

**Safety Literature 13<sup>th</sup> March 2022**

**An evaluation of the fear of falling, balance levels, and prognostic blood parameters among the geriatric population with hip fractures**

Şahin G, Gültaç E, Can F, Kılınç CY, Aydoğan NH. *Cureus* 2022; 14(1): e21704.

(Copyright © 2022, Curēus)

**DOI** 10.7759/cureus.21704 **PMID** 35242472

**Abstract**

**Background** In this study, we determined that among patients who had been operated upon for hip fractures at our hospital, prognostic factors for mortality and functional recovery in the preoperative period were indicated via laboratory parameters using the International Falls Efficacy Scale (FES-I) and Berg Balance Scale (BBS) scores.

**METHODology** Between January 2020 and January 2021, the results of 64 patients who had been surgically treated for a hip fracture and 57 patients who had scheduled elective surgery were compared retrospectively. The groups' demographic data and blood parameters were compared. We used the FES-I and BBS scores to determine patients' physical functional status and fear of falling.

**RESULTS** The case group's statistically significant FES-I score was high, and its BBS score was low ( $p = 0.001/0.001$ ). As expected, the case group's D-dimer measurement was higher than the control group's ( $p = 0.001$ ). In addition, hemoglobin, platelet, lymphocyte, albumin, total protein, and calcium levels were lower in the case group ( $p = 0.001$  for all levels). No significant difference was found for other parameters.

**CONCLUSIONS** The scales are used by physical therapy, neurology, and orthopedics professionals to evaluate the geriatric population's physical functional status and fear of falling. We believe prevention and cost-effective treatments for hip fractures can be achieved by determining geriatric patients' hemoglobin, platelet, lymphocyte, albumin, total protein, and calcium levels upon hospital admission and by directing these patients to relevant clinics using the fear-of-falling and balance scales.

Language: en

**Keywords**

prognosis; accidental falls; fear; geriatric injuries; hip fractures

## Assessment of fall risk in elderly rural population

Geetha J, Sakthivadivel V, Gaur A. *Maedica* (Buchar) 2021; 16(4): 609-614.

(Copyright © 2021, Magister and Empire Publishing)

DOI 10.26574/maedica.2021.16.4.609 PMID 35261662

### Abstract

**BACKGROUND:** Fall risk assessment is an essential component of a comprehensive fall reduction and prevention program. Fall risk assessment is done to identify patients' risk for falls and ultimately prevent falls from occurring. The aim of the study was to identify the risk factors for fall in the elderly population.

**METHODS:** This study included 250 elderly patients > 60 years (105 males, 145 females) attending Medicine OPD in a tertiary care hospital. Detailed history including the previous h/o falls, medication history elicited and divided study subjects into two groups: fallers and non-fallers. Cardiovascular, neurological, and musculoskeletal system examinations were done. Handgrip, 30 seconds chair standing test (CST), "timed up and go" test (TUG), and performance-oriented mobility assessment (POMA) were performed.

**RESULTS:** The prevalence of falls in our study was 27.6%. The mean age of fallers was 72.22±6.219 years (P 0.002). Females had significant falls compared to males (p < 0.001). In binary logistic regression, age >80 [OR-3.8, CI (1.8-8.1); p 0.016], female gender [OR-19.2, CI (3.03-122.2); p 0.002], visual impairment [OR-8.9, CI (1.4-55.4); p 0.019], postural hypotension [OR-59.8, CI (3.3-1.07); p 0.006] and presence of more than three risk factors [OR-9.6, CI (4.6-2.01); p 0.000] were significantly associated with fall in our study.

**CONCLUSION:** Falls among older people were common, especially among individuals aged over 80. Females were more prone to fall. The number of risk factors, visual impairment, and postural hypotension increased the fall risk. Simple clinical assessment can identify high-risk patients.

Language: en

## **Association of body mass index and waist circumference with falls in Chinese older adults**

Zhao X, Yu J, Hu F, Chen S, Liu N. *Geriatr. Nurs.* 2022; 44: 245-250.

(Copyright © 2022, Elsevier Publishing)

**DOI** 10.1016/j.gerinurse.2022.02.020 **PMID** 35248838

### **Abstract**

This study explored the association of obesity as determined by body mass index (BMI) and waist circumference (WC) with falls in Chinese older adults. It was a cross-sectional design and used data from the Chinese Longitudinal Healthy Longevity Survey. The outcome variable was experienced falls, and the exposure variables were BMI and WC which represent general obesity and central obesity respectively. For older women, a linear correlation was found between falls and BMI. For participants aged 90 years and older, there was a linear correlation between falls and BMI. Participants with WC in the fourth quartile had a higher risk of falls than those in the first quartile. The findings suggest that the general obesity indicator (BMI), rather than the central obesity index (WC), was positively associated with falls in older women. The risk of falls increased with the increase of BMI or WC in the oldest-old Chinese population.

Language: en

### **Keywords**

Falls; Older adults; Body mass index; Obesity; Waist circumference

## **Comparison of the lower extremity kinematics and center of mass variations in sit-to-stand and stand-to-sit movements of older fallers and nonfallers**

Lin YT, Lee HJ. Arch. Rehabil. Res. Clin. Transl. 2022; 4(1): e100181.

(Copyright © 2022, Elsevier Publishing)

DOI 10.1016/j.arrct.2022.100181 PMID 35243318

### **Abstract**

**OBJECTIVE:** To compare the differences in sit-to-stand and stand-to-sit movements of older nonfalling males and older male fallers (also referred to herein as fallers) to contribute to the development of posture transfer-assisting devices or interventional therapies to prevent falls.

**DESIGN:** Controlled study. **SETTING:** University research laboratory. **PARTICIPANTS:** Ten older men (mean age, 75.9±5.4 years) who had fallen or been unstable at least once in the past year and 10 nonfalling older men (mean age, 70.0±5.0 years) participated in this study. **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Movement duration; sagittal trunk, hip, knee, and ankle joint range of motion (ROM); anteroposterior and mediolateral (ML) center of mass (COM) total trajectory.

**RESULTS:** During the sit-to-stand transition, fallers exhibited greater trunk joint ROM in the flexion and extension phase and smaller hip joint ROM in the extension phase as well as greater ML COM total trajectory. During stand-to-sit, older fallers exhibited greater trunk joint ROM in the flexion phase and smaller hip and knee joint ROM in the flexion phase as well as greater ML COM total trajectory. Older fallers took more time to perform the stand-to-sit and had greater ML COM total trajectory during the movement; additionally, they exhibited different proportional distributions of ROM for each joint compared with nonfaller.

**CONCLUSION:** Older fallers had more difficulty performing stand-to-sit than sit-to-stand; they exhibited more body sway in COM motion and, in particular, were unable to control ML motion y. Older fallers were more likely to adopt trunk, hip, and knee joint flexion strategies to maintain balance during sit-to-stand and stand-to-sit than nonfaller participants were.

Language: en

### **Keywords**

Aged; Rehabilitation; Accidental falls; Sitting position; Standing position

## **Economic models of community-based falls prevention: a systematic review with subsequent commissioning and methodological recommendations**

Kwon J, Squires H, Franklin M, Lee Y, Young T. BMC Health Serv. Res. 2022; 22(1): e316.

(Copyright © 2022, Holtzbrinck Springer Nature Publishing Group - BMC)

DOI 10.1186/s12913-022-07647-6 PMID 35255898

### **Abstract**

**BACKGROUND:** Falls impose significant health and economic burdens among older populations, making their prevention a priority. Health economic models can inform whether the falls prevention intervention represents a cost-effective use of resources and/or meet additional objectives such as reducing social inequities of health. This study aims to conduct a systematic review (SR) of community-based falls prevention economic models to: (i) systematically identify such models; (ii) synthesise and critically appraise modelling methods/results; and (iii) formulate methodological and commissioning recommendations.

**METHODS:** The SR followed PRISMA 2021 guideline, covering the period 2003-2020, 12 academic databases and grey literature. A study was included if it: targeted community-dwelling persons aged 60 and over and/or aged 50-59 at high falls risk; evaluated intervention(s) designed to reduce falls or fall-related injuries; against any comparator(s); reported outcomes of economic evaluation; used decision modelling; and had English full text. Extracted data fields were grouped by: (A) model and evaluation overview; (B) falls epidemiology features; (C) falls prevention intervention features; and (D) evaluation methods and outcomes. A checklist for falls prevention economic evaluations was used to assess reporting/methodological quality. Extracted fields were narratively synthesised and critically appraised to inform methodological and commissioning recommendations. The SR protocol is registered in the Prospective Register of Systematic Reviews (CRD42021232147).

**RESULTS:** Forty-six models were identified. The most prevalent issue according to the checklist was non-incorporation of all-cause care costs. Based on general population, lifetime models conducting cost-utility analyses, seven interventions produced favourable ICERs relative to no intervention under the cost-effectiveness threshold of US\$41,900 (£30,000) per QALY gained; of these, results for (1) combined multifactorial and environmental intervention, (2) physical activity promotion for women, and (3) targeted vitamin D supplementation were from validated models. Decision-makers should explore the transferability and reaches of interventions in their local settings. There was some evidence that exercise and home modification exacerbate existing social inequities of health. Sixteen methodological recommendations were formulated.

**CONCLUSION:** There is significant methodological heterogeneity across falls prevention models. This SR's appraisals of modelling methods should facilitate the conceptualisation of future falls prevention models. Its synthesis of evaluation outcomes, though limited to published evidence, could inform commissioning.

Language: en

## **Exploring the impact of experiencing a long lie fall on physical and clinical outcomes in older people requiring an ambulance: a systematic review**

Blackburn J, Ousey K, Stephenson J, Lui S. *Int. Emerg. Nurs.* 2022; 62: e101148.

(Copyright © 2022, Elsevier Publishing)

**DOI** 10.1016/j.ienj.2022.101148 **PMID** 35245728

### **Abstract**

**BACKGROUND:** The long term impacts of experiencing a 'long lie' following a fall in the older person are poorly understood. This systematic review explored the impact of a long lie fall on physical and clinical outcomes in older people requiring an ambulance.

**METHODS:** PRISMA guidelines were followed.

**RESULTS:** 70 studies were identified. Nine studies were suitable for full review. Four studies meeting the inclusion criteria were included. The Critical Appraisal Skill Programme (CASP) assessed the quality of all included studies. Three studies reported on people aged 65 years and older. One study reported on people aged over 90 years. Personal alarm use was examined in two studies. One study explored patient characteristics of people confirmed to have fallen by paramedics at the scene. One study examined re-contact and characteristics of fallers referred to a falls prevention service.

**DISCUSSION:** Cognitive impairment and long lie were a caveat for falls and repeated falls. Personal alarm use was infrequent, suggesting a need for supporting the older patient in appropriate alarm use and exploration of newer technologies to alleviate their need. Future research should focus on interventions for wearable, smart and e-technology for automatic fall detection and qualitative exploration of the lived experience.

Language: en

### **Keywords**

Falls; Elderly; Ambulance response; Fall detection technology; Lived experience; Long lie; Patient experience

## Factors influencing fear of falling in community-dwelling older adults in Singapore: a cross-sectional study

De Roza JG, Ng DWL, Mathew BK, Jose T, Goh LJ, Wang C, Soh CSC, Goh KC. *BMC Geriatr.* 2022; 22(1): e186.

(Copyright © 2022, Holtzbrinck Springer Nature Publishing Group - BMC)

DOI 10.1186/s12877-022-02883-1 PMID 35255827

### Abstract

**BACKGROUND:** Fear of falling (FoF) has far-reaching implications including activity restriction, functional decline and reduced quality of life. It is a common consequence of falls but may be present even in non-fallers. This study aimed to determine the factors associated with FoF in a segment of Singapore's community-dwelling older adults.

**METHODS:** This descriptive cross-sectional study recruited a convenience sample of adults aged 65 and above from 4 primary care clinics from September 2020 to March 2021. Data were collected on demographic factors, clinical factors such as multi-morbidity, falls characteristics such as history of falls, injuries, and reasons for falls and frailty as determined by the Clinical Frailty Scale (CFS). FoF was measured using the Short Falls Efficacy Scale-International (Short FES-I), cut-off score of 14 and above indicated high FoF. Logistic regression was used to determine factors associated with high FoF.

**RESULTS:** Out of 360 older adults, 78.1% were Chinese and 59.7% females. The mean age was 78.3 years and 76 (21.1%) had a history of falls in the past six months. Almost half (43.1%) were mildly to moderately frail and most (80.6%) had multi-morbidity. The mean FoF score was 15.5 (SD 5.97) and 60.8% reported high FoF. There were statistically significant differences in age, gender, ethnicity, marital status, educational level, use of walking aid, multi-morbidity, frailty status, history of falls within six months and reason for falls between patients who had high FoF versus those who had moderate or low FoF. Logistic regression found that Malay ethnicity (OR = 5.81, 95% CI 1.77-19.13), marital status, use of walking aids (OR = 3.67, 95% CI = 1.54-8.77) and frailty were significant factors associated with high FoF. Compared to those who were never married, the odds of high FoF were significantly higher in married older adults (OR = 6.75, 95% CI 1.39 to 32.76), those who were separated or divorced (OR 10.40, 95% CI 1.13 to 95.76) and those who were widowed (OR = 7.41, 95% CI 1.51 to 36.41). Compared to well older adults, the odds of high FoF were significantly higher in pre frail older adults (OR = 6.87, 95% CI = 2.66-17.37), mildly frail older adults (OR = 18.58, 95% CI = 4.88-70.34) and moderately frail older adults (OR = 144.78, 95% CI = 13.86-1512.60).

**CONCLUSIONS:** The study found that pre frail to moderately frail older adults as determined by CFS have significantly higher risk of high FoF. The demographic factors such as marital status and ethnicity and falls characteristics associated with FoF in this study will be helpful to develop targeted and tailored interventions for FoF.

Language: en

### Keywords

Community; Falls; Older adults; Fear of Falling; Frailty

## **Fall determinants in hospitalised older patients: a nested case control design - incidence, extrinsic and intrinsic risk in Malaysia**

Lee FS, Sararaks S, Yau WK, Ang ZY, Jailani AS, Abd Karim Z, Naing L, Krishnan T, Chu AR, Junus S, Ahmad MS, Sapiee N, Veloo VW, Manoharan S, A Hamid M. *BMC Geriatr.* 2022; 22(1): e179.

(Copyright © 2022, Holtzbrinck Springer Nature Publishing Group - BMC)

**DOI** 10.1186/s12877-022-02846-6 **PMID** 35236280

### **Abstract**

**BACKGROUND:** The older person is at greater risk of falls due to multiple intrinsic and extrinsic factors. This is compounded when the elderly is admitted to hospitals, as they are acutely ill and placed in an unfamiliar environment. Delirium and polypharmacy further complicate these problems. As falls reflect quality of care with potential for grave outcomes, this study aimed to identify the extent and risk of falls in public hospitals.

**METHODS:** We conducted a nested case control study in 12 public hospitals in Malaysia. In the cohort section, we screened all inpatients 60 years of age and above daily until discharge, or the end of the study period. Daily, we identified those who fell, inclusive of near falls, in the preceding 24 h. Our enumerators interviewed patients on experience of fall, and supplemented data from the nurses and caregivers. For each case, ten controls were chosen.

**RESULTS:** The incidence of falls/near falls was 1.0 per 1000 patient days (95% CI: 0.9, 1.1). Intrinsic risk factors found to be significant included patients who were not from a nursing home or not cared for by a domestic helper prior to admission, had prior history of indoor fall either in home or hospital, had four or more clinical diagnoses or exited from the bed on the weak side. Significant extrinsic factors were the absence of transfer bar in toilet, call bells, light switches or walking aids that were not within reach, as well as not having a walking aid. Non-sturdy chair was associated with lesser falls than when sturdy chairs with armrests were present.

**CONCLUSION:** Querying patients for falls produced better results than incident reporting. Several intrinsic factors such as history of indoor or in-hospital fall, having four or more clinical diagnoses or exiting from weaker side and residence history may help to identify those at higher risk. Addressing significant extrinsic factors such as transfer bars and the identification of switches may help in reducing falls risk in hospitals. **TRIAL**

**REGISTRATION:** This study was registered in National Medical Research Register of Malaysia ( NMRR-07-772-1044 ; date 26/05/2008) with Ethics Approval from Medical Research and Ethics Committee (MREC: MRG-07-LOI-HSR-1).

Language: en

### **Keywords**

Risk; Falls; Inpatient; Elderly; Determinants; Extrinsic; Hospitals; Intrinsic

## **Impact of a personalised care plan for the elderly calling emergency medical services after a fall at home: the RISING-DOM multi-centre randomised controlled trial protocol**

Bouزيد W, Tavassoli N, Berbon C, Qassemi S, Bounes V, Azéma O, Shourick J, Nourhashemi F. *BMC Geriatr.* 2022; 22(1): e182.

(Copyright © 2022, Holtzbrinck Springer Nature Publishing Group - BMC)

DOI 10.1186/s12877-022-02850-w PMID 35246053

### **Abstract**

**BACKGROUND:** A growing number of emergency calls are made each year for elderly people who fall. Many of them are not taken to hospital or are rapidly discharged from the Emergency Department (ED). Evidence shows that, with no further support, this vulnerable population is particularly at risk of injuries, dependency and death. This study aims to determine the effectiveness of a comprehensive geriatric assessment and a tailored intervention in the elderly calling on an Emergency Medical Service (EMS) for a fall at home, but not conveyed to the ED or rapidly discharged from it (less than 24 h from hospitalisation), to the time to institutionalisation or death.

**METHODS:** Rising-Dom is a two-arm randomised (ratio 1:1), interventional, multi-centre and open study. Community-dwelling elderly people ( $\geq 70$  years) who call an EMS for a fall at home are recruited. The intervention group receives home visits by a nurse with a comprehensive fall risk assessment and a personalised intervention care plan with a planned follow-up (six nurse home visits and five nurse phone calls). Subjects enrolled in the usual care-control group continue to receive their routine care for the prevention or treatment of diseases. Primary (time to institutionalisation or death) and secondary (unscheduled hospitalisations, additional EMS calls relating to falls, functional decline and quality of life) outcome data will be collected for both groups through five phone calls made by Clinical Research Associates (CRA) blind to the participants' group during the follow-up period (24-months). Twelve hospital centres in the South-West of France are participating in the study as study sites. The inclusion period started in October 2019 and will end in March 2022. By the end of this period, 1,190 subjects are expected to be enrolled.

**DISCUSSION:** Studies on elderly home falls have rarely concerned people who were not taken to hospital. The Rising-Dom intervention scheme should enhance understanding of features related to this vulnerable population and investigate the impact of a nurse care at home on delaying death and institutionalisation. **TRIAL REGISTRATION:** Clinicaltrials.gov identifier: NCT04132544. Registration date: 18/10/2019. **SPONSOR:** University Hospital, Toulouse. <https://www.clinicaltrials.gov/ct2/show/NCT04132544?term=rising-dom&draw=2&rank=1>.

Language: en

### **Keywords**

Elderly; Fall; Comprehensive geriatric assessment; Emergency medical service; Nursing home; Randomised controlled trial

## **Objective and self-reported physical activity and risk of falling among community-dwelling older adults from southern Brazil**

Bielemann RM, Oliveira R, Bertoldi AD, Tomasi E, Demarco FF, Gonzalez MC, Bohm AW, Brage S, Ekelund U. *J. Aging Phys. Act.* 2022; ePub(ePub): ePub.

(Copyright © 2022, Human Kinetics Publishers)

DOI 10.1123/japa.2021-0148 PMID 35240575

### **Abstract**

This study evaluated prospective associations between self-reported and objectively measured physical activity (PA) and risk of falls among older adults. A cohort study started in 2014 with 1,451 community-dwelling older adults living in Pelotas, Brazil. Leisure-time PA was obtained by the International Physical Activity Questionnaire and 7-day raw accelerometer data evaluated for total, light PA, and moderate to vigorous PA. In 2016-2017, participants recorded their falls in the previous 12 months. Around 23% of the 1,161 participants followed-up in 2016-2017 experienced a fall in the last 12 months. Participants who did not spend any time in self-reported leisure-time PA at baseline had on average 34% higher risk of falls, and individuals in the lowest tertile for moderate to vigorous PA had on average 51% higher risk of falls compared to those in the highest tertile. Low levels of self-reported and objectively measured moderate to vigorous PA were related to higher risk of falling among Brazilian older adults.

Language: en

### **Keywords**

elderly; incidence; accelerometer; longitudinal studies; motor activity

## **Six weeks of Pilates improved functional mobility, postural balance and spatiotemporal parameters of gait to decrease the risk of falls in healthy older adults**

Donatoni da Silva L, Shiel A, Sheahan J, McIntosh C. J. Bodyw. Mov. Ther. 2022; 29: 1-9.

(Copyright © 2022, Elsevier Publishing)

DOI 10.1016/j.jbmt.2021.06.014 PMID 35248255

### **Abstract**

**OBJECTIVE:** To determine the effectiveness of Pilates exercises on falls risk factors.

**DESIGN:** Prospective cohort, pre-test post-test study. Participants were selected using convenience and snowballing sampling. Pilates classes were held twice weekly for six weeks (1-h sessions) with a supplementary home programme.

**METHODS:** A test of cognitive function, the Montreal Cognitive Assessment (MOCA), was employed to determine eligibility for inclusion. The following fall-predictor variable measures were employed: the 16 item Falls Efficacy Scale (FES), the short International Physical Activity Questionnaire (IPAQ), the Functional Reach Test (FRT), the Timed Up and Go (TUG), the GAITRite® system, Platform FOOTWORKpro. Multivariate analysis ANOVA with time as within subject factor was used to test for differences between pre and post-test scores adjusted for the factor Pilates.

**RESULTS:** twenty-seven participants completed the study, mean age = 70.4 (SD = 4.5). After adjusting for the effect of the factor Pilates "previous experience or no previous experience of Pilates", statistically significant differences were identified in the following domains: The TUG ( $p < 0.001$ ), FRT ( $p < 0.001$ ), velocity, swing and stance time and the Mediolateral sway ( $p < 0.05$ ). A significant difference was found between pre and post-test for anteroposterior sway in those with experience of Pilates ( $p < 0.05$ ) and interaction between time and Pilates experience in Physical Activity ( $p < 0.05$ ).

**CONCLUSION:** Findings suggest that functional mobility, mobility, spatiotemporal parameters of gait, postural balance and physical activity improved in healthy older adults after 6 weeks of Pilates with a supplementary home programme.

Language: en

### **Keywords**

Falls; Balance; Gait; Older adults; Pilates

## **The mortality trends of falls among the elderly adults in the mainland of China, 2013-2020: a population-based study through the National Disease Surveillance Points system**

Zhang K, Qi J, Zuo P, Yin P, Liu Y, Liu J, Wang L, Li L. *Lancet Reg. Health West. Pac.* 2022; 19: e100336.

(Copyright © 2022, Elsevier Publishing)

**DOI** 10.1016/j.lanwpc.2021.100336 **PMID** 35257118

### **Abstract**

**BACKGROUND:** Fall in elderly is a major public health problem. Characterizing trends in fall mortality in different subpopulations could help identifying the needs and developing preventive program for target groups. Here we evaluated the trends of fall-related deaths in Chinese mainland among adults aged  $\geq 60$  years specific in sex, age, and provinces, to measure the change in this mortality rate between 2013 and 2020, and to explore the underlying factors influencing this change.

**METHODS:** Mortality data were retrieved from the National Disease Surveillance Points system(DSPs) of China, a national-level and provincial-level representative data source, to estimate the impact of elderly falls on mortality in the mainland of China and the specific provinces from 2013 to 2020. The joinpoint regression model was used to estimate the temporal trend of mortality in elderly fallen by calculating the annual percentage change (APC).

**FINDINGS:** The age-standardized falls mortality was 10.438 per 100 000 in 2020. The age-standardized mortality of elderly falls in total and female showed a steady increasing trend (APC=1.96%,  $p = 0.023$  total; APC=3.42%,  $p = 0.003$  female), with it was stable in males (APC=1.26%,  $p > 0.05$ ). Fall mortality among the elderly was more common in people over 70 years of age and increased sharply. The death rates and APCs were highest among the oldest age groups(aged  $\geq 85$  years). The higher fall mortality was mainly focused in the southeast and central regions, and lower rates were in the northeast provinces and Tibet.

**INTERPRETATION:** Since 2013, the overall fall-related mortality trend among individuals aged  $\geq 60$  years has been consistently increasing in China, making it most critical public health challenge. Adherence interventions and increased social support for those at most risk should be considered. **FUNDING:** None.

Language: en

### **Keywords**

Mortality; Falls; Elder people; Trend

## What helps older people persevere with yoga classes? A realist process evaluation of a COVID-19-affected yoga program for fall prevention

Haynes A, Gilchrist H, Oliveira JS, Grunseit A, Sherrington C, Lord S, Tiedemann A. BMC Public Health 2022; 22(1): e463.

(Copyright © 2022, Holtzbrinck Springer Nature Publishing Group - BMC)

DOI 10.1186/s12889-022-12818-5 PMID 35255864

### Abstract

**BACKGROUND:** Falls among older people are a major global health concern. This process evaluation investigates the experience of participants aged 60+ in a yoga program aimed at preventing falls which transitioned from studio-based classes to online classes in response to COVID-19 restrictions. We sought to understand how the Successful AGEing (SAGE) yoga program functioned in both settings and as a hybrid program, and to explain why it worked well for most participants.

**METHODS:** Realist process evaluation was used to explore the factors that facilitated a successful transition for most participants, and to consider why it did not work for a minority. This approach develops program theories that describe which mechanisms an intervention is (or is not) activating, and how this is mediated by context to generate process outcomes. Data included interviews with participants (n = 21) and yoga instructors (n = 3), self-report feedback forms (n = 46), observation of classes and routine process measures.

**RESULTS:** Factors that facilitated a successful transition for most participants included the quality of yoga instruction, the program format and inherent characteristics of yoga. Gains in transitioning online included continuity and greater convenience. Losses included perceived reduction in the effectiveness of yoga instruction. There were greater challenges for people struggling with pain and in disadvantageous home environments. We identified six program theories configured around 16 mechanisms: 1. It's worth the effort and 2. In expert hands (these had the same mechanisms: value expectancy, therapeutic alliance and achievement/mastery), 3. A communal experience (these mechanisms were shared experience, social connection, social comparison and peer checking), 4. Putting yoga within reach (accessibility, convenience, gratitude), 5. Building yoga habits (purposeful structure, momentum, accountability and continuity), and 6. Yoga's special properties (embodiment and mindfulness).

**CONCLUSIONS:** This study showed that online delivery of a yoga program for people aged 60+ retained much of the value of a face-to-face program for the majority of participants, and increased the value for some. The structured, communal nature of an organised group program delivered by a skilled instructor, together with yoga's intrinsic focus on mindfulness, facilitated continued engagement and perceived health benefits, despite the change in delivery mode.

Language: en

### Keywords

\*Fall prevention; \*Healthy ageing; \*Intervention trial; \*Realist evaluation; \*Telehealth; \*Yoga

## **How to identify balance disorders and reduce fall risk**

Newsted D, Bale D, Armstrong M, Beyea MM, Simpson MTW, Gill SS, Beyea JA. J. Fam. Pract. 2022; 71(1): 20-30.

(Copyright © 2022, Dowden Health Media)

**DOI** 10.12788/jfp.0332 **PMID** 35259326

### **Abstract**

A multifactorial risk assessment, correction of hearing impairment, exercise, and an optimized home environment can help prevent imbalance-related falls.

Language: en

## Relationship of single leg stance time to falls in Special Olympic athletes

O'Neal SK, Thomas J. *Physiother. Theory Pract.* 2022; ePub(ePub): ePub.

(Copyright © 2022, Informa - Taylor and Francis Group)

DOI 10.1080/09593985.2022.2045411 PMID 35253578

### Abstract

**BACKGROUND:** The single-leg stance test is included in the FUNfitness (FF) screening for Special Olympic athletes to determine if balance education and/or referrals are needed. There are limited data regarding the use of the single-leg stance test for people with intellectual disabilities.

**METHOD:** Data were collected for this prospective study as part of the FF screens during the 2018 Special Olympics summer games. Each athlete completed the SLS test on the right (R) and left (L) lower extremity (LE), with eyes opened (SLS-EO) and closed (SLS-EC), and asked if they had fallen in the past year.

**RESULTS:** A total of 178 athletes completed the test. Data analysis revealed a weak relationship between falls and SLS-EO (R LE  $r(s) = -0.170$  and L LE  $r(s) = -0.185$ ) and SLS-EC (R LE  $r(s) = -0.169$  and L LE  $r(s) = -0.187$ ), all of which were significant ( $p < .05$ ). Sensitivity and specificity of the SLS-EO were low for both the R LE (74.5% and 42.2%, respectively) and L LE (74.5% and 42.7%, respectively). Sensitivity rose slightly with SLS-EC (R LE = 80.9% and L LE = 89.1%), while specificity decreased (R LE = 22.9% and L LE = 25.2%). The positive predictive values for SLS-EO and SLS-EC ranged from 27.3% to 31.8%. The SLS test demonstrated poor accuracy in identifying fallers in SO athletes with area under the curve values ranging from 0.610 to 0.623.

**CONCLUSIONS:** These results indicate that the SLS test, or cutoff scores used, may not be the most appropriate for this population.

Language: en

### Keywords

falls; Balance; balance assessment; fall risk; intellectual disability; single-leg stance; Special Olympics

## **The effectiveness of physical therapy interventions in reducing falls among people with multiple sclerosis: a systematic review and meta-analysis**

Abou L, Qin K, Alluri A, Du Y, Rice LA. *J. Bodyw. Mov. Ther.* 2022; 29: 74-85.

(Copyright © 2022, Elsevier Publishing)

DOI 10.1016/j.jbmt.2021.09.015 PMID 35248292

### **Abstract**

**BACKGROUND:** Falls are common among People with Multiple Sclerosis (PwMS) and can result in significant consequences. Summary of the evidence of effectiveness of Physical Therapy (PT) to manage fall risks is needed.

**OBJECTIVE:** To investigate the effectiveness of PT interventions to reduce fall related outcomes in PwMS.

**METHODS:** Electronic databases of PubMed, PEDro, Web of Science, Scopus, SportDiscuss and CINAHL were searched. Randomized Controlled Trials (RCTs) and pre-post studies that examined the effectiveness of any PT interventions to target falls in PwMS were included. Two independent reviewers extracted the data. The Cochrane risk of bias assessment tool and the quality assessment tool for before-after studies were used for RCTs and pre-post studies, respectively. The Grading Recommendations, Assessment, Development and Evaluation- GRADE was used to rate the overall quality of evidence.

**RESULTS:** Twenty articles with 819 participants were included in the review and 16 articles in meta-analysis. Only home-based exercise was found to significantly reduce the number of ambulatory fallers (risk ratio = 0.53, 95% CI 0.31 to 0.91, P = 0.02) with Multiple Sclerosis. Limited evidence exists on PT interventions to reduce falls among non-ambulatory PwMS.

**CONCLUSION:** The overall very low to moderate quality of evidence presented showed the effectiveness of PT interventions to reduce fall outcomes in PwMS is limited. However, home-based exercise showed potential to reduce fall outcomes in ambulatory PwMS. There is a need to develop PT interventions to reduce fall outcomes in non-ambulatory PwMS due to a scarcity of evidence in this population. **REGISTRATION:** The protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO: CRD 42020150297).

Language: en

### **Keywords**

Systematic review; Multiple sclerosis; Accidental falls; Physical therapy