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## A nested randomised controlled trial of a newsletter and Post-it® note did not increase postal questionnaire response rates in a falls prevention trial

Rodgers S, Sbizzera I, Cockayne S, Fairhurst C, Lamb SE, Vernon W, Watson J, Hewitt C, Torgerson D. *F1000Res.* 2018; 7: e1083.

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### Abstract

**Background:** Attrition (i.e. when participants do not return the questionnaires) is a problem for many randomised controlled trials. The resultant loss of data leads to a reduction in statistical power and can lead to bias. The aim of this study was to assess whether a pre-notification newsletter and/or a handwritten or printed Post-it® note sticker, as a reminder, increased postal questionnaire response rates for participants of randomised controlled trials. **Method:** This study was a factorial trial embedded within a trial of a falls-prevention intervention among men and women aged  $\geq 65$  years under podiatric care. Participants were randomised into one of six groups: newsletter plus handwritten Post-it®; newsletter plus printed Post-it®; newsletter only; handwritten Post-it® only; printed Post-it® only; or no newsletter or Post-it®. The results were combined with those from previous embedded randomised controlled trials in a meta-analysis. **Results:** The 12-month response rate was 803/826 (97.2%) (newsletter 95.1%, no newsletter 99.3%, printed Post-it® 97.5%, handwritten Post-it® 97.1%, no Post-it® 97.1%). Pre-notification with a newsletter had a detrimental effect on response rates (adjusted odds ratio (OR), 0.14; 95% CI, 0.04 to 0.48;  $p < 0.01$ ) and time to return the questionnaire (adjusted hazard ratio, 0.86; 95% CI, 0.75 to 0.99;  $p = 0.04$ ). No other statistically significant differences were observed between the intervention groups on response rates, time to response, and the need for a reminder. **Conclusions:** Post-it® notes have been shown to be ineffective in three embedded trials, whereas the evidence for newsletter reminders is still uncertain.

Language: en

### Keywords

Randomised controlled trial; randomisation; embedded trial; newsletter; Post-it® note; response rate

## Different strength declines in leg primary movers versus stabilizers across age-Implications for the risk of falls in older adults?

Daun F, Kibele A. *PLoS One* 2019; 14(3): e0213361.

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### DOI

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### PMID

30845168

### Abstract

This study investigated differences in the declines of isometric strength in hip abductors and adductors versus knee extensors across four different age groups ( $n = 31: 11.2 \pm 1.0$  y,  $n = 30: 23.1 \pm 2.7$  y,  $n = 27: 48.9 \pm 4.4$  y, and  $n = 33: 70.1 \pm 4.2$  y) with a total of 121 female subjects. As a starting point, we assumed that, during their daily activities, elderly people would use their leg stabilizers less frequently than their leg primary movers as compared to younger people. Given that muscle strength decreases in the course of the aging process, we hypothesized that larger strength declines in hip abductors and hip adductors as compared to knee extensors would be detected across age. Maximal isometric force for these muscle groups was assessed with a digital hand-held dynamometer. Measurements were taken at 75% of the thigh or shank length and expressed relative to body weight and lever arm length. Intratester reliability of the normalized maximal torques was estimated by using Cronbach's alpha and calculated to be larger than 0.95. The obtained results indicate a clearly more pronounced strength decline in hip abductors and hip adductors across age than in the knee extensors. Therefore, a particular need for strength training of the lower extremity stabilizer muscles during the aging process is implied.

## Effectiveness of robotics fall prevention program among elderly in senior housings, Bangkok, Thailand: a quasi-experimental study

Maneeprom N, Taneepanichskul S, Panza A, Suputtitada A. *Clin. Interv. Aging* 2019; 14: 335-346.

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### Abstract

**OBJECTIVE:** This study aimed at investigating the effectiveness of a robotic fall prevention program on knowledge, exercises, balance, and incidence of falls among elderly in senior housings.

**PATIENTS AND METHODS:** This is a quasi-experimental study. Sixty-four elderly in two senior housings in Bangkok with Barthel Index scale  $\geq 12$ , who had either at least one fall experience in the past 12 months and/or had Timed Up and Go (TUG) test  $\geq 20$  seconds were recruited and purposively assigned to the intervention group (received a small robot-installed fall prevention software, personal coaching, and handbook,  $n=32$ ) and control group (received only handbook,  $n=32$ ). Outcomes were knowledge score evaluated by structured questionnaire through face-to-face interviews, number of exercises measured by self-recorded diary, and balance score assessed by TUG and Berg Balance Scale (BBS). The incidence of falls was assessed by face-to-face interviews. Both groups were assessed at baseline, 3rd, and 6th month after the intervention.

**RESULTS:** There was a statistically significant improvement in knowledge mean score at 6th month in both the groups. However, the intervention group showed faster increase in knowledge mean score than the control group at 3rd month ( $P<0.01$ ). The intervention group showed a statistically significant higher number of exercises than the control group at 3rd and 6th month ( $P<0.05$ ). There was no statistically significant difference on TUG and BBS mean scores between the two groups at baseline, 3rd, and 6th month. However, the intervention group showed a statistically significant improvement in TUG and BBS at 6th month post-intervention ( $P<0.01$ ). There was one fall reported in the control group.

**CONCLUSION:** The robotic fall prevention program increased knowledge on fall prevention and promoted exercises and balance among elderly in senior housings.

Language: en

### Keywords

Berg Balance Scale; Thailand; Timed Up and Go test; elderly; fall prevention robot; senior housing

## Effects of a health education program on fall risk prevention among the urban elderly: a quasi-experimental study

Kuhirunyaratn P, Prasomrak P, Jindawong B. [Iran. J. Public Health](#)2019; 48(1): 103-111.

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unavailable

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30847317

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[PMC6401575](#)

### Abstract

**BACKGROUND:** Elderly falls increase dramatically with age and are a leading cause of injury, carrying a risk of loss of independence and death. We studied the effects of a health education program on fall-risk prevention among urban elderly persons in the municipality of Khon Kaen, Thailand.

**METHODS:** A quasi-experimental study was conducted in 2 communities. The calculated sample size was 216 individuals: 108 for intervention and 108 for control, all of whom were 60 or older, and registered at the Samlium Primary Care Unit (SPCU). The educational intervention was a fall risk intervention program by an elderly buddy. A structured questionnaire that incorporated questions from the Thai Fall Risk Assessment Tool (Thai-FRAT) was used to collect general and specific information. Data were analyzed using the independent sample t-test and  $\chi^2$ , with  $P < 0.05$  being statistically significant.

**RESULTS:** The response rate was 94.4%. More than half of the respondents were at risk of a fall. The prevalence of risk of a fall among the intervention group was slightly less than that for those within the control group [Intervention group=52.9% (95%CI: 42.85, 62.81,  $P < 0.001$ ); Control group=60.8% (95%CI: 50.59, 70.15,  $P = 0.016$ )]. After 6 months of intervention, the balance impairment, medicine usage, and overall proportion with risk of fall were decreased. The difference between the intervention and control groups was statistically significant ( $P < 0.05$ ).

**CONCLUSION:** The provision of a health education program designed for fall risk prevention among the elderly would be a useful public health initiative.

Language: en

### Keywords

Elderly; Fall risk prevention; Health education

## Fear of falling among Brazilian and Portuguese older adults

Vitorino LM, Marques-Vieira C, Low G, Sousa L, Cruz JP. *Int. J. Older People Nurs.* 2019; ePub(ePub): ePub.

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### DOI

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### PMID

30860668

### Abstract

**BACKGROUND:** Falling is the leading cause of physical disability, mortality and social exclusion in older adults. In Brazil and Portugal, falls cause thousands of hospitalisations every year. Fear of falling (FOF) causes loss of confidence in accomplishing daily tasks, restriction in social activities and increased dependence.

**AIM:** To compare the prevalence of FOF between Brazilian and Portuguese community-dwelling older adults and the factors associated with FOF.

**METHODS:** A secondary analysis of cross-sectional survey data collected from older adults residing in Brazil (n = 170; M age=70.44 years) and Portugal (n = 170; M age=73.56 years).

**RESULTS:** The prevalence of FOF was significantly higher (p = 0.015) among Portuguese (n = 133, 54.1%) versus Brazilian (n = 113, 45.9%) older adults. FOF among Brazilian older adults was associated with being 76 + years of age and female. Among Portuguese older adults, factors associated with FOF were intake of daily medications, having fallen within the past year, and visual difficulties.

**CONCLUSIONS:** Fear of falling is linked with modifiable and non-modifiable factors. Timely assessments of FOF and factors associated with FOF are essential. **IMPLICATIONS FOR PRACTICE:** Primary care nurses should assess and address FOF in older people with interdisciplinary practitioners.

Language: en

### Keywords

Brazil; Portugal; comparative study; fear of falling; geriatric nursing

## Identifying community-dwelling older adults' vision loss during mobility assessments: a scoping review

Petty LS, Foster JEG, Rigby P. *Can. J. Occup. Ther.* 2019; ePub(ePub): ePub.

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### DOI

[10.1177/0008417419831800](https://doi.org/10.1177/0008417419831800)

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### Abstract

**BACKGROUND.:** Co-occurring mobility issues and vision loss are prevalent in older adults. Vision loss can cause ambulation difficulties and falls. Community-dwelling older adults frequently require mobility-aids assessment by occupational therapists. However, therapists often lack access to medical documentation on vision or training in vision assessment to ensure that clients have adequate vision for safe mobility-aid use.

**PURPOSE.:** This study aimed to identify screening and assessment approaches to identify functional vision loss to guide mobility-aid prescription.

**METHOD.:** A scoping review following Arksey and O'Malley's five stages was undertaken using Medline and CINAHL databases. A data-charting form was used for extraction of information about each article, including the population, vision diagnosis, and the methodology for vision screening. The data regarding vision loss and mobility of older adults were summarized for each article.

**FINDINGS.:** Twenty-three papers were included in the study, describing screening questions and questionnaires or assessment tools to screen for vision loss in community settings. **IMPLICATIONS.:** The various tools identified can better prepare therapists to prescribe mobility aids appropriate for seniors' level of functional vision and to refer clients for further assessment and intervention if warranted.

Language: en

### Keywords

Accidental falls; Aides à la mobilité; Chutes accidentelles; Community health services; Ergothérapie; Mobility aids; Occupational therapy; Services de santé communautaires; Trouble visuel; Visual impairment

## **Influence of age and falls incidence on tau guidance of centre of pressure movement during gait initiation**

van Andel S, Cole MH, Pepping GJ. *Gait Posture* 2019; 70: 104-108.

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### **DOI**

[10.1016/j.gaitpost.2019.02.030](https://doi.org/10.1016/j.gaitpost.2019.02.030)

### **PMID**

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### **Abstract**

**BACKGROUND:** Prospective balance control can be assessed in terms of the characteristics of a tau-guidance function that summarizes the velocity profile of Centre of Pressure (CoP) movement during gait initiation. This allows the nature of CoP movement to be assessed on a continuum between controlled 'soft'- and unstable 'hard' CoP-motion gap-closure. Previous research has shown less stable movement patterns with harder closures with increasing age, which makes movements more prone to overshooting and could possibly explain the increasing falls risk with age. **RESEARCH QUESTIONS:** The primary research question was 'what is the relationship between falls incidence and tau-guidance in the mediolateral centre of pressure movements during gait initiation?' The secondary research question was 'what are the influences of age and task demands on the variability of tau-guidance characteristics?'

**METHODS:** Sixteen young adults and 76 older adults performed 33 gait initiations from a force platform, stepping onto stepping-targets imposing differing task demands. Older participants completed a one-year follow-up screening for falls. An analysis was performed investigating linear relationships between a tau-guidance function and the time-to-closure ( $\tau$ ) of the mediolateral centre of pressure motion-gap with coupling constant  $K$  (dependent variable).

**RESULTS:** Gait-related falls during the 12-month follow-up period were associated with higher  $\tau$ - $K$  values. Furthermore, longer movement preparation time was associated with lower  $K$  values, particularly in fallers. Previously-reported age-related increases of the tau-coupling constant values which were found in studies of unconstrained gait initiation were not present in our results.

**SIGNIFICANCE:** The presence of the targeting task provided a more prescriptive environment compared to unconstrained gait initiation and could explain the absence of age-related changes to the produced  $K$  values. Falls incidence was found to be associated with higher values of  $K$ , indicating less stable movement. Future studies should investigate the practical implications of these findings for falls prevention.

Language: en

### **Keywords**

Aging; Falls; Gait initiation; General tau theory; Postural control; Tau guidance

## **Introduction of Fall Risk Assessment (FRA) system and cross-sectional validation among community-dwelling older adults**

Park WC, Kim M, Kim S, Yoo J, Kim BS, Chon J, Jeong SJ, Won CW. [Ann. Rehabil. Med.](#) 2019; 43(1): 87-95.

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### **DOI**

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### **PMID**

30852875

### **Abstract**

**OBJECTIVE:** To predict the risk of falls, Fall Risk Assessment (FRA) system has been newly developed to measure multi-systemic balance control among community-dwelling older adults. The aim of this study was to examine the association between FRA and fall-related physical performance tests.

**METHODS:** A total of 289 community-dwelling adults aged 65 years and older participated in this cross-sectional study. All participants underwent FRA test and physical performance tests such as Short Physical Performance Battery (SPPB), Berg Balance Scale (BBS), and Timed Up and Go Test (TUG).

**RESULTS:** Participants who were younger, male, highly educated, living with family members, having high body mass index, having high appendicular lean mass index, and having no irritative lower urinary tract syndrome were more likely to have higher FRA scores. SPPB ( $\beta=1.012$ ), BBS ( $\beta=0.481$ ), and TUG ( $\beta=-0.831$ ) were significantly associated with FRA score after adjusting for the variables (all  $p<0.001$ ).

**CONCLUSION:** FRA composite score was closely correlated with SPPB, BBS, and TUG, suggesting that FRA is a promising candidate as a screening tool to predict falls among community-dwelling elderly people.

Language: en

### **Keywords**

Aged; Falls; Risk assessment



## Long-term follow-up of exercise interventions aimed at preventing falls in older people living in the community: a systematic review and meta-analysis

Finnegan S, Seers K, Bruce J. [Physiotherapy](#) 2018; ePub(ePub): ePub.

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### DOI

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### PMID

30846193

### Abstract

**BACKGROUND:** Fall-related injuries are the leading cause of accident-related mortality for older adults, with 30% of those aged 65 years and over falling annually. Exercise is effective in reducing rate and risk of falls in community-dwelling adults; however, there is lack of evidence for the long-term effects of exercise.

**OBJECTIVES:** To assess the long-term effect of exercise interventions on preventing falls in community-dwelling older adults. **DATA SOURCES:** Searches were undertaken on MEDLINE, EMBASE, AMED, CINAHL, psycINFO, the Physiotherapy Evidence Database (PEDro) and The Cochrane Library from inception to April 2017. **STUDY SELECTION:** Randomised controlled trials (RCTs), cohort studies or secondary analyses of RCTs with long-term follow-up (>12months) of exercise interventions involving community-dwelling older adults (65 and over) compared to a control group. **DATA EXTRACTION/ DATA SYNTHESIS:** Pairs of review authors independently extracted data. Review Manager (RevMan 5.1) was used for meta-analysis and data were extracted using rate ratio (RaR) and risk ratio (RR).

**RESULTS:** Twenty-four studies (7818 participants) were included. The overall pooled estimate of the effect of exercise on rate of falling beyond 12-month follow-up was rate ratio (RaR) 0.79 (95% confidence interval (CI) 0.71 to 0.88) and risk of falling was risk ratio (RR) 0.83 (95% CI 0.76 to 0.92) Subgroup analyses revealed that there was no sustained effect on rate or risk of falling beyond two years post intervention.

**CONCLUSIONS:** Falls prevention exercise programmes have sustained long-term effects on the number of people falling and the number of falls for up to two years after an exercise intervention. **SYSTEMATIC REVIEW REGISTRATION NUMBER:** CRD42017062461.

Language: en

### Keywords

Exercise; Falls prevention; Long-term effects; Older adults

## Reliability, validity, and clinical utility of a self-reported screening tool in the prediction of fall incidence in older adults

Lai FHY, Yan EWH, Mackenzie L, Fong KNK, S Kranz G, Ho ECW, Fan SHU, Lee ATK. [Disabil. Rehabil.](#) 2019; ePub(ePub): ePub.

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### PMID

30860929

### Abstract

**BACKGROUND:** The Chinese HomeFAST self-reported screening tool was developed to measure the number of hazards and the risk of home falls and other accidents for community-living older adults.

**METHODS:** This reliability, validity, and clinical utility study consisted of three phases. The tool's linguistic validity was established in the first phase of study, with a panel of domiciliary healthcare experts. In the second phase, the instrument yielded inter-rater reliability between community-living older adults and a group of experienced occupational therapists. Furthermore, in the third phase of study, factor analysis of the Chinese Home-FAST self-reported screening tool was conducted.

**RESULTS:** There was good linguistic validity, test-retest reliability and good to excellent internal consistency of the Chinese Home-FAST self-reported screening tool among older adults living in the community. Moreover, a structure with three factors - namely "Home Environment and Furniture," "Capability in Activities of Daily Living," and "Use of Devices" - was yielded from categorical principal components analysis. Clinically, the incidence of falls among this group of recruited older adults in a six-month period was 18%. The identification of seven or more hazards was associated with prediction of unplanned fall-related hospital admission with sensitivity of 83.33% and specificity of 95.83%.

**CONCLUSION:** The Chinese HomeFAST self-reported screening tool is thus demonstrated to be a valid and reliable tool for measuring home hazards and can predict home falls in Chinese-speaking older adults. Implications for rehabilitation to develop an easily understandable screening tool for older adults. Older adults can perform home safety screening on their own, and can identify potential risk of falls and other accidents at home. This can serve as a communication tool between older adults and healthcare professionals. Identified hazards can be reported to healthcare professionals for further intervention. This validated instrument can help healthcare professionals to identify higher-risk older adults in the community and thus to better prioritize their provision of professional services.

Language: en

### Keywords

Reliability; fall prevention; home safety; procedures; self-reported assessment; validity

## Self-reported hearing loss and nonfatal fall-related injury in a nationally representative sample

Heitz ER, Gianattasio KZ, Prather C, Talegawkar SA, Power MC. *J. Am. Geriatr. Soc.* 2019; ePub(ePub): ePub.

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### DOI

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30848835

### Abstract

**BACKGROUND/OBJECTIVE:** To evaluate the relationship between self-reported hearing loss and nonfatal fall-related injury in a nationally representative sample of community-dwelling adults living in the United States.

**DESIGN:** Cross-sectional analysis of national survey data. **SETTING:** National Health Interview Survey (2016). **PARTICIPANTS:** A total of 30 994 community-dwelling adults in the United States, aged 18 years and older. **MEASUREMENTS:** We evaluated the association between self-reported hearing loss and nonfatal injury resulting from a fall in the previous 3 months. We used multivariate logistic regression to calculate adjusted odds ratios (ORs) and evaluated effect measure modification by age.

**RESULTS:** The odds of nonfatal fall-related injury were 1.60 times higher among respondents with hearing loss compared to respondents without hearing loss (95% confidence interval [CI] = 1.20-2.12;  $P = .0012$ ).

**RESULTS** were unchanged when adjusting for demographics (OR = 1.59; 95% CI = 1.18-2.15;  $P = .002$ ). After adjustment for cardiovascular risk factors, cardiovascular disease, visual impairment, and limitation caused by nervous system/sensory organ conditions and depression, anxiety, or another emotional problem, the OR fell to 1.27 (95% CI = 0.92-1.74;  $P = .14$ ). In the fully adjusted model, including adjustment for vestibular vertigo, there was little support to link hearing loss and fall-related injury (OR = 1.16; 95% CI = 0.84-1.60;  $P = .36$ ). Effect modification by age was not observed.

**CONCLUSIONS:** Self-reported hearing loss may be a clinically useful indicator of increased fall risk, but treatment for hearing loss is unlikely to mitigate this risk, given that there is no independent association between self-reported hearing loss and nonfatal falls after accounting for vestibular function and other potential confounders.

Language: en

### Keywords

fall-related injury; falls; hearing loss; vestibular function

## The association between central nervous system-active medication use and fall-related injury in community-dwelling older adults with dementia

Hart LA, Marcum ZA, Gray SL, Walker RL, Crane PK, Larson EB. [Pharmacotherapy](#) 2019; ePub(ePub): ePub.

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30861179

### Abstract

**OBJECTIVES:** To examine the association between central nervous system (CNS)-active medication use and risk of fall-related injury in community-dwelling older adults following dementia onset. Further, to evaluate increased risk at higher doses or with greater number of CNS-active medication classes.

**METHODS:** Participants included community-dwelling older adults aged  $\geq 65$  years with a dementia diagnosis participating in the Adult Changes in Thought Study. From automated pharmacy data, a time-varying composite measure of CNS-active medication use was created. Central nervous system-active medication use was classified as: current (use within prior 30 days), recent (prior 31-90 days), past (prior 91-365 days), and non-use (no exposure in prior year). For current users, standardized daily doses (SDDs) were calculated for each CNS-active medication and summed SDDs across medications, and also measured number of CNS-active medication classes used. The outcome was fall-related injury based on emergency department, inpatient, and outpatient International Classification of Diseases, Ninth Revision (ICD-9) and external cause of injury (E) codes.

**RESULTS:** Among 793 subjects, there were 303 fall-related injuries over a mean follow-up of 3.7 years (2,907 total person-years). Relative to non-use, fall risk was significantly higher for current use (adjusted hazard ratio [HR] 1.59; 95% confidence interval [CI] 1.19-2.12), but not for past or recent use. Among current users, increased risk was seen across SDD levels; HRs (95% CI): 1.77 (1.19-2.62), 1.79 (1.25-2.56), and 1.35 (0.96-1.92) for  $<1$  SDD, 1 to  $<2$  SDD, and  $\geq 2$  SDD, respectively (trend test,  $p = 0.14$ ). A trend was seen for increasing risk with greater number of CNS-active medication classes, however, this was not statistically significant (trend test,  $p = 0.084$ ).

**CONCLUSIONS:** Current use of CNS-active medications was associated with fall-related injury in community-dwelling older adults followed from time of dementia onset, with increased risk even with use of low doses. This article is protected by copyright. All rights reserved.

Language: en

### Keywords

CNS-active agents; accidental falls; dementia

## The effect of ankle-foot orthoses on fall/near fall incidence in patients with (sub-)acute stroke: a randomized controlled trial

Nikamp CDM, Hobbelink MSH, van der Palen J, Hermens HJ, Rietman JS, Buurke JH. [PLoS One](#) 2019; 14(3): e0213538.

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30861038

### Abstract

Falls are commonly reported post-stroke. Ankle-foot orthoses (AFOs) are often provided to improve safety and walking, but the effect of their use in the reduction of falls after stroke is unknown. A randomized controlled trial (RCT) on the effects of AFO-provision after stroke was performed. Effects on clinical scales, 3D-gait kinematics and muscle-activity were previously reported. This paper aims to study the effects of AFO-provision on occurrence and circumstances of falls/near falls. The RCT included unilateral hemiparetic stroke patients. AFOs were provided either early (study week 1) or delayed (study week 9). Both groups were compared in the first eight weeks of the study and diaries were used to register falls/near falls and their circumstances. Follow-up measurements were performed in week 9-52, in which both groups were provided with AFOs. Functional Ambulation Categories and Berg Balance Scale were assessed to determine walking independence and balance, respectively. Last known scores were noted in case of an incident. Thirty-three subjects were included (16 early, 17 delayed). In week 1-8, the early group, who were provided with AFOs, fell significantly more frequently compared with the delayed group, 11 versus 4 times, respectively (Incidence Rate Ratio = 2.9,  $p = 0.039$ ). Out of the falls recorded in the early group, 63.6% occurred without wearing AFOs. Most of these falls occurred during transfers (36.4%) and standing (27.3%), and notably it were the subjects who did not have independent walking ability. No differences were found for near falls in week 1-8, or for falls/near falls in week 9-52. Six severe consequences (including fractures) were reported from a fall. To conclude, the subjects provided with AFOs early after stroke reported a higher number of falls, compared to the subjects that had not yet been provided with AFOs. However, in the subjects provided with AFOs, 63.6% of the falls occurred whilst without wearing the AFO. Furthermore, the majority of these incidents took place whilst subjects had no independent walking ability. This raises an interesting question of the importance of careful instructions to patients and their relatives, and the influence of potential cognitive impairments on the ability of the subjects to take on these instructions.

Language: en

## Effects of osteoanabolic exercises on bone mineral density of osteoporotic females: a randomized controlled trial

Khan AA, Farhad A, Siddiqui PQR, Ansari B. [Int. J. Health Sci. \(Qassim\)](#) 2019; 13(1): 9-13.

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### DOI

unavailable

### PMID

30842712

### Abstract

**OBJECTIVES:** With the increase in the life expectancy of older adults, the scoring diagnosis of osteoporosis has been highly reported hence rising the incidence of fragility fractures due to decrease in bone mineral density (BMD), thereby significantly impacting the quality of life and health status of elderly population. The aim of this study is to identify the impact of different exercise regimes in improving the BMD among osteoporotic females.

**METHODOLOGY:** A trial was conducted on 93 diagnosed postmenopausal osteoporotic females aged 50-75 years screened on the basis of physical activity readiness-questionnaire and YOU form randomly divided equally into three groups', that is, aerobic, anaerobic, and osteoanabolic exercises using an envelope method. The intervention was given on the basis of American College of Sports Medicine (ACSM), frequency, intensity, time, and type protocol for the period of 12 weeks. The pre- and post-BMD was determined to find out the improvements on the *t*-value of the participants. The outcome measure was calculated using a peripheral dual X-ray absorptiometry scan (bone densitometer).

**RESULTS:** At 95% of confidence interval, the pre- and post-median difference observed within the osteoanabolic group was 0.4 followed by 0.3 and 0.1 in the aerobic and anaerobic groups, respectively. The level of significance was determined by applying the Friedman test revealing a statistically significant difference  $P < 0.001$  between the groups. Further, *post hoc* analysis shows that osteoanabolic exercises were more significant in comparison with aerobic and anaerobic exercises.

**CONCLUSION:** Structured physical exercises based on ACSM protocol show improvement among the osteoporotic females; however, the impact of osteoanabolic exercises significantly increased the BMD, thus reducing the *t*-value. However, larger scale studies in different clinical settings are recommended for more accurate results.

Language: en

### Keywords

Bone mineral density; densitometry; exercises; osteoporosis; postmenopause

## Factors influencing falls in high- and low-risk patients in a tertiary hospital in Korea

Lee YS, Choi EJ, Kim YH, Park HA. [J. Patient Saf.](#) 2019; ePub(ePub): ePub.

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### Abstract

**OBJECTIVE:** The purpose of this study was to explore the characteristics and predictors of falls in high- and low-risk inpatients in a tertiary hospital in Korea.

**METHODS:** Fallers' data were extracted from quality improvement reports and electronic health records from June 1, 2014, to May 31, 2015. Data on nonfallers matched by the length of hospitalization and medical departments of fallers were extracted from electronic health records. Participants were classified into a high- or a low-risk group based on their Morse Fall Scale score, fall risk-related symptoms, and medications known to increase fall risk. Characteristics of falls and risk factors were analyzed using descriptive statistics and logistic regression analysis, respectively.

**RESULTS:** In the high-risk group, education, surgery, department, impaired mobility, intravenous catheter placement, use of ambulatory aid, gait disturbance, and some medications were significantly different between the fallers and nonfallers. From these variables, education, operation, department, intravenous catheter placement, gait disturbance, and use of narcotics, vasodilators, antiarrhythmics, and hypnotics were statistically significant factors for falls. In the low-risk group, sex, age, length of hospitalization, surgery, department, diagnosis, and mental status were significantly different between the fallers and nonfallers. From these, sex, age, length of hospitalization, surgery, and liver-digestive diseases were statistically significant factors for falls.

**CONCLUSIONS:** Characteristics and risk factors for falls differed between the risk groups. Fall prevention strategies need to be tailored to the risk groups and fall risk assessment tools need to be revised accordingly. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Language: en

## **Incidence and prevalence of falls in adults with intellectual disability living in the community: a systematic review**

Ho P, Bulsara M, Downs J, Patman S, Bulsara C, Hill AM. [JBI Database Syst. Rev Implement. Rep.](#) 2019; 17(3): 390-413.

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### **Abstract**

**OBJECTIVE:** The objective of the review was to synthesize the best available evidence on the incidence and prevalence of falls among adults with intellectual disability (ID).

**INTRODUCTION:** Falls among adults with ID frequently cause physical injury and may negatively impact on their quality of life. Studies investigating falls among people with ID have used differing methods and populations, making it difficult to determine the scope and extent of this problem.

**INCLUSION CRITERIA:** This review considered all studies that included adults with ID aged 18 years and over and which reported percentage/numbers of individuals who fell, and the total number of falls and injurious falls sustained from a fall. Studies were included if they were conducted within community or residential settings. Studies that were conducted in hospitals were excluded. Cohort studies, case-control and cross-sectional studies were included. Studies that used an experimental design, both randomized controlled and quasi experimental design, were also included.

**METHODS:** A three-step search strategy was undertaken for published and unpublished literature in English from 1990 to 2017. An initial search of MEDLINE and CINAHL was undertaken before a more extensive search was conducted using keywords and index terms across 11 electronic databases. Two independent reviewers assessed the methodological quality of the included studies using the Joanna Briggs Institute standardized critical appraisal instrument for prevalence studies (Joanna Briggs Institute Critical Appraisal Checklist for Studies Reporting Prevalence Data). Data was extracted using the Joanna Briggs Institute's standardized extraction tool. Data that directly reported or could be used to calculate the incidence and prevalence of falls were extracted. Quantitative data for the number (proportion) of people who fell were pooled in statistical meta-analysis using STATA version 14 (Stata Corp LLC, Texas, USA). Data measuring incidence of falls (rate of falls for the duration of the study) and incidence of injurious falls (rate of falls resulting in one or more injuries for the duration of the study) could not be pooled in meta-analysis, hence results have been presented in a narrative form including tables. Standard GRADE (Grading of Recommendations Assessment, Development and Evaluation) evidence assessment of outcomes is also reported.

**RESULTS:** Nine studies were eligible for inclusion in this review. Eight articles were observational cohort studies which reported on the incidence/prevalence of falls as outcome measures, and one article was a quasi-experimental study design. Overall the methodological quality of the included studies was considered moderate. The pooled proportion of people with ID who fell (four studies, 854 participants) was 39% (95% CI [0.35%-0.43%], very low GRADE evidence). The rate of falls (eight studies, 782 participants) ranged from 0.54 to 6.29 per person year (very low GRADE evidence). The rate of injurious falls (two studies, 352 participants) ranged from 0.33 to 0.68 per person year (very



low GRADE evidence).

**CONCLUSIONS:** Synthesized findings demonstrate that people with ID, who live in community or residential settings, may fall more frequently, and at a younger age, compared to general community populations. Studies should take a consistent approach to measuring and reporting falls outcomes. Further research is recommended to identify the impact of falls on health related outcomes for people with ID and subsequently evaluate falls interventions for their efficacy.

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### **Multilevel factors influencing falls of patients in hospital: the impact of nurse staffing**

Kim J, Kim S, Park J, Lee E. [J. Nurs. Manag.](#) 2019; ePub(ePub): ePub.

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#### **Abstract**

**AIM:** The objective of this study was to investigate both individual and organizational factors influencing the falls of patients in hospitals.

**BACKGROUND:** Falls and fall-related injuries, which cause health problems and increase the economic burden to patients, are a critical issue for patient safety.

**METHODS:** This study retrospectively reviewed patient data and analyzed factors influencing patient falls using a mixed-effect model.

**RESULTS:** The total number of patients in the study was 60,049, and the characteristics of the patients showed statistically significant differences according to the type of hospital where the fall occurred. The average rate of falls was 0.92 per 1,000 days. The rate of falls in general hospitals was the highest among all hospitals. Age, mobility impairment, and hours per patient day for care delivered by registered nurses were factors influencing patients falls.

**CONCLUSION:** Since the number of patient falls in an acute-care setting might increase in the future because of the growing elderly population, we should consider these risk factors for falls and construct preventative programs accordingly. **IMPLICATIONS FOR NURSING MANAGEMENT:** An adequate level of nursing staff is an essential factor in the number of patient falls. This article is protected by copyright. All rights reserved.

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#### **Keywords**

hospitals; nurse staffing; patient falls; patient safety