

### SafetyLit February 4, 2017

#### Development and evaluation of brochures for fall prevention education created to empower nursing home residents and family members

Schoberer D, Eglseer D, Halfens RJG, Lohrmann C.

*Int. J. Older People Nurs.* 2018; ePub(ePub): ePub.

**Affiliation:** Institute of Nursing Science, Medical University of Graz, Graz, Austria.

(Copyright © 2018, John Wiley and Sons)

**DOI** 10.1111/opn.12187 **PMID** 29369510

#### Abstract

**AIMS AND OBJECTIVES:** In this study, we describe the development of evidence- and theory-based fall prevention educational material and its evaluation from the users' perspectives.

**BACKGROUND:** To reduce risk factors for falling in nursing homes, nursing staff must enact multifactorial fall prevention intervention programmes. A core component of these programmes is to educate residents and their family members, both verbally and in a written form. However, users can only benefit from educational material if it is based on current scientific evidence, easy to understand and process and customised.

**DESIGN:** We followed a structured procedure during the development process, while considering various aspect of quality. To assess the understandability and usefulness of the resulting educational materials, we conducted a qualitative content analysis study.

**METHODS:** The educational materials development process incorporated several iterative steps including a systematic literature search and the application of frameworks for designing and writing the materials. To evaluate the material, we performed six focus group discussions separately with residents, family members and nursing staff from two nursing homes (total of 32 participants).

**RESULTS:** Residents' brochures included clear information on avoiding external risks as well as coping strategies after a fall event. Family members' brochures were more comprehensive, including both concrete tips and outlining the advantages and disadvantages of interventions. Residents and family members had no difficulties understanding the material and tried to apply the content to their individual situations. Nursing staff commented on some ambiguities and incongruities relating to current nursing care practice.

**CONCLUSIONS:** By involving users in the development of evidence-based educational materials, nursing staff can achieve a high acceptance rate for the materials and motivate users to address the topic.

**IMPLICATIONS FOR PRACTICE:** The involvement of users is essential for developing educational material that meets users' needs. Educational material should be used as part of an overall strategy to educate residents and family members in nursing homes.

© 2018 John Wiley & Sons Ltd

#### PDF Y Endnote Y

#### End-of-life decision-making for patients with geriatric trauma cared for in a trauma intensive care unit

Wooster M, Stassi A, Hill J, Kurtz J, Bonta M, Spalding MC.

*Am. J. Hosp. Palliat. Care* 2018; ePub(ePub): ePub.

**Affiliation:** Heritage College of Osteopathic Medicine, Ohio University, Doctors Hospital, Columbus, OH, USA.

(Copyright © 2018, Sage Publications)

DOI 10.1177/1049909117752670 PMID29366336

### Abstract

**BACKGROUND:** The geriatric trauma population is growing and fraught with poor physiological response to injury and high mortality rates. Our primary hypothesis analyzed how prehospital and in-hospital characteristics affect decision-making regarding continued life support (CLS) versus withdrawal of care (WOC). Our secondary hypothesis analyzed adherence to end-of-life decisions regarding code status, living wills, and advanced directives.

**MATERIALS AND METHODS:** We performed a retrospective review of patients with geriatric trauma at a level I and level II trauma center from January 1, 2007, to December 31, 2014. Two hundred seventy-four patients met inclusion criteria with 144 patients undergoing CLS and 130 WOC.

**RESULTS:** A total of 13 269 patients with geriatric trauma were analyzed. Insurance type and injury severity score (ISS) were found to be significant predictors of WOC (  $P = .013/.045$ ). Withdrawal of care patients had shorter time to palliative consultation and those with geriatrics consultation were 16.1 times more likely to undergo CLS (  $P = .026$ ). Twenty-seven (33%) patients who underwent CLS and 31 (24%) patients who underwent WOC had a living will, advanced directive, or DNR order (  $P = .93$ ).

**CONCLUSIONS:** Of the many hypothesized predictors of WOC, ISS was the only tangible independent predictor of WOC. We observed an apparent disconnect between the patient's wishes via living wills or advanced directives "in a terminal condition" and fulfillment during EOL decision-making that speaks to the complex nature of EOL decisions and further supports the need for a multidisciplinary approach.

**PDF Y Endnote Y**

### Flexible detection of fall events using bidirectional EMG sensor

Han H, Ma X, Oyama K.

*Stud. Health Technol. Inform.* 2017; 245: e1225.

**Affiliation:** National Institute of Informatics, Tokyo, Japan.

(Copyright © 2017, IOS Press)

DOI unavailable PMID 29295312

### Abstract

Falling is one of the most serious life-threatening events for the elders, and the growing population of elderly people motivates the development of ICT-based healthcare-oriented solutions for fall detection prevalently. In this poster, a bidirectional EMG (electromyographic) sensor network model is proposed for a more efficient and flexible detection of fall events based on simple communication between users and nursing care staff.

**PDF Endnote Y**

### Functional performance comparison between real and virtual tasks in older adults: a cross-sectional study

Bezerra ÍMP, Crocetta TB, Massetti T, Silva TDD, Guarnieri R, Meira CM, Arab C, Abreu LC, Araujo LV, Monteiro CBM.

*Medicine (Baltimore)* 2018; 97(4): e9612.

**Affiliation:** Department of Speech Therapy, Physical Therapy and Occupational Therapy, School of Medicine, University of São Paulo.

(Copyright © 2018, Lippincott Williams and Wilkins)

DOI 10.1097/MD.00000000000009612 PMID 29369177

### Abstract

**INTRODUCTION:** Ageing is usually accompanied by deterioration of physical abilities, such as muscular strength, sensory sensitivity, and functional capacity, making chronic diseases, and the well-being of older adults new challenges to global public health.

**OBJECTIVE:** The purpose of this study was to evaluate whether a task practiced in a virtual environment could promote better performance and enable transfer to the same task in a real environment.

**METHOD:** The study evaluated 65 older adults of both genders, aged 60 to 82 years (M = 69.6, SD = 6.3). A timing coincident task was applied to measure the perceptual-motor ability to perform a motor response. The participants were divided into 2 groups: started in a real interface and started in a virtual interface.

**RESULTS:** All subjects improved their performance during the practice, but improvement was not observed for the real interface, as the participants were near maximum performance from the beginning of the task. However, there was no transfer of performance from the virtual to real environment or vice versa.

**CONCLUSIONS:** The virtual environment was shown to provide improvement of performance with a short-term motor learning protocol in a timing coincident task. This result suggests that the practice of tasks in a virtual environment seems to be a promising tool for the assessment and training of healthy older adults, even though there was no transfer of performance to a real environment.

**TRIAL REGISTRATION:** ISRCTN02960165. Registered 8 November 2016.

**PDF Y Endnote Y**

### Prevalence of fear of falling and associated factors among Japanese community-dwelling older adults

Tomita Y, Arima K, Tsujimoto R, Kawashiri SY, Nishimura T, Mizukami S, Okabe T, Tanaka N, Honda Y, Izutsu K, Yamamoto N, Ohmachi I, Kanagae M, Abe Y, Aoyagi K.

*Medicine* (Baltimore) 2018; 97(4): e9721.

**Affiliation:** Department of Public Health.

(Copyright © 2018, Lippincott Williams and Wilkins)

DOI 10.1097/MD.00000000000009721 PMID 29369207

### Abstract

To determine the prevalence of fear of falling and associated factors among Japanese community-dwelling older adults. Cross-sectional study between 2011 and 2013. Community in which residents voluntarily attended a health examination. We recruited 844 older adults (male, n = 350; female, n = 494) aged 60 to 92 years from among those who presented at the health examination. We assessed fear of falling, falls in the previous year, pain, comorbidity, and cataracts. Five times chair stand time was applied as an indicator of physical performance. The prevalence of fear of falling was 26.9% and 43.3% among the men and women, respectively. Men and women who feared falling were older ( $P < .01$ ), had longer 5 times chair stand time ( $P < .01$ ), and more falls in the previous year ( $P < .05$ ), pain ( $P < .01$ ), and comorbidity ( $P < .05$ ). Multivariate logistic regression analysis identified advanced age (odds ratios [OR], 1.57; 95% confidence interval [CI], 1.03-2.39), falls in the previous year (OR, 2.44; 95%CI, 1.29-4.64), and pain (OR, 1.82; 95%CI, 1.03-3.22) in men, and advanced age (OR, 1.59; 95%CI, 1.13-2.24), longer 5 times chair stand times (OR, 1.28; 95%CI, 1.04-1.59), falls in the previous year (OR, 2.59; 95%CI, 1.54-4.34), and pain (OR, 1.65; 95%CI, 1.06-2.55) in women as

being independently associated with fear of falling. The prevalence of fear of falling was similar to previous reports. Advanced age, falls in previous year, and pain were associated with fear of falling in men. A longer 5 times chair stand time was also associated with fear of falling among older adult women. Maintenance of physical function and pain management might be important for older adults with fear of falling.

**PDF Y Endnote Y**

### **Reliability and validity of the Short Falls Efficacy Scale International in English, Mandarin, and Bahasa Malaysia in Malaysia**

Tan MP, Nalathamby N, Mat S, Tan PJ, Kamaruzzaman SB, Morgan K.

*Int. J. Aging Hum. Dev.* 2018; ePub(ePub): ePub.

**Affiliation:** Division of Population Health Sciences, Royal College of Surgeons in Ireland, Dublin, Ireland.

(Copyright © 2018, Baywood Publishing)

**DOI** 10.1177/0091415017752942 **PMID** 29359579

#### **Abstract**

While the prevalence of falls among Malaysian older adults is comparable to other older populations around the world, little is currently known about fear of falling in Malaysia. The Falls Efficacy Scale International (FES-I) and short FES-I scales to measure fear of falling have not yet been validated for use within the Malaysian population, and are currently not available in Bahasa Malaysia (BM). A total of 402 participants aged  $\geq 63$  years were recruited. The questionnaire was readministered to 149 participants, 4 to 8 weeks after the first administration to determine test-retest reliability. The original version of the 7-item short FES-I is available in English, while the Mandarin was adapted from the 16-item Mandarin FES-I. The BM version was translated according to protocol by four experts. The internal structure of the FES-I was examined by factor analysis. The 7-item short FES-I showed good internal reliability and test-retest reliability for English, Mandarin, and BM versions for Malaysia.

**PDF Y Endnote Y**

### **The gait speed advantage of taller stature is lost with age**

Elbaz A, Artaud F, Dugravot A, Tzourio C, Singh-Manoux A.

*Sci. Rep.* 2018; 8(1): e1485.

**Affiliation:** Department of Epidemiology and Public Health, University College London, London, UK.

(Copyright © 2018, Nature Publishing Group)

**DOI** 10.1038/s41598-018-19882-1 **PMID** 29367642

#### **Abstract**

Taller individuals walk faster but it is unknown whether this advantage persists at older ages. We examined the cross-sectional/longitudinal associations of height with gait speed (GS) in participants from the Dijon-Three-City cohort study (France) over 11 years. In 4011 participants (65-85 y), we measured usual/fast GS (6 m) up to five times. We examined whether the baseline height-GS association varied with age using linear regression, and whether height influenced GS change using linear mixed models. Taller participants 65 y at baseline walked faster than shorter ones (fast GS difference between top/bottom height quartiles, 0.100 m/s,  $P < 0.001$ ); this association weakened with age ( $P$ -interaction = 0.02), with a 0.012 m/s ( $P = 0.57$ ) difference at 80 y. Ten-year fast GS decline was 51% greater ( $P < 0.001$ ) in younger participants in the top height quartile (-0.183 m/s)

compared to those in the bottom quartile (-0.121 m/s), leading the GS difference between the two groups to be attenuated by 50% over the follow-up. The height-related difference in fast GS decline was not explained by time-dependent comorbidities or height shrinkage. Analyses for usual GS yielded consistent findings. The height-GS relation is more complex than previously thought, as the height related advantage in GS disappears as persons grow older due to faster decline in taller compared to shorter persons.

#### PDF Y Endnote Y

### **The impact of the physical home environment for family carers of people with dementia: a qualitative study**

Soilemezi D, Kallitsis P, Drahota A, Crossland J, Stores R, Costall A.

*J. Housing Elder.* 2017; 31(4): 303-333.

(Copyright © 2017, Informa - Taylor and Francis Group)

DOI 10.1080/02763893.2017.1335666 PMID unavailable

#### **Abstract**

**BACKGROUND:** The majority of people with dementia are cared for by their families at home. This study aimed to elicit family carers' perceptions on home environmental aspects and strategies with the view to identify barriers and facilitators when caring for a person with dementia at home. **Design and methods:** Thirteen co-resident family carers were engaged in semi-structured in-depth walking interviews. Interviews were recorded, transcribed and analysed using thematic analysis.

**RESULTS:** Home environments can pose a number of challenges and opportunities. Aspects of the architectural and interior environment (e.g. size, condition, layout and accessibility, familiarity) are perceived as important (Theme 1) as well as a plethora of environmental strategies that encourage independence and comfort at home (Theme 2). Carers' scepticism, timing, costs, property characteristics and mistrust to services are some barriers to implementing environmental strategies (Theme 3).

**CONCLUSIONS:** Carers improvised solutions via trial and error and need further education on strategies to create an enabling and comfortable home environment.

#### PDF Y Endnote Y

### **The reactive leg drop: a simple and novel sensory-motor assessment to predict fall risk in older individuals**

Magrini MA, Thiele RM, Colquhoun RJ, Barrera Curiel A, Blackstock TS, Defreitas JM.

*J. Neurophysiol.* 2018; ePub(ePub): ePub.

**Affiliation:** Oklahoma State University, United States.

(Copyright © 2018, American Physiological Society)

DOI 10.1152/jn.00713.2017 PMID 29357449

#### **Abstract**

There is need for a functional ability test that appropriately assesses the rapid integration of the sensory and motor systems required for older adults to recover from a slip. The purpose of this study was to assess the efficacy and reliability of a novel test, the reactive leg drop, for assessing sensory-motor function in older adults. Fourteen young (YW; mean age = 20yrs) and 11 older women (OW; mean age = 76yrs) participated in this study. For each drop, the leg was passively moved to full extension and then released. The subjects had to recognize their leg was free-falling and reactively kick up as quickly as possible during varying sensory conditions. To assess the leg

drop's reliance on proprioception, other proprioceptive tests (e.g. patellar tendon reflexes and balance) were separately performed. Leg drops performed with the eyes closed ( $p=0.011$ ) and with a blocked view of their leg ( $p=0.033$ ) showed significant differences in drop angle between the YW and OW. Significant relationships between leg drop conditions and balance were observed in the OW that were not present within YW. When collapsed across groups, reflex latency was correlated with drop angle when the eyes were closed. The reactive leg drop was age sensitive, reliable, and likely reliant on proprioception, as shown by relationships to other sensory-motor assessments, such as balance and the patellar reflex. Although more research is needed, we propose that the reactive leg drop is an effective tool to assess sensory-motor integration in a manner that may mimic fall recovery.

#### PDF Y Endnote Y

#### Effects of bilateral hearing aid use on balance in experienced adult hearing aid users

McDaniel DM, Motts SD, Neeley RA.

*Am. J. Audiol.* 2018; ePub(ePub): ePub.

**Affiliation:** Department of Communication Disorders, Arkansas State University, Jonesboro.

(Copyright © 2018, American Speech-Language-Hearing Association)

**DOI** 10.1044/2017\_AJA-16-0071 **PMID** 29357393

#### Abstract

**PURPOSE:** The purpose of this study was to evaluate the balance of experienced adult hearing aid users with and without their hearing aids via computerized posturography.

**METHOD:** Computerized posturography was accomplished by employing the Sensory Organization Test (SOT) on the NeuroCom Balance Master (Natus Medical Incorporated). The SOT assessed each participant's balance and the strategy used to maintain balance in 6 progressively challenging conditions. Twenty-two adults using bilateral at-the-ear hearing aids participated in the study. All participants completed all SOT protocols with and without their hearing aids.

**RESULTS:** No statistically significant differences in participants' balance were identified regardless of the presence or absence of their hearing aids during the SOT.

**CONCLUSIONS:** These results failed to support previous research, which indicated that amplification of auditory input could benefit balance in individuals with hearing and balance disorders. Further research utilizing randomized controlled trials is needed to resolve the disparity between the current results and those of previous studies.

#### PDF N Endnote Y

#### Effects of lighting illuminance levels on stair negotiation performance in individuals with visual impairment

Shaheen AF, Sourlas A, Horton K, McLean C, Ewins D, Gould D, Ghousayni S.

*J. Electromyogr. Kinesiol.* 2018; 39: 8-15.

**Affiliation:** Centre for Biomedical Engineering, Department of Mechanical Engineering Sciences, University of Surrey, Guildford GU2 7XH, United Kingdom.

(Copyright © 2018, Elsevier Publishing)

**DOI** 10.1016/j.jelekin.2018.01.004 **PMID** 29353139

#### Abstract

**BACKGROUND:** Stair-related falls of older people cause a substantial financial and social burden. Deterioration of the visual system amongst other factors put older people at a high risk of falling.

Improved lighting is often recommended. The aim of this study was to investigate the effect of lighting illuminance on stair negotiation performance in older individuals with visual impairment.

**METHODS:** Eleven participants aged 60 or over with a vision of 6/18 or worse ascended and descended a staircase under: 50 lx, 100 lx, 200 lx, 300 lx and distributed 200 lx lighting. A motion capture system was used to measure movements of the lower limb. Clearance, clearance variability, temporal and spatial parameters and joint/segment kinematics were computed.

**FINDINGS:** There was no effect on clearance or clearance variability. Participants had lower speed, cadence, increased cycle time and stance time in the 50 lx compared to 300 lx and distributed 200 lx lighting in descent. The minimum hip angle in ascent was increased in the 200 lx lighting. Clearance was found to be moderately correlated with balance scores.

**INTERPRETATION:** Individuals with visual impairment adopt precautionary gait in dim lighting conditions. This does not always result in improvements in the parameters associated with risk of falling (e.g. clearance).

Copyright © 2018 Elsevier Ltd. All rights reserved.

**PDF Y Endnote Y**

### **Lower limbs heterometry correction in patients with osteoporosis and increased risk of falls**

Pratelli E, Alito A, Zanella C, Busi L, Mangone G, Scarselli M, Pasquetti P.

*Clin. Cases Miner. Bone Metab.* 2017; 14(3): 294-297.

**Affiliation:** Specialization in Physical Medicine and Rehabilitation, Director of Recovery and Rehabilitation Agency, University Hospital of Careggi, Florence, Italy.

(Copyright © 2017, CIC edizioni internazionali)

**DOI** 10.11138/ccmbm/2017.14.3.294 **PMID** 29354156 **PMCID** PMC5762218

#### **Abstract**

Osteoporotic fractures are associated with a significant increase in morbidity, mortality and medical costs. There is also a strong link between fractures and increased mortality. Among effective measures for the prevention of falls, instability treatment surely plays a crucial role. Several factors contribute to instability, many of which are ageing-related: visual spatial deficit, strength reduction, weight imbalance with COP lateralization sometimes favoured by LLD (leg length discrepancy). It seems useful to detect an heterometry which could be corrected, if present. The aim of our work is to assess the responses of individuals with heterometry diagnosis to the wedge positioning, using the balance board Lizard 3.0®. In the period between January 2013 and September 2013, 52 patients were recruited with clinical heterometry >5 mm among those that were treated in the Recovery and Rehabilitation Agency's postural clinic of the Careggi Hospital Orthopedic Trauma Centre in Florence. Our measurements have revealed that there is a statistically significant correlation ( $p < 0.5$ ) between clinical limb shortening expressed in mm and location of the weight imbalance at the stabilometric examination at T0; our data shows that the majority of patients with clinical heterometry shows a weight imbalance on the longer limb. After heterometry correction, 21 patients showed a statistically significant reduction ( $p < 0,01$ ) in weight imbalance expressed in kg between T0 and T1 and have been assigned to group 1, the remaining 31 worsened and have been assigned to group 2. From the results of our study, it is clear that the correction of lower limbs heterometry shouldn't be based only on clinical measuring of the limbs length discrepancy, even if very accurate.

**PDF Y Endnote Y**