

## Welcome

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- Translating into practice: Falls Interventions in Nursing Homes Review
- Article Highlight - "We are all one together": peer educators' views about falls prevention education for community-dwelling older adults - a qualitative study
- Websites, Meetings and Conferences
- Recent Abstracts from the research literature



Participants improving their standing balance at the Hunter New England LHD Rural Falls Forum held in Cessnock on Thursday 26th March

Presentations from the day can be viewed at:

<http://fallsnetwork.neura.edu.au/events/2015-events/>

**Falls Prevention**®  
is everyone's business

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### FOR YOUR DIARY:

- [NSW Falls Prevention Network Forum](#), Sydney 22nd May 2015 (fully booked, but you can access webcast of Plenary Sessions).
- [The Australian Association of Gerontology, 48th National Conference "Place Spirit Heart: Exploring Experiences of Ageing"](#), Alice Springs 4-6 November 2015.
- [12th Australasian Injury Prevention and Safety Promotion Conference](#), Sydney 25-27 November 2015.

## Characteristics and Effectiveness of Fall Prevention Programs in Nursing Homes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Ellen Vlaeyen, Joke Coussement, Greet Leysens, Elisa Van der Elst, Kim Delbaere, Dirk Cambier, Kris Denhaerynck, Stefan Goemaere, Arlette Wertelaers, Fabienne Dobbels, Eddy Dejaeger, Koen Milisen and on behalf of the Center of Expertise for Fall and Fracture Prevention Flanders

*Journal of the American Geriatrics Society*, 2015 epub | DOI: 10.1111/jgs.13254

### Abstract

**OBJECTIVES:** To determine characteristics and effectiveness of prevention programs on fall-related outcomes in a defined setting.

**DESIGN:** Systematic review and meta-analysis.

**SETTING:** A clearly described subgroup of nursing homes defined as residential facilities that provide 24-hour-a-day surveillance, personal care, and limited clinical care for persons who are typically elderly and infirm.

**PARTICIPANTS:** Nursing home residents (N = 22,915).

**MEASUREMENTS:** The primary outcomes were number of falls, fallers, and recurrent fallers.

**RESULTS:** Thirteen studies met the inclusion criteria. Six fall prevention programs were single (one intervention component provided to the residents), one was multiple (two or more intervention components not customized to individual fall risk), and six were multifactorial (two or more intervention components customized to each resident's fall risk). Meta-analysis found significantly fewer recurrent fallers in the intervention groups (4 studies, relative risk (RR) = 0.79, 95% confidence interval (CI) = 0.65-0.97) but no significant effect of the intervention on fallers (6 studies, RR = 0.97, 95% CI = 0.84-1.11) or falls (10 studies, RR = 0.93, 95% CI = 0.76-1.13). Multifactorial interventions significantly reduced falls (4 studies, RR = 0.67, 95% CI = 0.55-0.82) and the number of recurrent fallers (4 studies, RR = 0.79, CI = 0.65-0.97), whereas single or multiple interventions did not. Training and education showed a significant harmful effect in the intervention groups on the number of falls (2 studies, RR = 1.29, 95% CI = 1.23-1.36).

**CONCLUSION:** This meta-analysis failed to reveal a significant effect of fall prevention interventions on falls or fallers but, for the first time, showed that fall prevention interventions significantly reduced the number of recurrent fallers by 21%.

**APPLICATION TO PRACTICE:** In the last issue of this newsletter Dr Kim Delbaere one of the co-authors of this article provided a summary of this systematic review. This month we would like to comment on how this evidence could be translated into practice and we thank Ms Sharon Butler, Better Balance Leader at the Anglican Retirement Villages for her insights that have been incorporated into this summary.

Falls Prevention in residential aged care will improve with programs that have clear objectives that include a focus on multidisciplinary, individualised (customised for each resident), multifactorial interventions. An effective falls prevention initiative will take time to develop and implement appropriately because nursing home residents are often physically frail and cognitively impaired and this complexity will place increased demands on the workforce. Single interventions such as staff education have been found to be ineffective on its own in reducing falls.

The multifactorial interventions that were found to be effective in reducing the number falls and recurrent fallers in residents included; medication reviews, environmental assessment and adaption for the resident, assessing the need and proper use of assistive and protective aids, staff training with support and constructive feedback.

Further research is required to determine further improvements in falls prevention. However another strategy that may assist in understanding resident falls would be to form a falls prevention committee, to monitor and discuss the causes of patient falls in a facility and to determine what strategies could be implemented to improve practice. Discussions with staff regarding falls incidents in their facility in a 'no blame' environment are also valuable. This provides a mechanism to discuss changes to practice that can be incorporated into the daily workload.

Person centred care is also an important aspect of effective falls prevention in the residential aged care setting. Each resident should have their individual falls risk factors identified and a care plan developed and documented, this requires multidisciplinary input and multifactorial interventions. It is also important to discuss the care plan with the resident's family.

Falls prevention in residential care should therefore focus on multidisciplinary involvement in the identification of residents' falls risk factors and the use of customised and multifactorial interventions to prevent falls.

## ARTICLE HIGHLIGHT

### "We are all one together": peer educators' views about falls prevention education for community-dwelling older adults - a qualitative study

Khong L, Farrington F, Hill KD, Hill AM.

*BMC Geriatr.* 2015; 15: e28.

Affiliation: Institute for Health Research, School of Physiotherapy, The University of Notre Dame Australia, PO Box 1225, Fremantle, Western Australia, 6959, Australia. Anne-Marie.Hill@nd.edu.au.

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DOI 10.1186/s12877-015-0030-3

#### Abstract

**BACKGROUND:** Falls are common in older people. Despite strong evidence for effective falls prevention strategies, there appears to be limited translation of these strategies from research to clinical practice. Use of peers in delivering falls prevention education messages has been proposed to improve uptake of falls prevention strategies and facilitate translation to practice. Volunteer peer educators often deliver educational presentations on falls prevention to community-dwelling older adults. However, research evaluating the effectiveness of peer-led education approaches in falls prevention has been limited and no known study has evaluated such a program from the perspective of peer educators involved in delivering the message. The purpose of this study was to explore peer educators' perspective about their role in delivering peer-led falls prevention education for community-dwelling older adults.

**METHODS:** A two-stage qualitative inductive constant comparative design was used. In stage one (core component) focus group interviews involving a total of eleven participants were conducted. During stage two (supplementary component) semi-structured interviews with two participants were conducted. Data were analysed thematically by two researchers independently. Key themes were identified and findings were displayed in a conceptual framework.

**RESULTS:** Peer educators were motivated to deliver educational presentations and importantly, to reach an optimal peer connection with their audience. Key themes identified included both personal and organisational factors that impact on educators' capacity to facilitate their peers' engagement with the message. Personal factors that facilitated message delivery and engagement included peer-to-peer connection and perceived credibility, while barriers included a reluctance to accept the message that they were at risk of falling by some members in the audience. Organisational factors, including ongoing training for peer educators and formative feedback following presentations, were perceived as essential because they affect successful message delivery.

**CONCLUSIONS:** Peer educators have the potential to effectively deliver falls prevention education to older adults and influence acceptance of the message as they possess the peer-to-peer connection that facilitates optimal engagement. There is a need to consider incorporating learnings from this research into a formal large scale evaluation of the effectiveness of the peer education approach in reducing falls in older adults.

**COMMENT:** The aim of this study was to find out how peer educators perceived their role in delivering falls prevention education to their peers living in the community in a metropolitan area. This was carried out using focus group interviews as well as more in depth one on one semi-structured interviews with two of the peer educators.

Peer educators reported an enthusiasm to share the falls prevention message with their peers as many had experienced a fall either personally (or a member of their family or friends had), they also perceived the falls prevention message to be an important one. Their ability to engage with their peers around falls education was facilitated by being able to communicate on a personal level with their peers not just on the health consequences but also social and emotional issues of falling. They also reported that their credibility was important and this required them to have access to evidence based information.

The perceived barriers that peer educators identified around engagement with their peers included; the perception by many older people that falls would not happen to them, the limited time available and the variability of access to equipment for their presentation and the need to use a variety of formats to cater for the learning styles of their peers.

This article highlights the important role that can be played by volunteer peer educators in falls prevention in the community. Ongoing training and support of peer educators is essential. This includes the provision of resources and evidence based information required to effectively deliver this education to their peers in the community.

# Webinars, Websites, Meetings & Conferences

## **AAG (Australian Association of Gerontology) webinar on Falls Prevention Evidence: A Close Look at the Cochrane Reviews**

This webinar was presented by authors of these reviews Prof Ian Cameron, Head, John Walsh Centre for Rehabilitation Research, The University of Sydney and Professor Cathie Sherrington, Professorial Research Fellow, The George Institute for Global Health, The University of Sydney.

This webinar provided an excellent summary of the Cochrane reviews on falls prevention in Hospital and residential aged care as well as the review of falls prevention strategies in Community. This webinar was recorded and the recording is available free to members of AAG, NZAG and ANZSGM and costs \$20 for Non-members. Further information can be found at:

### **RECORDING: Falls Prevention Evidence: A Close Look at the Cochrane Reviews**

To access the Cochrane reviews go to:

**Interventions for preventing falls in older people living in the community, Gillespie et al 2012**

**Interventions for preventing falls in older people in care facilities and hospitals, Cameron et al 2012**

## **Supporting Dementia and delirium Care with Volunteers**

<http://www.aci.health.nsw.gov.au/ie/projects/supporting-dementia-and-delirium-care-with-volunteers>

This project aimed to enhance the emotional care and security of hospital patients with dementia and delirium (or those at risk of delirium) and reduce their risk of adverse outcomes. In partnership with Alzheimer's NSW an intervention using trained volunteers to provide emotional support and practical assistance to patients with cognitive impairment was established and implemented at Bega Hospital. Outcomes were measured for patients, staff and volunteers. A training package was developed that included a staff and volunteer procedure and resource manual. The training consists of eight sessions plus an additional day for mandatory hospital education. Sessions on dementia, delirium, gentle exercises and safe walking, assisting with menu completion and food choices and positioning and feeding patients were included.

The volunteers assist the patients in two ways:

- Firstly, they support the patients emotional needs through such things as one on one emotional care, supporting interactions with others, gentle hand and foot massage, and engagement in therapeutical activities.
- Secondly, they provide practical assistance and implement delirium risk reduction activities such as assisting with and promoting hydration and nutrition, promoting gentle exercise, assisting with vision and hearing aids and supporting orientation. A personal profile, completed on each patient provides information to support a person-centred care approach.

The dementia delirium hospital volunteer intervention was successfully introduced and maintained for the six month period of the study at the intervention facility.

- The program was highly accepted with 96% of staff and 100% of volunteers perceiving the program as having a beneficial effect on patient outcomes and should continue.
- Staff and volunteers perceived positive patient outcomes especially related to improve hydration and nutrition, patient safety and emotional care.
- There were less falls (in number and occurrence) at the intervention facility but no statistical significance was found in length of stay, falls, use of antipsychotic medication or death rates.

For further information contact: Cath Bateman, Dementia Delirium Clinical Nurse Consultant, Southern NSW LHD. Current secondment 30 June 2015: Confused Hospitalised Older Persons Project Officer, NSW Agency for Clinical Innovation

Catherine.bateman@health.nsw.gov.au





## NSW FALLS PREVENTION NETWORK FORUM

Date: *Friday 22nd May 2015*

Time: *9:00 am - 4:00 pm*

Venue: *Wesley Conference Centre, 220 Pitt St, Sydney*



### Focus: Person-centred care

#### Plenary Speakers

**Pam Albany Guest Lecture: Ms Lorraine Lovitt:** *10 years on - NSW Falls Prevention Program*

**Professor Stephen Lord:** *Falls prevention research update*

**Professor Rebecca Ivers:** *The Iron Bark Project: Falls Prevention in Older Aboriginal People in NSW*

**Dr Anne-Marie Hill:** *Falls prevention patient education*

**Mr Nathan Hall:** *Engaging community dwelling older adults in ongoing exercise programs*

**Ms Lucy Thompson:** *Patients as active partners in their health care*

#### Afternoon Concurrent Sessions

Showcasing best practice falls prevention initiatives from Acute/Subacute, Community and Residential Aged Care Settings

**Cost: \$70 per person**  
(includes arrival tea/  
coffee, morning tea  
and light lunch).

For further details and registrations:  
<https://fallsnetwork.neura.edu.au> and  
click on **Register Now**  
Registrations close: 15th May  
or when fully booked.

Enquiries to Esther Vance  
[e.vance@neura.edu.au](mailto:e.vance@neura.edu.au)  
(02) 9399 1063



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# Abstracts

## Recent abstracts from the research literature

### Epidemiology

#### Changes in health-related quality of life and activities of daily living after hip fracture because of a fall in elderly patients: a prospective cohort study

Orive M, Aguirre U, García-Gutiérrez S, Las Hayas C, Bilbao A, Gonzalez N, Zabala J, Navarro G, Quintana JM.

*Int. J. Clin. Pract.* 2015; ePub(ePub): ePub.

Affiliation Research Unit, Galdakao-Usansolo Hospital, Galdakao, Bizkaia, Spain; Health Services Research on Chronic Patients Network (REDISSEC), Bilbao, Bizkaia, Spain; Centro de Investigación en Cronicidad (KRONIKGUNE), Bilbao, Bizkaia, Spain.

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#### Abstract

**BACKGROUND:** The impact of hip fracture because of a fall on health-related quality of life (HRQoL) and activities of daily living (ADL) have not been well established.

**AIM:** To evaluate changes in HRQoL and the ability to conduct ADL among patients with hip fracture because of a fall and to compare these changes with patients who did not fall and break a hip, adjusting by gender and age.

**METHODS:** Adults aged 65 or more who attended the emergency departments of seven public hospitals were recruited in a prospective double-cohort study (fracture cohort, n = 776; non-fracture cohort, n = 115). ADL and HRQoL were assessed at baseline (during the postfall hospitalisation or by telephone afterwards) and 6 months later using the Barthel Index and the Lawton Brody Index for ADL, and the Short Form Health Survey (SF-12) and Western Ontario and McMaster Universities Osteoarthritis Index short form (WOMAC-SF) for HRQoL.

**RESULTS:** Adjusting by gender, age and baseline status, a hip fracture was a strong predictor of decline in all outcomes measured except for mental quality of life among men (measured by SF-12). Hip fracture patients younger than 74 years reported significantly more pain (measured by WOMAC-SF) than the comparison group (p = 0.02), but this difference was not observed among older patients (p = 0.19 for 75-84 years; p = 0.39 for ≥ 85 years).

**DISCUSSION:** Hip fractures have profound effects on HRQoL and ADL in both men and women, regardless of age. This indicates the need for special follow-up care of elderly hip fracture patients in the immediate and late postfracture periods.

### Risk Assessment

#### Feasibility of screening for preinjury frailty in hospitalized injured older adults

Maxwell CA, Mion LC, Mukherjee K, Dietrich MS, Minnick A, May A, Miller RS.

*J. Trauma Acute Care Surg.* 2015; ePub(ePub): ePub.

Affiliation: From the School of Nursing (C.A.M., L.C.M., M.S.D., A.Mi.) and Division of Trauma and Surgical Critical Care (K.M., A.Ma., R.S.M.), Vanderbilt University Medical Center, Nashville, Tennessee.

(Copyright © 2015, Lippincott Williams and Wilkins)

#### Abstract

**BACKGROUND:** Frailty assessment of injured older adults (IOAs) is important for clinical management; however, the feasibility of screening for preinjury frailty has not been established in a Level I trauma center. The aims of our study were to assess enrollment rates of IOAs and their surrogates as well as completion rates of selected brief frailty screening instruments.

**METHODS:** We conducted a prospective cohort study on patients, age 65 years and older with a primary injury diagnosis. Patients and/or surrogates were interviewed within 48 hours of admission using the Vulnerable Elders Survey (VES-13), Barthel Index (BI), and the Life Space Assessment (LSA). Data analysis included frequency distributions,  $\chi^2$  statistics, Mann-Whitney and Kruskal-Wallis tests, and general linear modeling (analysis of variance).

**RESULTS:** Of 395 admitted patients, 188 were enrolled with subsequent surrogate screening. Corresponding patient interviews were conducted for 77 patients (41%). Screening time was less than 5 minutes for each

# Abstracts Continued

## Recent abstracts from the research literature

instrument, and item completion was 100%. Forty-two enrolled patients (22%) had nurse-reported delirium, and 69 (37%) patients either did not feel like answering questions or were unable to be interviewed secondary to their medical condition. The median score of surrogate responses for the VES-13 was 3.5 (interquartile range, 2-7), with 64% of the sample having a score of 3 or greater, indicating vulnerability or frailty. Median scores for the BI (19.0) and LSA (56.0) indicated high numbers with limitations in activities of daily living and limitations in mobilization.

**CONCLUSION:** Screening for preinjury frailty in IOAs is feasible yet highly dependent on the presence of a surrogate respondent. A clinically significant percentage of patients have functional deficits consistent with frailty, dependence in activities of daily living, and limitations in mobilization. Implementation of validated brief screening instruments to identify frailty in clinical settings is warranted for targeting timely, efficient, and effective care interventions.

### FRAT-up, a web-based fall-risk assessment tool for elderly people living in the community

Cattelani L, Palumbo P, Palmerini L, Bandinelli S, Becker C, Chesani F, Chiari L.

*J. Med. Internet. Res.* 2015; 17: e41.

Affiliation: Department of Electrical, Electronic, and Information Engineering - DEI, University of Bologna, Bologna, Italy.

(Copyright © 2015, Centre for Global eHealth Innovation)

#### Abstract

**BACKGROUND:** About 30% of people over 65 are subject to at least one unintentional fall a year. Fall prevention protocols and interventions can decrease the number of falls. To be effective, a prevention strategy requires a prior step to evaluate the fall risk of the subjects. Despite extensive research, existing assessment tools for fall risk have been insufficient for predicting falls.

**OBJECTIVE:** The goal of this study is to present a novel web-based fall-risk assessment tool (FRAT-up) and to evaluate its accuracy in predicting falls, within a context of community-dwelling persons aged 65 and up.

**METHODS:** FRAT-up is based on the assumption that a subject's fall risk is given by the contribution of their exposure to each of the known fall-risk factors. Many scientific studies have investigated the relationship between falls and risk factors. The majority of these studies adopted statistical approaches, usually providing quantitative information such as odds ratios. FRAT-up exploits these numerical results to compute how each single factor contributes to the overall fall risk. FRAT-up is based on a formal ontology that enlists a number of known risk factors, together with quantitative findings in terms of odds ratios. From such information, an automatic algorithm generates a rule-based probabilistic logic program, that is, a set of rules for each risk factor. The rule-based program takes the health profile of the subject (in terms of exposure to the risk factors) and computes the fall risk. A Web-based interface allows users to input health profiles and to visualize the risk assessment for the given subject. FRAT-up has been evaluated on the InCHIANTI Study dataset, a representative population-based study of older persons living in the Chianti area (Tuscany, Italy). We compared reported falls with predicted ones and computed performance indicators.

**RESULTS:** The obtained area under curve of the receiver operating characteristic was 0.642 (95% CI 0.614-0.669), while the Brier score was 0.174. The Hosmer-Lemeshow test indicated statistical significance of miscalibration.

**CONCLUSIONS:** FRAT-up is a web-based tool for evaluating the fall risk of people aged 65 or up living in the community. Validation results of fall risks computed by FRAT-up show that its performance is comparable to externally validated state-of-the-art tools. A prototype is freely available through a web-based interface. TRIAL REGISTRATION: ClinicalTrials.gov NCT01331512 (The InChianti Follow-Up Study); <http://clinicaltrials.gov/show/NCT01331512> (Archived by WebCite at <http://www.webcitation.org/6UDrrRuar>).

### Validation of the STRATIFY falls risk-assessment tool for acute-care hospital patients and nursing home residents: study protocol

Aranda-Gallardo M, Enriquez de Luna-Rodriguez M, Canca-Sanchez JC, Moya-Suarez AB, Morales-Asencio JM.

*J. Adv. Nurs.* 2015; ePub(ePub): ePub.

Affiliation: Department of Nursing, Agencia Sanitaria Costa del Sol, Marbella, Malaga, Spain.

# Abstracts Continued

## Recent abstracts from the research literature

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### Abstract

**AIM:** To evaluate the accuracy of the STRATIFY tool in detecting and predicting fall risk in acute-care hospitals and nursing homes for the older people.

**BACKGROUND:** Falls are the predominant cause of injury in people aged over 65 years. Testing the falls risk-assessment tools in settings other than those for which they were originally developed obtained conflicting results and has highlighted difficulties in their adoption for widespread use. Current guidelines for practice call into question the appropriateness of using these instruments.

**DESIGN:** Two-stage study: a cross-cultural adaptation and psychometric validation; and a longitudinal, prospective follow-up of the cohort of patients recruited.

**METHODS:** A cross-cultural adaptation of STRATIFY, followed by its empirical validation will be performed, on a total sample of 2097 patients. The diagnostic validity will be assessed by calculating the sensitivity, specificity, positive and negative predictive values and the ratios of positive and negative probability. Data for statistical reliability and the internal consistency of the instrument will be calculated; construct validity will be assessed by factor analysis and criterion validity determined according to the Downton index. The incidence and the hazard ratio of falls will be analysed for the study factors included. Funding of the review was confirmed in December 2013.

**DISCUSSION:** The rigorous assessment of STRATIFY using large samples, in populations with different levels of risk and implementing a longitudinal follow-up to determine the effect of revaluation on the incidence of falls, will give stronger evidence for the establishment of future recommendations in Clinical Practice Guidelines.

### FRAX (Aus) and falls risk: association in men and women

Holloway KL, Kotowicz MA, Lane SE, Brennan SL, Pasco JA.

*Bone* 2015; ePub(ePub): ePub.

**Affiliation:** School of Medicine, Deakin University, Geelong, Australia; NorthWest Academic Centre, Department of Medicine, The University of Melbourne, Melbourne, Australia; Barwon Health, Geelong, Australia.

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### Abstract

**PURPOSE:** The WHO fracture risk prediction tool (FRAX®) utilises clinical risk factors to estimate the probability of fracture over a 10-year period. Although falls increase fracture risk, they have not been incorporated into FRAX. It is currently unclear if FRAX captures falls risk and whether addition of falls would improve fracture prediction. We aimed to investigate the association of falls risk and Australian-specific FRAX.

**METHODS:** Clinical risk factors were documented for 735 men and 602 women (age 40-90yr) assessed at follow-up (2006-2010 and 2000-2003, respectively) of the Geelong Osteoporosis Study. FRAX scores with and without BMD were calculated. A falls risk score was determined at the time of BMD assessment and self-reported incident falls were documented from questionnaires returned one year later. Multivariable analyses were performed to determine: (i) cross-sectional association between FRAX scores and falls risk score (Elderly Falls Screening Test, EFST) (ii) prospective relationship between FRAX and time to a fall.

**RESULTS:** There was an association between FRAX (hip with BMD) and EFST scores ( $\beta=0.07$ ,  $p<0.001$ ). After adjustment for sex and age, the relationship became non-significant ( $\beta=0.00$ ,  $p=0.79$ ). The risk of incident falls increased with increasing FRAX (hip with BMD) score (unadjusted HR 1.04, 95% CI 1.02, 1.07). After adjustment for age and sex, the relationship became non-significant (1.01, 95% CI 0.97, 1.05).

**CONCLUSIONS:** There is a weak positive correlation between FRAX and falls risk score, that is likely explained by the inclusion of age and sex in the FRAX model. These data suggest that FRAX score may not be a robust surrogate for falls risk and that inclusion of falls in fracture risk assessment should be further explored.



# Abstracts Continued

## Recent abstracts from the research literature

### Novel use of the Wii Balance Board to prospectively predict falls in community-dwelling older adults

Kwok BC, Clark RA, Pua YH.

*Clin. Biomech.* 2015; ePub(ePub): ePub.

Affiliation: Department of Physiotherapy, Singapore General Hospital, Outram Road, Singapore. Electronic address: puayonghao@gmail.com.

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#### Abstract

**BACKGROUND:** The Wii Balance Board has received increasing attention as a balance measurement tool; however its ability to prospectively predict falls is unknown. This exploratory study investigated the use of the Wii Balance Board and other clinical-based measures for prospectively predicting falls among community-dwelling older adults.

**METHODS:** Seventy-three community-dwelling men and women, aged 60-85 years were followed-up over a year for falls. Standing balance was indexed by sway velocities measured using the Wii Balance Board interfaced with a laptop. Clinical-based measures included Short Physical Performance Battery, gait speed and Timed-Up-and-Go test. Multivariable regression analyses were used to assess the ability of the Wii Balance Board measure to complement the TUG test in fall screening.

**FINDINGS:** Individually, the study found Wii Balance Board anteroposterior (odds ratio 1.98, 95% CI 1.16 to 3.40,  $P=0.01$ ) and mediolateral (odds ratio 2.80, 95% CI 1.10 to 7.13,  $p=0.03$ ) sway velocity measures predictive of prospective falls. However, when each velocity measure was adjusted with body mass index and Timed-Up-and-Go, only anteroposterior sway velocity was predictive of prospective falls (odds ratio 2.21, 95% CI 1.18 to 4.14). A faster anteroposterior velocity was associated with increased odds of falling. Area-under-the-curves for Wii Balance Board sway velocities were 0.67 and 0.71 for anteroposterior and mediolateral respectively.

**INTERPRETATION:** The Wii Balance Board-derived anteroposterior sway velocity measure could complement existing clinical-based measures in predicting future falls among community-dwelling older adults. TRIAL REGISTRATION: Australian New Zealand Clinical Trials Registry number: ACTRN12610001099011.

### Does the timed up and go test predict future falls among British community-dwelling older people? Prospective cohort study nested within a randomised controlled trial

Kojima G, Masud T, Kendrick D, Morris R, Gawler S, Treml J, Iliffe S.

*BMC Geriatr.* 2015; 15: e38.

Affiliation: Department of Primary Care & Population Health, University College London, London, UK. s.iliffe@ucl.ac.uk. (Copyright © 2015, BioMed Central)

#### Abstract

**BACKGROUND:** Falling is common among older people. The Timed-Up-and-Go Test (TUG) is recommended as a screening tool for falls but its predictive value has been challenged. The objectives of this study were to examine the ability of TUG to predict future falls and to estimate the optimal cut-off point to identify those with higher risk for future falls.

**METHODS:** This is a prospective cohort study nested within a randomised controlled trial including 259 British community-dwelling older people  $\geq 65$  years undergoing usual care. TUG was measured at baseline. Prospective diaries captured falls over 24 weeks. A Receiver Operating Characteristic curve analysis determined the optimal cut-off point to classify future falls risk with sensitivity, specificity, and predictive values of TUG times. Logistic regression models examined future falls risk by TUG time.

**RESULTS:** Sixty participants (23%) fell during the 24 weeks. The area under the curve was 0.58 (95% confidence interval (95% CI) = 0.49-0.67,  $p = 0.06$ ), suggesting limited predictive value. The optimal cut-off point was 12.6 seconds and the corresponding sensitivity, specificity, and positive and negative predictive values were 30.5%, 89.5%, 46.2%, and 81.4%. Logistic regression models showed each second increase in TUG time (adjusted for age, gender, comorbidities, medications and past history of two falls) was significantly associated with future falls (adjusted odds ratio (OR) = 1.09, 95% CI = 1.00-1.19,  $p = 0.05$ ). A TUG time  $\geq 12.6$  seconds (adjusted OR = 3.94, 95%

# Abstracts Continued

## Recent abstracts from the research literature

CI = 1.69-9.21,  $p = 0.002$ ) was significantly associated with future falls, after the same adjustments.

**CONCLUSIONS:** TUG times were significantly and independently associated with future falls. The ability of TUG to predict future falls was limited but with high specificity and negative predictive value. TUG may be most useful in ruling in those with a high risk of falling rather than as a primary measure in the ascertainment of risk.

### Tailored calendar journals to ascertain falls among older adults

Stark SL, Silianoff TJ, Kim HL, Conte JW, Morris JC.

*OTJR* 2015; 35: 53-59.

Affiliation: The Knight Alzheimer's Disease Center at Washington University.

(Copyright © 2015, Slack Publishing)

#### Abstract

Although falls are a serious health risk for community dwelling older adults, their ascertainment has been complicated by issues such as recall and reporting biases. We examined a novel method, individualized tailored calendars, to accurately ascertain falls in older adults. A convenience sample of 125 cognitively normal participants enrolled in longitudinal studies of healthy aging at the Knight Alzheimer's Disease Research center was followed prospectively for 12 months. Tailored calendar journal pages were used to document falls daily and returned by mail monthly. Participants received a \$5 gift card incentive for each month returned. Participants returned 1,487 of 1,500 calendar months over the 12 month follow up for 99.1 % compliance rate. There were 154 falls reported. Tailored calendar journals and incentives may be effective in ascertaining falls among community dwelling older adults. This tool could improve the accuracy of outcome measures for occupational therapy interventions.

#### Risk Factors

### The causes of falls: views of older people with visual impairment

Brundle C, Waterman HA, Ballinger C, Olleveant N, Skelton DA, Stanford P, Todd C.

*Health Expect.* 2015; ePub(ePub): ePub.

Affiliation: University of Manchester, Manchester, UK.

(Copyright © 2015, John Wiley and Sons)

#### Abstract

**BACKGROUND:** Sight impairment increases with age and, compared with the general older population, older people with sight impairment are more likely to fall. There is a growing body of evidence on the views and perceptions of older people about falls, but little is published on the views of older people with sight impairment.

**OBJECTIVE:** To explore what older people with sight impairment believe to be the causes of falls.

**DESIGN:** A qualitative design was used, incorporating focus groups and interviews in which participants discussed falls and falls prevention. Framework analysis was employed to identify themes arising from participants' discussions of the causes of falls. **SETTING AND PARTICIPANTS:** Fifty-four community dwelling men and women with sight impairment, aged 65 and over, were recruited from across Greater Manchester, UK.

**RESULTS:** Five types of factors were identified that were believed to cause falls: (i) health issues and changes in balance caused by ageing; (ii) cognitive and behavioural factors; (iii) the impact of sight impairment on getting around the home; (iv) the impact of sight impairment on negotiating the environment away from home; and (v) unexplained falls.

**DISCUSSION AND CONCLUSIONS:** Older people with sight impairment reported many researched risk factors previously identified by older people without sight impairment but also described many perceived risks unique to people with sight impairment. There are few interventions to prevent falls aimed at older people with sight impairment, and the results of this study allow further tailoring of such interventions based on views of older people with sight impairment.

# Abstracts Continued

## Recent abstracts from the research literature

### Traumatic brain injury in the elderly: morbidity and mortality trends and risk factors

Haring RS, Narang K, Canner JK, Asemota AO, George BP, Selvarajah S, Haider AH, Schneider EB.

*J. Surg. Res.* 2015; ePub(ePub): ePub.

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#### Abstract

An estimated 1.7 million people sustain a traumatic brain injury (TBI) annually in the United States. We sought to examine factors contributing to mortality among TBI patients aged  $\geq 65$  y in the United States. TBI data from the Nationwide Inpatient Sample were combined from 2000-2010. Patients were stratified by age, sex, mechanism of injury, payer status, comorbidity, injury severity, and other factors. Odds of death were explored using an adjusted multivariable logistic regression. A total of 950,132 TBI-related hospitalizations and 107,666 TBI-related deaths occurred among adults aged  $\geq 65$  y from 2000-2010. The most common mechanism of injury was falling, and falls were more common among the oldest age groups. Logistic regression analysis showed highest odds of death among male patients, those whose mechanism of injury was motor vehicle related, patients with three or more comorbidities, and patients who were designated as self-paying.

### Influence of the body mass index on the occurrence of falls in patients with type 2 diabetes mellitus

Herrera-Rangel AB, Aranda-Moreno C, Mantilla-Ochoa T, Zainos-Saucedo L, Jáuregui-Renaud K.

*Obes. Res. Clin. Pract.* 2015; ePub(ePub): ePub.

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#### Abstract

To assess the influence of the body mass index (BMI) on the occurrence of falls in adults with type 2 diabetes mellitus, receiving primary health care. We collected data from 134 patients ( $56.7 \pm 9.4$  y.o.), none of them were seeking medical care due to sensory or balance decline. During the first evaluation, they reported falls, replied to a questionnaire of symptoms related to balance and had a sensory evaluation. After a 6 months follow-up, they reported falls again and, according to the occurrence of falls during the preceding year, patients were classified in 2 groups: no falls (N=92) and falls (N=42). The occurrence of falls was related to BMI, gender and age. Compared to patients with no falls, patients with falls had a greater BMI and comprised a higher proportion of patients with a BMI  $\geq 35$ ; patients with a BMI  $\geq 35$  were younger than patients with a BMI  $< 35$ . A total symptom score  $\geq 4$  allowed the classification of 77.7% of the patients with falls and 59.5% with no falls. In adults with type 2 diabetes mellitus, a BMI  $\geq 35$  may have an influence on balance and the occurrence of falls, which might be independent from aging. Patients should be aware of this risk and receive counsel on modifiable risk factors.

### Fall risk awareness and safety precautions taken by older community-dwelling women and men-a qualitative study using focus group discussions

Pohl P, Sandlund M, Ahlgren C, Bergvall-Kåreborn B, Lundin-Olsson L, Wikman AM.

*PLoS One* 2015; 10: e0119630.

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#### Abstract

**INTRODUCTION:** Daily life requires frequent estimations of the risk of falling and the ability to avoid a fall. The objective of this study was to explore older women's and men's understanding of fall risk and their experiences with safety precautions taken to prevent falls.

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**METHODS:** A qualitative study with focus group discussions was conducted. Eighteen community-dwelling people [10 women and 8 men] with and without a history of falls were purposively recruited. Participants were divided into two groups, and each group met four times. A participatory and appreciative action and reflection approach was used to guide the discussions. All discussions were audio recorded and transcribed verbatim. Data were analysed by qualitative content analysis, and categories were determined inductively.

**FINDINGS:** Three categories describing the process of becoming aware of fall risks in everyday life were identified: 1] Facing various feelings, 2] Recognizing one's fall risk, and 3] Taking precautions. Each category comprised several subcategories. The comprehensive theme derived from the categories was „Safety precautions through fall risk awareness“. Three strategies of ignoring [continuing a risky activity], gaining insight [realizing the danger in a certain situation], and anticipating [thinking ahead and acting in advance] were related to all choices of actions and could fluctuate in the same person in different contexts.

**CONCLUSIONS:** The fall risk awareness process might be initiated for various reasons and can involve different feelings and precautions as well as different strategies. This finding highlights that there are many possible channels to reach older people with information about fall risk and fall prevention, including the media and their peers. The findings offer a deeper understanding of older peoples' conceptualizations about fall risk awareness and make an important contribution to the development and implementation of fall prevention programmes.

### Examining the effect of the relationship between falls and mild cognitive impairment on mobility and executive functions in community-dwelling older adults

Davis JC, Best J, Hsu CL, Nagamatsu LS, Dao E, Liu-Ambrose T.

*J. Am. Geriatr. Soc.* 2015; 63: 590-593.

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#### Abstract

Cognitive impairment and falls are geriatric "giants" that significantly increase morbidity and mortality in older adults. Even mild cognitive impairment (MCI) is a significant risk factor for falls.<sup>1</sup> Clinical gait abnormalities including slow gait and falls are early biomarkers of cognitive impairment,<sup>2</sup> suggesting that impaired cognitive function and mobility share common underlying pathophysiology. Despite the strong interest in the interplay between impaired cognitive function and mobility, few studies have investigated whether their co-manifestation results in a broader and greater degree of deficits, potentially because of greater burden of pathology, than single-domain (cognitive or mobility) impairment. Understanding the specific deficits may facilitate the development of effective screening and prevention strategies. Therefore, the independent and synergistic effects of MCI status (defined as a Montreal Cognitive Assessment (MoCA) score <26/30) and fall status (faller (≥2 falls), nonfaller (≤1 fall)) on measures of cognitive function and mobility were examined over a 12-month period. For cognitive function, executive functions were focused on because they are highly associated with impaired mobility, including falls.

### Inappropriate prescribing to the oldest old patients admitted to hospital: prevalence, most frequently used medicines, and associated factors

San-José A, Agustí A, Vidal X, Formiga F, Gómez-Hernández M, García J, López-Soto A, Ramírez-Duque N, Torres OH, Barbé J.

*BMC Geriatr.* 2015; 15: e42.

Affiliation: Multimorbidity and elderly patients group of the Spanish Society of Internal Medicine, Barcelona, Spain. jbarbe@vhebron.net.

(Copyright © 2015, BioMed Central)

#### Abstract

**BACKGROUND:** Scientific evidence on treatments of chronic diseases in patients 85 years old or older is very limited, as is available information on inappropriate prescription (IP) and its associated factors. The study aimed to describe medicine prescription, potentially inappropriate medicines (PIM) and potentially prescribing omissions (PPO) and



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their associated factors on this population.

**METHODS:** In the context of an observational, prospective and multicentric study carried out in elderly patients admitted to seven Spanish hospitals for a year, a sub-analysis of those aged 85 years and over was performed. To assess PIMs, the Beers and STOPP criteria were used, and to assess PPOs, the START and the ACOVE-3 criteria were used. To assess factors associated with IP, a multivariate logistic regression analysis was performed. Patients were selected randomly every week on consecutive days from the hospitalization lists.

**RESULTS:** A total of 336 patients were included in the sub-analysis with a median (Q1-Q3) age of 88 (86-90) years. The median medicines taken during the month prior to admission was 10 (7-13). Forty-seven point two per cent of patients had at least one Beers-listed PIM, 63.3% at least one STOPP-listed PIM, 53.6% at least one START-listed PPO, and 59.4% at least one ACOVE-3-listed PPO. Use of benzodiazepines in patients who are prone to falls (18.3%) and omission of calcium and vitamin D supplements in patients with osteoporosis (13.3%) were the most common PIM and PPO, respectively. The main factor associated with the Beers-listed and the STOPP-listed PIM was consumption of 10 or more medicines (OR = 5.7, 95% CI 1.8-17.9 and OR = 13.4, 95% CI 4.0-44.0, respectively). The main factors associated with the START-listed PPO was a non-community dwelling origin (OR 2.3, 95% CI 1.0-5.0), and multimorbidity (OR 1.8, 95% CI 1.0-3.1).

**CONCLUSIONS:** Prescribed medicines and PIM and PPO prevalence were high among patients 85 years and over. Benzodiazepine use in those who are prone to falls and omission of calcium and vitamin D in those with osteoporosis were the most frequent PIM and PPO, respectively. Factors associated with PIM and PPO differed with polypharmacy being the most important factor associated with PIM.

### Fear of falling

#### Depression and outcome of fear of falling in a falls prevention program

Iaboni A, Banez C, Lam R, Jones SA, Maki BE, Liu BA, Flint AJ.

*Am. J. Geriatr. Psychiatry* 2015; ePub(ePub): ePub.

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(Copyright © 2015, American Association for Geriatric Psychiatry, Publisher Elsevier)

#### Abstract

**OBJECTIVE:** To examine whether depression predicts less improvement in fear of falling and falls efficacy in older adults attending a falls prevention program (FPP).

**METHODS:** Using a prospective observational design in an academic medical center, the authors studied 69 nondemented adults aged 55 years or older (mean age: 77.8 ± 8.9 years) who had experienced at least one fall in the previous year and who attended the FPP. The primary outcome variable was change in severity of fear of falling during the FPP. Secondary outcome variables were change in falls efficacy and fear-related restriction of activities during the FPP. Independent variables were baseline depressive disorders and depressive symptom severity.

**RESULTS:** Twenty-one of 69 study participants (30.4%) had a depressive disorder at baseline. Depressive disorder and depressive symptoms were not associated with change in severity of fear of falling or restriction of activity. On the other hand, depressive disorder was associated with improvement in falls efficacy, although this finding was not significant in multivariate analysis. Among participants with a depressive disorder, improvement in falls efficacy was significantly correlated with improvement in depressive symptoms.

**CONCLUSION:** There was no association between baseline depression and change in fear of falling in this FPP. The correlation between improvement in depressive symptoms and improvement in falls efficacy raises the question as to whether a cognitive-behavioral intervention that simultaneously targets both depression and falls efficacy would be a useful component of a FPP.

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### Promising behavior change techniques in a multicomponent intervention to reduce concerns about falls in old age: a Delphi study

Vestjens L, Kempen GI, Crutzen R, Kok G, Zijlstra GA.

*Health Educ. Res.* 2015; ePub(ePub): ePub.

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#### Abstract

Complex behavior change interventions need evidence regarding the effectiveness of individual components to understand how these interventions work. The objective of this study was to identify the least and most promising behavior change techniques (BCTs) within the Dutch intervention 'A Matter of Balance' (AMB-NL) aimed at concerns about falls in old age as an example. After the identification of 27 BCTs within AMB-NL, an online two-round Delphi survey among 16 international experts was conducted to reach consensus on the least and most promising BCTs. The level of consensus and the level of importance of BCTs were determined. In total, 23 of the 27 (>85%) BCTs identified reached consensus. Most promising BCTs were goal setting (behavior), graded tasks and behavioral practice/rehearsal. Information about health consequences, salience of consequences and information about emotional consequences were considered least promising. These outcomes provide a first but important step in the evidence building process regarding the effectiveness of BCTs in a complex intervention.

### Fear of falling is common in patients with type 2 diabetes and is associated with increased risk of falls

Bruce D, Hunter M, Peters K, Davis T, Davis W.

*Age Ageing* 2015; ePub(ePub): ePub.

Affiliation: School of Medicine and Pharmacology, University of Western Australia, Fremantle Hospital, PO Box 480, Fremantle, Western Australia 6959, Australia.

(Copyright © 2015, Oxford University Press)

#### Abstract

AIMS: fear of falling is an important falls-related symptom that has received little attention in studies of falls risk in older adults with type 2 diabetes.

METHODS: matched pairs of participants with diabetes or with normoglycaemia (n = 186 per group) recruited from a community-based survey underwent an assessment of fear of falling and associated falls risk factors. Multivariate methods examined associations between fear of falling and risk factors for history of recent falls.

RESULTS: compared with the normoglycaemic participants, those with diabetes had worse mobility (slow timed Up and Go test times: 16.2 versus 4.9%, P < 0.01), more fear of falling (24.2 versus 15.1%, P < 0.05) and more activity restriction from fear of falling (indoors: 14.0 versus 4.8%, P = 0.006), but there was no increase in reported recent falls. In the combined sample, a history of recent falls was negatively associated with fear-related limitation of outdoor activities (odds ratio (95% confidence interval): 0.30 (0.15-0.58), P < 0.001) and positively associated with age (1.65 (1.20-2.28) per 10-year increase, P = 0.002) and use of antidepressants (2.14 (1.02-4.50), P = 0.044). The frequency of falls in those with recurrent falls was negatively associated with measures of balance.

CONCLUSIONS: type 2 diabetes is associated with increased fear of falling and fear-associated activity restriction, and this modifies the risk of falls even in the face of increased falls risk factors including worse mobility. Future studies of falls in diabetes need to consider that fear of falling is an important modifier of the relationship between risk factors and falls.

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## Recent abstracts from the research literature

### Evaluation of a combined cognitive-behavioural and exercise intervention to manage fear of falling among elderly residents in nursing homes

Huang TT, Chung ML, Chen FR, Chin YF, Wang BH.

*Aging Ment. Health* 2015; ePub(ePub): ePub.

Affiliation: a School of Nursing , College of Medicine, Chang Gung University , Taiwan.

(Copyright © 2015, Informa - Taylor and Francis Group)

#### Abstract

**OBJECTIVES:** Although the fear of falling is common among elderly residents in long-term care facilities, interventions developed for fear of falling management is very rare. Of these limited interventions, most were exercise interventions with only limited testing. The cognitive-behavioural intervention can decrease the fear of falling; however no intervention of the kind was developed and assessed to decrease fear of falling among the elderly in long-term care facilities. The purpose of this study was to examine the effectiveness of cognitive-behavioural strategies either with or without exercise in reducing fear of falling among elderly residents in nursing homes.

**METHOD:** A prospective randomized control trial was conducted in six nursing homes in northern Taiwan. Seventy-five elderly participants were randomly assigned to one of the three groups: the comparison group, the cognitive-behavioural strategies with or without exercise group. The fear of falling, falls, depressive inclination, mobility, and muscle strength of extremities were collected at the two-month and five-month follow-up sessions, in which the progress of the patients were assessed.

**RESULTS:** The mixed model analysis revealed that elderly adults in the combination experimental group had significant improvements compared with the other two groups on fear of falling, depressive inclination, mobility, and muscle strength at five months. The incidences of falls, post intervention, in both experimental groups were significantly lower than those in the comparison group.

**CONCLUSIONS:** The results suggest that the combination intervention helped elderly residents manage their fear of falling and falls, decrease their depressive inclination, and enhance their mobility and muscle strength.

### Fear of falling in people with chronic stroke

Schmid AA, Arnold SE, Jones VA, Jane Ritter M, Sapp SA, Van Puymbroeck M.

*Am. J. Occup. Ther.* 2015; 69: 6903350020p1-5.

Affiliation: Marieke Van Puymbroeck, PhD, CTRS, FDRT, is Associate Professor, Department of Parks, Recreation and Tourism Management, College of Health and Human Development, Clemson University, Clemson, SC.

(Copyright © 2015, American Occupational Therapy Association)

#### Abstract

**OBJECTIVE:** We assessed the prevalence of fear of falling (FoF) in a sample of people with chronic stroke and compared multiple variables (balance, anxiety, depression, activity and participation, and stroke severity) in people with and without FoF.

**METHOD:** This study was a secondary analysis of data collected from a cross-sectional study of mobility after stroke in 77 participants with chronic stroke (>6 mo poststroke).

**RESULTS:** Of the 77 participants, 51 (66%) reported experiencing FoF. People with FoF had significantly decreased balance ( $p < .001$ ) and activity and participation ( $p = .006$ ) and significantly increased anxiety ( $p = .007$ ). People with FoF also had significantly worse stroke severity ( $p = .001$ ).

**CONCLUSION:** FoF is a prevalent concern in the chronic stroke population. The presence of FoF was associated with a variety of negative consequences. Occupational therapy practitioners should address FoF to help clients manage FoF and possibly improve recovery.

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### Interventions

#### Is there a role for neck manipulation in elderly falls prevention? - An overview

Kendall JC, Hartvigsen J, French SD, Azari MF.

JCCA J. Can. Chiropr. Assoc. 2015; 59: 53-63.

Affiliation: Discipline of Chiropractic, School of Health Sciences, RMIT University, Melbourne, Australia ; Health Innovations Research Institute, RMIT University, Melbourne, Australia.

(Copyright © 2015, Canadian Chiropractic Association)

#### Abstract

Many risk factors exist for falls in the elderly. Dizziness is an important risk factor for such falls. Spinal pain has also been identified as a risk factor for these falls. In this overview of the literature, we examine studies, including trials, of neck manipulation for neck pain, unsteadiness and falls risk relevant to the elderly. We also examine two related, but not mutually exclusive, mechanisms through which a putative beneficial effect may be mediated. These are the effects of neck manipulation on neck pain and on non-specific dizziness. We focus on the available evidence primarily in terms of clinical data rather than laboratory-based measures of balance. We conclude that chiropractors may have a role in falls prevention strategies in the subpopulation of the elderly that suffer from mechanical neck pain or dysfunction and non-specific dizziness. However, this role remains to be rigorously studied and properly defined.

#### Applying the RE-AIM framework to inform the development of a multiple sclerosis falls-prevention intervention

Finlayson M, Cattaneo D, Cameron M, Coote S, Matsuda PN, Peterson E, Sosnoff JJ.

*Int. J. MS Care* 2014; 16: 192-197.

Affiliation: School of Rehabilitation Therapy, Queen's University, Kingston, Ontario, Canada (MF)

(Copyright © 2014, Clinicians Group)

#### Abstract

Successfully addressing the problem of falls among people with multiple sclerosis (MS) will require the translation of research findings into practice change. This process is not easy but can be facilitated by using frameworks such as RE-AIM during the process of planning, implementing, and evaluating MS falls-prevention interventions. RE-AIM stands for Reach, Effectiveness, Adoption, Implementation, and Maintenance. Since its initial publication in 1999, the RE-AIM framework has become widely recognized across a range of disciplines as a valuable tool to guide thinking about the development and evaluation of interventions intended for widespread dissemination. For this reason, it was selected by the International MS Falls Prevention Research Network to structure initial discussions with clinicians, people with MS, and representatives of professional and MS societies about the factors we need to consider in the development of an MS falls-prevention intervention for multisite testing that we hope will someday be disseminated widely. Through a combination of small-group work and large-group discussion, participants discussed four of the five RE-AIM elements. A total of 17 recommendations were made to maximize the reach (n = 3), adoption (n = 5), implementation (n = 4), and maintenance (n = 5) of the intervention the Network is developing. These recommendations are likely to be useful for any MS rehabilitation researcher who is developing and testing interventions that he or she hopes will be widely disseminated.

#### Improving vision among older adults: behavioral training to improve sight

DeLoss DJ, Watanabe T, Andersen GJ.

*Psychol. Sci.* 2015; ePub(ePub): ePub.

Affiliation: University of California, Riverside andersen@ucr.edu.

(Copyright © 2015, Association for Psychological Science, Publisher John Wiley and Sons)

#### Abstract

A major problem for the rapidly growing population of older adults (age 65 and over) is age-related declines in vision, which have been associated with increased risk of falls and vehicle crashes. Research suggests that this



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increased risk is associated with declines in contrast sensitivity and visual acuity. We examined whether a perceptual-learning task could be used to improve age-related declines in contrast sensitivity. Older and younger adults were trained over 7 days using a forced-choice orientation-discrimination task with stimuli that varied in contrast with multiple levels of additive noise. Older adults performed as well after training as did college-age younger adults prior to training. Improvements transferred to performance for an untrained stimulus orientation and were not associated with changes in retinal illuminance. Improvements in far acuity in younger adults and in near acuity in older adults were also found. These findings indicate that behavioral interventions can greatly improve visual performance for older adults.

### Reduction in the soles of graduated compression stockings prevents falls without reducing the preventive effect for venous stasis

Kuroiwa M, Takahira N, Ujihashi Y, Miida K, Arai Y, Kawatani H.

*Thromb. Res.* 2015; ePub(ePub): ePub.

Affiliation: Kitasato University Hospital, Sagamihara, Kanagawa, Japan. (Copyright © 2015, Elsevier Publishing)

#### Abstract

**INTRODUCTION:** Graduated compression stockings (GCS) are widely used to prevent venous thromboembolism; however, GCS are slippery and a fall hazard owing to the synthetic fibers. Therefore, we investigated whether changing the sole's shape decreased slipping.

**MATERIALS AND METHODS:** We designed four GCS types with varying sole shapes and normal slipperiness to compare with normal GCS and a barefoot model without GCS (control). A mannequin foot with a GCS type or the control was placed on a ramp at 0°, and the angle was slowly increased. When the mannequin foot had moved ≥100% from the original position, the angle of slide-out (AS) was measured, and the forward and backward AS values were compared. Next, we investigated whether sole modification influenced the effectiveness of the normal GCS for preventing venous stasis. The same GCS type (Torenka) was given to 30 healthy volunteers. Peak systolic velocities (PSV) of the popliteal vein prior to wearing GCS and 20 and 40min after wearing GCS were measured using Doppler ultrasound, and the changes were compared with those of the normal GCS.

**RESULTS:** Only the AS of the GCS type with the smallest sole area (Torenka) was not significantly different from the control's AS, which was significantly larger than the normal GCS' AS. Normal and Torenka GCS resulted in significantly increased PSV after 20 and 40min compared with no GCS, with no significant difference between the two groups.

**CONCLUSION:** Torenka-type GCS were the least slippery but were as effective as normal GCS for venous stasis.

### Pharmacist consultations: simplifying daily drug regimens and providing education on fall risk for older adults

Bartlett D, Pang N, Massey C, Evans P.

*Consult. Pharm.* 2015; 30: 141-152.

Affiliation: MCPHS University Pharmacy Outreach Program, Worcester, Massachusetts, USA.

(Copyright © 2015, American Society of Consultant Pharmacists)

#### Abstract

**OBJECTIVE:** To evaluate whether a medication review by a pharmacist in the community can simplify an older adult's daily drug regimen and improve awareness of medication-related fall risk.

**DESIGN:** Pre- and posttest with follow-up design.

**SETTING:** Senior centers, senior housing facilities, and community centers in Massachusetts.

**PARTICIPANTS:** Older adults who attended a pharmacy outreach program at a community center.

**INTERVENTIONS:** Participants engaged in a one-time, face-to-face, medication therapy management (MTM) session. The pharmacists made recommendations to simplify daily drug regimens for best therapeutic results.

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The participants were educated regarding the influence that medications may have on fall risk.

**RESULTS:** For the 75 participants, daily dose regimens were significantly reduced. From the presurvey to the follow-up surveys, there was a significant increase of participants taking medication three times or fewer per day (73% to 85%) versus those participants taking medications more than three times per day ( $P = 0.041$ ). Through MTM consultations, participants' awareness that medications may be a contributing factor to fall risk was increased from 28% in the presurvey to 56% in the postsurvey ( $P = 0.0018$ ).

**CONCLUSION:** A pharmacist consultation can simplify the daily drug regimen. Furthermore, consultant pharmacists can educate patients regarding the risk that medications may have on falls.

### Impact of tai-chi on falls among preclinically disabled older people. A randomized controlled trial

Day L, Hill KD, Stathakis VZ, Flicker L, Segal L, Cicuttini F, Jolley D.

*J. Am. Med. Dir. Assoc.* 2015; ePub(ePub): ePub.

Affiliation: Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia.

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#### Abstract

**OBJECTIVE:** To investigate the effectiveness of tai-chi in preventing falls among community-dwelling older people.

**DESIGN:** Multisite parallel group individually randomized controlled trial.

**SETTING:** Melbourne, Australia.

**PARTICIPANTS:** Preclinically disabled community-dwelling people 70 + years ( $n = 503$ ), without major medical conditions or moderate to severe cognitive impairment.

**INTERVENTION:** Sixty-minute modified Sun style tai-chi group-based exercise program twice weekly for 48 weeks; control intervention was a seated group-based flexibility exercise program of the same dose.

**MEASUREMENTS:** All falls, self-reported using a monthly calendar, analyzed at 24 weeks and 48 weeks. Injurious falls reported in follow-up telephone interviews for each reported fall.

**RESULTS:** The adjusted fall incidence rate ratios at 24 and 48 weeks were 1.08 [(95% confidence interval (CI) 0.64-1.81)], and 1.12 (95% CI 0.75-1.67), respectively. A higher proportion of intervention participants ceased attendance in the first 24 weeks (difference 17.9%, 95% CI 9.6-25.8), and the second 24 weeks (2.7%, 95% CI -5.0 to 10.4). Intervention participants who ceased attendance had lower left quadriceps strength (difference 3.3 kg 95% CI 0.15-6.36) and required longer to complete the timed up and go test (difference 1.7 seconds 95% CI 0.22-3.17) at baseline.

**CONCLUSIONS:** This study does not support modified Sun style tai-chi as a falls prevention measure among relatively well community-dwelling older people with modified mobility and at increased risk of disability. Insufficient intervention intensity, or low exercise class attendance may have contributed to the lack of effect, as may have attrition bias among the intervention group.

### Economic evaluation of a group-based exercise program for falls prevention among the older community-dwelling population

McLean K, Day L, Dalton A.

*BMC Geriatr.* 2015; 15: 33.

Affiliation: Strategic Research Centre, Population Health, Deakin University, Victoria, Australia. adhealth@optusnet.com.au.

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#### Abstract

**BACKGROUND:** Falls among older people are of growing concern globally. Implementing cost-effective strategies for their prevention is of utmost importance given the ageing population and associated potential for increased costs of fall-related injury over the next decades. The purpose of this study was to undertake a cost-utility analysis and

secondary cost-effectiveness analysis from a healthcare system perspective, of a group-based exercise program compared to routine care for falls prevention in an older community-dwelling population.

**METHODS:** A decision analysis using a decision tree model was based on the results of a previously published randomised controlled trial with a community-dwelling population aged over 70. Measures of falls, fall-related injuries and resource use were directly obtained from trial data and supplemented by literature-based utility measures. A sub-group analysis was performed of women only. Cost estimates are reported in 2010 British Pound Sterling (GBP).

**RESULTS:** The ICER of GBP£51,483 per QALY for the base case analysis was well above the accepted cost-effectiveness threshold of GBP£20,000 to £30,000 per QALY, but in a sensitivity analysis with minimised program implementation costs reached GBP£25,678 per QALY. The ICER value at 95% confidence in the base case analysis was GBP£99,664 per QALY and GBP£50,549 per QALY in the lower cost analysis. Males had a 44% lower injury rate if they fell, compared to females resulting in a more favourable ICER for the women only analysis. For women only the ICER was GBP£22,986 per QALY in the base case and was below the cost-effectiveness threshold for all other variations of program implementation. The ICER value at 95% confidence was GBP£48,212 in the women only base case analysis and GBP£23,645 in the lower cost analysis. The base case incremental cost per fall averted was GBP£652 (GBP£616 for women only). A threshold analysis indicates that this exercise program cannot realistically break even.

**CONCLUSIONS:** The results suggest that this exercise program is cost-effective for women only. There is no evidence to support its cost-effectiveness in a group of mixed gender unless the costs of program implementation are minimal. Conservative assumptions may have underestimated the true cost-effectiveness of the program.

### Minimising psychotropic use for behavioural disturbance in residential aged care

Loi SM, Westphal A, Ames D, Lautenschlager NT.

*Aust. Fam. Physician* 2015; 44: 180-184.

Affiliation: FRANZCP, Grad Cert POA, MPsych, MBBS, Academic Unit for Psychiatry of Old Age, St Vincent's Health, University of Melbourne, VIC; Dementia Behaviour Management Advisory Service Victoria, St Vincent's Health, VIC; North Western Aged Mental Health, Melbourne Health, VIC. (Copyright © 2015, Royal Australian College Of General Practitioners)

#### Abstract

**BACKGROUND:** With the ageing population there will be an increasing number of older Australians who have dementia and require residential care. Up to 90% of people with dementia in residential care show behavioural and psychological symptoms of dementia (BPSD). General practitioners (GPs) have an important role in managing these challenging behaviours. Psychotropic medications, although useful in certain clinical situations, can have significant side effects including increased risk of falls, over-sedation and increased mortality. Non-pharmacological strategies are first-line treatment for BPSDs.

**OBJECTIVE:** The aim of this article is to present the latest evidence in the management of BPSD in residential care.

**DISCUSSION:** GPs can have a crucial role in managing the needs of people with dementia by providing regular reviews and supporting the implementation of simple, evidence-based, non-pharmacological strategies.

These abstracts have been sourced from [SafetyLit.org](http://SafetyLit.org)

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# Falls Network Information

[fallsnetwork.neura.edu.au](http://fallsnetwork.neura.edu.au)

## Joining the Network

To join the NSW Falls Prevention Network listserv, send an email to:

[majordomo@lists.health.nsw.gov.au](mailto:majordomo@lists.health.nsw.gov.au)

In the body of the message type

subscribe nsw-falls-network

on the next line type end

Do not put anything in the subject line. You will receive an e-mail to confirm you have been added to the listserv.

**To unsubscribe send an e-mail to:**

[majordomo@lists.health.nsw.gov.au](mailto:majordomo@lists.health.nsw.gov.au)

and in the body of the message type

unsubscribe nsw-falls-network

on the next line type end

If you have any problems, contact Esther Vance at [e.vance@neura.edu.au](mailto:e.vance@neura.edu.au).

## Share your news and information/ideas

Do you have any news on Falls Prevention you want to share with others on the network, or do you want to report on a project that is happening in your area.

Please email Esther with your information. We also welcome suggestions for articles and information you would like to see in this newsletter.

Send your information to:

[e.vance@neura.edu.au](mailto:e.vance@neura.edu.au)

## The Network Listserv

It is great to see the increased activity on the listserv and we want to continue to promote this. To send an item to the listserv where all members of the network can see it, send an email to:

[nsw-falls-network@lists.health.nsw.gov.au](mailto:nsw-falls-network@lists.health.nsw.gov.au)

You need to be a subscriber to the listserv to send an email that will be distributed to all members of the listserv. Remember to put a short description in the subject line.

Recently some posts to the listserv have bounced due to email address changes, you need to re-subscribe with your new e-mail address and unsubscribe from your old address following the Join the Network instructions as shown on this page.

## NSW Falls Prevention Network Background

The NSW Falls Prevention Network was established in 1993. The role of this network has grown since its inception and now includes:

- Meetings for discussion of falls related issues;
- Dissemination of research findings both local and international;
- Sharing resources developed and exploration of opportunities to combine resources in joint initiatives;
- Encouragement of collaborative projects and research;
- To act as a group to influence policy;
- To liaise with NSW Ministry of Health to provide information on current State/Commonwealth issues in relation to falls and
- Maintenance of resources pertinent to the field.

The main purpose of the network is to share knowledge, expertise and resources on falls prevention for older people.

The NSW Falls Prevention Network activities are part of the implementation of the NSW Falls Prevention Policy funded by the NSW Ministry of Health.

# Falls Prevention<sup>®</sup> is everyone's business

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