

SafetyLit July 23 2017**A comparison of the effect of education through video versus demonstration on fear of falling in nursing home residents of Mashhad, Iran**

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DOI 10.4103/1735-9066.208160 **PMID** 28706543 **PMCID** PMC5494948

Abstract

BACKGROUND: Fear of falling is one of the most serious potential health problems. This issue is of high importance in the elderly, with serious consequences such as limitations in daily activities, gait imbalance, social isolation, and increased risk of falling. One way to resolve this problem is the use of modern teaching methods such as demonstration and videos. The present study aimed at comparing the effect of education through video versus demonstration on fear of falling in nursing home residents of Mashhad city, Iran.

MATERIALS AND METHODS: This quasi-experimental study (with pre-test and post-test) was performed among 66 elderly residents of nursing homes in Mashhad. The participants were randomly divided into two groups of demonstration and video. Then, they received training using the abovementioned methods. The participants' level of fear of falling was measured through Fall Efficacy Scale.

RESULTS: After the intervention, mean scores of the fear of falling were 47.50 and 49.84 in demonstration and video groups, respectively. As indicated by the results, after the intervention, participants' fear of falling decreased by 23.7% and 20.7% in demonstration and video groups, respectively. This difference is statistically significant ($P = 0.001$).

CONCLUSIONS: Training through video methods reduces the fear of falling in the elderly. Because of the special conditions of the elderly, the video training method may require more consideration due to its lower costs and easier performance.

PDF Y Endnote Y**Ageing does not affect the intralimb coordination elicited by slip-like perturbation of different intensities**

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(Copyright © 2017, American Physiological Society)

DOI 10.1152/jn.00844.2016 **PMID** 28701547

Abstract

This study was aimed at verifying whether ageing modifies intralimb coordination strategy during corrective responses elicited by unexpected slip-like perturbations delivered during steady walking on a treadmill. To this end, ten young and ten elderly subjects were asked to manage unexpected slippages of different intensities. We analyzed the planar covariation law of the lower limb segments, using the principal component analysis, in order to verify whether elevation angles of older subjects covaried along a plane, before and after the perturbation.

RESULTS showed that segments related to the perturbed limb, of both younger and older people, do not covary after all perturbations. Conversely, the planar covariation law of the unperturbed limb

was systematically held for younger and older subjects. These results occurred despite differences in spatio-temporal and kinematic parameters being observed among groups and perturbation intensities. Overall, our analysis revealed that ageing does not affect intralimb coordination during corrective responses induced by slip-like perturbation, suggesting that both younger and older subjects adopt this control strategy while managing sudden and unexpected postural transitions of increasing intensities. Accordingly, results corroborate the hypothesis that balance control emerges from a governing set of biomechanical invariants, that is, suitable control schemes (e.g. planar covariation law) shared across voluntary and corrective motor behaviors, and across different sensory contexts due to different perturbation intensities, in both younger and older subjects. In this respect, our findings provide further support to investigate effects of specific task training programs to counteract the risk of fall.

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PDF Y Endnote Y

Bilateral simultaneous neck femur fracture following domestic fall in an elderly patient: a rare case report

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DOI 10.1016/j.rboe.2016.09.002 **PMID** 28702399 **PMCID** PMC5497014

Abstract

Simultaneous bilateral neck femur fracture is a rare entity that has been associated with underlying bone disease, various metabolic diseases, high-energy trauma, and seizure disorders. Its occurrence following minimal trauma is very rare. This article presents the case of a 66-year-old female who sustained bilateral intracapsular fracture neck femur following a slip and fall at home. Single-stage bilateral cemented total hip replacement was done using a direct lateral approach with alternate right and left lateral positions. The authors report a satisfactory outcome, with Harris hip score of 98 at one year, which persisted until her last follow-up at 30 months.

PDF Y Endnote Y

Cut-off points for muscle mass - not grip strength or gait speed - determine variations in sarcopenia prevalence

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DOI 10.1007/s12603-016-0844-5 **PMID** 28717813

Abstract

OBJECTIVES: The European Working Group on Sarcopenia in Older People (EWGSOP) has proposed different methods and cut-off points for the three parameters that define sarcopenia: muscle mass, muscle strength and physical performance. Although this facilitates clinical practice, it limits

comparability between studies and leads to wide differences in published prevalence rates. The aim of this study was to assess how changes in cut-off points for muscle mass, gait speed and grip strength affected sarcopenia prevalence according to EWGSOP criteria.

METHODS: Cross-sectional analysis of elderly individuals recruited from outpatient clinics (n=298) and nursing homes (n=276). We measured muscle mass, grip strength and gait speed and assessed how changes in cut-off points changed sarcopenia prevalence in both populations.

RESULTS: An increase from 5.45 kg/m² to 6.68 kg/m² in the muscle mass index for female outpatients and nursing-home residents increased sarcopenia prevalence from 4% to 23% and from 9% to 47%, respectively; for men, for an increase from 7.25 kg/m² to 8.87 kg/m², the corresponding increases were from 1% to 22% and from 6% to 41%, respectively. Changes in gait speed and grip strength had a limited impact on sarcopenia prevalence.

CONCLUSION: The cut-off points used for muscle mass affect the reported prevalence rates for sarcopenia and, in turn, affect comparability between studies. The main factors influencing the magnitude of the change are muscle mass index distribution in the population and the absolute value of the cut-off points: the same difference between two references (e.g., 7.5 kg/m² to 7.75 kg/m² or 7.75 kg/m² to 8 kg/m²) may produce different changes in prevalence. Changes in cut-off points for gait speed and grip strength had a limited impact on sarcopenia prevalence and on study comparability.

PDF Y Endnote Y

Decisional balance and self-efficacy of physical activity among the elderly in Rasht in 2013 based on the transtheoretical model

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Abstract

BACKGROUND: Regular physical activity has been considered as health promotion, and identifying different effective psycho-social variables on physical has proven to be essential.

OBJECTIVE: To identify the relationship between decisional balance and self-efficacy in physical activities using the transtheoretical model in the members of a retirement center in Rasht, Guillen.

METHODS: A descriptive cross-sectional study was conducted in 2013 by using convenient sampling on 262 elderly people who are the members of retirement centers in Rasht. Data were collected using Stages of change, Decisional balance, Self-efficacy and Physical Activity Scale for the Elderly (PASE). Data was analyzed using SPSS-16 software, descriptive and analytic statistic (Pearson correlation, Spearman, ANOVA, HSD Tukey, linear and ordinal regression).

RESULTS: The majority of participants were in maintenance stage. Mean and standard deviation physical activity for the elderly was 119.35±51.50. Stages of change and physical activities were significantly associated with decisional balance and self-efficacy (p<0.0001); however, cons had a significant and reverse association. According to linear and ordinal regression the only predictor variable of physical activity behavior was self-efficacy.

CONCLUSION: By increase in pros and self-efficacy on doing physical activity, it can be benefited in designing appropriate intervention programs.

PDF Y Endnote Y

Diversity in fall characteristics hampers effective prevention: the precipitants, the environment, the fall and the injury

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DOI 10.1007/s00198-017-4145-6 **PMID** 28725985

Abstract

Falls among the elderly are common and characteristics may differ between injurious and non-injurious falls. Among 887 older Australian women followed for 1.6 years, 32% fell annually. Only 8.5% resulted in fracture and/or hospital admission. The characteristics of those falls are indistinguishable from those not coming to medical attention.

INTRODUCTION: The precipitants and environment of all falls occurring among a large cohort of older Caucasian women were categorised by injury status to determine if the characteristics differed between injurious and non-injurious falls.

METHODS: Among 887 Australian women (70+ years), falls were ascertained using monthly postcard calendars and a questionnaire was administered for each fall. Hospital admissions and fractures were independently confirmed.

RESULTS: All falls were reported for a mean observation time of 577 (IQR 546-607) days per participant, equating to a total 1400 person-years. Thirty-two percent fell at least once per year. The most common features of a fall were that the faller was walking (61%) at home (61%) during the day (88%) and lost balance (32%). Only 12% of all falls occurred at night. Despite no difference in the type of injury between day and night, the likelihood of being hospitalised from a fall at night was 4.5 times greater than that of a daytime fall with adjustment for injury type and participant age (OR 4.5, 95% CI 2.1, 9.5; $p < 0.001$). Of all falls, approximately one third were associated with no injury to the faller (31%), one third reported a single injury (37%) and one third reported more than one injury (32%). In 95% of falls, the faller was not admitted to hospital. Only 5% of falls resulted in fracture(s).

CONCLUSIONS: Our findings demonstrate the significant diversity of precipitants and environment where falls commonly occur among older community-dwelling women. Falls resulting in fracture and/or hospital admission collectively represent 8.5% of all falls and their characteristics are indistinguishable from falls not coming to medical attention and incurring no apparent cost to the health system.

PDF Y Endnote Y

Eccentric versus traditional resistance exercise for older adult fallers in the community: a randomized trial within a multi-component fall reduction program

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Abstract

BACKGROUND: Addressing muscle deficits within a multi-component exercise fall reduction program is a priority, especially for the highest risk older adults, i.e., those who have fallen previously.

Eccentric resistance exercise with its high-force producing potential, at a low energetic cost, may be ideally-suited to address muscle impairments in this population. The purpose of this study was to compare the effects of resistance exercise via negative, eccentrically-induced, work (RENEW) versus traditional (TRAD) resistance exercise on mobility, balance confidence, muscle power and cross sectional area, as well as the number of days high fall risk older adults survived without a fall event over a 1 year period.

METHODS: Randomized, two group, four time point (over 1 year) clinical trial testing RENEW versus TRAD as part of a 3 month multi-component exercise fall reduction program (MCEFRP). Primary outcomes of mobility, balance confidence, muscle power output and cross sectional area were analyzed using mixed effects modeling. The secondary outcomes of days to fall and days to near-fall were analyzed using survival analysis.

RESULTS: The MCEFRP did have an effect on fall risk factors considered reversible with exercise interventions though there was no differential effect of RENEW versus TRAD ($p = 0.896$) on mobility, balance confidence, muscle power and cross sectional area. There were also no group differences in the number of days survived without a fall ($p = 0.565$) or near-fall ($p = 0.678$). Despite 100% of participants having at least one fall in the year prior to the MCEFRP, however, after 3 months of exercise and 9 months of follow-up <50% had experienced a fall or near fall.

CONCLUSIONS: There were no differential effects of RENEW or TRAD as components of a MCEFRP on the primary or secondary outcomes. The two modes of resistance exercise had identical effects on fall risk and fall-free survival. **TRIAL REGISTRATION:** NCT01080196 ; March 2, 2010 (retrospectively registered).

PDF Y Endnote Y

Epidemiology of pelvic ring fractures and injuries

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Abstract

OBJECTIVE: This study evaluated the pelvic ring fractures and injuries in patients admitted to and treated at this ward between August, 2012 and January, 2014.

METHODS: 66 patients were submitted to treatment protocols according to their age, gender, skin color, injury mechanism, location of the trauma, classification of their injuries, emergency intervention, associated injuries, injured side of the body, treatment, and mortality. The most relevant data were classified according to statistic procedures, such as Goodman's association test. Measures were compared with Student's t-test and analysis of variance associated with Tukey's multiple comparison test.

RESULTS: The mean age was 47 years; white race and male gender were most common. Car or truck accident was the most common cause of injuries, which occurred mainly in urban sites. Type A injuries were the most frequent. 16.6% of the cases were submitted to emergency surgery. 42.4% displayed associated injuries. The right side of the body was the most commonly affected side. Non-invasive treatment was most commonly used. Death was the outcome in 3% of the cases, associated to high-energy trauma.

CONCLUSIONS: Pelvic ring fractures and injuries are more often verified among males. In general and among younger individuals, traffic accidents are the most common cause of the injury, while among the elderly, ordinary falls are the most commonly verified cause. The majority of those injuries are suffered in urban areas. Type A fractures are more frequent. The majority of cases do not require emergency intervention nor do they feature associated injuries. Non-invasive treatment is most common and death outcomes are associated to high-energy traumas with severe injuries.

PDF Y Endnote Y

Falls in older people: comparing older and younger fallers in a developing country

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

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Abstract

PURPOSE: While falls are common in older people, causing significant mortality and morbidity, this phenomenon has not been extensively studied in the Caribbean. This study aimed to compare falls in older and younger people in this setting.

METHODS: We conducted a prospective observational study of older trauma patients in Trinidad, comparing older and younger patients sustaining falls.

RESULTS: 1432 adult trauma patients were included (1141 aged 18-64 years and 291 aged 65 years and older). Older fallers were more likely to be female (66.7 vs 47.2%; $p < 0.001$), suffer from multiple pre-existing diseases (24.7 vs 2.4%; $p < 0.001$) and take multiple medications (16.1 vs 0.8%; $p < 0.001$). They also sustained more severe injuries and presented with higher acuity than younger fallers. Admission rates were higher among older fallers (29.9 vs 13.1%; $p < 0.001$).

CONCLUSIONS: In our study, older patients who fell were a distinct group from younger falls victims, with unique demographic, clinical and injury related characteristics. Their increased risk of injury within the home, coupled with their propensity for more severe injuries made them a high risk patient group. More research is needed to better understand this patient group and plan specific preventive interventions.

PDF Y Endnote Y

Foot rollover temporal parameters during walking straight ahead and stepping over obstacles: obese and non-obese postmenopausal women

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(Copyright © 2017, Human Kinetics Publishers)

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Abstract

The aim of this study was to compare the temporal foot rollover data between walking straight ahead and stepping over obstacles for obese and non-obese postmenopausal women. Plantar pressure data were collected from 67 women. The initial, final, and duration of contact of 10 foot areas were measured. Both limbs of both groups showed a longer foot contact duration on the obstacle task. Significant temporal differences were found for both groups between straight ahead and crossing obstacles on the initial, final, and duration of contact for several foot areas. The propulsion phase of the trailing limb during the obstacle task was anticipated. Regarding the leading limb, the first foot contact was not made with the heel areas; however, a backward foot rollover movement from the metatarsal to the heel areas occurred, possibly to provide support to better control the trailing limb swing phase.

PDF Y Endnote Y

Fragility fractures at Auckland City Hospital: we can do better

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Abstract

This study describes in detail the burden of caring for patients aged ≥ 50 years seen in one year with a fragility fracture in a large urban environment and shows that these fractures result in a long length of stay and significant mortality. Intervention to prevent further fracture was poorly done. **PURPOSE:** To examine the epidemiology of fragility fracture in patients over age 50 years and record the number who received appropriate secondary prevention treatment.

METHODS: All patients aged ≥ 50 years presenting with a fracture during the 12 months following July 1(st) 2011, to Auckland City Hospital or residing in central Auckland at the time of their fracture, were identified from hospital and Accident Compensation Corporation records. A random sample of 55% of these patient's records were reviewed to establish the type of fracture, prior fracture and falls history, and use of bisphosphonates in the 12 months before presentation. Their length of stay (LOS) by type of fracture was recorded. The use of bisphosphonate drugs in the following 12 months was obtained from centralised national records of prescriptions.

RESULTS: 2729 patients aged ≥ 50 years presented with a fragility fracture in the central Auckland region in one year. Fifty-six percent of these patients were seen at Auckland Hospital and of these, 82% patients required admission with a mean LOS of 20 days ($SD \pm 24$ days). The remaining 44% of patients were looked after in the private outpatient sector. Approximately 30% of the admissions were for hip fracture. Sixty-four percent of patients with a fragility fracture did not receive a potent bisphosphonate, 12% were considered not appropriate for treatment, and 24% received a potent bisphosphonate during their admission or in the next 12 months.

CONCLUSIONS: Approximately 1 in 18 people aged ≥ 50 years presented in one year with a fragility fracture. Secondary prevention strategies were poorly implemented. Additional resources for identifying and initiating secondary fracture prevention care such as a Fracture Liaison Service are urgently needed.

PDF Y Endnote Y

How can home care patients and their caregivers better manage fall risks by leveraging information technology?

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J. Patient Exp. 2016; 3(4): 137-144.

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(Copyright © 2016, SAGE Publications)

DOI 10.1177/2374373517690286 **PMID** 28725850 **PMCID** PMC5513656

Abstract

OBJECTIVES: From the perspectives of home care patients and caregivers, this study aimed to (a) identify the challenges for better fall-risk management during home care episodes and (b) explore the opportunities for them to leverage health information technology (IT) solutions to improve fall-risk management during home care episodes.

METHODS: Twelve in-depth semistructured interviews with the patients and caregivers were conducted within a descriptive single case study design in 1 home health agency (HHA) in the mid-Atlantic region of the United States.

RESULTS: Patients and caregivers faced challenges to manage fall risks such as unmanaged expectations, deteriorating cognitive abilities, and poor care coordination between the HHA and physician practices. Opportunities to leverage health IT solutions included patient portals, telehealth, and medication reminder apps on smartphones.

CONCLUSION: Effectively leveraging health IT could further empower patients and caregivers to reduce fall risks by acquiring the necessary information and following clinical advice and recommendations. The HHAs could improve the quality of care by adopting IT solutions that show more promise of improving the experiences of patients and caregivers in fall-risk management.

PDF Y Endnote Y

Injurious falls and syncope in older community-dwelling adults meeting inclusion criteria for SPRINT

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JAMA Intern. Med. 2017; ePub(ePub): ePub.

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DOI 10.1001/jamainternmed.2017.2924 **PMID** 28715566

Abstract [Abstract unavailable]

PDF Y Endnote Y

Outcome measures correlated with falls in nursing home residents-a pilot study

Moyer HS, Gale J, Severe S, Braden HJ, Hasson S.

Physiother. Theory Pract. 2017; ePub(ePub): 1-8.

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

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Abstract

Most fall risk and normal values are collected from the community-dwelling population, which is not representative of nursing home residents. The purpose of this study was twofold: 1) to determine the relationship of clinical impairment and activity limitation variables to the number of falls in

nursing home residents; and 2) to determine the amount of variability that can be explained for the number of falls from these predictor variables. Seventeen active nursing home residents (83.7 ± 11.7 years) consented to participate. Mini-Mental Status Examination (MMSE), lower extremity handheld dynamometry, ankle plantar flexion (PF)/dorsiflexion (DF) active range of motion (AROM), hand grip strength, gait speed (GS), Timed Up and Go (TUG), and 5 Times Sit-to-Stand (5TSTS) were recorded in a single visit. Regression analysis was performed to identify the better clinical outcome tool to determine falls. This was followed by a stepwise multiple regression model to predict the criterion variable-number of falls. Of the clinical impairment measures collected, significant correlations with past falls include the following: right DF AROM (-0.436 ; $p = 0.040$) and right DF strength (-0.504 ; $p = 0.023$). Of the activity limitation measures collected, significant correlations with past falls include the following: 5TSTS (0.585 ; $p = 0.007$); TUG time (0.475 ; $p = 0.027$); and GS (0.457 ; $p = 0.032$). The stepwise multiple regression model explained 59% of the variance using right DF AROM, right DF strength, 5TSTS, and TUG time. These measures are benchmarks for the community dwelling population. The present study indicates that these measures might also be useful in determining fall risk screening for ambulatory nursing home residents.

PDF Y Endnote Y

Podiatry intervention versus usual care to prevent falls in care homes: pilot randomised controlled trial (the PIRFECT study)

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BMC Geriatr. 2017; 17(1): e143.

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(Copyright © 2017, BioMed Central)

DOI 10.1186/s12877-017-0541-1 **PMID** 28701161 **PMCID** PMC5508629

Abstract

BACKGROUND: Common foot problems are independent risk factors for falls in older people. There is evidence that podiatry can prevent falls in community-dwelling populations. The feasibility of implementing a podiatry intervention and trial in the care home population is unknown. To inform a potential future definitive trial, we performed a pilot randomised controlled trial to assess: (i) the feasibility of a trial of a podiatry intervention to reduce care home falls, and (ii) the potential direction and magnitude of the effect of the intervention in terms of number of falls in care home residents.

METHODS: Informed by Medical Research Council guidance on developing and evaluating complex interventions, we conducted a single blind, pilot randomised controlled trial in six care homes in the East of Scotland. Participants were randomised to either: (i) a three month podiatry intervention comprising core podiatry care, foot and ankle exercises, orthoses and footwear provision or (ii) usual care. Falls-related outcomes (number of falls, time to first fall) and feasibility-related outcomes (recruitment, retention, adherence, data collection rates) were collected. Secondary outcomes included: generic health status, balance, mobility, falls efficacy, and ankle joint strength. **RESULTS:** 474 care home residents were screened. 43 (9.1%) participants were recruited: 23 to the intervention, 20 to control. Nine (21%) participants were lost to follow-up due to declining health or death. It was feasible to deliver the trial elements in the care home setting. 35% of participants completed the exercise programme. 48% reported using the orthoses 'all or most of the time'. Completion rates of the outcome measures were between 93% and 100%. No adverse events were reported. At the nine month follow-up period, the intervention group per-person fall rate was 0.77

falls vs. 0.83 falls in the control group.

CONCLUSIONS: A podiatry intervention to reduce falls can be delivered to care home residents within a pilot randomised controlled trial of the intervention. Although not powered to determine effectiveness, these preliminary data provide justification for a larger trial, incorporating a full process evaluation, to determine whether this intervention can significantly reduce falls in this high-risk population. **TRIAL REGISTRATION:** ClinicalTrials.gov identifier: NCT02178527 ; Date of registration: 17 June 2014.

PDF Y Endnote Y

Posterior locked lateral compression injury of the pelvis in geriatric patients: an infrequent and specific variant of the fragility fracture of pelvis

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Arch. Orthop. Trauma Surg. 2017; ePub(ePub): ePub.

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Abstract

INTRODUCTION: Posterior locked lateral compression injury (PLLCI) of the pelvic ring is an infrequent variant of lateral compression injury, a condition described in only eight reported cases since 2000. Lateral compression injury usually results from high-energy trauma and is characterized by locking between the medially translated fractured ilium and the anterior border of the sacrum, regardless of whether the fractured ilium involves the sacroiliac joint. However, in our experience, lateral compression injury can also result from low-energy trauma as a manifestation of pelvic fragility fracture. The aim of the present study was to describe this rare form of PLLCI in a case series of geriatric patients.

METHODOLOGY: A retrospective analysis of consecutive patients with pelvic ring injuries who were admitted to our hospital from January 2008 to April 2015 identified seven geriatric patients (1 male and 6 females; median age 81 years) with a form of PLLCI.

RESULTS: All injuries were due to falls from a standing position onto the ground. All seven cases demonstrated characteristics of a locking fractured ilium over the anterior border of the sacrum on axial computed tomography images, but were not detected on plain radiographs. All underwent follow-up at 1 year or later with improved mean visual analogue scale scores (range 0-3). Regarding Koval walking ability scores, patients who underwent pelvic brim plating with anterior external fixation were more likely to regain their pre-injury walking ability than patients who only underwent anterior external fixation or conservative treatment.

CONCLUSION: Geriatric patients can experience PLLCIs of the pelvis due to low-energy trauma. These fractures have different characteristics from those associated with severe injuries due to high-energy trauma, and they comprise an infrequent form of Rommens fragility fracture of the pelvis (type IIIa). In these cases, appropriate surgical management that includes sacroiliac plating combined with anterior external fixation can yield good outcomes.

PDF Y Endnote Y

Prospective associations of low muscle mass and function with 10-year falls risk, incident fracture and mortality in community-dwelling older adults

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Abstract

OBJECTIVES: Purpose: To compare the performance of low muscle mass and function with falls risk, incident fracture and mortality over 10 years.

METHODS: 1041 participants (50% women; mean age 63±7.5 years) were prospectively followed for 10 years. Falls risk was measured using the Physiological Profile Assessment, fractures were self-reported and mortality was ascertained from the death registry. Appendicular lean mass (ALM) was assessed using dual energy X-ray absorptiometry. Four anthropometric: (ALM/height², ALM/body mass index, ALM/weight×100, a residuals method of ALM on height and total body fat) and four performance-based measures: (handgrip strength, lower-limb muscle strength, upper and lower-limb muscle quality) were examined. Participants in the lowest 20% of the sex-specific distribution for each anthropometric and performance-based measure were classified as having low muscle mass or function. Regression analyses were used to estimate associations between each anthropometric and performance-based measure at baseline and 10-year falls risk, incident fractures and mortality.

RESULTS: Mean falls risk z-score at 10 years was 0.64 (SD 1.12), incident fractures and mortality over 10 years were 16% and 14% respectively. All baseline performance-based measures were significantly associated with higher falls risk score at 10 years. Low handgrip (RR 1.55, 95% CI: 1.09, 2.20) and ALM/body mass index (RR 1.54, 95% CI: 1.14, 2.08) were the only significant predictors of fracture and mortality respectively.

CONCLUSIONS: Low handgrip strength, a simple and inexpensive test could be considered in clinical settings for identifying future falls and fractures. ALM/ body mass index could be most suitable in estimating 10-year mortality risk, but requires specialised equipment.

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Skeletal muscle as a factor contributing to better stratification of older patients with traumatic brain injury: a retrospective cohort study

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World Neurosurg. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: Traumatic brain injury (TBI) in older patients is becoming an increasing problem, and methods that help predict outcomes in this population are needed. The objective of this study was to evaluate skeletal muscle mass as a predictive marker for TBI outcome in older patients.

METHODS: Older patients (≥ 60 years) with TBI were included in this study and clinical outcome was assessed using the Glasgow Outcome Scale (GOS) at six months post-injury. Patients were classified according to their GOS score as having good outcome (GOS 3-5) or poor outcome (GOS 1 and 2). The skeletal muscle mass was estimated and the relationship with outcome was analyzed. A multivariable logistic regression model was used to quantify the independent effects of sarcopenia on poor outcome risk.

RESULTS: Seventy-four patients (median 74 years old; 53 men) were included. Outcomes six months post-injury were good in 38 patients and poor in 36 patients. The skeletal muscle area in the good outcome group was significantly larger than the poor outcome group (57.3 versus 47.6 cm², $P < 0.001$). The rate of poor outcome was significantly higher in patients with sarcopenia compared to those without (0.70 versus 0.24, relative risk = 2.98, 95% confidence interval (CI), 1.57-5.64). The difference was significant and the odds ratio was 3.88 (95% CI, 1.14-13.2, $P = 0.031$).

CONCLUSION: Reduced skeletal muscle mass was associated with poorer outcome after TBI in older patients. Our results suggest that identifying patients with low muscularity may contribute to better stratification in this population.

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The effect of vitamin D and calcium supplementation on falls in older adults : a systematic review and meta-analysis

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Abstract

OBJECTIVES: A number of studies have hypothesized that vitamin D is a potential factor in the prevention of falls in the elderly; however, the effect of vitamin D is still inconsistent and not quantitative. We conducted this meta-analysis to assess the effect of vitamin D on falls among elderly individuals.

METHODS: The PubMed and Cochrane Library databases were searched from the earliest possible year up to December 2016. Two authors working independently reviewed the trials, and odds ratios (ORs) were calculated using a fixed-effect or random-effect model by Review Manager 5.3. We included only double-blind randomized, controlled trials (RCTs) of vitamin D in elderly populations that examined fall results.

RESULTS: A total of 26 articles were included in which 16,540 elderly individuals received vitamin D supplementation, while 16,146 were assigned to control groups. The meta-analysis showed that combined vitamin D plus calcium supplementation has a significant effect on the reduction in the risk of falls (OR for the risk of suffering at least one fall, 0.87; 95% CI, 0.80-0.94). However, no significant association between vitamin D2 or D3 and a reduction in the risk of falls was found (OR, 0.77; 95% CI, 0.58-1.03 for vitamin D2, and OR, 1.08; 95% CI, 0.98-1.20 for vitamin D3).

CONCLUSIONS: Combined calcium plus vitamin D supplementation is statistically significantly associated with a reduction in fall risks across various populations.

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The effects of strength exercise on hippocampus volume and functional fitness of elderly women

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Abstract

BACKGROUND: Various positive effects of exercise on elderly women have been identified in many studies. Despite the importance of preserving the health of brain as well as body, few studies have investigated the effects of strength exercise on the brain health of elderly women to date. This study aimed to identify the effects of 24weeks of the Growing Stronger program on hippocampus volume and functional fitness of elderly women.

METHODS: Twenty elderly women aged over 65 participated in this study. Growing Stronger, which is a strength exercise program that is safe and effective for women and men of all ages, was conducted in 11 strength exercise group three times a week for 50-80min for 24weeks. The control group maintained their lifestyles without any special intervention. Subjects were given a pre-test (before applying for the program) and post-test (after 24weeks) to identify effects of the program. The data were analyzed with a two-way repeated measures ANOVA.

RESULTS: Hippocampus volume was significantly increased in the strength exercise group, but decreased in the control group. Moreover, there was an interaction effect ($p < 0.001$) between time and group. Strength exercise has improved upper and lower body strength, lower body flexibility, agility, and dynamic balance. Upper body flexibility significantly decreased in the strength exercise group, but there was no interaction between the strength exercise group and the control group.

CONCLUSION: The results of this study suggest that strength exercise has beneficial effects on hippocampus volume and functional fitness. Therefore, strength exercise can be an effective exercise for elderly women.

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The role of sports clubs in helping older people to stay active and prevent frailty: a longitudinal mediation analysis

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Int. J. Behav. Nutr. Phys. Act. 2017; 14(1): e95.

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(Copyright © 2017, BioMed Central)

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Abstract

BACKGROUND: Frailty is a common syndrome in older adults characterised by increased vulnerability to adverse health outcomes as a result of decline in functional and physiological measures. Frailty predicts a range of poor health and social outcomes and is associated with increased risk of hospital admission. The health benefits of sport and physical activity and the health risks of inactivity are well known. However, less is known about the role of sports clubs and physical activity in preventing and managing frailty in older adults. The objective of this study is to examine the role of membership of

sports clubs in promoting physical activity and reducing levels of frailty in older adults.

METHODS: We used data from waves 1 to 7 of the English Longitudinal Study of Ageing (ELSA). Survey items on physical activity were combined to produce a measure of moderate or vigorous physical activity for each wave. Frailty was measured using an index of accumulated deficits. A total of sixty deficits, including symptoms, disabilities and diseases were recorded through self-report and tests. Direct and indirect relationships between sports club membership, levels of physical activity and frailty were examined using a cross-lagged panel model.

RESULTS: We found evidence for an indirect relationship between sports club membership and frailty, mediated by physical activity. This finding was observed when examining time-specific indirect pathways and the total of all indirect pathways across seven waves of survey data (Est = -0.097 [95% CI = -0.124,-0.070], $p = <0.001$).

CONCLUSIONS: These analyses provide evidence to suggest that sports clubs may be useful in preventing and managing frailty in older adults, both directly and indirectly through increased physical activity levels. Sports clubs accessible to older people may improve health in this demographic by increasing activity levels and reducing frailty and associated comorbidities. There is a need for investment in these organisations to provide opportunities for older people to achieve the levels of physical activity necessary to prevent health problems associated with inactivity.

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Aging, diabetes and falls

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Endocr. Pract. 2017; ePub(ePub): ePub.

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DOI 10.4158/EP171794.RA **PMID** 28704101

Abstract [Abstract unavailable]

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Incidence and prevalence of falls in adults with intellectual disability living in the community: a systematic review protocol

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JBI Database Syst. Rev Implement. Rep. 2017; 15(7): 1819-1823.

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Abstract

REVIEW QUESTION/OBJECTIVE:: The objective of this review is to synthesize the best available evidence to determine the incidence and prevalence of falls in adults with intellectual disability living in the community.

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Root mean square of lower trunk acceleration during walking in patients with unilateral total hip replacement

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Gait Posture 2017; 58: 19-22.

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(Copyright © 2017, Elsevier Publishing)

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Abstract

Although several studies have described abnormal trunk motion before and after total hip arthroplasty (THA) surgery, few studies have examined trunk motion using accelerometry. The aim of this study was to determine whether abnormal trunk motion persisted after THA using accelerometry. A total of 24 female patients (61.0±6.9years) and 20 healthy female subjects (59.9±6.8years) participated in this study. Patients were assessed at 1 month prior to surgery and 12 months after surgery. Trunk acceleration during gait was measured using a triaxial accelerometer attached to the L3 spinous process. We calculated the root mean square (RMS) and RMS ratio (RMSR) in the vertical (VT), medio-lateral (ML), and anterior-posterior (AP) directions.

RESULTS revealed that the RMS in the VT and AP directions postoperatively was greater than that preoperatively, whereas there was no difference in the RMS in the ML direction. In addition, the preoperative RMSR in the ML direction was significantly greater compared with that of healthy individuals and the postoperative RMSR. There was no difference in the RMSR in the ML direction between healthy individuals and postoperatively. These findings suggested that the trunk motion in the frontal plane prior to surgery had improved and was comparable to that of healthy individuals following THA.

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Understanding and managing the risk of "head impact" from in-hospital falls: a cross-sectional analysis of data from 166 public hospitals

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Abstract

BACKGROUND: Falls are a leading cause of preventable harm in the hospitalized elderly, and head impacts (HIs) can be a precursor to serious injury. The aim of this study was to examine if the risk of fall-related HI can be explained by incident characteristics.

METHODS: All reported falls across public hospital facilities in the state of Queensland, Australia, over a 2-year period were analyzed using univariate and multiple logistic regression.

RESULTS: In all, 650 instances of HI were reported across 24 218 falls. Falls due to fainting were associated with elevated HI odds (odds ratio [OR] = 2.00, 95% confidence interval [CI] = 1.30, 3.08). Similarly, falls while walking (OR = 1.48, 95% CI = 1.20, 1.81) and falls during certain time periods, namely, from 11:00 pm to midnight (OR = 1.79, 95% CI = 1.24, 2.59) and between 5:00 am and 6:00 am (OR = 1.50, 95% CI = 1.01, 2.22) were linked to increased HI odds. Falls among males were



associated with lowered odds of HI (adjusted odds ratio [AOR] = 0.78, 95% CI = 0.64, 0.74).

CONCLUSIONS: Results confirm links between characteristics of inpatient falls and the likelihood of HI, and these data can assist risk managers to better target fall prevention strategies. Assisted mobility in high-risk patients and improved environmental lighting are advanced as foci for future research.

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