

January 9, 2023



# STROKE SPECIAL INTEREST GROUP

Academy of Neurologic Physical Therapy

## In this newsletter...

- Article Review \*\*\*New\*\*\* Relationships Among Environmental Variables, Physical Capacity, Balance Self-Efficacy, and Real-World Walking Activity Post-Stroke
- **Trivia night** - FEBRUARY 7 - check out the prizes for winners!



STROKE SIG  
ARTICLE REVIEW  
Academy of Neurologic Physical Therapy



THANK YOU. Rachelle Studer-Byrnes, PT, DPT, NCS

**Summary topic title:** Relationships Among Environmental Variables, Physical Capacity, Balance Self-Efficacy, and Real-World Walking Activity Post-Stroke

**Article reference:** Miller A, Pohlig RT, Reisman DS. Relationships Among Environmental Variables, Physical Capacity, Balance Self-Efficacy, and Real-World Walking Activity Post-Stroke. *Neurorehabil Neural Repair*. 2022 Aug;36(8):535-544. doi: 10.1177/15459683221115409

**Link to full article if available:** <https://pubmed.ncbi.nlm.nih.gov/35924968/>

### Definition(s):

**Social environmental factors:** Factors related to social connectedness and social support and living situation. Examples included in this study: supportiveness and availability of caregiver

**Physical environmental factors:** Factors within the physical (i.e., built) environment  
Examples included in this study: Quality of sidewalks and roadways, availability of park benches, and crowdedness of an area

**Area Deprivation Index (ADI):** A measure created by the Health Resources and Services Administration (HRSA) that allows for rankings of neighborhoods by socioeconomic disadvantage in a region of interest. It includes factors for the theoretical domains of income, education, employment, and housing quality. This was used as the measure for physical environment.

Lower physical capacity group: 6MWT less than or equal to 312m  
Higher physical capacity group: 6MWT greater than 312m

**Purpose of article:** Test a model hypothesizing the relationship between environmental factors, balance self-efficacy and physical capacity on real world walking outcomes to understand the effects of environmental factors on real world walking activity. Environmental factors/barriers were social and physical environment, balance self-efficacy (Activities Balance Confidence Scale; ABC Scale), physical capacity (6MWT), and real-world (average steps/day) walking activity.

**Methods:** This study was a cross-sectional analysis of baseline data from the PROWALKS trial (NCT02835313) aimed at understanding which interventions are most effective at improving real-world walking activity post stroke.

**Inclusion.** chronic stroke ages 21-85 that were able to walk at a self-selected gait speed of more than .3m/s independently or with the use of an assistive device.

**Exclusion.** chronic stroke with evidence of a cerebellar stroke, significant neurological comorbidities, lower limb botox injection less than 4 months earlier, current participation in physical therapy, inability to walk outside the home prior to stroke, pain limiting activity and/or inability to provide informed consent as indicated by inability to answer item 1b and 1c on the NIH stroke Scale.

**Theoretical Model:** This study utilized a mediation model.

**Mediation Model:** The independent variable effects a mediation variable which effects the dependent variable (Mediation effect). This is in contrast to a direct effect (independent variable effects a dependent variable)

Specific to this paper, the following relationships were hypothesized:

1. Area Deprivation Index effects ABC Scale which effects average steps/day (Mediation effect)
2. ABC Scale effects average steps/day (Direct effect)
3. Living Situation effects ABC Scale which effects average steps/day (Mediation effect)
4. Living Situation effects average steps/day (Direct Effect)

**Results:** 288 participants

Physical Capacity (6MWT) did not moderate the effect of balance self-efficacy (ABC)

There was significant indirect effect of Area Deprivation Index on average steps/day through the ABC scale suggesting that the ABC Scale does mediate the relationship. Lower area deprivation was associated with greater steps per day and higher self-efficacy.

Higher balance self-efficacy (ABC) was associated with greater steps per day.

There was not a significant indirect effect (mediation effect) of living situation on average steps/day or a direct effect of living situation on average steps/day.

### **Discussion:**

**These results suggest that targeting balance self-efficacy in persons with chronic stroke whose comfortable gait speed is greater than or equal to .3m/s may be an effective approach to improving real-world walking activity if they experience barriers in their physical environment. For example, a person with chronic stroke who lives in a crowded area with poor sidewalks may benefit from interventions targeted at balance over uneven terrain and with perturbations to improve overall real-world walking activity.**

These results support past work demonstrating the balance self-efficacy is an important predictor of activity and participation, community ambulation, sedentary behavior along with real-world walking activity.

The fact that physical capacity (defined in this study as a cut-off score on the 6MWT of less

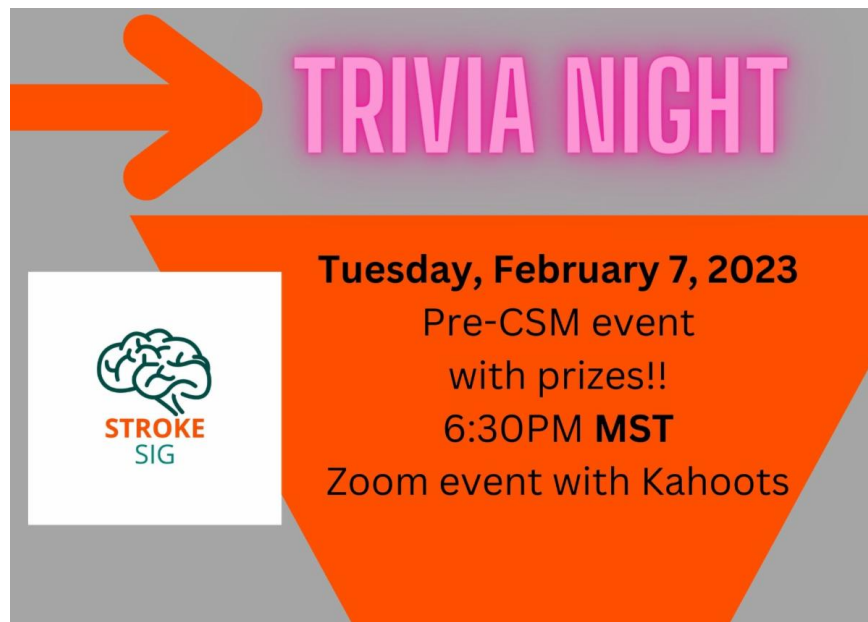
than or greater than 312m) was not a moderator of balance self-efficacy suggests that targeting balance self-efficacy in both low and high physical capacity groups may improve real-world walking activity.

Further studies should consider multiple aspects of social environment as solely measuring who an individual lives with post stroke did not fully capture the influence of social connectedness and social support on real-world walking activity.

**Additional references:**

Thilarajah S, Mentiplay BF, Bower KJ, Tan D, Pua YH, Williams G, Koh G, Clark RA. Factors Associated With Post-Stroke Physical Activity: A Systematic Review and Meta-Analysis. Arch Phys Med Rehabil. 2018 Sep;99(9):1876-1889. doi: 10.1016/j.apmr.2017.09.117.

Mouratidis K. Neighborhood characteristics, neighborhood satisfaction, and well-being: The links with neighborhood deprivation. Land Use Policy. 2020;99:104886.



We have some great prizes!!  
Bring on the trivia and WIN BIG.



Here is the secret to winning! [AFO CPG](#) **Clinical Practice Guideline for the Use of Ankle**

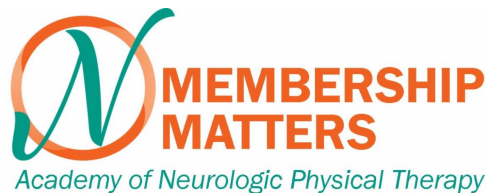
# Foot Orthoses and Functional Electrical Stimulation Post Stroke

If you want to win, you  
can study.

All questions are related  
to the AFO, CPG post-  
stroke



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