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A feasibility study to prevent falls in older people who are sight impaired: the VIP2UK randomised controlled trial

Waterman H, Ballinger C, Brundle C, Chastin S, Gage H, Harper R, Henson D, Laventure B, McEvoy L, Pilling M, Olleveant N, Skelton DA, Stanford P, Todd C.

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DOI 10.1186/s13063-016-1565-0 **PMID** 27671540

Abstract

BACKGROUND: Published evaluations of successful interventions to prevent falls in people with sight impairment (SI) are limited. The aim of this feasibility study is to optimise the design and investigation of home safety (HS) and home exercise (HE) programmes to prevent falls in older people with SI.

METHODS: A community-based feasibility study in north-west England comprising a three-arm randomised controlled trial (RCT) allocated participants to (1) a control group receiving usual care and social visits, (2) an experimental group receiving the HS programme and (3) an experimental group receiving the HS + HE programme. Participants were community-dwelling, aged 65 years and older and sight impaired. Primary outcome data on falls were collected continuously over 6 months. Secondary outcomes on physical activity (self-report and instrumented) and adherence were collected at baseline and 3 and 6 months for HE and at 6 months for the HS programme. Costs for the HS and HS + HE groups were calculated from logs of time spent on home visits, telephone calls and travel. The research assistant and statistician were blinded to group allocation.

RESULTS: Altogether, 49 people were recruited over a 9-month period (randomised: 16 to control, 16 to HS, 17 to HS + HE). The interventions were implemented over 6 months by an occupational therapist at a cost per person (pounds sterling, 2011) of £249 (HS) and £674 (HS + HE). Eighty-eight percent (43/49) completed the trial and 6-month follow-up. At 6-month follow-up, 100 % reported partially or completely adhering to HS recommendations but evidence for adherence to HE was equivocal. Although self-reported physical activity increased, instrumented monitoring showed a decrease in walking activity. There were no statistically significant differences in falls between the groups; however, the study was not powered to detect a difference.

CONCLUSION: It is feasible and acceptable for an occupational therapist to deliver HS and HE falls prevention programmes to people with SI living independently in the community. Future studies could access Local Authority Registers of people with SI to improve recruitment rates. Further research is required to identify how to improve adherence to HE and to measure changes in physical activity before conducting a definitive RCT. **TRIAL REGISTRATION:** ISRCTN53433311, registered on 8 May 2014.

PDF Y Endnote Y

A novel approach to proactive primary care-based case finding and multidisciplinary management of falls, syncope, and dizziness in a one-stop service: preliminary results

Parry SW, Hill H, Lawson J, Lawson N, Green D, Trundle H, McNaught J, Strassheim V, Caldwell A, Mayland R, Earley P, McMeekin P.

J. Am. Geriatr. Soc. 2016; ePub(ePub): ePub.

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Abstract

National and international evidence and guidelines on falls prevention and management in community-dwelling elderly adults recommend that falls services should be multifactorial and their interventions multicomponent. The way that individuals are identified as having had or being at risk of falls in order to take advantage of such services is far less clear. A novel multidisciplinary, multifactorial falls, syncope, and dizziness service model was designed with enhanced case ascertainment through proactive, primary care-based screening (of individual case notes of individuals aged ≥ 60) for individual fall risk factors. The service model identified 4,039 individuals, of whom 2,232 had significant gait and balance abnormalities according to senior physiotherapist assessment. Significant numbers of individuals with new diagnoses ranging from cognitive impairment to Parkinson's disease to urgent indications for a pacemaker were discovered. More than 600 individuals were found who were at high risk of osteoporosis according to World Health Association Fracture Risk Assessment Tool score, 179 with benign positional paroxysmal vertigo and 50 with atrial fibrillation. Through such screening and this approach, Comprehensive Geriatric Assessment Plus (Plus falls, syncope and dizziness expertise), unmet need was targeted on a scale far outside the numbers seen in clinical trials. Further work is needed to determine whether this approach translates into fewer falls and decreases in syncope and dizziness.

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PDF Y Endnote Y

Adoption of evidence-based fall prevention practices in primary care for older adults with a history of falls

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Front. Public Health 2016; 4: e190.

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Abstract

A multifactorial approach to assess and manage modifiable risk factors is recommended for older adults with a history of falls. Limited research suggests that this approach does not routinely occur in clinical practice, but most related studies are based on provider self-report, with the last chart audit of United States practice published over a decade ago. We conducted a retrospective chart review to assess the extent to which patients aged 65+ years with a history of repeated falls or fall-related health-care use received multifactorial risk assessment and interventions. The setting was an academic primary care clinic in the Pacific Northwest. Among the 116 patients meeting our inclusion criteria, 48% had some type of documented assessment. Their mean age was 79 ± 8 years; 68% were female, and 10% were non-white. They averaged six primary care visits over a 12-month period subsequent to their index fall. Frequency of assessment of fall-risk factors varied from 24% (for home safety) to 78% (for vitamin D). An evidence-based intervention was recommended for identified risk factors 73% of the time, on average. Two risk factors were addressed infrequently: medications (21%) and home safety (24%). Use of a structured visit note template independently predicted assessment of fall-risk factors ($p = 0.003$). Geriatrics specialists were more likely to use a structured note template ($p = 0.04$) and perform more fall-risk factor assessments (4.6 vs. 3.6,

$p = 0.007$) than general internists. These results suggest opportunities for improving multifactorial fall-risk assessment and management of older adults at high fall risk in primary care. A structured visit note template facilitates assessment. Given that high-risk medications have been found to be independent risk factors for falls, increasing attention to medications should become a key focus of both public health educational efforts and fall prevention in primary care practice.

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Assessing knowledge, motivation and perceptions about falls prevention among care staff in a residential aged care setting

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(Copyright © 2016, Elsevier Publishing)

DOI 10.1016/j.gerinurse.2016.06.019 **PMID** 27666465

Abstract

Falls are a serious problem in residential aged care settings. The aims of the study were to determine the feasibility of surveying care staff regarding falls prevention, and describe care staff levels of knowledge and awareness of residents' risk of falls, knowledge about falls prevention, motivation and confidence to implement falls prevention strategies. A custom designed questionnaire was administered to care staff at one site of a large residential aged care organization in Australia. The survey response was 58.8%. Feedback from staff was used to inform the administration of the survey to the wider organization. Seven (29.2%) care staff reported they were unsure or thought residents were at low risk of falls. Only five (20.8%) care staff were able to suggest more than three preventive strategies. These preliminary findings suggest that education to change care staff behavior regarding falls prevention should target improving care staff knowledge and awareness of falls.

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Delirium and mental health history as predictors of aggression in individuals with dementia in inpatient settings

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(Copyright © 2016, Informa - Taylor and Francis Group)

DOI 10.1080/13607863.2016.1235680 **PMID** 27676119

Abstract

OBJECTIVES: Aggressive behaviors by patients with dementia present risk to health care workers and patients. An information processing model, developed to study aggressive behaviors among children, was applied to study aggression among older hospital patients with dementia. Hypotheses were that delirium and mental health or depression history, would relate to increased risk of aggressive behaviors.

METHOD: Electronic medical records were sampled for one year ($n = 5008$) and screened using the EMERSE search engine and hand review for dementia ($n = 505$) and aggressive behavior in

individuals with dementia (n = 121). Records were reviewed for mental health history and presence of delirium.

RESULTS: Regression analyses found interaction effects representing delirium and mental health or depression history associated with greater risk of aggressive behavior. Significant main effects were found for both dementia and mental health or depression history. Of the lowest risk group, 12% of patients exhibited aggression compared to 24%-35% of those with delirium, mental health or depression history, or the combination of these risk factors.

CONCLUSION: Delirium is the leading correlate of aggressive behaviors in hospitalized patients with dementia, and delirium or history of mental health diagnosis may lead to increased risk of aggressive behaviors in this setting.

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Effects of a functional training and calf stretching on risk for falls in older people - a pilot study

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DOI 10.1123/japa.2015-0316 **PMID** 27684891

Abstract

This study aimed to determine the effects of a functional training and ankle stretching program in triceps surae torque, passive stiffness index and in risk for fall indicators in older adults. Twenty women (73.4 ± 7.3 years) were allocated into intervention or control group. The 12-week intervention consisted of functional training and calf stretching exercises performed twice a week. Measurements of peak passive and active torque, passive stiffness, maximum dorsiflexion angle and indexes of risk for fall (Timed Up and go, Functional reach test e QuickScreen-test) were collected. There were no significant differences for all variables, except the maximum dorsiflexion angle, which increased in the intervention group from $33.78 \pm 8.57^\circ$ to $38.89 \pm 7.52^\circ$. The exercise program was not sufficient to enhance performance on functional tests and decrease the risk for falls of older adults. The significant increase in the maximum dorsiflexion indicates a positive impact of stretching exercises.

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Falls and fall prevention in older adults with early-stage dementia: an integrative review

Lach HW, Harrison BE, Phongphanngam S.

Res. Gerontol. Nurs. 2016; ePub(ePub): epub.

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DOI 10.3928/19404921-20160908-01 **PMID** 27665756

Abstract

Older adults with mild cognitive impairment (MCI) and early-stage dementia have an increased risk of falling, with risks to their health and quality of life. The purpose of the current integrative review was to evaluate evidence on fall risk and fall prevention in this population. Studies were included if they examined falls or fall risk factors in older adults with MCI or early-stage dementia, or reported interventions in this population; 40 studies met criteria. Evidence supports the increased risk of falls in individuals even in the early stages of dementia or MCI, and changes in gait, balance, and fear of falling that may be related to this increased fall risk. Interventions included exercise and

multifactorial interventions that demonstrated some potential to reduce falls in this population. Few studies had strong designs to provide evidence for recommendations. Further study in this area is warranted.

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PDF Will get ILL Endnote Y

Falls and their associated risks in Parkinson's disease patients in Nigeria

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J. Mov. Disord. 2016; 9(3): 160-165.

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(Copyright © 2016, Korean Movement Disorders Society)

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Abstract

OBJECTIVE: Falls are a devastating consequence of Parkinson's disease (PD) and are due to motor imbalance. However, the frequency of falls and their risk factors among Nigerians with PD is not known despite the significant increase in PD cases in the country. To assess fall risk factors and frequency in Nigerian PD patients.

METHODS: Using an analytical design to compare falling versus non-falling patients, 81 PD patients were assessed for clinical factors, frequency of falls, and candidate risk factors for falls according to the Tinetti Balance and Gait, Unified Parkinson's Disease Rating Scale subsection 1, and Timed Up and Go Tests. Descriptive, bivariate, and multivariate analyses were performed at the 95% confidence level.

RESULTS: The mean age of participants was 65.6 ± 9.7 years. Falls were about three times ($p < 0.001$) more common in PD patients. Of the falling patients, 67.7% sustained injuries, 67.7% had recurrent falls and 44.9% admitted to having a fear of falling. The independent statistical predictors of fall were fear of falling [odds ratio (OR): 3.86], disease severity (OR: 1.09) and disease duration (OR: 1.01).

CONCLUSION: The frequency of falls in PD patients was significantly higher when compared with the healthy adult population, and the modifiable predictor was fear of falling with a potential to significantly reduce falls when strategically addressed.

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Gait analysis under dual-task conditions for identifying motor phenotypes in elderly patients with gait disorders

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Ann. Phys. Rehabil. Med. 2016; 59S: e99-e100.

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DOI 10.1016/j.rehab.2016.07.222 **PMID** 27677046

Abstract

OBJECTIVE: Gait disorders are associated with increased fall risk, dementia and loss of autonomy. Gait analysis has previously been validated in the identification of motor phenotypes in mild cognitive impairment [1]. We hypothesized that gait analysis under dual-task conditions in elderly

patients with gait disorders might allow the identification of motor phenotypes linked to specific brain abnormalities.

MATERIAL/PATIENTS AND METHODS: An observational study was instructed for elderly patients with gait disorders or memory impairment. Gait analysis under dual-task conditions was carried out for all patients (Locometrix®). Two main gait variables were measured: stride frequency, and stride regularity. For each gait variable, the dual task cost, which is related to cognitive reserve (DTC (%)) was calculated as follows: $[DTC \% = (\text{single-task gait value} - \text{dual task gait value}) / \text{single-task gait value} \times 100]$. Brain MRI was carried out in the absence of contra-indications. Semi-quantitative score for white matter hyper intensities (age-related white matter changes, ARWMC) and hippocampus atrophy (Scheltens) were identified.

RESULTS: One hundred and three patients (mean age 76.3 ± 7.2 , women 56%) were included. Four clinical subgroups were identified: gait instability (45%), recurrent falls (29%), memory impairment (18%), and cautious gait (8%). The quartile analysis of DTC for stride frequency and stride regularity allowed the identification of 3 motor phenotypes ($<0.01KW$), with no link to either sex or clinical subgroups, but characterized by different Scheltens scores ($P=0.05$). Twenty-six patients with a low value of DTC for stride frequency and a high value of DTC for Stride Regularity (Scheltens 2.6 ± 1.6). Forty-seven patients with the same value of DTC for both stride frequency and regularity (Scheltens 3.3 ± 1.6). 30 patients with a high value of DTC for stride frequency and a low value of DTC for stride regularity (Scheltens 4.0 ± 1.9).

DISCUSSION-CONCLUSION: The identification of different motor phenotypes in elderly patients with gait disorders can help the clinician with diagnoses and tailored cognitive-motor gait rehabilitation. Copyright © 2016. Published by Elsevier Masson SAS.

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Gait speed response to aerobic versus resistance exercise training in older adults

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DOI 10.1007/s40520-016-0632-4 **PMID** 27682435

Abstract

BACKGROUND: Little is known about the comparative effect of aerobic training (AT) versus resistance training (RT) on gait speed, a strong predictor of disability. **AIMS:** To compare the effect of AT versus RT on gait speed and other functional measures.

METHODS: Overweight and obese [body mass index (BMI) $\geq 27.0 \text{ kg/m}^2$] sedentary men and women aged 65-79 years engaged in 5 months of either 4 days/weeks moderate-intensity treadmill walking, AT, (n = 44) or 3 days/weeks moderate-intensity RT (n = 56). Usual-pace gait speed, fast-pace gait speed and short physical performance battery (SPPB) were evaluated in all participants before and after training. Peak oxygen consumption ($VO_{2\text{peak}}$) was assessed in AT participants only, and knee extensor strength was assessed in RT participants.

RESULTS: Both AT and RT resulted in clinically significant improvements in usual-pace gait speed (0.08 ± 0.14 and $0.08 \pm 0.17 \text{ m/s}$, respectively, both $p < 0.05$) and SPPB (0.53 ± 1.40 and 0.53 ± 1.20 points, both $p < 0.05$) and chair rise time (-1.2 ± 3.2 and $-1.7 \pm 3.0 \text{ s}$, $p < 0.05$). Only AT improved fast-

pace gait speed (0.11 ± 0.10 m/s, $p < 0.05$). In the RT participants, lower baseline knee strength was associated with less improvement in usual-pace gait speed. In AT participants, lower baseline VO_{2peak} was associated with less improvement in chair rise time and self-reported disability.

DISCUSSION: While both AT and RT improved usual-pace gait speed, only AT improved fast-pace gait speed. Lower baseline fitness was associated with less improvement with training.

CONCLUSION: Research to directly compare which mode of training elicits the maximum improvement in older individuals with specific functional deficits could lead to better intervention targeting.

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GIS-measured walkability, transit, and recreation environments in relation to older Adults' physical activity: a latent profile analysis

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(Copyright © 2016, Elsevier Publishing)

DOI 10.1016/j.jpmed.2016.09.019 **PMID** 27663428

Abstract

An infrequently studied question is how diverse combinations of built environment (BE) features relate to physical activity (PA) for older adults. We derived patterns of Geographical Information Systems- (GIS) measured BE features and explored how they accounted for differences in objective and self-reported PA, sedentary time, and BMI in a sample of older adults. Senior Neighborhood Quality of Life Study participants (N=714, aged 66-97years, 52.1% women, 29.7% racial/ethnic minority) were sampled in 2005-2008 from the Seattle-King County, WA and Baltimore, MD-Washington, DC regions. Participants' home addresses were geocoded, and net residential density, land use mix, retail floor area ratio, intersection density, public transit density, and public park and private recreation facility density measures for 1-km network buffers were derived. Latent profile analyses (LPAs) were estimated from these GIS-based measures. In multilevel regression models, profiles were compared on accelerometer-measured moderate-to-vigorous PA (MVPA) and sedentary time and self-reported PA, adjusting for covariates and clustering. Analyses were conducted in 2014-2015. LPAs yielded three profiles: low walkability/transit/recreation (L-L-L); mean walkability/transit/recreation (M-M-M); and high walkability/transit/recreation (H-H-H). Three PA outcomes were more favorable in the HHH than the LLL profile group (difference of 7.2min/day for MVPA, 97.8min/week for walking for errands, and 79.2min/week for walking for exercise; all $ps < 0.02$). The most and least activity-supportive BE profiles showed greater differences in older adults' PA than did groupings based solely on a 4-component walkability index, suggesting that diverse BE features are important for healthy aging.

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Home-based exercise supported by general practitioner practices: ineffective in a sample of chronically ill, mobility-limited older adults (the HOMEfit randomized controlled trial)

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J. Am. Geriatr. Soc. 2016; ePub(ePub): ePub.

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(Copyright © 2016, John Wiley and Sons)

DOI 10.1111/jgs.14392 **PMID** 27676362

Abstract

OBJECTIVES: To evaluate the effects a home-based exercise program delivered to ill and mobility-limited elderly individuals on physical function, physical activity, quality of life, fall-related self-efficacy, and exercise self-efficacy.

DESIGN: Randomized controlled trial (ISRCTN Registry, Reg.-No. ISRCTN17727272). **SETTING:** Fifteen general practitioner (GP) practices and participants' homes.

PARTICIPANTS: Chronically ill and mobility-limited individuals aged 70 and older (N = 209).

INTERVENTIONS: An exercise therapist delivered the experimental intervention-a 12-week multidimensional home-based exercise program integrating behavioral strategies-in individual counseling sessions at the GPs' practices and over the telephone. The control intervention focused on promoting light-intensity activities of daily living. Interventions took place between February 2012 and March 2013.

MEASUREMENTS: The primary outcome was functional lower body strength (chair-rise test). Secondary outcomes were physical function (battery of motor tests), physical activity (step count), health-related quality of life (Medical Outcomes Study 8-item Short-Form Survey), fall-related (Falls Efficacy Scale-International Version), and exercise self-efficacy (Selbstwirksamkeit zur sportlichen Aktivitaet (SSA) scale). Postintervention differences between the groups were tested using analysis of covariance (intention to treat; adjusted for baseline value and GP practice; significance level $P \leq .05$).

RESULTS: Participants had a mean age \pm standard deviation of 80 ± 5 , 74% were female, 87% had three or more chronic diseases, and 54% used a walking aid. The difference (intention to treat; experimental minus control) between adjusted post-intervention chair-rise times was -0.1 (95% confidence interval = -1.8-1.7). Differences for all secondary outcomes were also nonsignificant.

CONCLUSION: The program was ineffective in the target population. Possibilities for improving the concept will have to be evaluated.

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Mobility, balance and frailty in community-dwelling older adults: what is the best 1-year predictor of falls?

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(Copyright © 2016, Japan Geriatrics Society, Publisher John Wiley and Sons)

DOI 10.1111/ggi.12893 **PMID** 27683247

Abstract

AIM: The present study aimed, first, to compare the ability to predict falls over 12 months for three measures - mobility, balance and frailty. Second, among the three domains of frailty - physical, psychological and social - we investigated what is the strongest predictor of falls.

METHODS: A total of 192 community-dwelling older adults (age 73.0 ± 6.2 years; 62% women) were involved in this longitudinal study. The Timed Up and Go (TUG) test, One Leg Standing (OLS) test and

the Tilburg Frailty Indicator (TFI) were respectively used to measure mobility, balance and frailty. The TFI is a questionnaire based on a multidimensional conceptualization of frailty consisting of 15 items in three domains (physical, psychological and social). Falls were self-reported during the 12-month follow up. Logistic regression models, adjusted for interesting variables, were carried out to predict the risk of falls.

RESULTS: History of falls and chronic conditions were the indicators more strongly related with falls over 12 months. The TFI resulted as a stronger predictor of falls when compared with the TUG and OLS tests. The explained variance of the three models was 31.2%, 22.4% and 22.2%, respectively. The TFI was significantly associated with falls ($P < 0.001$), whereas the TUG and the OLS were not ($P > 0.05$). Among the three frailty domains, physical ($P < 0.001$) and psychological ($P = 0.041$) domains were significant predictors of falls.

CONCLUSIONS: The findings showed that the TFI might be an effective tool for predicting falls at 12 months in aged populations, probably because it is able to capture the multifactorial facets that can lead to falls.

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Outcomes of adding patient and family engagement education to fall prevention bundled interventions

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J. Nurs. Care Qual. 2016; ePub(ePub): ePub.

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DOI 10.1097/NCQ.0000000000000232 **PMID** 27662462

Abstract

Nurses strive to reduce risk and ensure patient safety from falls in health care systems. Patients and their families are able to take a more active role in reducing falls. The focus of this article is on the use of bundled fall prevention interventions highlighted by a patient/family engagement educational video. The implementation of this quality improvement intervention across 2 different patient populations was successful in achieving unit benchmarks.

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Postdischarge falls and readmissions: associations with insufficient vision and low health literacy among hospitalized seniors

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DOI 10.1080/10810730.2016.1179371 **PMID** 27660917

Abstract

The role of patient-level risk factors such as insufficient vision has been understudied. Because insufficient vision may interfere with health literacy assessments, the full impact of low health

literacy among older patients with impaired vision is unknown. We sought to determine whether senior inpatients' insufficient vision and low health literacy are associated with adverse outcomes postdischarge, specifically falls and readmissions. We conducted an observational study of adult medicine inpatients at an urban hospital. Visual acuity and health literacy were screened at bedside. Outcomes data were collected by telephone 30 days postdischarge. Among 1,900 participants, 1,244 (65%) were reached postdischarge; 44% had insufficient vision and 43% had low health literacy. Insufficient vision was associated with postdischarge falls among participants ≥ 65 years (adjusted odds ratio [AOR] 3.38, 95% confidence interval [CI] 1.42-8.05), but not among participants < 65 years (AOR 1.44, 95% CI 0.89-2.32). Low health literacy was associated with readmissions among participants ≥ 65 years (AOR 3.15, 95% CI 1.77-5.61), but not among participants < 65 years (AOR 0.78, 95% CI 0.56-1.09). The results suggest the need to implement screening for older inpatients' vision and health literacy. Developing effective interventions to reduce these risks is critical given national priorities to reduce falls and readmissions.

PDF Y Endnote Y

Quantifying effects of age on balance and gait with inertial sensors in community-dwelling healthy adults

Park JH, Mancini M, Carlson-Kuhta P, Nutt JG, Horak FB.

Exp. Gerontol. 2016; ePub(ePub): ePub.

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Abstract

Although balance and gait deteriorate as a person ages, it is unknown if all balance and gait measures change similarly across the adult age span. We developed the Instrumented Stand and Walk test (ISAW) to provide a quick quantification of key components of balance and walking: postural sway, anticipatory postural adjustments during step initiation, gait, and turning using body-worn, inertial sensors. Our aims were to characterize how different balance and gait measures change with age and to identify key age-related measures of mobility, in a wide age range of healthy, community-dwelling adults. A total of 135 healthy, community-dwelling subjects of age range 21-89 years with no history of falls were enrolled. Subjects wore inertial sensors on the wrists, ankles, sternum and lumbar area; 37 reliable and valid measures of postural sway, step initiation, gait and turning were computed. Univariate and multivariate regression analyses were performed to examine how the measures changed with age. Several distinct correlation patterns between age and ISAW measures were observed: linear deterioration, deterioration after plateau, and subtle, or no, worsening. Spatial, but not temporal, measures of gait were age-related. The strongest age correlation was found for centroidal frequency of mediolateral postural sway ($r = -0.50$, $p \leq 0.001$). A hierarchical regression model revealed that age was the most important predictor of mediolateral centroidal frequency, with lower sway frequencies associated with older age, independent of gender, weight, and height. Our results showed that balance and gait represent independent control systems for mobility and not all balance and gait measures deteriorate the same way with age. Postural sway during stance was more strongly related to age than any gait, gait initiation or turning

measure.

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PDF Y Endnote Y

Risk of falls in Brazilian elders with and without low back pain assessed using the Physiological Profile Assessment: BACE study

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Rev. Bras. Fisioter. 2016; ePub(ePub): epub.

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DOI 10.1590/bjpt-rbf.2014.0183 **PMID** 27683833

Abstract

BACKGROUND: Low back pain (LBP) is a common musculoskeletal condition among elders and is associated with falls. However, the underlying biological risk factors for falling among elders with LBP has been poorly investigated. The Physiological Profile Assessment (PPA) is a validated fall-risk assessment tool that involves the direct assessment of sensorimotor abilities and may contribute to the understanding of risk factors for falls among elders with LBP.

OBJECTIVE: To assess fall risk using the PPA in elders with and without LBP.

METHOD: This is an observational, comparative, cross-sectional study with elders aged ≥ 65 years. The present study was conducted with a subsample of participants from the Back Complaints in the Elders (BACE) - Brazil study. Fall risk was assessed using the PPA, which contains five tests: visual contrast sensitivity, hand reaction time, quadriceps strength, lower limb proprioception **METHOD:** , and postural sway.

RESULTS: Study participants included 104 individuals with average age of 72.3 (SD=4.0) years, divided into two groups: GI) 52 participants with LBP; GII) 52 participants without LBP. The participants with LBP had a significantly higher fall risk (1.10 95% CI 0.72 to 1.48), greater postural sway (49.78 95% CI 13.54 to 86.01), longer reaction time (58.95 95% CI 33.24 to 84.65), and lower quadriceps strength (-4.42 95% CI -8.24 to -0.59) compared to asymptomatic participants. There was no significant difference for vision and proprioception tests between LBP and non-LBP participants.

CONCLUSION: Elders with LBP have greater risk for falls than those without LBP. Our results suggest fall-risk screening may be sensible in elders with LBP.

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The impact of disease and drugs on hip fracture risk

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Abstract

We report the risks of a comprehensive range of disease and drug categories on hip fracture occurrence using a strict population-based cohort design. Participants included the source population of a Swedish county, aged ≥ 50 years ($n = 117,494$) including all incident hip fractures

during 1 year (n = 477). The outcome was hospitalization for hip fracture (ICD-10 codes S72.0-S72.2) during 1 year (2009-2010). Exposures included: prevalence of (1) inpatient diseases [International Classification of Diseases (ICD) codes A00-T98 in the National Patient Register 1987-2010] and (2) prescribed drugs dispensed in 2010 or the year prior to fracture. We present age- and sex-standardized risk ratios (RRs), risk differences (RDs) and population attributable risks (PARs) of disease and drug categories in relation to hip fracture risk. All disease categories were associated with increased risk of hip fracture. Largest risk ratios and differences were for mental and behavioral disorders, diseases of the blood and previous fracture (RRs between 2.44 and 3.00; RDs (per 1000 person-years) between 5.0 and 6.9). For specific drugs, strongest associations were seen for antiparkinson (RR 2.32 [95 % CI 1.48-1.65]; RD 5.2 [1.1-9.4]) and antidepressive drugs (RR 1.90 [1.55-2.32]; RD 3.1 [2.0-4.3]). Being prescribed ≥ 10 drugs during 1 year incurred an increased risk of hip fracture, whereas prescription of cardiovascular drugs or ≤ 5 drugs did not appear to increase risk. Diseases inferring the greatest PARs included: cardiovascular diseases PAR 22 % (95 % CI 14-29) and previous injuries (PAR 21 % [95 % CI 16-25]; for specific drugs, antidepressants posed the greatest risk (PAR 16 % [95 % CI 12.0-19.3]).

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Falling and fall risk in adult patients with severe haemophilia

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Abstract

The objective of this study was to define fall rates and to identify possible fall risk factors in adult patients with severe haemophilia. **PATIENTS, MATERIAL, METHODS:** 147 patients with severe haemophilia A and B were evaluated using a standardized test battery consisting of demographic, medical and clinical variables and fall evaluation.

RESULTS: 41 (27.9 %) patients reported a fall in the past 12 months, 22 (53.7 %) of them more than once. Young age, subjective gait insecurity and a higher number of artificial joints seem to be risk factors for falling.

CONCLUSION: Falls seem to be a common phenomenon in patients with severe haemophilia. Fall risk screening and fall prevention should be implemented into daily practice.

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Impact of fatigue on postural control in quiet standing in fibromyalgia

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Abstract

OBJECTIVE: Fibromyalgia fatigue was described as an overwhelming feeling of tiredness that is not relieved by sleep or rest and is often not in proportion to the effort realized. In fibromyalgia syndrome (FMS), the fatigue has an important functional impact, often limiting the activities of daily living, can induce a state of deconditioning, and causing disturbance of locomotion, whose reasons are not fully understood. The aims of this study was to evaluate the postural performance in quiet standing of FMS patients, and to compare them to a control group, and to assess the influence on the posture of a fatigue induced by a short walk.

MATERIAL/PATIENTS AND METHODS: Were included: 11 fibromyalgia patients in fibromyalgia groupe (FMG) and 12 healthy subjects appeared in control group (CG). Foot center of pressure (CP) displacements on a task-force platform under two conditions: eyes opened - i.e. vision and eyes closed - i.e. no-vision, before and after a six-minutes walk test (6MWT) were recorded.

RESULTS: The results showed that subjects with fibromyalgia have a surface displacement of center of pressure more important than healthy subjects. Therefore, before 6MWT, in "No-vision" condition, CP displacement was $200.05 \pm 145.31 \text{mm}^2$ ($m \pm SD$) in CG vs $397.03 \pm 242.82 \text{mm}^2$ in FMG ($P < 0.05$). In "Vision" condition CP displacement were respectively $139.08 \pm 61.78 \text{mm}^2$ vs $237.70 \pm 136.41 \text{mm}^2$ ($P = 0.06$). The deterioration was more significant in FMG after the 6MWT, only in "No-vision" condition ($P < 0.05$).

DISCUSSION-CONCLUSION: FMG had postural impaired performance compared to healthy subjects, especially in the absence of compensation with visual input. This might be explained by sensory changes induced by chronic painful condition affecting muscles. In addition, the disturbance of postural performance is more important after 6MWT (unlike CG), highlighting the state of fragility of subjects and the risk of falls in fatigue condition. We conclude that the compensation by the vision is important. The walk test induced fatigue property and a possible decrease in sensitivity of proprioceptive system. Thus, this study demonstrates lower postural performance in patients with fibromyalgia and a higher sensitivity to fatigue, but other explanatory factors are to be found, such as the influence of pain.

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Sustainable reduction in the occurrence of falls in a Parkinson's patient who followed an intensive and specific rehabilitation program to recalibrate verticality perception

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Abstract

OBJECTIVE: To take care of postural disorders is a major issue in Parkinson's disease (PD). We present a documented observation suggesting the existence of a biased representation of verticality in PD, resulting in a severe retropulsion and recurrent falls. A rehabilitation program aimed to modulate verticality perception dramatically improved the postural perception of the vertical, trunk posture and balance abilities, and reduced retropulsion as well as lastingly fall frequency.

OBSERVATIONS: A 68 year-old patient with Parkinson's disease fall backward 3 times a day. He presented an important camptocormia. There were no spinal muscular amyotrophy neither spinal canal stenosis on the lumbar tomography. The postural vertical (PV) was tilted backward at -9

(normal PV for this age= -1.2 ± 1.4). Our interpretation was that retropulsion was due to a backward tilt of the internal model of verticality, which led to recurrent falls. Camptocormia was mainly compensatory. The patient underwent an intensive rehabilitation program of 15 days including: erector spinae muscles strengthening, realization of postural exercises thanks to mirror, forward modulation of PV. On the basis of theoretical arguments (synthesis of graviceptive vestibular and somatosensory information) and on experimental studies, we also proposed techniques supposed to recalibrate the internal model of verticality: 30 forward tilted posture on a tilt table, bodyweight support walking, vibration of tibialis anterior's tendons. PV measurements during/just after these techniques confirmed the relevance of this approach. The results were spectacular: 35mm gain in the measurement of C7 sagittal arrow, 1 point gain in backward disequilibrium scale (BDS) and overall normalization of PV=0.1. The patient was questioned 2 months later then assessed 6 months later. He continued to daily perform auto-exercises taught, and was very satisfied because of a dramatic reduction of fall frequency, with a feeling to stand better.

DISCUSSION/CONCLUSION: This observation brings a new insight about the nature of some postural disorders in PD, and suggests the interest of a novel rehabilitation dedicated to the sense of verticality.

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