Welcome to our first issue of 2007 and Happy New Year to you all, hope you all enjoyed your holiday break.

We have planned a number of interesting articles for you this year including a mini-review of restraint use in this issue. Coming in future issues will be articles on cognitive impairment and falls prevention, exercise and falls prevention and interventions to prevent falls in visually impaired older people.

There will also be more interesting abstracts in each issue as well as conference and other announcements.

If there are any topics that you think we should cover please let us know by sending an email to e.vance@unsw.edu.au.

We are currently planning the next network meeting to be held mid-year in Sydney. Full details will be available in the next issue.

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*Yes Mrs. Colline - I can pencil you in for a bed fall in your bathroom at 7.30am on the 16th, but we do require confirmation within 24 hours....*
Restraints have and continue to be used to manage challenging behaviours such as wandering, aggression and interference with medical equipment and to decrease the risk of falls in both acute and residential care settings. They have been defined as 'anything that limits an individual's voluntary response or movement' and can include physical restraints such as vests, belts, wrist ties, and mechanical restraints including bedrails, concave mattresses and deep seated chairs [1]. Chemical restraints such as psychotropic drugs are also used although this review will focus mainly on physical and mechanical restraints.

A number of reviews on restraint use in residential care settings have recently been published [2-4]. A review on the use of restraints in people with dementia in long term care concluded that the use of restraints did not significantly reduce falls or injuries from falls and in some studies there was an increase in injuries [2]. An Australian study that included discussion forums, interviews and site visits with interested stakeholders at 16 Aged Care facilities found that 12-47% of residents in these aged care facilities were restrained and the use of restraints caused a number of injuries such as nerve damage, ischemic injury to hands, limb dislocation and death [3]. The main issues that arose from the discussion forums were legal concerns especially litigation for patient mistreatment, the existing organizational culture of using restraints, the need for best practice to minimize restraint use and the need for more staff education and improved communication with families of patients where restraints were used.

Studies in the acute care setting found that restraints were used in 9.4% of patients over 62 years of age rising to 33% for those over 85 years [4-6]. The main reasons for restraint use were cognitive impairment (acute or chronic) or delirium superimposed on dementia. Restraints were used to prevent falls, control agitation, prevent wandering and injury to patient, staff and visitors. Agitation was reported in one study (6) to be 60% in hospitalized patients over 65 years old. The main restraint used was bedrails (62%) followed by chemical restraints and vests. They also found that 85% of nursing staff did not consider bedrails as a form of restraint [5]. Each of these studies found that nursing staff were not well equipped to deal with patients with challenging behaviours and staff education on this and the use of restraints was often lacking. Restrained patients often had a longer hospital stay, more complications and an increased likelihood of discharge to a residential care facility [6].

The use of bedrails have been shown to increase the severity of injuries with patients trapped, caught or strangled in beds with rails up when they have tried to get out of bed [7, 8]. Older patients and those with cognitive impairment were at greatest risk of increased injury. Studies in the acute, rehabilitation and residential care settings found no significant increase in falls and a reduction in serious injury when bedrails were removed [7]. The US Food and Drug Administration has produced a guide to bed safety; bed rails in hospitals, nursing homes and home health care which outlines the risks and benefits of using bedrails and ensuring patient’s safety [9].

The Joanna Briggs Institute published systematic reviews on the use of restraints and found that physically restrained patients were at equal or greater risk of falling and injuries were more severe if falls occurred [10, 11]. They also found that physical restraint use could be safely reduced in residential aged care. Educating staff was the most important aspect of restraint reduction and this needed to cover areas such as alternatives to restraints and the management of difficult patients especially those with cognitive impairment.

A number of negative impacts of physical restraints were reported and included:

- Physical effects such as pressure sores, loss of muscle strength, incontinence, falls, balance and co-ordination problems and death from asphyxiation.
- Psychological effects included demoralization, humiliation, depression, aggression, agitation and impaired functioning.
- Legal/Ethical factors such as duty of care to patients and litigation.

A number of resources have been produced to provide guidance for the use of restraints in residential aged care facilities[1, 12, 13]. These include the Department of Health and Ageing, decision making tool for restraint use in aged care [12].

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This tool is available at: 

This tool assists decision making in the use of restraints for at risk episodes and provides a number of alternatives to restraints and strategies for managing difficult behaviours. The tool includes an information pamphlet on restraint use in aged care for relatives and carers.

Another useful resource is the NSW Health Guidelines for working with people with challenging behaviours in residential aged care facilities [1]. This booklet is available at: <http://www.health.nsw.gov.au/policies/gl/2006/GL2006_014.html>

This booklet contains information on appropriate interventions and minimisation of restraint use particularly for those older people with behavioural and psychological symptoms associated with cognitive impairment and dementia. The importance of distinguishing between delirium and dementia is also emphasized as delirium is often associated with medical problems such as infection, dehydration, constipation and medications and can be made worse by the use of restraints. Strategies are provided to deal with aggression, agitation, anxiety, depression, psychotic symptoms, sleep disorders and wandering. These strategies include psycho-social interventions such as distraction, diversion, exercise, reassurance, emotional support and clear communication.

The Australian Council for Safety and Quality in Healthcare Guidelines recommend that restraints should be a last option after alternatives have been unsuccessful and the decision to use a restraint has been reached after consultation with the person and/or their family/carer [13]. Restraints should be applied for a minimum time only and need to be regularly monitored and well documented in the patients file. These guidelines are available at:< http://www.powmri.edu.au/fallsnetwork/safety_and_quality_council_docum.htm>

A report by the National Ageing Research Institute (NARI) on the barriers to implementing a ‘restraint free care’ policy in residential aged care facilities found a number of barriers which were listed under the following headings [14]:

- Fear of residents’ injury and subsequent litigation – staff were concerned about frail residents and their risk of injury.
- Staffing resource issues – lack of staff time and low staff ratios particularly at times when residents may be difficult (late afternoon and night).
- Inadequate education and information about alternatives to restraints for both staff and families – not knowing alternatives or strategies to deal with aggression and agitation.
- Environmental constraints – clutter in residents room, unsafe outdoor flooring.
- Family/resident and staff beliefs or expectations – expectations of using restraints to protect patients, residents trusting advice from doctors rather than staff that are regularly involved in their care, difficulties of looking after a high proportion of cognitively impaired patients.
- Communication barriers—among stakeholders involved in residents care and between resident and staff particularly where residents speak a language other than English.

A number of strategies for minimising restraints included the implementation of restraint minimisation policies, activities and diversions, modification of the environment and the education of staff, residents and their families.

The Australian Society for Geriatric Medicine [15] encourages institutions to have written policies for physical restraint use. The decisions to use physical restraints should be made in consultation with patients and caregivers and only after a medical review has been carried out and alternatives to restraints have been tried. Physical restraints should only be used by healthcare providers who have been trained in their proper application and restraint use should be well documented and monitored regularly.

In conclusion, it can be seen that the minimisation of restraint use is advocated as best practice and supported by evidence from the current literature on restraint use. Alternatives to restraints have now been well documented and are available to staff in both the residential care and acute care sectors.

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REFERENCES


A simple protocol for preventing falls and fractures in elderly individuals with musculoskeletal disease
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Abstract

Summary Our protocol resulted in a significant prevention of falls and fractures in addition to marked improvements in the balance function. Intervention comprised a new balance exercise and quadriceps femoris exercise. Subjects were outpatients aged ≥65 years old with musculoskeletal disorders who had a result of ≤15 s for the timed one-leg balance test.

Introduction A study on chronological changes in the level of required care revealed that the level of care increases markedly for older patients requiring non-intensive or intensive long-term care. The aim of the present study was to identify frail elderly patients among older patients with chronic pain of the musculoskeletal system and to assess the fracture prevention and fall prevention effects of exercise therapy using stratified analysis.

Methods This was a prospective cohort study consisting of 683 outpatients with chronic pain of the musculoskeletal system who were ≥65 years old and had a result of ≤15 s for the timed one-leg balance test with eyes open. Intervention consisted of a new balance exercise and quadriceps femoris exercise regimen. The main outcome was fall rate, while secondary outcomes were the results of the timed one-leg balance test with eyes open and fracture rate.

Results Fall rate was decreased by 44% (p < 0.001) and fracture rate by 47% (p < 0.05) by 8 months after the start of the intervention. The results of the timed one-leg balance testing with eyes open improved two- to threefold after intervention (p < 0.01).

Conclusions Our protocol has been safely implemented at a large number of clinics in Japan, and the reductions in frequency of falls and fractures suggest that it provides effective preventive care.

A multifactorial fall prevention programme in community dwelling aged: predictors of adherence

Sjosten NM, Salonoja M, Piirtola M, Vahlberg TJ, Isoaho R, Hyttinen HK, Aarnio PT, Kivela SL.


Abstract

Overall adherence rates have usually been reported in fall prevention studies, but predictors of adherence have rarely been described. The aim of this study was to determine the adherence rates and the predictors of adherence in four key activities of a multifactorial fall prevention trial.

METHODS: This study is part of a multifactorial fall prevention programme implemented among the 65-year-old or older community-dwelling aged who had fallen at least once during the previous 12 months. Subjects (n = 591) were randomly assigned to an intensive prevention programme or to a counselling group. Four key activities of prevention programme included physical exercise in small groups, psychosocial group activities, lectures and home exercises. Associations between adherence rates and potential predictors were analysed using cumulative logistic regression.

RESULTS: The mean adherence rate was 58% in the physical exercise groups, 25% in the psycho-
social groups and 33% in lectures. Subjects performed home-exercises on average 11 times per month. In multivariate analyses, infrequent feelings of loneliness, low self-perceived probability of falling at home and good physical functional abilities were significant predictors of active physical exercise group adherence. Good physical and cognitive functional abilities predicted active psychosocial group adherence. Female gender and good physical and cognitive functional abilities predicted more active lecture adherence.

CONCLUSION: Persons with the poorest physical, cognitive and psychological functional abilities representing the part of the population at highest risk of falling do not seem reachable in multifactorial risk-based intervention.

Lower urinary tract symptoms, incontinence and falls in elderly people: time for an intervention study
Morris V, Wagg A.
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Abstract
Falls in older people constitute a common health hazard, which has attracted much attention and research. There are many evidence-based interventions, which have been shown to reduce the subsequent risk of falls. There is good evidence for an association between the risk of falling and the presence of urinary incontinence in older people, but incontinence has not been routinely included in interventions targeted to reduce falls. This article reviews the evidence for current falls intervention and the association between falls and urinary incontinence, making the case for an intervention study.

Low-frequency vibratory exercise reduces the risk of bone fracture more than walking: a randomized controlled trial.
Gusi N, Raimundo A, Leal A.
BMC Musculoskelet Disord. 2006 Nov 30;7:92.

Abstract
Whole-body vibration (WBV) is a new type of exercise that has been increasingly tested for the ability to prevent bone fractures and osteoporosis in frail people. There are two currently marketed vibrating plates:

a) the whole plate oscillates up and down; b) reciprocating vertical displacements on the left and right side of a fulcrum, increasing the lateral accelerations. A few studies have shown recently the effectiveness of the up-and-down plate for increasing Bone Mineral Density (BMD) and balance; but the effectiveness of the reciprocating plate technique remains mainly unknown. The aim was to compare the effects of WBV using a reciprocating platform at frequencies lower than 20 Hz and a walking-based exercise programme on BMD and balance in post-menopausal women.

METHODS: Twenty-eight physically untrained post-menopausal women were assigned at random to a WBV group or a Walking group. Both experimental programmes consisted of 3 sessions per week for 8 months. Each vibratory session included 6 bouts of 1 min (12.6 Hz in frequency and 3 cm in amplitude with 60 degrees of knee flexion) with 1 min rest between bouts. Each walking session was 55 minutes of walking and 5 minutes of stretching. Hip and lumbar BMD (g.cm-2) were measured using dual-energy X-ray absorptiometry and balance was assessed by the blind flamingo test. ANOVA for repeated measurements was adjusted by baseline data, weight and age.

RESULTS: After 8 months, BMD at the femoral neck in the WBV group was increased by 4.3% (P = 0.011) compared to the Walking group. In contrast, the BMD at the lumbar spine was unaltered in both groups. Balance was improved in the WBV group (29%) but not in the Walking group.

CONCLUSION: The 8-month course of vibratory exercise using a reciprocating plate is feasible and is more effective than walking to improve two major determinants of bone fractures: hip BMD and balance.

Multifactorial and functional mobility assessment tools for fall risk among older adults in community, home-support, long-term and acute care settings
Scott V, Votova K, Scanlan A, Close, J
Age Ageing epub February 10, 2007

Abstract
Objective: to conduct a systematic review of published studies that test the validity and reliability of fall-risk assessment tools for use among older
adults in community, home-support, long-term and acute care settings.

Methods: searches were conducted in Ebsco-Host and MEDLINE for published studies in the English language between January 1980 and July 2004, where the primary or secondary purpose was to test the predictive value of one or more fall assessment tools on a population primarily 65 years and older. The tool must have had as its primary outcome falls, fall-related injury or gait/balance. Only studies that used prospective validation were considered.

Findings: thirty-four articles testing 38 different tools met the inclusion criteria. The community setting represents the largest number of studies (14) and tools (23) tested, followed by acute (12 studies and 8 tools), long-term care (LTC) (6 studies and 10 tools) and home-support (4 studies and 4 tools). Eleven of the 38 tools are multifactorial assessment tools (MAT) that cover a wide range of fall-risk factors, and 27 are functional mobility assessment tools (FMA) that involve measures of physical activity related to gait, strength or balance.

Conclusion: fall-risk assessment tools exist that show moderate to good validity and reliability in most health service delivery areas. However, few tools were tested more than once or in more than one setting. Therefore, no single tool can be recommended for implementation in all settings or for all subpopulations within each setting.

A Multivariate Fall Risk Assessment Model for VHA Nursing Homes Using the Minimum Data Set

French D, Werner, DC., Campbell R.R., Powell-Cope GM., Nelson AL., Rubenstein LZ., Bulat T., Spehar AM.

J Am Med Dir Assoc. 2007 8 (2) 115-22

Objectives: The purpose of this study was to develop a multivariate fall risk assessment model beyond the current fall Resident Assessment Protocol (RAP) triggers for nursing home residents using the Minimum Data Set (MDS).

Design: Retrospective, clustered secondary data analysis.

Setting: National Veterans Health Administration (VHA) long-term care nursing homes (N = 136).

Participants: The study population consisted of 6577 national VHA nursing home residents who had an annual assessment during FY 2005, identified from the MDS, as well as an earlier annual or admission assessment within a 1-year look-back period.

Measurement: A dichotomous multivariate model of nursing home residents coded with a fall on selected fall risk characteristics from the MDS, estimated with general estimation equations (GEE).

Results: There were 17 170 assessments corresponding to 6577 long-term care nursing home residents. The increased odds ratio (OR) of being classified as a faller relative to the omitted “dependent” category of activities of daily living (ADL) ranged from OR = 1.35 for “limited” ADL category up to OR = 1.57 for “extensive-2” ADL (P < .0001). Unsteady gait more than doubles the odds of being a faller (OR = 2.63, P < .0001). The use of assistive devices such as canes, walkers, or wheelchairs increases the odds of being a faller (OR = 1.17, P < .0005) or (OR = 1.19, P < .0002), respectively. Foot problems may also increase the odds of being a faller (OR = 1.26, P < .0016). Alzheimer’s or other dementias also increase the odds of being classified as a faller (OR = 1.18, P < .0219) or (OR=1.22, P < .0001), respectively. In addition, anger (OR = 1.19, P < .0065); wandering (OR = 1.53, P < .0001); or use of antipsychotic medications (OR = 1.15, P < .0039), anti-anxiety medications (OR = 1.13, P < .0323), or antidepressant medications (OR = 1.39, P < .0001) was also associated with the odds of being a faller.

Conclusions: This national study in one of the largest managed healthcare systems in the United States has empirically confirmed the relative importance of certain risk factors for falls in long-term care settings. The model incorporated an ADL index and adjusted for case mix by including only long-term care nursing home residents. The study offers clinicians practical estimates by combining multiple univariate MDS elements in an empirically based, multivariate fall risk assessment model.
staying power
tips and tools to keep you on your feet
written by
Lindy Clemson and Megan Swann-Williams

A new resource for the older person to help prevent falls
rrp $29.95 (Aust $)

About the book
The key to healthy ageing is to adopt a positive, confident attitude and to stay connected to your community. It is essential to keep your independence, especially as you approach that stage of life when you can fall more easily.

Staying Power: tips and tools to keep you on your feet gives practical and inspirational advice on how to prevent falls in your life. Through a combination of exercise and a healthy, active approach, you can beat what seem like the inevitable outcomes of getting older.

The ideas in Staying Power are based on a community program called Stepping On, which has successfully changed the lives of many older people. This program reduced the falls rate of its participants by over 30 per cent. Packed with ideas for setting up your home, getting out and about in your community and developing balance and strength in your body, as well as success stories from older people who have adopted these habits, Staying Power will have you on your feet in no time ... and will keep you there.

About the authors
Lindy Clemson is a public health researcher on ageing and an occupational therapist, with a PhD in epidemiology. She has a background in consultancy and research in the areas of physical and cultural environments, adaptation and ageing, and the independence of older persons at home and in the community. She has over 30 publications and has recently completed research as the Principal Chief Investigator into the effectiveness of a community-based falls prevention program, which became the Stepping On program.

Megan Swann-Williams has worked as an occupational therapist for over 24 years. She jointly developed, conceptualised and implemented the Stepping On program with Lindy Clemson. She has run over 30 Stepping On programs in Sydney and Newcastle and is currently facilitating these programs at Prince of Wales hospital in NSW, Australia.
NSW FALLS INJURY PREVENTION NETWORK BACKGROUND

The NSW Falls Injury 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 lobby 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 Injury Prevention Network activities are part of the implementation of the NSW Falls Policy funded by NSW Health'