Welcome

This issue features:

- Home safety interventions to prevent falls: a mini-review
- Websites, Meetings and Conferences
- Recent Abstracts from the research literature

fallsnetwork.neura.edu.au

The Falls Network had a stand at the recent 3rd Aged Health Collaborative Forum held at Westmead Hospital, see page 7 for some of the websites that were highlighted at this forum.

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FOR YOUR DIARY:

HOME SAFETY INTERVENTIONS TO PREVENT FALLS: A MINI-REVIEW

Esther Vance, Kim Delbaere, Stephen Lord, NeuRA

Falls in people aged over 65 years living in the community are a major issue with one in three experiencing a fall each year [1]. In Australia, 75% of all injury-related hospitalisations in older people are as a result of a fall, incurring both economic and social costs [2]. In the community, approximately half of falls occur in and around the home, and falls are the main cause of unintentional injury for community-dwelling older people [1]. Maximising safety of the older person at home has therefore been identified as an important fall prevention strategy [3,4].

Environmental risk factors for falls

Environmental hazards are common in many homes and are often identified as the cause of a fall by the older person. These include slippery surfaces, loose rugs, poor lighting, clutter and other trip hazards [5,6]. The association between environmental hazards and falls has been examined by six case-control studies [7-12] and five prospective studies [13-17]. Only two of these reported differences in the prevalence of household hazards between fallers and non-fallers. Isberner and colleagues [9] reported that the absence of handrails and the presence of uneven floors were more common in the households of 45 older people who had fallen compared to age- and sex-matched controls. Similarly, in a study involving 2304 older people, Fletcher and Hirdes [12] found that those who had one or more environmental hazards in their homes were more likely to have reported falling in the past three months. The remaining four case-control and five prospective studies, however, found no differences in home hazards between the faller and non-faller groups.

A systematic review carried out by Letts and colleagues [18] attempted to identify which environmental factors were important in increasing the risk of falling. They did not find a correlation between the location of participant trips, slips and falls and the location of most hazards identified by the Occupational Therapist (i.e. most falls occurred in the bedroom yet most hazards were found in the bathroom). They concluded that although home hazards are commonly identified by Occupational Therapists, other factors such as the use of mobility assistive devices are more closely linked to an increased risk of falls [18].

While it is evident from the studies outlined above that environmental factors are not the major cause of the majority of falls, the interaction between an environmental hazard (or extrinsic factor) and the person’s physical abilities (intrinsic factors) seems to play an important role in falls. That is, a person must have a high functional level to cope effectively in an environment with a high number of potential hazards, while a person with a low functional level may be able to cope with an environment with fewer potential hazards.
In line with this concept, Chandler et al. [19] conducted a prospective study of 159 older men. Using a performance-based assessment tool, each participant’s level of mobility was evaluated within their home environment. Thus, the performance score reflects the number of environmental hazards in each home and the degree to which the individual can negotiate those hazards. For example, using this tool, the absence of grab rails would not be considered a hazard if the person has no difficulty with bathroom transfers. After six months of falls follow-up, and controlling for age, cognition and mobility, the performance score was found to be an independent predictor of falls, indicating that this approach may be addressing the interaction between the individual and their environment.

**Efficacy of Home Safety Interventions**

Home safety interventions are more complex than just identifying hazards for change. They also require a process that raises older people’s awareness of their environment, and provides information for how they should negotiate it and the required problem solving skills [6, 20]. Occupational therapists examine the interaction between people and their environment and consider a range of factors such as fall history, how the person mobilises within their home, protective and risk taking behaviours, vision, physical and cognitive attributes that affect mobility and task performance and fall risk for specific situations such as reaching, climbing stairs and transferring [6]. They then use this information to make recommendations on modifications and education to enable the older person to better negotiate their home environment.

Home safety interventions have been conducted as single interventions and as part of multidisciplinary and multifactorial interventions to reduce falls in older people [21]. These interventions are usually delivered by occupational therapists and include the use of environmental audit tools to identify fall risk hazards and risky behaviours with subsequent recommendations [21, 22]. No trials or reviews, however, have identified which aspects of audits, home modifications or other intervention aspects reduce fall risk [23].

In the most recent Cochrane review, Gillespie and colleagues [22] found that home safety assessments and modification interventions were effective in reducing both the rate of falls (RaR 0.81, 95% CI 0.68 to 0.97; 6 trials; 4208 participants) and the risk of falling (RR 0.88, 95% CI 0.80 to 0.96; 7 trials; 4051 participants). They concluded that these interventions were most effective in people at higher risk of falling (such as those with a history of falls, recent hospitalisation or visual impairment) and when delivered by an occupational therapist.

In addition, a complementary meta-analysis of home interventions by Clemson and colleagues [21] of 6 RCTs (N= 3,298) demonstrated an overall 21% reduction in fall risk (RR = 0.79: 0.65 to 0.97). A subgroup analysis of participants at high risk of falls (i.e. having a visual impairment, functional decline or a history of falling in the past year or having been recently hospitalised for a fall, (4 trials, N= 570)
demonstrated a 39% reduction of falls (RR = 0.61, 0.47 to 0.69). Despite limitations relating to the small number of studies published, and some of the environmental interventions comprising just part of multifaceted interventions, the authors concluded there is sufficient evidence for targeting home interventions to higher risk people [21].

**Uptake and adherence to home safety interventions**

Currin and colleagues [24] undertook a nested cohort study in which participants received home visits by both physiotherapists and occupational therapists that carried out a home environmental audit and provided recommendations. They found that the uptake of home modifications at the 6 month follow up was 49%, and the main modifications carried out included installation of grab rails in bathrooms and toilets, non-slip bath mats, bed sticks (a support for getting in and out of bed) and stair rails. The least likely implemented recommendations were use of over toilet frames and shower chairs, removal of mats and clutter and changing floor surfaces. Factors associated with an increased uptake of modifications were the presence of comorbidities, whereas depression was associated with reduced uptake. The authors concluded that it is important to ensure older people feel in control of the choices they make about their home environment, and that providing them with options as well as relevant information and education enables them to make informed choices.

A recent RCT by Kamei and colleagues[25] used an innovative approach to teach older people to identify fall hazards in the home and undertake appropriate fall mitigation strategies. Intervention participants received education from a public health nurse researcher that included a residential mock up to provide home hazard awareness and education on how to modify and create a safe environment in addition to a multifactorial falls prevention program provided to both intervention and control group participants. This intervention led to an increased awareness of home hazards as well as a reduction in falls in those aged 75 years and older (indoor falls were reduced by 13.2%, and overall falls by 18.5% at 12 weeks) when compared to the control group [25].

**Cost-effectiveness**

Environmental interventions delivered by occupational therapists that included home hazard modifications have been found to be cost effective in older people considered to be at high risk of falling including those with visual impairment or a history of falling and those who have been recently been discharged from hospital [26, 27].

**Summary**

In summary, home safety assessments and interventions delivered by occupational therapists should be offered as stand-alone interventions or as part of a multifactorial falls prevention initiatives in older community dwelling people at increased risk of falling (i.e. those with visual and balance impairments or recent hospitalisations). The main limitation of this intervention strategy was older people’s uptake and implementation of recommendations; these factors could be improved by empowering older people to identify and appreciate fall hazards in their homes and address these with appropriate problem solving strategies.
References


Webinars, Websites, Meetings & Conferences

**MASK ED™**


MASK-ED™ (KRS simulation) is an innovative high fidelity simulation technique which involves the use of silicone props, including masks, torsos, hands and feet. The props are worn over the informed educator to mask them. The hidden educator then transforms into a character/person with a history/story which is relevant to the learning experience. The character serves as a platform for teaching. KRS stands for knowledgeable, realistic and spontaneous simulation.

Professor Kerry Reid-Searl developed MASK-ED™ (KRS simulation) while teaching undergraduate nursing students at CQ University Rockhampton, Queensland. The MASK-ED™ (KRS simulation) educational approach has applications in many fields besides nursing, and many contexts in addition to tertiary education.

**Specialist Mental Health Services for Older People (SMHSOP)**


This site includes a range of resources including:

- Specialist Community Based Services
- Acute Inpatient Services
- Residential Services Delivered Through Partnerships with Aged Care Providers
- Services for Older People with Severely and Persistently Challenging Behaviours
- Initiatives in Older People’s Mental Health
- Specialist Mental Health Services for Older People (SMHSOP) Acute Inpatient Units in NSW: Information for Consumers, Families and Carers

**Care of the Confused Hospitalised Older Persons Program (CHOPs)**


This website has recently been updated and includes resources under headings of the key principles for caring of the confused older hospitalised person and includes a range of resources for health professionals as well as for older people, their carers and families.

**Building Partnerships**


This website provides a framework for integrating care for older people with complex needs and features a range of models of good practice in a range of settings including emergency, acute, community and residential care settings.
Reviews

Effects of balance training on balance performance in healthy older adults: a systematic review and meta-analysis

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Abstract

BACKGROUND: The effects of balance training (BT) in older adults on proxies of postural control and mobility are well documented in the literature. However, evidence-based dose-response relationships in BT modalities (i.e., training period, training frequency, training volume) have not yet been established in healthy older adults.

OBJECTIVES: The objectives of this systematic literature review and meta-analysis are to quantify BT intervention effects and to additionally characterize dose-response relationships of BT modalities (e.g., training period, training frequency) through the analysis of randomized controlled trials (RCTs) that could maximize improvements in balance performance in healthy community-dwelling older adults.

DATA SOURCES: A computerized systematic literature search was performed in the electronic databases PubMed and Web of Science from January 1985 up to January 2015 to capture all articles related to BT in healthy old community-dwelling adults.

STUDY ELIGIBILITY CRITERIA: A systematic approach was used to evaluate the 345 articles identified for initial review. Only RCTs were included if they investigated BT in healthy community-dwelling adults aged ≥65 years and tested at least one behavioral balance performance outcome (e.g., center of pressure displacements during single-leg stance). In total, 23 studies met the inclusionary criteria for review.

STUDY APPRAISAL AND SYNTHESIS METHODS: Weighted mean standardized mean differences between subjects (SMDbs) of the intervention-induced adaptations in balance performance were calculated using a random-effects model and tested for an overall intervention effect relative to passive controls. The included studies were coded for the following criteria: training modalities (i.e., training period, training frequency, training volume) and balance outcomes [static/dynamic steady-state (i.e., maintaining a steady position during standing and walking), proactive balance (i.e., anticipation of a predicted perturbation), reactive balance (i.e., compensation of an unpredicted perturbation) as well as balance test batteries (i.e., combined testing of different balance components as for example the Berg Balance Scale)]. Heterogeneity between studies was assessed using I (2) and Chi(2)-statistics. The methodological quality of each study was tested by means of the Physiotherapy Evidence Database (PEDro) Scale.

RESULTS: Weighted mean SMDbs showed that BT is an effective means to improve static steady-state (mean SMDbs = 0.51), dynamic steady-state (mean SMDbs = 0.44), proactive (mean SMDbs = 1.73), and reactive balance (mean SMDbs = 1.01) as well as the performance in balance test batteries (mean SMDbs = 1.52) in healthy older adults. Our analyses regarding dose-response relationships in BT revealed that a training period of 11-12 weeks (mean SMDbs= 1.26), a frequency of three training sessions per week (mean SMDbs= 1.20), a total number of 36-40 training sessions (mean SMDbs = 1.39), a duration of a single training session of 31-45 min (mean SMDbs = 1.19), and a total duration of 91-120 min of BT per week (mean SMDbs = 1.93) of the applied training modalities is most effective in improving overall balance performance. However, it has to be noted that effect sizes for the respective training modalities were computed independently (i.e., modality specific). Because of the small number of studies that reported detailed information on training volume (i.e., number of exercises per training session, number of sets and/or repetitions per exercise, duration of single-balance exercises) dose-response relationships were not computed for these parameters. LIMITATIONS: The present findings have to be interpreted with caution because we indirectly compared dose-response relationships across studies using SMDbs and not in a single controlled study as it is difficult to separate the impact of a single training modality (e.g., training frequency) from that of the others. Moreover, the quality of the included studies was rather limited with a mean PEDro score of 5 and the heterogeneity between studies was considerable (i.e., I (2) = 76-92 %).
Abstracts Continued
Recent abstracts from the research literature

CONCLUSIONS: Our detailed analyses revealed that BT is an effective means to improve proxies of static/dynamic steady-state, proactive, and reactive balance as well as performance in balance test batteries in healthy older adults. Furthermore, we were able to establish effective BT modalities to improve balance performance in healthy older adults. Thus, practitioners and therapists are advised to consult the identified dose-response relationships of this systematic literature review and meta-analysis. However, further research of high methodologic quality is needed to determine (1) dose-response relationships of BT in terms of detailed information on training volume (e.g., number of exercises per training session) and (2) a feasible and effective method to regulate training intensity in BT.

Effects of three types of exercise interventions on healthy old adults’ gait speed: a systematic review and meta-analysis
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Abstract

BACKGROUND: Habitual walking speed predicts many clinical conditions later in life, but it declines with age. However, which particular exercise intervention can minimize the age-related gait speed loss is unclear.

PURPOSE: Our objective was to determine the effects of strength, power, coordination, and multimodal exercise training on healthy old adults’ habitual and fast gait speed.

METHODS: We performed a computerized systematic literature search in PubMed and Web of Knowledge from January 1984 up to December 2014. Search terms included ‘Resistance training’, ‘power training’, ‘coordination training’, ‘multimodal training’, and ‘gait speed (outcome term).’ Inclusion criteria were articles available in full text, publication period over past 30 years, human species, journal articles, clinical trials, randomized controlled trials, English as publication language, and subject age ≥65 years. The methodological quality of all eligible intervention studies was assessed using the Physiotherapy Evidence Database (PEDro) scale. We computed weighted average standardized mean differences of the intervention-induced adaptations in gait speed using a random-effects model and tested for overall and individual intervention effects relative to no-exercise controls.

RESULTS: A total of 42 studies (mean PEDro score of 5.0 ± 1.2) were included in the analyses (2495 healthy old adults; age 74.2 years [64.4-82.7]; body mass 69.9 ± 4.9 kg, height 1.64 ± 0.05 m, body mass index 26.4 ± 1.9 kg/m(2), and gait speed 1.22 ± 0.18 m/s). The search identified only one power training study, therefore the subsequent analyses focused only on the effects of resistance, coordination, and multimodal training on gait speed. The three types of intervention improved gait speed in the three experimental groups combined (n = 1297) by 0.10 m/s (±0.12) or 8.4 % (±9.7), with a large effect size (ES) of 0.84. Resistance (24 studies; n = 613; 0.11 m/s; 9.3 %; ES: 0.84), coordination (eight studies, n = 198; 0.09 m/s; 7.6 %; ES: 0.76), and multimodal training (19 studies; n = 486; 0.09 m/s; 8.4 %; ES: 0.86) increased gait speed statistically and similarly.

CONCLUSIONS: Commonly used exercise interventions can functionally and clinically increase habitual and fast gait speed and help slow the loss of gait speed or delay its onset.

What type, or combination of exercise can improve preferred gait speed in older adults? A meta-analysis
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Abstract

BACKGROUND: Improved preferred gait speed in older adults is associated with increased survival rates. There are inconsistent findings in clinical trials regarding effects of exercise on preferred gait speed, and heterogeneity in
Measurement of gait speed in older adults to identify complications associated with frailty: a systematic review

Pamoukdjian F, Paillaud E, Zelek L, Laurent M, Lévy V, Landre T, Sebbane G.


Abstract

Several frailty screening tests in older cancer patients were developed but their statistical performance is low. We aimed to assess whether measurement of usual gait speed (GS) alone could be used as a frailty screening test in older cancer patients. This systematic review was conducted on “pub med” between 1984 and 2014 and included reviews and original studies. Eligibility criteria were: GS over a short distance, alone or included in composite walking tests (Timed Get Up and Go test: TGUG, Short Physical Performance Battery: SPPB) in older people (aged 65 and over) living in a community setting and predictive value of GS on medical complications associated with frailty. 46 articles were finally selected. GS alone is consensual and recommended for screening sarcopenia in elderly. A slow GS is predictive of early death, disability, falls and hospitalization/institutionalization in older people living in a community setting. GS alone is comparable to composite walking tests that do not provide additional information on the medical complications associated with frailty. Despite few studies in geriatric oncology, GS seems to predict overall survival and disability. We suggest GS over 4m (at a threshold of 1m/s) as a new frailty screening test in older cancer patients (65 and over) to guide the implementation of a comprehensive geriatric assessment during the initial management phase or during follow-up. Prospective cohort studies are needed to validate this algorithm and compare it with other screening tools.
Dual-task testing to predict falls in community-dwelling older adults: a systematic review

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Abstract

BACKGROUND: Cognitive impairment increases fall risk in older adults. Dual-task testing is an accepted way to assess the interaction between cognition and mobility; however, there is a lack of evidence-based recommendations for dual-task testing to evaluate fall risk in clinical practice.

OBJECTIVES: To evaluate the association between dual-task testing protocols and future fall risk, and to identify the specific dual-task test protocols associated with elevated risk.

DATA SOURCES: MEDLINE, Pubmed and EMBASE electronic databases were searched from January 1988 to September 2013.

STUDY SELECTION: Two independent raters identified prospective cohort studies (duration of at least 1 year) of dual-task assessment in community-dwelling participants aged ≥60 years, with ‘falls’ as the primary outcome.

STUDY APPRAISAL AND SYNTHESIS METHODS: Methodological quality was scored independently by two raters using a published checklist of criteria for evaluating threats to the validity of observational studies.

RESULTS: Deterioration in gait during dual-task testing compared with single-task performance was associated with increased fall risk. Shortcomings within the literature significantly limit knowledge translation of dual-task gait protocols into clinical practice. LIMITATIONS: There is a paucity of prospective studies on the association of dual-task gait assessment with fall risk.

CONCLUSION AND IMPLICATIONS OF KEY FINDINGS: Changes in gait under dual-task testing are associated with future fall risk, and this association is stronger than that for single-task conditions. Limitations in the available literature preclude development of detailed recommendations for dual-task gait testing procedures in clinical practice to identify and stratify fall risk in older adults.

Medications associated with falls in older people: systematic review of publications from a recent 5-year period

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Abstract

PURPOSE: Falls are an important public health problem in older people. Medication use is considered a risk factor for falls. This study systematically reviewed recent studies to determine the medications that might be associated with the risk of falling in older people.

METHODS: We conducted a systematic review of prospective and retrospective studies identified through the MEDLINE and CINAHL databases that quantitatively assessed the contribution of medications to falls risk in participants ≥60 years old published in English between May 2008 and April 2013.

RESULTS: The search identified 1,895 articles; 36 articles met the inclusion criteria. Of the 19 studies that investigated the effect of polypharmacy on the risk of falling, six studies reported that the risk of falling increased with polypharmacy. Data on the use of antihypertensive medications including calcium channel blockers, beta-blockers, and angiotensin system blocking medications were collected in 14 studies, with mixed results. Twenty-nine studies reported an association between the risk of falls and psychotropic medications including sedatives and hypnotics, antidepressants, and benzodiazepines.

CONCLUSIONS: The use of sedatives and hypnotics and antidepressants including tricyclic antidepressants, selective serotonin reuptake inhibitors, and serotonin norepinephrine reuptake inhibitors appears to be related...
with an increased risk of falls. It is not clear if the use of antihypertensive medications is associated with the risk of falls in older people.

**Epidemiology**

**Association between frailty, osteoporosis, falls and hip fractures among community-dwelling people aged 50 years and older in Taiwan: results from I-Lan Longitudinal Aging Study**

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**Abstract**

**BACKGROUND:** Association of frailty with adverse clinical outcomes has been reported in Western countries, but data from the Asian population are scarce. This study aimed to evaluate the epidemiology of frailty among community-dwelling middle-aged and elderly population and to explore its association with musculoskeletal health in Taiwan.

**METHODS:** I-Lan Longitudinal Aging Study (ILAS) data were retrieved for this study. Frailty was defined by the Fried’s criteria; a comparison of demographic characteristics, physical performance, and body composition, including skeletal muscle mass and bone mineral density (BMD), as well as recent falls, history of hip fractures and the functional status of subjects with different frailty statuses were accomplished.

**RESULTS:** Overall, the data of 1,839 participants (mean age: 63.9±9.3 years, male 47.5%) were obtained for analysis. The prevalence of pre-frailty was 42.3% in men and 38.8% in women, whereas the prevalence of frailty was 6.9% and 6.7% in men and women, respectively. Frailty was significantly associated with older age, the male gender, larger waist circumference, lower skeletal muscle index, lower hip BMD, poorer physical function, poorer nutritional status, and poorer cognitive function. Also, frailty was significantly associated with osteoporosis (OR: 7.73, 95% CI: 5.01-11.90, p<0.001), history of hip fractures (OR: 8.66, 95% CI: 2.47-30.40, p = 0.001), and recent falls (OR: 2.53, 95% CI: 1.35-4.76, p = 0.004).

**CONCLUSIONS:** Frailty and pre-frailty, in Taiwan, was closely associated with recent falls, history of hip fractures and osteoporosis among community-dwelling people 50 years of age and older. Furthermore, frailty intervention programs should take an integrated approach towards strengthening both and muscle mass, as well as prevention of falls.

**Prevalence, risk factors and disability associated with fall-related injury in older adults in low- and middle-income countries: results from the WHO Study on global AGEing and adult health (SAGE)**


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**Abstract**

**BACKGROUND:** In 2010 falls were responsible for approximately 80 % of disability stemming from unintentional injuries excluding traffic accidents in adults 50 years and over. Falls are becoming a major public health problem in low- and middle-income countries (LMICs) where populations are ageing rapidly.

**METHODS:** Nationally representative standardized data collected from adults aged 50 years and over participating in the World Health Organization (WHO) Study on global AGEing and adult health (SAGE) Wave 1 in China, Ghana, India, Mexico, the Russian Federation and South Africa are analysed. The aims are to identify the prevalence of, and risk factors for, past-year fall-related injury and to assess associations between fall-related injury and disability.
Regression methods are used to identify risk factors and association between fall-related injury and disability. Disability was measured using the WHO Disability Assessment Schedule Version 2.0 (WHODAS 2.0).

RESULTS: The prevalence of past-year fall-related injuries ranged from 6.6% in India to 1.0% in South Africa and was 4.0% across the pooled countries. The proportion of all past-year injuries that were fall-related ranged from 73.3% in the Russian Federation to 44.4% in Ghana. Across the six countries this was 65.7%. In the multivariable logistic regression, the odds of past-year fall-related injury were significantly higher for: women (OR: 1.27; 95% CI: 0.99,1.62); respondents who lived in rural areas (OR: 1.36; 95% CI: 1.06,1.75); those with depression (OR: 1.43; 95% CI: 1.01,2.02); respondents who reported severe or extreme problems sleeping (OR: 1.54; 95% CI: 1.15,2.08); and those who reported two or more (compared with no) chronic conditions (OR: 2.15; 95% CI: 1.45,3.19). Poor cognition was also a significant risk factor for fall-related injury. The association between fall-related injury and the WHODAS measure of disability was highly significant (P<0.0001) with some attenuation after adjusting for confounders. Reporting two or more chronic conditions (compared with none) was significantly associated with disability (P<0.0001).

CONCLUSIONS: The findings provide a platform for improving understanding of risk factors for falls in older adults in this group of LMICs. Clinicians and public health professionals in these countries must be made aware of the extent of this problem and the need to implement policies to reduce the risk of falls in older adults.

Fear of Falling

Association of physical performance and pain with fear of falling among community-dwelling Japanese women aged 65 years and older


Medicine (Baltimore) 2015; 94(35): e1449.

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Abstract

Our aim was to explore the association of physical performance and pain with fear of falling among community-dwelling Japanese women. The subjects were 278 women aged 65 years and over. We collected information on fear of falling, painful joints, comorbidities, falls in the previous year, and cataracts. Walking time (distance of 6 m), chair stand time (5 times), grip strength, the timed up and go test (TUG), and functional reach were measured. The prevalence of fear of falling was 36.3%, and it increased with age, but it was not significant (P=0.081). Multivariate logistic regression analysis showed that poor physical performance (longer walking time, longer chair stand time, weaker grip strength, and longer TUG) and pain (low back, and upper and lower extremity pain) were significantly associated with fear of falling after adjusting for age, body mass index, comorbidities, falls in the previous year, and cataracts. Maintaining physical functioning and managing pain may be important for elderly women with fear of falling.

Risk Assessment

Prevalence and cost of imaging in inpatient falls: the rising cost of falling

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Abstract

OBJECTIVE: To quantify the type, prevalence, and cost of imaging following inpatient falls, identify factors associated with post-fall imaging, and determine correlates of positive versus negative imaging.
DESIGN: Single-center retrospective cohort study of inpatient falls. Data were collected from the hospital’s adverse event reporting system, DrQuality. Age, sex, date, time, and location of fall, clinical service, Morse Fall Scale/fall protocol, admitting diagnosis, and fall-related imaging studies were reviewed. Cost included professional and facilities fees for each study.

SETTING: Four hundred and fifteen bed urban academic hospital over 3 years (2008-2010). PATIENTS: All adult inpatient falls during the study period were included. Falls experienced by patients aged <18 years, outpatient and emergency patients, visitors to the hospital, and staff were excluded.

MEASUREMENTS AND MAIN RESULTS: Five hundred and thirty inpatient falls occurred during the study period, average patient age 60.7 years (range 20-98). More than half of falls were men (55%) and patients considered at risk of falls (56%). Falls were evenly distributed across morning (33%), evening (34%), and night (33%) shifts. Of 530 falls, 178 (34%) patients were imaged with 262 studies. Twenty percent of patients imaged had at least one positive imaging study attributed to the fall and 82% of studies were negative. Total cost of imaging was $160,897, 63% ($100,700) from head computed tomography (CT).

CONCLUSION: Inpatient falls affect patients of both sexes, all ages, occur at any time of day and lead to expensive imaging, mainly from head CTs. Further study should be targeted toward clarifying the indications for head CT after inpatient falls and validating risk models for positive and negative imaging, in order to decrease unnecessary imaging and thereby limit unnecessary cost and radiation exposure.

The Falls In Care Home study: a feasibility randomized controlled trial of the use of a risk assessment and decision support tool to prevent falls in care homes


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Abstract

OBJECTIVE: To explore the feasibility of implementing and evaluating the Guide to Action Care Home fall prevention intervention.

DESIGN: Two-centre, cluster feasibility randomized controlled trial and process evaluation.

SETTING: Purposive sample of six diverse old age/learning disability, long stay care homes in Nottinghamshire, UK.

SUBJECTS: Residents aged over 50 years, who had fallen at least once in the past year, not bed-bound, hoist-dependent or terminally ill.

INTERVENTIONS: Intervention homes (n = 3) received Guide to Action Care Home fall prevention intervention training and support. Control homes (n = 3) received usual care.

OUTCOMES: Recruitment, attrition, baseline and six-month outcome completion, contamination and intervention fidelity, compliance, tolerability, acceptance and impact.

RESULTS: A total of 81 of 145 (56%) care homes expressed participatory interest. Six of 22 letter respondent homes (27%) participated. The expected resident recruitment target was achieved by 76% (52/68). Ten (19%) residents did not complete follow-up (seven died, three moved). In intervention homes 36/114 (32%) staff attended training. Two of three (75%) care homes received protocol compliant training. Staff valued the training, but advised greater management involvement to improve intervention implementation. Fall risks were assessed, actioned and recorded in care records. Of 115 recorded falls, 533/570 (93%) of details were complete. Six-month resident fall rates were 1.9 and 4.0 per year for intervention and control homes, respectively.

CONCLUSIONS: The Guide to Action Care Home is implementable under trial conditions. Recruitment and follow-up rates indicate that a definitive trial can be completed. Falls (primary outcome) can be ascertained reliably from care records.
Abstracts Continued
Recent abstracts from the research literature

Comparison of the Fullerton Advanced Balance Scale, Mini-BESTest, and Berg Balance Scale to predict falls in Parkinson disease

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**Abstract**

**BACKGROUND:** The correct identification of patients with Parkinson's disease (PD) at risk of falling is important to early initiate appropriate treatment.

**OBJECTIVE:** This study compares the Fullerton Advanced Balance (FAB) scale with the Mini Balance Evaluation Systems Test (Mini-BESTest) and Berg Balance Scale (BBS) to identify individuals with PD at risk for falls and to analyze which of the items of the scales best predict future falls.

**DESIGN:** Prospective study to assess predictive criterion-related validity.

**SETTING:** University hospital in an urban community.

**PATIENTS:** 85 patients with idiopathic PD (Hoehn & Yahr stage: 1-4).

**MEASUREMENTS:** Number of falls (assessed prospectively over 6 months), FAB scale, Mini-BESTest, BBS and Unified Parkinson's Disease Rating Scale.

**RESULTS:** The FAB scale, Mini-BESTest and BBS had an accuracy to predict future falls of 0.68, 0.65 and 0.69 of the area under the curve (AUC) of the receiver operating characteristic (ROC) curve, respectively. A model combining the items “tandem stance”, “rise to toes”, “one leg stance”, “compensatory stepping backward”, “turning” and “placing alternate foot on stool” had an AUC of 0.84 of the ROC curve.

**LIMITATIONS:** Drop-out rate of 19 subjects.

**CONCLUSIONS:** The FAB scale, Mini-BESTest and BBS provide moderate capacity to predict fallers with one or more falls from non-fallers. Only some items of the three scales contribute to the detection of future falls. Clinicians should particularly focus on the items “tandem stance” in addition with the items “one leg stance”, “rise to toes”, “compensatory stepping backward”, “turning 360°” and “placing foot on stool” when analyzing postural control deficits related to fall risk. Future research should analyze if balance training including the aforementioned items is effective to reduce fall risk.

Falls screening and assessment tools used in acute mental health settings: a review of policies in England and Wales

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

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**Abstract**

**OBJECTIVES:** There is an urgent need to improve the care of older people at risk of falls or who experience falls in mental health settings. The aims of this study were to evaluate the individual falls risk assessment tools adopted by National Health Service (NHS) mental health trusts in England and healthcare boards in Wales, to evaluate the comprehensiveness of these tools and to review their predictive validity.

**METHODS:** All NHS mental health trusts in England (n=56) and healthcare boards in Wales (n=6) were invited to supply their falls policies and other relevant documentation (e.g. local falls audits). In order to check the comprehensiveness of tools listed in policy documents, the risk variables of the tools adopted by the mental health trusts’ policies were compared with the 2004 National Institute for Health and Care Excellence (NICE) falls prevention guidelines. A comprehensive analytical literature review was undertaken to evaluate the predictive
validity of the tools used in these settings.

RESULTS: Falls policies were obtained from 46 mental health trusts. Thirty-five policies met the study inclusion criteria and were included in the analysis. The main falls assessment tools used were the St. Thomas’ Risk Assessment Tool in Falling Elderly Inpatients (STRATIFY), Falls Risk Assessment Scale for the Elderly, Morse Falls Scale (MFS) and Falls Risk Assessment Tool (FRAT). On detailed examination, a number of different versions of the FRAT were evident; validated tools had inconsistent predictive validity and none of them had been validated in mental health settings.

CONCLUSIONS: Falls risk assessment is the most commonly used component of risk prevention strategies, but most policies included unvalidated tools and even well validated tool such as the STRATIFY and the MFS that are reported to have inconsistent predictive accuracy. This raises questions about operational usefulness, as none of these tools have been tested in acute mental health settings. The falls risk assessment tools from only four mental health trusts met all the recommendations of the NICE falls guidelines on multifactorial assessment for prevention of falls. The recent NICE (2013) guidance states that tools predicting risk using numeric scales should no longer be used; however, multifactorial risk assessment and interventions tailored to patient needs is recommended. Trusts will need to update their policies in response to this guidance.

Risk Factors

Very frequent fallers and future fall injury: continuous risk among community-dwelling home care recipients

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Abstract

OBJECTIVES: To examine the relationship between falls history, especially those with frequent recent falls, and future injurious falls.

METHOD: Resident Assessment Instrument for Home Care records of 167,162 home care recipients in Ontario, Canada, were linked to emergency department records recording an injurious fall. Diagnosis codes further informed the nature of the injuries.

RESULTS: Persons with a high number of recent falls tended to be younger, and more likely to have Parkinson’s or multiple sclerosis. Odds ratios for a future injurious fall, compared with zero recent falls, were as follows: 1.58 (1 fall), 1.91 (2 or 3 falls), 2.54 (4-8 falls), 3.07 (9 or more falls). Injuries among those with multiple recent falls were more likely to be head injuries with an open wound.

DISCUSSION: Persons reporting high number of recent falls were at the greatest risk of a future injurious fall and should receive the greatest attention in care planning.

Factors associated with the risk of falls of nursing home residents aged 80 or older

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Abstract

BACKGROUND: Falls are the leading cause of mortality and morbidity in older and represents one of the major and most costly public health problems worldwide.

PURPOSE: Evaluate the influences of lower limb muscle performance, static balance, functional independence and quality of life on fall risk as assessed with the timed up and go (TUG) test.

DESIGN: Cross-sectional study.

METHODS: Fifty-two residents aged 80 or older were assessed and distributed in one of the two study groups
(no risk of falls; risk of falls) according to the time to complete the TUG test. A Kistler force platform and linear transducer was used to determine lower limb muscle performance. Postural Stability (static balance) was measured by recording the center of pressure. The EuroQol-5 dimension was used to assess Health-related quality of life and the Barthel index was used to examine functional status. Student’s t-test was performed to evaluate the differences between groups. Correlations between variables were analyzed using Spearman or Pearson coefficient. ROC (receiver operating charasteristic) analysis was used to determine the cut-off points related to a decrease in the risk of a fall.

FINDINGS: Participants of no-fall risk group showed better lower limb performance, quality of life, and functional status. Cut-off points were determined for each outcome.

CONCLUSIONS: Risk of falls in nursing home residents over the age of 80 is associated with lower limb muscle performance, functional status, and quality of life. CLINICAL RELEVANCE: Cut-off points can be used by clinicians when working toward fall prevention and could help in determining the optimal lower limb muscle performance level for preventing falls.

Interventions

Fall-related injuries in a cohort of community-dwelling older adults attending peer-led fall prevention exercise classes

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Abstract

BACKGROUND AND PURPOSE: To investigate reported injuries and circumstances and to estimate the costs related to falls experienced by older adults participating in Steady As You Go (SAYGO) peer-led fall prevention exercise classes.

METHODS: A 12-month prospective cohort study of 207 participants attending community-based SAYGO classes in Dunedin, New Zealand. Types and costs of medical treatment for injuries and circumstances of falls were obtained via standardized fall event questionnaires and phone-administered questionnaires.

RESULTS: Eighty-four percent completed the study (160 females, 14 males, mean age = 77.5 [standard deviation = 6.5] years). More than a third of the total falls (55/148 total falls, 37%) did not result in any injuries. Most injuries (45%, n = 67) were sprains, grazes, and bruises. Medical attention was sought 26 times (18%), out of which 6 participants (4%) reported fractures (none femoral). The majority of falls occurred while walking. More falls and injuries occurred outdoors (n = 55). The number of times medical treatment was sought correlated with the number of falls in the previous year (r = 0.50, P =.02). The total number of years attending SAYGO was a significant predictor of lower total number of injuries (stepwise regression =-.157, t =-1.99, P =.048). The total cost of medical treatment across all reported injurious falls was estimated at NZ$6946 (US$5415).

DISCUSSION: Older adults participating in SAYGO appear to sustain less severe injuries following a fall than previously reported. More falls and injuries occurred outdoors, suggesting better overall health of these participants. The role of long-term participation in fall prevention exercise classes on injurious falls warrants further investigation.

Using spaced retrieval training to teach people with dementia to independently use their walking aids: two case studies

Creighton AS, Davison TE, Ploeg ES, Camp CJ, O’Connor DW.


(Permission © 2015, Informa - Taylor and Francis Group)
Abstract

This article describes two case studies that used spaced retrieval training to teach two aged care facility residents diagnosed with dementia to independently use their walking aids. Each resident received five consecutive 1-hour sessions of spaced retrieval and was observed before and after intervention and at a 1-week follow-up. The results indicate the potential for this memory intervention to improve walker use and highlight several clinical aspects to consider when using this technique with demented people.

Fear and overprotection in Australian residential aged care facilities: the inadvertent impact of regulation on quality continence care

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Abstract

AIM: Most residents in residential aged care facilities are incontinent. This study explored how continence care was provided in residential aged care facilities, and describes a subset of data about staffs’ beliefs and experiences of the quality framework and the funding model on residents’ continence care.

METHODS: Using grounded theory methodology, 18 residential aged care staff members were interviewed and 88 hours of field observations conducted in two facilities. Data were analysed using a combination of inductive and deductive analytic procedures.

RESULTS: Staffs’ beliefs and experiences about the requirements of the quality framework and the funding model fostered a climate of fear and risk adversity that had multiple unintended effects on residents’ continence care, incentivising dependence on continence management, and equating effective continence care with effective pad use.

CONCLUSION: There is a need to rethink the quality of continence care and its measurement in Australian residential aged care facilities.

Feasibility of Pilates exercise to decrease falls risk: a pilot randomized controlled trial in community-dwelling older people

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Abstract

OBJECTIVE: To evaluate the feasibility of Pilates exercise in older people to decrease falls risk and inform a larger trial.

DESIGN: Pilot Randomized controlled trial.

SETTING: Community physiotherapy clinic.

PARTICIPANTS: A total of 53 community-dwelling people aged 60 years (mean age, 69.3 years; age range, 61-84).

INTERVENTIONS: A 60-minute Pilates class incorporating best practice guidelines for exercise to prevent falls, performed twice weekly for 12 weeks. All participants received a letter to their general practitioner with falls risk information, fall and fracture prevention education and home exercises.

MAIN OUTCOME MEASURES: Indicators of feasibility included: acceptability (recruitment, retention, intervention adherence and participant experience survey); safety (adverse events); and potential effectiveness (fall, fall injury...
and injurious fall rates; standing balance; lower limb strength; and flexibility) measured at 12 and 24 weeks.

RESULTS: Recruitment was achievable but control group drop-outs were high (23%). Of the 20 participants who completed the intervention, 19 (95%) attended 75% of the classes and reported classes were enjoyable and would recommend them to others. The rate of fall injuries at 24 weeks was 42% lower and injurious fall rates 64% lower in the Pilates group, however, was not statistically significant (P = 0.347 and P = 0.136). Standing balance, lower-limb strength and flexibility improved in the Pilates group relative to the control group (P < 0.05). Estimates suggest a future definitive study would require 804 participants to detect a difference in fall injury rates.

CONCLUSION: A definitive randomized controlled trial analysing the effect of Pilates in older people would be feasible and is warranted given the acceptability and potential positive effects of Pilates on fall injuries and fall risk factors.

The effectiveness of a video-supported group-based Otago exercise programme on physical performance in community-dwelling older adults: a preliminary study


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(Copyright © 2015, Chartered Society of Physiotherapy London)

Abstract

OBJECTIVES: To evaluate the short-term effects of a video-supported group-based Otago exercise programme (OEP) on physical performance variables in independent community-dwelling older adults.

DESIGN: Preliminary randomized controlled trial.

SETTING: Local senior centre.

PARTICIPANTS: Fifty-one adults aged 65 and older with no cognitive impairment.

INTERVENTION: Participants were randomly allocated to the intervention group (IG) or to the control group (CG). During 4 months, IG participants performed the exercise routine. MEASUREMENTS: The primary outcome measure was the Timed ‘Up-and-Go’ test (TUG). Secondary outcome measurements included functional balance, one-leg balance, lower-limb function and aerobic endurance. All data were collected before and after intervention.

RESULTS: TUG scores showed a significant reduction in the performance time in the IG compared to CG after intervention [IG 7.5 (2.0) vs CG 8.8 (1.9), mean difference -1.3 seconds, 95% confidence interval (CI) of the difference -2.3 to -0.1; P=0.03]. Secondary outcomes also showed a significant improvement in the performance of the functional balance [IG 54.9 (2.5) vs CG 51.4 (5.3), mean difference 3.5 points, 95% CI 1.2 to 5.8; P=0.003], one-leg balance [IG 39.1 (21.6) vs CG 15.6 (12.1), mean difference 23.5 seconds, 95% CI 13.3 to 33.7; P<0.001] and lower extremity strength [IG 8.7 (3.8) vs CG 10.9 (3.3), mean difference -2.2 seconds, 95% CI -4.2 to -0.1; P=0.035] in the IG compared to CG.

CONCLUSION: This study shows that, from a short-term perspective, a video-supported group-based OEP programme can significantly improve the levels of mobility, functional balance, one-leg balance and lower extremity strength in community-dwelling older adults. TRIAL REGISTRATION: ClinicalTrials.gov ID: NCT02218411.

These abstracts have been sourced from SafetyLit.org

SafetyLit provides abstracts of peer reviewed articles from researchers who work in the more than 30 distinct professional disciplines relevant to preventing and researching unintentional injuries, violence, and self-harm. Each week citations and summaries of about 400 articles and reports are included in a PDF document or through an RSS subscription.
Joining the Network
To join the NSW Falls Prevention Network listserv, send an email to:

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

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.

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

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

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.