

SafetyLit November 19, 2017**'Falls not a priority': insights on discharging older people, admitted to hospital for a fall, back to the community**

Meyer C, Renehan E, Batchelor F, Said C, Haines T, Elliott R, Goeman D.

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DOI 10.1071/PY17052 **PMID** 29132500

Abstract

Falls are common among older people and a leading cause of injury-related hospitalisation. The immediate post-hospitalisation period is a risky time for further falls. This paper explores discharge strategies from the perspectives of older people hospitalised for a fall and liaison nurses assisting people to return home. Exploratory mixed methods were used. Semi-structured interviews with older people were conducted regarding their experience of the fall and discharge strategies. Quality of life, falls risk and functional capacity were measured by questionnaire. Liaison nurses were also interviewed. Interviews were audio-recorded, transcribed and thematically analysed. Mixed-method synthesis occurred using role-ordered matrix analysis. Older people (n=13) and liaison nurses (n=6) participated. Older persons' quality of life was average and falls risk high. Thematic analysis revealed three key themes: 'falls are not a priority', 'information not given, or given and not retained' and 'reduction in confidence and independence'. Role-ordered matrix analysis identified differences between acute and rehabilitative hospital stays. Older people hospitalised for a fall present a unique opportunity for implementation of falls prevention strategies. However, hospitalisation is often a time of crisis with competing priorities. Timing and relevance are crucial for optimal uptake of falls prevention strategies, with the primary care setting well-placed for their implementation.

PDF Y Endnote Y**Adherence to a multifactorial fall prevention program following paramedic care: predictors and impact on falls and health service use. Results from an RCT a priori subgroup analysis**

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Australas. J. Ageing 2017; ePub(ePub): ePub.

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(Copyright © 2017, Australian Council on the Ageing, Publisher John Wiley and Sons)

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Abstract

OBJECTIVE: To identify predictors and impact of adherence to a multifactorial fall-prevention program on falls and health service utilisation.

METHODS: Randomised controlled trial with a priori subgroup analysis within intervention group according to adherence. Participants were community dwelling, (≥ 65 years), not transported to hospital following fall-related paramedic care. The Attitudes to Falls-Related Interventions Scale (AFRIS) was completed at baseline, adherence levels were measured (three-point scale) at six months, and falls and health service utilisation were recorded for 12 months. Multivariate logistic regression and area under the curve were calculated with 95% confidence interval (CI).

RESULTS: Attitudes to Falls-Related Interventions Scale scores (n = 85) were independent of baseline characteristics. At six months, 39 (46%) participants reported full adherence. Independent

predictors of adherence were positive AFRIS (OR 4.10, 95% CI 1.48-11.39) and receiving 3+ recommendations (OR 3.36, 95% CI 1.26-9.00). Adherers experienced fewer falls (IRR 0.53, 95% CI 0.45-0.80) and fall-related health service use (emergency department presentations IRR 0.37, 95% CI 0.17-0.82) compared to non-adherers.

CONCLUSION: Older adults who adhere to recommendations benefit, regardless of fall-risk profile.

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PDF Y Endnote Y

Age-varying relationships between physical function and cognition in older adulthood

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J. Gerontol. B Psychol. Sci. Soc. Sci. 2017; ePub(ePub): ePub.

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Abstract

OBJECTIVES: There are positive relationships between physical and cognitive function in older adulthood; however, the strength of these relationships are inconsistent across studies. Although novel statistical tools provide flexibility to explore age-related differences in relationship magnitude, such methods have not been implemented in gerontological research. This study applied such methods to examine variations in relationship magnitude between physical function and cognition in healthy older adults (N = 2,783).

METHOD: Time-varying effects modeling (TVEM) is an extension of regression that models changes in relationships as a function of time-varying metrics like age. TVEM was used to examine if physical function (Turn 360, grip strength) predicted cognitive performance (memory, processing speed/attention, and reasoning) similarly across adults aged 65-90.

RESULTS: All associations between Turn 360 and all cognitive domains were significant and positive; however, speed of processing had significant magnitude variation across age such that the young-old and the old-old demonstrated the strongest relationships. Associations between grip strength and all cognitive domains significantly strengthened with increased age.

DISCUSSION: Results suggest that depending on the sample age, there may be inconsistencies in the relationships between physical and cognitive performance. Future research should explore these relationships longitudinally to better elucidate discrepant findings.

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An electronic health record data-driven model for identifying older adults at risk of unintentional falls

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Perspect. Health Inf. Manag. 2017; 14(Fall): 1b.

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(Copyright © 2017, American Health Information Management Association)

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Abstract

Screening for risk of unintentional falls remains low in the primary care setting because of the time constraints of brief office visits. National studies suggest that physicians caring for older adults

provide recommended fall risk screening only 30 to 37 percent of the time. Given prior success in developing methods for repurposing electronic health record data for the identification of fall risk, this study involves building a model in which electronic health record data could be applied for use in clinical decision support to bolster screening by proactively identifying patients for whom screening would be beneficial and targeting efforts specifically to those patients. The final model, consisting of priority and extended measures, demonstrates moderate discriminatory power, indicating that it could prove useful in a clinical setting for identifying patients at risk of falls. Focus group discussions reveal important contextual issues involving the use of fall-related data and provide direction for the development of health systems-level innovations for the use of electronic health record data for fall risk identification.

PDF Endnote Y

Balance and functional outcomes for older community-dwelling adults who practice tai chi and those who do not: a comparative study

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J. Geriatr. Phys. Ther. 2017; ePub(ePub): ePub.

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(Copyright © 2017, American Physical Therapy Association)

DOI 10.1519/JPT.000000000000153 **PMID** 29135600

Abstract

BACKGROUND AND PURPOSE: A growing body of literature substantiates that Tai Chi is a form of exercise that may help older adults increase strength, improve balance, lower fall rates, and experience less fear of falling. Few studies, however, offer controlled experimental design and simultaneously investigate multiple factors known to contribute to fall risk. The purpose of this study was to compare performance on measures relating to fall risk (strength, balance, functional mobility, and fear of falling) in older community-dwelling adults who participated in a community-based Tai Chi program with a control group of their peers who had no Tai Chi training over the same time period.

METHODS: A quasi-experimental comparative pre- and posttest design was used to compare an experimental group of 16 community-dwelling older adults, mean (SD) age = 80.4 (6.8) years, participating in a 16-week Tai Chi training program with a group of 13 adults, mean (SD) age = 71.2 (6.1) years, who had no Tai Chi experience in the areas of knee extension strength (measured by handheld dynamometry), functional strength (by five-time sit to stand), mobility (by Timed Up and Go [TUG] test and Fifty-Foot Walk Test), balance (by Functional Reach and Berg Balance Scale), and fear of falling (by Activity-specific Balance Confidence scale). Within-group and between-groups comparisons were made using 2×2 mixed analysis of variance.

RESULTS: Tai Chi participants improved in nearly all measures, whereas controls did not. Tai Chi participants experienced significant improvement in the TUG test during the training period ($P = .003$), with significant difference when compared with controls ($P = .049$) and moderate effect size and observed power ($\eta_p = 0.165$; observed power = 0.512). Significant knee extension strength improvement occurred ($P = .042$) with moderate effect size and observed power ($\eta_p = 0.183$; observed power = 0.543). While the total balance confidence scale score did not change significantly, responses on many individual items did reach a level of significant change for persons participating in the Tai Chi training.

CONCLUSION: Older adults' participation in a community-based Tai Chi program may lead to improvement in strength, mobility, and confidence in performing functional tasks. Incorporation of elements of Tai Chi into therapy programs for older adults at risk for fall and referral to community-based Tai Chi programs may be viable options in the continuum of health-related care for older adults.

PDF Endnote Y

Bayesian optimal adaptation explains age-related human sensorimotor changes

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J. Neurophysiol. 2017; ePub(ePub): jn.00710.2017.

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Abstract

The brain uses information from different sensory systems to guide motor behavior, and aging is associated with a simultaneous decline in the quality of sensory information provided to the brain and a deterioration in motor control. Correlations between age-dependent decline in sensory anatomical structures and behavior have been demonstrated, and it has recently been suggested that a Bayesian framework could explain these relationships. Here we show that age-dependent changes in a human sensorimotor reflex, the vestibulo-ocular reflex, are explained by a Bayesian optimal adaptation in the brain occurring in response to death of motion-sensing hair cells. Specifically, we found that the temporal dynamics of the reflex as a function of age are predicted ($r=0.93$, $p<0.001$) by a Kalman filter model which determines the optimal behavioral output when the sensory signal-to-noise characteristics are degraded by death of the transducers. These findings demonstrate that the aging brain is capable of generating the ideal and statistically optimal behavioral response when provided with deteriorating sensory information. While the Bayesian framework has been shown to be a general neural principle for multimodal sensory integration and dynamic sensory estimation, these findings provide evidence of longitudinal Bayesian processing over the human lifespan. These results illuminate how the aging brain strives to optimize motor behavior when faced with deterioration in the peripheral and central nervous system, and have implications in the field of vestibular and balance disorders, as they will likely provide guidance for physical therapy and for prosthetic aids that aim to reduce falls in the elderly.

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Clinical outcomes and history of fall in patients with atrial fibrillation treated with oral anticoagulation: insights from the ARISTOTLE Trial

Rao MP, Vinereanu D, Wojdyla DM, Alexander JH, Atar D, Hylek EM, Hanna M, Wallentin L, Lopes RD, Gersh BJ, Granger CB.

Am. J. Med. 2017; ePub(ePub): ePub.

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Abstract

PURPOSE: We assessed outcomes among anticoagulated patients with atrial fibrillation (AF) and a history of falling, and whether the benefits of apixaban versus warfarin are consistent in this population.

METHODS: Of the 18,201 patients in ARISTOTLE, 16,491 had information about history of falling - 753 with history of falling and 15,738 without history of falling. The primary efficacy outcome was stroke or systemic embolism; the primary safety outcome was major bleeding.

RESULTS: When compared with patients without a history of falling, patients with a history of falling were older, more likely to be female and have dementia, cerebrovascular disease, depression, diabetes, heart failure, osteoporosis, fractures, and higher CHA₂DS₂-VASc and HAS-BLED scores. Patients with a history of falling had higher rates of major bleeding (adjusted HR 1.39; 95% CI 1.05-1.84; p=0.020), including intracranial bleeding (adjusted HR 1.87, 95% CI 1.02-3.43; p=0.044), and death (adjusted HR 1.70; 95% CI 1.36-2.14; p<0.0001), but similar rates of stroke or systemic embolism and hemorrhagic stroke. There was no evidence of a differential effect of apixaban compared with warfarin on any outcome, regardless of history of falling. Among those with a history of falling, subdural bleeding occurred in 5 of 367 patients treated with warfarin and 0 of 386 treated with apixaban.

CONCLUSIONS: Patients with AF and a history of falling receiving anticoagulation have a higher risk of major bleeding, including intracranial, and death. The efficacy and safety of apixaban compared with warfarin were consistent, irrespective of history of falling.

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Correlates of physical activity among community-dwelling individuals aged 65 years or older with anxiety in six low- and middle-income countries

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Int. Psychogeriatr. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: Given the important health benefits of physical activity (PA) and the higher risk for physical inactivity in people with anxiety, and the high prevalence of anxiety and low PA among the elderly, there is a need for research to investigate what factors influence PA participation among anxious older individuals. We investigated PA correlates among community-dwelling adults aged ≥ 65 years with anxiety symptoms in six low- and middle-income countries.

METHODS: Cross-sectional data from the World Health Organization's Study on Global Ageing and Adult Health were analyzed. PA level was assessed by the Global Physical Activity Questionnaire. 980 participants with anxiety (mean age 73.3 years; 62.4% females) were grouped into those who do and do not (low PA) meet the 150 minutes of moderate-to-vigorous PA per week recommendation. Associations between PA and the correlates were examined using multivariable logistic regressions.

RESULTS: The prevalence of low PA was 44.9% (95% CI = 39.2-50.7%). Older age, male gender, less consumption of alcohol, mild cognitive impairment, pain, a wide range of somatic co-morbidities, slow gait, weak grip strength, poor self-rated health, and lower levels of social cohesion were identified as significant positive correlates of low PA.

CONCLUSIONS: Our data illustrate that a number of sociodemographic and health factors are associated with PA levels among older people with symptoms of anxiety. The promotion of social cohesion may increase the efficacy of public health initiatives, while from a clinical perspective, somatic co-morbidities, cognitive impairment, pain, muscle strength, and slow gait need to be considered.

PDF Y Endnote Y

Cutoff values for appendicular skeletal muscle mass and strength in relation to fear of falling among Brazilian older adults: cross-sectional study

Sampaio RAC, Sampaio PYS, Castaño LAA, Barbieri JF, Coelho HJ, Arai H, Uchida MC, Gutierrez GL. *Sao Paulo Med. J.* 2017; ePub(ePub): ePub.

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Abstract

CONTEXT AND OBJECTIVE: Sarcopenia is an emerging public health issue in Brazil. Because of its high prevalence and the lack of national data, the objective here was to identify cutoff points for appendicular skeletal muscle (ASM) and handgrip strength in relation to fear of falling among Brazilian older adults.

DESIGN AND SETTING: Cross-sectional study; in the community.

METHODS: Participants underwent morphological and functional evaluations; and were asked about previous falls and fear of falling. Different adjustments to ASM and handgrip strength were used. Slow walking speed was defined as < 0.8 m/s or 1.0 m/s. Gender and age groups were compared using t tests, analysis of variance (ANOVA), chi-square test or Fisher's exact test. Receiver operating characteristic curves were used to identify cutoffs for ASM and handgrip strength in relation to fear of falling.

RESULTS: 578 older adults participated in this study. Function levels decreased with increasing age, and body composition differed between the sexes. In relation to fear of falling, the cutoffs for ASM adjusted for body mass index (BMI) were < 0.85 for men and < 0.53 for women; the cutoffs for absolute handgrip strength and relative handgrip strength (adjusted for BMI) were 30.0 kgf and 21.7 kgf, and 1.07 and 0.66, for men and women, respectively.

CONCLUSION: The values presented can be used as references in clinical practice and research. We recommend use of ASM adjusted for BMI and choosing between absolute and relative handgrip strength for men and women, according to study needs.

PDF Y Endnote Y

Effect of bathroom aids and age on balance control during bathing transfers

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Am. J. Occup. Ther. 2017; 71(6): e7106165030p1-7106165030p9.

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Abstract

Bathroom assistive devices are used to improve safety during bathing transfers, but biomechanical evidence to support clinical recommendations is lacking. This study evaluated the effectiveness of common bathroom aids in promoting balance control during bathing transfers. Twenty-six healthy adults (12 young, 14 older) stepped into and out of a slippery bathtub while using a vertical grab bar on the side wall, a horizontal grab bar on the back wall, a bath mat, a side wall touch, or no assistance. Balance control was characterized using center of pressure measures and showed greater instability for older adults. The vertical grab bar and wall touch resulted in the safest (best controlled) transfers. The bath mat provided improved balance control in the axis parallel to the bathtub rim but was equivalent to no assistance perpendicular to the rim, in the direction of obstacle crossing. These results can support clinical recommendations for safe bathing transfers. Copyright © 2017 by the American Occupational Therapy Association, Inc.

PDF N Endnote Y

Effects of falls prevention interventions on falls outcomes for hospitalised adults: protocol for a systematic review with meta-analysis

Slade SC, Carey DL, Hill AM, Morris ME.

BMJ Open 2017; 7(11): e017864.

Affiliation: North Eastern Rehabilitation Centre, Healthscope, Ivanhoe, Australia.

(Copyright © 2017, BMJ Publishing Group)

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Abstract

INTRODUCTION: Falls are a major global public health problem and leading cause of accidental or unintentional injury and hospitalisation. Falls in hospital are associated with longer length of stay, readmissions and poor outcomes. Falls prevention is informed by knowledge of reversible falls risk factors and accurate risk identification. The extent to which hospital falls are prevented by evidence-based practice, patient self-management initiatives, environmental modifications and optimisation of falls prevention systems awaits confirmation. Published reviews have mainly evaluated community settings and residential care facilities. A better understanding of hospital falls and the most effective strategies to prevent them is vital to keeping people safe.

OBJECTIVES: To evaluate the effectiveness of falls prevention interventions on reducing falls in hospitalised adults (acute and subacute wards, rehabilitation, mental health, operating theatre and emergency departments). We also summarise components of effective falls prevention interventions.

METHODS AND ANALYSIS: This protocol has been registered. The systematic review will be informed by Cochrane guidelines and reported according to the Preferred Reporting Items for Systematic review and Meta-Analysis statement. **INCLUSION CRITERIA:** randomised controlled trials, quasi-randomised trials or controlled clinical trials that evaluate falls prevention interventions for use by hospitalised adults or employees. Electronic databases will be searched using key terms including falls, accidental falls, prevention, hospital, rehabilitation, emergency, mental health, acute and subacute. Pairs of independent reviewers will conduct all review steps. Included studies will be evaluated for risk of bias. Data for variables such as age, participant characteristics, settings and interventions will be extracted and analysed with descriptive statistics and meta-analysis where

possible. The results will be presented textually, with flow charts, summary tables, statistical analysis (and meta-analysis where possible) and narrative summaries. ETHICS AND DISSEMINATION: Ethical approval is not required. The systematic review will be published in a peer-reviewed journal and disseminated electronically, in print and at conferences. Updates will guide healthcare translation into practice. TRAIL REGISTRATION NUMBER: PROSPERO 2017: CRD 42017058887. Available from <https://www.crd.york.ac.uk/prospero>.

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Effects of wearable sensor-based balance and gait training on balance, gait, and functional performance in healthy and patient populations: a systematic review and meta-analysis of randomized controlled trials

Gordt K, Gerhardy T, Najafi B, Schwenk M.

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(Copyright © 2017, Karger Publishers)

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Abstract

BACKGROUND: Wearable sensors (WS) can accurately measure body motion and provide interactive feedback for supporting motor learning.

OBJECTIVE: This review aims to summarize current evidence for the effectiveness of WS training for improving balance, gait and functional performance.

METHODS: A systematic literature search was performed in PubMed, Cochrane, Web of Science, and CINAHL. Randomized controlled trials (RCTs) using a WS exercise program were included. Study quality was examined by the PEDro scale. Meta-analyses were conducted to estimate the effects of WS balance training on the most frequently reported outcome parameters.

RESULTS: Eight RCTs were included (Parkinson n = 2, stroke n = 1, Parkinson/stroke n = 1, peripheral neuropathy n = 2, frail older adults n = 1, healthy older adults n = 1). The sample size ranged from n = 20 to 40. Three types of training paradigms were used: (1) static steady-state balance training, (2) dynamic steady-state balance training, which includes gait training, and (3) proactive balance training. RCTs either used one type of training paradigm (type 2: n = 1, type 3: n = 3) or combined different types of training paradigms within their intervention (type 1 and 2: n = 2; all types: n = 2). The meta-analyses revealed significant overall effects of WS training on static steady-state balance outcomes including mediolateral (eyes open: Hedges' g = 0.82, CI: 0.43-1.21; eyes closed: g = 0.57, CI: 0.14-0.99) and anterior-posterior sway (eyes open: g = 0.55, CI: 0.01-1.10; eyes closed: g = 0.44, CI: 0.02-0.86). No effects on habitual gait speed were found in the meta-analysis (g = -0.19, CI: -0.68 to 0.29). Two RCTs reported significant improvements for selected gait variables including single support time, and fast gait speed. One study identified effects on proactive balance (Alternate Step Test), but no effects were found for the Timed Up and Go test and the Berg Balance Scale. Two studies reported positive results on feasibility and usability. Only one study was performed in an unsupervised setting.

CONCLUSION: This review provides evidence for a positive effect of WS training on static steady-state balance in studies with usual care controls and studies with conventional balance training controls. Specific gait parameters and proactive balance measures may also be improved by WS training, yet limited evidence is available. Heterogeneous training paradigms, small sample sizes,

and short intervention durations limit the validity of our findings. Larger studies are required for estimating the true potential of WS technology.

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PDF Y Endnote Y

Epidemiology of bone fracture in female trauma patients based on risks of osteoporosis assessed using the Osteoporosis Self-Assessment Tool for Asians Score

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Int. J. Environ. Res. Public Health 2017; 14(11): e14111380.

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DOI 10.3390/ijerph14111380 **PMID** 29137199

Abstract

BACKGROUND: Osteoporotic fractures are defined as low-impact fractures resulting from low-level trauma. However, the exclusion of high-level trauma fractures may result in underestimation of the contribution of osteoporosis to fractures. In this study, we aimed to investigate the fracture patterns of female trauma patients with various risks of osteoporosis based on the Osteoporosis Self-Assessment Tool for Asians (OSTA) score.

METHODS: According to the data retrieved from the Trauma Registry System of a Level I trauma center between 1 January 2009 and 31 December 2015, a total of 6707 patients aged ≥ 40 years and hospitalized for the treatment of traumatic bone fracture were categorized as high-risk (OSTA < -4 , $n = 1585$), medium-risk ($-1 \geq$ OSTA ≥ -4 , $n = 1985$), and low-risk (OSTA > -1 , $n = 3137$) patients. Two-sided Pearson's, chi-squared, or Fisher's exact tests were used to compare categorical data. Unpaired Student's t-test and Mann-Whitney U-test were used to analyze normally and non-normally distributed continuous data, respectively. Propensity-score matching in a 1:1 ratio was performed with injury mechanisms as adjusted variables to evaluate the effects of OSTA-related grouping on the fracture patterns.

RESULTS: High- and medium-risk patients were significantly older, had higher incidences of comorbidity, and were more frequently injured from a fall and bicycle accident than low-risk patients did. Compared to low-risk patients, high- and medium-risk patients had a higher injury severity and mortality. In the propensity-score matched population, the incidence of fractures was only different in the extremity regions between high- and low-risk patients as well as between medium- and low-risk patients. The incidences of femoral fractures were significantly higher in high-risk (odds ratio [OR], 3.4; 95% confidence interval [CI], 2.73-4.24; $p < 0.001$) and medium-risk patients (OR, 1.4; 95% CI, 1.24-1.54; $p < 0.001$) than in low-risk patients. In addition, high-risk patients had significantly lower odds of humeral, radial, patellar, and tibial fractures; however, such lower odds were not found in medium- risk than low-risk patients.

CONCLUSIONS: The fracture patterns of female trauma patients with high- and medium-risk osteoporosis were different from that of low-risk patients exclusively in the extremity region.

PDF Y Endnote Y

Evidence supports action to prevent injurious falls in older adults

Larson EB.

J. Am. Med. Assoc. JAMA 2017; 318(17): 1659-1660.

Affiliation: Kaiser Permanente Washington Health Research Institute, Seattle.

Comment On: JAMA. 2017 Nov 7;318(17):1687-1699

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Abstract [Abstract unavailable]

PDF Y Endnote y

Exercise and older adults

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Clin. Geriatr. Med. 2018; 34(1): 145-162.

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(Copyright © 2018, Elsevier Publishing)

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Abstract

Regular exercise is essential for healthy aging and offers many health benefits, including reduced risk of all-cause mortality, chronic disease, and premature death. Because physical inactivity is prevalent, greater focus is needed on integrating exercise into care plans and counseling, and developing partnerships that support exercise opportunities. Older adults should be as physically active as their abilities and conditions allow. For substantial health benefits, older adults need to do aerobic, muscle-strengthening, and stretching exercises weekly, and balance activities as needed.

Appropriate planning must take account of factors such as prescribed medications, nutrition, injuries, hip and knee arthroplasties, and chronic conditions.

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PDFN Endnote Y

Fall prediction and prevention systems: recent trends, challenges, and future research directions

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Abstract

Fall prediction is a multifaceted problem that involves complex interactions between physiological, behavioral, and environmental factors. Existing fall detection and prediction systems mainly focus on physiological factors such as gait, vision, and cognition, and do not address the multifactorial nature of falls. In addition, these systems lack efficient user interfaces and feedback for preventing future falls. Recent advances in internet of things (IoT) and mobile technologies offer ample opportunities for integrating contextual information about patient behavior and environment along with physiological health data for predicting falls. This article reviews the state-of-the-art in fall detection and prediction systems. It also describes the challenges, limitations, and future directions in the design and implementation of effective fall prediction and prevention systems.

PDF Y Endnote Y

Falls and hip fractures associated with urinary incontinence among older men and women with complex needs: a national population study

Schluter PJ, Arnold EP, Jamieson HA.

Neurourol. Urodyn. 2017; ePub(ePub): ePub.

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Abstract

AIMS: To determine if urinary incontinence (UI) was an independent risk factor for falls and hip fractures in community-dwelling older men and women with complex needs, after controlling for confounders.

METHODS: Since 2012, all community care recipients in New Zealand have undergone standardized needs assessments using the Home Care International Residential Assessment Instrument (interRAI-HC). The interRAI-HC elicits information over multiple domains, including UI frequency and falls. Those aged 65+ years with assessment between July 1, 2012 and May 31, 2014 without collection devices or indwelling catheters were matched to hospital, mortality, and pharmaceutical databases, and apposite regression models applied.

RESULTS: Overall, 25 257 (37.5%) men and 42 032 (62.5%) women were eligible, with average age of 82.7 years (range: 65, 106 years). Incontinence was reported by 34.3% of men and 42.6% of women, falls within 90 days by 42.7% of men and 39.1% of women; and fractures recorded for 2.5% of men and 3.7% of women. In multivariable analysis, UI was significantly associated with falls ($P < 0.001$), and differentially related by sex ($P < 0.001$). Compared to continent participants, the odds of increasing falls risk was 1.69 (95% CI: 1.57, 1.82) for men with frequent incontinence and 1.53 (95% CI: 1.43, 1.64) for men with occasional continence; higher than the 1.39 (95% CI: 1.32, 1.46) and 1.33 (95% CI: 1.26, 1.39), respectively, for women. UI was not associated with hip fractures.

CONCLUSION: UI is a common independent risk factor for falls but not hip fractures. Patterns are different between men and women with complex needs.

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PDF Y Endnote Y

Falls in elderly patients are not treated according to national recommendations

Lillevang-Johannsen M, Grand J, Lembeck M, Giger AK, Drozdowska J, Zajworoniuk-Wlodarczyk J, Gaj A, Holm E.

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DOI unavailable **PMID** 29115205

Abstract

INTRODUCTION: The aim of this study was to evaluate health professionals' compliance with recommendations from the Danish Health Authority (DHA) concerning falls, to study the prevalence of acute hospital visits due to falls, and to compare characteristics of fall patients in two geographically and socioeconomically different areas of Denmark.

METHODS: The study was conducted in the emergency departments (ED) of Slagelse Hospital (SH) and Nykøbing Falster Hospital (NFH), both located in Denmark. Included were individuals > 50 years visiting the EDs from January 1 to March 31, 2014 who reported a fall. Information concerning

demographic data and comorbidity in fall patients was retrieved from the medical records of the patients.

RESULTS: A total of 2,664 individuals > 50 years visited the EDs during the study period. In all, 1,100 individuals (41.2%) reported a fall. In the NFH 236 (44%) and in the SH 223 (39%) of the fall patients had a fracture ($p = 0.049$). Patients in the more socioeconomically deprived area covered by the NFH were younger and had higher fracture and heart failure rates. Only 2% of the medical records contained answers to all four questions recommended by the DHA for risk screening in fall patients. The number of medical records containing answers to any of the four questions ranged from 17.5% to 25.8%.

CONCLUSIONS: Only few fall patients were screened according to DHA recommendations. ED staff's adherence to guidelines concerning fall risk assessment is poor. Fall patients in a socioeconomically deprived area were younger and had higher fracture and heart failure incidences. **FUNDING:** This study received funding from the public Regional Research Foundation, Region Zealand, Denmark.

TRIAL REGISTRATION: not relevant.

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PDF Y Endnote Y

Gait and cognition in parkinson's disease: cognitive impairment is inadequately reflected by gait performance during dual task

Gaßner H, Marxreiter F, Steib S, Kohl Z, Schlachetzki JCM, Adler W, Eskofier BM, Pfeifer K, Winkler J, Klucken

J. Front. Neurol. 2017; 8: e550.

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DOI 10.3389/fneur.2017.00550 **PMID** 29123499 **PMCID** PMC5662548

Abstract

INTRODUCTION: Cognitive and gait deficits are common symptoms in Parkinson's disease (PD). Motor-cognitive dual tasks (DTs) are used to explore the interplay between gait and cognition. However, it is unclear if DT gait performance is indicative for cognitive impairment. Therefore, the aim of this study was to investigate if cognitive deficits are reflected by DT costs of spatiotemporal gait parameters.

METHODS: Cognitive function, single task (ST) and DT gait performance were investigated in 67 PD patients. Cognition was assessed by the Montreal Cognitive Assessment (MoCA) followed by a standardized, sensor-based gait test and the identical gait test while subtracting serial 3's. Cognitive impairment was defined by a MoCA score <26. DT costs in gait parameters $[(DT - ST)/ST \times 100]$ were calculated as a measure of DT effect on gait. Correlation analysis was used to evaluate the association between MoCA performance and gait parameters. In a linear regression model, DT gait costs and clinical confounders (age, gender, disease duration, motor impairment, medication, and depression) were correlated to cognitive performance. In a subgroup analysis, we compared matched groups of cognitively impaired and unimpaired PD patients regarding differences in ST, DT, and DT gait costs.

RESULTS: Correlation analysis revealed weak correlations between MoCA score and DT costs of gait parameters ($r/r_{Sp} \leq 0.3$). DT costs of stride length, swing time variability, and maximum toe clearance ($|r/r_{Sp}| > 0.2$) were included in a regression analysis. The parameters only explain 8% of the cognitive variance. In combination with clinical confounders, regression analysis showed that these gait parameters explained 30% of MoCA performance. Group comparison revealed strong DT effects within both groups (large effect sizes), but significant between-group effects in DT gait costs were not observed.

CONCLUSION: These findings suggest that DT gait performance is not indicative for cognitive impairment in PD. DT effects on gait parameters were substantial in cognitively impaired and unimpaired patients, thereby potentially overlaying the effect of cognitive impairment on DT gait costs. Limits of the MoCA in detecting motor-function specific cognitive performance or variable individual response to the DT as influencing factors cannot be excluded. Therefore, DT gait parameters as marker for cognitive performance should be carefully interpreted in the clinical context.

PDF Y Endnote Y

Identification of Seniors at Risk scale as a simple tool of elderly patients' assessment in an acute hospital department

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Folia Med. Cracov. 2017; 57(2): 5-14.

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Abstract

INTRODUCTION: The aim of the study was to evaluate the usefulness of Identification of Seniors at Risk (ISAR) scale among elderly patients admitted to the department of internal medicine.

MATERIAL AND METHODS: The ISAR score was performed among patients aged >59 years after admission to the hospital ward. Data from medical history about diseases, taken medicines, falls, length of hospital stay and mortality were compared in patients with ISAR score of 0-1 and over 1 and in subjects with and without history of falls. Regression analysis was used to detect predictors of the length of hospital stay or death.

RESULTS: The sample consisted of 102 subjects aged 80.9 ± 7.9 years, 45.5% of men, 34.6% had history of falls. The number of diseases was 11.3 ± 3.9 and number of medicines - 8.9 ± 3.7 . The score of ISAR ≥ 2 was found in 90.2% of patients, length of hospital stay was 10.3 ± 8.4 days, mortality rate was 9.9%. Patients with ISAR score < 2 were younger, showed a smaller number of diseases, used less drugs and had less frequency of falls than those with score ≥ 2 . Patients with history of falls had higher mean ISAR score, higher number of diseases and medicines than the others. The increased number of diseases and higher ISAR score significantly influenced the length of hospital stay. None of the analyzed factors had any impact on mortality.

CONCLUSION: The score of ISAR scale together with number of diseases have a positive impact on the length of hospital stay.

PDF Not yet available Endnote Y

Identifying protective and risk factors for injurious falls in patients hospitalized for acute care: a retrospective case-control study

Aryee E, James SL, Hunt GM, Ryder HF.

BMC Geriatr. 2017; 17(1): 260.

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DOI 10.1186/s12877-017-0627-9 **PMID** 29115921

Abstract

BACKGROUND: Admitted patients who fall and injure themselves during an acute hospitalization incur increased costs, morbidity, and mortality, but little research has been conducted on identifying inpatients at high risk to injure themselves in a fall. Falls risk assessment tools have been unsuccessful due to their low positive predictive value when applied broadly to entire hospital populations. We aimed to identify variables associated with the risk of or protection against injurious fall in the inpatient setting. We also aimed to test the variables in the ABCs mnemonic (Age > 85, Bones-orthopedic conditions, anti-Coagulation and recent surgery) for correlation with injurious fall.

METHODS: We performed a retrospective case-control study at an academic tertiary care center comparing admitted patients with injurious fall to admitted patients without fall. We collected data on the demographics, medical and fall history, outcomes, and discharge disposition of injured fallers and control patients. We performed multivariate analysis of potential risk factors for injurious fall with logistic regression to calculate adjusted odds ratios.

RESULTS: We identified 117 injured fallers and 320 controls. There were no differences in age, anti-coagulation use or fragility fractures between cases and controls. In multivariate analysis, recent surgery (OR 0.46, $p = 0.003$) was protective; joint replacement (OR 5.58, $P = 0.002$), psychotropic agents (OR 2.23, $p = 0.001$), the male sex (OR 2.08, $p = 0.003$) and history of fall (OR 2.08, $p = 0.02$) were significantly associated with injurious fall.

CONCLUSION: In this study, the variables in the ABCs parameters were among the variables not useful for identifying inpatients at risk of injuring themselves in a fall, while other non-ABCs variables demonstrated a significant association with injurious fall. Recent surgery was a protective factor, and practices around the care of surgical patients could be extrapolated to reduce the in-hospital fall rates.

PDF Y Endnote Y

Is fear of falling associated with decline in global cognitive functioning in older adults: findings from the Irish Longitudinal Study on Ageing

Peeters G, Leahy S, Kennelly S, Kenny RA.

J. Am. Med. Dir. Assoc. 2017; ePub(ePub): ePub.

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DOI 10.1016/j.jamda.2017.09.012 **PMID** 29108891

Abstract

BACKGROUND: Fear of falling (FoF) is present in 20% to 85% of older adults and may be an early marker of decline in global cognitive functioning (GCF). We tested the hypothesis that FoF is associated with lower levels of GCF (cross-sectional) and greater decline in GCF (prospective) in adults aged 50 and older.

DESIGN: Observational cohort study. **SETTING:** The Irish Longitudinal Study on Ageing, a population-based study. **PARTICIPANTS:** Data were from 4931 participants (mean age 62.9 ± 9.1 , range 50-98, 54.3% female). **MEASUREMENTS:** FoF was based on self-report in 2010. GCF was measured with the Montreal Cognitive Assessment (MoCA) and Mini Mental Status Examination (MMSE) in 2010 and 2014. The cross-sectional association was examined using linear regression unadjusted and after adjustment for demographic and health factors. The prospective association between FoF and the odds of >1-SD decline in GCF were examined using logistic regression. Interaction with age and mediation by social and physical activities were examined.

RESULTS: In 2010, 21.9% of participants reported FoF. In the unadjusted cross-sectional models, those with FoF had lower scores on the MoCA (B -1.15, 95% confidence interval [CI] -1.40 to -0.90) and MMSE (B -0.52, CI -0.67 to -0.37). In the unadjusted prospective models, FoF was associated with a greater odds of decline in MoCA (odds ratio [OR] 1.60, CI 1.26-2.04) and MMSE (OR 1.64, CI 1.29-2.08). After adjustment for covariates, all associations attenuated and were no longer statistically significant, except the association with decline in MoCA (OR 1.32, CI 1.01-1.71). No statistically significant interaction with age was found ($P > .37$). Additional adjustment for social and physical activity did not change the results.

CONCLUSIONS: The findings provide weak evidence for FoF as a predictor of cognitive decline. Copyright © 2017 AMDA – The Society for Post-Acute and Long-Term Care Medicine. Published by Elsevier Inc. All rights reserved.

PDF Y Endnote Y

Long-term exposure to ambient PM_{2.5} associated with fall-related injury in six low- and middle-income countries

Guo Y, Lin H, Shi Y, Zheng Y, Li X, Xiao J, Liu T, Zeng W, Vaughn MG, Cummings-Vaughn LA, Nelson EJ, Qian ZM, Ma W, Wu F.

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Abstract

Exposure to ambient air pollution has been linked with adverse health outcomes of the circulatory and nervous systems. Given that falls are closely related to circulatory and nervous health, we hypothesize that air pollution may adversely affect fall-related injury. We employed Wave 1 data from 36,662 participants aged ≥ 50 years in WHO's Study on Global AGEing and Adult Health in six low- and middle-income countries. Ambient annual concentration of PM_{2.5} was estimated using satellite data. A three-level logistic regression model was applied to examine the long-term association between ambient PM_{2.5} and the prevalence of fall-related injury, and associated disease burden, as well as the potential effect modification of consumption of fruit and vegetables. Ambient PM_{2.5} was found to be significantly associated with the risk of fall-related injury. Each 10 $\mu\text{g}/\text{m}^3$ increase corresponded to 18% (OR = 1.18, 95% CI: 1.09, 1.28) increase in fall-related

injury after adjusting for various covariates. The association was relatively stronger among participants with lower consumption of fruit (OR = 1.22, 95% CI: 1.12, 1.33) than higher consumption (OR = 1.06, 95% CI: 0.92, 1.23), and among those with lower vegetable consumption (OR = 1.18, 95% CI: 1.08, 1.28) than higher consumption (OR = 1.08, 95% CI: 0.91, 1.27). Our study suggests that ambient PM_{2.5} may be one risk factor for fall-related injury and that higher consumption of fruit and vegetables could alleviate this effect.

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PDF Y Endnote Y

Prediction of falls in subjects suffering from Parkinson's disease, multiple sclerosis and stroke

Beghi E, Gervasoni E, Pupillo E, Bianchi E, Montesano A, Aprile I, Agostini M, Rovaris M, Cattaneo D. *Arch. Phys. Med. Rehabil.* 2017; ePub(ePub): ePub.

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DOI 10.1016/j.apmr.2017.10.009 **PMID** 29102438

Abstract

OBJECTIVE: To compare the risk of falls and fall predictors in patients with Parkinson's disease (PD), multiple sclerosis (MS) and stroke using the same study design.

DESIGN: Multicenter prospective cohort study.

SETTING: Three [masked] institutions for physical therapy and rehabilitation.

PARTICIPANTS: Patients with PD, MS and stroke seen for rehabilitation.

MAIN OUTCOME MEASURES: Functional scales were applied to investigate balance, disability, daily performance, self-confidence with balance, and social integration. Patients were followed for 6 months. Telephone interviews were organized at 2, 4 and 6 months to record falls and fall-related injuries. Incidence ratios, Kaplan-Meier survival curves and Cox proportional hazards models were used.

RESULTS: 299 patients (MS 111, PD and stroke 94 each) were enrolled and 259 had complete follow-up. One hundred and twenty-two (47.1%) fell at least once; 82 (31.7%) were recurrent fallers, 44 (17.0%) suffered injuries; 16%, 32% and 40% fell at 2, 4 and 6 months. Risk of falls was associated with disease type (PD, MS and stroke in decreasing order) and confidence with balance (ABC scale). Recurrent fallers were 7%, 15% and 24% at 2, 4 and 6 months. The risk of recurrent falls was associated with disease type, high educational level and the ABC score. Injured fallers were 3%, 8% and 12% at 2, 4 and 6 months. The only predictor of falls with injuries was disease type (PD).

CONCLUSIONS: PD, MS and stroke carry a high risk of falls. Other predictors include perceived balance confidence and high educational level.

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PDF Not yet available Endnote Y

Predictive performance of four frailty screening tools in community-dwelling elderly

Bongue B, Buisson A, Dupré C, Beland F, Gonthier R, Crawford-Achour É.

BMC Geriatr. 2017; 17(1): e262.

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DOI 10.1186/s12877-017-0633-y **PMID** 29126383

Abstract

BACKGROUND: This study compares the performance of four frailty screening tools in predicting relevant adverse outcome (disability, institutionalization and mortality) in community-dwelling elderly.

METHODS: Our study involved a secondary analysis of data from the FrÉLE cohort study. We focused on the following four frailty screening tools: the abbreviated Comprehensive Geriatric Assessment (aCGA), the Groningen Frailty Indicator (GFI), the Vulnerable Elders Survey-13 (VES-13) and the Fried scale. We used the Barberger-Gateau scale to assess disability. For comparison, we determined the capacity of these tools to predict the occurrence of disability, institutionalization or death using the receiver operating characteristic (ROC) curve. We also determined the threshold at which an optimal balance between sensitivity and specificity was reached. Odds ratios (ORs) were calculated to compare the risk of adverse outcome in the frail versus non-frail groups.

RESULTS: In total, 1643 participants were included in the mortality analyses; 1224 participants were included in the analyses of the other outcomes (74.5% of the original sample). The mean age was 77.7 years, and 48.1% of the participants were women. The prevalence of frailty in this sample ranged from 15.0% (Fried) to 52.2% (VES-13). According to the Barberger-Gateau scale, 643 (52.5%) participants were fully independent; 392 (32.0%) were mildly disabled; 118 (9.6%) were moderately disabled; and 71 (5.8%) were severely disabled. The tool with the greatest sensitivity for predicting the occurrence of disability, mortality and institutionalization was VES-13, which showed sensitivities of 91.0%, 89.7% and 92.3%, respectively. The values for the area under the curve (AUC) of the four screening tools at the proposed cut-off points ranged from 0.63 to 0.75. The odds (univariate and multivariate analysis) of developing a disability were significantly greater among the elderly identified as being frail by all four tools.

CONCLUSION: The multivariate analyses showed that the VES-13 may predict the occurrence of disability, mortality and institutionalization. However, the AUC analysis showed that even this tool did not have good discriminatory ability. These findings suggest that despite the high number of frailty screening tools described in the literature, there is still a need for a screening tool with high predictive performance.

PDF Y Endnote Y

Quantification of the sit-to-stand movement for monitoring age-related motor deterioration using the Nintendo Wii Balance Board

Yamako G, Chosa E, Totoribe K, Fukao Y, Deng G.

PLoS One 2017; 12(11): e0188165.

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DOI 10.1371/journal.pone.0188165 **PMID** 29136031

Abstract

Simple methods for quantitative evaluations of individual motor performance are crucial for the early detection of motor deterioration. Sit-to-stand movement from a chair is a mechanically demanding component of activities of daily living. Here, we developed a novel method using the ground reaction force and center of pressure measured from the Nintendo Wii Balance Board to quantify sit-to-stand movement (sit-to-stand score) and investigated the age-related change in the sit-to-stand score as a method to evaluate reduction in motor performance. The study enrolled 503

participants (mean age \pm standard deviation, 51.0 ± 19.7 years; range, 20-88 years; male/female ratio, 226/277) without any known musculoskeletal conditions that limit sit-to-stand movement, which were divided into seven 10-year age groups. The participants were instructed to stand up as quickly as possible, and the sit-to-stand score was calculated as the combination of the speed and balance indices, which have a tradeoff relationship. We also performed the timed up and go test, a well-known clinical test used to evaluate an individual's mobility. There were significant differences in the sit-to-stand score and timed up and go time among age groups. The mean sit-to-stand score for 60s, 70s, and 80s were 77%, 68%, and 53% of that for the 20s, respectively. The timed up and go test confirmed the age-related decrease in mobility of the participants. In addition, the sit-to-stand score measured using the Wii Balance Board was compared with that from a laboratory-graded force plate using the Bland-Altman plot (bias = -3.1 [ms]-1, 95% limit of agreement: -11.0 to 3.9 [ms]-1). The sit-to-stand score has good inter-device reliability (intraclass correlation coefficient = 0.87). Furthermore, the test-retest reliability is substantial (intraclass correlation coefficient = 0.64). Thus, the proposed STS score will be useful to detect the early deterioration of motor performance.

PDF Y Endnote Y

Screening for geriatric syndromes: falls, urinary/fecal incontinence, and osteoporosis

Smith EM, Shah AA.

Clin. Geriatr. Med. 2018; 34(1): 55-67.

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DOI 10.1016/j.cger.2017.08.002 **PMID** 29129217

Abstract

The geriatric syndromes of falls, incontinence, and osteoporosis are concerns in older adults because of their potential impact on quality of life. Asking about history of falls or a fear of falling should prompt a multifactorial assessment of fall risk and targeted interventions to reduce falls. Urinary and fecal incontinence should be screened because they are common conditions that are underreported due to embarrassment and general perception that incontinence is a normal part of aging. Women over age 65, men over age 70, and younger patients with high-risk characteristics should be screened with bone mineral density testing with dual-energy x-ray absorptiometry.

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The effect of time to international normalized ratio reversal on intracranial hemorrhage evolution in patients with traumatic brain injury

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J. Trauma Nurs. 2017; 24(6): 381-384.

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(Copyright © 2017, Society of Trauma Nurses)

DOI 10.1097/JTN.0000000000000330 **PMID** 29117058

Abstract

The incidence of geriatric traumatic brain injury (TBI) is increasing throughout the United States, with many of these patients taking anticoagulation (AC) medication. The purpose of this investigation was to determine the effect of time to international normalized ratio (INR) reversal on intracranial hemorrhage evolution in TBI patients taking prehospital AC medication. We hypothesized that rapid reversal of INR improves outcomes of head-injured patients taking AC medication. Admissions to a Level II trauma center between February 2011 and December 2013 were reviewed. Patients presenting with an initial INR of 2.0 or more, computed tomographic scan positive for intracranial hemorrhage, and INR reversal to less than 1.5 in hospital were included. Patients with nontraumatic intracranial hemorrhage were excluded. Reversal of INR was achieved using some combination of fresh frozen plasma, prothrombin complex concentrate, and vitamin K. A binary logistic regression model assessed the adjusted impact of rapid INR reversal on intracranial hemorrhage evolution. Significance was defined as $p < .05$. One hundred subjects were included. Four patients with nontraumatic intracranial hemorrhage were excluded, resulting in a final study population of 96 patients. The most common intracranial hemorrhage in the study population was subarachnoid hemorrhage (71.9%), followed by subdural hemorrhage (35.4%). Reversal of INR of less than 5 hr was not associated with intracranial hemorrhage evolution; however, reversal of less than 10 hr was found to be associated with a decreased odds ratio for intracranial hemorrhage evolution ($p = .043$). Rapid reversal of elevated INR levels (<10 hr) may decrease intracranial hemorrhage evolution in TBI patients taking prehospital AC medication.

PDF N Endnote Y

The incidence of traumatic intracranial hemorrhage in head-injured older adults transported by EMS with and without anticoagulant or antiplatelet use

Nishijima DK, Gaona SD, Waechter T, Maloney R, Blitz A, Elms AR, Farrales RD, Montoya J, Bair T, Howard C, Gilbert M, Trajano R, Hatchel K, Faul M, Bell JM, Coronado V, Vinson DR, Ballard DW, Tancredi DJ, Garzon H, Mackey KE, Shahlaie K, Holmes JF.

J. Neurotrauma 2017; ePub(ePub): ePub.

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DOI 10.1089/neu.2017.5232 **PMID** 29108469

Abstract

Field triage guidelines recommend transport of head-injured patients on anticoagulants or antiplatelets to a higher-level trauma center based on studies suggesting a high incidence of traumatic intracranial hemorrhage (tICH). We compared the incidence of tICH in older adults transported by EMS with and without anticoagulation or antiplatelet use and evaluated the accuracies of different sets of field triage criteria to identify tICH. This was a prospective, observational study at 5 EMS agencies and 11 hospitals. Older adults (≥ 55 years) with head trauma and transported by EMS from Aug 2015 to Sept 2016 were eligible. EMS providers completed standardized data forms and patients were followed through ED or hospital discharge. We enrolled 1,304 patients; 1147 (88%) received a cranial CT scan and were eligible for analysis. 434 (33%) patients had anticoagulant or antiplatelet use and 112 (10%) had tICH. The incidence of tICH in patients with (11%, 95%CI 8-14%) and without (9%, 95%CI 7-11%) anticoagulant or antiplatelet use was similar. Anticoagulant or antiplatelet use was not predictive of tICH on adjusted analysis. Steps 1-3 criteria alone were not sensitive in identifying tICH (27%) while the addition of anticoagulant or

antiplatelet criterion improved sensitivity (63%). Other derived sets of triage criteria were highly sensitive (>98%) but poorly specific (<11%). The incidence of tICH was similar between patients with and without anticoagulant or antiplatelet use. Use of anticoagulant or antiplatelet medications was not a risk factor for tICH. We were unable to identify a set of triage criteria that was accurate for trauma center need.

PDF Y Endnote Y

Coordination of gaze behavior and foot placement during walking in persons with glaucoma

Miller AB, Lajoie K, Strath RA, Neima DR, Marigold DS.

J. Glaucoma. 2017; ePub(ePub): ePub.

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DOI 10.1097/IJG.0000000000000819 PMID 29117005

Abstract

PURPOSE: Vision normally provides environmental information necessary to direct the foot to safe locations during walking. Peripheral visual field loss limits what a person can see, and may alter how a person visually samples the environment. Here we tested the hypothesis that the spatial-temporal coupling between gaze and stepping in a precision-based walking task is altered in persons with glaucoma, particularly under dual task situations, and results in reduced foot-placement accuracy. **METHODS:** Twenty persons with glaucoma and twenty normally-sighted controls performed a precision walking task that involved stepping to the center of four targets under three conditions: targets only, walking and counting backwards to simulate a conversation, and walking while performing a concurrent visual search task to simulate locating a landmark. We quantified foot-placement error and error variability with respect to the targets, as well as saccade and fixation timing with respect to foot placement.

RESULTS: Compared to controls, persons with glaucoma looked earlier at future stepping targets (with respect to toe-off of the foot) in the targets only and count conditions, and transferred gaze away sooner from the current stepping target in all conditions ($P<0.05$). Persons with glaucoma also had increased foot-placement error, particularly in the count condition, and increased foot-placement error variability compared to normally-sighted controls ($P<0.05$).

CONCLUSIONS: Glaucoma significantly disrupts gaze-foot coordination and results in less accurate foot placement when precision is required during walking. This may increase the risk of trips and falls in this population.

PDF N Endnote Y

Population-based epidemiology and incidence of distal femur fractures

Elsoe R, Ceccotti AA, Larsen P.

Int. Orthop. 2017; ePub(ePub): ePub.

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DOI 10.1007/s00264-017-3665-1 PMID 29116356

Abstract

PURPOSE: The literature lacks recent epidemiological studies on the incidence, trauma mechanism and fracture classification of distal femur fractures. The aim of the present study was to provide up-to-date information concerning the incidence of distal femur fractures in a large and complete population and to report on the distribution of fracture classification, trauma mechanisms and patient baseline demographics.

METHODS: The approach for this study was via a retrospective reviews of records.

RESULTS: A total of 293 patients were treated for 302 distal femur fractures between 2005 and 2010. The mean age at the time of fracture was 62.2 years. The mean age was 44.0 years for males and 71.6 years for females. The gender distribution was 33.4% males and 66.6% females. The overall incidence of distal femur fractures was 8.7/100,000/year. After the age of 60 years, a rapid increase in the incidence of distal femoral fractures was observed in both genders, with a large female predominance. Low-energy injuries were the most common mode of injury in both genders (97%), with approximately 61% being the result of a fall from standing height. AO classification type A (extra-articular fractures) was the most common of all fractures (38.6%). Eighty-four patients (28.7%) were admitted with periprosthetic fractures, corresponding to an overall incidence of periprosthetic fractures of 2.4/100,000/year.

CONCLUSIONS: The present study shows an incidence of 8.7/100,000/year of distal femur fractures. After the age of 60 years, a rapid increase in the incidence of distal femoral fractures was observed in both genders, with a considerable female predominance.

PDF Y Endnote Y

The influence of Pilates exercises on body balance in the standing position of hearing impaired people

Walowska J, Bolach B, Bolach E.

Disabil. Rehabil. 2017; ePub(ePub): ePub.

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DOI 10.1080/09638288.2017.1370731 **PMID** 29132250

Abstract

PURPOSE: Hearing impairment may affect the body posture maintenance. The aim of the study was to evaluate the effect of modified Pilates exercise program on the body posture maintenance in hearing impaired people.

METHODS: Eighty students (aged 13-24) were enrolled and randomly allocated into two groups: test group (n = 41) which attended an original program based on modified Pilates exercises and control group (n = 39) which attended standard physical education classes. Stabilographic tests were conducted at baseline and after 6-week training program.

RESULTS: Both groups showed improved control of body balance in a standing position manifested in reductions of the length of path, surface area, and speed of deflection. Modified Pilates program was significantly more effective in improving body balance control in relaxed posture and with feet together than standard physical education classes. The greater efficiency of the modified Pilates program was expressed in a significant improvement in balance control parameters, i.e., path length, surface area, and speed of deflection.

CONCLUSIONS: The modified Pilates program was more effective in improving body balance control in the hearing impaired people than standard physical education classes. Modification of physical

activity recommendations for hearing impaired students may be considered; however, further research is required. Implications for Rehabilitation Hearing impairment impacts the mental, social and, physical spheres of life as well as deteriorates equivalent reactions and the way body posture is maintained. In hearing impaired people, control of body balance and muscle coordination is often disturbed, thus more attention should be paid to exercises associated with balance which may improve the ability to learn and develop motor skills. Modified Pilates program was significantly more effective in improving body balance control than standard physical education classes in hearing impaired people.

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