



# FALLS LINKS

Volume 5 issue 1  
2010

## WELCOME

Welcome to our first issue for 2010.

We are looking forward to a very productive year with a new NSW Falls Prevention Plan 2010-2014 to be released in the next few months and updated Falls Prevention Guidelines from the Australian Commission on Safety and Quality in Healthcare for Hospitals, Community and Residential Care Settings.

April Falls Day is almost upon us and a snapshot of some of the activities planned for this year across the Area Health Services are on page 4.

Our 2010 Falls Prevention Network Meeting has been scheduled for Wednesday June 23rd at the Mathews Theatres and Pavilions, University of NSW, make sure you mark your diaries. This year the focus is on dementia and falls prevention across the continuum of care. A flyer will be available shortly.

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## April Falls Day



The Better Balance Centre Staff at Anglican Retirement Villages adopted an orange theme during April Falls Month 2009 and provided falls prevention information and conducted balance and strength exercises with clients.

## 'Basic Steps' Training

**Basic Steps** is a physical activity training program for staff of residential care settings that was piloted across Northern Sydney Central Coast Health (NSCCH) in 2009. Developed by Sally Castell, Physical Activity Coordinator for NSCCH Health Promotion. It was developed from basic elements of the Fall Proof training program (an accredited training program developed at Fullerton University, California, USA) and the exercise format of the NSCCH "Staying Active - Staying Safe" resource.

# Basic Steps Training

Expression of Interest

Exercise Programming for the Frailer and Less Active Older Adult in Residential Care Settings

free

Northern Sydney Central Coast Area Health Service would like you and your staff the opportunity to attend a free half day exercise training session.

The 'Basic Steps' training is for residential care staff who are responsible for providing exercise programs at residential care facilities.

The focus of the training is on the prevention of falls by implementing effective exercise programs for residents.

The training includes information on the current 'best practice falls prevention' exercise prescription recommendations for the older adult living in residential care, as well as many practical ideas that can be applied in the work place.

If interested in participating in one of our training sessions, complete the *Expression of Interest Form* and return it to us.

For more information contact:  
Sally Castell 8877 5306

### Training Contents

The training includes presentations and discussion on:

- The NSW Health falls policy in relation to residential care facilities
- Risk factors for falls in general as well as specific risk factors in residential care.
- The physiological age changes and associated chronic conditions that put people at an increased risk of falls.
- Movement and age associated changes that affect balance and gait
- The basic exercise principles required to reduce fall risks considering the application of good form & technique
- Ways to progress and grade participants' capacities.

The training also includes a practical component, including:

- The knowledge and skills required to conduct appropriate exercise programs considering the different ways to lead, teach and motivate their participants (personal and group situations)
- Exercise demonstrations using a variety of options such as simple equipment, recreational ideas and music to complement the basic exercise program

### Who is suitable/eligible for the training?

This program is suitable for people who work directly with clients on physical activity and falls prevention initiatives e.g. Diversional Therapists, Activity Officers and Recreation Officers.

People in a supervisory /advisory position should also be familiar with the training to support staff to implement this initiative.

NORTHERN SYDNEY  
CENTRAL COAST  
NSW HEALTH

The training aimed to provide a broad based theoretical and practical training program for staff who work with less active and frailer older adults (65+), living in residential care facilities. The training related to provision of exercise and recreational activities that maintain functional abilities to reduce the risk of falls and related injuries. The target audience was staff who worked directly with clients on physical activity and falls prevention initiatives e.g. Diversional therapists, Activity officers and Recreation officers.

'Basic Steps' was run over 3 hours and involved both a theoretical and practical component.

'Basic Steps' was conducted across a number of NSCCH residential care settings and other related agencies who work with the frail aged. Across 21 settings, 255 staff attended – the majority consisting of diversional therapists and recreation officers. Evaluations were conducted at both the initial training and at 3 months follow-up. 83.1% returned evaluations and of these, 82.4% found that the training was excellent to good, with 78% reporting they could apply the training to their work situation.

As a training program, 'Basic Steps' had value for the staff who attended. It covered the necessary overall falls and exercise information, plus providing insight from the frail aged residents' perspective regarding reduction in function and the associated increase in fear of falling.

Staff were provided with skills to apply the appropriate 'exercise prescription' to increase the strength and balance recognised to reduce falls risk and injuries. For those who hadn't previously been conducting specific falls prevention exercise classes, the training provided the 'basics' on which to start and develop these classes. The workshop for those staff already providing classes, reinforced the need to include the falls issues within an exercise program. All staff received written material which covered the background information included in the Basic Steps training along with a Staying Active – Staying Safe DVD to assist with implementing an exercise program following the training.

The program has now been completed in NSCCH; however, a training resource is currently being compiled to continue the program without the need for face to face training.

For further information on this program contact:

Sally Castell

Physical Activity Co-ordinator

Northern Sydney Health Promotion

Ph: (02) 8877 5339

E-mail: [scastell@nscchahs.health.nsw.gov.au](mailto:scastell@nscchahs.health.nsw.gov.au)

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## GMCT Musculoskeletal Network

The Greater Metropolitan Clinical Taskforce (GMCT) is a NSW Department of Health organisation that aims to work with clinicians, consumers and community members to develop and implement evidence-based and appropriate models of care for the people of NSW with specific conditions. The GMCT has a variety of clinical networks that work on specific diagnostic or disease groups, focussing on improved access to services that are providing appropriate care. The GMCT has

In 2009 the GMCT formed a Musculoskeletal Network. The Network is in response to the National Service Improvement Framework for Arthritis and Musculoskeletal Conditions, originally developed in 2005 when it was signed off by all Australian health ministers as one of the 7 National Health Priorities. The Network is an amalgamation of the former GMCT Orthopaedic Network and the NSW Department of Health Musculoskeletal Clinical Expert Reference Group. It is chaired by 2 clinicians and supported by a Network Manager.

Conditions the GMCT Musculoskeletal Network will work on initially are:

- Osteoporosis from a secondary prevention perspective
- Access to timely Joint Replacement Surgery and the associated service needs
- Early diagnosis and management of Juvenile Arthritis.

Later work will include primary prevention of osteoporosis, rheumatoid and osteoarthritis arthritis, and back pain.

The Network is keen to include a variety of clinicians and consumers whose interest in these conditions is from a variety of perspectives. To learn more about joining the Network and/or it's activities please contact the Network Manager, Robyn Speerin at: [Rspeerin@nscchahs.health.nsw.gov.au](mailto:Rspeerin@nscchahs.health.nsw.gov.au) or 02 9887 5671.

Or go to the Musculoskeletal Network web site at:  
[www.health.nsw.gov.au/gmct/musculoskeletal/index.asp](http://www.health.nsw.gov.au/gmct/musculoskeletal/index.asp)

The GMCT has become part of the newly established Agency for Clinical Innovation (ACI) .and is aligned with the CEC under a common board that reports to the NSW Minister for Health and the Director-General of NSW Health.

### NOTES FOR DIARY

#### 2010 NSW Falls Prevention Network Meeting

The 2010 NSW Falls Prevention Network Meeting will be held on Wednesday 23<sup>rd</sup> June at the Mathews Theatres and Pavilions, University of NSW. This year the focus will be on Dementia and Delirium as we have had many requests from the network to provide information on the care of the confused older person across the continuum of care. Plenary presentations will include: dementia and falls prevention including practical management of older people with dementia both in hospital and the community with a special focus on supporting carers and managing challenging behaviours, the New NSW Falls prevention Plan 2010-2014, distribution and implementation of the Australian Commission on Safety and Quality in Healthcare 2009 Falls Prevention Guidelines and development of a new falls prevention booklet for community dwelling older people as well as the cost of falls in NSW.

The afternoon concurrent sessions will focus on hospital, community and residential aged care settings and will feature short presentations (10minutes) with time for broader discussion.

Further details regarding the meeting including registration information will soon be circulated on the network listserv and placed on the Falls Network website.

## FEATURE FOCUS REPORT

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### APRIL FALLS DAY 2010

April Falls Day has been gazetted in the NSW Health Calendar for 1st April. The aim of April Falls Day is to raise awareness of the importance of preventing falls in Hospitals, Community and Residential Aged Care settings.

Many of NSW Area Health Services have been running April Falls Day/ Month activities for a number of years. It's a great way to involve patients, families, carers and the community in raising awareness about falls prevention.

Some ideas for April Falls Day:

- Community Education Forums
- Tai Chi, Balance and Strength exercise demonstrations and promotion of classes in your Area
- Displays in Hospitals –information for patients, their families and staff
- Staff education throughout April on Preventing Falls

Further general information on falls prevention and posters can be found at

<http://www.cec.health.nsw.gov.au/programs/falls-prevention.html>

Some of the planned activities for 2010 April Falls Day/Month include:

#### **Northern Sydney Central Coast Area Health Service**

On April Falls Day all public and a number of private hospitals will be holding April Falls Day displays in the foyers in their facilities, to raise awareness for both staff and clients, regarding preventing falls. Staff will wear orange falls prevention t-shirts and the displays will have orange goodies to give-away. Patients will receive new falls prevention magnets and bookmarks as well as a meal tray mats to alert them to how to prevent a fall.

April Falls Month will be celebrated by holding seminars/expos at venues on the Central Coast and Northern Sydney. The target audience is staff of acute, residential care and community service providers who work with older clients/patients. Community service providers will also have orange goodies and information to provide to staff and clients during the month of April. Anglican Retirement Villages celebrate an orange-themed April Falls Month in their facilities across NSCCH, inclusive of their Better Balance Challenge (see page 6).

Contact: Margaret Armstrong, NSCCH Coordinator, NSW Falls Policy,

[marmstro@nscch.health.nsw.gov.au](mailto:marmstro@nscch.health.nsw.gov.au)

#### **Sydney South West Area Health Service**

SSWAHS will mark April Falls Day with main foyer information displays, and pamphlets on falls prevention placed on meal trays. Some of the other activities include a multidisciplinary debate on 'A Fall from Grace? That women fall more gracefully than men'. Others are utilising the 'green' coloured theme in falls identification by baking a coloured cake and a themed internal newsletter with relevant falls articles. Our Community Health staff are promoting awareness through client and carers discussion.

Contact: Katica Siric, SSWAHS A/Area Falls Prevention Coordinator,

[katica.siric@email.cs.nsw.gov.au](mailto:katica.siric@email.cs.nsw.gov.au)

#### **South Eastern Sydney Illawarra Area Health Service**

There will be a number of foyer displays in hospitals including the Southern Network competition between the 9 hospitals in this network vying for the titles of best display and best innovative approach to clinical practice change in falls prevention, best risk management activity and best demonstration of minimisation strategies in falls prevention. There will also be a prize for the Best Community Health Centre falls prevention activity within the southern network.

The Falls Injury Prevention team at SESIH Health Promotion, are conducting two April Falls Day events. In partnership with Botany Bay Council on 1<sup>st</sup> April 2010 a community event will take place. This event will include presentations from a number of health care providers and will have a focus on falls prevention, strength and balance

## FEATURE FOCUS REPORT

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training, home hazards and healthy ageing. We will also have information booths that participants can visit after lunch where exercise classes will be promoted.

All participants will receive a free healthy ageing goodie bag, there will be lucky door prizes and participants will have the option of being followed up with an SMS to remind them to exercise or enrol in a local exercise program. This follow up will be for a six month period. We will also be using the event to collect information from participants on how we can promote falls prevention to the community.

A community event will also be taking place at Ulladulla Civic Centre on 1<sup>st</sup> April 2010. This event will include a free one hour strength and balance training exercise class. Participants in the Milton/ Ulladulla area will also receive a free healthy ageing goodie bag, with lucky door prizes and the opportunity to enrol in a free local exercise program.

Participants will be able to visit an information booth at the Ulladulla Civic Centre where they will be provided with information and resources, with a focus on strength and balance training, local exercise information and healthy ageing.

Contact: Kathy Richardson, SESIAHS Falls Coordinator,  
[Kathy.Richardson@sesiahs.health.nsw.gov.au](mailto:Kathy.Richardson@sesiahs.health.nsw.gov.au)

### **Hunter New England Area Health Service**

A number of facilities across Hunter New England Area Health Service will have displays and other activities on falls prevention for patients, general public and staff. John Hunter and Belmont Hospitals will have Falls Injury Prevention displays with information on osteoporosis, footwear, and macular degeneration, a Tai Chi demonstration and staff education sessions including falls risk screening. Mental Health Services for Older People based at the Calvary Mater will have a Tai Chi demonstration, in addition to the usual falls prevention classes.

Contact Patsy Bourke, Area Falls injury prevention Coordinator,  
[patsy.bourke@hnehealth.nsw.gov.au](mailto:patsy.bourke@hnehealth.nsw.gov.au)

### **North Coast Area Health Service**

A number of facilities will have displays on falls prevention information for staff and general public. This will also include information on how the general public can refer themselves to allied health services. April Falls Day will also be used to promote the 'Stepping On' falls prevention programs that are running throughout the NCAHS.

Contact: Mary-Clare Maloney, NCAHS Falls Prevention Coordinator,  
[mary-clare.maloney@ncahs.health.nsw.gov.au](mailto:mary-clare.maloney@ncahs.health.nsw.gov.au)

### **Greater Southern Area Health Service**

There will be a number of April Falls Day Activities across the Greater Southern Area Health Service including media and radio interviews and a Tai Chi display with a healthy lifestyle and ageing message.

Contact: Lorraine Dubois, Health Development Project Coordinator,  
[lorraine.duboise@gsahs.health.nsw.gov.au](mailto:lorraine.duboise@gsahs.health.nsw.gov.au)

### **Greater Western Area Health Service**

Greater Western Area Health Service will mark April Falls Day by hosting local activities at the health services throughout the region. A number of suggestions for the day have been to have information displays, exercise displays, the provision of Falls Injury Prevention information to residents and patients at our health services and media opportunities to spread the word of Falls Prevention.

Contact: Jacaline Kelly, Greater Western Area Health Service Falls Coordinator  
[jacaline.kelly@gwahs.health.nsw.gov.au](mailto:jacaline.kelly@gwahs.health.nsw.gov.au)

## FEATURE FOCUS REPORT

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### Sydney West Area Health Service

There will be displays in local hospitals, a Tai Chi display at Auburn Hospital, and a staff education session at Westmead Hospital. Anglican Retirement villages have taken up the Fit & Strong 65 and Beyond Challenge as an activity for April Falls Month (see below).

Contact: Jenny Bawden, Falls Prevention Coordinator

[bawdenj@wahs.nsw.gov.au](mailto:bawdenj@wahs.nsw.gov.au)

### Better Balance Challenge—Encouraging Seniors to take the challenge!

Last year Sydney West Area Health Service as part of the Government's positive aging strategy and falls prevention initiatives developed a 2 week health and lifestyle program for seniors. Called *the Fit & Strong: 65 & Beyond Challenge*, the program was designed to improve senior's overall health and wellbeing and to aid in the prevention of falls.

Seniors were encouraged to participate in the following healthy tasks, every day for the two week period:

- **Be more active** – walking at least 30 mins per day
- **Do some strength and balance exercises** – complete the 4 easy and gentle exercises outlined in the program brochure per day
- **Eat more dairy** – get enough calcium for strong bones – 3-4 serves of dairy every day
- **Soak up some sunshine** –Vitamin D is essential for strong bones- spend 5-15mins in the sun every day

The program has proven to be very successful. Anglican Retirement Villages (ARV) Woodbury Village residents participated in the Challenge and found it a very effective way of educating themselves on falls prevention. Conceptually, the program has strong linkage with ARV's Better Balance Centre values and is a perfect fit for April's Falls Month. As such, ARV with the support of Sydney West Area Health Service has developed their own Challenge program to be launched to all ARV residents and community clients in April – called the **Better Balance Challenge!**

For more information please contact Sharon Butler, ARV Better Balance Coordinator on (02) 9634 0370.



The next issue of Falls Links will feature 2010 April Falls Day activities, please send your reports and pictures to Esther Vance at [e.vance@powmri.edu.au](mailto:e.vance@powmri.edu.au).

## RECENT ABSTRACTS FROM THE RESEARCH LITERATURE

### REVIEWS

#### Interventions for preventing falls in older people in nursing care facilities and hospitals

Cameron ID, Murray GR, Gillespie LD, Robertson MC, Hill KD, Cumming RG, Kerse N

**Cochrane Database of Systematic Reviews** 2010, Issue 1. Art. No.: CD005465.

DOI: [10.1002/14651858.CD005465.pub2](https://doi.org/10.1002/14651858.CD005465.pub2).

#### Abstract

**Background:** Falls in nursing care facilities and hospitals are common events that cause considerable morbidity and mortality for older people.

**Objectives:** To assess the effectiveness of interventions designed to reduce falls by older people in nursing care facilities and hospitals.

**Search strategy:** We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (January 2009); the Cochrane Central Register of Controlled Trials (*The Cochrane Library* 2008, Issue 2); MEDLINE, EMBASE, and CINAHL (all to November 2008); trial registers and reference lists of articles.

**Selection criteria:** Randomised controlled trials of interventions to reduce falls in older people in nursing care facilities or hospitals. Primary outcomes were rate of falls and risk of falling.

**Data collection and analysis:** Two review authors independently assessed trial quality and extracted data. Data were pooled where appropriate.

**Main results:** We included 41 trials (25,422 participants). In nursing care facilities, the results from seven trials testing supervised exercise interventions were inconsistent. This was the case too for multifactorial interventions, which overall did not significantly reduce the rate of falls (rate ratio (RaR) 0.82, 95% CI 0.62 to 1.08; 7 trials, 2997 participants) or risk of falling (risk ratio (RR) 0.93, 95% CI 0.86 to 1.01; 8 trials, 3271 participants). A post hoc subgroup analysis, however, indicated that where provided by a multidisciplinary team, multifactorial interventions reduced the rate of falls (RaR 0.60, 95% CI 0.51 to 0.72; 4 trials, 1651 participants) and risk of falling (RR 0.85, 95% CI 0.77 to 0.95; 5 trials, 1925 participants). Vitamin D supplementation reduced the rate of falls (RaR 0.72, 95% CI 0.55 to 0.95; 4 trials, 4512 participants), but not risk of falling (RR 0.98, 95% CI 0.89 to 1.09; 5 trials, 5095 participants).

In hospitals, multifactorial interventions reduced the rate of falls (RaR 0.69, 95% CI 0.49 to 0.96; 4 trials, 6478 participants) and risk of falling (RR 0.73, 95% CI 0.56 to 0.96; 3 trials, 4824 participants). Supervised exercise interventions showed a significant reduction in risk of falling (RR 0.44, 95% CI 0.20 to 0.97; 3 trials, 131 participants).

**Authors' conclusions:** There is evidence that multifactorial interventions reduce falls and risk of falling in hospitals and may do so in nursing care facilities. Vitamin D supplementation is effective in reducing the rate of falls in nursing care facilities. Exercise in subacute hospital settings appears effective but its effectiveness in nursing care facilities remains uncertain.

#### Is physical rehabilitation for older people in long-term care effective? Findings from a systematic review

Forster A, Lambley R, Young JB.

**Age and Ageing** Advance Access published online on January 21, 2010 *Age and Ageing*, doi:[10.1093/ageing/afp247](https://doi.org/10.1093/ageing/afp247)

#### ABSTRACT

**Objective:** to determine the effects of physical rehabilitation for older people resident in long-term care. Design: systematic review of randomised controlled trials.

**Data sources:** The Cochrane Central Register of Controlled Trials, Medline, EMBASE, AMED, CINAHL, PEDro, British Nursing Index, ASSIA, IBSS, PsychINFO, DARE, HMIC, NHS EED, HTA, Web of Science, AsLib Index to UK Theses and Dissertation Abstracts, the National Research Register, Medical Research Council Register, CRIB, Current Controlled Trials and HSRPRoj.

**Trials:** all randomised trials investigating physical rehabilitation for people permanently resident in long-term care aged 60 years. The primary outcome was measures of activity restriction.

**Results:** 49 trials were identified involving 3,611 subjects with an average age of 82 years. Intervention duration was typically 12 weeks with a treatment intensity of three 30-min sessions per week. Exercise was the main component of the interventions. The mean attendance rate for 17 studies was 84% (range 71-97%). Thirty-three trials, including the nine trials recruiting over 100 subjects, reported positive findings, mostly improvement in mobility but also strength, flexibility and balance.

**Conclusion:** physical rehabilitation for older people in long-term care is acceptable and potentially effective. Larger scale studies are needed to confirm the findings and should include longer term follow-up and assessment for possible harms.

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## EPIDEMIOLOGY AND RISK FACTORS FOR FALLS

### Fall - related injuries in a nursing home setting: is polypharmacy a risk factor?

Baranzini F, Diurni M, Ceccon F, Poloni N, Cazzamalli S, Costantini C, Colli C, Greco L, Callegari C.

**BMC Health Serv Res** 2009; 9(1): 228. DOI: [10.1186/1472-6963-9-228](https://doi.org/10.1186/1472-6963-9-228) (Copyright © 2009, BioMed Central)

#### ABSTRACT

**BACKGROUND:** Polypharmacy is regarded as an important risk factor for falling and several studies and meta-analyses have shown an increased fall risk in users of diuretics, type Ia antiarrhythmics, digoxin and psychotropic agents. In particular, recent evidence has shown that fall risk is associated with the use of polypharmacy regimens that include at least one established fall risk-increasing drug, rather than with polypharmacy per se. We studied the role of polypharmacy and the role of well-known fall risk-increasing drugs on the incidence of injurious falls.

**Methods:** A cross-sectional observational study was carried out from 2004 to 2007 in a population of elderly nursing home residents. An unmatched, post-stratification design for age class, gender and length of stay was adopted. In all, 695 falls were recorded in 293 patients.

**Results:** 221 patients (75.4%) were female and 72 (24.6%) male, and 133 (45.4%) were recurrent fallers. 152 patients sustained no injuries when they fell, whereas injuries were sustained in 141: minor in 95 (67.4%) and major in 46 (32.6%). Taking one "risk drug" (an antiarrhythmic or antiparkinson drug) and taking a total of seven or more other medications seems to represent a risk association for injuries ( $p=0.024$ ; OR=4.4; CI 95% 1.21 - 15.36).

**Conclusion:** This work reaffirms the importance of routine medication reviews, especially in patients exposed to polypharmacy regimens with 7 or more drugs, including antiarrhythmics or antiparkinson drugs), in order to reduce the risk of fall-related injuries during nursing home stays.

### Handgrip strength of the elderly after hip fracture repair correlates with functional outcome.

Beloosesky Y, Weiss A, Manasian M, Salai M.

**Disabil Rehabil** 2009; ePub(ePub): ePub. Affiliation: Departments of Geriatrics and Orthopedic Surgery, Rabin Medical Center, Beilinson Hospital, Sackler School of Medicine, Tel Aviv University, Petach Tikvah, Israel.

DOI: [10.3109/09638280903168499](https://doi.org/10.3109/09638280903168499) (Copyright © 2009, Taylor and Francis Group)

#### ABSTRACT

**Purpose.** To investigate the relationship between handgrip strength (HG) and upper limb functioning of hip fracture operated elderly patients and their functional outcome 6 months post-op.

**Methods.** Retrospectively, data on 105 post-operative hip fracture patients was analyzed. Functional level was measured by the Functional Independence Measure (FIM) and HG by hand dynamometer, 7-10 days, 1, 3 and 6 months post-op. FIM1 up-to FIM4 (FIM1-FIM4) and HGI up-to HG4 (HGI-HG4) were determined. Pre-fracture upper limb function was evaluated using the disabilities of the arm, shoulder and hand (DASH) questionnaire. The Mini-Mental-State Examination evaluated cognition.

**Results.** FIM1-FIM4 scores increased during the 6-month follow-up; HGI-HG4 scores remained unchanged. No differences were found in FIM1-FIM4 and DASH scores between genders. HGI-HG4 scores were significantly higher in men ( $p = 0.04-0.005$ ). FIM1-FIM4, HGI-HG4 and DASH scores were higher in the cognitively normal patients ( $p < 0.001$ ). A fair correlation was found between all HG and FIM scores ( $R = 0.36-0.71$ ,  $p < 0.001$ ), and between DASH and FIM scores ( $R = 0.5-0.7$ ,  $p < 0.001$ ). Log HGI and FIM4 scores were highly correlated ( $R(2) = 0.54$ ,  $p < 0.001$ ). Regression analysis found that only, and in the following order were Log HGI, FIM1, DASH and age significant factors affect FIM4 score ( $R(2) = 0.69$ ).

**Conclusions.** HG and FIM scores, a week post-op., combined with upper limb functioning and age, can have a 69% prediction accuracy for motor functioning 6 months post-fracture. HG measurement, a week post-hip fracture repair, might be considered in estimating functional motor outcome, and eventually additional interventions should be employed to increase muscle strength and, thus, improve functional outcome.

### Variation in risk factors for fractures at different sites.

Kelsey JL, Samelson EJ.

**Curr Osteoporosis Rep** 2009; 7(4): 127-33. Affiliation: University of Massachusetts Medical School, Department of Medicine, Division of Preventive and Behavior Medicine, and Department of Family Medicine and Community Health, 55 Lake Place North, Shaw Building, Worcester MA 01655, USA. [jennykelsey@comcast.net](mailto:jennykelsey@comcast.net)

DOI: unavailable (Copyright © 2009, Current Science)

#### ABSTRACT

Fractures in older people are important medical problems. Knowledge of risk factors is essential for successful

preventive measures, but when fracture sites of diverse etiology are combined, risk factors for any one site are difficult to identify and may be missed entirely. Among older people, incidence rates of hip, proximal humerus, and vertebral fractures increase with age, but not rates of distal forearm and foot fractures. Low bone mineral density is strongly associated with hip, distal forearm, vertebral, and proximal humerus fractures, but not foot fracture. Most fractures of the hip, distal forearm, and proximal humerus result from a fall, whereas smaller proportions of fractures of the foot and vertebrae follow a fall. Frail people are likely to fracture their hip or proximal humerus, while healthy, active people tend to fracture their distal forearm. We strongly recommend that studies identify risk factors on a site-specific basis.

### **The Association Between the Number of Prescription Medications and Incident Falls in a Multi-ethnic Population of Adult Type-2 Diabetes Patients: The Diabetes and Aging Study.**

Huang ES, Karter AJ, Danielson KK, Warton EM, Ahmed AT.

**J Gen Intern Med** 2009; ePub(ePub): ePub. Affiliation: Department of Medicine, University of Chicago, Chicago, IL, 60637, USA, ehuang@medicine.bsd.uchicago.edu. DOI: [10.1007/s11606-009-1179-2](https://doi.org/10.1007/s11606-009-1179-2) (Copyright © 2009, Springer Science+Business Media) [ePub (volume, issue, and page range not yet available)]

#### **ABSTRACT**

**BACKGROUND:** Use of four or more prescription medications is considered a risk factor for falls in older people. It is unclear whether this polypharmacy-fall relationship differs for adults with diabetes.

**OBJECTIVE:** We evaluated the association between number of prescription medications and incident falls in a multi-ethnic population of type-2 diabetes patients in order to establish an evidence-based medication threshold for fall risk in diabetes.

**DESIGN:** Baseline survey (1994-1997) with 5 years of longitudinal follow-up.

**PARTICIPANTS:** Eligible subjects (N = 46,946) had type-2 diabetes, were  $\geq 18$  years old, and enrolled in the Kaiser Permanente Northern California Diabetes Registry.

**MEASUREMENTS AND MAIN RESULTS:** We identified clinically recognized incident falls based on diagnostic codes (ICD-9 codes: E880-E888). Relative to regimens of 0-1 medications, regimens including 4 or more prescription medications were significantly associated with an increased risk of falls 4-5 medications adjusted HR 1.22 (1.04, 1.43), 6-7 medications 1.33 (1.12, 1.58),  $>7$  medications 1.59 (1.34, 1.89). None of the individual glucose-lowering medications was found to be significantly associated with a higher risk of falls in predictive models.

**CONCLUSIONS:** The prescription of four or more medications was associated with an increased risk of falls among adult diabetes patients, while no specific glucose-lowering agent was linked to increased risk. Baseline risk of falls and number of baseline medications are additional factors to consider when deciding whether to intensify diabetes treatments.

### **The association between choice stepping reaction time and falls in older adults- a path analysis model**

Pijnappels M, Delbaere K, Sturnieks DL, Lord SR

**Age and Ageing** 2010 39: 99-104; doi:[10.1093/ageing/afp200](https://doi.org/10.1093/ageing/afp200)

#### **ABSTRACT**

**Background:** choice stepping reaction time (CSRT) is a functional measure that has been shown to significantly discriminate older fallers from non-fallers. Objective: to investigate how physiological and cognitive factors mediate the association between CSRT performance and multiple falls by use of path analysis.

**Methods:** 294 retirement-village residents, aged 62-95 years, undertook CSRT tests, requiring them to step onto one of four randomly illuminated panels, in addition to physiological and cognitive tests. Number of falls was collected during 1-year follow-up.

**Results:** 79 participants (27%) reported two or more falls during the follow-up period. Regression analyses indicated CSRT was able to predict multiple falls by a factor of 1.76 for each SD change. The path analysis model revealed that the association between CSRT and multiple falls was mediated entirely by the physiological parameters reaction time and balance (postural sway) performance. These two parameters were in turn mediated over a physiological path (by quadriceps strength and visual contrast sensitivity) and a cognitive path (cognitive processing).

**Conclusions:** this study provides an example of how path analysis can reveal mediators for the association between a functional measure and falls. Our model identified inter-relationships (with relative weights) between physiological and cognitive factors, CSRT and multiple falls.

### Central and Peripheral Visual Impairment and the Risk of Falls and Falls with Injury.

Patino CM, McKean-Cowdin R, Azen SP, Allison JC, Choudhury F, Varma R.

**Ophthalmology** 2009; ePub(ePub): ePub. Affiliation: Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, California. DOI: [10.1016/j.ophtha.2009.06.063](https://doi.org/10.1016/j.ophtha.2009.06.063) (Copyright © 2009, Elsevier Publishing)

#### ABSTRACT

**OBJECTIVE:** To evaluate whether central (CVI) and peripheral visual impairment (PVI) are independent risk factors for falls and falls with injury 4 years later.

**DESIGN:** Population-based, prospective cohort study.

**PARTICIPANTS:** A population-based sample of 3203 adult Latinos.

**METHODS:** Baseline presenting binocular central distance acuity was measured and impairment was classified as mild (20/40-20/63) or moderate/severe ( $\geq 60$  years of age, be female, report lower income, have  $>2$  comorbidities, report alcohol use, report wearing bifocal glasses, and report obesity).

**RESULTS:** Among those who reported falls, 7% had CVI and 49% had PVI, compared with the 4% and 39% of those with CVI and PVI, respectively, who did not report falls. After adjusting for confounders, moderate to severe CVI and PVI were associated with increased risk for falls (odds ratio [OR], 2.36; 95% confidence interval [CI], 1.02-5.45;  $P(\text{trend}) = 0.04$ ; and OR, 1.42; 95% CI, 1.06-1.91  $P(\text{trend}) = 0.01$ , respectively) and with falls with injury (OR, 2.76; 95% CI, 1.10-7.02;  $P(\text{value}) = 0.03$ ; and OR, 1.40; 95% CI, 0.94-2.05  $P(\text{trend}) = 0.04$ , respectively).

**CONCLUSIONS:** Both CVI and PVI were independently associated with increased risk for falls and falls with injury 4 years after the initial examination in a dose-response manner. Although vision-related interventions for preventing falls have mainly focused on correcting CVI, this study suggests that targeting both central and peripheral components may be necessary to effectively reduce rates of falls and falls with injury related to vision loss.

### The relationship between visual function, duration and main causes of vision loss and falls in older people with low vision.

Lamoureux E, Gadjil S, Pesudovs K, Keeffe J, Fenwick E, Salonen S, Rees G, Dirani M.

**Graefes Arch Clin Exp Ophthalmol** 2010; ePub(ePub): ePub. Affiliation: Centre for Eye Research Australia, The Royal Victorian Eye and Ear Hospital, University of Melbourne, Melbourne, Australia. DOI: [10.1007/s00417-009-1260-x](https://doi.org/10.1007/s00417-009-1260-x) (Copyright © 2010, Springer Science+Business Media)

#### ABSTRACT

**BACKGROUND:** Falls are an alarming health problem and a major cause of injury among the elderly. The health-care cost associated with falls is considerable. Visual acuity has been found to be an independent risk factor for falls; however, the results are not unanimous. Moreover, other aspects of visual function such as visual field, contrast sensitivity and depth perception have not been adequately investigated in relation to falls. The aim of this study, therefore, was to determine the relationship between visual function, duration, and main causes of visual impairment, and falls in individuals with low vision.

**METHODS:** This was a cross-sectional study involving participants attending a public tertiary eye care hospital. Participants were mobile, aged 60 years or above, and had low vision (visual acuity  $>0.3$  LogMAR in the better eye). Details about falls in the previous 12 months and other information were collected, and patients completed a questionnaire about activities of daily living. The duration and main causes of visual impairment, visual acuity, contrast sensitivity, depth perception, and visual field were assessed. Descriptive statistical analyses were performed to characterize the participants' sociodemographic and clinical data.

**RESULTS:** One hundred and twenty seven patients (53%; 67 males) with a mean age of 76.3  $\pm$  8.3 years were recruited. Thirty seven percent of the participants ( $n = 47$ ) had mild, 50% ( $n = 64$ ) moderate and 13% ( $n = 16$ ) severe visual impairment ( $>0.3-0.5$ ;  $>0.5-1.0$ ; and  $>1.0$  LogMAR respectively). The frequencies of single and multiple falls were 42.5% and 12.6% respectively. Visual acuity, contrast sensitivity, depth perception, visual field, main cause, and duration of visual impairment were not significantly associated with falls ( $p > 0.05$ ). In multiple regression analyses, physical inactivity remained the only variable independently associated with falls in all models except for visual field. Overall, visually impaired people were three times more likely to fall if they were physically inactive.

**CONCLUSIONS:** Visual function, duration and main causes of visual impairment are not independently associated with falls in people with low vision. However, a significant relationship between non-participation in physical activity and falls was found. Further work is required to investigate the association between vision-related factors and falls in older people with visual impairment.

## **Balance Impairment as a Risk Factor for Falls in Community-Dwelling Older Adults Who Are High Functioning: A Prospective Study.**

Muir SW, Berg K, Chesworth B, Klar N, Speechley M.

**Phys Ther** 2010; ePub(ePub): ePub. Affiliation: Department of Medicine, Division of Geriatric Medicine, Schulich School of Medicine and Dentistry, University of Western Ontario, Parkwood Hospital, Room A-283, 801 Commissioners Rd East, London, Ontario, Canada N6C 5J1. DOI: [10.2522/ptj.20090163](https://doi.org/10.2522/ptj.20090163) (Copyright © 2010, American Physical Therapy Association)

### **ABSTRACT**

Screening should have simple and easy-to-administer methods that identify impairments associated with future fall risk, but there is a lack of literature supporting validation for their use. **Objective** The aim of this study was to evaluate the independent contribution of balance assessment on future fall risk, using 5 methods to quantify balance impairment, on the outcomes "any fall" and "any injurious fall" in community-dwelling older adults who are higher functioning. **Design** This was a prospective cohort study. **METHODS:** A sample of 210 community-dwelling older adults (70% male, 30% female; mean age=79.9 years, SD=4.7) received a comprehensive geriatric assessment at baseline, which included the Berg Balance Scale to measure balance. Information on daily falls was collected for 12 months by each participant's monthly submission of a falls log calendar. **RESULTS:** Seventy-eight people (43%) fell, of whom 54 (30%) sustained an injurious fall and 32 (18%) had recurrent falls ( $\geq 2$  falls). Different balance measurement methods identified different numbers of people as impaired. Adjusted relative risk (RR) estimates for an increased risk of any fall were 1.58 (95% confidence interval CI=1.06, 2.35) for self-report of balance problems, 1.58 (95% CI=1.03, 2.41) for one-leg stance, and 1.46 (95% CI=1.02, 2.09) for limits of stability. An adjusted RR estimate for an increased risk of an injurious fall of 1.95 (95% CI=1.15, 3.31) was found for self-report of balance problems. **Limitations** The study was a secondary analysis of data. **CONCLUSIONS:** Not all methods of evaluating balance impairment are associated with falls. The number of people identified as having balance impairment varies with the measurement tool; therefore, the measurement tools are not interchangeable or equivalent in defining an at-risk population. The thresholds established in this study indicate individuals who should receive further comprehensive fall assessment and treatment to prevent falls.

## **Person-environment interactions contributing to nursing home resident falls.**

Hill EE, Nguyen TH, Shaha M, Wenzel JA, Deforge BR, Spellbring AM.

**Res Gerontol Nurs** 2009; 2(4): 287-96. DOI: [10.3928/19404921-20090527-02](https://doi.org/10.3928/19404921-20090527-02) (Copyright © 2009, Slack)

### **ABSTRACT**

Although approximately 50% of nursing home residents fall annually, the surrounding circumstances remain inadequately understood. This study explored nursing staff perspectives of person, environment, and interactive circumstances surrounding nursing home falls. Focus groups were conducted at two nursing homes in the mid-Atlantic region with the highest and lowest fall rates among corporate facilities. Two focus groups were conducted per facility: one with licensed nurses and one with geriatric nursing assistants. Thematic and content analysis revealed three themes and 11 categories. Three categories under the Person theme were Change in Residents' Health Status, Decline in Residents' Abilities, and Residents' Behaviors and Personality Characteristics. There were five Nursing Home Environment categories: Design Safety, Limited Space, Obstacles, Equipment Misuse and Malfunction, and Staff and Organization of Care. Three Interactions Leading to Falls categories were identified: Reasons for Falls, Time of Falls, and High-Risk Activities. Findings highlight interactions between person and environment factors as significant contributors to resident falls.

## **Incidence and risk factors of falling in ambulatory patients with rheumatoid arthritis: a prospective 1-year study.**

Hayashibara M, Hagino H, Katagiri H, Okano T, Okada J, Teshima R.

**Osteoporos Int** 2010; ePub(ePub): ePub.

Affiliation: Department of Orthopedic Surgery, Faculty of Medicine, Tottori University, Yonago, Tottori, 683-8504, Japan, akimasa\_nariko@yahoo.ac.jp. DOI: [10.1007/s00198-009-1150-4](https://doi.org/10.1007/s00198-009-1150-4) (Copyright © 2010, Springer Science +Business Media)

### **ABSTRACT**

A prospective 1-year study showed that fall incidence was 50% in women with rheumatoid arthritis. Multivariate analysis identified swollen joint count, use of antihypertensives or diuretics, one-leg standing time, and sway area measured by stabilometer as significant parameters associated with falls.

**INTRODUCTION:** Patients with rheumatoid arthritis (RA) may be at increased risk of falling because they

frequently experience muscle weakness and stiff or painful joints. The aim of this study was to use a prospective design to determine the incidence of falls and their risk factors in women with RA.

**METHODS:** Eighty-four women aged 50 and over who had RA were enrolled. The mean age was 64.1 years. We evaluated postural stability, physical performance related to falls, disease activity, muscle volume, and bone density. The occurrence of falls was assessed every month for 1 year. Among 84 patients, 80 completed a 1-year observation.

**RESULTS:** Forty patients (50.0%) reported one or more falls, and two of them (5.0%) had fractures during the follow-up period. The fall group had more swollen joints and took more antihypertensives and/or diuretics. The fall group also had lower postural stability and tended to have reduced physical performance. The one-leg standing time was shorter, and the step-up-and-down test score was lower in the fall group. The sway area was larger in the fall group.

**DISCUSSION:** Multiple logistic regression analysis identified that number of swollen joints, use of antihypertensives or diuretics, shorter time standing on one foot, and the sway area were the most significant parameters associated with falls.

**CONCLUSION:** We concluded that fall rates in RA patients were higher than in the general population and that balance impairment or side effects of drugs may play a role in increasing the risk of falls.

## GAIT

### Ageing and gait variability: a population-based study of older people

Callisaya ML, Blizzard L, Schmidt MD, McGinley JL, Srikanth VK.

**Age and Ageing** Advance Access published on January 18, 2010. doi:[10.1093/ageing/afp250](https://doi.org/10.1093/ageing/afp250)

#### ABSTRACT

**Background:** gait variability may be an important predictor of falls risk, but its characteristics are poorly understood.

**Objective:** to examine the relationship between age and gait variability in a population-based sample of older people.

**Design:** cross-sectional study.

**Methods:** in people aged 60-86 years (n = 411), temporal and spatial gait variability measures were recorded with a GAITRite walkway. Regression analysis was used to model the relationship between age and gait variability adjusting for height, weight and self-reported chronic disease. Further adjustment was made for gait speed to examine its influence on the associations.

**Results:** older age was associated with greater variability (P < 0.05) in all gait measures. All relationships were linear, except that between age and step time variability, which was curvilinear in women. Adjusting for gait speed changed the magnitude of the age coefficient by 62-86% for temporal variability measures, 25% for step length variability and 5-12% for step width variability.

**Conclusion:** age is linearly associated with greater intra-individual gait variability for most gait measures, except for step time variability in women. Gait speed may mediate the association between age and temporal variability measures. Further study is needed to understand the factors responsible for the greater gait variability with ageing.

Keywords: ageing, gait variability, population-based, elderly.

## FEAR OF FALLING

### Fear of falling

Alcalde Tirado P.

**Rev Esp Geriatr Gerontol** 2009; ePub(ePub): ePub. Affiliation: Servicio de Geriátria, Hospital General de Granollers, Granollers, Barcelona, España. DOI: [10.1016/j.regg.2009.10.006](https://doi.org/10.1016/j.regg.2009.10.006) (Copyright © 2009, Sociedad Espanola De Gerontologia Y Geriatria)

#### ABSTRACT

Fear of falling (FF) can be considered as a protective response to a real threat, preventing the elderly from performing activities with high risk of falling, but can also lead to a restriction of the activities that will result in a long-term adverse effect on social, physical or cognitive functions. There is a prevalence of FF in 30% in the elderly who have no history of falls, and double that in those with a history of falling. Its prevalence is increased in women and with advanced age. Several scales have been developed to measure the psychological effects of FF, among which are noted are, the Fall Efficacy Scale (FES), the Activities-specific Balance and Confidence Scale (ABC), and the survey of activities and fear of falling in the elderly (SAFE). It has negative consequences in the functionality, the subjective feeling of well-being, and in the consequent loss of independence. The functional and physical deterioration, or the

quality of life is clearly related to the FF, although it has not been established if these factors are cause or effect. Multiple interventions have been recommended, bringing about changes that reinforce their confidence to carry out activities. Interventions and research should promote a realistic and appropriate approach to the risk of falls and teach the elderly to perform activities safely. The reduction in FF is an important goal in itself to improve the subjective feeling of well-being, and the benefits could be increased if this reduction was also accompanied by an increase in safe behaviour, social participation, and activities of the daily life.

### **The Falls Efficacy Scale International (FES-I). A comprehensive longitudinal validation study.**

Delbaere K, Close JC, Mikolaizak AS, Sachdev PS, Brodaty H, Lord SR.

*Age Ageing* 2010; ePub(ePub): ePub.

Affiliation: Falls and Balance Research Group, Prince of Wales Medical Research Institute, University of New South Wales, Randwick, Sydney, Australia. DOI: [10.1093/ageing/afp225](https://doi.org/10.1093/ageing/afp225) (Copyright © 2010, Oxford University Press)

#### **ABSTRACT**

**Objective:** this study aimed to perform a comprehensive validation of the 16-item and 7-item Falls Efficacy Scale International (FES-I) by investigating the overall structure and measurement properties, convergent and predictive validity and responsiveness to change.

**Method:** five hundred community-dwelling older people (70-90 years) were assessed on the FES-I in conjunction with demographic, physiological and neuropsychological measures at baseline and at 12 months. Falls were monitored monthly and fear of falling every 3 months.

**Results:** the overall structure and measurement properties of both FES-I scales, as evaluated with item response theory, were good. Discriminative ability on physiological and neuropsychological measures indicated excellent validity, both at baseline (n = 500, convergent validity) and at 1-year follow-up (n = 463, predictive validity). The longitudinal follow-up suggested that FES-I scores increased over time regardless of any fall event, with a trend for a stronger increase in FES-I scores when a person suffered multiple falls in a 3-month period. Additionally, using receiver-operating characteristic (ROC) curves, cut-points were defined to differentiate between lower and higher levels of concern.

**Conclusions:** the current study builds on the previously established psychometric properties of the FES-I. Both scales have acceptable structures, good validity and reliability and can be recommended for research and clinical purposes. Future studies should explore the FES-I's responsiveness to change during intervention studies and confirm suggested cut-points in other settings, larger samples and across different cultures.

## **INTERVENTION STUDIES**

### **Vitamin D: What is an adequate vitamin D level and how much supplementation is necessary?**

Bischoff-Ferrari H.

*Best Pract Res Clin Rheumatol* 2009; 23(6): 789-95. Affiliation: Centre on Aging and Mobility, University of Zurich, Zurich, Switzerland; Department of Rheumatology and Institute of Physical Medicine, University Hospital Zurich, Zurich, Switzerland. DOI: [10.1016/j.berh.2009.09.005](https://doi.org/10.1016/j.berh.2009.09.005) (Copyright © 2009, Elsevier Publishing)

#### **ABSTRACT**

Strong evidence indicates that many or most adults in the United States and Europe would benefit from vitamin D supplements with respect to fracture and fall prevention, and possibly other public health targets, such as cardiovascular health, diabetes and cancer. This review discusses the amount of vitamin D supplementation needed and a desirable 25-hydroxyvitamin D level to be achieved for optimal musculoskeletal health. Vitamin D modulates fracture risk in two ways: by decreasing falls and increasing bone density. Two most recent meta-analyses of double-blind randomised controlled trials came to the conclusion that vitamin D reduces the risk of falls by 19%, the risk of hip fracture by 18% and the risk of any non-vertebral fracture by 20%; however, this benefit was dose dependent. Fall prevention was only observed in a trial of at least 700IU vitamin D per day, and fracture prevention required a received dose (treatment dose\*adherence) of more than 400IU vitamin D per day. Anti-fall efficacy started with achieved 25-hydroxyvitamin D levels of at least 60nmol(-1) (24 ngml(-1)) and anti-fracture efficacy started with achieved 25-hydroxyvitamin D levels of at least 75nmol(-1) (30ng ml(-1)) and both endpoints improved further with higher achieved 25-hydroxyvitamin D levels. Founded on these evidence-based data derived from the general older population, vitamin D supplementation should be at least 700-1000IU per day and taken with good adherence to cover the needs for both fall and fracture prevention. Ideally, the target range for 25-hydroxyvitamin D should be at least 75nmol(-1), which may need more than 700-1000IU vitamin D in individuals with severe vitamin D deficiency or those overweight.

## Patient level pooled analysis of 68 500 patients from seven major vitamin D fracture trials in US and Europe.

The DIPART (vitamin D Individual Patient Analysis of Randomized Trials) Group.

**Br Med J BMJ** 2010; 340: b5463. DOI: [10.1136/bmj.b5463](https://doi.org/10.1136/bmj.b5463) (Copyright © 2010, BMJ Publishing Group)

### ABSTRACT

**OBJECTIVES:** To identify participants' characteristics that influence the anti-fracture efficacy of vitamin D or vitamin D plus calcium with respect to any fracture, hip fracture, and clinical vertebral fracture and to assess the influence of dosing regimens and co-administration of calcium.

**DESIGN:** Individual patient data analysis using pooled data from randomised trials.

**DATA SOURCES:** Seven major randomised trials of vitamin D with calcium or vitamin D alone, yielding a total of 68 517 participants (mean age 69.9 years, range 47-107 years, 14.7% men).

**STUDY SELECTION:** Studies included were randomised studies with at least one intervention arm in which vitamin D was given, fracture as an outcome, and at least 1000 participants.

**DATA SYNTHESIS:** Logistic regression analysis was used to identify significant interaction terms, followed by Cox's proportional hazards models incorporating age, sex, fracture history, and hormone therapy and bisphosphonate use.

**RESULTS:** Trials using vitamin D with calcium showed a reduced overall risk of fracture (hazard ratio 0.92, 95% confidence interval 0.86 to 0.99,  $P=0.025$ ) and hip fracture (all studies: 0.84, 0.70 to 1.01,  $P=0.07$ ; studies using 10 microg of vitamin D given with calcium: 0.74, 0.60 to 0.91,  $P=0.005$ ). For vitamin D alone in daily doses of 10 microg or 20 microg, no significant effects were found. No interaction was found between fracture history and treatment response, nor any interaction with age, sex, or hormone replacement therapy.

**CONCLUSION:** This individual patient data analysis indicates that vitamin D given alone in doses of 10-20 microg is not effective in preventing fractures. By contrast, calcium and vitamin D given together reduce hip fractures and total fractures, and probably vertebral fractures, irrespective of age, sex, or previous fractures.

## Effect of the Exercise Dance for Seniors (EXDASE) Program on Lower-Body Functioning Among Institutionalized Older Adults.

Holmerová I, Macháčová K, Vanková H, Veleta P, Jurasková B, Hrnčiariková D, Volicer L, Anđel R.

**J Aging Health** 2010; 22(1): 106-119. DOI: [10.1177/0898264309351738](https://doi.org/10.1177/0898264309351738) (Copyright © 2010, Sage Publications)

### ABSTRACT

**Objectives:** The authors conducted a randomized control trial to examine the effect of the Exercise Dance for Seniors (EXDASE) program on lower-body functioning among older individuals from residential care facilities in the Czech Republic.

**Method:** Participants were randomly assigned into an experimental or control group. The experimental group completed a 3-month EXDASE program. Lower-body functioning was assessed using four performance-based measures. A 2 (group) × 2 (test) general linear model for repeated measures was used to explore whether differences in performance could be attributed to the intervention.

**Results:** The authors found Group × Test interactions for the chair stand test,  $F(1, 50) = 14.37, p < .001$ , the 2-minute step test,  $F(1, 50) = 7.33, p = .009$ , the chair sit-and-reach test,  $F(1, 50) = 5.28, p = .026$ , and the timed up-and-go test,  $F(1, 44) = 6.59, p = .014$ , indicating that the experimental group outperformed the control group from pretest to posttest. Discussion: A relatively simple dance-based exercise can support lower-body functioning in previously sedentary, frail older adults.

## Effect of 6 weeks wobble board exercises on static and dynamic balance of stroke survivors.

Onigbinde AT, Awotidebe T, Awosika H.

**Technol Health Care** 2009; 17(5): 387-92. Affiliation: Medical Rehabilitation Department, College of Health Sciences, Obafemi Awolowo University, Ile-ife, Osun State, Nigeria. [ayotesonigbinde@yahoo.co.uk](mailto:ayotesonigbinde@yahoo.co.uk)

DOI: [10.3233/THC-2009-0559](https://doi.org/10.3233/THC-2009-0559) (Copyright © 2009, IOS Press)

### ABSTRACT

Balance is a complex motor skill and it is frequently disturbed among stroke survivors. Rehabilitation experts are still facing challenges in achieving good stability. The primary aim of this study was to determine the effect of a wobble board exercise program on static and dynamic balance of hemiplegic subjects. Seventeen (17) stroke

survivors were randomly selected into two groups. The subjects in the experimental group were trained on wobble board for six weeks while the control group received only the baseline treatment programs. The modified version of the timed balance test was used to assess balance while the foursquare step test was used to assess dynamic balance. Descriptive statistics and Analysis of variance (ANOVA) were used to analyze the data obtained. The result showed that there was significant difference in the static balance (eye closed) ( $F=7.49$ ,  $P< 0.05$ ) and dynamic balance ( $F3.20$ ,  $P< 0.05$ ) between the groups but there was no significant difference in static balance (eye opened) ( $F= 1.75$ ,  $P> 0.05$ ). The study concluded that wobble board exercise improved both static (eye closed) and dynamic balance of stroke survivor used in this study.

### **Multi-centre cluster randomised trial comparing a community group exercise programme with home based exercise with usual care for people aged 65 and over in primary care: protocol of the ProAct 65+ trial.**

Iliffe S, Kendrick D, Morris R, Skelton D, Gage H, Dinan S, Stevens Z, Pearl M, Masud T.

*Trials* 2010; 11(1): 6. DOI: [10.1186/1745-6215-11-6](https://doi.org/10.1186/1745-6215-11-6) (Copyright © 2010, BioMed Central)

#### **ABSTRACT**

**BACKGROUND:** Regular physical activity reduces the risk of mortality from all causes, with a powerful beneficial effect on risk of falls and hip fractures. However, physical activity levels are low in the older population and previous studies have demonstrated only modest, short-term improvements in activity levels with intervention.

**Design/Methods:** Pragmatic 3 arm parallel design cluster controlled trial of class-based exercise (FAME), home-based exercise (OEP) and usual care amongst older people (aged 65 years and over) in primary care. The primary outcome is the achievement of recommended physical activity targets 12 months after cessation of intervention. Secondary outcomes include functional assessments, predictors of exercise adherence, the incidence of falls, fear of falling, quality of life and continuation of physical activity after intervention, over a two-year follow up. An economic evaluation including participant and NHS costs will be embedded in the clinical trial.

**DISCUSSION:** The ProAct65 trial will explore and evaluate the potential for increasing physical activity among older people recruited through general practice. The trial will be conducted in a relatively unselected population, and will address problems of selective recruitment, potentially low retention rates, variable quality of interventions and falls risk.

### **Older Adult Fall Prevention: Perceptions, Beliefs, and Behaviors.**

Stevens JA, Noonan RK, Rubenstein LZ.

*Am J Lifestyle Med* 2010; 4(1): 16-20.

DOI: [10.1177/1559827609348350](https://doi.org/10.1177/1559827609348350) (Copyright © 2010, Sage Publications)

#### **ABSTRACT**

Falls in adults aged 65 years and older are an important health issue associated with excess mortality, functional limitations, loss of independence, and reduced quality of life. Physicians can reduce the likelihood of falls in their older patients by incorporating prevention strategies into their clinical practice. Research has identified effective interventions, notably clinical assessment and risk factor reduction and exercise programs with balance training, that require older adults to adopt new behaviors. However, some older adults believe falls are an inevitable consequence of aging, while others do not see themselves as personally vulnerable. Factors that facilitate adopting fall interventions include social support, low-intensity exercise, and the perception that the programs are relevant. Barriers include fatalism, denial of risk, poor self-efficacy, and no previous history of exercise. To encourage their patients' participation, physicians need to present fall interventions as lifestyle enhancing and as a way to remain independent. Messages should focus on positive health and social benefits such as improving balance and maintaining independence, rather than emphasizing negative information about falls and fall injuries. Along with the support of family and friends, a personal invitation from a health care provider will encourage older adults to take part in fall prevention programs.

### **The patient who falls: "It's always a trade-off".**

Tinetti ME, Kumar C.

*J Am Med Assoc JAMA* 2010; 303(3): 258-66. Affiliation: Department of Internal Medicine, Yale University School of Medicine/Section of Geriatrics, 333 Cedar St, PO Box 208025, New Haven, CT 06520, USA.

mary.tinetti@yale.edu DOI: [10.1001/jama.2009.2024](https://doi.org/10.1001/jama.2009.2024) (Copyright © 2010, American Medical Association)

#### **ABSTRACT**

Falls are common health events that cause discomfort and disability for older adults and stress for caregivers.

Using the case of an older man who has experienced multiple falls and a hip fracture, this article, which focuses on community-living older adults, addresses the consequences and etiology of falls; summarizes the evidence on predisposing factors and effective interventions; and discusses how to translate this evidence into patient care. Previous falls; strength, gait, and balance impairments; and medications are the strongest risk factors for falling. Effective single interventions include exercise and physical therapy, cataract surgery, and medication reduction. Evidence suggests that the most effective strategy for reducing the rate of falling in community-living older adults may be intervening on multiple risk factors. Vitamin D has the strongest clinical trial evidence of benefit for preventing fractures among older men at risk. Issues involved in incorporating these evidence-based fall prevention interventions into outpatient practice are discussed, as are the trade-offs inherent in managing older patients at risk of falling. While challenges and barriers exist, fall prevention strategies can be incorporated into clinical practice.

### **One-time counselling decreases the use of benzodiazepines and related drugs among community-dwelling older persons**

Salonoja M, Salminen M, Aarnio P, Vahlberg T, Kivela S-L.

**Age and Ageing**, published online on January 20, 2010 doi:[10.1093/ageing/afp255](https://doi.org/10.1093/ageing/afp255)

#### **ABSTRACT**

**Background:** evidence about possibilities to help older persons to withdraw the long-term use of benzodiazepines (BZD) is scarce. Effective and practicable methods are needed.

**Objective:** the study aimed to assess the persistence of one-time counselling by a geriatrician to reduce psychotropic drugs, especially BZD and related drugs (RD). Design: a prospective randomised controlled trial with a 12-month follow-up was conducted. Subjects: five hundred ninety-one community-dwelling people aged 65 or older participated in the study.

**Methods:** instructions to withdraw, reduce or change psychotropic drugs were given to the intervention group. A lecture about these drugs and their adverse effects was given later on. No changes in the drug therapy were suggested for the controls.

**Results:** the number of regular users of BZD and RD decreased by 35% (12/34) (odds ratios (OR) = 0.61, 95% confidence interval (95% CI) 0.44-0.86) in the intervention group while it increased by 4% (2/46) (OR = 1.05, 95% CI 0.81-1.36) in the controls (P = 0.012). No significant changes in the users of other types of psychotropics were found.

**Conclusion:** one-time counselling of psychotropics and other fall-risk-increasing drugs by a geriatrician followed with a 1-h lecture about adverse effects of these drugs had positive effects in decreasing the number of regular users of BZD and RD, and these effects persisted for the total 12-month intervention period. Keywords: older people, home-dwellers, reduction of benzodiazepines, randomised controlled trial, elderly

### **Evaluating the Cost-Effectiveness of Fall Prevention Programs that Reduce Fall-Related Hip Fractures in Older Adults.**

Frick KD, Kung JY, Parrish JM, Narrett MJ.

**J Am Geriatr Soc** 2010; 58(1): 136-41. Affiliation: Department of Health Policy and Management, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland.

DOI: [10.1111/j.1532-5415.2009.02575.x](https://doi.org/10.1111/j.1532-5415.2009.02575.x) (Copyright © 2010, John Wiley and Sons)

#### **ABSTRACT**

**OBJECTIVES:** To model the incremental cost-utility of seven interventions reported as effective for preventing falls in older adults.

**DESIGN:** Mathematical epidemiological model populated by data based on direct clinical experience and a critical review of the literature.

**SETTING:** Model represents population level interventions.

**PARTICIPANTS:** No human subjects were involved in the study.

**MEASUREMENTS:** The last Cochrane database review and meta-analyses of randomized controlled trials categorized effective fall-prevention interventions into seven groups: medical management (withdrawal) of psychotropics, group tai chi, vitamin D supplementation, muscle and balance exercises, home modifications, multifactorial individualized programs for all elderly people, and multifactorial individualized treatments for high-risk frail elderly people. Fall-related hip fracture incidence was obtained from the literature. Salary figures for health professionals were based on Bureau of Labor Statistics data. Using an integrated healthcare system perspective, healthcare costs were estimated based on practice and studies on falls in older adults. Base case incremental cost utility ratios were calculated, and probabilistic sensitivity analyses were conducted.

**RESULTS:** Medical management of psychotropics and group tai chi were the least-costly, most-effective options, but they were also the least studied. Excluding these interventions, the least-expensive, most-effective options are vitamin D supplementation and home modifications. Vitamin D supplementation costs less than home modifications, but home modifications cost only \$14,794/quality-adjusted life year (QALY) gained more than vitamin D. In probabilistic sensitivity analyses excluding management of psychotropics and tai chi, home modification is most likely to have the highest economic benefit when QALYs are valued at \$50,000 or \$100,000.

**CONCLUSION:** Of single interventions studied, management of psychotropics and tai chi reduces costs the most. Of more-studied interventions, home modifications provide the best value. These results must be interpreted in the context of the multifactorial nature of falls.

### **Development of services for older patients with falls and fractures in England: successes, failures, lessons and controversies**

Oliver D,

**Archives of Gerontology and Geriatrics** Volume 49, Supplement 2, December 2009, Pages S7-S12

doi:[10.1016/S0167-4943\(09\)70005-6](https://doi.org/10.1016/S0167-4943(09)70005-6)

#### **ABSTRACT**

Falls and fragility fractures are becoming a major epidemic of aging, with each year around one third of people aged 65 and over, and half of people over 80 years, experiencing at least one fall. This has major implications, both for older people themselves, and for health- and social-care services. There is evidence for benefits to be gained from interventions to manage fracture patients better, responding to and preventing falls, identifying and treating those with bone fragility, and to maximizing population health by preventing or delaying frailty. In addition, the most consistently proven way of ensuring that patients with fracture receive evidence-based secondary prevention in practice is through the use of specialist services linking hospital-based fracture services with follow-up on patient discharge. Here we describe the evolution of the approach taken by the English National Health Service (NHS) over the past decade to address this issue, along with the successes, failures and lessons potentially relevant to other health systems. Approaches used have included national guidelines, national audits and involvement of Department of Health Resources to drive up quality. The key themes are responding to the first fall to prevent the second, better recognition and treatment for osteoporosis, responding to first fragility fracture to prevent the second and better interdisciplinary management of patients admitted with hip fracture, and the audit systems which now exist to describe changes in practice and the outcomes which follow.

### **A cluster randomised controlled trial to prevent injury due to falls in a residential aged care population**

John A Ward, Mandy Harden, Richard E Gibson and Julie E Byles

**MJA** 2010; 192 (6): 319-322

#### **ABSTRACT**

**Objective:** To test the effectiveness of using a full-time project nurse to assist residential aged care facilities in using evidence-based approaches to falls injury prevention.

**Design, setting and participants:** Cluster randomised controlled trial involving 5391 residents in 88 aged care facilities in the Hunter and Lower Mid North Coast areas of New South Wales. Residents were followed for 545 days or until death or discharge. Data were collected from July 2005 to June 2007.

**Intervention:** Employment of a project nurse to encourage best-practice falls injury prevention strategies during the 17-month intervention period.

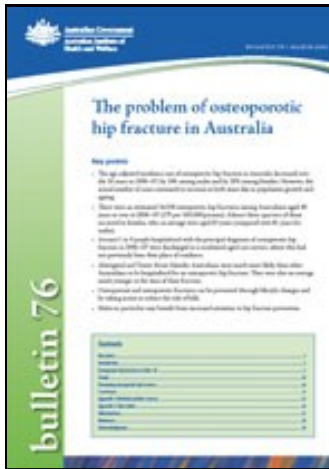
**Main outcome measures:** Monthly data about falls, falls injury and falls injury prevention programs; audit of hospitalisation for fractured neck of femur.

**Results:** Despite significant increases in the provision of hip protectors and use of vitamin D supplementation in both intervention and control facilities, there was no difference in the number of falls or falls injuries between the intervention and control groups, nor a reduction in falls overall. There was also no difference between the 7-month pre-intervention period and the intervention period in the number of falls or falls injuries. Factors related to residents having an increased risk of falls with fractured neck of femur included being ambulant, having dementia, increasing age, and having a high falls risk assessment score.

**Conclusion:** It is difficult to change falls risk among high-risk populations, including people with dementia. The use of important strategies such as hip protectors and vitamin D and calcium supplementation increased during the study, probably with contamination of control facilities. Longer follow-up may be required to measure the impact on falls outcomes of the strategy of using a facilitating nurse.

## WEBSITES AND COURSES

### Australian Institute of Health and Welfare, *The Problem of Osteoporotic Hip Fracture in Australia*



<http://www.aihw.gov.au/publications/index.cfm/title/10695>

Hip fractures are serious and may lead to disability, reduced quality of life, loss of independence and even premature death. Every day in 2006-07, more than 40 Australians - most of them aged 65 or over - broke their hip. But the incidence rate is on the decline, having fallen by 14% in males and 20% in females since 1997-98.

Authored by AIHW.

Published **5 March 2010**;

### AGS/BGS Clinical Practice Guideline: *Prevention of Falls in Older Persons*

[http://www.americangeriatrics.org/education/prevention\\_of\\_falls.shtml](http://www.americangeriatrics.org/education/prevention_of_falls.shtml)

#### THE AGS FOUNDATION FOR HEALTH IN AGING



American Geriatrics Society, British Geriatrics Society Release Updated Guidelines to Prevent Falls Among Older Adults.

These updated guidelines include a summary of recommendations, an evidence based guideline including interventions to prevent falls for older people in the community, in long-term care facilities and for older people with cognitive impairment, and patient education resources on falls prevention

## COURSES

### Canadian Falls Curriculum E-Learning Course—For Health and Helping Professionals

<http://www.uvcs.uvic.ca/aspnet/Course/Detail/?code=HPPD215>



Those working with older adults in long-term care, acute care, and home care will acquire the knowledge and skills needed to apply an evidence-based approach to the prevention of falls and fall-related injuries. Learn how to design, implement and evaluate a falls prevention program. Facilitated instruction leads you through a process to develop strategies and interventions; to apply current programs; and to understand the reliability and validity of existing resources and tools for screening and assessing fall risk.

This 4 week distance course begins with a workshop on how to access online components of this course, locate website resources, and communicate with the instructor and other students using online discussion tools to participate in interactive activities throughout this course.

**Next Course commences on 30th April 2010, there is a cost involved.**

## CONFERENCES



### **4<sup>th</sup> Australian & New Zealand Falls Prevention Society Conference University of Otago, Dunedin, New Zealand 21–23 November 2010**

The three previous ANZFPS conferences have been a resounding success, each attended by over 500 delegates from a wide range of health professions and research areas.

Plenary speakers: Professor David Buchner (University of Illinois at Urbana-Champaign, USA)  
Professor Karim Khan (Centre for Hip Health and Mobility, University of British Columbia)  
Key falls prevention experts from Australia and New Zealand

We are preparing an exciting programme with results from the latest falls prevention research, plus relevant and practical issues for clinicians, researchers, healthcare funders and providers.

Sunday 21 November  
Workshops 2–4pm  
Welcome function 5pm

Monday 22 November  
Presentations, posters  
Conference dinner at Larnach Castle

Tuesday 23 November  
Presentations, posters, “Ask the Expert” session (geriatrician/GP), closing 5pm

Online registration, submission of abstracts for presentations and posters will open mid February.

[www.otago.ac.nz/fallsconference](http://www.otago.ac.nz/fallsconference)

We look forward to welcoming you to Dunedin, New Zealand. Plan your trip now!





[www.powmri.edu.au/  
fallsnetwork](http://www.powmri.edu.au/fallsnetwork)

### **NSW FALLS PREVENTION NETWORK BACKGROUND**

The NSW Falls Prevention Network has existed since 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 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 injury 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 Department of Health**

## **NETWORK INFORMATION**

### **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 the above address and in the body of the message write **unsubscribe nsw-falls-network** on the next line type **end**

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

### **SHARE YOUR NEWS AND INFORMATION/IDEAS ON FALLS PREVENTION**

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@powmri.edu.au](mailto:e.vance@powmri.edu.au)

### **THE NETWORK LISTSERV**

It is great to see the increased activity on the listserv and 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 on 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 in the area health services, 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.