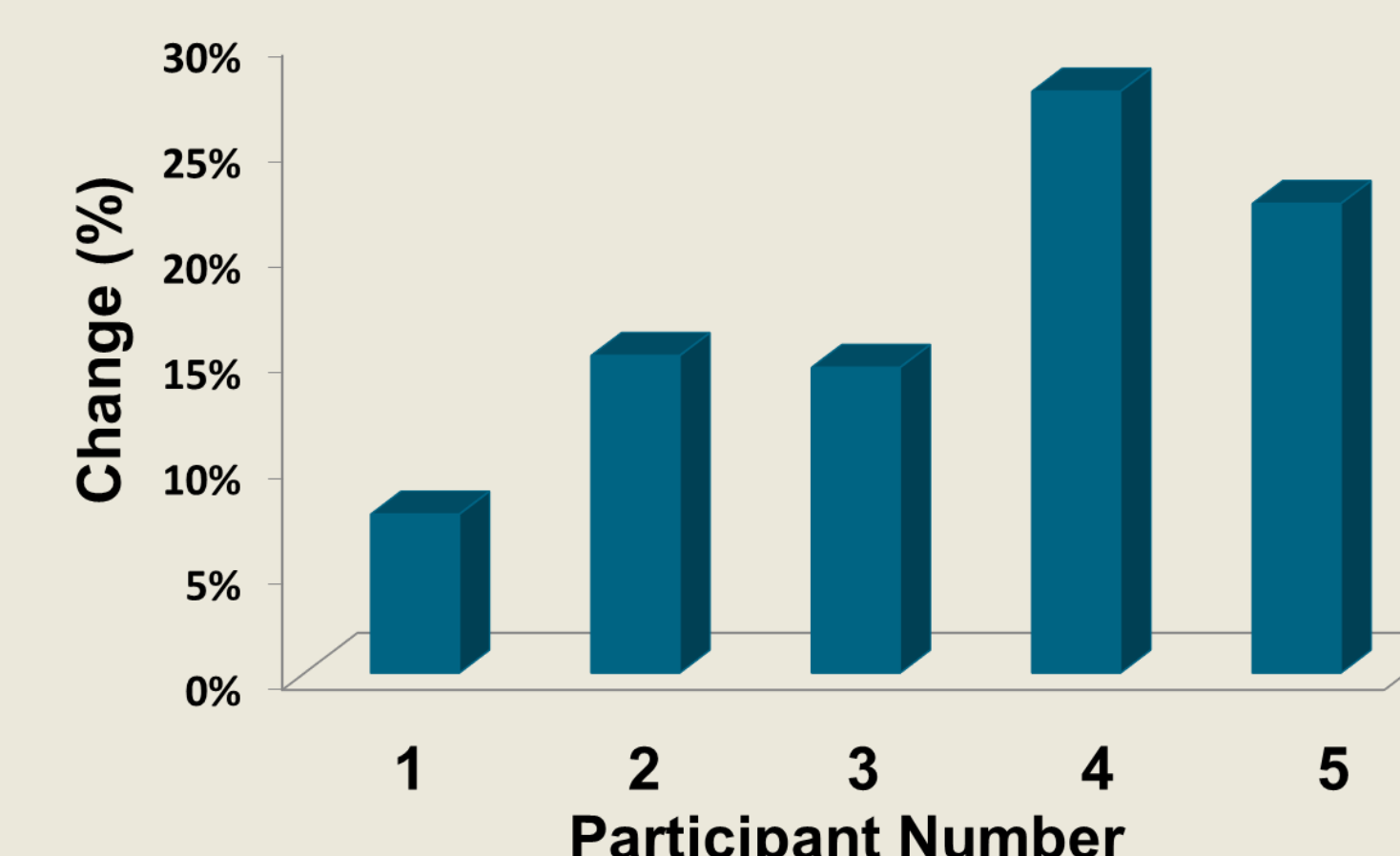


Figure 3. ABC Scale



DISCUSSION

After the Free From Falls program, all participants improved in at least 2/3 outcome measures. Improvement in the TUG and BBS may be due to the strength, balance, and proprioception exercises implemented each week and performed as part of their home exercise program (HEP). However, adherence to HEP was not monitored. These results may also be affected by the nature of MS in which individuals have "good" and "bad" days despite their functional mobility. All participants improved in the ABC scale, which may be affected by the psychosocial impact this group-based intervention provided. In the program evaluation, participants indicated that all lecture topics were of moderate to high value to them. Participants reported implementing daily stretching exercises, decreasing dual tasking while walking, increased use of adaptive devices into their daily routine and environmental modifications in order to reduce the risk of falling.

CONCLUSIONS

During the program, participants became more aware of the prevalence of falls among those with MS and risk factors that contribute to falls. They learned strategies to prevent falls and how to develop a fall prevention plan. Participants increased their confidence in minimizing fall risk and in managing falls that do occur. Additional community resources were provided. Equipped with the knowledge gained during this program, our hope is that the participants will engage in, and develop a home fitness plan that addresses balance, endurance, and strength, aimed at reducing falls.

FUTURE RESEARCH

In future FFF programs at USF, we would like to include additional outcome measures and test these measures for inclusion in the NMSS FFF program. The additional standardized tests we propose include, but are not limited to:

- 2 Minute Walk Test
- Figure of 8 Walk Test
- Fatigue Severity Scale
- MS Quality of Life-54
- Four Square Step test

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