

SafetyLit November 27, 2016**"The right way at the right time": insights on the uptake of falls prevention strategies from people with dementia and their caregivers**

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DOI 10.3389/fpubh.2016.00244 **PMID** 27853730

Abstract

Strong evidence exists for effective falls prevention strategies for community-dwelling older people. Understanding the translation of these strategies into practice for people with dementia has had limited research focus. People with dementia desire to have their voice heard, to engage meaningfully in the health-care decision-making process, making it a priority for researchers and practitioners to better understand how to engage them in this process. This paper reports on the qualitative aspects of a series of studies, which aimed to identify the views of people with dementia and their caregivers regarding perceptions of falls prevention and the successes and challenges of adopting falls prevention strategies. Twenty five people with dementia and their caregivers were interviewed in their homes at baseline, and 24 caregivers and 16 people with dementia were interviewed at completion of a 6-month individualized falls prevention intervention. Interviews were audio-recorded, transcribed verbatim, and thematically analyzed. Five themes were identified at baseline: perceptions of falls; caregivers navigating the new and the unpredictable; recognition of decline; health services - the need for an appropriate message; and negotiating respectful relationships. At 6 months, caregivers and people with dementia decided on "what we need to know" with firm views that the information regarding falls risk reduction needed to be in "the right way ... at the right time." Rather than caregivers and people with dementia being only recipients of knowledge, they felt they were "more than just empty vessels to be filled" drawing on a "variety of resources" within their circle of influence to be able to positively "adapt to change." The voices of people with dementia and their caregivers add an important dimension to understanding the translation of falls prevention knowledge for this population. Insights from this study will enable community care health professionals to understand that people with dementia and their caregivers can, and wish to, contribute to implementing falls prevention strategies through their resourcefulness and inclusion in the therapeutic partnership.

PDF Y Endnote Y**A standardized review of smartphone applications to promote balance for older adults**

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Disabil. Rehabil. 2016; ePub(ePub): ePub.

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Abstract

BACKGROUND: Balance is one of the risk factors for falls in older adults. The use of smartphone applications (apps) related to health (mHealth) is increasing and, while there is potential for apps to be used as a self-managed balance intervention, many healthcare providers are concerned about the content and credibility of mHealth apps overall.

PURPOSE: This study evaluates the quality of balance promoting apps and identifies strengths and areas of concern to assist healthcare providers in recommending these resources.

MATERIALS AND METHODS: Balance apps for the general public, offered on the iPhone Operating System (iOS) and Android platforms, were evaluated using the Mobile Application Rating Scale (MARS).

RESULTS: Five iOS apps met the inclusion criteria. The mean scores for each of the domains in MARS were: Engagement (3.32), Information (3.7), Functionality (3.8), and Esthetics (3.8). Overall, one app (UStabilize) received a rating of 4.43 in MARS five-point scale, which was considered "good". Other apps in the review demonstrated acceptable quality.

CONCLUSIONS: The reviewed balance apps targeted to improve or maintain physical balance were of acceptable quality. Apps address many current issues older adults have to accessing rehabilitation services and, as such, may be particularly useful for this group. Future research should focus on assessing and comparing app efficacy. Development of balance apps for the Android platform is also necessary. Implications for Rehabilitation Given the availability and accessibility of various mHealth apps and the increasing mobile device usage among older adults, mobile apps are a promising avenue for delivering rehabilitation interventions, such as balance training, to older adults. Smartphone apps exist for balance training but overall confidence in health apps within the healthcare community is low and rigorous evaluation is required. A range of apps exist that demonstrate acceptable to good quality and stakeholders should work towards having these apps listed in credible mHealth clearinghouses.

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An occupational therapy fall reduction home visit program for community-dwelling older adults in Hong Kong after an emergency department visit for a fall

Chu MM, Fong KN, Lit AC, Rainer TH, Cheng SW, Au FL, Fung HK, Wong CM, Tong HK.

J. Am. Geriatr. Soc. 2016; ePub(ePub): ePub.

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(Copyright © 2016, John Wiley and Sons)

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Abstract

OBJECTIVES: To investigate the effects of an occupational therapy fall reduction home visit program for older adults admitted to the emergency department (ED) for a fall and discharged directly home.

DESIGN: Single-blind, multicenter, randomized, controlled trial.

SETTINGS: EDs in three acute care hospitals in Hong Kong. **PARTICIPANTS:** Individuals aged 65 and older who had fallen (N = 311).

INTERVENTIONS: After screening for eligibility, 204 consenting individuals were randomly assigned to an intervention group (IG) and received a single home visit from an occupational therapist (OT) within 2 weeks after discharge from the hospital or a control group (CG) and received a well-wishing visit from a research assistant not trained in fall prevention.

MEASUREMENTS: Both groups were followed for 12 months through telephone calls made every 2 weeks by blinded assessors with a focus on the frequency of falls. Another blinded assessor followed

up on their status with telephone calls 4, 8, and 12 months after ED discharge. Prospective fall records on hospital admissions were retrieved from electronic databases; 198 individuals were followed for 1 year on an intention-to-treat basis.

RESULTS: The percentage of fallers over 1 year was 13.7% in the IG (n = 95) and 20.4% in the CG (n = 103). There were significant differences in the number of fallers (P = .03) and the number of falls (P = .02) between the two groups over 6 months. Significant differences were found in survival analysis for first fall at 6 months (log-rank test 5.052, P = .02) but not 9 or 12 months.

CONCLUSION: One OT visit after a fall was more effective than a well-wishing visit at reducing future falls at 6 months. A booster OT visit at 6 months is suggested.

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Corrigendum: adoption of evidence-based fall prevention practices in primary care for older adults with a history of falls

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Abstract [This corrects the article on p. 190 in vol. 4, PMID: 27660753].

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Effects of tai chi on cognition and fall risk in older adults with mild cognitive impairment: a randomized controlled trial

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J. Am. Geriatr. Soc. 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVES: To examine whether combined center- and home-based Tai Chi training can improve cognitive ability and reduce physiological fall risk in older adults with amnesic mild cognitive impairment (a-MCI).

DESIGN: Randomized controlled trial.

SETTING: Chiang Mai, Thailand.

PARTICIPANTS: Adults aged 60 and older who met Petersen's criteria for multiple-domain a-MCI (N = 66).

INTERVENTION: Three weeks center-based and 12 weeks home-based Tai Chi (50 minutes per session, 3 times per week).

MEASUREMENTS: Cognitive tests, including Logical Memory (LM) delayed recall, Block Design, Digit Span forward and backward, and Trail-Making Test Part B-A (TMT B-A), and fall risk index using the Physiological Profile Assessment (PPA).

RESULTS: At the end of the trial, performance on LM, Block Design, and TMT B-A were significantly better for the Tai Chi group than the control group after adjusting for baseline test performance. The

Tai Chi group also had significantly better composite PPA score and PPA parameter scores: knee extension strength, reaction time, postural sway, and lower limb proprioception.

CONCLUSION: Combined center- and home-based Tai Chi training three times per week for 15 weeks significantly improved cognitive function and moderately reduced physiological fall risk in older adults with multiple-domain a-MCI. Tai Chi may be particularly beneficial to older adults with this condition.

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Evaluation of an exercise program for older adults in a residential environment

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DOI 10.1002/rnj.312 **PMID** 27862182

Abstract

PURPOSE: The aim of this study was to examine the effectiveness of an older-adult exercise program in a senior-living complex campus.

DESIGN: A longitudinal one-group design was used.

METHODS: To supply residents with tools to maintain or improve general quality of life, balance, endurance, depression, and functional mobility, the Wellness and Fitness Center at the research setting provided a wide assortment of user-friendly equipment with many options. One fitness director in the selected setting evaluated participants every 6 months with 33 participants using the Senior Fitness Test (SFT).

FINDINGS: Repeated ANOVAs identified factors impacting the effects of the exercise program using PROC MIXED SAS 9.0. The improvement or deterioration rate of SFT scores was tested as a time effect in balance, upper body strength, and lower body flexibility. A statistically significant gender effect emerged on the 6-minute walk, which measured aerobic endurance and the chair-sit-and-reach test, which measured lower body flexibility.

CONCLUSIONS: The 8-foot-up-and-go, arm-curl, chair-stand, and chair-sit-and-reach tests showed statistically significant improvement over time, which means balance, upper body strength, lower body strength, and lower body flexibility improved. **CLINICAL RELEVANCE:** Developing customized exercise protocols and using standardized measurement tools should be encouraged to enhance effective research and consistent measurement of exercise programs.

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Factors related to a decline in upper extremity function among patients with a wrist fracture due to a fall

Gonzalez N, Antón-Ladislao A, Orive M, Zabala J, Garcia-Gutierrez S, Las Hayas C, Quintana JM.

Int. J. Clin. Pract. 2016; 70(11): 930-939.

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Abstract

AIMS: The aim of this study was to identify factors related to a decline in function following a wrist fracture.

METHODS: Observational, prospective cohort study done in five public hospitals of the Basque Health Service. We recruited adults aged 65 or older with a wrist fracture due to a fall who attended the emergency department (ED) of one of these hospitals. Sociodemographic and clinical data were collected, along with information about health-related quality of life (HRQoL) and functionality.

RESULTS: A decline in function 6 months after the fracture was more likely among women (OR=3.409; 95% CI=1.920-6.053), patients receiving institutional help before the fracture (OR=5.717; 95% CI=1.644-19.883), patients who developed fracture-related complications within 6 months of the fall (OR=5.015; 95% CI=1.377-18.268), patients who visited an ED within 6 months of the fall (OR=1.646; 95% CI=1.058-2.561), patients with a displaced fracture (OR=1.595; 95% CI=1.106-2.300), and patients who broke the dominant hand (OR=1.464; 95% CI=1.019-2.103). Better baseline HRQoL and function were associated with smaller declines in function 6 months after the fall. Eighteen months after the fall, decline in function was more likely among women (OR=2.172; 95% CI=1.138-4.144) and patients visiting an ED because of fracture-related complications (OR=1.722; 95% CI=1.113-2.663). Better HRQoL and dependency level at baseline were associated with less decline in function 18 months after the fracture.

DISCUSSION: Two different models identified several parameters related to declines in upper extremity function 6 and 18 months after the fracture.

CONCLUSIONS: These results can help develop preventive actions needed to avoid or reduce the consequences of these falls.

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Neighborhood disadvantage and life-space mobility are associated with incident falls in community-dwelling older adults

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Abstract

OBJECTIVES: To determine the relationship between neighborhood-level socioeconomic characteristics, life-space mobility, and incident falls in community-dwelling older adults.

DESIGN: Prospective, observational cohort study with a baseline in-home assessment and 6-month telephone follow-up.

SETTING: Central Alabama.

PARTICIPANTS: Community-dwelling adults aged 65 and older recruited from a random sample of Medicare beneficiaries (N = 1,000).

MEASUREMENTS: Neighborhood disadvantage was measured using a composite index derived from baseline neighborhood-level residential census tract socioeconomic variables. Data on individual-level socioeconomic characteristics, clinical variables, and life-space collected at baseline were included as covariates in a multivariate model using generalized estimating equations to assess the

association with incident falls in the 6 months after baseline.

RESULTS: Of the 940 participants who completed baseline and follow-up assessments, 126 (13%) reported one or more new falls in the 6 months after baseline. There was an independent nonlinear association between neighborhood disadvantage (according to increasing quartiles of disadvantage) and incident falls after adjusting for confounders: The lowest quartile served as reference; 2nd quartile odds ratio (OR) = 2.4, 95% confidence interval (CI) = 1.2-4.6; 3rd quartile OR = 1.9, 95% CI = 1.0-3.7; 4th quartile OR = 3.2, 95% CI = 1.7-6.0. Each 10-point decrement in life-space (OR = 1.2, 95% CI = 1.0-1.3) was associated with a higher risk of falls.

CONCLUSION: Greater neighborhood disadvantage was associated with greater risk of falls. Life-space also contributes separately to fall risk. Community-dwelling older adults in disadvantaged neighborhoods, particularly those with limited mobility, may benefit from a more-rigorous assessment of their fall risk by healthcare providers. Neighborhood level socioeconomic characteristics should also be an important consideration when identifying vulnerable populations that may benefit the most from fall prevention programs.

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Receipt of caregiving and fall risk in US community-dwelling older adults

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Abstract

BACKGROUND: Falls and fall-related injuries (FRI) are common and costly occurrences among older adults living in the community, with increased risk for those with physical and cognitive limitations. Caregivers provide support for older adults with physical functioning limitations, which are associated with fall risk.

DESIGN: Using the 2004-2012 waves of the Health and Retirement Study, we examined whether receipt of low (0-13 weekly hours) and high levels (≥ 14 weekly hours) of informal care or any formal care is associated with lower risk of falls and FRIs among community-dwelling older adults. We additionally tested whether serious physical functioning (≥ 3 activities of daily living) or cognitive limitations moderated this relationship.

RESULTS: Caregiving receipt categories were jointly significant in predicting noninjurious falls ($P=0.03$) but not FRIs ($P=0.30$). High levels of informal care category ($P=0.001$) and formal care ($P<0.001$) had stronger associations with reduced fall risk relative to low levels of informal care.

Among individuals with ≥ 3 activities of daily living, fall risks were reduced by 21% for those receiving high levels of informal care; additionally, FRIs were reduced by 42% and 58% for those receiving high levels of informal care and any formal care. High levels of informal care receipt were also associated with a 54% FRI risk reduction among the cognitively impaired.

CONCLUSIONS: Fall risk reductions among older adults occurred predominantly among those with significant physical and cognitive limitations. Accordingly, policy efforts involving fall prevention

should target populations with increased physical functioning and cognitive limitations. They should also reduce financial barriers to informal and formal caregiving.

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Reducing falls in a model of impaired cognitive control of movement (Commentary on Kucinski et al.)

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Eur. J. Neurosci. 2016; ePub(ePub): ePub.

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Abstract [Abstract unavailable]

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Slow gait speed and risk of long-term nursing home residence in older women, adjusting for competing risk of mortality: results from the Study of Osteoporotic Fractures

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J. Am. Geriatr. Soc. 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVES: To determine whether slow gait speed increases the risk of costly long-term nursing home residence when accounting for death as a competing risk remains unknown.

DESIGN: Longitudinal cohort study using proportional hazards models to predict long-term nursing home residence and subdistribution models with death as a competing risk.

SETTING: Community-based prospective cohort study. **PARTICIPANTS:** Older women (mean age 76.3) participating in the Study of Osteoporotic Fractures who were also enrolled in Medicare fee-for-service plans (N = 3,755).

MEASUREMENTS: Gait speed was measured on a straight 6-m course and averaged over two trials. Long-term nursing home residence was defined using a validated algorithm based on Medicare Part B claims for nursing home-related care.

RESULTS: Participants were followed until long-term nursing home residence, disenrollment from Medicare plan, death, or December 31, 2010. Over the follow-up period (median 11 years), 881 participants (23%) experienced long-term nursing home residence, and 1,013 (27%) died before experiencing this outcome. Slow walkers (55% of participants with gait speed <1 m/s) were significantly more likely than fast walkers to reside in a nursing home long-term (adjusted hazards ratio (aHR) = 1.79, 95% confidence interval (CI) = 1.54-2.09). Associations were attenuated in subdistribution models (aHR = 1.52, 95% CI = 1.30-1.77) but remained statistically significant.

CONCLUSION: Older community-dwelling women with slow gait speed are more likely to experience long-term nursing home residence, as well as mortality without long-term residence. Ignoring the competing mortality risk may overestimate long-term care needs and costs.

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The role of postural instability/gait difficulty and fear of falling in predicting falls in non-demented older adults

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Arch. Gerontol. Geriatr. 2016; 69: 15-20.

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Abstract

INTRODUCTION: Postural instability/gait difficulty (PIGD) and fear of falling (FoF) frequently co-exist, but their individual predictive values for falls have not been compared in aging. This study aims to determine both independent and combined effect of PIGD and FoF to falls in older adults without dementia.

METHODS: PIGD and other extrapyramidal signs were systematically assessed in 449 community-dwelling participants without Parkinson's disease (76.48±6.61 ys; 56.8% female) enrolled in this longitudinal cohort study. Presence of FoF was measured by a single-item question (Do you have a FoF?) and self-confidence by the Activities-specific Balance Confidence scale (ABC scale).

RESULTS: One hundred sixty-nine participants (38%) had an incident fall over a mean follow-up of 20.1±12.2 months. PIGD was present in 32% and FoF in 23% of the participants. Both PIGD (adjusted hazard ratio (aHR): 2.28; p=0.016) and self-confidence (aHR: 0.99; p=0.040) predicted falls when entered simultaneously in the Cox model. However, presence of FoF (aHR: 1.99; p=0.021) and self-confidence (aHR: 0.98; p=0.006) predicted falls only in individuals with PIGD.

CONCLUSIONS: PIGD and FoF were associated with future falls in older adults without dementia but FoF was a fall's predictor only in individuals with PIGD.

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Analysis of falls in patients with epilepsy enrolled in the perampanel phase III randomized double-blind studies

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Epilepsia 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVE: To analyze occurrence of falls among patients with partial seizures, with/without secondarily generalized seizures (SGS), and primary generalized tonic-clonic seizures (PGTCS) in the perampanel phase III clinical studies.

METHODS: Studies 304, 305, and 306 randomized subjects (≥12 years) with drug-resistant partial seizures (with/without SGS) to perampanel 2, 4, 8, or 12 mg or placebo for double-blind treatment. The adverse event (AE) of falls was analyzed in the Safety Analysis Set (N = 1480). Study 332 randomized subjects aged ≥12 years with a diagnosis of PGTCS into perampanel 8 mg or placebo groups for double-blind treatment. In a systematic review of reported falls in the study 332 Safety Analysis Set (N = 163), falls were queried to establish whether each was seizure related; subjects

with falls resulting from a seizure were not included in this analysis.

RESULTS: For studies 304/305/306, treatment-emergent falls occurred in 5.1% perampanel-treated versus 3.4% placebo-treated subjects with partial seizures. Exposure-adjusted rate for falls (falls/subject-month of exposure) was greater for total perampanel than for placebo (0.0175 vs. 0.0093) and was dose related for those receiving perampanel. In subjects with SGS, incidence of treatment-emergent falls was 4.3% in perampanel and 4.0% in placebo groups. Exposure-adjusted rates were 0.0169 and 0.0097 falls per subject-month of exposure in perampanel and placebo, respectively. For study 332, 2.5% perampanel-treated and 1.2% placebo-treated subjects with PGTCS had treatment-emergent falls that were not part of a seizure. Exposure-adjusted rates were 0.0169 and 0.0032 falls per subject-month of exposure in perampanel and placebo, respectively.

SIGNIFICANCE: Results of the perampanel studies suggest that patients with epilepsy should be monitored due to the common risk of falls.

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Hip fracture registries: utility, description, and comparison

Sáez-López P, Brañas F, Sánchez-Hernández N, Alonso-García N, González-Montalvo JI.

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Abstract

Hip fractures (HF) are prevalent and involve high morbidity and mortality so improving their management is important. HF registries are a good way to improve knowledge about this condition and its quality of care, while at the same time reducing clinical variability, optimizing efficiency, improving outcomes, and reducing costs.

INTRODUCTION: Hip fractures (HF) are a prevalent fragility fracture secondary to osteoporosis that involves high morbidity and mortality. They are low-impact fractures, resulting from a fall from a standing or sitting height. Despite numerous Clinical Practice Guidelines that establish uniform recommendations for their care, great variability persists regarding clinical and healthcare outcomes. Fracture registries can help detect deficits and establish measures to improve care. The objective of this work is to analyze the contents that a HF registry should have and to compare the characteristics of some national HF registries.

METHODS: A literature search was conducted on several national hip fracture registries, and those that contain relevant information on the variables and their outcomes were selected.

RESULTS: The selected HF registries were compared using the parameters they measure as well as the outcomes in the different countries. The variables collected in the majority of the databases and those that give useful information are as follows: sociodemographic variables (age, sex, place of residence), clinical variables (function before and after HF, anesthesia risk as measured by the ASA score, type of fracture, type of surgery and anesthesia, and in-hospital and 1-month mortality), and healthcare variables (pre-operative and overall stay, presence of collaboration with orthogeriatrics or with any clinician in addition to the surgeon, secondary prevention of new fractures by assessing the fall risk, and need for osteoporosis treatment).

CONCLUSION: The recording of HF cases in different countries improves knowledge about handling this condition and its quality of care, while at the same time reducing clinical variability, optimizing

efficiency, improving outcomes, and reducing costs. The debate on the variables that should be recorded is timely, such as organizing how to collect each measurement, and even trying to unify the national and international registries or using a current proposal such as the one from the Fragility Fracture Network.

PDF Y Endnote Y

Slip initiation in alternative and slip resistant footwear

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Int. J. Occup. Safety Ergonomics 2016; ePub(ePub): ePub.

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Abstract

Slips occur as a result of failure of normal locomotion. The purpose of this study is to analyze the impact of alternative footwear [Crocs™ (CC), flip-flops (FF)] and an industry standard low top slip resistant shoe (SRS) under multiple gait trials [normal dry (NG); unexpected slip (US), alert slip (AS) and expected slip (ES)] on lower extremity joint kinematics, kinetics and muscle activity. Eighteen healthy male participants [age: 22.28 ± 2.2 years; height: 177.66 ± 6.9 cm; mass: 79.27 ± 7.6 kg] completed the study. Kinematic, kinetic and muscle activity variables were analyzed using a $3(\text{Footwear}) \times 4(\text{Gait Trials})$ repeated measures analysis of variance at $p = 0.05$. Greater plantar flexion angles, lower ground reaction forces and greater muscle activity were seen on slip trials with the alternative footwear. During slip events, SRS closely resembled NG biomechanics, suggesting it to be a safer footwear choice compared to alternative footwear.

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