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“Not just another walking program”: Everyday Activity Supports You (EASY) model-a randomized pilot study for a parallel randomized controlled trial

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DOI 10.1186/2055-5784-1-4 **PMID** 27965784 **PMCID** PMC5066523

Abstract

BACKGROUND: Maintaining physical activity is an important goal with positive health benefits, yet many people spend most of their day sitting. Our Everyday Activity Supports You (EASY) model aims to encourage movement through daily activities and utilitarian walking. The primary objective of this phase was to test study feasibility (recruitment and retention rates) for the EASY model.

METHODS: This 6-month study took place in Vancouver, Canada, from May to December 2013, with data analyses in February 2014. Participants were healthy, inactive, community-dwelling women aged 55-70 years. We recruited through advertisements in local community newspapers and randomized participants using a remote web service. The model included the following: group-based education and social support, individualized physical activity prescription (called Activity 4-1-1), and use of a Fitbit activity monitor. The control group received health-related information only. The main outcome measures were descriptions of study feasibility (recruitment and retention rates). We also collected information on activity patterns (ActiGraph GT3X+ accelerometers) and health-related outcomes such as body composition (height and weight using standard techniques), blood pressure (automatic blood pressure monitor), and psychosocial variables (questionnaires).

RESULTS: We advertised in local community newspapers to recruit participants. Over 3 weeks, 82 participants telephoned; following screening, 68% (56/82) met the inclusion criteria and 45% (25/56) were randomized by remote web-based allocation. This included 13 participants in the intervention group and 12 participants in the control group (education). At 6 months, 12/13 (92%) intervention and 8/12 (67%) control participants completed the final assessment. Controlling for baseline values, the intervention group had an average of 2,080 [95% confidence intervals (CIs) 704, 4,918] more steps/day at 6 months compared with the control group. There was an average between group difference in weight loss of -4.3 [95% CI -6.22, -2.40] kg and reduction in diastolic blood pressure of -8.54 [95% CI -16.89, -0.198] mmHg, in favor of EASY.

CONCLUSIONS: The EASY pilot study was feasible to deliver; there was an increase in physical activity and reduction in weight and blood pressure for intervention participants at 6 months. TRIAL

REGISTRATION: ClinicalTrials.gov identifier: NCT01842061.

PDF Y Endnote Y

A comparative study of the effects of pilates & Latin dance on static and dynamic balance in older adults

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Abstract

The present study was designed to compare the effectiveness of exercise programs, exercise with Pilates and Latin dance, on older adults' static and dynamic balance. Thirty two older adults were divided into three groups, Pilates group, Dance group, and a Control group. Static and dynamic balance was assessed with following tasks: a) Tandem stance, b) one leg stance and c) periodic sway with and without metronome guidance. Analysis revealed a significant, reduction of the trunk sway amplitude during the Tandem stance with eyes closed, reduction in the Center of Pressure displacement during one-leg stance, increase in the amplitude of trunk oscillation during the sway task, for both intervention's groups and reduction in the standard deviation of the CoP displacement during the MP task only for the dance group. The differences in specific balance indices between the two programs suggest some specific adaptations that may provide useful knowledge for the selection of exercises that are better tailored to the needs of the old adult.

PDF Y Endnote Y

Age differences in dynamic fatigability and variability of arm and leg muscles: associations with physical function

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Abstract

INTRODUCTION: It is not known whether the age-related increase in fatigability of fast dynamic contractions in lower limb muscles also occurs in upper limb muscles. We compared age-related fatigability and variability of maximal-effort repeated dynamic contractions in the knee extensor and elbow flexor muscles; and determined associations between fatigability, variability of velocity between contractions and functional performance.

METHODS: 35 young (16 males; 21.0±2.6years) and 32 old (18 males; 71.3±6.2years) adults performed a dynamic fatiguing task involving 90 maximal-effort, fast, concentric, isotonic contractions (1 contraction/3s) with a load equivalent to 20% maximal voluntary isometric contraction (MVIC) torque with the elbow flexor and knee extensor muscles on separate days. Old adults also performed tests of balance and walking endurance.

RESULTS: Old adults had greater fatigue-related reductions in peak velocity compared with young adults for both the elbow flexor and knee extensor muscles ($P<0.05$) with no sex differences ($P>0.05$). Old adults had greater variability of peak velocity during the knee extensor, but not during the elbow flexor fatiguing task. The age difference in fatigability was greater for the knee extensor

muscles (35.9%) compared with elbow flexor muscles (9.7%, $P < 0.05$). Less fatigability of the knee extensor muscles was associated with greater walking endurance ($r = -0.34$, $P = 0.048$) and balance ($r = -0.41$, $P = 0.014$) among old adults.

CONCLUSIONS: An age-related increase in fatigability of a dynamic fatiguing task was greater for the knee extensor compared with the elbow flexor muscles in males and females, and greater fatigability was associated with lesser walking endurance and balance.

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PDF Y Endnote Y

Balance and mobility in community-dwelling older adults: effect of daytime sleepiness

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(Copyright © 2016, John Wiley and Sons)

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OBJECTIVES: To examine the effect of self-reported daytime sleepiness on performance-based balance measures and self-reported balance confidence in community-dwelling older adults.

DESIGN: Cross-sectional secondary analysis of an observational cohort study designed to develop and refine measures of balance and mobility in community-dwelling older adults.

SETTING: Community.

PARTICIPANTS: Older adults (aged 78.2 ± 5.9) ($n = 120$).

MEASUREMENTS: The performance-based gait and balance measures included gait speed, double support time, and step width. Narrow walk, obstacle walk, and timed standing balance were also assessed. The Activities-Specific Balance Confidence Scale was included as a self-reported measure. Daytime sleepiness was defined as an Epworth Sleepiness Scale score of 9 or greater. Body mass index, fall-related comorbidities, and use of central nervous system (CNS) medications were considered as covariates.

RESULTS: Forty-five percent of participants reported daytime sleepiness. Participants reporting daytime sleepiness differed significantly from those without in gait speed (adjusted difference (standard error (SE)) -0.09 (0.04) m/s, $P = .03$), step width (adjusted difference (SE) 0.02 (0.01), $P = .03$), and self-reported balance confidence (adjusted difference (SE) -1.02 (0.38), $P = .01$) even after adjusting for covariates. Two-way analysis of variance of CNS medication use and daytime sleepiness showed no significant interaction effects.

CONCLUSION: Self-reported daytime sleepiness is associated with slower gait speed and poor balance confidence in community-dwelling older adults. Subjective sleep assessment should be considered when assessing balance and implementing interventions for improving balance in older adults. Further study is needed to examine the role of CNS medication use.

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PDF Y Endnote Y

Benefits of game-based leisure activities in normal aging and dementia

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Abstract

Given the increasing prevalence of dementia and the limited efficacy of pharmacological treatments, it is crucial to improve the knowledge of the factors that might delay the onset of dementia for developing non-pharmacological interventions. Recent studies have provided evidence that game-based interventions, especially the practice of video games, could improve the cognitive functioning (e.g. executive functions) in older adults and in demented patients. The positive effects of these games have also been demonstrated on physical health (e.g. improvement of balance and gait). Video gamed-based interventions may also alleviate mood or behavioral disorders, and increase interactions with friends, family, caregivers or other patients. The positive impact of games on these domains (cognitive and physical decline, social isolation) suggests that game-based interventions might contribute to delay the onset of dementia. Thus, playing games might be considered as a protective factor in dementia and even more as a potential non-pharmacological strategy in dementia rather than leisure activity.

PDF Endnote Y

Coordinating care for falls via emergency responders: a feasibility study of a brief at-scene intervention

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DOI 10.3389/fpubh.2016.00266 **PMID** 27990416 **PMCID** PMC5130994

Abstract

Falls account for a substantial portion of 9-1-1 calls, but few studies have examined the potential for an emergency medical system role in fall prevention. We tested the feasibility and effectiveness of an emergency medical technician (EMT)-delivered, at-scene intervention to link elders calling 9-1-1 for a fall with a multifactorial fall prevention program in their community. The intervention was conducted in a single fire department in King County, Washington and consisted of a brief public health message about the preventability of falls and written fall prevention program information left at scene. Data sources included 9-1-1 reports, telephone interviews with intervention department fallers and sociodemographically comparable fallers from three other fire departments in the same county, and in-person discussions with intervention department EMTs. Interviews elicited faller recall and perceptions of the intervention, EMT perceptions of intervention feasibility, and resultant referrals. Sixteen percent of all 9-1-1 calls during the intervention period were for falls. The intervention was delivered to 49% of fallers, the majority of whom (75%) were left at scene. Their mean age (N = 92) was 80 ± 8 years; 78% were women, 39% had annual incomes under \$20K, and 34% lived alone. Thirty-five percent reported that an EMT had discussed falls and fall prevention (vs. 8% of comparison group, P < 0.01); 84% reported that the information was useful. Six percent reported having made an appointment with a fall prevention program (vs. 3% of comparison group). EMTs reported that the intervention was worthwhile and did not add substantially to their workload.

A brief, at-scene intervention is feasible and acceptable to fallers and EMTs. Although it activates only a small percent to seek out fall prevention programs, the public health impact of this low-cost strategy may be substantial.

PDF Y Endnote Y

Creating new opportunities to educate families on the impact of frailty and cognitive impairment in a trauma intensive care unit: results of a quality improvement project

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J. Palliat. Med. 2016; ePub(ePub): ePub.

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Abstract

BACKGROUND: Older adults comprise a rapidly growing proportion of admissions to acute care hospitals and trauma centers. Older adults admitted to a trauma intensive care unit (TICU) often have a more complicated inpatient and posthospital course. This is the most pronounced in frail elders with cognitive dysfunction. We aimed at integrating validated screening instruments for physical frailty and cognitive impairment into the standard nursing assessment of all older trauma patients admitted to our TICU and stepdown unit.

OBJECTIVES: Our goal, for positive screens, was to trigger earlier referrals to palliative care for patient and family education on the range of likely clinical outcomes.

METHODS: In February 2015, our study team trained bedside trauma nurses to implement a validated frailty screening process on all patients at least 65 years of age or older who were admitted to the TICU and stepdown unit. Between March and May 2015, the number of older adults admitted, mechanism of injury, numbers of patients screened, and positive screens, along with volume of palliative care referrals, were tracked.

RESULTS: During the three-month period, the mean age of all older admissions (N = 131) was 75.5, of which 49% were screened. Among the patients screened, 38% screened positive for frailty, 45% screened positive for possible dementia, and 23% screened positive for both conditions. Palliative care consultations for older adults increased from 13% (before study) to 33% during the study period.

CONCLUSION: A screening process designed for older adults to assess both physical frailty and cognitive impairment can be standardized into the routine care of older adults admitted to a busy trauma service. Positive screens can serve as a trigger for earlier palliative care assessments, with opportunities for educating patients and their families on the range of clinical trajectories that these vulnerable patients face.

PDF Y Endnote Y

Elderly fallers enhance dynamic stability through anticipatory postural adjustments during a choice stepping reaction time

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Abstract

In the case of disequilibrium, the capacity to step quickly is critical to avoid falling in elderly. This capacity can be simply assessed through the choice stepping reaction time test (CSRT), where elderly fallers (F) take longer to step than elderly non-fallers (NF). However, the reasons why elderly F elongate their stepping time remain unclear. The purpose of this study is to assess the characteristics of anticipated postural adjustments (APA) that elderly F develop in a stepping context and their consequences on the dynamic stability. Forty-four community-dwelling elderly subjects (20 F and 24 NF) performed a CSRT where kinematics and ground reaction forces were collected. Variables were analyzed using two-way repeated measures ANOVAs.

RESULTS for F compared to NF showed that stepping time is elongated, due to a longer APA phase. During APA, they seem to use two distinct balance strategies, depending on the axis: in the anteroposterior direction, we measured a smaller backward movement and slower peak velocity of the center of pressure (CoP); in the mediolateral direction, the CoP movement was similar in amplitude and peak velocity between groups but lasted longer. The biomechanical consequence of both strategies was an increased margin of stability (MoS) at foot-off, in the respective direction. By elongating their APA, elderly F use a safer balance strategy that prioritizes dynamic stability conditions instead of the objective of the task. Such a choice in balance strategy probably comes from muscular limitations and/or a higher fear of falling and paradoxically indicates an increased risk of fall.

PDF Y Endnote Y

Elderly people's perceptions of using Wii sports bowling - a qualitative study

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Abstract

The Nintendo Wii is a gaming console with motion-sensitive controls that is making inroads into health care and rehabilitation. However, there is still limited knowledge on how elderly people perceive the use of such a product. The aim of this study was to examine how the use of the Wii Sports Bowling in an activity group was perceived by elderly people. The data consisted of observations and interviews with participants who used Wii Sports Bowling and was analysed with content analysis. The findings are described in three themes; 'The use of the Wii Sports game', 'Engagement in the game' and 'Social interaction around the activity'. Wii Sports Bowling was described as easier to play compared to real-life bowling and was enjoyable and a social activity. The opportunity to meet the group each week was important for the participants. Playing the game resulted in signs of immersion and a flow-like state. The Wii was perceived to be easy to use, to provide a way to socialize with peers and to give opportunities to participate in activities in a new way. More studies regarding elderly people's experiences and apprehensions regarding new technology such as gaming consoles and virtual reality are needed.

PDF Endnote Y

Exercise interventions for preventing falls among older people in care facilities: a meta-analysis

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Worldviews Evid. Based Nurs. 2016; ePub(ePub): ePub.

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DOI 10.1111/wvn.12193 **PMID** 27984675

Abstract

BACKGROUND: Falls in older people are a common problem, often leading to considerable morbidity. However, the overall effect of exercise interventions on fall prevention in care facilities remains controversial.

AIMS: To evaluate the effectiveness of exercise interventions on the rate of falls and number of fallers in care facilities.

METHODS: A meta-analysis was conducted of randomized controlled trials published up to December 2014. Eight databases were searched including Ovid-Medline, Embase, CINAHL, Cochrane Library, KoreaMed, KMBase, KISS, and KisTi. Two investigators independently extracted data and assessed study quality.

RESULTS: Twenty-one studies were selected, that included 5,540 participants. Fifteen studies included exercise as a single intervention, whereas the remaining six included exercise combined with two or more fall interventions tailored to each resident's fall risk (i.e., medication review, environmental modification or staff education). Meta-analysis showed that exercise had a preventive effect on the rate of falls (risk ratio [RR] 0.81, 95% CI 0.68-0.97). This effect was stronger when exercise combined with other fall interventions on the rate of falls (RR 0.61, 95% CI 0.52-0.72) and on the number of fallers (RR 0.85, 95% CI 0.77-0.95). Exercise interventions including balance training (i.e., gait, balance, and functional training; or balance and strength) resulted in reduced the rate of falls. Sensitivity analyses indicated that exercise interventions resulted in reduced numbers of recurrent fallers (RR 0.71, 95% CI 0.53-0.97).

LINKING EVIDENCE TO ACTION: This review provides an important basis for developing evidence-based exercise intervention protocols for older people living in care facilities. Exercise programs, which are combined with tailored other fall interventions and challenge balance training to improve balance skills, should be applied to frail older people with functional limitations in institutional settings.

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PDF Y Endnote Y

Extremity injuries and dementia disproportionately increase the risk for long-term care at older age in an analysis of German Health Insurance routine data for the years 2006 to 2010

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Eur. Rev. Aging Phys. Activ. 2016; 13: e9.

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Abstract

BACKGROUND: Extremity injuries (EI) and dementia are important causes of long-term care (LTC), but they can also cause each other and are often present concurrently. Mobility-limiting EI can increase the risk of dementia, and dementia increases the risk for falls, which are often the cause of EI. When EI and dementia are present together, they can increase their negative effect on long-term care risk. This study aims to assess the strength of this interaction and the role of different body regions and severities of EI regarding LTC risk.

METHODS: We use Cox proportional-hazard models on LTC as dependent variable. EI (primarily fractures) and dementia (all types) are the central independent variables. We control for age, sex, rehabilitation and 18 relevant comorbidities. Analyses are based on health claims records for 2004-2010 for a random sample of about 122.000 insureds of Germany's largest public health insurance "AOK" aged 65+, about 25.000 of whom entered LTC.

RESULTS: Without concurrent dementia, non-severe EI (NSEI) of the lower and both extremities and all kinds of severe EI (SEI) increase LTC risk (HR: hazard ratio with 95% confidence interval. Lower NSEI: HR = 1.09 [1.05-1.14]; both NSEI: HR = 1.36 [1.29-1.44]. Lower SEI: HR = 1.67 [1.57-1.79]; upper SEI: HR = 1.27 [1.19-1.37]; both SEI: HR = 1.94 [1.81-2.07]). Dementia alone increases LTC risk more than fourfold (HR = 4.23 [4.11-4.35]). Taking the interaction of EI and dementia into account, the concurrent presence of EI and dementia tends to increase the LTC risk more than expected for lower as well as upper NSEI and SEI. Summarily, when lower or upper EI and dementia are both present, the LTC risk tends to be higher than expected, suggesting synergistic effects.

CONCLUSIONS: EI and dementia are important independent risk factors for long-term care. When lower or upper EI and dementia are present together, the resulting long-term care risk is increased disproportionately. Since the concurrent presence of both conditions increases the risk for care need, and a working treatment for dementia is not in sight, preventing EI, lessening the impact of EI and improving the outlook after an EI could help to reduce LTC need in the coming decades.

PDF Y Endnote Y

Fall prevention services for older Aboriginal people: investigating availability and acceptability

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Public Health Res. Pract. 2016; 26(5): e2651659.

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DOI 10.17061/phrp2651659 **PMID** 27997938

Abstract

BACKGROUND: Falls and fall-related injury are emerging issues for older Aboriginal people. Despite this, it is unknown whether older Aboriginal people access available fall prevention programs, or whether these programs are effective or acceptable to this population.

OBJECTIVE: To investigate the use of available fall prevention services by older Aboriginal people and identify features that are likely to contribute to program acceptability for Aboriginal communities in New South Wales (NSW), Australia.

METHODS: A questionnaire was distributed to Aboriginal and mainstream health and community services across NSW to identify the fall prevention and healthy ageing programs currently used by older Aboriginal people. Services with experience in providing fall prevention interventions for Aboriginal communities, and key Aboriginal health services that delivered programs specifically for

older Aboriginal people, were followed up and staff members were nominated from within each service to be interviewed. Service providers offered their suggestions as to how a fall prevention program could be designed and delivered to meet the health and social needs of their older Aboriginal clients.

RESULTS: Of the 131 services that completed the questionnaire, four services (3%) had past experience in providing a mainstream fall prevention program to Aboriginal people; however, there were no programs being offered at the time of data collection. From these four services, and from a further five key Aboriginal health services, 10 staff members experienced in working with older Aboriginal people were interviewed. Barriers preventing services from offering appropriate fall prevention programs to their older Aboriginal clients were identified, including limited funding, a lack of available Aboriginal staff, and communication difficulties between health services and sectors. According to the service providers, an effective and acceptable fall prevention intervention would be evidence based, flexible, community-oriented and social, held in a familiar and culturally safe location and delivered free of cost.

CONCLUSION: This study identified a gap in the availability of acceptable fall prevention programs designed for, and delivered to, older Aboriginal people in NSW. Further consultation with older Aboriginal people is necessary to determine how an appropriate and effective program can be designed and delivered. **Terminology:** The authors recognise the two distinctive Indigenous populations of Australia: Aboriginal and Torres Strait Islander people. Because the vast majority of the NSW Aboriginal and Torres Strait Islander population is Aboriginal (95.4%)¹, this population will be referred to as 'Aboriginal' in this manuscript.

PDF Y Endnote Y

Fracture in the Elderly Multidisciplinary Rehabilitation (FEMuR): study protocol for a phase II randomised feasibility study of a multidisciplinary rehabilitation package following hip fracture [ISRCTN22464643]

Williams NH, Hawkes C, Din NU, Roberts JL, Charles JM, Morrison VL, Hoare Z, Edwards RT, Andrew G, Alexander S, Lemmey AB, Woods B, Sackley C, Logan P, Hunnisett D, Mawdesley K, Wilkinson C. *Pilot Feasibility Stud.* 2015; 1: e13.

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(Copyright © 2015, BioMed Central)

DOI 10.1186/s40814-015-0008-0 **PMID** 27965792 **PMCID** PMC5154127

Abstract

BACKGROUND: Proximal femoral fracture is a common, major health problem in old age resulting in loss of functional independence and a high-cost burden on society, with estimated health and social care costs of £2.3 billion per year in the UK. Rehabilitation has the potential to maximise functional recovery and maintain independent living, but evidence of effectiveness is lacking. Usual rehabilitation care is delivered by a multi-disciplinary team in the hospital and in the community. An 'enhanced rehabilitation' intervention has been developed consisting of a workbook, goal-setting diary and extra therapy sessions, designed to improve self-efficacy and increase the amount and quality of the practice of physical exercise and activities of daily living.

METHODS/DESIGN: This paper describes the design of a phase II study comprising an anonymous cohort of all proximal femoral fracture patients admitted to the three acute hospitals in Betsi Cadwaladr University Health Board over a 6-month period with a randomised feasibility study comparing the enhanced rehabilitation intervention with usual care. These will assess the feasibility

of a future definitive randomised controlled trial and concurrent economic evaluation in terms of recruitment, retention, outcome measure completion, compliance with the intervention and fidelity of delivery, health service use data, willingness to be randomised and effect size for a future sample size calculation. Focus groups will provide qualitative data to contribute to the assessment of the acceptability of the intervention amongst patients, carers and rehabilitation professionals and the feasibility of delivering the planned intervention. The primary outcome measure is function assessed by the Barthel Index. Secondary outcomes measure the ability to perform activities of daily living, anxiety and depression, potential mediators of outcomes such as hip pain, self-efficacy and fear of falling, health utility, health service use, objectively assessed physical function and adverse events. Participants' preference for rehabilitation services will be assessed in a discrete choice experiment. DISCUSSION: Phase II studies are an opportunity to not only assess the feasibility of trial methods but also to compare different methods of outcome measurement and novel methods of obtaining health service use data from routinely collected patient information. TRIAL REGISTRATION: Current Controlled Trials ISRCTN22464643, UKCRN16677.

PDF Y Endnote Y

Home-based tai chi chuan may reduce fall rate compared to lower extremity exercise training in older adults with history of falls

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Abstract [Abstract unavailable]

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Long-term home and community-based exercise programs improve function in community-dwelling older people with cognitive impairment: a systematic review

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J. Physiother. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Australian Physiotherapy Association)

DOI 10.1016/j.jphys.2016.11.005 **PMID** 27993488

Abstract

QUESTION: Do long-term (> 3 months) home or community-based exercise programs improve function, reduce falls and prevent hospital readmissions in older people with cognitive impairment?
DESIGN: Systematic review and meta-analysis of randomised, controlled trials. Electronic databases (CINAHL, PubMed, Medline, Embase, AMED) were searched from the earliest date possible until March 2016.

PARTICIPANTS: Older adults (≥ 65 years) with cognitive impairment living in the community.

INTERVENTION: Supervised home or community-based exercise programs longer than 3 months.

OUTCOME MEASURES: The primary outcomes were function (including balance and activities of daily living), falls and hospital readmissions.

RESULTS: Of 1011 studies identified, seven trials with 945 participants met the inclusion criteria. Compared with no intervention, long-term exercise programs improved functional independence in basic activities of daily living by a moderate and significant amount (SMD 0.77, 95% CI 0.17 to 1.37,

I(2)=67%), and improved functional independence in instrumental activities of daily living by a small and significant amount (SMD 0.44, 95% CI 0.03 to 0.86, I(2)=42%). Long-term exercise improved balance (mean difference in functional reach test 5.2cm, 95% CI 0.5 to 9.9, I(2)=76%). Data from two individual trials suggest that long-term exercise programs also reduce falls in older people with cognitive impairment. However, there was limited reporting of the effect of exercise on hospital readmissions for this group of people.

CONCLUSIONS: Long-term home and community-based exercise programs improve function in older adults living in the community with cognitive impairment. Review registration: PROSPERO CRD42015029602. [Lewis M, Peiris CL, Shields N (2016) Long-term home and community-based exercise programs improve function in community-dwelling older people with cognitive impairment: a systematic review. *Journal of Physiotherapy* XX: XX-XX]].

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PDF Y Endnote Y

Measuring the implementation of a group-based Lifestyle-integrated Functional Exercise (Mi-LiFE) intervention delivered in primary care for older adults aged 75 years or older: a pilot feasibility study protocol

Gibbs JC, McArthur C, Milligan J, Clemson L, Lee L, Boscart VM, Heckman G, Rojas-Fernandez C, Stolee P, Giangregorio LM.

Pilot Feasibility Stud. 2015; 1: e20.

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Abstract

BACKGROUND: Declines in function and quality of life, and an increased risk of cardiovascular events, falls, and fractures occur with aging and may be amenable to exercise intervention. Primary care is an ideal setting for identifying older adults in need of exercise intervention. However, a cost-effective, generalizable model of chronic disease management using exercise in a real-world setting remains elusive. Our objective is to measure the feasibility, potential effectiveness, and implementation of an evidence-based Lifestyle-integrated Functional strength and balance Exercise (LiFE) intervention adapted as a group-based format (Mi-LiFE) for primary care to promote increased physical activity levels in older adults aged 75 years or older. We hypothesize that the intervention will be feasible without modification if ≥ 30 individuals are recruited over 6 months, $\geq 75\%$ of our sample is retained, and $\geq 50\%$ of our sample complete exercises ≥ 3 days per week.

METHODS/DESIGN: A pre-post pilot study design will be used to evaluate feasibility, potential effectiveness, and implementation outcomes over a 6-month period in physically inactive older adults ≥ 75 years recruited from a local family health team practice. The reach, effectiveness, adoption, implementation, and maintenance (RE-AIM) framework will be applied to evaluate the public health effects of the intervention including outcomes both at the individual and organizational levels. A physical therapist will teach participants how to integrate strength and balance activities into their daily lives over one individual and four group-based sessions, and two phone calls. Assessments will be completed at baseline and 6 months. Feasibility outcomes include recruitment over 6 months, retention at follow-up, and adherence measured by activity diaries. Change in

patient-centered and implementation outcomes that will be evaluated include physical activity levels using accelerometers and International Physical Activity Questionnaire, physical performance using short physical performance battery, quality of life using EQ5D questionnaire, falls and harms using daily calendar diaries and self-report, fidelity using descriptive feedback, barriers and facilitators to implementation using thematic content analysis, and process outcomes.

DISCUSSION: The feasibility and implementation of the Mi-LiFE intervention in primary care for older adults will be evaluated, as well as the effects of the intervention on secondary outcomes. If the intervention appears feasible, we will use the resultant information to design a larger trial. TRIAL REGISTRATION: ClinicalTrials.gov: NCT02266225.

PDF Y Endnote Y

Men's perspectives on fall risk and fall prevention following participation in a group-based programme conducted at Men's Sheds, Australia

Liddle JL, Lovarini M, Clemson LM, Jang H, Willis K, Lord SR, Sherrington C. Health Soc. Care Community 2016; ePub(ePub): ePub.

Affiliation: The George Institute for Global Health, The University of Sydney, Sydney, New South Wales, Australia.

(Copyright © 2016, John Wiley and Sons)

DOI 10.1111/hsc.12412 **PMID** 27976426

Abstract

Research on older men's views regarding fall prevention is limited. The purpose of this qualitative study was to explore the experiences and perspectives of older men regarding fall risk and prevention so that fall prevention programmes can better engage older men. Eleven men who had taken part in a group-based fall prevention programme called Stepping On conducted at Men's Sheds in Sydney, Australia, participated in semi-structured interviews during June and July 2015 which were audio-recorded and transcribed. Data were coded and analysed using constant comparative methods. Over-arching theoretical categories were developed into a conceptual framework linking programme context and content with effects of programme participation on men. Men's Sheds facilitated participation in the programme by being inclusive, male-friendly places, where Stepping On was programmed into regular activities and was conducted in an enjoyable, supportive atmosphere. Programme content challenged participants to think differently about themselves and their personal fall risk, and provided practical options to address fall risk. Two major themes were identified: adjusting the mindset where men adopted a more cautious mindset paying greater attention to potential fall risks, being careful, concentrating and slowing down; and changing the ways where men acted purposefully on environmental hazards at home and incorporated fall prevention exercises into their routine schedules. Practitioners can engage and support older men to address falls by better understanding men's perspectives on personal fall risk and motivations for action.

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PDF Y Endnote Y

Near-falls in elderly community-dwelling blacks from two out-patient clinics in Harlem

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Nurs. Res. 2017; 66(1): 49-53.

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DOI 10.1097/NNR.000000000000195 **PMID** 27977567

Abstract

BACKGROUND: Near-falls are a frequent, but not commonly studied, occurrence in the elderly Black population and may be related to prospective falls.

OBJECTIVES: The purpose of this paper is to examine the relationship of near-falls to demographic characteristics, use of assistive devices, gait, and physical activity levels in elderly Blacks.

METHODS: Community-dwelling, elderly Black patients aging 65 and older and attending two clinics of the Mount Sinai Hospital in Harlem in New York City were recruited. The number of near-falls during the past year was self-reported using the Elderly Falls Screening Test. The Rapid Assessment of Physical Activity was used to assess aerobic and anaerobic activity levels. Backward stepwise logistic regression was used to identify predictors of near-falls.

RESULTS: A total of 120 elderly Black adults took part in the study. Prevalence of occasional or frequent near-falls was 52.5%. In the final trimmed model, time of the 5-m observed walk (OR = 1.41, $p = .001$) and being male (OR = 3.68, $p = .02$) were significant predictors of near-fall experiences.

DISCUSSION: Future research needs to be done in elderly Black populations to determine what factors may contribute to men experiencing more near-falls and on the relation between near-falls and falls.

PDF Endnote Y

Older adults, falls, and skin integrity

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Adv. Skin Wound Care 2017; 30(1): 40-46.

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(Copyright © 2017, Lippincott Williams and Wilkins)

DOI 10.1097/01.ASW.0000508713.25077.d6 **PMID** 27984273

Abstract

GENERAL PURPOSE: To provide an overview of the assessment and management of risk factors for falls in older adults.

TARGET AUDIENCE: This continuing education activity is intended for physicians, physician assistants, nurse practitioners, and nurses with an interest in skin and wound care.

LEARNING OBJECTIVES/OUTCOMES: After participating in this educational activity, the participant should be better able to: 1. Outline the components of an evidence-based falls assessment and identify risk factors for falls. 2. Specify strategies to reduce falls in older adults, especially as related to maintaining skin integrity.

ABSTRACT: Older adult patients may present to skin and wound care clinicians with skin injuries as a result of falls. In addition, chronic wounds associated with the patient's conditions may also increase his/her falls risk. Hence, appropriate assessment and management of the risk of falls in older adult patients are key elements of patient-centered care.

PDF N Endnote Y

Physical activity can successfully be promoted to older adults within a primary care setting by trained nurses

Nanette M, Baker G.

Evid. Based Nurs. 2017; 20(1): 22.

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(Copyright © 2017, BMJ Publishing Group)

DOI 10.1136/eb-2016-102358 **PMID** 27974403

Abstract [Abstract unavailable]

PDF Y Endnote Y

Polypharmacy in older adults: Association Rule and Frequent-Set Analysis to evaluate concomitant medication use

Held F, Couteur DG, Blyth FM, Hirani V, Naganathan V, Waite LM, Seibel MJ, Handelsman DJ, Cumming RG, Allore HG, Gnjidic D.

Pharmacol. Res. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Elsevier Publishing)

DOI 10.1016/j.phrs.2016.12.018 **PMID** 27988385

Abstract

The aim of this study was to apply Association Rule and Frequent-Set analysis, and novel means of data visualisation to ascertain patterns of medication use and medication combinations contributing to medication group clusters according to geriatric syndrome status in older adults. Participants were community-dwelling men (aged ≥ 70 years, $n=1,686$), Sydney, Australia. Medication exposure was categorised at medication class level and data were analysed according to geriatric syndrome status (presence of at least one syndrome including frailty, falls, cognitive impairment and urinary incontinence). Association Rule and Frequent-Set analysis was performed to identify "interesting" patterns of medication combinations that occur together. This analysis involves advanced computer algorithms that investigated all possible combinations of medications in the dataset in order to identify those which are observed more or much less frequently than expected. Frequent-Set Analysis demonstrated one unexpected medication combination, antiulcer and antidiabetic medications (3.5% of participants) in the overall population ($n=1687$). Frequency of medication combinations was similar in participants with ($n=666$) and without ($n=1020$) geriatric syndromes. Among participants with geriatric syndromes, the most frequent combinations included antigout with lipid-lowering agents (5.7%) followed by angiotensin II and diuretics combination (22%). This novel methodology can be used to detect common medication combinations overall by data visualisation, and against specific adverse drug reactions such as geriatric syndromes. This methodology may be a valuable pharmacovigilance approach to monitor large databases for the safety of medications.

PDF Y Endnote Y

Quantification of upper body movements during gait in older adults and in those with Parkinson's disease: impact of acceleration realignment methodologies

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Gait Posture 2016; 52: 265-271.

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(Copyright © 2016, Elsevier Publishing)

DOI 10.1016/j.gaitpost.2016.11.047 **PMID** 27992850

Abstract

The upper body accelerations of people with Parkinson's disease (PD) measured by inertial measurement units (IMUs) may contribute towards diagnostic algorithms and help track disease progression. Before extracting variables related to upper body motion, acceleration signals require realignment to a global reference; however, the impact of these techniques on the resulting upper body variables is unclear. Therefore, the aim of this investigation was to examine the impact of four different realignment methods designed to correct acceleration signals on a range of upper body variables in older adults and in patients with PD. Two minutes of continuous gait were measured in 54 community-dwelling older adults (71.1±6.7 years) and 60 people with PD (age: 68.5±9.1 years). Three IMUs placed on the 5th lumbar vertebra, 7th cervical vertebra and the back of the head recorded the acceleration of the upper body. A selection of upper body variables sensitive to impaired upper body control in PD and four acceleration realignment methods were compared. A mixed-model ANOVA showed that the choice of realignment method significantly affected the values of upper body variables as well as their ability to discriminate between the PD and control group. Our findings indicate researchers and clinicians should be cautious when comparing upper body variables extracted from IMUs using different realignment methods, and consideration of realignment technique will be important when identifying the most sensitive markers of disease presence and progression. Therefore, it's strongly recommend that researchers consider and report their realignment methods when assessing upper body variables during gait.

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PDF Y Endnote Y

Rebalancing health service use for older people: simulating policy-relevant scenarios under demographic ageing

Lay-Yee R, Pearson J, von Randow M, Kerse N, Brown L.

N. Zeal. Med. J. 2016; 129(1442): 25-35.

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(Copyright © 2016, New Zealand Medical Association)

DOI unavailable **PMID** 27657156

Abstract

AIMS: The demographic ageing of New Zealand society has greatly increased the proportion of older people (aged 65 years and over), with major policy implications. We tested the effects on health service use of alterations to morbidity profile and the balance of care.

METHODS: We developed a microsimulation model using data from an official national health survey series to generate a synthetic replicate for scenario testing.

RESULTS: Projections on current settings from 2001 to 2021 showed increases in morbidity-long-term illness (2%)-and in health service use-doctor visits (21%), public hospital admissions (16%). Scenarios with decreasing morbidity levels showed moderate reductions in health service use. By contrast, rebalancing towards the use of practice nurses showed a large decrease in public hospital admissions for people aged 85 years and over.

CONCLUSION: Demographic ageing may not have a major negative effect on system resources in New Zealand and other developed countries. Rebalancing between modalities of care may soften the impact of increasing health service use required by a larger older population.

PDF Y Endnote Y

Relationship between falls and complementary and alternative medicine use among community-dwelling older adults

Caron A, Gallo WT, Durbin LL, Mielenz TJ.

J. Altern. Complement. Med. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Mary Ann Liebert Publishers)

DOI 10.1089/acm.2016.0095 **PMID** 27967210

Abstract

OBJECTIVES: The objective of this study was to examine the potential relationship between different forms of complementary and alternative medicine (CAM) use and falls among older adults in New York City (NYC).

DESIGN: This cross-sectional study of data from the NYC Health Indicators Project survey used modified questionnaire items from several national surveys. **SETTINGS:** Participants were recruited from 56 senior centers located in the 5 boroughs of NYC. **PARTICIPANTS:** There were 1273 participants aged 60 years or older included in the final analysis. **OUTCOME MEASURES:** Of particular interest to the researchers was a dichotomous outcome variable for falls, indicating that an individual had experienced no falls during the past year or one or more falls. Also of interest in the analyses were five CAM therapy types: alternative medical systems, biologically based therapies, manipulative and body-based therapies, mind-body therapies, and movement therapies.

RESULTS: Prevalence of falls in NYC was 26.8%, which is consistent with the national average. Prevalence of CAM use was 92%. Participants who had tried manipulative and body-based therapies were more likely to report falling in the past 12 months (odds ratio, 1.65; 95% confidence interval, 1.26-2.15), after adjustment for age and sex. This observed association may reflect older adults with chronic pain who are already at risk for falling and are seeking therapy for this pain. None of the other CAM types were significantly associated with falls.

CONCLUSIONS: Because of the growing popularity of CAM use within this population, CAM practitioners should be included in falls prevention strategies. Particular attention should be taken to include practitioners who provide manipulative and body-based therapies (e.g., chiropractors, osteopaths, physical and massage therapists) because of the high risk for falls observed among individuals who use these therapies.

PDF Y Endnote Y

The theory of planned behavior and physical activity change: outcomes of the Aging Well and Healthily Intervention Program for Older Adults

Stolte E, Hopman-Rock M, Aartsen MJ, van Tilburg TG, Chorus A.

J. Aging Phys. Act. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Human Kinetics Publishers)

DOI 10.1123/japa.2016-0182 **PMID** 27992247

Abstract

The predictive value of the Theory of Planned Behavior (TPB) on intention and physical activity (PA) over time was examined. Data from the Aging Well and Healthily intervention program (targeting perceived behavioral control and attitude, not subjective norm) were analyzed, including pretest (T0), posttest (T1, except subjective norm) and 4-6 months follow-up (T2, PA outcomes only) (N = 387, M age 72 yrs). Structural equation modelling was used to test a TPB model. PA was measured subjectively using the Voorrips sports subscale (T0 and T2), items measuring perceived increase in PA (T1), and adherence to exercises (T1 and T2). Model fit was good. TPB explained variation in intention well (R² 0.54 to 0.60) and some of PA behavior (R² 0.13 to 0.16). The intervention successfully got participants to exercise independent of the measured TPB concepts. More TPB studies in the context of interventions are needed.

PDF Y Endnote Y

Traditional Chinese mind and body exercises for promoting balance ability of old adults: a systematic review and meta-analysis

Chen S, Zhang Y, Wang YT, Liu XL.

Evid. Based Complement. Alternat. Med. 2016; 2016: e7137362.

Affiliation: Department of Traditional Sports, Beijing Sports University, Beijing, China.

(Copyright © 2016, Hindawi Publishing)

DOI 10.1155/2016/7137362 **PMID** 27990168 **PMCID** PMC5136631

Abstract

The purpose of this study was to provide a quantitative evaluation of the effectiveness of traditional Chinese mind and body exercises in promoting balance ability for old adults. The eligible studies were extensively searched from electronic databases (Medline, CINAHL, SportDiscus, and Web of Science) until 10 May 2016. Reference lists of relevant publications were screened for future hits. The trials used randomized controlled approaches to compare the effects of traditional Chinese mind and body exercise (TCMBE) on balance ability of old adults that were included. The synthesized results of Berg Balance Scale (BBS), Timed Up and Go Test (TUG), and static balance with 95% confidence intervals were counted under a random-effects model. Ten studies were selected based on the inclusion criteria, and a total of 1,798 participants were involved in this review. The results of the meta-analysis showed that TCMBE had no significant improvement on BBS and TUG, but the BBS and TUG could be obviously improved by prolonging the intervention time. In addition, the results showed that TCMBE could significantly improve the static balance compared to control group. In conclusion, old adults who practiced TCMBE with the time not less than 150 minutes per week for more than 15 weeks could promote the balance ability.

PDF Y Endnote Y

Unintentional injuries among psychiatric outpatients with major depressive disorder

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PLoS One 2016; 11(12): e0168202.

Affiliation: Department of Nursing, Chang Gung Institute of Technology, Tao-Yuan, Taiwan.

(Copyright © 2016, Public Library of Science)

DOI 10.1371/journal.pone.0168202 **PMID** 27992483

Abstract

BACKGROUND: No study has investigated the percentages of and factors related to unintentional injuries among psychiatric outpatients with major depressive disorder (MDD). This study aimed to investigate these issues.

METHODS: One-hundred and forty-one outpatients with MDD at baseline were enrolled from psychiatric outpatients by systematic sampling, and 119 subjects attended a one-year follow-up. Self-reported unintentional injuries in the past one year were recorded. Psychiatric disorders were diagnosed using the Structured Clinical Interview for DSM-IV-TR. The severity of depression was evaluated by the Hamilton Depression Rating Scale. Other data, including body weight and height, cigarette smoking, headaches, and medications, were collected. Generalized Estimating Equations were used to investigate independent factors related to unintentional injuries.

RESULTS: At baseline and follow-up, 40.4% and 27.7% of subjects had experienced at least one unintentional injury in the past one year, respectively. About half of subjects with unintentional injuries needed medical treatment for injuries and had functional impairment due to injuries. A greater severity of depression, cigarette smoking, a higher body mass index, and an older age were independent risk factors related to unintentional injuries.

CONCLUSION: Unintentional injuries that increased the medical burden and functional impairment were common among outpatients with MDD and should not be neglected. Treatment of depression, control of body weight, and quitting cigarettes might be helpful to prevent unintentional injuries.

PDF Y Endnote Y

Wearable sensor-based biofeedback training for balance and gait in Parkinson's disease: a pilot randomized controlled trial

Carpinella I, Cattaneo D, Bonora G, Bowman T, Martina L, Montesano A, Ferrarin M.

Arch. Phys. Med. Rehabil. 2016; ePub(ePub): ePub.

Affiliation: Biomedical Technology Department, Don Carlo Gnocchi Foundation, Milan, Italy.

(Copyright © 2016, Elsevier Publishing)

DOI 10.1016/j.apmr.2016.11.003 **PMID** 27965005

Abstract

OBJECTIVES: To analyze the feasibility and efficacy of a novel system (Gamepad) for biofeedback rehabilitation in Parkinson's Disease (PD). It is hypothesized that Gamepad-based training is feasible and provides larger improvements of balance and gait, compared to physiotherapy without biofeedback.

DESIGN: Randomized controlled trial.

SETTINGS: Clinical rehabilitation gym.

PARTICIPANTS: Forty-two PD subjects randomized into Experimental (EG) and Control Group (CG).

INTERVENTIONS: Both groups underwent a 20-session training for balance and gait. EG performed tailored functional tasks using Gamepad. The system, based on wearable inertial sensors, provided users with real-time visual and acoustic feedback about their movement during the exercises. CG

underwent individually structured physiotherapy without feedback. MAIN OUTCOME MEASURES: Assessments were performed by a blinded examiner pre-, post-intervention and at 1-month follow-up. Primary outcomes were Berg Balance Scale (BBS) and 10-meter Walk Test (10MWT). Secondary outcomes included instrumental stabilometric indexes and the Tele-healthcare Satisfaction Questionnaire.

RESULTS: Gamepad was well-accepted by participants. Statistically significant between-group differences in BBS suggested better balance performances of EG compared to CG both post-training [EG-CG mean (SD): 2.3 (3.4) points, $p=0.047$] and at follow-up [EG-CG: 2.7 (3.3) points, $p=0.018$]. Post-training stabilometric indexes showed that medio-lateral body sway during upright stance was significantly reduced in EG compared to CG [EG-CG: -1.6 (1.5) mm, $p=0.003$]. No significant between-group differences were found in the other outcomes.

CONCLUSIONS: Gamepad-based training was feasible and superior to physiotherapy without feedback in improving BBS performance and retaining it for one month. Following training, 10MWT data were comparable between groups. Further development of the system is warranted to allow the autonomous use of Gamepad outside clinical settings, enhance gait improvements, and increase transfer of training effects to real-life contexts.

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PDF Y Endnote Y

A cross-sectional analysis of the characteristics of individuals with Parkinson disease who avoid activities and participation due to fear of falling

Landers MR, Lopker M, Newman M, Gourlie R, Sorensen S, Vong R.

J. Neurol. Phys. Ther. 2017; 41(1): 31-42.

Affiliation: Prior presentation of these data in the abstract form: Landers MR, Lopker M, Newman M, Gourlie R, Sorensen S, Vong R. Characteristics of subjects who exhibit avoidance behavior due to a fear of falling in Parkinson's disease. In: The 2015 APTA Combined Sections Meeting; February 4-7, 2015; Indianapolis, Indiana.

(Copyright © 2017, Neurology Section, American Physical Therapy Association)

DOI 10.1097/NPT.000000000000162 **PMID** 27977519

Abstract

BACKGROUND AND PURPOSE: Avoidance behavior can have deleterious consequences on health and quality of life for persons with Parkinson disease (PD); for this reason, it is important to identify potentially mitigable characteristics. We compared the characteristics of individuals with PD who exhibit fear of falling (FOF) avoidance behavior with those who do not.

METHODS: Fifty-nine participants with PD were classified as avoiders ($n = 27$) or nonavoiders ($n = 32$) by using the Fear of Falling Avoidance Behavior Questionnaire and compared across 5 domains: demographic characteristics; PD-specific symptoms (subtype, Movement Disorder Society-Unified Parkinson's Disease Rating Scale [MDS-UPDRS], Hoehn and Yahr Scale, Parkinson's Disease Questionnaire-39 [PDQ-39]); balance and falls (fall history, Berg Balance Scale [BBS], Activities-Specific Balance Confidence [ABC] Scale, Impact of Events Scale, Consequences of Falling Questionnaire [CoFQ]); physical performance (30 Second Sit-to-Stand Test, Timed Up and Go Test, physical activity monitoring); and psychological factors (Zung Anxiety Scale, Beck Depression Inventory [BDI]).

RESULTS: There were no differences between avoiders and nonavoiders for demographic

characteristics and fall history ($P_s > 0.272$). Avoiders had worse MDS-UPDRS ($P_s < 0.014$) and PDQ-39 scores ($P_s < 0.028$). Avoiders had poorer balance performance (BBS, $P = 0.003$), lower balance confidence (ABC, $P < 0.001$), and more fall catastrophization (CoFQ, $P < 0.001$). Avoiders reported more depression ($P = 0.015$) and anxiety ($P = 0.028$).

DISCUSSION AND CONCLUSIONS: PD FOF avoiders had more involved symptoms and scored lower on balance and physical performance measures. In addition, they reported greater psychological stress. Several potentially mitigable characteristics of those with FOF avoidance behavior were identified. Video Abstract available for more insights from the authors (see Supplemental Digital Content 1, available at: <http://links.lww.com/JNPT/A153>).

PDF Y Endnote Y

Balance impairments in different subgroups of patients with migraine

Carvalho GF, Bonato P, Florencio LL, Pinheiro CF, Dach F, Bigal ME, Bevilaqua-Grossi D.

Headache 2016; ePub(ePub): ePub.

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(Copyright © 2016, American Headache Society; American Association for the Study of Headache, Publisher John Wiley and Sons)

DOI 10.1111/head.13009 PMID 27991667

Abstract

BACKGROUND: Patients with migraine often experience balance impairments. However, the relationship between clinical features - like aura and chronicity - and the severity of balance impairments is not well established. The objective of this study was to assess balance impairments in different subgroups of migraine patients.

METHOD: One hundred five subjects diagnosed according to the ICHD-III were recruited in the study. They were uniformly distributed among three groups: migraine with aura, migraine without aura, and chronic migraine. Thirty-five controls were also recruited in the study. Balance impairments were assessed in all subjects via the modified Sensory Organization test and the Limits of Stability test. The results in the four groups were compared using ANCOVA tests with age, BMI, presence of dizziness, level of physical activity, time of migraine onset, and medication intake as covariates.

RESULTS: Subjects in the migraine with aura and the chronic migraine groups showed poorer balance control than control subjects in three of the four conditions tested using the modified Sensory Organization test: FirmCE: CG: 1.5 cm(2), 95%CI 1.3 to 1.7; M: 2.1 cm(2), 95%CI 1.6 to 2.6; MA: 4.5 cm(2), 95%CI 3.2 to 5.8; CM: 4.5 cm(2), 95%CI 3.0 to 6.0; $P < .027$; FoamOE: CG: 5.1 cm(2), 95%CI 4.6 to 5.6; M: 5.6 cm(2), 95%CI 5.0 to 6.1; MA: 8.8 cm(2), 95%CI 7.3 to 10.2; CM: 8.8 cm(2), 95%CI 7.7 to 10.0; $P < .018$; FoamCE: CG: 14.8 cm(2), 95%CI 13.7 to 15.9 cm²; M: 17.3 cm(2), 95%CI 15.4 to 19.1; MA: 21.9 cm(2), 95%CI 19.1 to 24.7; CM: 22.4 cm(2), 95%CI 19.9 to 24.9; $P < .0001$. In the FoamOE and FoamCE conditions, both groups also showed poorer postural control than subjects in the migraine without aura group ($P < .01$). Differences between control subjects and subjects in all the migraine groups were found in the reaction time, movement velocity, endpoint excursion, and maximal excursion parameters ($P < .04$) in all the directions tested during the Limits of Stability test. None of the covariates appeared to affect the balance parameters ($P > .05$).

CONCLUSION: There is evidence of balance control impairments in subjects with all subtypes of migraine compared to control subjects. The presence of aura and frequent migraine attacks reflect

negatively in the postural control performance and may have a significant clinical impact in patients with migraine that should be addressed with appropriate clinical interventions.

PDF Y Endnote Y

Elderly fallers enhance dynamic stability through anticipatory postural adjustments during a choice stepping reaction time

Tisserand R, Robert T, Chabaud P, Bonnefoy M, Chèze L.

Front. Hum. Neurosci. 2016; 10: e613.

Affiliation: IFSTTAR, UMR_T9406, Laboratoire de Biomécanique et Mécanique des Chocs (LBMC), Université de Lyon, Université Claude Bernard Lyon 1 Lyon, France.

(Copyright © 2016, Frontiers Research Foundation)

DOI 10.3389/fnhum.2016.00613 **PMID** 27965561 **PMCID** PMC5126045

Abstract

In the case of disequilibrium, the capacity to step quickly is critical to avoid falling in elderly. This capacity can be simply assessed through the choice stepping reaction time test (CSRT), where elderly fallers (F) take longer to step than elderly non-fallers (NF). However, the reasons why elderly F elongate their stepping time remain unclear. The purpose of this study is to assess the characteristics of anticipated postural adjustments (APA) that elderly F develop in a stepping context and their consequences on the dynamic stability. Forty-four community-dwelling elderly subjects (20 F and 24 NF) performed a CSRT where kinematics and ground reaction forces were collected.

Variables were analyzed using two-way repeated measures ANOVAs.

RESULTS for F compared to NF showed that stepping time is elongated, due to a longer APA phase.

During APA, they seem to use two distinct balance strategies, depending on the axis: in the anteroposterior direction, we measured a smaller backward movement and slower peak velocity of the center of pressure (CoP); in the mediolateral direction, the CoP movement was similar in amplitude and peak velocity between groups but lasted longer. The biomechanical consequence of both strategies was an increased margin of stability (MoS) at foot-off, in the respective direction. By elongating their APA, elderly F use a safer balance strategy that prioritizes dynamic stability conditions instead of the objective of the task. Such a choice in balance strategy probably comes from muscular limitations and/or a higher fear of falling and paradoxically indicates an increased risk of fall.

PDF Y Endnote Y

Predicting first fall in newly diagnosed Parkinson's disease: insights from a fall-naïve cohort

Lord S, Galna B, Yarnall AJ, Coleman S, Burn D, Rochester L.

Mov. Disord. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Movement Disorders Society, Publisher John Wiley and Sons)

DOI 10.1002/mds.26742 **PMID** 27621153

Abstract

BACKGROUND: Falls are common and associated with reduced independence and mortality in Parkinson's disease. Previous research has been conducted on falls-prevalent or advanced disease cohorts.

OBJECTIVE: This study identifies risk factors for first fall for 36 months in a newly diagnosed, falls-naïve cohort.

METHODS: A total of 121 consecutive Parkinson's disease patients were recruited. Falls data were collected prospectively during 36 months from diagnosis via monthly falls diaries and telephone follow-up for 117 participants. Assessment comprised a comprehensive battery of clinical, gait, and cognitive measures. Significant predictors were identified from decision-tree analysis and survival analysis with time to first fall during 36 months as the dependent variable.

FINDINGS: At baseline, 26 (22%) participants reported retrospective falls. At 36 months, the remaining cohort (n = 91) comprised 47 fallers (52%) and 30 (33%) nonfallers and 14 (15%) participants with incomplete diaries. Fallers presented with a significantly higher disease severity, poorer ability to stand on one leg, slower gait speed, increased stance time variability, and higher swing time asymmetry. Median time to first fall was 847 days. Gait speed, stance time, and Hoehn & Yahr III stage emerged as significant predictors of first fall, hazard ratio 3.44 (95% confidence interval [CI] 1.58 to 7.48), 3.31(95% CI 1.40 to 5.65), and 1.97 (95% CI 1.40 to 7.80), respectively. The hazard ratio for risk factors combined was 7.8 (CI 2.79 to 21.8).

CONCLUSIONS: Interventions that target gait deficit and postural control in early Parkinson's disease may limit the potential for first fall. © 2016 International Parkinson and Movement Disorder Society. © 2016 International Parkinson and Movement Disorder Society.

PDF Y Endnote Y

Risk and prevention of fracture in patients with major medical illnesses: a mini-review

Cummings SR, Eastell R.

J. Bone Miner. Res. 2016; ePub(ePub): ePub.

Affiliation:Academic Unit of Bone Metabolism, University of Sheffield, Sheffield, UK.

(Copyright © 2016, American Society for Bone and Mineral Research)

DOI 10.1002/jbmr.3030 **PMID** 27813155

Abstract

Patients with several medical conditions, including Parkinson's disease, recent stroke, HIV, and heart failure, have a high risk of hip fracture. These patients will also have more severe consequences of a hip fracture, including a greater chance of dying and more prolonged disability. Together, there are nearly as many patients with medical conditions that substantially increase the risk of hip fracture as there are people with osteoporosis by femoral neck BMD. The contributions of falling and decreased bone mass to the increased risks with these conditions are not certain. Although there are few data about whether and what type of treatments these patients receive to prevent fracture, it is likely that few receive pharmacologic treatments that have been shown to reduce the risk of hip fracture. There is a need to show that drug treatments that strengthen bone also reduce fracture risk in patients whose risk may be due in greater part to traumatic falls than osteoporosis. Assuming that treatments are efficacious in these patients, there is a major opportunity to substantially reduce the incidence and consequences of hip fracture by reaching more of them with drug treatments to reduce the risk of hip fracture. This will require engagement of specialists who have little expertise and perhaps limited interest in preventing fractures, or new approaches to delivering drug treatments to prevent fracture directly to the patients at risk. This article is protected by copyright. All rights reserved.

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The effects of unstable surface balance training on postural sway, stability, functional ability and flexibility in women

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Abstract

BACKGROUND: This study examined the effects of balance training routine, using both sides utilized balance trainer (BOSU) and aerobic step (STEP) on postural sway and functional ability in middle-aged women.

METHODS: Twenty-seven females participated in the study, age 40.6 ± 12.0 years, body mass 72.0 ± 14.0 kg, height 164.0 ± 7.7 cm, BMI 26.5 ± 4.5 kg/m², and relative body fat $33.1 \pm 7.4\%$. Participants were divided into two groups and performed progressive exercise routine on either STEP or BOSU for three weeks. Pre- and post- test consisted of postural sway test performed on the Biodex Balance System, functional ability test, sit and reach test and plank.

RESULTS: A significant time effect was observed for both groups for sway index ($p = 0.029$) and center of pressure antero-posterior (AP) displacement ($p = 0.038$) but not for sway area or medio-lateral (ML) displacement ($p > 0.05$). In addition, BOSU group had significantly lower sway index ($p = 0.048$) and ML range ($p = 0.035$) scores when vision and surface was altered compared to STEP group. A significant time effect was observed in walking-up the stairs ($p = 0.020$), sit and reach test ($p = 0.035$), and plank ($p < 0.001$), but not for walking down the stairs. However, no other significant interactions were observed.

CONCLUSIONS: Programs that incorporate multisensory balance training have a potential to induce adaptive responses in neuromuscular system that enhances postural control, balance and functional ability of women. The training using BOSU may help improve static balance and functional ability in women.

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Use of equipment or assistance for getting around among persons aged ≥ 50 years - National Health Interview Survey, 2014-2015

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Abstract

In 2014-2015, 13.9% of persons aged ≥ 50 years used equipment or received assistance for getting around. Specifically, 9.6% of persons aged ≥ 50 years used a cane or walking stick, 5.8% used a walker or Zimmer frame, and 5.3% had assistance from another person. Wheelchairs or scooters were used by 3.5%, crutches by 0.7%, and artificial limbs by 0.6%.

<https://www.cdc.gov/mmwr/volumes/65/wr/mm6549a7.htm>

PDF (see link above) Endnote Y

Validation of the STRATIFY falls risk assessment tool in a Japanese acute care hospital setting

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Abstract

Patient falls are the most frequent adverse events that occur in a hospital. Prevention of inpatient falls is performed by a strategy to target patients at high risk for falls determined by a falls risk assessment system such as the STRATIFY tool. However, the performance of the STRATIFY tool in a Japanese hospital setting has not been determined. We tried to verify the performance of the STRATIFY tool for predicting falls in acutely hospitalized patients in Japan by a multi-center study. A total of 113,413 patients admitted to four acute care national university hospitals during the period from April 2010 to March 2012 were studied. Inpatient falls per 1,000 patient-days varied from 1.42 to 2.92 in the four hospitals. The STRATIFY score was calculated on the basis of data extracted electronically from the hospital information system. Although the distribution of STRATIFY scores differed significantly among the four hospitals, logistic regression analysis and survival analysis showed that the proportion of high-risk patients who fell was significantly larger than the proportion of low-risk patients in all of the four hospitals. The odds ratio and hazard ratio for high-risk patients versus low-risk patients were 2.5 to 4.3 (combined estimate, 3.9 (95% confidence interval (95% CI), 2.1 to 7.6) and 1.8 to 5.1 (combined estimate, 3.1 (95% CI, 2.1 to 4.6)), respectively. The results suggest that the STRATIFY tool can be used as a screening tool to detect patients at high risk for falls in a Japanese acute care setting as used commonly in other countries.

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