

Featured Falls Research – August

Go Decaf!: implementing 'decaf by default' as a quality improvement intervention to reduce toileting-related falls and improve care environments in acute hospital settings

Francis E, Collins C. BMJ Open Qual. 2026 Aug 4;15(3):e004291.

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PMID: 42551970

Abstract

Background: Caffeinated hot drinks are routinely offered as the default in hospitals despite guidance recommending caffeine reduction for urinary urgency. Caffeine may increase urinary frequency, disrupt sleep and contribute to toileting-related falls, particularly among older adults living with frailty.

Local problem: Routinely collected incident reporting data at an National Health Service (NHS) Foundation Trust identified that around one quarter of inpatient falls were toileting-related. Staff recognised caffeine as a potential contributor but reported limited ability to influence drink provision within existing ward routines.

Methods: A registered quality improvement initiative used two sequential Plan-Do-Study-Act cycles to implement a 'decaf by default' approach across acute and community wards, an emergency department and a care home, followed by evaluation after organisation-wide rollout. Routine incident reporting monitored toileting-related falls, while staff and manager experience was assessed using structured questionnaires.

Intervention: Decaffeinated hot drinks were offered as the default, with caffeinated drinks available on request. Implementation was supported by staff education, shared decision-making materials, face-to-face clinical support and a patient-facing 'Taste the Difference' activity.

Results: Across pilot sites, toileting-related falls as a proportion of all inpatient falls reduced from 19%-21% to 11%-15%. Toileting-related falls reduced by approximately 11% in Cycle 1 and 20% in Cycle 2, with seven wards achieving reductions greater than 50%. Following organisation-wide rollout, the proportion of inpatient falls that were toileting-related reduced from 33.2% to 25.9%. Managers reported calmer ward environments, improved sleep, reduced agitation and fewer urgency-driven toileting attempts. Patient and relative feedback was predominantly positive or neutral.

Conclusions: Changing default drink provision to decaffeinated options is a feasible, low-cost intervention associated with fewer toileting-related falls and improved ward environments while preserving patient choice. Sustained improvements following organisation-wide rollout suggest the approach is scalable using existing clinical infrastructure.

Keywords: PDSA; Patient safety; Quality improvement.

Exercise to prevent falls in older adults with physical frailty: A systematic review and meta-analysis

Mehta P, Costa EC, Galliano LM, Vlietstra L, Saragiotto BT, Cadore EL, Izquierdo M, Waters DL. J Frailty Aging. 2026 Aug 18;15(4):100187.

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Abstract

Introduction: Physical frailty is associated with increased risk of falls. Although exercise mitigates age-related declines, evidence regarding its effects on falls in older adults with frailty is limited. This systematic review examined the effects of exercise on fall-related outcomes in older adults with frailty.

Methods: We searched MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, Scopus, and CINAHL for randomised controlled trials published from 2001 (when the Fried frailty phenotype was introduced) to January 2024. Eligible studies included older adults with frailty and reported at least one of the following outcomes: i) physical function (gait speed, strength, balance), ii) fear of falling, or iii) falls incidence. Meta-analyses were conducted using random-effects models, with results presented as weighted/standardized mean differences with 95% confidence intervals.

Results: Fourteen studies (n = 2719; mean age range 73-86 years) were included, most of which used the Fried frailty phenotype (n = 12) and were conducted in Europe (n = 6). Most interventions included multicomponent (n = 10) and resistance (n = 4) training. Exercise improved gait speed (MD 0.09 m/s, 0.02/0.15; $I^2=94\%$; n = 5), TUG (MD -3.73 s, -5.92/-1.55; $I^2=95\%$; n = 6), and 5-times sit-to-stand (MD -2.66 s, -4.19/-1.14; $I^2=77\%$; n = 4) over short-term period (≤ 12 weeks), with low-to-very low certainty evidence. A trend toward improved balance was also noted (SMD 2.80, -0.17/5.76; p = 0.06; $I^2=99\%$; n = 5), with very low certainty evidence. Limited data was observed for fear of falling (n = 1) and falls incidence (n = 2).

Conclusions: Exercise training enhances physical function in older adults with physical frailty. However, its impact on fear of falling and fall incidence remains uncertain.

Prospero registry: CRD42024502865.

Keywords: Aging; Exercise; Falls; Fried frailty phenotype; Systematic review.

Validation of the World Falls Guidelines risk stratification algorithm. A systematic review

Pieruccini-Faria F, Son S, Delbaere K, van der Velde N, Lord SR, Martin FC, Ryg J, Tan MP, Liu-Ambrose T, Amaris D, Hicks C, Masud T, Montero-Odasso M. Age Ageing. 2026 Aug 3;55(8):afag231.

DOI: [10.1093/ageing/afag231](https://doi.org/10.1093/ageing/afag231)

PMID: 42585559

Abstract

Background: Falls are a major cause of morbidity and mortality in older adults. The World Falls Guidelines (WFG) propose a risk stratification algorithm using fall history, three key questions (3KQ), mobility tests and clinical criteria, but it has yet to be systematically evaluated.

Objective: To assess whether the WFG algorithm, in original or modified form, effectively stratifies community-dwelling older adults into low, intermediate or high risk of future falls; whether it has been prospectively validated; and whether it has been adequately operationalised.

Methods: We conducted a systematic review (PROSPERO CRD420251151506) by searching MEDLINE, Embase and Google Scholar. Two reviewers independently screened studies and extracted data on cohort characteristics, algorithm adaptations, baseline risk distribution and prospective falls outcomes over ≥ 6 months. Given the heterogeneity of the studies included, quantitative meta-analysis was not conducted.

Results: Eight cohort studies ($n = 25\,027$; mean age range 61-82 years) met the inclusion criteria. No study implemented the WFG algorithm as published; two used minor modifications and six had major adaptations due to dataset limitations. Common modifications included rephrasing the 3KQ, replacing 'subjective unsteadiness' question with objective measures, applying mobility test universally, adjusting mobility tests thresholds and omitting fall severity definition components. Across studies, 7.9%-82.6% of participants were classified as low risk, 0.4%-18.3% as intermediate risk and 10.5%-88.7% as high risk. High-risk classification showed modest sensitivity (26.5%-52.3%) and moderate-to-high specificity (34.2%-88.9%) for future falls (1-2 years), with an overall accuracy of 61.2%-74.2%. High-risk groups consistently had a two- to three-fold higher incidence of falls than low-risk groups, while intermediate-risk groups only showed a slightly elevated risk. Use of 3KQ alongside fall history and universal mobility testing improved discrimination and increased the proportion in the intermediate-risk category.

Conclusion: The operationalised versions of the WFG algorithm identify older adults at high falls risk with high specificity but limited sensitivity. Proposed pragmatic modifications improve stratification accuracy for intermediate risk group but require prospective validation.

Keywords: falls; falls algorithm; falls in older adults; guidelines; older people; systematic review.

Falls Research – August

Guided positional stabilization: a hypothesis on the role of targeted interfaces in enhancing upright stability among frail older adults

Bhatt M, Bhatt H. Front Aging. 2026 Aug 3;7:1886928

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PMID: 42609508

Abstract

Elderly adults are at a higher risk of falls due to many reasons including issues in balance, coordination and overall sensory responsiveness. Falls ultimately threaten health and result in the fear of falling this causes restricted mobility and further decrease in health. Although there are traditional interventions such as railings, walkers or balance therapy which aim to reduce falls, they often function on compensatory mechanisms with little for postural regulation. We hypothesize that Guided Positional Stabilization (GZ) which use light strategically situated contact interfaces, can improve upright stability in frail elderly individuals by stimulating proprioceptive and tactile pathways. GZ is not a support aid rather a neurosensory framework that engages the nervous system in reactive and anticipatory balance corrections. Learning from concepts in biomechanics, neuroscience and geriatrics, this article presents the design requirements, theory, and possible clinical applications of GZ in fall prevention. We also put forward a pilot research agenda for testing the effectiveness of GZ in real world environments.

Keywords: aging; fall prevention; frailty; light touch; postural stability; proprioception.

Short-term risk of falls among initiators of controlled-release tapentadol versus oxycodone in New South Wales between 2014 and 2020: A population-based retrospective cohort study

Camacho X, Schaffer AL, Brett J, Hopkins R, Gisev N, Marsh S, Filion KB, Pratt N, Henry D, Pearson SA. PLoS Med. 2026 Aug 11;23(8):e1004950.

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PMID: 42579646

Abstract

Background: Clinical trials comparing sustained-release (SR) tapentadol with controlled-release (CR) oxycodone have suggested that tapentadol (SR) may be associated with fewer nervous system side effects. However, it remains important to evaluate the relative safety of these agents in real-world clinical settings. Given the potential severity and economic burden of falls, together with their established association with opioid use, we compared the short-term risk of falls following initiation of tapentadol (SR) versus oxycodone (CR) in routine clinical practice.

Methods and findings: We conducted an active comparator, new user retrospective cohort study using linked routinely collected health data on residents of New South Wales, Australia (2014–2020). We included people aged ≥ 18 years initiating publicly subsidised tapentadol (SR) or oxycodone (CR). Our outcome was a composite measure of fall-related emergency department presentations, hospitalisations or deaths. We used propensity score matching to adjust for baseline confounding and approximated relative risks (RR) of falls at 7, 14, and 28 days after initiation using conditional logistic regression models. We calculated absolute risk differences and estimated the number of people that would need to be treated with oxycodone (CR) versus tapentadol (SR) for one additional fall to occur (NNTH). We conducted subgroup analyses restricted to people aged ≥ 65 and ≥ 80 years and by recent opioid exposure (within 90 days prior to initiation). We identified 103,924 tapentadol (SR) and 419,732 oxycodone (CR) initiators; after matching each cohort comprised 103,758 initiators. Most people (74%) were aged between 45 and 84 years, and slightly more than half were female. Within 28 days of initiation, 652 (0.6%) oxycodone (CR) initiators and 457 (0.4%) tapentadol initiators experienced a fall. Across all time points, tapentadol (SR) initiation was associated with a lower risk of falls compared with oxycodone (CR) (7 days: RR 0.57 [95% CI: 0.48, 0.69]; 14 days: RR 0.62 [95% CI: 0.54, 0.71]; 28 days: RR 0.70 [95% CI: 0.62, 0.79]). Absolute differences were small at all time points (approximately 1–2 fewer falls per 1,000 patients treated), corresponding to NNTH for one additional fall ranging from 739 to 529. These patterns persisted regardless of recent opioid exposure. Relative risks were similar in the older age groups while absolute differences were slightly larger (≥ 65 years: 2–3 fewer falls/1,000; ≥ 80 years: 4–8 fewer falls/1,000). The greatest absolute differences were among opioid-naïve people aged ≥ 80 years (6–10 fewer falls/1,000, corresponding to NNTH ranging from 173 to 97). Fall risks were attenuated among people aged ≥ 80 years with recent opioid exposure. The main limitations of this study were that we did not have data on immediate-release tapentadol, or on falls that did not result in emergency department presentations or hospitalisations but may have otherwise impacted independence and mobility.

Conclusions: Tapentadol (SR) was associated with a lower risk of falls than oxycodone (CR) up to four weeks after initiation, although absolute differences were small. The reduction in risk may be an important consideration in older patients where the consequences of falls are most severe.

Effects of Virtual Reality Training and Whole-Body Vibration Training on Fall-Related Functional Outcomes in Older Adults: A Systematic Review and Meta-Analysis

Cao Z, Xi R, Zeng H, Tao Y, Chen Y, Tian X, Wang X. Healthcare (Basel). 2026 Aug 5;14(15):2409

DOI: [10.3390/healthcare14152409](https://doi.org/10.3390/healthcare14152409)

PMID: 42588378

Abstract

Objective: To evaluate the effects of virtual reality (VR) and whole-body vibration (WBV) training on muscle strength and balance-related functional outcomes in older adults.

Methods: PubMed, Web of Science, the Cochrane Library, CNKI, and Embase were searched from inception to March 2026. Randomised controlled trials assessing VR or WBV training in samples with a mean participant age of ≥ 60 years were included. Outcomes were the Timed Up and Go (TUG) test, handgrip strength, Tinetti score, five-times sit-to-stand test, and gait speed. Pooled mean differences (MDs) with 95% confidence intervals (CIs) were calculated. Subgroup analyses and Bucher-adjusted indirect comparisons were used to explore potential relative effects.

Results: Thirty-two trials involving 1359 participants were included. VR training reduced TUG completion time (MD = -1.13, 95% CI -1.70 to -0.55, $p = 0.0001$) and improved handgrip strength (MD = 3.49, 95% CI 0.46 to 6.52, $p = 0.02$), Tinetti scores (MD = 0.84, 95% CI 0.46 to 1.21, $p < 0.0001$), and gait speed (MD = 0.16, 95% CI 0.07 to 0.24, $p = 0.0003$). WBV training reduced TUG completion time (MD = -3.92, 95% CI: -6.36 to -1.48, $p = 0.002$) and five-times sit-to-stand completion time (MD = -1.20, 95% CI -2.03 to -0.38, $p = 0.004$).

Conclusions: VR and WBV training may improve functional mobility and dynamic balance in older adults, although their effects may vary across functional domains. Because direct head-to-head trials are lacking, comparative findings should be interpreted as exploratory evidence.

Keywords: VR training; WBV training; balance; falls; older adults.

Three-Level Fall Risk Assessment Method for Hospitalized Older Adults: A Practical Protocol Based on Comprehensive Geriatric Assessment

Chen J, Qian J, Qian Y, Peng Y, Chen X. J Vis Exp. 2026 Aug 28;(234)

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PMID: 42667188

Abstract

Falls in older adults result from multiple interacting factors, making it difficult for a single assessment tool to comprehensively identify fall risk. This study describes a three-level fall risk assessment protocol based on comprehensive geriatric assessment to support progressive fall risk identification and standardized risk classification in hospitalized older adults. A single-center retrospective descriptive analysis of prospectively collected clinical data was conducted in 151 hospitalized older adults. The First Level combined the Morse Fall Scale (MFS) with fall-severity screening. The Second Level used the FRAIL Scale to conduct supplementary frailty screening for participants classified as low risk at the First Level. The Third Level applied a multifactorial fall risk assessment to participants classified as moderate or high risk at the First Level and those identified with pre-frailty or frailty at the Second Level, followed by final risk classification. At the First Level, 94 participants (62.2%) were classified as low risk, 57 (37.7%) as moderate or high risk, and 17 (11.3%) had a positive fall-severity screen. Among the 94 participants entering the Second Level, 23 (15.2%) had abnormal FRAIL Scale results. Eighty participants proceeded to the Third Level. Final risk classification identified 80 participants (53.0%) as low risk, 22 (14.6%) as moderate risk, and 49 (32.5%) as high risk. Among the 23 participants with abnormal FRAIL Scale results, 15 were classified as moderate or high risk after the Third Level assessment. These findings suggest that the protocol may improve the identification of hospitalized older adults at moderate to high risk of falls while reducing under-identification; however, its performance requires further validation.

Co-Designing a Fall Prevention Exercise Website to Meet Aged Care Community Needs

Dawson R, Cameron L, Pinheiro MB, Jarratt K, Sherrington C, Haynes A. *Australas J Ageing*. 2026 Sep;45(3):e70216

DOI: [10.1111/ajag.70216](https://doi.org/10.1111/ajag.70216)

PMID: 42565739

Abstract

Objectives: Falls among older people are a significant health issue. Exercise reduces falls, yet many older people do not meet physical activity guidelines. Digital health platforms may improve access to fall prevention programs, but limited research has explored how these platforms meet older people's needs. This study aimed to use co-design principles to develop a website supporting delivery of the TOP UP program in aged care. A secondary aim explored older people's experiences of participating in the co-design process.

Methods: A three-phase co-design study was conducted. Phase 1 used interviews, focus groups and heuristic evaluation to inform development of a prototype website. Participants included 14 older people receiving aged care services (median age 84 years), 10 care staff and six physiotherapists. Phase 2 used think-aloud usability interviews with 11 older people, including Likert scale ratings, to assess navigation, clarity and functionality and refine the prototype. Phase 3 explored participants' experiences of the co-design process.

Results: Thematic analysis identified eight design themes highlighting priorities related to simplicity, accessibility, relatability, safety, customisation and engaging features that supported motivation while minimising staff burden. Feedback on the website was positive and informed improvements in readability, navigation and credibility. Participants reported positive co-design experiences and valued contributing to the development of a digital fall prevention resource.

Conclusions: Co-design is valuable in developing user-centred digital health solutions for aged care. Findings highlight the importance of aligning digital platforms with older people's needs to improve accessibility, engagement and scalability, supporting implementation of programs such as TOP UP.

Keywords: age friendly health care; community-based participatory research; digital health; falls; user centred design.

Understanding the Prospective Acceptability of a Fall Prevention Exercise App Among Canadians Aged 50 Years and Older Living in the Community: Mixed Methods Study

Fuentes Diaz MF, Sibley KM, Ugwuegbulem COT, Delbaere K, Bouchard DR. JMIR Form Res. 2026 Aug 13;10:e95812.

DOI: [10.2196/95812](https://doi.org/10.2196/95812)

PMID: 42594339

Abstract

Background: Falls are a major public health concern due to their impact on individuals and the health system. StandingTall (Ylva Health Pty Ltd) is a digital balance exercise app that has demonstrated strong adherence and fall-reduction effects in Australia. Before considering implementation in Canada, its acceptability must be assessed.

Objective: This study aimed to explore the prospective acceptability of the StandingTall app among Canadian community-dwelling adults aged 50 years and older with varying levels of physical activity and technological skills.

Methods: A concurrent mixed methods design was guided by the Theoretical Framework of Acceptability (TFA). After viewing a demonstration video, participants completed an online survey in which they rated the 7 TFA constructs using a 5-point Likert scale. Participants also reported demographic and health characteristics. A subsample completed interviews that were also based on TFA constructs. Convergence between data sources was assessed through overall patterns.

Results: In total, 314 individuals completed the survey (mean age 61.8, SD 8.0 y; n=279, 88.9% female participants) and 22 completed interviews. The mean acceptability score was 5.8 (SD 1.3; out of 7). Participants viewed the StandingTall app positively, valuing its convenience, flexibility, clear design, and alignment with their health and aging goals. Both data sources indicated strong acceptability, shaped by high affective attitude and self-efficacy and tempered by burden and opportunity cost factors related to technology issues and existing lifestyle commitments. Participants also reported mixed beliefs about its effectiveness, with some skepticism about the mechanisms by which the app's exercises improve balance and ultimately reduce the risk of falls.

Conclusions: Although the sample was heterogeneous, StandingTall was viewed as generally acceptable, with some heterogeneity across participants and with challenges that could be addressed using implementation strategies cocreated with potential users.

Keywords: acceptability; app; balance; digital health; falls.

Missed Opportunities for Fall Prevention: Primary Care Follow-Up After Emergency Department Discharge in Older Adults

Hagerman TK, Nour M, Cherukupalli C, Henry C, Peterson D, Mowbray F, Miller J, Willens D. J Am Geriatr Soc. 2026 Aug 3

DOI: [10.1111/jgs.70632](https://doi.org/10.1111/jgs.70632)

PMID: 42544075

Abstract

Introduction: Evaluation by a primary care provider (PCP) after an emergency department (ED) visit for a fall is crucial for preventing future falls. However, little is known about the current practice of fall risk assessments and interventions across community and academic primary care clinics.

Methods: We performed a retrospective chart review of adults 65 and older discharged home after a fall from 9 EDs in Michigan. All primary care visits within 90 days of the index ED visit were included. Patients were excluded if they had a PCP outside of our health system. The primary outcome was the rate of fall risk assessments and interventions performed during primary care visits, with definitions operationalized from the CDC STEADI (Stopping Elderly Accidents, Deaths, and Injuries) recommendations.

Results: The sample included 168 older adults who attended PCP visits across 68 practices cared for by 144 different providers. A total of 277 visits were reviewed. Among all patients, 70.8% had the fall documented during primary care encounters. Rates of falls assessments varied widely, with balance (36%), gait (34%), and cognitive screens (24%) being most common and vision (11%), home hazards (11%), and fall-risk increasing drugs (27%) assessments among the least common. Among patients with positive assessments, interventions were most common for those with home hazards (88%), vision impairment (89%), and fall-risk increasing drugs (81%).

Conclusions: A minority of patients who attended PCP appointments after a fall had comprehensive assessments. However, those who did have positive assessments frequently received targeted interventions. Primary care clinicians should be better supported and incentivized to perform comprehensive fall assessments. Health systems could better integrate assessments between acute and ambulatory care settings. Further work is needed to understand the barriers to conducting comprehensive fall risk assessments across care settings and alternative care models to bridge these gaps.

Keywords: STEADI; emergency department; falls; primary care.

Upskilling Allied Health Professionals and Judo Coaches to Teach Safe Falling Skills to Older Adults: A Train-the-Trainer Intervention

Jadczyk AD, Verma M, Headland M, Visvanathan R. *Australas J Ageing*. 2026 Sep;45(3):e70221.

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PMID: 42615522

Abstract

Objectives: Learning safe falling skills, adapted from judo, is a promising strategy to reduce the risk of falls and fall-related injuries in older adults. This study aimed to upskill allied health professionals and judo coaches to teach safe falling skills to community-dwelling older adults.

Methods: A Train-the-Trainer program including a 2-day workshop (13 h) on teaching safe falling and how to work with older adults, followed by weekly attendance at an 8-week judo-based safe falling program for older adults to provide practical teaching experience. Outcomes included perceived competence and importance in teaching safe falling (6-point Likert Scale), objective knowledge (10 multiple-choice questions) and trainees' own safe falling skills (Strömqvist-Bååthe Falling Competence (SBFC) Test) assessed at three time points: pre-workshop (T1), post-workshop (T2) and post 8-week practical sessions (T3).

Results: Sixteen trainees (eight allied health professionals and eight judo coaches) participated (median age 50 years [IQR: 42-61], 38% female). Perceived competence, objective knowledge and safe falling skills improved significantly after the workshop (T2, $p < 0.05$) and remained high after the practical sessions (T3) when compared to T1. Perceived importance improved after the full Train-the-Trainer program (T3, $p = 0.02$). Judo coaches scored higher overall in safe falling ($p = 0.01$) than allied health professionals, but both groups demonstrated similar improvements over time ($p = 0.08$).

Conclusions: Improvements in perceived competence, knowledge and safe falling were observed among allied health professionals and judo coaches, with most gains occurring after the 2-day workshop. This Train-the-Trainer program may support broader implementation of safe falling training across community and clinical settings.

Keywords: accidental falls; aged; allied health personnel; education; martial arts.

Obstacle-Crossing Speed and its Association With Fall Risk in Community-Dwelling Older Adults

Kim H, Kang H. J Aging Phys Act. 2026 Aug 31:1-8.

DOI: [10.1123/japa.2025-0346](https://doi.org/10.1123/japa.2025-0346)

PMID: 42674548

Abstract

Background/objectives: The ability to cross obstacles declines with age, and obstacle-related falls are increasingly common among older adults. This study examined the association between obstacle-crossing performance and fall risk, and their distinct roles in older Korean adults.

Methods: In this observational study, 200 older adults (72.8 ± 5.6 years) participated. Obstacle performance was assessed with a gait analysis system, measuring obstacle-crossing speed and foot elevation while stepping over 5 cm, 10% of height, and 30-cm obstacles. Fall risk was evaluated using the Fall Risk Assessment system, which integrates sensory, neurological, balance, and musculoskeletal domains. Participants were classified as low or high risk based on Fall Risk Assessment scores. Independent t-tests compared obstacle performance between groups, and one-way analyses of variance examined age differences (65-69, 70-74, 75-79, ≥ 80 years).

Results: At 5 cm and 10% height obstacles, foot elevation did not differ by group, whereas obstacle-crossing speed was higher in the low-risk group ($p < .05$). At 30 cm, both foot elevation ($p = .003$) and obstacle-crossing speed ($p < .001$) were greater in the low-risk group. Obstacle-crossing speed declined with age across all obstacles ($p < .001$), while foot elevation decreased with age only at 30 cm ($p < .05$).

Conclusion: Obstacle-crossing speed and foot elevation are associated with fall risk, and maintaining speed under higher demands may indicate gait adaptability. Significance/Implications: Measuring obstacle-crossing speed may improve fall risk screening and guide interventions to maintain mobility and independence in older adults.

Keywords: Fall Risk Assessment; foot clearance; gait analysis; mobility.

Risk of falls in hospitalized pregnant women: a descriptive, correlational study

Kiyak S, Polat HT. Rev Assoc Med Bras (1992). 2026 Aug 3;72(7):e20252205.

DOI: [10.1590/1806-9282.20252205](https://doi.org/10.1590/1806-9282.20252205)

PMID: 42561201

Abstract

Objective: The aim of this study was to examine the risk of falls and associated factors among hospitalized pregnant women and to evaluate the measurement consistency between the Itaki II Fall Risk Scale and the Assessment Scale for Risk of Falling in Pregnant Women.

Methods: This descriptive, correlational study was performed in the obstetrics ward of a university hospital between March and August 2024. A total of 165 pregnant women were included in the study. Data were collected using the Assessment Scale for Risk of Falling in Pregnant Women questionnaire and the Itaki II Fall Risk Scale. For data analysis, the Mann-Whitney U test, Kruskal-Wallis H test, Spearman's correlation, linear regression, and Bland-Altman analysis were employed.

Results: The prevalence of falls during pregnancy was 10.3%. The median total Assessment Scale for Risk of Falling in Pregnant Women score was 9, whereas the median Itaki II Fall Risk Scale score was 2. Gestational weight gain, gestational age, spouse's education level, and the presence of chronic diseases were significantly associated with fall risk ($p < 0.05$). A low-level significant correlation was found between the scales, and Bland-Altman analyses indicated that there was no measurement coherence between the two scales.

Conclusion: Early identification of pregnant women at risk of falls and implementation of appropriate preventive strategies are critical for patient safety. Therefore, it is recommended to develop a reliable fall risk assessment tool tailored for hospitalized pregnant women and to provide education programs and environmental modifications.

Virtual Reality-Based Rehabilitation to Improve Mobility and Prevent Falls in Older People With Diabetic Peripheral Neuropathy: Evidence Synthesis and Development of a Geriatric-Specific Framework

Labrague LJ, Ha DM, Visbal-Dionaldo L, Aderhold KL, Nguyen A. J Nurs Scholarsh. 2026 Sep;58(5):e70124.

DOI: [10.1111/jnu.70124](https://doi.org/10.1111/jnu.70124)

PMID: 42584022

Abstract

Introduction: Diabetic peripheral neuropathy (DPN) among older people is associated with significant gait and balance impairments, postural instability, and an increased fall risk. Virtual reality (VR)-based interventions have been shown to be effective in improving balance and mobility; however, their design features and applicability for older people with DPN remain unclear. This systematic review was conducted to examine the effectiveness of VR systems on clinical outcomes in individuals with DPN and translate the findings into geriatric-specific VR design recommendations.

Method: A systematic review design was employed. Five electronic databases (Scopus, PubMed, CINAHL, Web of Science, and Embase) were systematically searched. Guided by the Synthesis Without a Meta-Analysis (SWiM) approach, a narrative synthesis was conducted.

Results: A total of eight studies met the inclusion criteria, with a pooled sample of 341 participants (mean age = 49 to 72). VR systems were primarily used as intervention modalities (6 of 8 studies). Most VR systems employed non-immersive, screen-based platforms with real-time visual biofeedback. Progression algorithms were clinician-guided rather than adaptive. VR-based interventions demonstrated consistent improvements in postural sway, mediolateral stability, and functional mobility measures in adults with DPN.

Conclusion: VR systems, used as either intervention and assessment modalities, were found to be effective in assessing and improving balance and functional mobility in adults with DPN.

Clinical relevance: Based on these findings, the SAFE STEP PLAN Framework, a geriatric-specific design guidance for VR-based and other technology-assisted rehabilitation interventions in DPN, was developed to inform the design, implementation, and clinical integration of technology-assisted interventions for older people.

Keywords: balance training; diabetic peripheral neuropathy; fall prevention; older adults; virtual reality.

Falls in older patients treated for cancer in French outpatient departments: screening and prevention-a prospective observational study

Levard R, Mesnilgrante O, Le Bon P, Evenden P, L'Orphelin JM, Lebaube S, Villemain M, Delarue E, Dumont A, Basti S, Hamon M, Kaluzinski L, Pottier L, Dumont D, Fournier E, Bernardin P, Calache T, Boudin G, Homokos H, Cherel A, Magnan C, Fournel F, Meurant A, Briant A, Beauplet B. Support Care Cancer. 2026 Aug 17;34(9):861

DOI: [10.1007/s00520-026-11108-9](https://doi.org/10.1007/s00520-026-11108-9)

PMID: 42608484

Abstract

Purpose: International guidelines published in 2022 recommend annual fall risk (FR) screening in adults aged ≥ 65 years. Older cancer patients are at increased risk of falls due to cancer-related symptoms, treatment toxicities, and concomitant medications. Falls may negatively impact cancer care and outcomes.

Methods: This exploratory multicenter cross-sectional and prospective study included patients aged ≥ 65 years treated for cancer in ten oncology ambulatory care units. Patients were recruited during World Patient Safety Day in September 2024. FR screening and preventive recommendations followed international guidelines. A 3-month follow-up assessed implementation in patients at high FR. The primary objective was to describe the prevalence of fallers and the distribution in the three FR levels in older adults with cancer. The secondary objectives were to identify factors associated with being at high FR and assess the feasibility of fall prevention recommendations.

Results: Among 328 patients, 21% reported at least one fall in the previous year and 15% were classified as high FR. High FR was independently associated with older age (OR 1.33 per 5-year increase), taxane treatment (OR 3.74), and exposure to ≥ 2 fall-risk-increasing drugs (FRIDs) (OR 2.19). Polypharmacy was frequent (61%) but not associated with high FR. At 3 months, only 24% of high FR patients had fully implemented preventive recommendations, mainly biological assessments (60%), medication review (48%), and cardiovascular evaluation (43%).

Conclusion: High FR in older cancer patients is associated with potentially reversible pharmaceutical factors. Fall prevention recommendations remain poorly implemented, highlighting the need for structured multidisciplinary approaches.

Trial registration number: [NCT06504628](https://www.clinicaltrials.gov/ct2/show/study/NCT06504628), registered on 2024-07-10.

Keywords: Accidental falls; Antineoplastic agents; Drug-related side effects and adverse reactions; Neoplasms; Older adults; Potentially inappropriate medication list.

Stage-Related Sensory Integration Deficits and Fall Risk in Parkinson's Disease

Luo X, Wang J, Shi Y, Li Y, Li S, Wei L, Zhang M, Jin L, Zhao Q. *Neurorehabil Neural Repair*. 2026 Aug 5;15459683261448478.

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PMID: 42552838

Abstract

Introduction: Postural balance dysfunction in Parkinson's disease (PD) is associated with sensory integration deficits, yet stage-related changes and their relationship with falls remain incompletely understood. This study evaluated sensory integration across Hoehn-Yahr stages and prospectively monitored falls over 6 months.

Methods: Seventy-five PD patients (26 early-stage and 49 advanced-stage) and 26 healthy controls (HCs) were assessed using the Sensory Organization Test. Demographic and motor assessments were performed, and falls were tracked for 6 months. Group comparisons used 1-way analysis of variance or Kruskal-Wallis tests, as appropriate. Associations with fall status were analyzed using χ^2 tests.

Results: Advanced-stage PD patients were older and exhibited more severe motor symptoms than early-stage patients. Sensory integration deteriorated with disease progression. Compared with HCs and early-stage PD patients, advanced-stage PD patients demonstrated significantly reduced composite balance scores ($P < .001$). Significant overall group differences were observed for visual ($P = .029$), vestibular ($P < .001$), and preference ratios ($P < .001$), whereas somatosensory ratios remained preserved. Falls occurred in 33.3% of PD patients and were more frequent in advanced stages (44.9% vs 11.5%; $P < .001$). Vestibular dysfunction was significantly associated with fall occurrence (76.0% vs 38.0%; $P = .002$).

Conclusion: Sensory integration deficits in PD progress with disease advancement and are primarily characterized by impairments in visual and vestibular domains. Vestibular dysfunction was significantly associated with fall risk. These findings suggest that vestibular assessment and targeted interventions may be beneficial for fall-risk management in PD.

Keywords: Parkinson's disease; falls; postural balance; sensory integration; vestibular function.

Relative importance of fall risk factors in identifying falls among community-dwelling older adults: A cross-sectional retrospective study

Mahmoudzadeh Khalili S, Yang F. Geriatr Nurs. 2026 Aug 8;73:104228.

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PMID: 42570560

Abstract

This study determined the relative strength of the association between fall risk factors and falls among community-dwelling older adults. Ninety-four older adults participated in this cross-sectional study. Their fall history in the past year and four categories of fall risk factors, including sensory (foot tactile sensation), motor (muscle strength and power), physical (balance, mobility, ankle range of motion, and physical activity level), and mental (fear of falling and cognitive functions), were collected. Logistic regression indicated that sensation, leg muscle power, and knee extensor strength collectively reached the highest faller status classification accuracy (70.7%). The Relative Weight Analysis results revealed that sensation accounts for 62.51% of the observed variation in faller status, followed by leg muscle power (32.49%) and knee extensor strength (5%). Our findings implied that foot sensation and leg muscle power could be used to assess one's risk of falls. Interventions targeting them may reduce falls for older adults.

Keywords: Balance; Cognition; Muscle power; Relative weight; Sensation.

Fall-Risk-Increasing drugs and falls in community-dwelling older adults: a prospective cohort study in a single Danish municipality

Mortensen TI, Gade GV, Jørgensen MG, Seppala L, van der Velde N, Masud T, Ryg J. Eur Geriatr Med. 2026 Aug 12.

DOI: [10.1007/s41999-026-01568-x](https://doi.org/10.1007/s41999-026-01568-x)

PMID: 42584792

Abstract

Purpose: Fall-risk-increasing drugs (FRIDs) are a significant and modifiable risk factor for falls in older adults. However, prospective data using robust fall ascertainment on specific FRID classes are scarce in community-dwelling populations. We aimed to investigate the association between individual FRID classes and both single and recurrent falls in older community-dwelling adults.

Methods: We analysed data from a Danish prospective cohort of 241 community-dwelling adults aged ≥ 75 years. Medication records were collected at baseline, and drugs were classified using the STOPPFall consensus FRIDs list. Falls were recorded prospectively for 1 year using monthly fall-calendars, verified using telephone follow-ups. Associations between FRIDs and one-time (1 fall) and recurrent falls (≥ 2 falls) were explored using Cox proportional hazards model, adjusting for clinical and sociodemographic factors.

Results: The median (IQR) age was 82 (80, 86) years, 66.4% were women, and 43.6% had a positive fall history. Prevalences of polypharmacy and use of any FRID were 70.5% and 73.9%, respectively. During follow-up, 88 participants (36.5%) fell at least once while 41 participants (17.0%) fell twice or more. The total number of FRIDs was not associated with falls. Baseline use of benzodiazepine-related drugs, strong anticholinergics, and antiepileptics were significantly associated with recurrent falls in the fully adjusted analyses with hazard ratios (95% confidence intervals) of 3.34 (1.28-8.75), 2.48 (1.04-5.89), and 4.78 (1.24-18.35), respectively.

Conclusion: Several specific FRID classes were significantly associated with recurrent falls in this cohort of well-functioning community-dwelling adults, highlighting the importance of targeted medication review and careful prescribing strategies.

Keywords: Adverse drug events; Fall-risk-increasing drugs; Falls; Older adults; Prospective study; Recurrent falls.

Assessing concerns about falling: a comparison of telephone-based and face-to-face FES-I interviews in older adults

Müller A, Kob R, Freiburger E, Rohleder N, Britting S. BMC Geriatr. 2026 Aug 22;26(1):1090.

DOI: [10.1186/s12877-026-08166-3](https://doi.org/10.1186/s12877-026-08166-3)

PMID: 42638085

Abstract

Background: Concerns about falling (CaF) are commonly assessed using the Falls Efficacy Scale-International (FES-I), but telephone versus face-to-face interviews may influence responses. The objective of this secondary paired method-comparison analysis was to assess agreement between telephone and face-to-face FES-I total scores in older adults and to explore whether the two administration modes differed at the total-score and item levels.

Methods: Data were drawn from the FEARFALL study, a longitudinal randomized controlled trial on stress and functional health in older adults with CaF. FES-I scores of 123 participants aged 70 years and older were collected via both telephone and face-to-face interviews. Differences in total scores, item-level differences, and regression models were analyzed to identify potential influencing factors.

Results: FES-I scores obtained during the telephone-first assessment were lower than those obtained at the subsequent face-to-face assessment ($p < .001$; $d = -0.34$). Agreement between the two modes was moderate to good ($ICC = 0.67$). In addition, the two assessment modes showed a high correlation ($r = .71$) with heterogeneity at the item level. Three items showed significant deviations (Item 4: "bathing/showering", $p_{adj} = 0.007$, $d = 0.36$; Item 10: "answer telephone", $p_{adj} = 0.005$, $d = 0.34$; Item 14: "uneven ground" $p_{adj} = 0.015$, $d = 0.32$). Age was significantly associated with mode-related score differences ($B = -0.326$, 95% CI $[-0.58, -0.07]$, $p = .013$).

Conclusion: The telephone FES-I may be suitable for group-level comparisons and large-scale screenings. However, the interchangeability of telephone and face-to-face interview for individual clinical use remains uncertain. Since telephone assessment was always performed first and the time interval between assessments varied, the observed differences cannot be attributed to administration mode alone. Further studies specifically designed to compare administration modes are needed.

Trial registration: German Clinical Trials Register (DRKS00029171), registered 22 July 2022.

Keywords: Concerns about falling; Face-to-face interview; Falls efficacy scale-international; Mode effects; Older adults; Telephone interview.

Differences in the First Reactive Step Response to Unannounced Lateral Perturbation During Walking in Older Adults With and Without a Fall History: Exploratory Pilot Study

Nachmani H, Melzer I. J Aging Phys Act. 2026 Aug 13:1-7.

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PMID: 42601053

Abstract

Unexpected loss of balance during walking and ineffective reactive response are major causes of falls in older adults. We aimed to compare the kinematics of the first reactive step to unannounced balance perturbation while walking in older adults with and without a fall history. In an exploratory cross-sectional study, 14 older adults (84% female) who reported a fall in the past year and 21 older adults (72% female) without a fall history were instructed to walk on a treadmill that provided unannounced lateral surface perturbations. The perturbation magnitudes were systematically increased from low to high. The average values of first reactive step parameters across all perturbation magnitudes were compared between the groups. The step initiation time and the step duration of the first reactive step in older adults with a fall history were slower than older adults without a fall history (342 ± 124 ms vs. 306 ± 122 ms, $p = .001$ and 670 ± 195 ms vs. 602 ± 191 ms, $p < .001$, respectively), and step length was larger (21 ± 10 cm vs. 17 ± 9 cm, $p < .001$). The displacement of the center of mass after the perturbation tended to be larger in older adults with a fall history ($p = .047$). In addition, the highest perturbation achieved by older adults with a fall history was lower ($p = .016$). The results indicate that the ability of older adults with a fall history to initiate a recovery step during gait is delayed; the first reactive step was slower and larger as they were less able to control the moving center of mass over the base of support provided by the feet.

Keywords: community-dwelling older adults; mediolateral perturbation; unexpected perturbation.

Methodological characteristics of perturbation-based balance training in healthy older adults: A scoping review

Rajaeian N, Date S, Frey G. Gait Posture. 2026 Oct;130:110611.

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PMID: 42594763

Abstract

Purpose: Perturbation-based balance training (PBT) targets reactive balance control through exposure to unexpected mechanical disturbances. Although growing evidence supports its potential role in fall prevention, methodological variability across studies limits synthesis and clinical translation. This review aimed to systematically map and characterize the methodological features of mechanically induced PBT interventions in healthy older adults.

Methods: This scoping review followed the Arksey and O'Malley framework with refinements by Levac et al. and the Joanna Briggs Institute. Reporting adhered to PRISMA-ScR guidelines. PubMed, EMBASE, Scopus, and Web of Science were searched from inception through April 2025. Eligible studies included peer-reviewed empirical investigations of mechanically induced PBT in adults ≥ 65 years reporting balance, gait, or fall-related outcomes. Data were extracted on perturbation modality, task context, training dosage, outcome domains, and follow-up assessment.

Results: Thirty-three studies met the inclusion criteria. Five primary perturbation categories were identified: treadmill-induced slips ($n = 11$), platform-based perturbations ($n = 12$), waist-pull systems ($n = 4$), overground trips ($n = 4$), and unspecified methods ($n = 1$). Single-session protocols were most common ($n = 16$), with fewer short-, moderate-, and long-duration programs. Balance outcomes were universally assessed, while gait and fall-related outcomes were reported in most studies. Follow-up beyond immediate post-testing was inconsistent, and alignment between training duration and retention assessment was limited.

Conclusions: Mechanically induced perturbation-based balance training research in healthy older adults has been conducted predominantly in controlled laboratory environments and is characterized by substantial heterogeneity in intervention design. While reactive balance improvements were consistently reported, variability in intervention design, reporting practices, and follow-up timing limits direct comparison across studies and highlights the need for greater methodological standardization.

Keywords: Fall prevention; Gait stability; Older adults; Perturbation-based training; Postural control; Reactive balance.

The Role of Aquatic Training in Improving Risk of Falls in Older Adults: A Systematic Review With Meta-Analysis and Meta-Regression

Reichert T, Silva LL, Freitas AKF, Cadore EL, Costa RR. J Aging Phys Act. 2026 Aug 14:1-17.

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PMID: 42603704

Abstract

Background/objective: This systematic review aimed to evaluate the effects of aquatic training (AT) on risk of falls in older people, compared with control groups or land-based training (LT) groups, and to know the possible moderators of the effect of AT on these outcomes.

Methods: Clinical trials comparing the effect of AT with a control group or LT group in older people, assessing gait ability, balance, or muscle strength, were included. Embase, Cochrane, PubMed, and Scopus were searched until August 2025. The TESTEX (Tool for the assEssment of Study qualiTy and reporting in EXercise) scale was used to assess the risk of bias in the included studies. Random effect model was used, and effect sizes (ESs) were calculated with a 95% confidence interval.

Results: Thirty-one studies were included (1,702 participants). After AT, balance (ES = 1.16, 95% CI [0.72, 1.59], $p < .001$, $I^2 = 93\%$) and muscle strength (ES = 1.14, 95% CI [0.76, 1.53], $p < .001$, $I^2 = 92\%$) were improved compared with control group. Aerobic and combined training produced large ES in balance. Weekly training frequency and training progression moderated the effects of AT on balance, and participants' mean age moderated the effects of AT on strength. Overall, AT did not differ significantly from LT. The present study has limitations, including high heterogeneity in some comparisons and poor methodological quality of certain studies.

Conclusion: AT is effective in improving fall risk factors such as balance and muscle strength, with large ES. The observed effects appear to be similar for both aquatic and LT. Significance/Implications: AT programs aiming to reduce fall risk incorporate either aerobic or combined aerobic and resistance training prescribed at least twice per week. Increasing the number of weekly sessions may further optimize balance improvements, and progression to higher training intensities appears beneficial for both balance and muscle strength.

Keywords: accidental falls; aquatic therapy; exercise; gait; muscle strength; postural balance.

Care gaps in hospital discharge planning for older adults with fall-related fractures: a mixed-methods study

Santos JMD, Pedreira LC, Góes RP, Silva VAD, Caramelo ACLM, Souza MAA, Junqueira AC, Baixinho CRSL, Santos JLP. Int J Orthop Trauma Nurs. 2026 Aug;62:101311.

DOI: [10.1016/j.ijotn.2026.101311](https://doi.org/10.1016/j.ijotn.2026.101311)

PMID: 42566810

Abstract

Objective: To analyze discharge planning for older adults hospitalized due to fractures resulting from same-level falls, combining the investigation of associations between sociodemographic and clinical variables with a qualitative exploration of the processes and perceptions involved.

Method: A mixed-methods study conducted in a public hospital in the interior of Bahia and in home settings. A total of 142 medical records of older adults hospitalized for fractures (September 2022 to August 2023) were analyzed, and interviews were conducted with 16 participants after discharge. Quantitative data were analyzed using descriptive statistics and Pearson's chi-square test ($p < 0.05$), while qualitative data were analyzed through content analysis.

Results: Only 17 medical records included discharge instructions, which were generic and restricted to clinical aspects. Interviews revealed a predominance of lack of guidance on fall prevention and reports of ptophobia after discharge, leading to activity restriction and social isolation. An association was found between lower limb fractures and female sex, as well as the presence of two to three comorbidities; individuals aged 60 to 79 years showed a higher occurrence of upper limb fractures.

Conclusion: The findings point to the urgent need for structured, individualized, and multidisciplinary long-term planning. Nurse-led protocols that include guidance on fall prevention and psychosocial support are essential to prevent ptophobia and activity restriction, ensuring safe hospital-to-home transitions for older adults who have sustained fractures resulting from same-level falls.

Socioeconomic position and falls among middle-aged and older-aged adults: a systematic review with a life course approach

Smit F, Franco MR, Sherrington C, Cullati S, Blyth F, van Zwieten A, Khalatbari-Soltani S. J Epidemiol Community Health. 2026 Aug 18;jech-2025-225014.

DOI: [10.1136/jech-2025-225014](https://doi.org/10.1136/jech-2025-225014)

PMID: 42586773

Abstract

Introduction: Falls among middle-aged and older-aged adults are a significant public health concern. However, a holistic understanding of how different indicators of socioeconomic position (SEP) are associated with falls is lacking, particularly for SEP across the life course.

Methods: We systematically searched for observational studies analysing the association between at least one indicator of SEP and one fall outcome. Due to heterogeneity between included studies, results were narratively synthesised.

Results: After de-duplication, 5880 search results were screened and 125 studies were included. Only 14 included studies explicitly aimed to study the relationship between SEP and falls, which generally found that higher SEP was associated with lower risks/rates of falls. An additional nine studies also had relevant adjusted models that largely showed a negative relationship. However, adjusted results were mixed and often lacked statistical significance. The remaining 102 studies only contained unadjusted results of interest, with 50-100% of results for each SEP indicator showing that low SEP groups experience disproportionately high risks/rates of fall outcomes compared with high SEP groups. Notably, only four studies measured any SEP indicators from a stage of the life course prior to the study period.

Discussion: Our findings suggest that falls disproportionately impact low SEP groups and that knowledge gaps exist regarding the relationship between different SEP indicators and falls, particularly for SEP exposures across the life course. Future research on this topic should use causal diagrams for appropriate model building and include a wide range of SEP indicators across the life course.

Keywords: GERONTOLOGY; Life course epidemiology; PREVENTION; PUBLIC HEALTH; SOCIAL CLASS.

Development of an immersive fall management program for nursing students: A usability study

Song MO, Yun SY. PLoS One. 2026 Aug 26;21(8):e0357026.

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PMID: 42647541

Abstract

This study aimed to develop an immersive virtual reality simulation-based fall management program (IVRsim-FMP) for nursing students, and to evaluate its usability and feasibility. IVRsim-FMP was developed following the System Development Life Cycle framework, and progressed through the analysis, design, implementation, and evaluation phases. The preliminary feasibility, system usability, cybersickness, and presence of the program were evaluated by 18 fourth-year nursing students. In the preliminary feasibility assessment, all the participants completed the study procedure. The system usability score was 77.50 (SD = 12.91), indicating an acceptable level; the total cybersickness score was 10.08 (SD = 9.53), suggesting a mild level; and the presence score was 150.94 (SD = 15.41), demonstrating a high level. IVRsim-FMP demonstrated acceptable usability and high immersion, indicating its potential as an educational tool in nursing education for fall prevention and management. This program provides opportunities to practice patient-safety scenarios that are difficult to replicate in clinical environments. The findings suggest that the IVRsim-FMP should be further explored as a training tool for fall prevention and management not only in nursing education but also in professional development for new and experienced nurses.

Effects of a fall prevention program on falls among rural older adults with cardiovascular disease in China: a secondary analysis of the FAMILY cluster randomised trial

Tang N, Peng J, Xu Z, Liu T, Nan B, Yan S, Li Z, Li Q, Meng R, Li Y, Hao T, Zhang L, Peng D, Yang M, Yao Y, Zhang J, Tian W, Ivers R, Wang Y, Ye P, Tian M. Age Ageing. 2026 Aug 3;55(8):afag237.

DOI: [10.3389/fneur.2026.1874677](https://doi.org/10.3389/fneur.2026.1874677)

PMID: 42580695

Abstract

Background: Older adults with cardiovascular disease (CVD) have a high risk of falls, yet evidence for scalable fall-prevention programs in this population is limited.

Methods: This secondary analysis of the Fall Prevention for Rural Community-Dwelling Elderly open-label cluster randomised trial included rural Chinese adults aged 60 years or older with self-reported physician-diagnosed hypertension or heart disease at baseline from 128 villages. Villages were randomised 1:1 to a 12-month village doctor-led intervention comprising balance and functional exercise and health education, or to usual care. The primary outcome was reporting at least one fall over 12 months. Secondary outcomes included falls rate, fall-related injury, functional mobility and health-related quality of life.

Results: Participants were recruited between 19 September 2023 and 15 November 2023. Compared with usual care, the intervention reduced the proportion reporting at least one fall [31.6% vs 42.7%; OR, 0.60; 95% confidence interval (CI), 0.43 to 0.84], falls rate (0.9 vs 1.6 per person-year; RR, 0.62; 95% CI, 0.43 to 0.89) and fall-related injury (15.9% vs 24.9%; OR, 0.57; 95% CI, 0.42 to 0.78). The intervention also improved chair stand performance, balance performance and health-related quality of life score, but not Timed Up and Go. Benefits were generally consistent across subgroups, with a greater effect in men.

Conclusions: A village doctor-led fall-prevention program integrated into rural primary care reduced falls and fall-related injuries and improved functional outcomes among older adults with CVD. These findings support integrating scalable nonpharmacological fall-prevention strategies into routine cardiovascular management in rural primary care.

Keywords: cardiovascular disease; exercise intervention; falls; older adults.

Dose-response and recovery trajectories of fall prevention rehabilitation in older patients with vertigo: a retrospective cohort study based on vestibular and gait impairment phenotypes

Zhang XQ, Qin J, Wang HM, Liu L, Zhang J, Wang YH, Wang WT, Zhu RT, Guo HL. Front Neurol. 2026 Aug 17;17:1874677.

DOI: [10.3389/fneur.2026.1874677](https://doi.org/10.3389/fneur.2026.1874677)

PMID: 42676454

Abstract

Background: Vertigo and dizziness are common in older adults and are associated with a significantly increased risk of falls. Fall prevention rehabilitation therapy (FPRT) is recommended, but current prescriptions remain largely empirical and do not account for heterogeneity in baseline vestibular and gait impairments. The dose-response relationship between rehabilitation hours and functional improvement, and how baseline phenotypes are associated with recovery trajectories, are poorly understood.

Methods: This retrospective longitudinal cohort study, conducted in accordance with STROBE guidelines, included 756 older patients with vertigo (mean age 68.4 ± 8.2 years) who completed a standardized 10-week FPRT program. The primary outcome was the change in Timed Up and Go (TUG) test over 10 weeks. Group-based trajectory modeling (GBTM) was used to identify distinct functional recovery trajectories. Restricted cubic splines (RCS) within generalized estimating equation models were used in a planned exploratory secondary analysis to explore nonlinear dose-response relationships between time-varying cumulative rehabilitation hours and achievement of the minimal clinically important difference (MCID).

Results: Three distinct recovery trajectories were identified: rapid responders (34.1%), gradual responders (47.5%), and poor responders (18.4%). Baseline impairment phenotypes were associated with trajectory membership. Patients with isolated vestibular impairment were enriched among Rapid Responders, whereas age ≥ 75 years (OR = 3.45, 95% CI = 2.12-5.61) and complex mixed impairment involving vestibular, dynamic gait, and proprioceptive deficits (OR = 4.85, 95% CI = 2.95-7.98) were independently associated with Poor Responder membership. The dose-response relationship was nonlinear. The probability of achieving MCID ($\geq 80\%$) required 35-40 cumulative hours for rapid responders, 55-60 h for gradual responders, and showed a plateau with minimal benefit beyond 70 h for poor responders.

Conclusions: Baseline vestibular, dynamic gait, and proprioceptive impairment phenotypes were associated with longitudinal recovery trajectories and exploratory dose-response patterns in older patients with vertigo. The observed 80% MCID probability points, approximately 35-40 h for Rapid Responders and 55-60 h for Gradual Responders, should be interpreted as hypothesis-generating estimates rather than definitive prescription targets. These findings may inform future prospective studies of phenotype-informed fall prevention rehabilitation.

Keywords: dose-response; fall prevention; neuro-otology; older adults; timed up and go test; trajectory analysis; vertigo; vestibular rehabilitation.

Dual-task timed up and go performance and sleep quality in relation to fall history in older adults with type 2 diabetes: a cross-sectional study

Zhang X, Wang S, Sun C, Li S, Hu Y. Front Public Health. 2026 Aug 6;14:1856870.

DOI: [10.3389/fpubh.2026.1856870](https://doi.org/10.3389/fpubh.2026.1856870)

PMID: 42625614

Abstract

Background: Emerging evidence indicates that individuals with type 2 diabetes mellitus (T2DM) have a higher incidence of falls compared to individuals without diabetes, likely due to impairments in both motor and cognitive function. To guide targeted prevention strategies, this study aims to investigate the association between TUG-DT performance, postural control, sleep quality, depression, and lifestyle habits and fall history in middle-aged and older adults with T2DM.

Methods: A cross-sectional, observational study involved 60 participants aged over 50, comprising 30 patients with T2DM and 30 age- and gender-matched healthy controls. The T2DM cohort was further stratified into faller and non-faller subgroups. Assessments included: (1) mobility via TUG and TUG-DT; (2) balance and fear of falling via postural stability and the Falls Efficacy Scale International (FES-I); (3) Psychosocial and sleep status using Center for Epidemiologic Studies Depression Scale (CES-D), and Pittsburgh Sleep Quality Index (PSQI); (4) lifestyle factors, including smoking, alcohol, tea intake, and exercise status.

Results: Significant differences were observed in TUG ($p = 0.034$) and TUG-DT ($p < 0.001$) time, postural stability ($p < 0.05$), visual preference ($p = 0.045$), CES-D ($p = 0.015$), and smoking ($p = 0.01$) and exercise ($p < 0.001$) behavior between T2DM and control groups. Notably, TUG-DT performance was significantly impaired in the T2DM group, with increased cognitive errors ($p = 0.015$), cognitive pauses ($p < 0.001$), and movement pauses ($p = 0.021$). Within the T2DM group, PSQI emerged as the only variable significantly associated with fall status in logistic regression analysis [OR = 1.239, 95% CI: (1.033, 1.488)]. ROC analysis demonstrated that PSQI had acceptable discriminative ability (AUC = 0.785, $p = 0.010$), with an optimal cut-off value of 9.5, yielding a sensitivity of 72.7% and a specificity of 84.2%.

Conclusion: The TUG-DT test is sensitive to detecting declines in functional mobility associated with T2DM. However, the history of falls in individuals with T2DM is primarily influenced by behavioral and psychological factors rather than isolated motor metrics. Poor sleep quality, indicated by a PSQI score greater than 9.5, emerges as a critical correlate of falls. Therefore, the risk of falls in individuals with T2DM is a multidimensional construct.

Keywords: dual-task; falls; older adults; sleep quality; type 2 diabetes mellitus.

"I don't want to be a burden": the double-edged role of filial piety in fall-risk perception among community-dwelling older adults in China

Zhu Y, Zhang D, Deng Y, Xiong Y. Front Public Health. 2026 Jul 21;14:1875906.

DOI: [10.3389/fpubh.2026.1875906](https://doi.org/10.3389/fpubh.2026.1875906)

PMID: 42553180

Abstract

Background: Falls are a major threat to healthy aging, yet older adults' subjective appraisal of their likelihood and consequences of falling may differ from objective physiological risk. Fall-risk perception is broader than fear of falling or activity-specific concern and is relevant because it may inform older adults' willingness to disclose falls, seek help, modify the home environment, and participate in balance or strength training.

Aim: This study aimed to explore how community-dwelling older adults in China experience and understand fall risk in everyday life and family relationships, with particular attention to filial piety and the desire not to become a burden to adult children.

Methods: A descriptive phenomenological design was used. Nineteen community-dwelling older adults in Changsha, China, were purposively recruited through maximum variation sampling and stratified by levels of concern about falling assessed using the Falls Efficacy Scale-International (FES-I). The FES-I was used as a sampling aid rather than as an operational measure of the broader phenomenon of fall-risk perception. Semi-structured individual interviews were conducted between March and May 2023. Data were analyzed using Colaizzi's seven-step method. Reporting followed the Consolidated Criteria for Reporting Qualitative Research.

Results: Three overarching themes were identified. First, embodied and relational experiences were associated with heightened fall-risk perception, including adverse fall-related events, perceived efficacy of prevention, awareness of physical decline, environmental vigilance, and caregiver monitoring. Second, cognitive, identity-related, and contextual experiences were associated with reduced risk appraisal or constrained prevention, including misconceptions about falls, normalization of "harmless" falls, denial and overconfidence, over-reliance on assistive devices, living circumstances limiting home-safety practices, and limited professional support. Third, filial responsibility appeared in two contrasting forms: the wish not to burden adult children was associated with greater caution, while some participants also concealed minor falls to avoid causing family worry.

Conclusion: Participants' accounts suggest that fall-risk perception among community-dwelling older adults in China is experienced not only as an individual appraisal but also within family and cultural relationships. Community nurses should consider integrating objective fall-risk assessment with family-sensitive communication strategies that promote mobility, autonomy, and family well-being while minimizing guilt, stigma, and concealment.

Keywords: China; accidental falls; community-dwelling older adults; fall prevention; fall-risk perception; filial piety; healthy aging; qualitative research.