

SafetyLit August 27th 2017

Cross-cultural validation of the Falls Efficacy Scale-International to assess concerns about falls among Hungarian community-living older people

Kovacs E, Rozs F, Petridisz A, Erdős R, Majercsik E.

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

Affiliation: Department of Chronic Internal Medicine , Saint Margaret Hospital , Budapest , Hungary.
(Copyright © 2017, Informa - Taylor and Francis Group)

DOI 10.1080/09638288.2017.1366555 **PMID** 28814114

Abstract

PURPOSE: The Falls Efficacy Scale-International (FES-I) is a reliable and valid tool for assessing concerns about falling. Our aims were to translate, culturally adapt, and evaluate the main psychometric characteristics (internal consistency, reproducibility, and convergent construct validity) of the Hungarian version of the FES-I on a sample of community-living older adults.

METHODS: After translating and culturally adapting the original scale, 165 community-living older adults (aged 60 years or over) participated in the measurements and filled in the questionnaire. After two weeks, a subsample of 64 persons filled in the FES-I again to determine the test-retest reliability.

RESULTS: The test-retest analysis showed excellent reliability: Intraclass Correlation Coefficient was 0.831. The FES-I Hungarian consisted of two factors that showed good internal consistency: Cronbach's alpha 0.95 (Factor 1), 0.89 (Factor 2), and 0.93 (whole scale). The FES-I was able to discriminate the participants based on gender and fall history. It showed a significant correlation with the Timed Up and Go test ($r = 0.740$) and the general health perception ($r = -0.713$).

CONCLUSIONS: Translation and cultural adaptation of the original scale were successful. The Hungarian version proved to be a reliable, valid tool confirming that it can be used in future clinical and scientific work with Hungarian older people. Implications for rehabilitation Excessive concerns about falls may lead to avoidance of activities, decreasing functional abilities, increasing of risk of a future fall, ultimately premature nursing home admission. The Falls Efficacy Scale-International is a widespread tool for assessing concerns about falls. The Hungarian version of Falls Efficacy Scale-International has an excellent test-retest reliability, good internal consistency, and acceptable construct validity. The Hungarian version of Falls Efficacy Scale-International is a valid and reliable tool for measuring the concerns about falls among Hungarian-speaking community-living older people in everyday clinical practice and scientific studies.

PDF Y Endnote Y

Deaths caused by injury among people of working age (18-64) are decreasing, while those among older people (64+) are increasing

Bäckström D, Larsen R, Steinvall I, Fredrikson M, Gedeberg R, Sjöberg F.

Eur. J. Trauma Emerg. Surg. 2017; ePub(ePub): ePub.

Affiliation: Department of Hand Surgery, Plastic Surgery, and Burns, Linköping University, Linköping, Sweden.

(Copyright © 2017, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1007/s00068-017-0827-1 **PMID** 28825159

Abstract

BACKGROUND: Injury is an important cause of death in all age groups worldwide, and contributes to many losses of human and economic resources. Currently, we know a few data about mortality from

injury, particularly among the working population. The aim of the present study was to examine death from injury over a period of 14 years (1999-2012) using the Swedish Cause of Death Registry (CDR) and the National Patient Registry, which have complete national coverage.

METHOD: CDR was used to identify injury-related deaths among adults (18 years or over) during the years 1999-2012. ICD-10 diagnoses from V01 to X39 were included. The significance of changes over time was analyzed by linear regression.

RESULTS: The incidence of prehospital death decreased significantly (coefficient -0.22, $r(2) = 0.30$; $p = 0.041$) during the study period, while that of deaths in hospital increased significantly (coefficient 0.20, $r(2) = 0.75$; $p < 0.001$). Mortality/100,000 person-years in the working age group (18-64 years) decreased significantly (coefficient -0.40, $r(2) = 0.37$; $p = 0.020$), mainly as a result of decrease in traffic-related deaths (coefficient -0.34, $r(2) = 0.85$; $p < 0.001$). The incidence of deaths from injury among elderly (65 years and older) patients increased because of the increase in falls (coefficient 1.71, $r(2) = 0.84$; $p < 0.001$) and poisoning (coefficient 0.13, $r(2) = 0.69$; $p < 0.001$).

CONCLUSION: The epidemiology of injury in Sweden has changed during recent years in that mortality from injury has declined in the working age group and increased among those people 64 years old and over.

PDF Endnote

Effectiveness of an Ambient Intelligent Geriatric Management system (AmbIGeM) to prevent falls in older people in hospitals: protocol for the AmbIGeM stepped wedge pragmatic trial

Visvanathan R, Ranasinghe DC, Wilson A, Lange K, Dollard J, Boyle E, Karnon J, Raygan E, Maher S, Ingram K, Pazhvoor S, Hoskins S, Hill K. *Inj. Prev.* 2017; ePub(ePub): ePub.

Affiliation: School of Physiotherapy and Exercise Science, Curtin University, Perth, Western Australia, Australia.

(Copyright © 2017, BMJ Publishing Group)

DOI 10.1136/injuryprev-2017-042507 **PMID** 28823995

Abstract

BACKGROUND: Although current best practice recommendations contribute to falls prevention in hospital, falls and injury rates remain high. There is a need to explore new interventions to reduce falls rates, especially in geriatric and general medical wards where older patients and those with cognitive impairment are managed.

DESIGN AND METHODS: A three-cluster stepped wedge pragmatic trial, with an embedded qualitative process, of the Ambient Intelligent Geriatric Management (AmbIGeM) system (wearable sensor device to alert staff of patients undertaking at-risk activities), for preventing falls in older patients compared with standard care. The trial will occur on three acute/subacute wards in two hospitals in Adelaide and Perth, Australia.

PARTICIPANTS: Patients aged >65 years admitted to study wards. A waiver (Perth) and opt-out of consent (Adelaide) was obtained for this study. Patients requiring palliative care will be excluded.

OUTCOMES: The primary outcome is falls rate; secondary outcome measures are: (1) proportion of participants falling; (2) rate of injurious inpatient falls/1000 participant bed-days; (3) acceptability and safety of the interventions from patients and clinical staff perspectives; and (4) hospital costs, mortality and use of residential care to 3 months postdischarge.

DISCUSSION: This study investigates a novel technological approach to preventing falls in hospitalised older people. We hypothesise that the AmbIGeM intervention will reduce falls and injury rates, with an economic benefit attributable to the intervention. If successful, the AmbIGeM

system will be a useful addition to falls prevention in hospital wards with high proportions of older people and people with cognitive impairment. TRIAL REGISTRATION NUMBER: Australian and New Zealand Clinical Trial Registry: ACTRN 12617000981325; Pre-results.

© Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2017. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

PDF Y Endnote Y

Effectiveness of statewide falls prevention efforts with and without group exercise

Albert SM, King J. *Prev. Med.* 2017; ePub(ePub): ePub.

Affiliation: Department of Behavioral and Community Health Sciences, University of Pittsburgh, United States.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.jypmed.2017.08.010 **PMID** 28823686

Abstract

Group-based falls prevention programs vary in use of exercise, education, home modification, and other program elements. Pennsylvania's Department of Aging offers two large-scale falls prevention programs that differ in these components, allowing a strong test of the effectiveness of exercise in reducing falls incidence relative to less intensive education-based programs. In 2016-2017, we followed three groups of older adults attending senior centers: (i) older adults who completed Healthy Steps in Motion (HSIM, n=560), an 8-week exercise program, (ii) older adults completing Healthy Steps for Older Adults (HSA, n=651), a falls education workshop with assessment and referral; and (iii) older adults not completing falls prevention programs (n=787). Participants were followed for up to 6 months with monthly ascertainment of falls. We estimated Poisson regression models to compare incidence rate ratios. The groups did not differ in falls risk at baseline or attrition over follow-up. HSIM participants reported 5.3 fall months per 100 person-months of follow-up. The group not completing falls prevention programming reported 7.3 (incidence rate ratio [IRR], 0.72 [0.59, 0.89]), and the group completing HSA 6.5 (IRR, 0.82 [0.66, 1.02]). In stratified analyses, falls incidence was lower in HSIM for older adults reporting better balance and no falls in the prior 12 months. Non-exercise-based falls prevention programs may also reduce falls, perhaps through indirect physical benefits such as greater social engagement and increased activity.

Copyright © 2017. Published by Elsevier Inc.

PDF Y Endnote Y

Fall-prone older people's attitudes towards the use of virtual reality technology for fall prevention

Dockx K, Alcock L, Bekkers E, Ginis P, Reelick M, Pelosin E, Lagravinese G, Hausdorff JM, Mirelman A, Rochester L, Nieuwboer A.

Gerontology 2017; ePub(ePub): ePub.

Affiliation: Department of Rehabilitation Sciences, Faculty of Kinesiology and Rehabilitation Sciences, KU Leuven, Leuven, Belgium.

(Copyright © 2017, Karger Publishers)

DOI 10.1159/000479085 **PMID** 28817828

Abstract

BACKGROUND: Virtual reality (VR) technology is a relatively new rehabilitation tool that can deliver a combination of cognitive and motor training for fall prevention. The attitudes of older people to such training are currently unclear.

OBJECTIVE: This study aimed to investigate: (1) the attitudes of fall-prone older people towards fall prevention exercise with and without VR; (2) attitudinal changes after intervention with and without VR; and (3) user satisfaction following fall prevention exercise with and without VR.

METHODS: A total of 281 fall-prone older people were randomly assigned to an experimental group receiving treadmill training augmented by VR (TT+VR, n = 144) or a control group receiving treadmill training alone (TT, n = 137). Two questionnaires were used to measure (1) attitudes towards fall prevention exercise with and without VR (AQ); and (2) user satisfaction (USQ). AQ was evaluated at baseline and after intervention. USQ was measured after intervention only.

RESULTS: The AQ revealed that most participants had positive attitudes towards fall prevention exercise at baseline (82.2%) and after intervention (80.6%; $p = 0.144$). In contrast, only 53.6% were enthusiastic about fall prevention exercise with VR at baseline. These attitudes positively changed after intervention (83.1%; $p < 0.001$), and 99.2% indicated that they enjoyed TT+VR. Correlation analyses showed that postintervention attitudes were strongly related to user satisfaction (USQ: $r = 0.503$; $p < 0.001$).

CONCLUSIONS: Older people's attitudes towards fall prevention exercise with VR were positively influenced by their experience. From the perspective of the user, VR is an attractive training mode, and thus improving service provision for older people is important.

© 2017 S. Karger AG, Basel.

PDF N Endnote Y

Improving walking conditions for older adults. A three-step method investigation

Krogstad JR, Hjorthol R, Tennøy A.

Eur. J. Ageing 2015; 12(3): 249-260.

Affiliation: Institute of Transport Economics, Gaustadalléen 21, 0349 Oslo, Norway.

(Copyright © 2015, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1007/s10433-015-0340-5 **PMID** 28804358 **PMCID** PMC5549237

Abstract

The benefits of walking are widely recognized. In this regard, the Norwegian government has urged local authorities to develop walking strategies. The aim of such strategies is to influence a local walking culture and framework conditions for pedestrians. Older citizens are an important focus group because what is an accessible environment for them can be attractive for all groups. The primary aim of this study is to improve our understanding of how physical, social and individual factors affect whether older groups perceive that they need, can and want to walk. Second, we show how a mixed-method approach for collecting data gives an important input when planning a walking strategy. Combining quantitative and qualitative data gave deeper insights into how elders perceived their walking environment. The three steps (survey, participatory observation and workshop) made it possible to involve elders and practitioners from the municipality and the Norwegian Public Roads Administration directly in the study. This gave first-hand experience about how to facilitate the environment for older pedestrians. The findings suggest that the need, can and want dimensions of walking interact and reinforce each other. We find that measures affecting more than one such dimension seem to provide the best response for walking activity. This can be important for practitioners to take into consideration when developing good walking areas in the city.

PDF Endnote

Older adults with a combination of vision and hearing impairment experience higher rates of cognitive impairment, functional dependence, and worse outcomes across a set of quality indicators

Davidson JGS, Guthrie DM.

J. Aging Health 2017; ePub(ePub): 898264317723407.

Affiliation: Wilfrid Laurier University, Waterloo, Ontario, Canada.

(Copyright © 2017, Sage Publications)

DOI 10.1177/0898264317723407 **PMID**28805100

Abstract

OBJECTIVES: Hearing and vision impairment were examined across several health-related outcomes and across a set of quality indicators (QIs) in home care clients with both vision and hearing loss (or dual sensory impairment [DSI]).

METHOD: Data collected using the Resident Assessment Instrument for Home Care (RAI-HC) were analyzed in a sample of older home care clients. The QIs represent the proportion of clients experiencing negative outcomes (e.g., falls, social isolation).

RESULTS: The average age of clients was 82.8 years (SD = 7.9), 20.5% had DSI and 8.5% had a diagnosis of Alzheimer's disease (AD). Clients with DSI were more likely to have a diagnosis of dementia (not AD), have functional impairments, report loneliness, and have higher rates across 20 of the 22 QIs, including communication difficulty and cognitive decline. Clients with highly impaired hearing, and any visual impairment, had the highest QI rates.

DISCUSSION: Individuals with DSI experience higher rates of adverse events across many health-related outcomes and QIs. Understanding the unique contribution of hearing and vision in this group can promote optimal quality of care.

PDF Endnote

Older persons' experiences of a home-based exercise program with behavioral change support

Arkkukangas M, Sundler AJ, Söderlund A, Eriksson S, Johansson AC.

Physiother. Theory Pract. 2017; ePub(ePub): ePub.

Affiliation: School of Health, Care and Social Welfare, Mälardalen University, Västerås, Sweden.

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

DOI 10.1080/09593985.2017.1359869 **PMID** 28812402

Abstract

BACKGROUND: It is a challenge to promote exercise among older persons. Knowledge is needed regarding the maintenance of exercise aiming at preventing falls and promoting health and well-being in older persons.

PURPOSE: This descriptive study used a qualitative inductive approach to describe older persons' experiences of a fall-preventive, home-based exercise program with support for behavioral change.

METHODS: Semi-structured interviews were conducted with 12 elderly persons aged 75 years or older, and a qualitative content analysis was performed.

RESULTS: Four categories emerged: facilitators of performing exercise in everyday life, the importance of support, perceived gains from exercise, and the existential aspects of exercise.

CONCLUSION: With support from physiotherapists (PTs), home-based exercise can be adapted to individual circumstances in a meaningful way. Including exercises in everyday life and daily routines could support the experience of being stronger, result in better physical functioning, and give hope for an extended active life in old age.

PDF Y Endnote Y

Personality and frailty: evidence from four samples

Stephan Y, Sutin AR, Canada B, Terracciano A.

J. Res. Pers. 2017; 66: 46-53.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.jrp.2016.12.006 PMID unavailable

Abstract

Frailty is a prevalent geriatric syndrome. Little is known about the psychological factors associated with this syndrome. Based on four large samples of older adults aged from 65 to 104 years old, the present study examined whether personality traits are related to frailty. High neuroticism, low conscientiousness, low extraversion, low openness and low agreeableness were related to higher frailty across samples. Longitudinal analysis conducted in one sample revealed that high neuroticism was associated with worsening frailty over an 8-year period. Higher frailty at baseline and over time was related to maladaptive personality changes. This study extends existing knowledge on the link between personality and health in older adults, by identifying the personality traits associated with frailty, a complex geriatric syndrome.

PDF Y Endnote Y

Physical inactivity predicts slow gait speed in an elderly multi-ethnic cohort study: the Northern Manhattan Study

Willey JZ, Moon YP, Kulick ER, Cheung YK, Wright CB, Sacco RL, Elkind MSV.

Neuroepidemiology 2017; 49(1-2): 24-30.

Affiliation Department of Neurology, College of Physicians and Surgeons, Columbia University, New York, NY, USA.

Copyright (Copyright © 2017, Karger Publishers)

DOI 10.1159/000479695

PMID 28810247

Abstract

INTRODUCTION: Gait speed is associated with multiple adverse outcomes of aging. We hypothesized that physical inactivity would be prospectively inversely associated with gait speed independently of white matter hyperintensity volume and silent brain infarcts on MRI.

METHODS: Participants in the Northern Manhattan Study MRI sub-study had physical activity assessed when they were enrolled into the study. A mean of 5 years after the MRI, participants had gait speed measured via a timed 5-meter walk test. Physical inactivity was defined as reporting no leisure-time physical activity. Multi-variable logistic and quantile regression was performed to examine the associations between physical inactivity and future gait speed adjusted for confounders.

RESULTS: Among 711 participants with MRI and gait speed measures (62% women, 71% Hispanic, mean age 74.1 ± 8.4), the mean gait speed was 1.02 ± 0.26 m/s. Physical inactivity was associated with a greater odds of gait speed in the lowest quartile (<0.85 m/s, adjusted OR 1.90, 95% CI 1.17-3.08), and in quantile regression with 0.06 m/s slower gait speed at the lowest 20 percentile ($p = 0.005$).

CONCLUSIONS: Physical inactivity is associated with slower gait speed independently of osteoarthritis, grip strength, and subclinical ischemic brain injury. Modifying sedentary behavior

poses a target for interventions aimed at reducing decline in mobility.

© 2017 S. Karger AG, Basel.

PDF N Endnote Y

Pilot study into impaired judgement, self-toileting behaviour in fallers and non-fallers

Chan DKY, Diu E, Loh KF, Hossain M, Verick D, Van Nguyen H.

Eur. J. Ageing 2013; 10(3): 257-260.

Affiliation: Bankstown-Lidcombe Hospital, Bankstown, NSW Australia.

(Copyright © 2013, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1007/s10433-013-0264-x **PMID** 28804301 **PMCID** PMC5549125

Abstract

Falls are a significant cause of morbidity and mortality in older people. There is an increased frequency of falls in older adults with cognitive impairment and dementia which may be due to impaired judgement of self capability to mobilise safely. This case control study assessed 53 Aged Care subjects aged 75+ years that were hospitalised post fall, from January 2008-December 2009, and compared these subjects' responses to those of 26 non-fallers to a standard question: 'While you are in the hospital, what would you do if you need to go to the toilet later?' This hypothetical scenario question was designed to assess judgement based on self-toileting behaviour and mobility. The study group and control group were similar in age (83.9 ± 4.7 vs. 82.0 ± 4.6 years respectively, $p = 0.081$) but the study group had statistically lower MMSE results when compared to controls (median 23 vs. 26.5 respectively, $p = 0.031$). Impaired judgement, defined as an unsafe/inappropriate response to the scenario question, was significantly more prevalent in the study group (fallers) compared to the control group (non-fallers) (41.5 vs. 15.4 %, $p = 0.020$). Impaired judgement was also more common with lower MMSE scores with 80.9 % of unsafe/inappropriate responses given by participants with MMSE of ≤ 20 . The authors suggest there may be an association between impaired judgement, evidenced by responses to a standardised question, and falls history in older subjects, particularly in those with cognitive impairment or dementia. Ultimately, this may lead to identification of people at increased risk of falls and possibly effective falls prevention strategies in this population.

PDF Y Endnote Y

Recognizing and responding to the "toxic" work environment: worker safety, patient safety, and abuse/neglect in nursing homes

Pickering CEZ, Nurenberg K, Schiamberg L.

Qual. Health Res. 2017; ePub(ePub): ePub.

Affiliation: Michigan State University, East Lansing, Michigan, USA.

(Copyright © 2017, Sage Publications)

DOI 10.1177/1049732317723889 **PMID**28805151

Abstract

This grounded theory study examined how the certified nursing assistant (CNA) understands and responds to bullying in the workplace. Constant comparative analysis was used to analyze data from in-depth telephone interviews with CNAs (N = 22) who experienced bullying while employed in a nursing home. The result of the analysis is a multistep model describing CNA perceptions of how, over time, they recognized and responded to the "toxic" work environment. The strategies used in responding to the "toxic" environment affected their care provision and were attributed to the

development of several resident and worker safety outcomes. The data suggest that the etiology of abuse and neglect in nursing homes may be better explained by institutional cultures rather than individual traits of CNAs.

FINDINGS highlight the relationship between worker and patient safety, and suggest worker safety outcomes may be an indicator of quality in nursing homes.

PDF Y Endnote Y

Risk profiles for falls among older adults: new directions for prevention

Satariano WA, Wang C, Kealey ME, Kurtovich E, Phelan EA.

Front. Public Health 2017; 5: e142.

Affiliation: Department of Health Services, School of Public Health, University of Washington, Seattle, WA, United States.

(Copyright © 2017, Frontiers Editorial Office)

DOI 10.3389/fpubh.2017.00142 PMID 28824893 PMCID PMC5539824

Abstract

OBJECTIVE: To address whether neighborhood factors, together with older adults' levels of health and functioning, suggest new combinations of risk factors for falls and new directions for prevention.

To explore the utility of Grade-of-Membership (GoM) analysis to conduct this descriptive analysis.

METHOD: This is a cross-sectional, descriptive study of 884 people aged ≥ 65 years from Alameda County, CA, Cook County, IL, Allegheny County, PA, and Wake and Durham counties, NC. Interviews focused on neighborhood characteristics, physical and cognitive function, walking, and falls and injuries. Four risk profiles (higher order interactions of individual and neighborhood factors) were derived from GoM analysis.

RESULTS: Profiles 1 and 2 reflect previous results showing that frail older adults are likely to fall indoors (Profile 1); healthy older adults are likely to fall outdoors (Profile 2). Profile 3 identifies the falls risk for older with mild cognitive impairment living in moderately walkable neighborhoods. Profile 4 identifies the risk found for healthy older adults living in neighborhoods with low walkability.

DISCUSSION: Neighborhood walkability, in combination with levels of health and functioning, is associated with both indoor and outdoor falls. Descriptive results suggest possible research hypotheses and new directions for prevention, based on individual and neighborhood factors.

PDF Y Endnote Y

Slow gait speed is associated with executive function decline in older people with mild to moderate dementia: a one year longitudinal study

Taylor ME, Lasschuit DA, Lord SR, Delbaere K, Kurrle SE, Mikolaizak AS, Kvelde T, Close JCT.

Arch. Gerontol. Geriatr. 2017; 73: 148-153.

Affiliation: Falls, Balance and Injury Research Centre, Neuroscience Research Australia, UNSW, Sydney, NSW, Australia; Prince of Wales Clinical School, Medicine, UNSW, Sydney, NSW, Australia. Electronic address: j.close@neura.edu.au.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.archger.2017.07.023 PMID 28818760

Abstract

OBJECTIVES: This study aimed to document change in neuropsychological, physical and functional performance over one year and to investigate the relationship between baseline gait speed and

cognitive decline in this period in older people with dementia.

METHODS: One hundred and seventy-seven older people with dementia (Mini-Mental State Examination 11-23; Addenbrooke's Cognitive Examination-Revised <83) residing in the community or low level care facility completed baseline neuropsychological, physical and functional assessments. Of these, 134 participants agreed to reassessment of the above measures one year later.

RESULTS: Overall, many neuropsychological, physical and functional performance measures declined significantly over the one year study period. Baseline gait speed was significantly associated with decline in verbal fluency ($B(109)=2.893$, $p=0.046$), specifically phonemic/letter fluency ($B(109)=2.812$, $p=0.004$) while controlling for age, education, dementia drug use and baseline cognitive performance. There was also a trend for an association between baseline gait speed and decline in clock drawing performance ($B(107)=0.601$, $p=0.071$).

CONCLUSIONS: Older people with mild to moderate dementia demonstrate significant decline in neuropsychological, physical and functional performance over one year. Baseline gait speed is associated with decline in executive function over one year, suggesting shared pathways/pathology between gait and cognition.

Copyright © 2017 Elsevier B.V. All rights reserved.

PDF Y Endnote Y

The impact of Glasgow Coma Scale-age prognosis score on geriatric traumatic brain injury outcomes

Khan M, O'Keeffe T, Jehan F, Kulvatunyou N, Kattaa A, Gries L, Tang A, Joseph B.

J. Surg. Res. 2017; 216: 109-114.

Affiliation: Division of Trauma, Critical Care, Emergency Surgery, and Burns, Department of Surgery, University of Arizona, Tucson, Arizona. Electronic address: bjoseph@surgery.arizona.edu.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.jss.2017.04.026 **PMID** 28807194

Abstract

BACKGROUND: As the population ages, increasing number of geriatric patients sustain traumatic brain injury (TBI). Communication of accurate prognostic information is crucial for making informed decisions on behalf of such patients. Therefore, the aim of our study was to develop a simple and clinically applicable tool that accurately predicts the prognosis in geriatric TBI patients.

METHODS: We performed a 1-y (2011) retrospective analysis of isolated geriatric TBI patients (age ≥ 65 y, head abbreviated injury score [AIS] ≥ 3 , and other body AIS < 3) in the National Trauma Data Bank. We calculated a Glasgow Coma Scale (GCS)-age prognosis (GAP) score (age/GCS score) for all patients. Outcome measures were in-hospital adverse outcomes (mortality and Rehab/skilled nursing facility discharge disposition). Regression analysis and receiver operator characteristic curve analysis were performed to determine the discriminatory power of GAP score.

RESULTS: A total of 8750 geriatric patients with TBI were included. Mean age was 77.8 ± 7.1 y, the median (interquartile range) GCS was 15 (13-15), and the median (interquartile range) head AIS was 4 (3-4). The overall in-hospital mortality rate was 12.7%, and 34.2% of the patients were discharged home. As the GAP score increased, the mortality rate increased and discharge to-home decreased. Receiver operator characteristic curve analysis revealed excellent discriminatory power for mortality (area under the curve: 0.826). Above a GAP score of 12, the mortality rate was $>50\%$ and more than 45% of the patients were discharged to Rehab/skilled nursing facility.

CONCLUSIONS: For geriatric patients with TBI, a simple GAP score reliably predicts outcomes. A score above 12 results in a drastic increase in mortality and an adverse discharge disposition. This simple tool may help clinicians provide accurate prognostic information to patients' families.
Copyright © 2017 Elsevier Inc. All rights reserved.

PDF Y Endnote Y

The rise and fall of impulse control behavior disorders

Cossu G, Rinaldi R, Colosimo C.

Parkinsonism Relat. Disord. 2017; ePub(ePub): ePub.

Affiliation: Department of Neurology, Santa Maria University Hospital, Terni, Italy. Electronic address: carlo.colosimo@uniroma1.it.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.parkreldis.2017.07.030 **PMID** 28818561

Abstract

INTRODUCTION: Impulse control disorders (ICDs) are psychiatric disorders characterized by the failure to resist an impulse or by the temptation to perform an act that is harmful to oneself or to others.

METHODS: ICDs, including pathological gambling, hypersexuality, compulsive eating and shopping, can occur as a complication of Parkinson's disease (PD) together with other behavioral disorders, including dopamine dysregulation syndrome. This review is based on a literature search updated to May 2017, focusing on the epidemiology, clinical features, and therapeutic options of ICDs associated with PD.

RESULTS: Studies on the prevalence of ICDs confirm that they represent common phenomena associated with PD, with some centers reporting up to 40% of the PD population affected; the relative prevalence of the main ICDs shows significant variability, with a majority of the studies reporting that hypersexuality is the commonest one. Risk factors associated with the development of ICDs in PD were systematically evaluated, confirming the correlation between these disorders and male gender, younger age at PD onset and family history for addiction.

CONCLUSIONS: We will discuss the recent advances on the functional neuroanatomy, the role of dopamine-serotonin interactions and the cognitive profile associated with ICDs. Management of PD-related ICDs is still based on poor evidence, and this topic should be the object for future research.
Copyright © 2017 Elsevier Ltd. All rights reserved.

PDF Y Endnote Y

High-speed resistance training and balance training for people with knee osteoarthritis to reduce falls risk: study protocol for a pilot randomized controlled trial

Levinger P, Dunn J, Bifera N, Butson M, Elias G, Hill KD.

Trials 2017; 18(1): e384.

Affiliation: School of Physiotherapy and Exercise Science, Curtin University, Perth, WA, Australia.
(Copyright © 2017, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1186/s13063-017-2129-7 **PMID** 28821271

Abstract

BACKGROUND: The number of falls experienced by people with knee osteoarthritis (OA) is almost double the number experienced by people with no OA. The neuromuscular elements required to arrest a fall are more impaired in people with knee OA compared to their asymptomatic

counterparts. Therefore, these elements may need to be incorporated into an exercise intervention to reduce the risk of falling. The aim of this study will be to examine the feasibility, safety and patient satisfaction of a high-speed resistance-training program, with and without balance exercises, in people with knee OA compared to a control group. The effect of these exercise programs on lower-limb muscle strength and physiological and functional risk factors for falls will also be examined.

METHODS: This study will be a pilot randomized controlled trial with a pre- and post-intervention design (outcome assessments at baseline and 8 weeks after participation commencement) comparing three groups: a control group (no intervention), a high-speed resistance-training group and a high-speed resistance-training plus balance exercises group. Thirty people with knee osteoarthritis aged 60-90 years will be recruited and randomized to one of the three groups. Feasibility and safety will be assessed by examining adherence to the exercise program, dropout rate, pain level during and following exercise, number of exercises stopped due to pain, and any adverse event or any incident that prevents the participant from completing the prescribed exercise. Secondary measures of lower-limb strength, physical function, self-reported pain and function, fear of falls, and executive function and quality of life will also be assessed. To determine statistical trends of effectiveness and hence to inform sample size for a fully powered study, analyses of the secondary outcomes will be performed to assess the changes within and between groups over time (pre-post) using repeated measure ANOVA.

DISCUSSION: The results of this study will improve understanding of what type of exercise is safe and beneficial for people with knee OA to reduce their risk of falling, and hence will inform the development of a future large research trial. **TRIAL REGISTRATION:** Australian New Zealand Clinical Trials Registry, ID: ACTRN12616001382460. Registered on 6 October 2016.

PDF Y Endnote Y

Improvements in balance control in individuals with PCS detected following vestibular training: A case study

Prangle A, Aggerholm M, Cinelli M.

Gait Posture 2017; 58: 229-231.

Affiliation: Department of Kinesiology and Phys. Ed. Wilfrid Laurier University Waterloo, ON, Canada. Electronic address: mcinelli@wlu.ca.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.gaitpost.2017.08.006 **PMID** 28822327

Abstract

Concussed individuals have been found to experience balance deficits in the anterior-posterior (AP) direction as indicated by greater Center of Pressure (COP) displacement and velocity. One possible reason for this change in balance control could be due to damage to the lateral vestibulospinal tract which sends signals to control posterior muscles, specifically ankle extensors leading to compensatory torques about the ankle. The purpose of the study was to quantify balance assessments in individuals experiencing persistent post-concussion symptoms (PCS) to determine balance control changes following a vestibular training intervention. Participants (N=6, >26 days symptomatic), were tested during their first appointment with a registered physiotherapist (PT) and during each follow up appointment. Participants were prescribed balance, visual, and neck strengthening exercises by the PT that were to be completed daily between bi-weekly appointments. Balance assessments were quantified using a Nintendo Wii board to record ground

reaction forces. Participants completed 4 balance assessments: 1) Romberg stance eyes open (REO); 2) Romberg stance eyes closed (REC); 3) single leg stance eyes open (SEO); and 4) single leg stance eyes closed (SEC). The balance assessments were conducted on both a firm and compliant surfaces. Significant improvements in balance control were noted in ML/AP displacement and velocity of COP for both SEC and Foam REC conditions, with additional improvements in AP velocity of COP for Foam REC and in ML displacement of COP during Foam SEC. Overall, findings indicate that objectively quantifying balance changes for individuals experiencing persistent PCS allows for a more sensitive measure of balance and detects changes unrecognizable to the naked eye. Copyright © 2017. Published by Elsevier B.V.

PDF Y Endnote Y

Robot-supported assessment of balance in standing and walking

Shirota C, van Asseldonk E, Matjačić Z, Vallery H, Barralon P, Maggioni S, Buurke JH, Veneman JF. *J. Neuroengineering Rehabil.* 2017; 14(1): 80.

Affiliation: Health Division, Tecnia Research and Innovation, Paseo Mikeletegi 1, 20009, Donostia-San Sebastian, Spain. jan.veneman@tecnalia.com.

(Copyright © 2017, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1186/s12984-017-0273-7 **PMID** 28806995

Abstract

Clinically useful and efficient assessment of balance during standing and walking is especially challenging in patients with neurological disorders. However, rehabilitation robots could facilitate assessment procedures and improve their clinical value. We present a short overview of balance assessment in clinical practice and in posturography. Based on this overview, we evaluate the potential use of robotic tools for such assessment. The novelty and assumed main benefits of using robots for assessment are their ability to assess 'severely affected' patients by providing assistance-as-needed, as well as to provide consistent perturbations during standing and walking while measuring the patient's reactions. We provide a classification of robotic devices on three aspects relevant to their potential application for balance assessment: 1) how the device interacts with the body, 2) in what sense the device is mobile, and 3) on what surface the person stands or walks when using the device. As examples, nine types of robotic devices are described, classified and evaluated for their suitability for balance assessment. Two example cases of robotic assessments based on perturbations during walking are presented. We conclude that robotic devices are promising and can become useful and relevant tools for assessment of balance in patients with neurological disorders, both in research and in clinical use. Robotic assessment holds the promise to provide increasingly detailed assessment that allows to individually tailor rehabilitation training, which may eventually improve training effectiveness.

PDF Y Endnote Y

Variance in exposed perturbations impairs retention of visuomotor adaptation

Canaveral CA, Danion F, Berrigan F, Bernier PM.

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

Affiliation: Université de Sherbrooke pierre-michel.bernier@usherbrooke.ca.

(Copyright © 2017, American Physiological Society)

DOI 10.1152/jn.00416.2017 **PMID** 28814633

Abstract

Sensorimotor control requires an accurate estimate of the state of the body. The brain optimizes state estimation by combining sensory signals with predictions of the sensory consequences of motor commands using a forward model. Given that both sensory signals and predictions are uncertain (i.e. noisy), the brain optimally weights the relative reliance on each source of information during adaptation. In support, it is known that uncertainty in the sensory predictions influences the rate and generalization of visuomotor adaptation. We investigated whether uncertainty in the sensory predictions affects the retention of a new visuomotor relationship. This was done by exposing three separate groups to a visuomotor rotation whose mean was common at 15° CCW but whose variance around the mean differed (i.e. SD of 0°, 3.2° or 4.5°). Retention was assessed by measuring the persistence of the adapted behaviour in a no vision phase.

RESULTS revealed that mean reach direction late in adaptation was similar across groups, suggesting it depended mainly upon the mean of exposed rotations and was robust to differences in variance. However, retention differed across groups, with higher levels of variance being associated with a more rapid reversion toward non-adapted behaviour. A control experiment ruled out that differences in retention were accounted for by differences in success rates. Exposure to variable rotations may have increased the uncertainty in sensory predictions, making the adapted forward model more labile and susceptible to change or decay.

Copyright © 2017, Journal of Neurophysiology.

PDF Y Endnote Y