

Safelylit October 28 2018**Accidental falling in community-dwelling elderly with chronic kidney disease**

Goto NA, Hamaker ME, Willems HC, Verhaar MC, Emmelot-Vonk MH.

Int. Urol. Nephrol. 2018; ePub(ePub): ePub.

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DOI 10.1007/s11255-018-1992-9 **PMID** 30324581

Abstract

PURPOSE: The aim of the current study was to evaluate the association between a decreased estimated glomerular filtration rate (eGFR) and accidental falling in elderly patients who visited the day clinic of the department of geriatric medicine of the University of Medical Center Utrecht (UMCU).

STUDY DESIGN: A cross-sectional analysis with people aged ≥ 65 years of the Utrecht Cardiovascular Cohort was performed. Patients were stratified into different stages of kidney disease (< 45 , $45-59$, and ≥ 60 ml/min per 1.73 m^2). Logistic regression models were used to evaluate the association between chronic kidney disease and falling.

RESULTS: Our analysis included 1000 participants with a mean age $79.4 (\pm 6.6)$ years, of whom 38% had an eGFR of < 60 ml/min per 1.73 m^2 and 17% < 45 ml/min per 1.73 m^2 . Univariate analysis showed a significant higher prevalence [odds ratio 1.75 (95% confidence interval 1.21-2.53; $p \leq 0.01$)] of falling in the population with an eGFR < 45 ml/min per 1.73 m^2 compared to patients with an eGFR ≥ 60 ml/min per 1.73 m^2 . After correcting for multiple potential confounders in the multivariate analysis, this association was no longer present.

CONCLUSIONS: In geriatric patients ≥ 65 years, patients with a decreased eGFR fall more often than patients with a preserved kidney function. This seems to be related with the risk profile of patients with CKD and not with a decreased eGFR itself, as after correcting for potential confounders no association remained. Nevertheless, accidental falling is a highly prevalent problem in the elderly CKD population. Therefore, nephrologists should actively ask about accidental falling, and thereby screen for high-risk patients.

PDF Y Endnote Y**An interprofessional education approach to fall prevention: preparing members of the interprofessional healthcare team to implement STEADI into practice**

Taylor D, McCaffrey R, Reinoso H, Mathis MW, Dickerson L, Hamrick J, Madden SL, Heard HH, Perlow E, Klein CM.

Gerontol. Geriatr. Educ. 2018; ePub(ePub): ePub.

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DOI 10.1080/02701960.2018.1530226 **PMID**30321118

Abstract

An aging population benefits from healthcare providers trained in the care of older adults.

Interprofessional education (IPE) and service-learning activities focused on geriatric conditions like

falls may address this need. A fall prevention IPE activity using the Centers for Disease Control and Prevention (Stopping Elderly Accidents, Deaths & Injuries (STEADI) initiative was implemented to prepare health sciences students to manage older adult falls. Students (N = 31) and faculty (N = 10) from five health sciences programs and local older adults (N = 27) participated. Students were trained in STEADI and conducted a fall risk screening, assessment, and intervention activity with older adults using STEADI tools. We observed a statistically significant improvement in student knowledge of fall prevention and STEADI as assessed by pre and postactivity measures. Student surveys indicated improved understanding of the roles and responsibilities of participating disciplines, related to management of falls in older adults. The CDC's STEADI initiative may provide an effective framework and resources for fall prevention IPE activities and geriatric health sciences education.

PDF Y Endnote Y

Combining Russian stimulation with isometric exercise improves strength, balance, and mobility in older people with falls syndrome

Sanjuán Vásquez M, Montes-Castillo ML, Zapata-Altamirano LE, Martínez-Torres S, Vázquez-Mellado J, Lopez López CO.

Int. J. Rehabil. Res. 2018; ePub(ePub): ePub.

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(Copyright © 2018, Lippincott Williams and Wilkins)

DOI 10.1097/MRR.0000000000000321 **PMID** 30325756

Abstract

One of the main causes of falls in older people is muscle strength loss associated with aging. Russian stimulation can improve muscle strength in healthy individuals, but the effect has never been tested in older individuals with falls syndrome. The aim of this study was to evaluate the usefulness of Russian stimulation plus isometric exercise to improve muscular strength, balance, and mobility in older people with falls syndrome. The recruited participants (older than 60 years, at least one fall in the past year) were evaluated by a physiatrist, who collected clinical data and performed baseline and final evaluations (muscle strength, Berg balance scale, Tinetti mobility test, get up and go test, and 6-min walk test). A physical therapist applied the 10/50/10 protocol for Russian stimulation, stimulating the quadriceps and tibialis anterior muscles separately; simultaneously, the participants performed isometric exercise at a frequency of three sessions per week for 12 weeks. Descriptive statistics, the paired-sample t-test, and the χ -test were performed. The study included 25 participants (96% women, mean age 65.2±5.5 years). After the intervention, there was a significant improvement in the strength of the quadriceps (~30%) and tibialis anterior (~40%) muscles as well as the results of the balance (Tinetti 22%, Berg 10%) and mobility (get up and go 25%, 6-min distance 20%) tests. On the basis of the improvements in the Tinetti and Berg scores, significantly fewer participants were classified as being at increased risk for falls. The muscle strength correlated with several clinical evaluation results, but not with the Tinetti test score. Russian stimulation plus isometric exercise improves strength, balance, and mobility, which may decrease the fall risk.

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Comments on Ayesha Afridi et al (J Pak Med Assoc. 68: 480-483, 2018) Emerging role of exergaming rehabilitation of balance problems in the older adults

Rathore FA, Al Arabia DH.

J. Pak. Med. Assoc. 2018; 68(7): 1144.

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DOI unavailable

PMID 30317326

Abstract [Abstract unavailable]

PDF Y Endnote Y

Response to Comments on Ayesha Afridi et al (J Pak Med Assoc. 68: 480-483, 2018) Emerging role of exergaming rehabilitation of balance problems in the older adults

Afridi A.

J. Pak. Med. Assoc. 2018; 68(7): 1145.

Affiliation: Riphah International University, Islamabad.

(Copyright © 2018, Pakistan Medical Association)

DOI unavailable **PMID** 30317327

Abstract [Abstract unavailable]

PDF Y Endnote Y

Economic evaluations of falls prevention programs for older adults: a systematic review

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J. Am. Geriatr. Soc. 2018; ePub(ePub): ePub.

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(Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jgs.15578 **PMID** 30325013

Abstract

OBJECTIVES: To provide a comprehensive overview of economic evaluations of falls prevention programs and to evaluate the methodology and quality of these studies.

DESIGN: Systematic review of economic evaluations on falls prevention programs.

SETTING: Studies (N=31) of community-dwelling older adults (n=25), of older adults living in residential care facilities (n=3), and of both populations (n=3) published before May 2017.

PARTICIPANTS: Adults aged 60 and older.

MEASUREMENTS: Information on study characteristics and health economics was collected. Study quality was appraised using the 20-item Consensus on Health Economic Criteria.

RESULTS: Economic evaluations of falls prevention through exercise (n = 9), home assessment (n = 6), medication adjustment (n = 4), multifactorial programs (n = 11), and various other programs (n = 13) were identified. Approximately two-thirds of all reported incremental cost-effectiveness ratios (ICERs) with quality-adjusted life-years (QALYs) as outcome were below the willingness-to-pay threshold of \$50,000 per QALY. All studies on home assessment and medication adjustment programs reported favorable ICERs, whereas the results of studies on exercise and multifactorial

programs were inconsistent. The overall methodological quality of the studies was good, although there was variation between studies.

CONCLUSION: The majority of the reported ICERs indicated that falls prevention programs were cost-effective, but methodological differences between studies hampered direct comparison of the cost-effectiveness of program types. The results imply that investing in falls prevention programs for adults aged 60 and older is cost-effective. Home assessment programs (ICERs < \$40,000/QALY) were the most cost-effective type of program for community-dwelling older adults, and medication adjustment programs (ICERs < \$13,000/QALY) were the most cost-effective type of program for older adults living in a residential care facility.

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Frailty in Chinese older adults with hypertension: prevalence, associated factors, and prediction for long-term mortality

Ma L, Zhang L, Sun F, Li Y, Tang Z.

J. Clin. Hypertens. (Greenwich) 2018; ePub(ePub): ePub.

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(Copyright © 2018, Le Jacq Communication, Inc.)

DOI 10.1111/jch.13405 **PMID** 30318776

Abstract

Hypertension and frailty are associated and often coexist in older adults. Few studies have examined the association between hypertension and frailty in Chinese population. We explored the prevalence of and the factors associated with frailty as well as whether frailty could identify patients at risk of adverse outcomes among older adults with hypertension. Data were from the Beijing Longitudinal Study of Aging. A total of 1111 hypertensive participants aged ≥ 60 years old who completed the comprehensive geriatrics assessment were included. All participants were followed up for 8 years. The total number of deaths was 604. Frailty was assessed by the 68-item frailty index. Stepwise forward logistic regression was used to explore the association between the associated factors and frailty in hypertensive participants. The prediction for mortality was assessed using the adjusted Cox proportional hazards model. Two hundred and eighteen older adults were determined as frail (prevalence rate: 19.6%). Frail older adults with hypertension had worse physical performance, worse psychological, and social function, as well as worse lifestyle habits, compared to nonfrail older adults with hypertension. Chair stand test failure, balance test failure, fracture, disability, depression, and physical frailty measured with modified frailty phenotype were independently associated with frailty. Frailty was associated with a higher 8-year mortality, hazard ratio (HR) = 3.40, adjusted for age and sex, HR = 2.61. Frailty is associated with poorer physical function and higher mortality in community-dwelling hypertensive older adults in China. These findings emphasize the importance and need for frailty intervention and prevention in older adults with hypertension.

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Gait parameters in physically active and inactive elderly as well as young community-living people

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J. Sports Med. Phys. Fitness 2018; ePub(ePub): ePub.

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DOI 10.23736/S0022-4707.18.09205-8 **PMID** 30317843

Abstract

AIM: This study aimed to reveal the effects of a complex exercise programme on gait among older people through analysing the gait parameters in three groups: (1) older individuals participating in complex exercise programme called 60+; (2) older individuals who were physically inactive; and (3) young individuals.

METHODS: Fifty seven community-living individuals were enrolled in this study. Variability of step length, step time, step width, and double support ratio as well as automaticity were measured.

RESULTS: We found that the variability of step length, step time, and double support ratio, as well as the cognitive automaticity index of physically inactive elderly individuals were significantly worse compared to both physically active elderly (step length $p=0.007$; step time $p=0.002$; double support ratio $p=0.036$; cognitive automaticity index $p=0.006$) and young individuals (step length $p<0.001$; step time $p<0.001$; double support ratio $p=0.001$; cognitive automaticity index $p=0.003$). However, the variability of gait step width did not differ among the three groups.

CONCLUSIONS: This study demonstrated that 60+ programme has beneficial effects on gait parameters. Thus, the 60+ programme can enrich the range of geriatric exercise programmes aiming to improve gait safety.

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Impairments in balance and mobility identify delirium in patients with comorbid dementia

Gual N, Richardson SJ, Davis DHJ, Bellelli G, Hasemann W, Meagher D, Kreisel SH, MacLulich AMJ, Cerejeira J, Inzitari M, Morandi A.

Int. Psychogeriatr. 2018; ePub(ePub): ePub.

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(Copyright © 2018, Cambridge University Press)

DOI 10.1017/S1041610218001345 **PMID** 30318022

Abstract

Diagnosing delirium superimposed on dementia (DSD) remains challenging because of a lack of specific tools, though motor dysfunction in delirium has been relatively under-explored. This study aimed to use dysfunction in balance and mobility (with the Hierarchical Assessment of Balance And Mobility: HABAM) to identify DSD. This is a cross-sectional multicenter study, recruiting consecutive patients ≥ 70 years admitted to five acute or rehabilitation hospitals in Ireland, Italy, Portugal, and Switzerland. Delirium was diagnosed using DSM-5 criteria; dementia was determined by the Mini-Mental State Examination and the Questionnaire of Cognitive Decline in the Elderly. HABAM score was recorded at admission. Out of 114 patients (mean age \pm SD = 82 ± 7 ; 54% female), dementia alone was present in 24.6% ($n = 28$), delirium alone in 18.4% ($n = 21$) and DSD in 27.2% ($n = 31$). Patients with DSD had a mean HABAM score 7 points greater than those with dementia alone (19.8 ± 8.7 vs 12.5 ± 9.5 ; $p < 0.001$); 70% of participants with DSD were correctly identified using the

HABAM at a cut off of 22 (sensitivity 61%, specificity 79%, AUC = 0.76). Individuals with delirium have worse motor function than those without delirium, even in the context of comorbid dementia. Measuring motor function using the HABAM in older people at admission may help to diagnose DSD.

PDF Y Endnote Y

Incidence and risk factors for hip fracture in elderly patients undergoing lumbar spine surgery: a nationwide database study with 11-year follow-up

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Osteoporos. Int. 2018; ePub(ePub): ePub.

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(Copyright © 2018, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1007/s00198-018-4734-z **PMID** 30324414

Abstract

Impaired functional movement may occur after spinal surgery, which increases risk of fall episode and hip fracture. Patients with long-segment thoracolumbar spine fusions had a significantly higher risk of hip fracture than those with only discectomies. Fall prevention is necessary due to the highly increased hip fracture risk.

INTRODUCTION: Spinal surgeries are performed to treat spondylolisthesis, fractures, scoliosis, or other deformities. Impaired balance mechanisms and functional movement may occur after spinal surgery. Fall episodes may cause hip fractures, which have negative impacts on quality of life and increase mortality. The incidence of hip fracture after spinal surgery is still unknown. The aim of this study was to examine the association between various types of spinal surgeries and hip fractures in the elderly by using a nationwide database. We hypothesized that the spinal surgeries may increase hip fracture risk in the elderly.

METHODS: We used the National Health Insurance Research Database (NHIRD) to identify 3345 patients undergoing spinal surgery and a random dataset to identify 6690 age-, sex- and Charlson comorbidity index (CCI)-matched controls to compare the incidence of hip fractures in an 11-year follow-up period. We also enrolled 82,730 patients with spinal surgeries from the inpatient dataset to investigate the impact of different types of spinal surgeries.

RESULTS: Patients who received spinal surgeries had higher risks of hip fractures, especially patients aged 60 to 79 years and female patients. The patients with long-segment thoracolumbar spinal fusions had a significantly higher risk of hip fracture than those with only discectomies. Short segmental lumbar spine fusions also slightly increased the risk of hip fracture compared with discectomies.

CONCLUSION: Fall prevention for the elderly undergoing lumbar spinal surgery is necessary due to the highly increased hip fracture risk.

PDF Y Endnote Y

Incident opioid use and risk of hip fracture among persons with Alzheimer's disease, a nationwide matched cohort study

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Pain 2018; ePub(ePub): ePub.

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(Copyright © 2018, Elsevier Publishing)

DOI 10.1097/j.pain.0000000000001412 **PMID** 30325873

Abstract

The objective of this study was to investigate whether incident opioid use is associated with an increased risk of hip fractures among community-dwelling persons with Alzheimer's disease (AD), and to assess the association in terms of duration of use and opioid strength. Among community-dwelling persons with AD diagnosed in 2010-2011 (N=23,100), a matched cohort study comparing incident opioid users (N=4,750) to opioid nonusers (N=4,750) was constructed. Matching was based on age, gender and time since AD diagnosis at opioid initiation. Data on drug use and hip fractures were retrieved from nationwide registers. Incident opioid users were identified with a one-year washout. Cox proportional hazard models compared the risk of hip fracture between opioid use and nonuse, and were weighted with inverse probability of treatment (IPT), based on a propensity score. Age-adjusted incidence rate of hip fractures was 3.47 (95% CI 2.62-4.33) during opioid use and 1.94 (95% CI 1.65-2.22) during nonuse. Opioid use was associated with an increased risk of hip fracture (IPT-weighted HR 1.96, 95% CI 1.27-3.02). The risk was observed during the first two months of use (IPT-weighted HR 2.37, 1.04-5.41) and attenuated after that. The results suggest an increase in the risk of hip fracture by increasing opioid strength; weak opioids IPT-weighted HR 1.75 (0.91-3.35), buprenorphine IPT-weighted HR 2.10 (1.41-3.13) and strong opioids IPT-weighted HR 2.89 (1.32-6.32). Further research is needed to find out if the risk of injurious falls is avoidable by slow titration of opioid doses in the beginning of treatment.

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Likelihood of sustaining an injury in the setting of multiple falls

Gill TM, Williams CS.

J. Am. Geriatr. Soc. 2018; ePub(ePub): ePub.

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(Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jgs.15639 **PMID** 30325022

Abstract

OBJECTIVES: To evaluate the relationship between number of falls and risk of injury after a specific fall.

DESIGN: Prospective cohort study.

SETTING: Greater New Haven, Connecticut.

PARTICIPANTS: Probability sample of 1,103 community-living persons aged 72 and older.

MEASUREMENTS: Falls and fall-related injuries were ascertained monthly for 3 years using a fall

calendar and follow-up telephone interviews.

RESULTS: Of 606 participants with a fall, 164 (27.0%) had at least 1 fall with a serious injury, and 455 (75.1%) had at least 1 fall with any injury; mean number of falls was 2.6 ± 2.3 (range 1-18), of falls with serious injury was 0.3 ± 0.6 (range 0-4), and of falls with any injury was 1.4 ± 1.4 (range 0-9). On a per-participant basis, risk of serious injury and any injury increased progressively as the number of falls increased ($P < .001$). On a per-fall basis, risk of serious injury and any injury increased from 1 to 2 falls but then decreased from 2 to 3 or 4 falls and from 3 or 4 to 5 or more falls, although these differences were not statistically significant. The results were consistent for women and men and for analyses that evaluated the proportion of falls with injuries.

CONCLUSION: In community-living older persons, risk of injury from a specific fall did not differ as the number of falls increased. Falls appear to operate independently in terms of conferring risk of injury in the setting of multiple falls.

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PDF Endnote

Major trauma and acceleration of the ageing process

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Ageing Res. Rev. 2018; ePub(ePub): ePub.

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DOI 10.1016/j.arr.2018.10.001 PMID 30316759

Abstract

It is well established that numerous factors can affect the rate at which we age biologically. Diet, physical activity, lifestyle and our genes all play a major role in influencing the ageing trajectory and longevity. Major trauma affects millions globally, is the major cause of death in young adults and could influence ageing processes but has largely been ignored by biogerontologists. The long-term health consequences of physical trauma are well known in the medical community, how trauma effects the ageing process at a molecular level is not. It has long been difficult to assess ageing trajectories due to the absence of a biomarker of biological rather than chronological age. Recent advances in epigenetics have helped by identifying specific DNA methylation sites as good indicators of biological age. Recent investigations into the impact of psychological trauma and the associated physical stress on accelerating ageing as measured by epigenetic drift are promising. The physical and metabolic stress which is synonymous with physical trauma may also accelerate the ageing process. We suggest that long term epigenetic profiling is required to understand to what degree the ageing trajectory is altered by trauma, which will in turn add support for the development of novel therapies to improve health outcomes for survivors of traumatic injury.

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PDF Y Endnote Y

Mild cognitive impairment affects obstacle negotiation in older adults: results from "Gait and Brain Study"

Pieruccini-Faria F, Sarquis-Adamson Y, Montero-Odasso M.

Gerontology 2018; ePub(ePub): ePub.

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(Copyright © 2018, Karger Publishers)

DOI 10.1159/000492931 **PMID** 30317237

Abstract

BACKGROUND: Older adults with Mild Cognitive Impairment (MCI) are at higher risk of falls and injuries, but the underlying mechanism is poorly understood. Inappropriate anticipatory postural adjustments to overcome balance perturbations are affected by cognitive decline. However, it is unknown whether anticipatory gait control to avoid an obstacle is affected in MCI.

OBJECTIVE: Using the dual-task paradigm, we aim to assess whether gait control is affected during obstacle negotiation challenges in older adults with MCI.

METHODS: Seventy-nine participants (mean age = 72.0 ± 2.7 years; women = 30.3%) from the "Gait and Brain Study" were included in this study (controls = 27; MCI = 52). In order to assess the anticipatory control behaviour for obstacle negotiation, a 6-m electronic walkway embedded with sensors recorded foot prints to measure gait speed and step length variability, during early (3 steps before the late phase) and late (3 steps before the obstacle) pre-crossing phases of an ad hoc obstacle, set at 15% of participant's height. Participants walked under single- and dual-task gait (counting backwards by 1's from 100 while walking) conditions. Three-way mixed repeated-measures analysis of variance models examined differences in gait performance between groups when transitioning between pre-crossing phases towards an obstacle during single- and dual-task conditions. Analyses were adjusted for age, sex, years of education, lower limb function, fear of falling, medical status, depressive symptoms, baseline gait speed and executive function.

RESULTS: A significant three-way interaction among groups, pre-crossing phases and task showed that participants with MCI attenuated the gait deceleration ($p = 0.02$) and performed fewer step length adjustments ($p = 0.03$) when approaching the obstacle compared with controls while dual-tasking. These interactions were attenuated when executive function performance was added as a covariate in the adjusted statistical model.

CONCLUSION: Older adults with MCI attenuate the anticipatory gait adjustments needed to avoid an obstacle when dual-tasking. Deficits in higher-order cognitive processing may limit obstacle negotiation capabilities in MCI populations, being a potential falls risk factor.

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PDF Will get ILL Endnote Y

Patients with prostate cancer and androgen deprivation therapy have increased risk of fractures-a study from the fractures and fall injuries in the elderly cohort (FRAILCO)

Wallander M, Axelsson KF, Lundh D, Lorentzon M.

Osteoporos. Int. 2018; ePub(ePub): ePub.

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DOI 10.1007/s00198-018-4722-3 PMID 30324413

Abstract

Osteoporosis is a common complication of androgen deprivation therapy (ADT). In this large Swedish cohort study consisting of a total of nearly 180,000 older men, we found that those with prostate cancer and ADT have a significantly increased risk of future osteoporotic fractures.

INTRODUCTION: Androgen deprivation therapy (ADT) in patients with prostate cancer is associated to increased risk of fractures. In this study, we investigated the relationship between ADT in patients with prostate cancer and the risk of incident fractures and non-skeletal fall injuries both compared to those without ADT and compared to patients without prostate cancer.

METHODS: We included 179,744 men (79.1 ± 7.9 years (mean \pm SD)) from the Swedish registry to which national directories were linked in order to study associations regarding fractures, fall injuries, morbidity, mortality and medications. We identified 159,662 men without prostate cancer, 6954 with prostate cancer and current ADT and 13,128 men with prostate cancer without ADT. During a follow-up of approximately 270,300 patient-years, we identified 10,916 incident fractures including 4860 hip fractures.

RESULTS: In multivariable Cox regression analyses and compared to men without prostate cancer, those with prostate cancer and ADT had increased risk of any fracture (HR 95% CI 1.40 (1.28-1.53)), hip fracture (1.38 (1.20-1.58)) and MOF (1.44 (1.28-1.61)) but not of non-skeletal fall injury (1.01 (0.90-1.13)). Patients with prostate cancer without ADT did not have increased risk of any fracture (0.97 (0.90-1.05)), hip fracture (0.95 (0.84-1.07)), MOF (1.01 (0.92-1.12)) and had decreased risk of non-skeletal fall injury (0.84 (0.77-0.92)).

CONCLUSIONS: Patients with prostate cancer and ADT is a fragile patient group with substantially increased risk of osteoporotic fractures both compared to patients without prostate cancer and compared to those with prostate cancer without ADT. We believe that this must be taken in consideration in all patients with prostate cancer already at the initiation of ADT.

PDF Y Endnote Y

Prospective evaluation of frailty and functional independence in older adult trauma patients

Hamidi M, Zeeshan M, O'Keefe T, Nisbet B, Northcutt A, Nikolich-Zugich J, Khan M, Kulvatunyou N, Fain M, Joseph B.

Am. J. Surg. 2018; ePub(ePub): ePub.

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(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.amjsurg.2018.10.023 PMID 30343875

Abstract

BACKGROUND: The aim of our study was to assess the association between frailty and functional status in geriatric trauma patients.

METHODS: 3-year(2013-2015) prospective analysis and included all geriatric trauma patients(≥ 65 y) discharged to a single rehabilitation center from our level-I trauma center. Frailty was measured using Trauma-Specific-Frailty-Index(TSFI) while Functional status was assessed using functional-

independence-measure(FIM) at admission and discharge from rehabilitation center. Multivariate linear regression analysis was performed.

RESULTS: 267 patients were enrolled. Mean age was 76.9 ± 7.1 y, 63.6% were males. Overall, 22.8% were frail, and 37.4% were pre-frail. On linear regression, higher motor-FIM, higher cognitive-FIM scores at admission, and longer length-of-stay at rehab were independently associated with increased discharge FIM score. While, ISS(injury-severity-score), pre-frail and frail status were negatively correlated with FIM gain.

CONCLUSION: Frail patients were less likely to recover to their baseline functional status compared with non-frail patients. Early focused intervention in frail elderly patients is warranted to improve functional status in this population.

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PDF Y Endnote Y

Relationship of neuropsychiatric symptoms with falls in Alzheimer's disease - does exercise modify the risk?

Roitto HM, Kautiainen H, Öhman H, Savikko N, Strandberg TE, Raivio M, Laakkonen ML, Pitkälä KH. *J. Am. Geriatr. Soc.* 2018; ePub(ePub): ePub.

Affiliation: Unit of Primary Health Care, Helsinki University Hospital, Helsinki, Finland.

(Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jgs.15614 **PMID** 30320427

Abstract

OBJECTIVES: To explore how neuropsychiatric symptoms (NPS) are associated with number of falls and how exercise modifies the risk of falling in community-dwelling people with Alzheimer's disease (AD) and NPS.

DESIGN: Secondary analysis of a randomized controlled trial. **SETTING:** Community. **PARTICIPANTS:** Community-dwelling individuals with AD (N=210) who completed the Neuropsychiatric Inventory (NPI) (N = 179).

INTERVENTION: Participants were randomized into 3 groups: group-based exercise (4-hour sessions with approximately 1 hour of training) and tailored home-based exercise (1 hour of training) twice a week for 1 year and a control group receiving usual community care. In this secondary analysis, we merged the home-based and group-based exercise groups and compared this group with the control group. **MEASUREMENTS:** NPS were measured using the NPI at baseline, and spousal caregivers recorded falls in daily fall diaries during 1 year of follow-up.

RESULTS: The number of falls increased linearly with NPI score in the control group. Fall rates were 1.48 (95% confidence interval (CI)=1.26-1.73) per person-year in the intervention group and 2.87 (95% CI=2.43-3.35) in the control group. Adjusted for age, sex, Mini-Mental State Examination (MMSE) score, and Short Physical Performance Battery (SPPB) score, incidence rate ratio (IRR) was 0.48 (95% CI=0.39-0.60, $p < .001$). Main effects for fall rate were significant for group ($p < .001$) and NPI total ($p < .02$); the interaction effect was also significant ($p = .009$) (adjusted for sex, age, MMSE score, SPPB score, and psychotropic medication use).

CONCLUSION: Exercise may decrease the risk of falling in community-dwelling individuals with AD and NPS. Future exercise trials should confirm this finding in participants with significant NPS. **TRIAL**

REGISTRATION: ACTRN12608000037303.

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PDF Y Endnote Y

Simulating the effects of a clinical guidelines screening algorithm for fall risk in community dwelling older adults

Palumbo P, Becker C, Bandinelli S, Chiari L.

Aging Clin. Exp. Res. 2018; ePub(ePub): ePub.

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DOI 10.1007/s40520-018-1051-5 **PMID** 30341644

Abstract

BACKGROUND: The current guidelines for fall prevention in community-dwelling older adults issued by the American Geriatrics Society and British Geriatrics Society (AGS/BGS) indicate an algorithm for identifying who is at increased risk of falling. The predictive accuracy of this algorithm has never been assessed, nor have the consequences that its introduction in clinical practice would bring about.

AIMS: To evaluate this risk screening algorithm, estimating its predictive accuracy and its potential impact.

METHODS: The analyses are based on 438 community-dwelling older adults, participating in the InCHIANTI study. We analysed different tests for gait and balance assessment. We compared the AGS/BGS algorithm with alternative strategies for fall prevention not based on fall risk evaluation.

RESULTS: The AGS/BGS screening algorithm (using TUG, cut-off 13.5 s) has a sensitivity for single falls of 35.8% (95% confidence interval 23.2%-52.7%) and a specificity of 84.0% (79.3%-88.4%). It marks 18.0% (13.7%-22.4%) of the older population as at high risk. A policy of targeting people with preventive intervention regardless of their individual risk could be as effective as the policy based on risk screening but at the price of intervening on 17.3% (4.1%-34.0%) more people of the older population.

DISCUSSION: This study is the first that validates and estimates the impact of the screening algorithm of these guidelines. Main limitations are related to some modelling assumptions.

CONCLUSIONS: The AGS/BGS screening algorithm has low sensitivity. Nevertheless, its adoption would bring benefits with respect to policies of preventive interventions that act regardless of individual risk assessment.

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Traumatic brain injury, chronic traumatic encephalopathy, and Alzheimer disease

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Clin. Geriatr. Med. 2018; 34(4): 617-635.

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DOI 10.1016/j.cger.2018.06.008 **PMID** 30336991



Abstract

Traumatic brain injury (TBI) is a major health and economic burden. With increasing aging population, this issue is expected to continue to rise. Neurodegenerative disorders are more common with aging population in general regardless of history of TBI. Recent evidence continues to support a relation between a TBI and neurocognitive decline later in life (such as in athletes and military). This article summarizes the pathologic and clinical effects of TBI (regardless of severity) on the later development of dementia in individuals 65 years or older.

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PDF N Endnote Y

Understanding functional and social risk characteristics of frail older adults: a cross-sectional survey study

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BMC Fam. Pract. 2018; 19(1): e170.

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DOI 10.1186/s12875-018-0851-1 **PMID** 30340530

Abstract

BACKGROUND: Frailty is a condition of increasing importance, given the aging adult population. With an anticipated shortage of geriatricians, primary care physicians will increasingly need to manage care for frail adults with complex functional risks and social-economic circumstances.

METHODS: We used cross-sectional data from 4551 adults ages 65-90 who responded to the 2014/2015 cycle of the Kaiser Permanente Northern California Member Health Survey (MHS), a self-administered survey that covers multiple health and social characteristics, to create a deficits accumulation model frailty index, classify respondents as frail or non-frail, and then compare prevalence of functional health issues including Activities of Daily Living (ADL)/Instrumental Activities of Daily Living (IADL) and social determinants of health (SDOHs) by frailty status.

RESULTS: The overall prevalence of frailty was 14.3%, higher for women than men, increased with age, and more common among those with low levels of education and income. Frail older adults were more likely than non-frail to have ≥ 3 chronic diseases (55.9% vs. 10.1%), obesity (32.7% vs. 22.8%), insomnia (36.4% vs. 8.8%), oral health problems (25.1% vs. 4.7%), balance or walking problems (54.2% vs. 4.9%), ≥ 1 fall (56.1% vs. 19.7%), to use ≥ 1 medication known to increase fall risk (56.7% vs. 26.0%), and to need help with ≥ 2 ADLs (15.8% vs. 0.8%) and ≥ 2 IADLs (38.4% vs. 0.8%). They were more likely to feel financial strain (26.9% vs. 12.6%) and to use less medication than prescribed (7.4% vs. 3.6%), less medical care than needed (8.3% vs 3.7%), and eat less produce (9.5% vs. 3.2%) due to cost. Nearly 20% of frail adults were unpaid caregivers for an adult with frailty, serious illness or disability.

CONCLUSIONS: This study examined the prevalence of frailty and identified modifiable and non-modifiable risk factors of health. The frail older adult population is heterogeneous and requires a patient-centered assessment of their circumstances by healthcare providers and caregivers to improve their quality of life, avoid adverse health events, and slow physical and mental decline. The

characteristics identified in this study can be proactively used for the assessment of patient health, quality of life, and frailty prevention.

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Use of non-benzodiazepine hypnotics is associated with falls in nursing home residents: a longitudinal cohort study

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Aging Clin. Exp. Res. 2018; ePub(ePub): ePub.

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DOI 10.1007/s40520-018-1056-0 **PMID** 30341643

Abstract

BACKGROUND: Falls and related injuries are common among older people, and several drug classes are considered to increase fall risk. **AIMS:** This study aimed to investigate the association between the use of certain drug classes and falls in older nursing home residents in Sweden, and relate these to different age groups.

METHODS: Information on falls that occurred in the previous year and regular use of possible fall risk drugs including non-benzodiazepine hypnotics (zopiclone and zolpidem) was collected from 331 nursing home residents during 2008-2011. Over the following 6 months, the occurrence of serious falls, requiring a physician visit or hospital care, was registered. Association between serious falls and drug use was compared between an older (≥ 85 years) and a younger group.

RESULTS: An increased fall risk (Downton Fall Risk Index ≥ 3) was found in 93% of the study subjects (aged 65-101 years). Baseline data indicated an association between falls that occurred in the previous year and regular use of non-benzodiazepine hypnotics ($p = 0.005$), but not with the other studied drug classes. During the following 6 months, an association between use of non-benzodiazepine hypnotics and serious falls in the older group ($p = 0.017$, odds ratio 4.311) was found. No association was found between the other studied drug classes and serious falls.

DISCUSSION: These results indicate an association between falls and the use of non-benzodiazepine hypnotics, compounds that previously have been considered generally well-tolerated in older people.

CONCLUSIONS: Caution is advocated when using non-benzodiazepine hypnotics regularly in older people living in nursing homes.

PDF Y Endnote Y

A finite element model of an anthropomorphic test device lower limb to assess risk of injuries during vertical accelerative loading

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DOI 10.1016/j.jbiomech.2018.09.020 **PMID** 30316546

Abstract



Improvised explosive devices (IEDs) were used extensively to target occupants of military vehicles during the conflicts in Iraq and Afghanistan (2003-2011). War fighters exposed to an IED attack were highly susceptible to lower limb injuries. To appropriately assess vehicle safety and make informed improvements to vehicle design, a novel Anthropomorphic Test Device (ATD), called the Warrior Injury Assessment Manikin (WIAMan), was designed for vertical loading. The main objective of this study was to develop and validate a Finite Element (FE) model of the WIAMan lower limb (WIAMan-LL). Appropriate materials and contacts were applied to realistically model the physical dummy. Validation of the model was conducted based on experiments performed on two different test rigs designed to simulate the vertical loading experienced during an under-vehicle explosion.

Additionally, a preliminary evaluation of the WIAMan and Hybrid-III test devices was performed by comparing force responses to post-mortem human surrogate (PMHS) corridors. The knee axial force recorded by the WIAMan-LL when struck on the plantar surface of the foot (2 m/s) fell mostly within the PMHS corridor, but the corresponding data predicted by the Hybrid-III was almost 60% higher. Overall, good agreements were observed between the WIAMan-LL FE predictions and experiments at various pre-impact speeds ranging from 2 m/s up to 5.8 m/s.

RESULTS of the FE model were backed by mean objective rating scores of 0.67-0.76 which support its accuracy relative to the physical lower limb dummy. The observations and objective rating scores show the model is validated within the experimental loading conditions. These results indicate the model can be used in numerical studies related to possible dummy design improvements once additional PMHS data is available. The numerical lower limb is currently incorporated into a whole body model that will be used to evaluate the vehicle design for underbody blast protection.

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Association between falls and balance among inpatients with schizophrenia: a preliminary prospective cohort study

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Psychiatr. Q. 2018; ePub(ePub): ePub.

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DOI 10.1007/s11126-018-9609-0 **PMID** 30328019

Abstract

Falls are adverse events affecting psychiatric inpatients that can lead to external injuries, fractures, and death. However, none have attempted to examine fall-related factors, particularly focused on balance, specifically among inpatients with schizophrenia. The present preliminary study aimed to assess the association between falls and balance in patients with schizophrenia. The authors performed baseline assessments of background factors, postural sway, and maximum step length in 120 patients with schizophrenia hospitalized in the psychiatric ward. A prospective 3-month follow-up was conducted, and participants were divided into a fall or non-fall group according to their history of falls during the follow-up. Variance among individual variables was compared between the fall group and non-fall group using the t-test, Mann-Whitney U test, and chi-square test. A total of 16 participants experienced falls in the 3-month follow-up period (13.3%). Comparative factor analysis

revealed significant differences between the fall and non-fall groups in terms of the presence or absence of falls within 3 months before follow-up ($p = 0.002$) and Romberg quotients for sway length ($p = 0.02$). These findings suggest that fall history could be considered a predictor of future falls, which could help with fall prevention, and that assessment of visual contribution to postural control using the Romberg quotient could play an important role in fall prevention.

PDF Y Endnote Y

Evidence-based management of patients with vertigo, dizziness, and imbalance at an Australian metropolitan health service: an observational study of clinical practice

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Physiother. Theory Pract. 2018; ePub(ePub): 1-10.

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DOI 10.1080/09593985.2018.1511020 **PMID** 30332324

Abstract

AIM: To determine whether patients presenting to the emergency department (ED) with possible benign paroxysmal positional vertigo (BPPV) are managed in accordance with best practice guidelines, and whether physiotherapists are involved in their care.

DESIGN: Retrospective observational study.

PARTICIPANTS: Ninety-six consecutive patients presenting to one of three EDs with vertigo, dizziness or imbalance symptoms documented at triage. Individuals with a clear non-vestibular cause of symptoms were excluded.

OUTCOME MEASURES: Proportional adherence to clinical practice guidelines by medical and physiotherapy clinicians, primary diagnosis, incidence of falls, admission to hospital, and referral to a physiotherapy service.

RESULTS: Adherence to clinical practice guidelines by both professions was low, with only 25 (26%, 95% CI: 18-36%) and 3 (14%, 95% CI: 4-36%) patients assessed by a medical clinician or physiotherapist, respectively, receiving the gold-standard Dix-Hallpike test. Sixty-four (67%) individuals were given a diagnosis of undifferentiated dizziness. Of the 26 (27%) patients with a primary BPPV diagnosis, only three (12%) were treated with a canalith-repositioning technique, and four (15%) reviewed by a physiotherapist.

CONCLUSION: Adherence to best-practice guidelines for the management of BPPV in individuals presenting to the ED is low, and physiotherapists are seldom involved in their management.

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Exercise for reducing falls in people living with and beyond cancer

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Cochrane Database Syst. Rev. 2018; 10: CD011687.

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DOI 10.1002/14651858.CD011687.pub2 **PMID** 30320433

Abstract

BACKGROUND: Current treatment modalities for cancer have been successful in achieving improved survivorship; however, they come with a number of long-term adverse effects. Accidental falls are a common and clinically significant adverse event in people living with and beyond cancer and rates are higher than in the rest of the population.

OBJECTIVES: To assess the effects of prescribed or provided exercise for reducing accidental falls, and falls risk factors of strength, flexibility and balance, in people living with and beyond cancer.

SEARCH METHODS: We searched the following electronic databases from inception to 10 July 2018, with no restrictions: CENTRAL, MEDLINE, Embase, and seven other databases. We searched clinicaltrials.gov and the World Health Organization International Clinical Trials Registry Platform (ICTRP) for ongoing trials, and reference lists of reviews and retrieved articles for additional studies.

SELECTION CRITERIA: We included all randomised controlled trials investigating exercise interventions versus no treatment, usual care or non-exercise interventions on falls incidence or falls risk factors in adults living with and beyond cancer (18 years of age or older at diagnosis). We excluded cross-over studies and studies in acute or inpatient hospice care.

DATA COLLECTION AND ANALYSIS: At least two review authors independently completed data extraction for included papers. We used Covidence software to manage screening, data collection and extraction. We assessed evidence using GRADE and presented results in a 'Summary of findings' table.

MAIN RESULTS: Eleven studies (835 participants) compared exercise to usual care. No studies compared exercise with no treatment or non-exercise interventions. The quality of the evidence was very low for the primary outcome rates of falls, and very low to low for the secondary outcomes. We downgraded the evidence due to study limitations (risk of bias), and issues of imprecision due to small sample sizes, inconsistency and indirectness. All studies were at high risk of bias for blinding of participants and personnel due to inability to blind participants to an exercise intervention. Risk of bias was generally low or unclear for other categories. There was generally little information on the important outcomes comparing exercise to usual care. Rates of falls and number of fallers: one study (223 participants) measured accidental falls, but reported neither the rate of falls or the number of fallers; there was no difference in the number of falls between exercise and usual care (very low-quality evidence). Strength: 10 studies (813 participants) reported on strength outcomes. Two analyses favoured exercise over usual care: quadriceps strength (2 studies, 72 participants; mean difference (MD) 8.99 kg, 95% confidence interval (CI) 1.29 to 16.70; low-quality evidence), and leg press (4 studies, 388 participants; MD 21.1 kg, 95% CI 8.47 to 33.74; low-quality evidence). In one analysis of the Sit-to-Stand Test, there was no difference between exercise and usual care (4 studies, 214 participants; standardised mean difference (SMD) -0.45, 95% CI -1.05 to 0.14; very low-quality evidence). Flexibility: one study (21 participants) reported on flexibility for Sit-and-Reach Distance (MD 2.05 cm, 95% CI 0.59 to 3.51; very low-quality evidence). Balance: five studies (350 participants) measured three different balance outcomes. Two analyses favoured exercise over usual care: postural balance (4 studies, 127 participants; standardised mean difference (SMD) 0.44, 95% CI 0.08 to 0.79; very low-quality evidence), and Backward Walk Test (2 studies, 280 participants; SMD -0.24, 95% CI -0.48 to -0.01; low-quality evidence). There was no difference between exercise and usual care for the Timed Up-and-Go Test (1 study, 15 participants; MD -0.35 seconds, 95% CI -1.47 to 0.77; low-quality evidence). Number of people sustaining a fall-related fracture: the quality of the evidence for exercise reducing fall-related fractures was very low. Adverse events: a single study (223 participants) noted some temporary muscle soreness on

initiation of exercise or when there was an increase in the weight lifted. As no occurrence data were reported, we could not assess this variable further. No studies reported musculoskeletal injury. Analysis indicated that there was very low-quality evidence that exercise did not increase fatigue. **AUTHORS' CONCLUSIONS:** There is a paucity of evidence for exercise training to reduce fall rates in people living with and beyond cancer. Exercise training may improve strength, flexibility and balance for people in this population, but the evidence is very low quality.

PDF Y Endnote Y

Influences of postural control on cognitive control in task switching

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Front. Psychol. 2018; 9: e1153.

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(Copyright © 2018, Frontiers Research Foundation)

DOI 10.3389/fpsyg.2018.01153 **PMID** 30344499 **PMCID** PMC6182063

Abstract

The aim of the current study was to investigate the effects of postural control demands on cognitive control processes in concurrent auditory-manual task switching. To this end, two experiments were conducted using an auditory cued task-switching paradigm with different postural control demands (sitting vs. standing). This design allowed us to explore the effect of postural control on switch costs, mixing costs, and the between-task congruency effect. In addition, we varied the cue-based task preparation in Experiment 1 to examine whether preparation processes are independent of additional postural control demands or if the motor control processes required by the postural control demands interfere with task-specific cognitive preparation processes. The results show that we replicated the standard effects in task switching, such as switch costs, mixing costs, and congruency effects in both experiments as well as a preparation-based reduction of these costs in Experiment 1. Importantly, we demonstrated a selective effect of postural control demands in task switching in terms of an increased congruency effect when standing as compared to sitting. This finding suggests that particularly in situations that require keeping two tasks active in parallel, the postural control demands have an influence on the degree to which cognitive control enforces a more serial (shielded) mode or a somewhat less selective attention mode that allows for more parallel processing of concurrently held active task rules.

PDF Y Endnote Y

The impact of implementing a fall prevention educational session for community-dwelling physical therapy patients

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DOI 10.1002/nop.2.165 **PMID** 30338102 **PMCID** PMC6177546

Abstract

AIM: The aim of this study was to evaluate the impact of a fall prevention educational session on fall risk knowledge, use of fall prevention interventions and the number of falls in community-dwelling older persons attending physical therapy.

DESIGN: This pilot study used a mixed method design consisting of a quantitative pretest-posttest quasi-experimental design followed by a qualitative interview.

METHOD: An educational intervention was given with pre- and posttest questionnaires to determine the outcome measures of: (a) fall risk knowledge; (b) number of participants implementing fall prevention techniques; and (c) the number of falls sustained for 60 days post the educational sessions. The Health Belief Model served as the theoretical underpinnings for development and presentation of two educational sessions.

RESULTS: Eight of 20 participants completed the fall prevention educational sessions and subsequent evaluation. An increase in fall risk knowledge ($p = 0.031$) and implementation of fall prevention techniques was noted. One fall was sustained 60 days after therapy discharge.

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