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A prospective study of back pain and risk of falls among older community-dwelling women

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Abstract

BACKGROUND: Back pain and falls are common health conditions among older U.S. women. The extent to which back pain is an independent risk factor for falls has not been established.

METHODS: We conducted a prospective study among 6,841 community-dwelling U.S. women at least 65 years of age from the Study of Osteoporotic Fractures (SOF). Baseline questionnaires inquired about any back pain, pain severity, and frequency in the past year. During 1 year of follow-up, falls were summed from self-reports obtained every 4 months. Two outcomes were studied: recurrent falls (≥ 2 falls) and any fall (≥ 1 fall). Associations of back pain and each fall outcome were estimated with risk ratios (RRs) and 95% confidence intervals (CIs) from multivariable log-binomial regression. Adjustments were made for age, education, smoking status, fainting history, hip pain, stroke history, vertebral fracture, and Geriatric Depression Scale.

RESULTS: Most (61%) women reported any back pain. During follow-up, 10% had recurrent falls and 26% fell at least once. Any back pain relative to no back pain was associated with a 50% increased risk of recurrent falls (multivariable RR = 1.5, 95% CI: 1.3, 1.8). Multivariable RRs for recurrent falls were significantly elevated for all back pain symptoms, ranging from 1.4 (95% CI: 1.1, 1.8) for mild back pain to 1.8 (95% CI: 1.4, 2.3) for activity-limiting back pain. RRs of any fall were also significantly increased albeit smaller than those for recurrent falls.

CONCLUSIONS: Older community-dwelling women with a recent history of back pain are at increased risk for falls.

PDF Y Endnote Y

A statistical approach to discriminate between non-fallers, rare fallers and frequent fallers in older adults based on posturographic data

Maranesi E, Merlo A, Fioretti S, Zemp DD, Campanini I, Quadri P.

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Abstract

BACKGROUND: Identification of future non-fallers, infrequent and frequent fallers among older people would permit focusing the delivery of prevention programs on selected individuals.

Posturographic parameters have been proven to differentiate between non-fallers and frequent fallers, but not between the first group and infrequent fallers.

METHODS: In this study, postural stability with eyes open and closed on both a firm and a compliant surface and while performing a cognitive task was assessed in a consecutive sample of 130 cognitively able elderly, mean age 77(7)years, categorized as non-fallers (N = 67), infrequent fallers (one/two falls, N = 45) and frequent fallers (more than two falls, N = 18) according to their last year fall history. Principal Component Analysis was used to select the most significant features from a set

of 17 posturographic parameters. Next, variables derived from principal component analysis were used to test, in each task, group differences between the three groups.

FINDINGS: One parameter based on a combination of a set of Centre of Pressure anterior-posterior variables obtained from the eyes-open on a compliant surface task was statistically different among all groups, thus distinguishing infrequent fallers from both non-fallers ($P < 0.05$) and frequent fallers ($P < 0.05$).

INTERPRETATION: For the first time, a method based on posturographic data to retrospectively discriminate infrequent fallers was obtained. The joint use of both the eyes-open on a compliant surface condition and this new parameter could be used, in a future study, to improve the performance of protocols and to verify the ability of this method to identify new-fallers in elderly without cognitive impairment.

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Association of falls with health-related quality of life (HRQOL) in older cancer survivors: a population based study

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Abstract

OBJECTIVE: To examine the association between falls and health-related quality of life (HRQOL) in older cancer survivors.

MATERIALS AND METHODS: Using the 2006-2011 Surveillance, Epidemiology, and End Results cancer registry system and the Medicare Health Outcomes Survey (SEER-MHOS) linkage database, a cross-sectional analysis was performed including 17,958 older cancer survivors. Multivariable regression models were used to evaluate the association of falls with HRQOL measured by the physical component summary (PCS) and mental component summary (MCS) scores on the Veteran RAND 12-item health survey after controlling for demographic, health- and cancer-related factors. A longitudinal analysis using the analysis of covariance (ANCOVA) models was also conducted comparing changes in HRQOL of older cancer survivors who fell with HRQOL of older patients with cancer who did not fall.

RESULTS: In the cross-sectional analysis, 4524 (25%) cancer survivors who fell reported a significantly lower PCS (-2.18; SE=0.16) and MCS (2.00; SE=0.17) scores compared to those who did not (N=13,434). In the longitudinal analysis, after adjusting for baseline HRQOL scores and covariates, patients who fell reported a decline in mean HRQOL scores of both PCS (-1.54; SE=0.26) and MCS (-1.71; SE=0.27). Presence of depression, functional impairment and comorbidities was significantly associated with lower HRQOL scores.

CONCLUSION: Falls are associated with lower HRQOL scores and are associated with a significant prospective decline in HRQOL in older cancer survivors. Further research is necessary to determine if assessment and intervention programs can help improve HRQOL by reducing the likelihood of falls.

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Association of metabolic syndrome with falls in patients with Parkinson's disease

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Abstract

BACKGROUND & AIMS: Falls are a major threat for patients with Parkinson's disease, as they are associated with higher risk of morbidity, loss of functional ability, institutionalization, and mortality. Metabolic syndrome (MetS) is associated with poorer physical performance in middle age, but its impact in the older and frailer subjects is unclear. The present study aimed at assessing the association of MetS with falls in patients with Parkinson's disease.

METHODS: We analyzed data of 194 elderly with Parkinson's disease attending a geriatric Day Hospital. History of falls that occurred over the last year, as well as and the number of falls, were recorded. Metabolic syndrome was diagnosed according to the National Cholesterol Education Program's ATP-III criteria.

RESULTS: Falls were reported by 91 participants (47%). Logistic regression analysis showed that MetS was associated with reduced occurrence of falls (OR = .26; 95% CI = .10-.69; P = .007). Also, among participants who fell, Poisson regression indicated that MetS predicted a reduced number of falls (IRR = .43; 95% CI = .20-.89; P = .024).

CONCLUSIONS: In our population MetS was associated with reduced probability of falls; among subjects who fell, MetS was associated with a reduced number of falls. Dedicated studies are needed to better understand the subsystems involved, as well as the therapeutic implications of such an association.

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Comorbidity of cognitive impairment and late-life depression increase mortality: results from a cohort of community-dwelling elderly individuals in rural Greece

Georgakis MK, Papadopoulos FC, Protogerou AD, Pagonari I, Sarigianni F, Biniaris-Georgallis SI, Kalogirou EI, Thomopoulos TP, Kapaki E, Papageorgiou C, Papageorgiou SG, Tousoulis D, Petridou ET.
J. Geriatr. Psychiatry Neurol. 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVE: To investigate the association of cognitive impairment (COGI) and depression with all-cause mortality and cardiovascular-specific mortality among community-dwelling elderly individuals in rural Greece.

METHODS: Cognition and depressive symptomatology of 676 Velesino town residents aged ≥ 60 years were assessed using Mini-Mental State Examination (MMSE) and Geriatric Depression Scale (GDS), respectively. Eight-year all-cause mortality and cardiovascular mortality were explored by multivariate Cox regression models controlling for major confounders.

RESULTS: Two hundred and one patients died during follow-up. Cognitive impairment (MMSE \leq 23) was independently associated with all-cause mortality (hazard ratio [HR]: 1.57, 95% confidence interval [CI]: 1.13-2.18) and cardiovascular mortality (HR: 1.57, 95%CI: 1.03-2.41). Moderate to severe depression (GDS $>$ 10) was significantly associated only with a 51% increase in all-cause mortality. A male-specific association was noted for moderate to severe depression, whereas the effect of COGI was limited to females. Noteworthy, COGI and depression comorbidity, rather than their sole presence, increased all-cause mortality and cardiovascular mortality by 66% and 72%, respectively. The mortality effect of COGI was augmented among patients with depression and of depression among patients with COGI.

CONCLUSION: COGI and depression, 2 entities often coexisting among elderly individuals, appear to increase all-cause mortality and cardiovascular mortality. Gender-specific modes may prevail but their comorbidity should be carefully assessed, as it seems to represent an independent index of increased frailty, which eventually shortens life expectancy.

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Continuous monitoring of turning mobility and its association to falls and cognitive function: a pilot study

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J. Gerontol. A Biol. Sci. Med. Sci. 2016; ePub(ePub): ePub.

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Abstract

BACKGROUND: Difficulty turning is a major contributor to mobility disability, falls, and reduced quality of life in older people because it requires dynamic balance control that worsens with age. However, no study has quantified the quality and quantity of turning during normal daily activities in older people. The objective of this pilot study was to determine if quality of turning during daily activities is associated with falls and/or cognitive function.

METHODS: Thirty-five elderly participants (85 ± 8 years) wore three Opal inertial sensors. Turning and activity rate were measured. Based on retrospective falls, participants were grouped into nonfallers ($N = 16$), single fallers ($N = 12$), and recurrent fallers ($N = 7$). We also determined which turning characteristic predicted falls in the 6 months following the week of monitoring.

RESULTS: Quality of turning was significantly compromised in recurrent fallers compared with nonfallers ($p < .05$). In contrast, activity rate and mean number of turns per hour were similar across the three groups. Also, quality of turning during a prescribed test was similar across the three groups. Visuospatial and memory functions and the Tinetti Balance Scores were associated with quality of turning. Future falls were related to an increased variability of number of steps to turn.

CONCLUSIONS: Continuous monitoring of turning characteristics, while walking during daily activities, is feasible in older people. Turning characteristics during daily life appear to be more sensitive to fall risk than prescribed turning tasks. These findings suggest a slower, less variable, cautious turning strategy in elderly volunteers with a history of falls.

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Development of a theory-based intervention to increase clinical measurement of reactive balance in adults at risk of falls

Sibley KM, Brooks D, Gardner P, Janaudis-Ferreira T, McGlynn M, O'Hoski S, McEwen S, Salbach NM, Shaffer J, Shing P, Straus SE, Jaglal SB.

J. Neurol. Phys. Ther. 2016; ePub(ePub): ePub.

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Abstract

BACKGROUND: Effective balance reactions are essential for avoiding falls, but are not regularly measured by physical therapists. Physical therapists report wanting to improve reactive balance assessment, and theory-based approaches are recommended as the foundation for the development of interventions. This article describes how a behavior change theory for health care providers, the theoretical domains framework (TDF), was used to develop an intervention to increase reactive balance measurement among physical therapists who work in rehabilitation settings and treat adults who are at risk of falls.

CASE DESCRIPTION: We employed published recommendations for using the TDF-guided intervention development. We identified what health care provider behavior is in need of change, relevant barriers and facilitators, strategies to address them, and how we would measure behavior change. In this case, identifying strategies required selecting both a reactive balance measure and behavior change techniques. Previous research had determined that physical therapists need to increase reactive balance measurement, and identified barriers and facilitators that corresponded to 8 TDF domains. A published review informed the selection of the Balance Evaluation Systems Test (Reactive Postural Responses Section) as addressing the barriers and facilitators, and existing research informed the selection of 9 established behavior change techniques corresponding to each identified TDF domain.

OUTCOMES: The TDF framework were incorporated into a 12-month intervention with interactive group sessions, local champions, and health record modifications. Intervention effect can be evaluated using health record abstraction, questionnaires, and qualitative semistructured interviews. **SUMMARY:** Although future research will evaluate the intervention in a controlled study, the process of theory-based intervention development can be applied to other rehabilitation research contexts, maximizing the impact of this work. Video Abstract is available for more insights from the authors (see Supplemental Digital Content 1, <http://links.lww.com/JNPT/A123>).

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Does physical exercise improve obstacle negotiation in the elderly? A systematic review

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Arch. Gerontol. Geriatr. 2016; 64: 138-145.

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Abstract

BACKGROUND: Physical exercise improves walking in the elderly but much less is known about its effect on more challenged gait, such as obstacle negotiation. We conducted a systematic review to discuss the effects of regular physical exercise on kinematics and kinetics of obstacle negotiation in the elderly.

METHODS: A comprehensive literature search revealed 859 citations for review, whereof 206 studies entered the full-text analysis. After application of inclusion and exclusion criteria, 13 studies were included in this systematic review.

FINDINGS: Most of them presented a reasonable quality (average 0.68) but none of them reached the level of a randomized control trial. Interventions were heterogeneous, with training periods lasting from 5 days to 10 months. Studies assessed obstacle negotiation basically considering 3 types of testing paradigm, namely a walkway with either a single obstacle crossing, or with multiple obstacles, or else a treadmill with an obstacle avoidance task under time pressure.

INTERPRETATION: In general, longer training programs had better results and very short ones were not effective. A weekly frequency of 2-3 times was the most common among the studies showing positive effects. Regardless of exercises types performed, most of them were effective and so far, there is no consensus about the best exercise for improving obstacle negotiation. A lack of studies on this topic still is evident. Including a record of fall score can further help in deciding which programs are to be preferred.

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Dysrhythmia and occult syncope as an explanation for falls in older patients

Grossman SA.

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Abstract Editorial [Abstract unavailable]

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Experimental identification of potential falls in older adult hospital patients

Cloutier A, Yang J, Pati D, Valipoor S.

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

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Abstract

Patient falls within hospitals have been identified as serious but largely preventable incidents, particularly among older adult patients. Previous literature has explored intrinsic factors associated with patient falls, but literature identifying possible extrinsic or situational factors related to falls is lacking. This study seeks to identify patient motions and activities along with associated environmental design factors in a patient bathroom and clinician zone setting that may lead to falls. A motion capture experiment was conducted in a laboratory setting on 27 subjects over the age of seventy using scripted tasks and mockups of the bathroom and clinician zone of a patient room. Data were post-processed using Cortex and Visual3D software. A potential fall was characterized by a set of criteria based on the jerk of the upper body's center of mass (COM).

RESULTS suggest that only motion-related factors, particularly turning, pushing, pulling, and grabbing, contribute most significantly to potential falls in the patient bathroom, whereas only pushing and pulling contribute significantly in the clinician zone. Future work includes identifying and changing precise environmental design factors associated with these motions for an updated patient room and performing motion capture experiments using the new setup.

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Falls and postural control in older adults with cataracts

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(Copyright © 2015, Tehran University of Medical Sciences)

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Abstract

BACKGROUND: There is increasing evidence that visual impairment contribute to falling. The aim of this study was to determine the influence of vision impairment of old adult patients with cataract on the occurrence of falls and postural control.

METHODS: According to the results of screening ophthalmic examination, 48 cataract patients (mean±SD aged 68.5 ± 6.08 yrs.) and 50 individuals without any obvious eye disorders (mean age ± SD 70.7 ± 5.97 yrs.) were enrolled in this study. The postural control was determined using the clinical test of Sensory Interaction and Balance (CTSIB) and Timed up and Go (TUG) test.

RESULTS: The results of this study revealed that 18% (n = 9) of the normal individuals and 22.9% (n =11) of the cataract patients had at least two falls in the past 12 months. However, the result of chisquare test did not show any differences between the two groups (p= 0.36). The mean ± SD TUG times in cataract and control groups in our study were 15.17 ± 3.58 and 13.77 ± 4.90, respectively. However, no significant differences were found between the two groups (p= 0.12). The results of CTSIB test showed no significant differences between the two groups on standing on the floor with eyes open and eyes closed (p= 0.61, p= 0.89) and on standing on the foam with eyes open and eyes closed (p= 0.32, p= 0.74).

CONCLUSION: According to the results of CTSIB and TUG tests, vision impairment of old adult patients with cataract is not associated with falls and balance disorders. Further work including assessment of postural control with advanced devices and considering other falls risk factors are also required to identify predictors of falls in cataract patients.

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Health problems precede traumatic brain injury in older adults

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

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(Copyright © 2016, John Wiley and Sons)

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Abstract

OBJECTIVES: To evaluate whether indices of preinjury health and functioning are associated with risk of incident traumatic brain injury (TBI) with loss of consciousness (LOC) and to evaluate health-related factors associated with mortality in individuals with incident TBI.

DESIGN: Prospective community cohort study.

SETTING: Group Health, Seattle, Washington.

PARTICIPANTS: Individuals aged 65 and older with no self-reported prior TBI with LOC (N = 3,363) were enrolled and followed every 2 years for an average of 7.5 years (range 0-18 years).

MEASUREMENTS: Weibull survival models were used to evaluate baseline and time-varying predictors of incident TBI with LOC, including measures of depression, activities of daily living (ADLs), cerebrovascular disease, and disease comorbidity.

RESULTS: In an adjusted multivariate model, baseline depression symptoms as measured according to Center for Epidemiologic Studies Depression Scale (CES-D) score (hazard ratio (HR) for 4 points = 1.23, 95% confidence interval (CI) = 1.02-1.49, P = .03) and baseline activity of daily living (ADL) impairment (HR = 2.37, 95% CI = 1.24-4.53, P = .009) were associated with incident TBI. In a model that included time-dependent covariates, cerebrovascular disease at the previous visit (HR = 2.28, 95% CI = 1.37-3.78, P < .001), CES-D score the previous visit (HR for 4 points = 1.23, 95% CI = 1.02-1.49, P < .04) and baseline ADL impairment (HR 2.14, 95% CI = 1.11-4.13, P = .02) predicted incident TBI. Of factors considered, cerebrovascular disease and ADL impairment were associated with earlier mortality in participants with incident TBI with LOC.

CONCLUSION: Indices of health, mood, and functional status predict incident TBI with LOC in older adults. These findings may have implications for injury prevention and postinjury clinical management.

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Predictors of institutionalization among home-dwelling older Finnish people: a 22-year follow-up study

Salminen M, Vire J, Viikari L, Vahlberg T, Isoaho H, Lehtonen A, Viitanen M, Arve S, Eloranta S. *Aging Clin. Exp. Res.* 2016; ePub(ePub): ePub.

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DOI 10.1007/s40520-016-0530-9 **PMID** 26802003

Abstract

BACKGROUND: Identification of predictive factors on institutionalization provides the basis for the development and application of preadmission assessment. There is a lack of evidence for predictors of institutionalization for older people. **AIMS:** To examine the effect of predictive factors on institutionalization in home-dwelling 70-year-old people.

METHODS: The data were collected in 1991 by the clinical examinations, a postal questionnaire and an interview from the residents of Turku, Finland, born in 1920 (n = 1032). Institutionalization was defined as entry into a nursing home or sheltered housing at any time during a 22-year follow-up.

RESULTS: A rate of institutionalization was 22.0 %. In multivariable Cox regression analysis, impaired cognitive function (MMSE 18-26) (hazard ratio 1.37, confidence interval 1.17-1.62), low BMI (<25 kg/m²) (1.60, 1.29-2.00), having several falls during the previous year (1.87, 1.21-2.87), and not having anyone who helps when needed (1.21, 1.01-1.46) remained significant predictors of institutionalization. In addition, high BMI (≥30 kg/m²) (compared with BMI 25-29.9 kg/m²) (1.28, 1.02-1.61) significantly predicted institutionalization in multivariable analyses.

CONCLUSIONS: We conclude that impaired cognitive function, frequent falling, low and high BMI and lack of help when needed predicted institutionalization during the 22-year follow-up. In order to reduce or postpone institutionalization, interventions should target risk factors, such as physical limitations and falling. Also community-based services according to the needs and functional ability of the home-dwelling older people should be developed.

PDF Y Endnote Y

Strength and power training effects on lower limb force, functional capacity and static and dynamic balance in older female adults

Lopes PB, Pereira G, Lodovico A, Bento PCB, Rodacki ALF.

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Abstract

It has been proposed that muscle power is more effective to prevent falls than muscle force production capacity, as rapid reactions are required to allow the postural control. This study aimed to compare the effects of strength and power training on lower limb force, functional capacity and static and dynamic balance in older female adults. Thirty-seven volunteered healthy women had been allocated into the strength-training group (n=14; 69±7.3yrs; 155±5.6cm; 72±9.7kg); the power-training group (n=12; 67±7.4yrs; 153±5.5cm; 67.2±7kg) and control group (n=11; 65±3.1yrs; 154±5.6cm; 70.9±3kg). After 12 weeks of training, the strength-training and power-training groups increased significantly maximum dynamic strength (29% and 27%), isometric strength (26% and 37%) and step total time (13% and 14%, dynamic balance) respectively. However, only the power-training group increased the rate of torque development (55%) and the functional capacity in 30-second chair stand (22%) and in time up and go tests (-10%). Empirically, power training may reduce the risk of injuries due to lower loads compared to strength training, and consequently the physical effort demand during the training session is lower. Therefore, the power training should be recommended as attractive training stimuli to improve lower limb force, functional capacity and postural control of older female adults.

PDF Y Endnote Y

The association between Belgian older adults' physical functioning and physical activity: what is the moderating role of the physical environment?

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PLoS One 2016; 11(2): e0148398.

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(Copyright © 2016, Public Library of Science)

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Abstract

BACKGROUND: Better physical functioning in the elderly may be associated with higher physical activity levels. Since older adults spend a substantial part of the day in their residential neighborhood, the neighborhood physical environment may moderate associations between functioning and older adults' physical activity. The present study investigated the moderating role of the objective and perceived physical environment on associations between Belgian older adults'

physical functioning and transport walking, recreational walking, and moderate-to-vigorous physical activity.

METHODS: Data from 438 older adults were included.

OBJECTIVE physical functioning was assessed using the Short Physical Performance Battery. Potential moderators included objective neighborhood walkability and perceptions of land use mix diversity, access to recreational facilities, access to services, street connectivity, physical barriers for walking, aesthetics, crime-related safety, traffic speeding-related safety, and walking infrastructure.

Transport and recreational walking were self-reported, moderate-to-vigorous physical activity was assessed through accelerometers. Multi-level regression analyses were conducted using MLwiN to examine two-way interactions between functioning and the environment on both walking outcomes. Based on a previous study where environment x neighborhood income associations were found for Belgian older adults' moderate-to-vigorous physical activity, three-way functioning x environment x income interactions were examined for moderate-to-vigorous physical activity.

RESULTS: Objectively-measured walkability moderated the association between functioning and transport walking; this positive association was only present in high-walkable neighborhoods. Moreover, a three-way interaction was observed for moderate-to-vigorous physical activity. Only in high-income, high-walkable neighborhoods, there was a positive association between functioning and moderate-to-vigorous physical activity. No functioning x walkability interactions were observed for recreational walking, and none of the perceived environmental variables moderated the positive association between physical functioning and the physical activity outcomes.

CONCLUSIONS: For older adults with better physical functioning, living in a high-walkable neighborhood could be beneficial to engage in more transport walking. Living in high-income, high-walkable neighborhoods and having better functioning might also be beneficial for more engagement in moderate-to-vigorous physical activity. This might suggest a protective role of neighborhood walkability for preventing declining physical functioning and consequently decreasing physical activity levels in older adults. However, given the cross-sectional design of the present study, this suggestion needs to be confirmed through longitudinal assessment investigating over-time changes in the observed associations.

PDF Y Endnote Y

Unintentional injuries treated in hospital emergency departments among persons aged 65 years and older, United States, 2006-2011

DeGrauw X, Annest JL, Stevens JA, Xu L, Coronado V.

J. Saf. Res. 2016; 56: 105-109.

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DOI 10.1016/j.jsr.2015.11.002 **PMID** 26875172

Abstract

INTRODUCTION: With the aging of the United States population, unintentional injuries among older adults, and especially falls-related injuries, are an increasing public health concern.

METHODS: We analyzed emergency department (ED) data from the Nationwide Emergency Department Sample, 2006-2011. We examined unintentional injury trends by 5-year age groups, sex, mechanism, body region, discharge disposition, and primary payer. For 2011, we estimated the medical costs of unintentional injury and the distribution of primary payers, plus rates by injury

mechanisms and body regions injured by 5-year age groups.

RESULTS: From 2006 to 2011, the age-adjusted annual rate of unintentional injury-related ED visits among persons aged ≥ 65 years increased significantly from 7987 to 8163, per 100,000 population. In 2011, 65% of injuries were due to falls. Rates for fall-related injury ED visits increased with age and the highest rate was among those aged ≥ 100 . Each year, about 85% of unintentional injury-related ED visits in this population were expected to be paid by Medicare. In 2011, the estimated lifetime medical cost of unintentional injury-related ED visits among those aged ≥ 65 years was \$40 billion.

CONCLUSION: Increasing rates of ED-treated unintentional injuries, driven mainly by falls among older adults, will challenge our health care system and increase the economic burden on our society. Prevention efforts to reduce falls and resulting injuries among adults aged ≥ 65 years have the potential to increase well-being and reduce health care spending, especially the costs covered by Medicare.

PRACTICAL APPLICATIONS: With the aging of the U.S. population, unintentional injuries, and especially fall-related injuries, will present a growing challenge to our health care system as well as an increasing economic burden. To counteract this trend, we must implement effective public health strategies, such as increasing knowledge about fall risk factors and broadly disseminating evidence-based injury and fall prevention programs in both clinical and community settings.

PD FY Endnote Y

Walking with a four wheeled walker (Rollator) significantly reduces EMG lower-limb muscle activity in healthy subjects

Suica Z, Romkes J, Tal A, Maguire C.

J. Bodyw. Mov. Ther. 2016; 20(1): 65-73.

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Abstract

OBJECTIVE: To investigate the immediate effect of four-wheeled-walker(rollator)walking on lower-limb muscle activity and trunk-sway in healthy subjects.

METHODS: In this cross-sectional design electromyographic (EMG) data was collected in six lower-limb muscle groups and trunk-sway was measured as peak-to-peak angular displacement of the centre-of-mass (level L2/3) in the sagittal and frontal-planes using the SwayStar balance system. 19 subjects walked at self-selected speed firstly without a rollator then in randomised order 1. with rollator 2. with rollator with increased weight-bearing.

RESULTS: Rollator-walking caused statistically significant reductions in EMG activity in lower-limb muscle groups and effect-sizes were medium to large. Increased weight-bearing increased the effect. Trunk-sway in the sagittal and frontal-planes showed no statistically significant difference between conditions.

CONCLUSION: Rollator-walking reduces lower-limb muscle activity but trunk-sway remains unchanged as stability is likely gained through forces generated by the upper-limbs. Short-term stability is gained but the long-term effect is unclear and requires investigation.

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Accidental fall rates in community-dwelling adults compared to cancer survivors during and post-treatment: a systematic review with meta-analysis

Bird ML, Cheney MJ, Williams AD.

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Abstract

PURPOSE/OBJECTIVES: To identify whether rates of accidental falls are greater for cancer survivors living in the community during or post-treatment than people with no history of cancer.

DATA SOURCES: In a systematic literature review that was conducted in December 2013, MEDLINE®, EMBASE, PubMed, and Web of Science were searched for cancer or oncology and accidental falls in prospective and retrospective cohort and case-controlled studies. Studies were included if they were conducted in a community-dwelling adult population and excluded if they were conducted in acute hospitals and hospice.

DATA SYNTHESIS: Of 484 articles initially identified, 10 were included in the review. Of these, three included a control or comparator group and had comparable outcome measures to include in a meta-analysis. The risk ratio for falls for the group with cancer was 1.11. .

CONCLUSIONS: Accidental fall rates in community-dwelling adults with a cancer diagnosis are greater than rates of falls in adults without cancer; this elevated rate remains after acute care is finished. Patients undergoing active treatment have greater rates of falls. Pain, fatigue, and deconditioning may affect fall rates in the longer term. . **IMPLICATIONS FOR NURSING:** Nurses have the capacity to reduce risk of falls in community-dwelling cancer survivors during or post-treatment through provision of information, advocacy, and support around pain and fatigue management and promotion of physical activity.

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Community delivery of a comprehensive fall-prevention program in people with multiple sclerosis: a retrospective observational study

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Int. J. MS Care 2016; 18(1): 42-48.

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Abstract

BACKGROUND: People with multiple sclerosis (MS) fall frequently. In 2011, the National Multiple Sclerosis Society launched a multifactorial fall-prevention group exercise and education program, Free From Falls (FFF), to prevent falls in MS. The objective of this study was to assess the impact of participation in the FFF program on balance, mobility, and falls in people with MS.

METHODS: This was a retrospective evaluation of assessments from community delivery of FFF. Changes in Activities-specific Balance Confidence scale scores, Berg Balance Scale scores, 8-foot

Timed Up and Go performance, and falls were assessed.

RESULTS: A total of 134 participants completed the measures at the first and last FFF sessions, and 109 completed a 6-month follow-up assessment. Group mean scores on the Activities-specific Balance Confidence scale ($F_{1,66} = 17.14$, $P < .05$, $\eta(2) = 0.21$), Berg Balance Scale ($F_{1,68} = 23.39$, $P < .05$, $\eta(2) = 0.26$), and 8-foot Timed Up and Go ($F_{1,79} = 4.83$, $P < .05$, $\eta(2) = 0.06$) all improved significantly from the first to the last session. At the 6-month follow-up, fewer falls were reported ($\chi(2) [4, N = 239] = 10.56$, $P < .05$, $\Phi = 0.21$).

CONCLUSIONS: These observational data suggest that the FFF group education and exercise program improves balance confidence, balance performance, and functional mobility and reduces falls in people with MS.

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Multifactorial measures of fall risk in the visually impaired population: A pilot study

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Abstract

OBJECTIVE: To determine the feasibility of taking multiple measures of visual and physical function in adults with visual impairment. A second objective was to obtain preliminary data on risk for falls in this population.

DESIGN: Cohort feasibility study.

SETTING: University ambulatory patient care center and research center.

PARTICIPANTS: Convenience sample of community-dwelling men and women over age 18 with visual impairment ($n = 12$). Thirteen subjects were enrolled in the study; one was subsequently excluded due to self-reported cognitive decline at time of testing. Subjects were grouped by prospective fall incidence.

INTERVENTIONS: Verbal education.

MAIN OUTCOME MEASURES: Subjective measures of function; objective measures of visual and physical function.

RESULTS: Visually impaired adults can safely complete a battery of physical functions to predict fall risk. Recent onset of visual impairment was correlated with higher fall risk [-0.53 ± 0.22 , $p = 0.04$].

CONCLUSIONS: It is feasible for an interdisciplinary team to measure risk for falls in adults with a visual impairment. Further investigation is needed to identify predictors of falls in adults of all ages with visual impairment.

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