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**Benzodiazepine misuse in the elderly: risk factors, consequences, and management**

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*Curr. Psychiatry Rep.* 2016; 18(10): e89.

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**DOI** 10.1007/s11920-016-0727-9 **PMID** 27549604

**Abstract**

Benzodiazepine (BZD) inappropriate use (i.e., misuse and overuse) is a worldwide public health problem. Despite current knowledge about increased sensitivity to side effects in the elderly, that should lead to more caution, only a third of BZD prescriptions in this age group are considered appropriate. The most frequent inadequate situations are excessive duration and/or dosage of a medical prescription or self-medication, especially in a context where it would be contraindicated, e.g., long-acting BZD in the elderly. Polypharmacy and comorbidities are major risk factors. Consequences of BZD inappropriate use are falls, delirium and other cognitive dysfunction, acute respiratory failure, car accidents, dependence, and withdrawal symptoms. An emerging concern is a potentially increased risk of dementia. Contrary to most clinicians' belief, discontinuation of chronic BZD use in elderly patients is feasible, with adequate psychotherapeutic or pharmacological strategies, and can lead to long-term abstinence. Brief cognitive therapy mostly relies on psychoeducation and motivational enhancement and is particularly useful in this context. Further research is needed, notably in three areas: (1) assessing the impact of public health programs to prevent BZD inappropriate use in the elderly, (2) developing alternative strategies to treat anxiety and insomnia in elderly patients, and (3) exploring the association between chronic BZD use and dementia.

**PDF Y Endnote Y**

**Complex and simple clinical reaction times are associated with gait, balance, and major fall injury in older subjects with diabetic peripheral neuropathy**

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*Am. J. Phys. Med. Rehabil.* 2016; ePub(ePub): ePub.

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**Abstract**

**OBJECTIVE:** The aim of this work was to identify relationships between complex and simple clinical measures of reaction time (RT<sub>clin</sub>) and indicators of balance in older subjects with and without diabetic peripheral neuropathy (DPN).

**DESIGN:** Prospective cohort design. Complex RT<sub>clin</sub> accuracy, simple RT<sub>clin</sub> latency, and their ratio were determined using a novel device in 42 subjects (mean ± SD age, 69.1 ± 8.3 yrs), 26 with DPN and 16 without. Dependent variables included unipedal stance time (UST), step width variability and range on an uneven surface, and major fall-related injury over 12 months.

**RESULTS:** In the DPN subjects, the ratio of complex RT<sub>clin</sub> accuracy to simple RT<sub>clin</sub> latency was strongly associated with longer UST (R/P = 0.653/0.004), and decreased step width variability and range (R/P = -0.696/0.001 and -0.782/<0.001, respectively) on an uneven surface. Additionally, the 2

DPN subjects sustaining major injuries had lower complex RTclin accuracy:simple RTclin latency than those without.

**CONCLUSIONS:** The ratio of complex RTclin accuracy:simple RTclin latency is a potent predictor of UST and frontal plane gait variability in response to perturbations and may predict major fall injury in older subjects with DPN. These short latency neurocognitive measures may compensate for lower limb neuromuscular impairments and provide a more comprehensive understanding of balance and fall risk.

**PDF Y Endnote Y**

### **Deadly falls: operative versus nonoperative management of Type II odontoid process fracture in octogenarians**

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*J. Neurosurg. Spine* 2016; ePub(ePub): 1-6.

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#### **Abstract**

**OBJECTIVE** Type II odontoid fracture is a common injury among elderly patients, particularly given their predisposition toward low-energy falls. Previous studies have demonstrated a survival advantage following early surgery among patients older than 65 years, yet octogenarians represent a medically distinct and rapidly growing population. The authors compared operative and nonoperative management in patients older than 79 years.

**METHODS** A single-center prospectively maintained trauma database was reviewed using ICD-9 codes to identify octogenarians with C-2 cervical fractures between 1998 and 2014. Cervical CT images were independently reviewed by blinded neurosurgeons to confirm a Type II fracture pattern. Prospectively recorded outcomes included Glasgow Coma Scale (GCS) score, Abbreviated Injury Scale (AIS) score, Injury Severity Score (ISS), additional cervical fracture, and cord injury. Primary end points were mortality at 30 days and at 1 year. Statistical tests included the Student t-test, chi-square test, Fisher's exact test, Kaplan-Meier test, and Cox proportional hazard.

**RESULTS** A total of 111 patients met inclusion criteria (94 nonoperative and 17 operative [15 posterior and 2 anterior]). Mortality data were available for 100% of patients. The mean age was 87 years (range 80-104 years). Additional cervical fracture, spinal cord injury, GCS score, AIS score, and ISS were not associated with either management strategy at the time of presentation. The mean time to death or last follow-up was 22 months (range 0-129 months) and was nonsignificant between operative and nonoperative groups ( $p = 0.3$ ). Overall mortality was 13% in-hospital, 26% at 30 days, and 41% at 1 year. Nonoperative and operative mortality rates were not significant at any time point (12% vs 18%,  $p = 0.5$  [in-hospital]; 27% vs 24%,  $p = 0.8$  [30-day]; and 41% vs 41%,  $p = 1.0$  [1-year]). Kaplan-Meier analysis did not demonstrate a survival advantage for either management strategy. Spinal cord injury, GCS score, AIS score, and ISS were significantly associated with 30-day and 1-year mortality; however, Cox modeling was not significant for any variable. Additional cervical fracture was not associated with increased mortality. The rate of nonhome disposition was not significant between the groups.

**CONCLUSIONS** Type II odontoid fracture is associated with high morbidity among octogenarians, with 41% 1-year mortality independent of intervention—a dramatic decrease from actuarial survival

rates for all 80-, 90-, and 100-year-old Americans. Poor outcome is associated with spinal cord injury, GCS score, AIS score, and ISS.

#### **PDF Y Endnote Y**

#### **Determinants of falls and fear of falling in ambulatory persons with late effects of polio**

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*PM R* 2016; ePub(ePub): ePub.

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#### **Abstract**

**BACKGROUND:** Falls and fear of falling (FOF) are common in persons with late effects of polio but there is limited knowledge of associated factors.

**OBJECTIVE:** To determine how knee muscle strength, dynamic balance and gait performance (adjusted for gender, age and BMI) are associated with falls and FOF in persons with late effects of polio.

**DESIGN:** A cross-sectional study.

**SETTING:** A university hospital outpatient clinic.

**PARTICIPANTS:** Eighty-one ambulatory persons with verified late effects of polio (43 men; mean age 67 years).

**MAIN OUTCOME MEASUREMENTS:** Number of falls the past year, Falls Efficacy Scale -International (FES-I) to assess FOF, a Biodex dynamometer to measure knee muscle strength, the Timed Up and Go (TUG) test to assess dynamic balance and the Six Minute Walk test (6MWT) to assess gait performance. Univariate and multivariate logistic regression analyses were used for falls (categorical data) and linear regression analyses for FOF (continuous data) as dependent variables.

**RESULTS:** Fifty-nine % reported at least one fall during the past year and 79% experienced FOF. Reduced knee muscle strength in the more affected limb and gait performance were determinants of falls. An increase of 10 Nm in knee flexor and knee extensor strength reduced the OR between 0.70 and 0.83 ( $P=.01$ ), and an increase of 100 meter in 6MWT reduced the OR to 0.41 ( $P=.001$ ). All factors were determinants of FOF; reduced knee muscle strength in the more and less affected limbs explained 17% to 25% of the variance in FOF, dynamic balance 30% and gait performance 41%. Gender, age and BMI only marginally influenced the results.

**CONCLUSIONS:** Reduced gait performance, knee muscle strength and dynamic balance are to a varying degree determinants of falls and FOF in ambulatory persons with late effects of polio. Future studies need to evaluate if rehabilitation programs targeting these factors can reduce falls and FOF in this population.

#### **PDF Y Endnote y**

## Determining risk of future falls in community-dwelling older adults: a systematic review and meta-analysis using posttest probability

Lusardi MM, Fritz S, Middleton A, Allison L, Wingood M, Phillips E, Criss M, Verma S, Osborne J, Chui KK.

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(Copyright © 2016, American Physical Therapy Association)

DOI 10.1519/JPT.000000000000099 PMID unavailable

### Abstract

**BACKGROUND:** Falls and their consequences are significant concerns for older adults, caregivers, and health care providers. Identification of fall risk is crucial for appropriate referral to preventive interventions. Falls are multifactorial; no single measure is an accurate diagnostic tool. There is limited information on which history question, self-report measure, or performance-based measure, or combination of measures, best predicts future falls.

**PURPOSE:** First, to evaluate the predictive ability of history questions, self-report measures, and performance-based measures for assessing fall risk of community-dwelling older adults by calculating and comparing posttest probability (PoTP) values for individual test/measures. Second, to evaluate usefulness of cumulative PoTP for measures in combination.

**DATA SOURCES:** To be included, a study must have used fall status as an outcome or classification variable, have a sample size of at least 30 ambulatory community-living older adults ( $\geq 65$  years), and track falls occurrence for a minimum of 6 months. Studies in acute or long-term care settings, as well as those including participants with significant cognitive or neuromuscular conditions related to increased fall risk, were excluded. Searches of Medline/PubMED and Cumulative Index of Nursing and Allied Health (CINAHL) from January 1990 through September 2013 identified 2294 abstracts concerned with fall risk assessment in community-dwelling older adults.

**STUDY SELECTION:** Because the number of prospective studies of fall risk assessment was limited, retrospective studies that classified participants (faller/nonfallers) were also included. Ninety-five full-text articles met inclusion criteria; 59 contained necessary data for calculation of PoTP. The Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS) was used to assess each study's methodological quality.

**DATA EXTRACTION:** Study design and QUADAS score determined the level of evidence. Data for calculation of sensitivity (Sn), specificity (Sp), likelihood ratios (LR), and PoTP values were available for 21 of 46 measures used as search terms. An additional 73 history questions, self-report measures, and performance-based measures were used in included articles; PoTP values could be calculated for 35.

**DATA SYNTHESIS:** Evidence tables including PoTP values were constructed for 15 history questions, 15 self-report measures, and 26 performance-based measures. Recommendations for clinical practice were based on consensus.

**LIMITATIONS:** Variations in study quality, procedures, and statistical analyses challenged data extraction, interpretation, and synthesis. There was insufficient data for calculation of PoTP values for 63 of 119 tests.

**CONCLUSIONS:** No single test/measure demonstrated strong PoTP values. Five history questions, 2 self-report measures, and 5 performance-based measures may have clinical usefulness in assessing risk of falling on the basis of cumulative PoTP. Berg Balance Scale score ( $\leq 50$  points), Timed Up and Go times ( $\geq 12$  seconds), and 5 times sit-to-stand times ( $\geq 12$  seconds) are currently the most

evidence-supported functional measures to determine individual risk of future falls. Shortfalls identified during review will direct researchers to address knowledge gaps.

#### **PDF Will get ILL Endnote Y**

#### **Evaluating exercise prescription and instructional methods used in tai chi studies aimed at improving balance in older adults: a systematic review**

Wu Y, MacDonald HV, Pescatello LS.

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

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#### **Abstract**

**OBJECTIVES:** To develop an evaluation instrument to determine to what extent Tai Chi interventions aimed at improving the balance of older adults disclosed their exercise prescription (Ex Rx ) and instructional methods and met best-practice exercise recommendations for balance improvement.

**DESIGN:** Review.

**SETTING:** PubMed, Scopus, and CINAHL databases were searched from their inception until August 22, 2014.

**PARTICIPANTS:** Adults aged 60 and older without debilitating disease.

**MEASUREMENTS:** Three electronic databases were searched to identify randomized controlled trials (RCTs) of Tai Chi interventions aimed at improving balance in older adults without severe debilitating diseases. Three Ex Rx (frequency, time, intervention length) and 10 instructional (e.g., style, number of forms) methods of the included RCTs were evaluated.

**RESULTS:** Twenty-seven interventions were identified from 26 RCTs. On average, Tai Chi was performed for a mean  $56.5 \pm 14.4$  minutes per session for  $2.8 \pm 1.4$  sessions per week for  $19.7 \pm 12.7$  weeks. Most interventions reported all three Ex Rx methods items, with a mean reporting rate of  $92.6 \pm 19.2\%$ . For the 10 instructional methods items, the mean reporting rate was  $41.1 \pm 18.0\%$ , significantly lower than for the Ex Rx methods items ( $P < .001$ ). Fewer than half of the interventions reported unsupervised practice (15%), progression (22%), or the use of breathing (30%) and relaxation (15%) techniques. The instructional methods items most important for targeting Tai Chi practice to improve balance were not routinely disclosed, with only 15% reporting names of forms and 52% reporting movement principles.

**CONCLUSION:** Most Tai Chi interventions disclosed their Ex Rx methods yet routinely failed to report instructional methods. To increase the effectiveness of Tai Chi to improve balance in older adults, future RCTs should disclose their Ex Rx and instructional methods, especially methods that target balance.

#### **PDF Y Endnote Y**

#### **Evaluating the fall risk among elderly population by choice step reaction test**

Wang D, Zhang J, Sun Y, Zhu W, Tian S, Liu Y.

*Clin. Interv. Aging* 2016; 11: 1075-1082.

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### Abstract

Falls during daily activities are often associated with injuries and physical disabilities, thereby affecting quality of life among elder adults. Balance control, which is crucial in avoiding falls, is composed of two elements: muscle strength and central nervous system (CNS) control. A number of studies have reported that reduced muscle strength raises the risk of falling. However, to date there has been only limited research focused on the relationship between fall risk and the CNS. This study aimed to investigate the relationship between CNS and risk of falling among the elderly. A total of 140 elderly people (92 females and 48 males) were divided into faller and nonfaller groups based on questionnaire responses concerning falls in their daily life. Participants undertook a choice step reaction test in which they were required to respond to random visual stimuli using foot movements as fast as possible in the left or right directions. Response time was quantified as premotor time (PMT) and motor time (MT). In addition, the participants' electro-myography data were recorded during the choice step reaction test. A maximal isokinetic torque test was also performed. PMT was greater in the fallers than in the nonfallers group. There was a significant difference between fall status and direction on PMT. PMT of the left limb in nonfallers was faster than the right, but in fallers there was no difference between left and right limbs. A similar phenomenon was also observed for MT. There were significant differences between fallers and nonfallers in maximum isokinetic torque at knee and ankle joints. The correct rate of PMT was higher than other variables, such as MT and maximal isokinetic torque, in evaluating elderly fall risk by using logistic regression analyses. The results suggest that PMT in the choice step reaction test could be a useful parameter to assess risk of fall among elder adults. In addition, decreased maximal isokinetic torque was related to greater PMT and disappearance of asymmetry in older adults who were at higher risk of fall, especially in the lower limb.

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#### Factors associated with use of falls risk-increasing drugs among patients of a geriatric oncology outpatient clinic in Australia: a cross-sectional study

Turner JP, Tervonen HE, Shakib S, Singhal N, Prowse R, Bell JS.

*J. Eval. Clin. Pract.* 2016; ePub(ePub): ePub.

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### Abstract

Older people with cancer are at increased risk of falling. Falls risk-increasing drugs (FRIDs), comprising psychotropics and medications that cause orthostatic hypotension, are a potentially modifiable risk factor for falls. The objective of this study was to determine the prevalence and factors associated with use of FRIDs in older people with cancer. Patients aged  $\geq 70$  years who presented to a hospital outpatient clinic between January 2009 and July 2010 were included in the study. Information on current medication use, falls in previous 6 months, and frailty criteria was collected. Multinomial logistic regression was used to compute odds ratios (OR) and 95% confidence intervals (CIs) for factors associated with levels of FRID use. Overall, 76.1% ( $n = 293$ ) of 383 patients used FRIDs. This comprised psychotropics (31.2%,  $n = 120$ ) and medications causing orthostatic hypotension (69.9%,  $n = 269$ ). In total, 24.0% ( $n = 92$ ) patients reported falling in the previous

6 months. Risk factors for falling were associated with use of psychotropics but not orthostatic hypotension drugs. Patients with a history of falls had increased odds of using psychotropics ( $\geq 3$  psychotropics; OR 13.50; 95%CI, 2.64-68.94). Likewise, frail patients had increased odds of using psychotropics ( $\geq 3$  psychotropics; OR 27.78; 95%CI, 6.06-127.42). Risk factors for falling were associated with the use of psychotropics. This suggests that clinicians either do not recognize or underestimate the contribution of medications to falls in this high-risk patient group. Further efforts are needed to rationalize medication regimens at the time of patients' first presentation to outpatient oncology services.

#### PDF Y Endnote Y

### Falls-risk post-stroke: Examining contributions from paretic versus non paretic limbs to unexpected forward gait slips

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

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**DOI** 10.1016/j.jbiomech.2016.06.005 **PMID** 27416778

#### Abstract

Community-dwelling stroke survivors show a high incidence of falls with unexpected external perturbations during dynamic activities like walking. Previous evidence has demonstrated the importance of compensatory stepping to restore dynamic stability in response to perturbations in hemiparetic stroke survivors. However, these studies were limited to either stance perturbations or perturbation induced under the unaffected limb. This study aimed to compare the differences, if any, between the non-paretic and paretic sides in dynamic stability and protective stepping strategies when exposed to unexpected external perturbation during walking. Twenty hemiparetic subjects experienced an unexpected forward slip during walking on the laboratory walkway either on the paretic ( $n=10$ ) or the nonparetic limb ( $n=10$ ). Both groups demonstrated a backward loss of balance with a compensatory stepping response, with the nonparetic-side slip group resorting mainly to an aborted step response (60%) and the paretic-side slip group mainly exhibiting a recovery step response (90%). Although both groups showed an equal incidence of falls, the nonparetic-side slip group demonstrated a higher stability at recovery step touchdown, resulting from lower perturbation magnitudes (slip displacement and velocity) compared to the paretic-side slip group. The results indicate that the paretic side had difficulty initiating and executing a successful stepping response (nonparetic-side slip) and also in reactive limb control while in stance (paretic-side slip). Based on these results it is suggested that intervention strategies for fall-prevention in chronic stroke survivors should focus on paretic limb training for both reactive stepping and weight bearing for improving balance control for recovery from unpredictable perturbations during dynamic activities such as walking.

#### PDF Y Endnote Y

### Fear of falling, but not gait impairment, predicts subjective memory complaints in cognitively intact older adults

Sakurai R, Suzuki H, Ogawa S, Kawai H, Yoshida H, Hirano H, Ihara K, Obuchi S, Fujiwara Y.

*Geriatr. Gerontol. Int.* 2016; ePub(ePub): ePub.

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#### **Abstract**

**AIM:** Understanding the risk factors for developing subjective memory complaints (SMC) could help with early screening and treatment for cognitive impairment. The aim of the present study was to explore the risk factors for developing SMC, by focusing on gait-related variables.

**METHODS:** A total of 406 community-dwelling older adults aged 65-85 years without impending cognitive impairment participated in baseline and 1-year follow-up evaluations. A comprehensive evaluation was carried out, and included gait speed and fear of falling (FoF) assessments, and the Montreal Cognitive Assessment test. Logistic regression analyses were carried out to independently evaluate the risk factors at baseline and follow-up evaluations.

**RESULTS:** At baseline, 45.1% of older adults had SMC. The presence of SMC at baseline was associated with being female, subjective hearing loss and FoF. Of 223 participants who did not report SMC at baseline, 48 had newly developed SMC at follow up (21.5%). The significant predictors for developing SMC were being female and FoF, but not gait speed, and were independent of depression symptoms. The Montreal Cognitive Assessment total score at baseline was a marginally significant predictor for developing SMC at follow up ( $P = 0.06$ ), but a lower score in the language domain was a significant predictor in further analysis.

**CONCLUSIONS:** FoF was a significant risk for future development of SMC, suggesting that FoF might reflect the risk of cognitive impairment at an earlier stage, or that FoF and SMC could share the same basis of anxiety for daily activities. The mechanisms and consequence of this longitudinal relationship require further study.

**PDF Y Endnote Y**

#### **Hip fracture incidence 2003-2013 and projected cases until 2050 in Austria: a population-based study**

Concin H, Brozek W, Benedetto KP, Häfele H, Kopf J, Bärenzung T, Schnetzer R, Schenk C, Stimpfl E, Waheed-Hutter U, Ulmer H, Rapp K, Zwettler E, Nagel G.

*Int. J. Public Health* 2016; ePub(ePub): ePub.

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#### **Abstract**

**OBJECTIVES:** Elevated hip fracture incidence is a major public health problem looming to aggravate in industrialized countries due to demographic developments. We report hip fracture incidence and expected future cases from Vorarlberg, the westernmost province of Austria, results potentially representative of Central European populations.

**METHODS:** Crude and standardized hip fracture incidence rates in Vorarlberg 2003-2013 are reported. Based on the age-specific incidence in 2013 or trends 2003-2013, we predict hip fractures till 2050.

**RESULTS:** Female age-standardized hip fracture incidence decreased 2005-2013, whereas for men, the trend was rather unclear. Uncorrected forecasts indicate that by 2050, female and male cases will each have more than doubled from 2015 in all demographic core scenarios. Corrected by



incidence trends before 2013, cases are expected to drop among women but rise among men.

**CONCLUSIONS:** We anticipate rising hip fracture numbers in Vorarlberg within the next decades, unless prevention programs that presumably account for decreasing incidence rates, particularly among women since 2005, take further effect to counteract the predicted steady increase due to demographic changes. Concomitantly, augmented endeavors to target the male population by these programs are needed.

#### **PDF Y Endnote Y**

#### **Identifying fallers among home care clients with dementia and Parkinson's disease**

Bansal S, Hirdes JP, Maxwell CJ, Papaioannou A, Giangregorio LM.

*Can. J. Aging* 2016; ePub(ePub): ePub.

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#### **Abstract**

Few studies have focused on falls among home care (HC) clients with neurological conditions. This study identified factors that increase risk of falling among HC clients with no recent history of falls, and explored whether risk profiles varied among those with dementia or parkinsonism compared to those without selected neurological conditions. A retrospective cohort design was used and analysis of data from community-based HC clients across Ontario was conducted on a sample of ambulatory clients with dementia, parkinsonism, or none of the selected neurological conditions. Data were obtained from the Resident Assessment Instrument for HC (RAI-HC) assessment. The outcome used in multivariable analyses was whether clients fell during follow-up. Unsteady gait was a strong predictor of falls across all three groups. Co-morbid parkinsonism most strongly predicted falls in the dementia group. Clients with borderline intact to mild cognitive impairment had higher odds of falling within the parkinsonism and comparison groups.

#### **PDF Y Endnote Y**

#### **Imbalanced: the confusing circular nature of falls research... and a possible antidote**

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*Am. J. Phys. Med. Rehabil.* 2016; ePub(ePub): ePub.

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**Abstract** [Abstract unavailable]

#### **PDF Y Endnote Y**

#### **Increasing fall risk awareness using wearables: a fall risk awareness protocol**

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*J. Biomed. Inform.* 2016; ePub(ePub): ePub.

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### Abstract

Each year about a third of elderly aged 65 or older experience a fall. Many of these falls may have been avoided if fall risk assessment and prevention tools were available in a daily living situation. We identify what kind of information is relevant for doing fall risk assessment and prevention using wearable sensors in a daily living environment by investigating current research, distinguishing between prospective and context-aware fall risk assessment and prevention. Based on our findings, we propose a fall risk awareness protocol as a fall prevention tool integrating both wearables and ambient sensing technology into a single platform.

### PDF Y Endnote Y

#### Linear variability of gait according to socioeconomic status in elderly

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*Colomb. Med.* 2016; 47(2): 94-99.

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**DOI** unavailable **PMID** 27546931

### Abstract

**AIM:** To evaluate the linear variability of comfortable gait according to socioeconomic status in community-dwelling elderly.

**METHOD:** For this cross-sectional observational study 63 self- functioning elderly were categorized according to the socioeconomic level on medium-low ( $n= 33$ , age  $69.0 \pm 5.0$  years) and medium-high ( $n= 30$ , age  $71.0 \pm 6.0$  years). Each participant was asked to perform comfortable gait speed for 3 min on an 40 meters elliptical circuit, recording in video five strides which were transformed into frames, determining the minimum foot clearance, maximum foot clearance and stride length. The intra-group linear variability was calculated by the coefficient of variation in percent.

**RESULTS:** The trajectory parameters variability is not different according to socioeconomic status with a 30% (range= 15-55%) for the minimum foot clearance and 6% (range= 3-8%) in maximum foot clearance. Meanwhile, the stride length consistently was more variable in the medium-low socioeconomic status for the overall sample ( $p= 0.004$ ), female ( $p= 0.041$ ) and male gender ( $p= 0.007$ ), with values near 4% (range = 2.5-5.0%) in the medium-low and 2% (range = 1.5-3.5%) in the medium-high.

**CONCLUSIONS:** The intra-group linear variability is consistently higher and within reference parameters for stride length during comfortable gait for elderly belonging to medium-low socioeconomic status. This might be indicative of greater complexity and consequent motor adaptability.

### PDF Y Endnote Y

#### National survey of family physicians to define functional decline in elderly patients with minor trauma

Abdulaziz KE, Brehaut J, Taljaard M, Emond M, Sirois MJ, Lee JS, Wilding L, Perry JJ.

*BMC Fam. Pract.* 2016; 17(1): e117.

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### Abstract

**BACKGROUND:** Failing to assess elderly patients for functional decline at the time around a minor injury may result in adverse health outcomes. This study was conducted to define what constitutes clinically significant functional decline and the sensitivity required for a clinical decision instrument to identify such functional decline after an injury in previously independent elderly patients.

**METHODS:** After a thorough development process, a survey questionnaire was administered to a random sample of 178 family physicians. The surveys were distributed using a modified Dillman technique.

**RESULTS:** From 143 eligible surveys, we received 67 completed surveys (response rate, 46.9 %). Respondents indicated that a drop of at least 3 points on the 28-point Older Americans Resources and Services (OARS) ADL Scale was considered clinically significant by 90 % of physicians. Ninety percent (90 %) of physicians would be satisfied with a sensitivity of 90 % or more for a clinical decision instrument to detect patients at risk of functional decline at 6 months following an injury. The majority of family physicians do not routinely assess the majority of the tasks on the OARS scale for injured elderly patients.

**CONCLUSIONS:** A high proportion of physicians (90 %) would consider a drop of 3 points on the OARS ADL Scale as significant to define functional decline and would be satisfied with a sensitivity of 90 % for a clinical decision instrument to detect such a decline. Any instrument to identify patients at elevated risk for subsequent decline should consider these outcome measures to be clinically useful.

### PDF Y Endnote Y

#### Normal gait speed, grip strength and thirty seconds chair stand test among older Indians

Gunasekaran V, Banerjee J, Dwivedi SN, Upadhyay AD, Chatterjee P, Dey AB.

*Arch. Gerontol. Geriatr.* 2016; 67: 171-178.

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### Abstract

**INTRODUCTION:** Gait speed, maximum grip strength and thirty seconds chair stand test are quick, reliable measures of functional capacity in older adults. The objective of this study was to develop normative data of the said parameters, which is lacking in older Indians.

**METHODOLOGY:** In a cross sectional study, 723 participants of  $\geq 60$  years without any morbidity, were recruited with written consent at Geriatric Medicine clinic of All India Institute of Medical sciences, New Delhi. Time taken to walk comfortably (4m) was taken as Gait speed. Maximum grip strength was assessed by using dynamometer by pressing it for 3 times in each hand, and the best of six values noted. Thirty second chair stand was assessed by the number of repetitions to stand and sit from a chair in thirty second.

**RESULT:** The Cut-off (25th percentile) of gait speed for both male and female in all age group was 0.6m/s. The Cut-off for maximum grip strength in 60-65 years, 66-70 years and  $>70$  years for male were 20, 15 and 15 and for females were 8, 6 and 6 in kg, respectively. The Cut-off for thirty second chair stand test in 60-65 years, 66-70 years and  $>70$  years for male were 10, 9 and 8 and for females was 8, 8 and 7, respectively.

**CONCLUSION:** These normative data would be useful to the clinicians and researcher as Indian

reference value, which is less as compared to western data. Community based multi-centre study is needed.

#### **PDF Y Endnote Y**

##### **Occupational therapy home modification assessment and intervention**

Somerville E, Smallfield S, Stark S, Seibert C, Arbesman M, Lieberman D.

*Am. J. Occup. Ther.* 2016; 70(5): 7005395010p1-7005395010p3.

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(Copyright © 2016, American Occupational Therapy Association)

**DOI** 10.5014/ajot.2016.705002 **PMID** 27548872

##### **Abstract**

Evidence Connection articles describe a clinical application of a systematic review developed in conjunction with the American Occupational Therapy Association's Evidence-Based Practice (EBP) Project. This Evidence Connection provides a case report of a client referred to occupational therapy for home modification assessment and intervention, applying the evidence from the systematic review of home modifications conducted in conjunction with the EBP Project. The client received in-home occupational therapy after side effects of liver disease resulted in increased falls within her home.

#### **PDF Y Endnote Y**

##### **Patterns of prescription drug use before and after fragility fracture**

Munson JC, Bynum JP, Bell JE, Cantu R, McDonough C, Wang Q, Tosteson TD, Tosteson AN.

*JAMA Intern. Med.* 2016; ePub(ePub): ePub.

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(Copyright © 2016, American Medical Association)

**DOI** 10.1001/jamainternmed.2016.4814 **PMID** 27548843

##### **Abstract**

**IMPORTANCE :** Patients who have a fragility fracture are at high risk for subsequent fractures. Prescription drugs represent 1 factor that could be modified to reduce the risk of subsequent fracture.

**OBJECTIVE:** To describe the use of prescription drugs associated with fracture risk before and after fragility fracture.

**DESIGN, SETTING, AND PARTICIPANTS:** Retrospective cohort study conducted between February 2015 and March 2016 using a 40% random sample of Medicare beneficiaries from 2007 through 2011 in general communities throughout the United States. A total of 168 133 community-dwelling Medicare beneficiaries who survived a fracture of the hip, shoulder, or wrist were included. Cohort members were required to be enrolled in fee-for-service Medicare with drug coverage (Parts A, B, and D) and to be community dwelling for at least 30 days in the immediate 4-month postfracture period.

**EXPOSURES:** Prescription drug use during the 4-month period before and after a fragility fracture.

**MAIN OUTCOMES AND MEASURES:** Prescription fills for drug classes associated with increased

fracture risk were measured using Part D retail pharmacy claims. These were divided into 3 categories: drugs that increase fall risk; drugs that decrease bone density; and drugs with unclear fracture risk mechanism. Drugs that increase bone density were also tracked.

**RESULTS:** A total of 168 133 patients with a fragility fracture (141 569 women; 84.2%) met the inclusion criteria for this study; 91.8% were white. Across all fracture types, the mean (SD) age was 80.0 (7.7) years, and 53.2% of the fracture cohort was hospitalized at the time of the index fracture, although this varied significantly depending on fracture type (100% of hip fractures, 8.2% of wrist fractures, and 15.0% of shoulder fractures). The frequency of discharge to an institution for rehabilitation following hospitalization also varied by fracture type, but the mean (SD) duration of acute rehabilitation did not: 28.1 (19.8) days. Most patients were exposed to at least 1 nonopioid drug associated with increased fracture risk in the 4 months before fracture (77.1% of hip, 74.1% of wrist, and 75.9% of shoulder fractures). Approximately 7% of these patients discontinued this drug exposure after the fracture, but this was offset by new users after fracture. Consequently, the proportion of the cohort exposed following fracture was unchanged (80.5%, 74.3%, and 76.9% for hip, wrist, and shoulder, respectively). There was no change in the average number of fracture-associated drugs used. This same pattern of use before and after fracture was observed across all 3 drug mechanism categories. Use of drugs to strengthen bone density was uncommon ( $\leq 25\%$ ) both before and after fracture.

**CONCLUSIONS AND RELEVANCE:** Exposure to prescription drugs associated with fracture risk is infrequently reduced following fragility fracture occurrence. While some patients eliminate their exposure to drugs associated with fracture, an equal number initiate new high-risk drugs. This pattern suggests there is a missed opportunity to modify at least one factor contributing to secondary fractures.

#### **PDF Y Endnote Y**

#### **Pilot study to investigate the feasibility of the Home Falls and Accidents Screening Tool (HOME FAST) to identify older Malaysian people at risk of falls**

Romli MH, Mackenzie L, Lovarini M, Tan MP.

*BMJ Open* 2016; 6(8): e012048.

**Affiliation:** Faculty of Medicine, University of Malaya, Malaysia.

(Copyright © 2016, BMJ Publishing Group)

**DOI** 10.1136/bmjopen-2016-012048 **PMID** 27531736

#### **Abstract**

**OBJECTIVE:** The relationship between home hazards and falls in older Malaysian people is not yet fully understood. No tools to evaluate the Malaysian home environment currently exist. Therefore, this study aimed to pilot the Home Falls and Accidents Screening Tool (HOME FAST) to identify hazards in Malaysian homes, to evaluate the feasibility of using the HOME FAST in the Malaysian Elders Longitudinal Research (MELoR) study and to gather preliminary data about the experience of falls among a small sample of Malaysian older people.

**DESIGN:** A cross-sectional pilot study was conducted.

**SETTING:** An urban setting in Kuala Lumpur.

**PARTICIPANTS:** 26 older people aged 60 and over were recruited from the control group of a related research project in Malaysia, in addition to older people known to the researchers.

**PRIMARY OUTCOME MEASURE:** The HOME FAST was applied with the baseline survey for the MELoR study via a face-to-face interview and observation of the home by research staff.

**RESULTS:** The majority of the participants were female, of Malay or Chinese ethnicity and living with others in a double-storeyed house. Falls were reported in the previous year by 19% and 80% of falls occurred at home. Gender and fear of falling had the strongest associations with home hazards. Most hazards were detected in the bathroom area. A small number of errors were detected in the HOME FAST ratings by researchers.

**CONCLUSIONS:** The HOME FAST is feasible as a research and clinical tool for the Malaysian context and is appropriate for use in the MELoR study. Home hazards were prevalent in the homes of older people and further research with the larger MELoR sample is needed to confirm the validity of using the HOME FAST in Malaysia. Training in the use of the HOME FAST is needed to ensure accurate use by researchers.

#### **PDF Y Endnote Y**

#### **Predicting falls with the cognitive timed up-and-go dual task in frail older patients**

Cardon-Verbecq C, Loustau M, Guitard E, Bonduelle M, Delahaye E, Koskas P, Raynaud-Simon A  
*Ann. Phys. Rehabil. Med.* 2016; ePub(ePub): ePub.

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**DOI** 10.1016/j.rehab.2016.07.003 **PMID** 27542314

#### **Abstract**

**BACKGROUND:** The cognitive timed up-and-go dual task (CogTUG) has been proposed to improve the performance of the timed up-and-go (TUG) test for predicting falls in older patients and as a screening tool for early detection of frailty. We aimed to determine whether the CogTUG score is associated with a history of falls in frail older outpatients with gait disorders.

**METHODS:** This retrospective study involved outpatients >75 years old with or without previous falls who were admitted from 2012 to 2014 to a geriatric day hospital for gait disorders. Patients took the TUG and CogTUG tests on the day of comprehensive geriatric assessment.

**RESULTS:** Among the 161 patients included (157 analyzed; mean age 84.4±6.2 years; 72% women), 84 (53.5%) had fallen in the previous year: 105 (66.9%) were considered pre-frail and 52 (33.1%) frail. As compared with non-fallers, fallers had lower Tinetti balance scores ( $P=0.0004$ ) and handgrip strength ( $P=0.03$ ), more lost weight ( $P=0.04$ ), and they took longer to perform the TUG test ( $P=0.04$ ). Fallers and non-fallers did not differ in time taken to perform the CogTUG test ( $30.7\pm 11.2$  vs.  $28.5\pm 10.2$ s,  $P=0.20$ ). History of falls was associated with only weight loss (odds ratio 3.43; 95% CI 1.13-11.30,  $P=0.03$ ) and handgrip strength (0.88; 0.78-0.97,  $P=0.02$ ) on multivariate analysis.

**CONCLUSION:** Unlike TUG scores, the CogTUG score was not associated a history of falls in frail older outpatients with gait disorders. Our results underline that weight loss and low muscle strength are related to falls.

#### **PDF Y Endnote Y**

#### **Recent advances in the treatment of hip fractures in the elderly**

Rozell JC, Hasenauer M, Donegan DJ, Neuman M.

F1000Res. 2016; 5: e8172.1.

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(Copyright © 2016, F1000 Research)

DOI 10.12688/f1000research.8172.1 PMID 27547384

### Abstract

The treatment of hip fractures in the elderly represents a major public health priority and a source of ongoing debate among orthopaedic surgeons and anesthesiologists. Most of these injuries are treated with surgery in an expedient fashion. From the surgical perspective, there are certain special considerations in this population including osteoporosis, pre-existing arthritis, age, activity level, and overall health that contribute to the type of surgical fixation performed. Open reduction and internal fixation versus arthroplasty remain the two major categories of treatment. While the indications and treatment algorithms still remain controversial, the overall goal for these patients is early mobilization and prevention of morbidity and mortality. The use of preoperative, regional anesthesia has aided in this effort. The purpose of this review article is to examine the various treatment modalities for hip fractures in the elderly and discuss the most recent evidence in the face of a rapidly aging population.

### PDF Y Endnote Y

#### **Sex-specific association between obesity and self-reported falls and injuries among community-dwelling Canadians aged 65 years and older**

Handrigan GA, Maltais N, Gagné M, Lamontagne P, Hamel D, Teasdale N, Hue O, Corbeil P, Brown JP, Jean S.

*Osteoporos. Int.* 2016; ePub(ePub): ePub.

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(Copyright © 2016, Springer Science+Business Media)

DOI 10.1007/s00198-016-3745-x PMID 27562568

### Abstract

This study investigated the relationship between body mass index (BMI) and falls among community-dwelling elderly. Results indicate that obesity is associated with increased falls and there appears to be a sex-specific difference with obese men at higher risk of falling. Obesity is identified as a risk factor for falls in men.

**INTRODUCTION:** The prevalence of falls, fall-related injuries, and obesity has increased over the last decade. The objectives of this study were to investigate sex-specific association and dose-response relationship between BMI and falls (and related injuries) among community-dwelling elderly.

**METHODS:** Our study sample consisted of 15,860 adults aged 65 years or older (6399 men and 9461 women) from the 2008-2009 Canadian Community Health Survey-Healthy Aging (CCHS-HA). Falls, fall-related injuries, and BMI measures were self-reported. For both sex, dose-response curves presenting the relationship between BMI, falls, and fall-related injuries were first examined. Thereafter, multivariate logistic regression analyses were also performed to investigate these relationships after adjustment for potentially confounding variables.

**RESULTS:** Of women, 21.7 % reported a fall and 16.9 % of men. The dose-response relationship between BMI and prevalence of falls showed that underweight and obese individuals reported falling more than normal and overweight individuals; this being more apparent in men than women. Finally, the dose relationship between BMI and prevalence of fall-related injuries showed that only obese men seem more likely to have sustained a fall-related injury. Results from the multivariate analysis showed that obesity in men was significantly associated with higher odds of falling odds ratio (OR) 1.33 (1.04-1.70) and was not significantly associated with higher odds of fall-related

injuries OR 1.10 (0.66-1.84) over a 12-month period compared to normal weight men. For women, obesity was not significantly associated with higher fall prevalence OR 0.99 (0.79-1.25) and fall-related injuries OR 0.71 (0.51-1.00).

CONCLUSION: Obesity is associated with self-reported falls, and there appears to be a sex-specific difference in elderly persons.

**PDF Y Endnote Y**

### **The association between sleep problems, sleep medication use, and falls in community-dwelling older adults: results from the Health and Retirement Study 2010**

Min Y, Nadpara PA, Slattum PW.

*J. Aging Res.* 2016; 2016: e3685789.

**Affiliation:** Department of Pharmacotherapy and Outcomes Science, School of Pharmacy, Virginia Commonwealth University, Richmond, VA 23298-0533, USA.

(Copyright © 2016, Sage Hindawi)

**DOI** 10.1155/2016/3685789 **PMID** 27547452

#### **Abstract**

**BACKGROUND:** Very few studies have assessed the impact of poor sleep and sleep medication use on the risk of falls among community-dwelling older adults. The objective of this study was to evaluate the association between sleep problems, sleep medication use, and falls in community-dwelling older adults.

**METHODS:** The study population comprised a nationally representative sample of noninstitutionalized older adults participating in the 2010 Health and Retirement Study. Proportion of adults reporting sleep problems, sleep medication use, and fall was calculated. Multiple logistic regression models were constructed to examine the impact of sleep problems and sleep medication use on the risk of falls after controlling for covariates.

**RESULTS:** Among 9,843 community-dwelling older adults, 35.8% had reported a fall and 40.8% had reported sleep problems in the past two years. Sleep medication use was reported by 20.9% of the participants. Older adults who do have sleep problems and take sleep medications had a significant high risk of falls, compared to older adults who do not have sleep problems and do not take sleep medications. The other two groups also had significantly greater risk for falls.

**CONCLUSION:** Sleep problems added to sleep medication use increase the risk of falls. Further prospective studies are needed to confirm these observed findings.

**PDF Y Endnote Y**

### **The effect of dance therapy on the balance of women over 60 years of age: the influence of dance therapy for the elderly**

Filar-Mierzwa K, Długosz M, Marchewka A, Dąbrowski Z, Poznańska A.

*J. Women Aging.* 2016; ePub(ePub): ePub.

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

**DOI** 10.1080/08952841.2016.1194689 **PMID** 27552489

#### **Abstract**

Dance therapy is a physical activity that can lead to balance improvement in older adults. The aim of the study was to evaluate the effects of dance therapy on balance and risk of falls in older women. Twenty-four older women (mean age 66.4 years old) attended dance sessions for three months.



Pretest/posttests were completed using the Postural Stability Test, the Limits of Stability Test, and the Fall Risk Test M-CTSIB.

RESULTS showed the Limits of Stability Test was significantly higher (17.5%) after dance classes. Regular use of dance therapy shows promise in improving balance by increasing the limits of stability.

#### **PDF Y Endnote Y**

### **The effect of exercise intervention on frail elderly in need of care: half-day program in a senior day-care service facility specializing in functional training**

Sakamoto R, Miura Y.

*J. Phys. Ther. Sci.* 2016; 28(7): 1957-1963.

**Affiliation:** Department of Rehabilitation Science, Kobe University Graduate School of Health Sciences, Japan.

(Copyright © 2016, Society of Physical Therapy Science)

**DOI** 10.1589/jpts.28.1957 **PMID** 27512243

#### **Abstract**

**PURPOSE:** This study investigated the long-term effect of a half-day exercise intervention program on health-related quality of life, life function, and physical function in frail elderly in need of care. The program was conducted at a senior day-care facility specializing in functional training.

**SUBJECTS AND METHODS:** Subjects included 41 elderly in need of care who had visited the service facility for at least 1 year. Physical function and life function were evaluated at baseline, 6 months, and 12 months. Quality of life was evaluated with the Short Form-36 at baseline and 12 months.

**RESULTS:** Improvements in balance, walking speed and endurance, complex performance abilities, self-efficacy during the activities, and the level and sphere of activity were observed at 6 months and maintained up to 12 months. Moreover, improvements in agility, activities of daily living, life function, and quality of life were also observed at 12 months. Improvements in muscle strength, walking ability, self-efficacy over an action, and activities of daily living were related to the improvement in quality of life.

**CONCLUSION:** The use of individualized exercise programs developed by physiotherapists led to improvements in activities of daily living and quality of life among elderly in need of care.

#### **PDF Y Endnote Y**

### **Use and interpretation of propensity scores in aging research: a guide for clinical researchers**

Kim DH, Pieper CF, Ahmed A, Colón-Emeric CS.

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

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**DOI** 10.1111/jgs.14253 **PMID** 27550392

#### **Abstract**

Observational studies are an important source of evidence for evaluating treatment benefits and harms in older adults, but lack of comparability in the outcome risk factors between the treatment groups leads to confounding. Propensity score (PS) analysis is widely used in aging research to reduce confounding. Understanding the assumptions and pitfalls of common PS analysis methods is fundamental to applying and interpreting PS analysis. This review was developed based on a

symposium of the American Geriatrics Society Annual Meeting on the use and interpretation of PS analysis in May 2014. PS analysis involves two steps: estimation of PS and estimation of the treatment effect using PS. Typically estimated from a logistic model, PS reflects the probability of receiving a treatment given observed characteristics of an individual. PS can be viewed as a summary score that contains information on multiple confounders and is used in matching, weighting, or stratification to achieve confounder balance between the treatment groups to estimate the treatment effect. Of these methods, matching and weighting generally reduce confounding more effectively than stratification. Although PS is often included as a covariate in the outcome regression model, this is no longer a best practice because of its sensitivity to modeling assumption. None of these methods reduce confounding by unmeasured variables. The rationale, best practices, and caveats in conducting PS analysis are explained in this review using a case study that examined the effective of angiotensin-converting enzyme inhibitors on mortality and hospitalization in older adults with heart failure.

#### PDF Y Endnote Y

#### Variation in the presence of simple home modifications of older Americans: findings from the National Health and Aging Trends Study

Meucci MR, Gozalo P, Dosa D, Allen SM.

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

**Affiliation:** Providence Veterans Administration Medical Center, Health Services Research Program, Providence, Rhode Island.

(Copyright © 2016, John Wiley and Sons)

**DOI** 10.1111/jgs.14252 **PMID** 27550315

#### Abstract

**OBJECTIVES:** To investigate the association between sociodemographic and economic factors and the presence of simple home modifications (HMs) among older adults in the United States.

**DESIGN:** Cross-sectional.

**SETTING:** National Health and Aging Trends Study (2011, Round 1).

**PARTICIPANTS:** Community-dwelling Medicare enrollees aged 65 and older (N = 6,628).

**MEASUREMENTS:** The primary dependent variable was the reported presence or absence of simple HMs (grab bars in the shower or near the toilet, shower seats, raised toilet seats).

**RESULTS:** Of the individuals sampled, 60.7% reported having at least one HM of interest. Black (odds ratio (OR) = 0.79, 95% confidence interval (CI) = 0.68-0.91) and Hispanic (OR = 0.60, 95% CI = 0.45-0.78) respondents were less likely than white, non-Hispanic respondents to have HMs. Those with more education (high school graduate: OR = 1.20, 95% CI = 1.01-1.42; >high school: OR = 1.36, 95% CI = 1.14-1.62) and larger social networks ( $\geq 4$  people; OR = 1.46, 95% CI = 1.12-1.89) were more likely to have at least one HM, whereas being divorced (OR = 0.57, 95% CI = 0.43-0.74) was associated with lower likelihood. Income (OR = 1.01, 95% CI = 0.97-1.05), Medicaid enrollment (OR = 0.98, 95% CI = 0.77-1.25), and living alone (OR = 1.02, 95% CI = 0.85-1.23) were not significantly associated with the presence of HMs.

**CONCLUSION:** Minorities, individuals with less education, and those with less social support are less likely to have HMs. Awareness of these disparities and the shortcomings of the HM delivery system is important to clinicians and policy-makers who seek to prevent falls and facilitate aging in place for all older Americans.

#### PDF Y Endnote Y

### **Accessible home environments for people with functional limitations: a systematic review**

Cho HY, MacLachlan M, Clarke M, Mannan H.

*Int. J. Environ. Res. Public Health* 2016; 13(8): ePub.

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(Copyright © 2016, Multidisciplinary Digital Publishing Institute)

**DOI** 10.3390/ijerph13080826 **PMID** 27548194

#### **Abstract**

The aim of this review is to evaluate the health and social effects of accessible home environments for people with functional limitations, in order to provide evidence to promote well-informed decision making for policy guideline development and choices about public health interventions. MEDLINE and nine other electronic databases were searched between December 2014 and January 2015, for articles published since 2004. All study types were included in this review. Two reviewers independently screened 12,544 record titles or titles and abstracts based on our pre-defined eligibility criteria. We identified 94 articles as potentially eligible; and assessed their full text. Included studies were critically appraised using the Mixed Method Appraisal Tool, version 2011. Fourteen studies were included in the review. We did not identify any meta-analysis or systematic review directly relevant to the question for this systematic review. A narrative approach was used to synthesise the findings of the included studies due to methodological and statistical heterogeneity. RESULTS suggest that certain interventions to enhance the accessibility of homes can have positive health and social effects. Home environments that lack accessibility modifications appropriate to the needs of their users are likely to result in people with physical impairments becoming disabled at home.

#### **PDF Y Endnote Y**

### **Bladder function and falls in individuals with multiple sclerosis**

Sung J, Shen S, Motl RW, Sosnoff JJ.

*Disabil. Rehabil.* 2016; 38(22): 2193-2197.

**Affiliation:** Department of Kinesiology and Community Health , University of Illinois at Urbana-Champaign , Urbana , IL , USA.

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**DOI** 10.3109/09638288.2015.1123311 **PMID** 27553916

#### **Abstract**

**PURPOSE:** To examine the association between bladder function and falls while controlling for mobility in individuals with multiple sclerosis (MS).

**METHODS:** A total of 92 ambulatory individuals with MS (mean age  $\pm$  SD = 59.1  $\pm$  7.3 years, female n = 69) were divided into two groups based on self-reported bladder function (none-mild n = 43 versus moderate-severe n = 49). The main outcome measure was a number of self-reported falls in the previous 3 months. Participants' demographic information (age, type of MS, gender, use of the assistive device) was also collected. The balance was quantified with the Berg balance scale, and walking speed was indexed with the timed 25-foot walk test. Negative binomial regression analysis was used to examine the association between bladder function and falls in individuals with MS while controlling for balance and walking.

**RESULTS:** The median number of self-reported falls in the previous 3 months was 2 (interquartile range, 0-4). The severe bladder dysfunction group was more likely (incidence rate ratio = 1.84) to

have a greater number of self-reported falls compared to mild bladder dysfunction group when balance and walking were taken into account.

**CONCLUSION:** Bladder dysfunction is related to falls history independently of mobility in individuals with MS. Future research examining whether bladder management programmes have an impact on fall incidence in MS is warranted. Implications for rehabilitation Bladder dysfunction and falls are common health concerns in individuals with multiple sclerosis. Bladder dysfunction was associated with the number of falls in individuals with MS, and this association was independent of mobility. Bladder management should be included in fall prevention strategies in individuals with MS.

**PDF Y Endnote Y**

### **Deprescribing medicines in the acute setting to reduce the risk of falls**

Marvin V, Ward E, Poots AJ, Heard K, Rajagopalan A, Jubraj B.

*Eur. J. Hosp. Pharm.* 2016; ePub(ePub): ePub.

(Copyright © 2016, BMJ Publishing Group)

**DOI** 10.1136/ejhpharm-2016-001003 **PMID** unavailable

#### **Abstract**

**BACKGROUND:** Falls are a common cause of morbidity and hospitalisation in older people. Inappropriate prescribing and polypharmacy contribute to falls risk in elderly patients. This study's aim was to quantify the problem and find out if medication review in the hospital setting led to deprescribing of medicines associated with falls risk.

**METHODS:** Admissions records for elderly patients were examined to identify those whose presenting complaint included a fall. Inpatient medication charts, pharmaceutical care notes, medical notes and discharge summaries were examined to identify any falls-risk medicines from admission histories and to determine if any medication review took place, and whether or not changes were made as a result. In particular deprescribing and dose reduction details were analysed.

**RESULTS:** 100 patients over 70 years old were admitted following a fall during the 2 months study period. The mean number of medicines on admission was 6.8 per patient with polypharmacy found in 62/100 (62%). One or more falls-risk medicine was found in 65/100 (65%) patients. Medicines review was carried out in 86/100 (86%) of patients, and 59/697 (8.5%) medicines were deprescribed. Pharmacist involvement in medication review led to a significant reduction in the number of falls-risk medicines per patient ( $p=0.002$ ).

**CONCLUSIONS:** Inappropriate prescribing and polypharmacy are found frequently in elderly patients at admission following a fall. Comprehensive medicines reviews should be carried out in all such patients with the objective of deprescribing or reducing doses to minimise risk of harm. Involvement of a pharmacist improves the rate of reduction of falls-risk medicines.

**PDF Will get ILL Endnote Y**

### **The effect of viewing a virtual environment through a head-mounted display on balance**

Robert MT, Ballaz L, Lemay M.

*Gait Posture* 2016; 48: 261-266.

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**DOI** 10.1016/j.gaitpost.2016.06.010 **PMID** 27344394

### Abstract

**INTRODUCTION:** In the next few years, several head-mounted displays (HMD) will be publicly released making virtual reality more accessible. HMD are expected to be widely popular at home for gaming but also in clinical settings, notably for training and rehabilitation. HMD can be used in both seated and standing positions; however, presently, the impact of HMD on balance remains largely unknown. It is therefore crucial to examine the impact of viewing a virtual environment through a HMD on standing balance.

**OBJECTIVES:** To compare static and dynamic balance in a virtual environment perceived through a HMD and the physical environment. The visual representation of the virtual environment was based on filmed image of the physical environment and was therefore highly similar.

**DESIGN:** This is an observational study in healthy adults.

**RESULTS:** No significant difference was observed between the two environments for static balance. However, dynamic balance was more perturbed in the virtual environment when compared to that of the physical environment.

**CONCLUSIONS:** HMD should be used with caution because of its detrimental impact on dynamic balance. Sensorimotor conflict possibly explains the impact of HMD on balance.

### PDF Y Endnote Y

#### **Use of fall-risk inducing drugs in patients using anti-Parkinson drugs (APD): a Swedish register-based study**

Haasum Y, Fastbom J, Johnell K.

*PLoS One* 2016; 11(8): e0161246.

**Affiliation:** Aging Research Center, Department of Neurobiology, Care Sciences and Society, Karolinska Institutet and Stockholm University, Stockholm, Sweden.

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**DOI** 10.1371/journal.pone.0161246 **PMID** 27537366

### Abstract

**OBJECTIVES:** Many drugs increase the risk of falls in old age. Although persons with Parkinson's disease (PD) are at increased risk of experiencing falls and fractures, the use of fall-risk inducing drugs (FRIDs) in this population has not previously been investigated. The objective of this study was to investigate the burden of use of FRIDs in older persons treated with anti-Parkinson drugs (APD; used as a proxy for PD), compared to persons without APD.

**METHODS:** We analyzed individual data on age, sex, type of housing and drug use in 1 346 709 persons aged  $\geq 65$  years in the Swedish Prescribed Drug Register on the date of 30 September 2008. Main outcome measure was the use of FRIDs.

**RESULTS:** FRIDs were used by 79% of persons with APD and 75% of persons without APD. Persons with APD were more likely to use  $\geq 1$  FRIDs compared to persons without APD (adjusted OR: 1.09; 95% CI: 1.06-1.12). The association was stronger for concomitant use of  $\geq 5$  FRIDs (adjusted OR: 1.49; 95% CI: 1.44-1.55).

**CONCLUSIONS:** The high use of FRIDs among persons with APD indicates that these patients may be at increased risk of drug-induced falls. Further studies are needed to investigate how these drugs affect the risk of falling in persons with PD.

### PDF Y Endnote Y