

**SafetyLit April 15, 2018**

**Attenuation of adverse effects of aging on skeletal muscle by regular exercise and nutritional support**

Leon AS.

*Am. J. Lifestyle Med.* 2017; 11(1): 4-16.

(Copyright © 2017, Sage Publications)

**DOI** 10.1177/1559827615589319 **PMID** unavailable

**Abstract**

Beginning early in midlife, natural/primary aging is inevitably associated with a progressive reduction in muscle mass and function. This process can progress with aging to a substantial loss of strength, particularly in the lower extremities, reducing mobility. This condition, commonly referred to as sarcopenia, can result in frailty, reducing one's ability to live independently. This article reviews the underlying biological process contributing to the development of sarcopenia and the roles of regular exercise and nutritional support for attenuating aging-associated muscle loss as well as risk and management of sarcopenia and associated frailty.

**PDF Y Endnote Y**

**Awareness of medication related falls and preferred interventions among the elderly**

Loke MY, Yen Gan LL, Islahudin F.

*Pak. J. Pharm. Sci.* 2018; 31(2): 359-364.

**Affiliation:** Department of Pharmacy, Hospital University Kebangsaan Malaysia, Jalan Ya'acob Latif, Bandar Tun Razak, Cheras, Kuala Lumpur, Malaysia.

(Copyright © 2018, Faculty of Pharmacy, University of Karachi)

**DOI** unavailable **PMID** 29618421

**Abstract**

Falls are a major problem among the elderly and can lead to serious injury. Adults older than 65 years suffer the greatest number of severe falls. This study aims to evaluate the knowledge and perception of medication related falls as well as preferred medication related fall prevention programs in the local population. A cross-sectional survey was conducted among the elderly patients in a tertiary hospital. A total of 86 patients (n=86) were interviewed. Approximately 23.3% (20 patients) of the elderly had a history of falls over the past 6 months. Majority of the elderly considered falls as a major concern (80 patients, 93%) and is preventable (55 patients, 64%). Patients with a medical condition reported a significantly greater number of falls within the past 6 months ( $p < 0.001$ ). Approximately 69% (59 patients) of the elderly were aware of their medication and associated risk of falls. In patients that were unaware of medication associated risk of falls, 81.5% (22 patients) had a potentially inappropriate medication preferred preventive interventions for medication related falls were related to strength and training programs (37 patients, 43%). The knowledge of falls, medication related falls and intervention strategies in the elderly were minimal.

**PDF Y Endnote Y**

**SafetyLit 15 April 2018****Basins of attraction in human balance**

Smith VA, Lockhart TE, Spano ML.

*Eur. Phys. J. Spec. Top.* 2017; 226(15): 3315-3324.

**Affiliation:** School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ 85281, USA.

(Copyright © 2017, EDP Sciences)

**DOI** 10.1140/epjst/e2016-60345-4 **PMID** 29629019 **PMCID** PMC5886352

**Abstract**

Falls are a recognized risk factor for unintentional injuries among older adults, accounting for a large proportion of fractures, emergency department visits, and urgent hospitalizations. Human balance and gait research traditionally uses linear or qualitative tests to assess and describe human motion; however, human motion is neither a simple nor a linear process. The objective of this research is to identify and to learn more about what factors affect balance using nonlinear dynamical techniques, such as basin boundaries. Human balance data was collected using dual force plates for leans using only ankle movements as well as for unrestricted leans. Algorithms to describe the basin boundary were created and compared based on how well each method encloses the experimental data points as well as captures the differences between the two leaning conditions.

**PDF Y Endnote Y****Can community care workers deliver a falls prevention exercise program? A feasibility study**

Burton E, Lewin G, O'Connell H, Petrich M, Boyle E, Hill KD.

*Clin. Interv. Aging* 2018; 13: 485-495.

**Affiliation:** School of Physiotherapy and Exercise Science, Faculty of Health Sciences, Curtin University, Perth, Western Australia, Australia.

(Copyright © 2018, Dove Medical Press)

**DOI** 10.2147/CIA.S162728 **PMID** 29618925 **PMCID** PMC5875587

**Abstract**

**BACKGROUND:** Almost half of older people receiving community care fall each year and this rate has not improved in the last decade. Falls prevention programs targeted at this group are uncommon, and expensively delivered by university trained allied health professionals.

**PURPOSE:** To investigate the feasibility of community care workers delivering a falls prevention exercise program to older clients, at low or medium risk of falling, as part of an existing service provision.

**PATIENTS AND METHODS:** Community care workers from 10 community care organizations participated in the training for, and delivery to their clients of, an 8-week evidence-based falls prevention exercise program. Community care workers included assessment staff (responsible for identifying the need for community care services through completing an assessment) and support workers (responsible for providing support in the home). Clients were surveyed anonymously at the completion of the intervention and workers participated in a semi-structured interview.

**RESULTS:** Twenty-five community care workers participated in the study. The falls prevention program was delivered to 29 clients, with an average age of 82.7 (SD: 8.72) years and consisting of 65.5% female. The intervention was delivered safely with no adverse events recorded, and the

## SafetyLit 15 April 2018

eligibility and assessment tools were completed by the majority of community care workers (93.1%). Assessment staff found it difficult to find time to deliver the intervention. Support workers were able to complete the intervention within their current service delivery period, with the initial assessment taking a small amount of additional time. Support workers reported enjoying the additional responsibility afforded by delivering the falls prevention program and seeing changes in their clients. The majority of clients (82%) reported enjoying the exercises, with 59% reporting that they felt it made a positive change in their health. Clients completed the exercises on average 4.8 (SD: 2.2) days per week.

**CONCLUSION:** Community care workers who have completed appropriate training are able to deliver a falls prevention exercise program to their clients as part of their current services. Further research is required to determine whether the program reduces the rate of falls for community care clients and whether integration of a falls prevention program into an existing service is cost-effective.

### PDF Y Endnote Y

#### **Center of pressure motion after calf vibration is more random in fallers than non-fallers: prospective study of older individuals**

van den Hoorn W, Kerr GK, van Dieen JH, Hodges PW.

*Front. Physiol.* 2018; 9: e273.

**Affiliation:** Centre for Clinical Research Excellence in Spinal Pain, Injury and Health, School of Health & Rehabilitation Sciences, The University of Queensland, Brisbane, QLD, Australia.

(Copyright © 2018, Frontiers Research Foundation)

**DOI** 10.3389/fphys.2018.00273 **PMID** 29632494 **PMCID** PMC5879095

#### **Abstract**

Aging is associated with changes in balance control and elderly take longer to adapt to changing sensory conditions, which may increase falls risk. Low amplitude calf muscle vibration stimulates local sensory afferents/receptors and affects sense of upright when applied in stance. It has been used to assess the extent the nervous system relies on calf muscle somatosensory information and to rapidly change/perturb part of the somatosensory information causing balance unsteadiness by addition and removal of the vibratory stimulus. This study assessed the effect of addition and removal of calf vibration on balance control (in the absence of vision) in elderly individuals (>65 years,  $n = 99$ ) who did ( $n = 41$ ) or did not prospectively report falls ( $n = 58$ ), and in a group of young individuals (18-25 years,  $n = 23$ ). Participants stood barefoot and blindfolded on a force plate for 135 s. Vibrators (60 Hz, 1 mm) attached bilaterally over the triceps surae muscles were activated twice for 15 s; after 15 and 75 s (45 s for recovery). Balance measures were applied in a windowed (15 s epoch) manner to compare center-of-pressure (CoP) motion before, during and after removal of calf vibration between groups. In each epoch, CoP motion was quantified using linear measures, and non-linear measures to assess temporal structure of CoP motion [using recurrence quantification analysis (RQA) and detrended fluctuation analysis]. Mean CoP displacement during and after vibration did not differ between groups, which suggests that calf proprioception and/or weighting assigned by the nervous system to calf proprioception was similar for the young and both groups of older individuals. Overall, compared to the elderly, CoP motion of young was more predictable and persistent. Balance measures were not different between fallers and non-fallers before and during

## SafetyLit 15 April 2018

vibration. However, non-linear aspects of CoP motion of fallers and non-fallers differed after removal of vibration, when dynamic re-weighting is required. During this period fallers exhibited more random CoP motion, which could result from a reduced ability to control balance and/or a reduced ability to dynamically reweight proprioceptive information. These results show that non-linear measures of balance provide evidence for deficits in balance control in people who go on to fall in the following 12 months.

### PDF Y Endnote Y

#### **Engineering improved balance confidence among older adults with complex health care needs: learning from the Muscling Up Against Disability study**

Hetherington S, Henwood T, Swinton P, Keogh J, Gardiner P, Tuckett A.

*Arch. Phys. Med. Rehabil.* 2018; ePub(ePub): ePub.

**Affiliation:** School of Nursing, Midwifery and Social Work, The University of Queensland, Brisbane, Australia; Kevin Rouse, Burnie Brae Ltd, Brisbane, Australia.

(Copyright © 2018, Elsevier Publishing)

**DOI** 10.1016/j.apmr.2018.03.004 **PMID** 29626427

#### **Abstract**

**OBJECTIVE:** To investigate the associations of balance confidence with physical and cognitive markers of wellbeing among older adults receiving government-funded aged care services, and whether progressive resistance plus balance training could positively influence change.

**DESIGN:** Intervention study.

**SETTING:** Community-based older-adult-specific exercise clinic.

**PARTICIPANTS:** Older adults (N=245) with complex care needs who were receiving government aged care support.

**INTERVENTION:** 24 weeks of twice-weekly progressive resistance plus balance training carried out under the supervision of accredited exercise physiologists.

**MAIN OUTCOME MEASURES:** The primary measure was the Activity-specific Balance Confidence score. Secondary measures included the Short Physical Performance Battery, fall history, hierarchical timed balance tests, Geriatric Anxiety Index, Geriatric Depression Score, FRAIL scale and EuroQol 5D 3L.

**RESULTS:** At baseline, higher physical performance ( $r = 0.54$ ,  $p < .01$ ) and quality of life ( $r = 0.52$ ,  $p < .01$ ) predicted better balance confidence. In contrast, at baseline, higher levels of frailty predicted worse balance confidence ( $r = -0.55$ ,  $p < .01$ ). Change in balance confidence following the exercise intervention was accompanied by improved physical performance (+12%) and decreased frailty (-11%). Baseline balance confidence was identified as the most consistent negative predictor of change scores across the intervention.

**CONCLUSIONS:** This study shows that reduced physical performance and quality of life, and increasing frailty, are predictive of poor balance confidence among older adults with aged care needs. However, when a targeted intervention of resistance and balance exercise is implemented, that reduces frailty and increases physical performance, balance confidence will also improve. Given the influence of balance confidence on a raft of wellbeing determinants, including the capacity for positive physical and cognitive change, this study offers important insight to those looking to reduce

**SafetyLit 15 April 2018**

falls among older adults.

Copyright © 2018. Published by Elsevier Inc.

**PDF Y Endnote Y****Examination of sustainability indicators for fall prevention strategies in three states**

Smith ML, Durrett NK, Schneider EC, Byers IN, Shubert TE, Wilson AD, Towne SD, Ory MG.

*Eval. Program Plann.* 2018; 68: 194-201.

**Affiliation:** Texas A&M University, Center for Population Health and Aging, College Station, TX, United States; Texas A&M School of Public Health, Department of Environmental and Occupational Health, College Station, TX, United States.

(Copyright © 2018, Elsevier Publishing)

**DOI** 10.1016/j.evalprogplan.2018.02.001 **PMID** 29621686

**Abstract**

With 1-in-4 older adults suffering a fall each year, fall prevention efforts have emerged as a public health priority. Multi-level, evidence-based fall prevention programs have been promoted by the CDC and other government agencies. To ensure participants and communities receive programs' intended benefits, organizations must repeatedly deliver the programs over time and plan for program sustainability as part of 'scaling up' the initiative. The State Falls Prevention Project (SFPP) began in 2011 when the CDC provided 5 years of funding to State Departments of Health in Colorado, New York, and Oregon to simultaneously implement four fall prevention strategies: 1) Tai Chi: Moving for Better Balance; 2) Stepping On; 3) Otago Exercise Program; and 4) STEADI (STopping Elderly Accidents, Deaths, and Injuries) toolkit. Surveys were performed to examine systems change and perceptions about sustainability across states. The purposes of this study were to: 1) examine how funding influenced the capacity for program implementation and sustainability within the SFPP; and 2) assess reported Program Sustainability Assessment Tool (PSAT) scores to learn about how best to sustain fall preventing efforts after funding ends. Data showed that more organizations offered evidence-based fall prevention programs in participants' service areas with funding, and the importance of programming implementation, evaluation, and reporting efforts were likely to diminish once funding concluded. Participants' reported PSAT scores about perceived sustainability capacity did not directly align with previously reported perceptions about PSAT domain importance or modifiability.

**FINDINGS** suggest the importance of grantees to identify potential barriers and enablers influencing program sustainability during the planning phase of the programs.

Copyright © 2018. Published by Elsevier Ltd.

**PDF Y Endnote Y****Gait parameters, functional mobility and fall risk in individuals with early to moderate primary open angle glaucoma: a cross-sectional study**

Gomes HA, Moreira BS, Sampaio RF, Furtado SRC, Cronemberger S, Gomes RA, Kirkwood RN.

*Rev. Bras. Fisioter.* 2018; ePub(ePub): ePub.



**SafetyLit 15 April 2018**

**Affiliation:** Universidade Federal de Minas Gerais (UFMG), Departamento de Fisioterapia, Programa de Pós-Graduação em Ciências da Reabilitação, Belo Horizonte, MG, Brazil. Electronic address: renata.kirkwood@gmail.com.

(Copyright © 2018, Departamento de Fisioterapia da Universidade Federal de São Carlos)

**DOI** 10.1016/j.bjpt.2018.03.004 **PMID** 29610045

**Abstract**

**OBJECTIVE:** This study investigated the influence of early to moderate primary open angle glaucoma on gait, functional mobility and fall risk.

**METHODS:** Thirty-three participants in the early and moderate stages of primary open angle glaucoma and 34 asymptomatic controls participated in the study. Spatiotemporal gait data were obtained with the GAITRite system and included: velocity, cadence, step length, base of support, swing, stance and double support times. Functional measures included the Timed Up and Go test, the Five-Repetition Sit-To-Stand test and the Dynamic Gait Index. Fall risk was measured using the Physiological Profile Assessment.

**RESULTS:** The variables contrast sensitivity, proprioception and the Timed Up and Go and Dynamic Gait Index tests were significantly different between groups. In addition, the glaucoma group presented significantly higher risk of falling compared to the control group. Individuals in the early and moderate stages of primary open glaucoma presented mobility and sensory deficits that increase the risk of falling.

**CONCLUSIONS:** The results of this study suggest that adding the Timed Up and Go and Dynamic Gait Index tests to routine physical therapy assessment of individuals with early glaucoma could be useful. Rehabilitation programs should focus on maintaining and/or improving mobility and balance, and prevention of falls in this population.

Copyright © 2018 Associação Brasileira de Pesquisa e Pós-Graduação em Fisioterapia. Publicado por Elsevier Editora Ltda. All rights reserved.

**PDF Y Endnote Y****Home-based physical activity program improves depression and anxiety in older adults**

Aguiñaga S, Ehlers DK, Salerno EA, Fanning J, Motl RW, McAuley E.

*J. Phys. Act. Health* 2018; ePub(ePub): ePub.

(Copyright © 2018, Human Kinetics Publishers)

**DOI** 10.1123/jpah.2017-0390 **PMID** 29625012

**Abstract**

**BACKGROUND:** Late-life depression and anxiety among older adults is an important public health concern. This study examined the effect of a DVD-delivered exercise intervention on the secondary outcomes of depression and anxiety in older adults and the extent to which physical self-worth mediated the relationship between leisure-time physical activity and depression and anxiety.

**METHODS:** Older adults (N = 307) were randomized to a 6-month flexibility, toning, and balance DVD (FlexToBa™, FTB) or healthy aging DVD control. Self-reported physical activity and questionnaires were administered at baseline and postintervention. Statistical analyses were conducted in the total sample and in a subsample of participants with elevated levels of depression or anxiety.

**RESULTS:** FTB participants with elevated depression and anxiety symptoms at baseline had



**SafetyLit 15 April 2018**

significantly greater reductions in depression and anxiety ( $d = 1.66$  and  $2.90$ ) than the control condition ( $d = 0.77$  and  $0.73$ ). The effect of physical activity on depression and anxiety was partially mediated by increases in physical self-worth in the total sample but not in those with elevated depression or anxiety.

**CONCLUSION:** A home-based physical activity intervention may be a viable treatment for reducing depression and anxiety in older adults with elevated baseline scores.

**PDF Y Endnote Y****Interventions to prevent falls in older adults**

Lee YH, Song GG.

*J. Am. Med. Assoc. JAMA* 2018; 319(13): 1382.

**Affiliation:** Division of Rheumatology, Korea University College of Medicine, Seoul, Korea.

(Copyright © 2018, American Medical Association)

**DOI** 10.1001/jama.2018.0204 **PMID** 29614172

**Abstract**

Dr Tricco and colleagues [JAMA. 2017;318(17):1687-1699. doi:10.1001/jama.2017.15006] compared interventions for preventing falls in older adults. The systematic review and network meta-analysis demonstrated that exercise alone and various combined interventions were associated with lower risk of injurious falls compared with usual care. Some methodological issues deserve comment. First, exercise is a broadly defined concept because it is a heterogeneous physical activity with respect to type, intensity, and frequency. Exercise was classified as one of the categories of intervention in the network meta-analysis, but it was not clarified what exercise was effective for preventing falls among older adults.

**PDF Y Endnote Y****Interventions to prevent falls in older adults-reply**

Tricco AC, Thomas SM, Veroniki AA.

*J. Am. Med. Assoc. JAMA* 2018; 319(13): 1382-1383.

**Affiliation:** Li Ka Shing Knowledge Institute, St Michael's Hospital, Toronto, Ontario, Canada.

(Copyright © 2018, American Medical Association)

**DOI** 10.1001/jama.2018.0224 **PMID** 29614177

**Abstract**

Response to letter: JAMA. 2018;319(13):1382. doi:10.1001/jama.2018.0204

**PDF Y Endnote Y****Is excess alcohol consumption an unrecognized factor contributing to falls?**

Shah CP, Horner S, Sanders DS, Armstrong S, Sanders S.

*Geriatr Orthop Surg Rehabil* 2018; 9: e2151459318760346.

**Affiliation:** Templar Day Hospital, St John's Hospital, Howden, Livingston, United Kingdom.

(Copyright © 2018, Sage Publications)

**DOI** 10.1177/2151459318760346 **PMID** 29623235 **PMCID** PMC5881968

**Abstract** [Abstract unavailable]

SafetyLit 15 April 2018

PDF Y Endnote Y

### Peripheral neuropathy is associated with more frequent falls in Parkinson's disease

Beaulieu ML, Müller MLTM, Bohnen NI.

*Parkinsonism Relat. Disord.* 2018; ePub(ePub): ePub.

**Affiliation:** Department of Radiology, University of Michigan, Ann Arbor, MI, USA; Department of Neurology, University of Michigan, Ann Arbor, MI, USA; University of Michigan, Morris K Udall Center of Excellence for Parkinson's Disease Research, Ann Arbor, MI, USA; Neurology Service and GRECC, VAAAHS, Ann Arbor, MI, USA.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.parkreldis.2018.04.006 PMID 29625874

#### Abstract

**INTRODUCTION:** Peripheral neuropathy is a common condition in the elderly that can affect balance and gait. Postural imbalance and gait difficulties in Parkinson's disease (PD), therefore, may stem not only from the primary neurodegenerative process but also from age-related medical comorbidities. Elucidation of the effects of peripheral neuropathy on these difficulties in PD is important to provide more targeted and effective therapy. The purpose of this study was to investigate the association between lower-limb peripheral neuropathy and falls and gait performance in PD while accounting for disease-specific factors.

**METHODS:** From a total of 140 individuals with PD, 14 male participants met the criteria for peripheral neuropathy and were matched 1:1 for Hoehn & Yahr stage and duration of disease with 14 male participants without peripheral neuropathy. All participants underwent fall (retrospectively) and gait assessment, a clinical evaluation, and [<sup>11</sup>C]dihydrotetrabenazine and [<sup>11</sup>C]methylpiperidin-4-yl propionate PET imaging to assess dopaminergic and cholinergic denervation, respectively.

**RESULTS:** The presence of peripheral neuropathy was significantly associated with more falls (50% vs. 14%,  $p = 0.043$ ), as well as a shorter stride length ( $p = 0.011$ ) and greater stride length variability ( $p = 0.004$ ), which resulted in slower gait speed ( $p = 0.016$ ) during level walking. There was no significant difference in nigrostriatal dopaminergic denervation, cortical and thalamic cholinergic denervation, and MDS-UPDRS motor examination scores between groups.

**CONCLUSION:** Lower-limb peripheral neuropathy is significantly associated with more falls and gait difficulties in PD. Thus, treating such neuropathy may reduce falls and/or improve gait performance in PD.

Copyright © 2018 Elsevier Ltd. All rights reserved.

PDF Y Endnote Y

### Real-life/real-time elderly fall detection with a triaxial accelerometer

Sucerquia A, López JD, Vargas-Bonilla JF.

*Sensors (Basel)* 2018; 18(4): s18041101.

**Affiliation:** SISTEMIC, Facultad de Ingeniería, Universidad de Antioquia UDEA, Calle 70, No. 52-21 Medellín, Colombia. [jesus.vargas@udea.edu.co](mailto:jesus.vargas@udea.edu.co).

(Copyright © 2018, Multidisciplinary Digital Publishing Institute)

DOI 10.3390/s18041101 PMID 29621156





## SafetyLit 15 April 2018

### Abstract

The consequences of a fall on an elderly person can be reduced if the accident is attended by medical personnel within the first hour. Independent elderly people often stay alone for long periods of time, being in more risk if they suffer a fall. The literature offers several approaches for detecting falls with embedded devices or smartphones using a triaxial accelerometer. Most of these approaches have not been tested with the target population or cannot be feasibly implemented in real-life conditions. In this work, we propose a fall detection methodology based on a non-linear classification feature and a Kalman filter with a periodicity detector to reduce the false positive rate. This methodology requires a sampling rate of only 25 Hz; it does not require large computations or memory and it is robust among devices. We tested our approach with the SisFall dataset achieving 99.4% of accuracy. We then validated it with a new round of simulated activities with young adults and an elderly person. Finally, we give the devices to three elderly persons for full-day validations. They continued with their normal life and the devices behaved as expected.

### PDF Y Endnote Y

#### **The effects of plantar perception training on balance and falls efficacy of the elderly with a history of falls: a single-blind, randomized controlled trial**

Park JH.

*Arch. Gerontol. Geriatr.* 2018; 77: 19-23.

**Affiliation:** Department of Occupational Therapy, Kyungbok University, Pochen, Republic of Korea.

Electronic address: roophy@naver.com.

(Copyright © 2018, Elsevier Publishing)

**DOI** 10.1016/j.archger.2018.03.014 **PMID** 29621660

### Abstract

**PURPOSE:** The purpose of this study was to identify the effects of plantar perception training using a hardness discrimination task on balance and falls efficacy of the elderly who have experienced a fall.

**MATERIALS AND METHODS:** Sixty-two elderly persons 65 years of age or older were randomly allocated to the experimental group (n = 31) or the control group (n = 31). The experimental group performed a hardness discrimination task using five different levels of hardness of sponge mats, while the control group performed the same task except that they were not asked to discriminate hardness levels of sponge mats. All subjects performed 10 sessions for two weeks. Outcome measures were conducted using center of pressure (CoP) sway in the standing position, the Timed Up and Go (TUG) test, and falls efficacy scale (FES) to measure balance and falls efficacy.

**RESULTS:** There were no significant differences in general characteristics between both groups ( $p > .05$ ). After 10 sessions, plantar perception was significantly improved in the experimental group ( $F = 101.18$ ,  $p < .001$ ). Additionally, changes in CoP sway with eye closed and TUG test were significantly different ( $p < .05$ ) between the experimental group (CoP sway with eye closed,  $-208.32 \pm 74.89$ ; TUG test,  $-1.91 \pm 0.72$ ) and the control group (CoP sway with eye closed,  $-14.55 \pm 35.44$ ; TUG test,  $-1.31 \pm 0.75$ ).

**CONCLUSIONS:** These results showed that plantar perception training might be beneficial to improve falls efficacy as well as balance of the elderly.

Copyright © 2018 Elsevier B.V. All rights reserved.



SafetyLit 15 April 2018

PDF Y Endnote Y

### The inter-observer reliability and agreement of lateral balance recovery responses in older and younger adults

Batcir S, Sharon H, Shani G, Levitsky N, Gimmon Y, Kurz I, Shapiro A, Melzer I.

*J. Electromyogr. Kinesiol.* 2018; 40: 39-47.

**Affiliation:** Department of Physical Therapy, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel. Electronic address: itzikm@bgu.ac.il.

(Copyright © 2018, Elsevier Publishing)

**DOI** 10.1016/j.jelekin.2018.03.002 **PMID** 29621683

#### Abstract

The purpose of this study was to evaluate the inter-observer reliability and agreement of balance recovery responses, step and multiple-steps thresholds, and kinematic parameters of stepping responses. Older and younger adults were exposed to 36 progressively challenging right and left unannounced surface translations during quiet standing. Subjects were instructed to "react naturally". Step threshold and multiple-step threshold were defined as the minimum disturbance magnitude that consistently elicited one and more than one recovery step, respectively. Fall threshold is defined as the minimum disturbance magnitude from which a fall resulted (i.e., fall into harness system or grasped one of the anchor straps of the harness, or grasped the research assistant to maintain balance). The inter-observer reliability of balance recovery responses for older adults were excellent, especially for step and multiple-step thresholds (ICC<sub>2,1</sub> = 0.978 and ICC<sub>2,1</sub> = 0.971, respectively;  $p < 0.001$ ). Also kinematic parameters of stepping responses such as step recovery duration and step length were excellent (ICC<sub>2,1</sub> > 0.975 and ICC<sub>2,1</sub> = 0.978, respectively;  $p < 0.001$ ), substantial reliability was found for swing phase duration (ICC<sub>2,1</sub> = 0.693,  $p < 0.001$ ). Younger adults showed similar ICCs. The Bland-Altman plots demonstrated excellent limits of agreement (LOA > 90%) for most kinematic step parameters of stepping thresholds. These results suggest that balance recovery responses and kinematic parameters of stepping including step threshold and multiple-step threshold are extremely reliable parameters. The measure of balance recovery responses from unexpected loss of balance is feasible and can be used in clinical setting and research-related assessments of fall risk.

Copyright © 2018. Published by Elsevier Ltd.

PDF Y Endnote Y

### Mortality and cause of death postoperatively in patients with a hip fracture

Choi HG, Lee YB, Rhyu SH, Kwon BC, Lee JK.

*Bone Joint J.* 2018; 100-B(4): 436-442.

**Affiliation:** Department of Orthopaedic Surgery, Hallym University Sacred Heart Hospital, 22 Gwanpyeong-ro, 170 Beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14068, South Korea.

(Copyright © 2018, British Editorial Society of Bone and Joint Surgery)

**DOI** 10.1302/0301-620X.100B4.BJJ-2017-0993.R2 **PMID** 29629585

#### Abstract



## SafetyLit 15 April 2018

**AIMS:** The aim of this study was to compare the rate of mortality and causes of death in Korean patients who undergo surgery for a fracture of the hip, up to 11 years after the injury, with a control group from the general population.

**MATERIALS AND METHODS** National cohort data from Korean Health Insurance Review and Assessment Service - National Sample Cohort were used. A ratio of 1:4 matched patients with a fracture who underwent surgery (3383, fracture group) between 2003 and 2012, and controls (13 532) were included. The matches were processed for age, gender, income, and region of residence. We also undertook analyses of subgroups according to age and gender. The mean follow-up was 4.45 years (1 to 11).

**RESULTS** The prevalence of hypertension, diabetes, and stroke was significantly higher in the fracture group and dyslipidemia in the controls. Both crude and adjusted hazard ratios (HR) for the rate of mortality in the fracture group were  $> 2$  (crude HR 2.03, 95% confidence interval (CI) 1.91 to 2.17,  $p < 0.001$ ; adjusted HR 2.07, 95% CI 1.94 to 2.21,  $p < 0.001$ ). The HRs were also  $> 2$  for both men and women, and for both those aged  $\geq 50$  years and  $< 50$  years. However, for those aged  $< 50$  years, they were insignificant. The rates of mortality due to all 11 major causes of death classified following Korean standard classification of diseases were significantly higher in the fracture group compared with the control group, except those in the mental and behavioral disorders category.

**CONCLUSION** The rate of mortality in the fracture group was significantly higher than in the control group up to 11 years after the surgery. The rate of death due to almost every major cause was significantly higher in the fracture group compared with the control group.

**PDF Y Endnote Y**

### Timely intervention can reduce the cost of falls

While A.

*Br. J. Community Nurs.* 2018; 23(4): 206.

**Affiliation:** Emeritus Professor of Community Nursing, King's College London, Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, and Fellow of the QNI.

(Copyright © 2018, Mark Allen Publishing)

**DOI** 10.12968/bjcn.2018.23.4.206 **PMID** 29633871

**Abstract** [Abstract unavailable]

**PDF (Will get ILL) Endnote Y**