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A busy day has minimal effect on factors associated with falls in older people: an ecological randomised crossover trial

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Exp. Gerontol. 2018; ePub(ePub): ePub.

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DOI 10.1016/j.exger.2018.03.009 **PMID** 29544910

Abstract

Fatigue is a common complaint in older people. Laboratory-induced muscle fatigue has been found to affect physical functions in older populations but these protocols are rigorous and are unlikely to accurately reflect daily activities. This study used an ecological approach to determine the effects of a busy day on self-reported fatigue and fall-related measures of physical and cognitive function in older people. Fifty community-dwelling adult volunteers, aged 60-88 (mean 73) years participated in this randomised crossover trial. Participants undertook assessments of balance, strength, sensation, gait, mobility, cognitive function and self-reported fatigue, before and after a planned rest day and a planned busy day (randomly allocated) at least one week apart. Participants wore an activity monitor on both the rest and busy days. On average, participants undertook twice as many steps and 2.5 times more minutes of activity on the busy, compared with the rest day. Participants had a significant increase in self-reported fatigue on the afternoon of the busy day and no change on the rest day. Repeated measures ANOVAs found no significant day (rest/busy) × time (am/pm) interaction effects, except for the timed up and go test of mobility, resulting from relatively improved mobility performance over the rest day, compared with the busy day. This study showed few effects of a busy day on physical and cognitive performance tests associated with falls in older people.

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PDF Y Endnote Y

An economic evaluation of preventing falls using a new exercise program in institutionalized elderly

Mills KM, Sadler S, Peterson K, Pang L.

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DOI 10.1123/jpah.2017-0225 **PMID** 29543112

Abstract

BACKGROUND: Falls in the elderly represent a public health crisis. Effective prevention programs need to conduct economic analyses. The Move With Balance program showed a 65% reduction in falls in institutionalized elderly.

METHODS: We evaluated the return on investment (ROI) of Move With Balance. We calculated the ROI for 2 situations: first, using data from the current study (N = 27); second, extrapolating the data to an "intended" annual program (N = 45) where training costs can be spread over 6 years.

RESULTS: The program costs for the current study was \$11,143. Based on an efficacy rate of 65%, we estimated that 13 falls were averted among the 21 participants in the treatment group. At a cost of \$1440/fall, total averted cost of falls was \$18,720. The ROI was 1.7:1 for a 10-week period. Program effects persisted for at least 6 months. Extrapolating the current program costs and fall rates to include classes for 45 people twice a year, the annual program costs would be \$27,217. Total annual averted cost of falls would be \$208,594. The annual ROI in this group would be 7.6:1.

CONCLUSIONS: Move With Balance not only is efficacious in reducing falls in institutionalized elderly but also has a positive ROI.

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Clinical characteristics and outcomes of fall-related open globe injuries in Japan

Morikawa S, Okamoto Y, Okamoto F, Inomoto N, Ishikawa H, Harimoto K, Ueda T, Sakamoto T, Oshika T.

Graefes Arch. Clin. Exp. Ophthalmol. 2018; ePub(ePub): ePub.

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DOI 10.1007/s00417-018-3959-z **PMID** 29546473

Abstract

PURPOSE: To investigate the clinical characteristics and visual outcomes in patients with fall-related open globe injuries and to evaluate differences between fall-related and non-fall-related open globe injuries in Japan.

METHODS: A retrospective review of patients with open globe injury who presented to Japan-Clinical Research of Study (J-CREST) hospitals between 2005 and 2015 was enrolled. Clinical information including age, sex, initial visual acuity, final visual acuity, type of injury, status of the crystalline lens, zone of injury, wound length, presence of retinal detachment, proliferative vitreoretinopathy, expulsive hemorrhage, and endophthalmitis was recorded.

RESULTS: A total of 374 eyes were enrolled, of which 120 (32.1%) suffered from fall-related injury with average age of 73.7 ± 15.9 years (range, 11-101 years). A majority of patients were female (55.8%). Of 120 patients with fall-related injury, 109 (90.8%) presented with rupture and 11 (9.2%) with laceration. A multiple regression analysis revealed that final visual acuity was significantly associated with initial visual acuity ($r = 0.99$, $P < 0.001$). Compared to non-fall-related open globe injuries, fall-related open globe injuries were associated with elderly age, female sex, poorer initial and final visual acuity, rupture, absence of the lens, larger wound size, retinal detachment, expulsive hemorrhage, and absence of endophthalmitis ($P < 0.01$).

CONCLUSIONS: Fall-related open globe injuries were more frequent in elderly female and accompanied by larger wound lengths and severer ocular complications. Visual outcomes in patients with fall-related open globe injuries were related to initial visual acuity.

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Comparative effectiveness of published interventions for elderly fall prevention: a systematic review and network meta-analysis

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Int. J. Environ. Res. Public Health 2018; 15(3): e15030498.

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DOI 10.3390/ijerph15030498 **PMID** 29534531

Abstract

BACKGROUND: Falls are a major threat to older adults worldwide. Although various effective interventions have been developed, their comparative effectiveness remains unreported.

METHODS: A systematic review and network meta-analysis was conducted to determine the most effective interventions to prevent falls in community-dwelling adults aged 60 and over. Combined odds ratio (OR) and 95% credible interval (95% CrI) were calculated.

RESULTS: A total of 49 trials involving 27,740 participants and 9271 fallers were included. Compared to usual care, multifactorial interventions (MFI) demonstrated the greatest efficacy (OR: 0.64, 95% CrI: 0.53 to 0.77) followed by interventions combining education and exercise (EDU + EXC) (OR: 0.65, 95% CrI: 0.38 to 1.00) and interventions combining exercise and hazard assessment and modification (EXC + HAM) (OR: 0.66, 95% CrI: 0.40 to 1.04). The effect of medical care performed the worst (OR: 1.02, 95% CrI: 0.78 to 1.34). Model fit was good, inconsistency was low, and publication bias was considered absent. The overall quality of included trials was high. The pooled odds ratios and ranking probabilities remained relatively stable across all sensitivity analyses.

CONCLUSIONS: MFI and exercise appear to be effective to reduce falls among older adults, and should be considered first as service delivery options. Further investigation is necessary to verify effectiveness and suitability of the strategies to at-risk populations.

PDF Y Endnote Y

Does local dynamic stability during unperturbed walking predict the response to balance perturbations? An examination across age and falls history

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DOI 10.1016/j.gaitpost.2018.03.011 **PMID** 29529517

Abstract

BACKGROUND: Older adults are at an exceptionally high risk of falls, and most falls occur during locomotor activities such as walking. Reduced local dynamic stability in old age is often interpreted to suggest a lessened capacity to respond to more significant balance challenges encountered during walking and future falls risk. However, it remains unclear whether local dynamic stability during normal, unperturbed walking predicts the response to larger external balance disturbances.

RESEARCH QUESTION: We tested the hypothesis that larger values of local dynamic instability during unperturbed walking would positively correlate with larger changes thereof due to optical flow balance perturbations.

METHODS: We used trunk kinematics collected in subjects across a spectrum of walking balance integrity - young adults, older non-fallers, and older fallers - during walking with and without mediolateral optical flow perturbations of four different amplitudes.

RESULTS: We first found evidence that optical flow perturbations of sufficient amplitude appear capable of revealing independent effects of aging and falls history that are not otherwise apparent during normal, unperturbed walking. We also reject our primary hypothesis; a significant negative correlation only in young adults indicated that individuals with more local dynamic instability during normal, unperturbed walking exhibited smaller responses to optical flow perturbations. In contrast, most prominently in older fallers, the response to optical flow perturbations appeared independent of their baseline level of dynamic instability.

SIGNIFICANCE: We propose that predicting the response to balance perturbations in older fallers, at least that measured using local dynamic stability, likely requires measuring that response directly.

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Drugs with anticholinergic potential and risk of falls with hip fracture in the elderly patients: a case-control study

Machado-Duque ME, Castaño-Montoya JP, Medina-Morales DA, Castro-Rodríguez A, González-Montoya A, Machado-Alba JE.

J. Geriatr. Psychiatry Neurol. 2018; ePub(ePub): ePub.

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DOI 10.1177/0891988718757370 **PMID**29528764

Abstract

BACKGROUND/OBJECTIVE: To determine the association between the use of anticholinergic drugs and the risk of falls with hip fracture in a population older than 60 years.

METHODS: A case-control study in patients older than 60 years with a diagnosis of hip fracture. All drugs dispensed during the previous 30 days were identified. Sociodemographic, clinical, pharmacological (drugs according to the Anticholinergic Risk Scale [ARS]), and polypharmacy variables were analyzed. **MEASUREMENTS:** Falls with hip fracture and type of drug according to the ARS.

RESULTS: A total of 300 patients with hip fracture and 600 controls were included. The mean age was 81.6 ± 8.9 years, with female predominance (71.3%). The use of drugs with moderate (odds ratio [OR]: 1.97, 95% confidence interval [CI]: 1.19-3.27) or high ARS scores (OR: 1.83, 95% CI: 1.13-2.96) increased the probability of fracture.

CONCLUSIONS: There was an association between the use of drugs with anticholinergic properties and the probability of hip fracture in elderly patients and it was possible to establish the level of risk.

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Dynapenia and sarcopenia as a risk factor for disability in a falls and fractures clinic in older persons

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Open Access Maced. J. Med. Sci 2018; 6(2): 344-349.

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DOI 10.3889/oamjms.2018.087 **PMID** 29531601 **PMCID** PMC5839445

Abstract

BACKGROUND: The role of sarcopenia and dynapenia in disability in older persons from falls and bone health clinics remain unknown.

AIM: This study aims to compare the association of sarcopenia and dynapenia with physical and instrumental disability in a population of older persons attending a falls and fractures clinic.

METHODS: This is a cross-sectional study in Manizales, Andes Mountains, Colombia. A cohort of 534 subjects (mean age = 74, 75% female) Sarcopenia was measured according to the European Working Group on Sarcopenia in Older People (EWGSOP) including an index of skeletal mass, muscle strength, and gait speed. Dynapenia was defined as a handgrip force ≤ 30 kg for men and ≤ 20 kg for women.

RESULTS: Dynapenia and sarcopenia were present in 84.6% and 71.2% respectively. Both were more prevalent in older subjects and women than men. While sarcopenia was associated with body mass index and hypertension, dynapenia was associated with hypothyroidism and visual impairment.

After controlling for all covariates, sarcopenia was associated with low IADL and mobility disability.

CONCLUSIONS: Sarcopenia was associated with mobility, ADL and IADL disability. Dynapenia was not associated with disability in this high - risk population. Systematic assessment of sarcopenia should be implemented in falls and fractures clinics to identify sarcopenia and develop interventions to prevent functional decline among elderly individuals.

PDF Y Endnote Y

Effect of balance training in older adults using Wii fit plus

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J. Pak. Med. Assoc. 2018; 68(3): 480-483.

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(Copyright © 2018, Pakistan Medical Association)

DOI unavailable **PMID** 29540893

Abstract

The Nintendo Wii-fit plus is a type of Virtual Reality exer-gaming with graphical and auditory response system. A case series was conducted at Shifa Tamer-e-Millat University Islamabad from January-July 2016. Sixteen adults more than 60 years age (07 males and 09 females) were recruited through convenient sampling. The specified Wii fit plus training was provided to all patients and the games included the Soccer heading, Ski slalom, table tilt and yoga. Berg balance test, time up and go and functional reach test were used before and after 06 weeks of treatment (4 days / week). Data was analysed by SPSS V-20. The mean age of the sample was 67.56 ± 7.29 years, with 56% female and 44% males were in sample. There was a statistically significant difference in pre and post Berg Balance Score, time up and go test and functional reach. In this case series Wii-fit plus training was effective in improving dynamic balance and mobility in older adults. This should be explored further in large trials.

PDF Y Endnote Y

Exploring the mediating role of social support and fall efficacy on the association of falls on physical activity: a cross-sectional study in an assisted-living population

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J. Aging Phys. Act. 2018; ePub(ePub): ePub.

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DOI 10.1123/japa.2017-0378 **PMID** 29543104

Abstract

Mobility restriction as a consequence of a fall is a major issue in assisted living facilities. Although many factors are related to falling, little is known about the relationship between falls, social support, falls efficacy, and physical activity. We examined the relationship between falls and the Social-Support-Questionnaire, the Activities-specific Balance Confidence scale, and physical activity simultaneously in 81 older adults (66-94 years) using structural equation modeling (SEM). The SEM model revealed that being older was associated with lower falls efficacy and a higher number of falls. Similarly, a higher number of falls was related to lower social support, and higher falls efficacy to a higher number of steps per day. The development of a SEM illustrating the mediating effects of social support and falls efficacy on the relationship between falls and physical activity helps healthcare professionals in predicting risk factors of falls that can be compromised by residing in an assisted living facility.

PDF Y Endnote Y

Falls and depression in octogenarians - life and living in advanced age: a cohort study in New Zealand

Atlas A, Kerse N, Rolleston A, Teh R, Bacon C.

J. Prim. Health Care 2017; 9(4): 311-315.

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(Copyright © 2017, Royal New Zealand College of General Practitioners)

DOI 10.1071/HC17012 **PMID** 29530143

Abstract

INTRODUCTION Falls and injury have the most devastating consequences for very old people. Depression may be a significant cause and consequence of falls. **AIM** To examine the association between falls and depression in octogenarians.

METHODS LiLACS NZ (Life and Living in Advanced Age: A Cohort Study in New Zealand), cohort study data of Māori (aged 80-90 years, 11-year age band) and non-Māori (aged 85 years, 1-year age band) followed for 3 years was used to describe the incidence and prevalence of falls and depression. Falls by self-report were accumulated over 3 years. Geriatric depression score (GDS) was ascertained at baseline.

RESULTS Over 3 years, fewer Māori (47%) than non-Māori (57%) fell; 19% of non-Māori and 20% of Māori scored 5+ (depressed) on the GDS. For non-Māori and Māori, people with depression were more likely to fall than Māori not diagnosed with depression (OR 2.72, CI 1.65-4.48 for non-Māori and OR 2.01, CI 1.25-3.25 for Māori). This remained significant, adjusted for age and sex. Depression was a significant predictor of hospitalisations from falls for Māori (OR 5.59, CI 2.4-12.72, adjusted for

age and sex) and non-Māori (OR 4.21, 2.3-7.44, adjusted for sex).

CONCLUSION Depression and falls are common and co-exist in octogenarians. GPs thinking about falls should also think about depression and vice versa.

PDF Y Endnote Y

Have outcomes improved in trauma patients age 90 years and older over the past decade: experience at a level II trauma center

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

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(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.amjsurg.2018.02.025 **PMID** 29551473

Abstract

INTRODUCTION: Managing trauma in the elderly is challenging and requires a multidisciplinary team approach. The aim of this study is to characterize and compare outcomes in patients 90 years and older in the last two decades.

METHODS: Retrospective review of trauma patients 90 years and older admitted from 1996 to 2015. The patients were divided into two groups: Early Decade (ED) and Late Decade (LD).

RESULTS: A total of 1697 patients were recorded, 551 (ED) and 1146 (LD). The mean age was $92.92 \pm 8(90-108)$ [ED] and $92.9 \pm 2.7(90-105)$ [LD] years. The most common mechanism and type of injury was falls and extremity trauma. Hospital length of stay (LOS) was shorter in the LD. There was no significant difference in in-hospital mortality or ICU LOS.

CONCLUSION: Trauma admission has increased in the last decade. However, in-hospital mortality remains low. It is important for multidisciplinary teams to allocate resources to treat this elderly population.

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Incidence and circumstances of falls in women before and after total hip arthroplasty: a prospective cohort study

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J. Arthroplasty 2018; ePub(ePub): ePub.

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(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.arth.2018.02.006 **PMID** 29526333

Abstract

BACKGROUND: We investigated the incidence and circumstances related to falls in patients before and after total hip arthroplasty (THA), and compared them with those in an age-matched control group.

METHODS: This is a prospective cohort study. A total of 140 women with severe hip osteoarthritis (OA) who underwent THA (OA group) and a control cohort of 319 age-matched healthy women were analyzed. We investigated the incidence and circumstances of falls before THA and during the first

year after surgery. We assessed the Harris Hip Score and investigated hip pain and ambulatory ability using a self-administered questionnaire.

RESULTS: The incidence of at least one fall during the first year after THA in the OA group (30.0%) was significantly higher than that in the control group (13.5%) ($P < .001$), as were the rates of indoor falls (50.0%) and falls during daytime (66.2%). Although the incidence of fall-induced injuries after THA (37.8%) was significantly lower than that in the control group (62.5%), 5.9% of patients who experienced a fall developed a fracture. No significant differences were found in the number and circumstances of falls before and after THA, with 31.4% and 30.0% of the OA group reporting at least one fall in the 12 months before and after surgery, respectively. Self-reported pain, ambulation, and Harris Hip Score significantly improved after THA.

CONCLUSION: Women undergoing THA have an increased risk of falls during the first year after surgery. Clinicians should suggest preventive measures during rehabilitation to prevent falling in post-THA women.

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PDF Y Endnote Y

Increased hospice enrollment and decreased neurosurgical interventions without changes in mortality for older Medicare patients with moderate to severe traumatic brain injury

Enumah S, Lilley EJ, Nitzschke S, Haider AH, Salim A, Cooper Z.

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

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(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.amjsurg.2018.02.028 **PMID** 29534816

Abstract

BACKGROUND: Hospice improves quality and value of end of life care (EOLC), and enrollment has increased for older patients dying from chronic medical conditions. It remains unknown if the same is true for older patients who die after moderate to severe traumatic brain injury (msTBI).

METHODS: Subjects included Medicare beneficiaries (≥ 65 years) who were hospitalized for msTBI from 2005 to 2011. Outcomes included intensity and quality of EOLC for decedents within 30 days of admission, and 30-day mortality for the entire cohort. Logistic regression was used to analyze the association between year of admission, mortality, and EOLC.

RESULTS: Among 50,342 older adults, 30-day mortality was 61.2%. Mortality was unchanged over the study period (aOR 0.93 [0.87-1.00], $p = 0.06$). Additionally, 30-day non-survivors had greater odds of hospice enrollment, lower odds of undergoing neurosurgery, but greater odds of gastrostomy.

CONCLUSION: Between 2005 and 2011, hospice enrollment increased, but there was no change in 30-day mortality.

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PDF Y Endnote Y

Intraindividual variability of neuromotor function predicts falls risk in older adults and those with type 2 diabetes

Morrison S, Newell KM.

J. Mot. Behav. 2018; ePub(ePub): ePub.

Affiliation: Department of Kinesiology , University of Georgia , Athens , GA.

(Copyright © 2018, Informa - Taylor and Francis Group)

DOI 10.1080/00222895.2018.1440524 **PMID** 29537941

Abstract

This study was designed to examine the effect of increasing age and type 2 diabetes on the average responses and inter- and intraindividual variability of falls risk, reaction time, strength, and walking speed for healthy older adults and older persons with type 2 diabetes (T2DM). Seventy-five older individuals (controls) and 75 persons with T2DM aged between 50 and 79 years participated in the study. Assessments of falls risk, reaction time (RT), knee extension strength, and walking speed were conducted. The results revealed that advancing age for both control and T2DM groups was reflected by a progressive increase in falls risk, decreased leg strength and a decline (i.e., slowing) of reactions and gait speed. Conversely, the level of intraindividual variability for the RT, strength and gait measures increased with increasing age for both groups, with T2DM persons tending to be more variable compared to the healthy controls of similar age. In contrast to the intraindividual changes, measures of interindividual variability revealed few differences between the healthy elderly and T2DM individuals. Taken together, the findings support the proposition that intraindividual variability of neuromotor measures may be useful as a biomarker for the early detection of decline in physiological function due to age or disease.

PDF Y Endnote Y**Leisure-time physical activity and sedentary behaviour in older people: the influence of sport involvement on behaviour patterns in later life**

Gayman AM, Fraser-Thomas J, Spinney JEL, Stone RC, Baker J.

AIMS Public Health 2017; 4(2): 171-188.

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(Copyright © 2017, American Institute of Mathematical Sciences Press)

DOI 10.3934/publichealth.2017.2.171 **PMID** 29546211 **PMCID** PMC5689803

Abstract

Given the dramatic demographic change underway in most industrialized nations, the health of older adults is a major concern, particularly given the prevalence of sedentary behaviours and physical inactivity among ageing populations. Researchers have suggested sport participation in later life promotes other health-related behaviours, however, these relationships are poorly understood. It is possible for individuals to be classified as sufficiently active and still spend most of their day involved in sedentary pursuits. Moreover, there is little information on older sport participants' use of time compared to leisurely active or inactive peers and whether type of physical activity involvement is associated with differences in older adults' behaviour patterns. With this in mind, data from 1,723 respondents (65 years and older) who completed the sport module of the 2010 Canadian General Social Survey-Time Use were used to investigate the influence of physical activity

involvement (competitive sport vs. non-competitive sport vs. physically active leisure vs. inactivity) on time spent in leisure-time physical activity and sedentary behaviours.

RESULTS indicated that competitive sport participants spent less time engaging in sedentary behaviours compared to the physically active leisure or inactive respondents; however, sport participants (both competitive and non-competitive) also spent less time engaging in leisure-time physical activities than the physically active leisure group. Implications of these findings to assumptions related to the activity levels of older sport participants, suggestions for future research, and considerations for sport-related interventions aimed at enhancing health in older adulthood are discussed.

PDF Y Endnote Y

Loneliness and social isolation among older adults in a community exercise program: a qualitative study

Hwang J, Wang L, Siever J, Medico TD, Jones CA.

Aging Ment. Health 2018; ePub(ePub): ePub.

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(Copyright © 2018, Informa - Taylor and Francis Group)

DOI 10.1080/13607863.2018.1450835 **PMID** 29543517

Abstract

OBJECTIVES: Loneliness and social isolation (L&SI) are associated with physical and cognitive decline in older adults. Walk 'n' Talk for your Life (WTL) is a community-based program of socialization, health education, falls prevention exercise and walking for community-dwelling older adults. This qualitative study was done to gain further insight into the experience and impacts of the WTL on seniors' L&SI.

METHODS: One-on-one semi-structured interviews were conducted with sixteen participants who had completed the WTL. Interview questions focused on eliciting a better understanding of how the WTL impacted participants' feelings of L&SI. Content analysis was used to classify the qualitative data.

RESULTS: This qualitative evaluation helped to obtain a richer understanding of WTL participants' reasons for loneliness and the benefits of the program on participants' experience of L&SI. Participants felt WTL helped motivate them to socialize and reduced their feelings of loneliness by providing a sense of 'belonging' which appeared to be mediated by the group exercise/walking component of the program.

DISCUSSION/CONCLUSIONS: This study provides insight into participants' experiences of L&SI. Further research in a broader population of older adults is mandated to determine the efficacy of community exercise programs in reducing L&SI.

PDF Y Endnote Y

Natural turn measures predict recurrent falls in community-dwelling older adults: a longitudinal cohort study

Leach JM, Mellone S, Palumbo P, Bandinelli S, Chiari L.

Sci. Rep. 2018; 8(1): e4316.

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DOI 10.1038/s41598-018-22492-6 **PMID** 29531284

Abstract

Although turning has been reported as one of the leading activities performed during a fall, and falls during turning result in 8-times more hip fractures than falls during linear gait, the quantity and quality of turns resulting in falls remain unknown since turns are rarely assessed during activities of daily living. 160 community-dwelling older adults were monitored for one week using smartphone technology. Turn measures and activity rates were quantified. Fall incidence within 12 months from continuous monitoring defined fall status, with 7/153 prospective fallers/non-fallers. Based on the analysis of 718,582 turns, prospective fallers turned less frequently, took longer to turn, and were less consistent in turn angle ($p = 0.007, 0.025, \text{ and } 0.038$, respectively). Prospective fallers also walked slower and spent less time walking and turning and more time engaged in sedentary behavior ($p = 0.043, 0.012, \text{ and } 0.015$, respectively). Individuals experiencing decline in the control of gait and/or turning may attempt to reduce their risk of falling by limiting their exposure and implementing cautionary movement strategies while turning. Since there was no difference in the overall active rate between prospective fallers and non-fallers, impaired gait and turning ability, specifically, may attribute to elevated fall risk within this cohort.

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Physical activity level and risk of falling in community-dwelling older adults: systematic review and meta-analysis

Soares WJS, Lopes AD, Nogueira E, Candido V, Moraes SA, Perracini MR.

J. Aging Phys. Act. 2018; ePub(ePub): ePub.

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DOI 10.1123/japa.2017-0413 **PMID** 29543113

Abstract

This systematic review examines the association between physical activity (PA) level and risk of falling in community-dwelling older adults. A search of PubMed, Embase, CINAHL, Sport Discus, and Web of Science was performed in January 2017. Four prospective cohort studies investigating the incidence of falls in a period of at least 12 months and its association with the level of PA in people 60-plus years old were reviewed and pooled for meta-analysis. The pooled risk ratio for being a recurrent faller (2,420 participants) was 39% higher among those who were in the lowest PA level ($RR = 1.39$ 95% CI [1.17 - 1.65]; $I^2 = 0\%$, $p = 0.43$; $p < 0.001$). The association between being a faller (7,927 participants) and PA level was inconclusive. This review identified that the benefit of general physical activity for preventing falls is associated with the adopted PA level.

PDF Y Endnote Y

**Primary care providers' discussion of fall prevention approaches with their older adult patients-
DocStyles, 2014**

Burns ER, Haddad YK, Parker EM.

Prev. Med. Rep. 2018; 9: 149-152.

Affiliation: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA, USA.

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DOI 10.1016/j.pmedr.2018.01.016 **PMID** 29527468 **PMCID** PMC5840836

Abstract

Falls are the leading cause of fatal and non-fatal injuries among older adults. The American and British Geriatric Societies recommend a fall risk assessment to identify risk factors and guide interventions to prevent these falls. This study describes the self-reported discussion of fall prevention approaches used by primary care providers (PCPs)-family practitioners, internists and nurse practitioners-who treat older adults.

RESULTS are described overall and by PCP type. We analyzed a sample of 1210 U.S. PCPs who participated in the 2014 DocStyles survey. PCPs reported on their recommendation of fall prevention approaches including general exercise, Tai Chi, medication adjustments, home safety modifications, vitamin D supplements, assistive devices, alarm systems, and referral to physical therapy, foot specialist, or vision specialist. Frequencies and adjusted odds ratios for fall prevention approaches were assessed by provider and practice characteristics. Self-reported discussion of any fall prevention approaches was 89.3%. Controlling for provider and practice characteristics, there were significant differences for some approaches by provider type. Family practitioners were more likely to suggest home modification [adjusted Odds Ratio: 1.8 (1.3-2.4)], exercise [aOR: 2.0 (1.5-2.5)], and Tai Chi [aOR: 1.5 (1.0-2.2)] than internists. Nurse practitioners were more likely to suggest home modification [aOR: 2.1 (1.3-3.4)] and less likely to suggest vitamin D [aOR: 0.6 (0.4-1.0)] than internists. Fall prevention suggestions vary by type of PCP. Dissemination of geriatric guidelines should include all PCPs who routinely see older adults.

PDF Y Endnote Y

Rehabilitation utilization for falls among community-dwelling older adults in the United States in the National Health and Aging Trends Study

Moreland BL, Durbin LL, Kasper JD, Mielenz TJ.

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

Affiliation: Columbia University Mailman School of Public Health, Department of Epidemiology, New York, NY.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.apmr.2018.02.009 **PMID** 29545001

Abstract

OBJECTIVES: To determine the characteristics of community-dwelling older adults receiving fall-related rehabilitation. Injurious falls cost billions of dollars each year in the United States and these costs are expected to rise. Fall-related rehabilitation can presumably decrease this burden. More needs to be known about the characteristics of older adults utilizing fall-related rehabilitation services.

DESIGN: Cross-sectional analysis of the fifth round (2015) of the National Health and Aging Trends Study (NHATS). Fall-related rehabilitation utilization was analyzed using weighted multinomial logistic regression with standard errors adjusted for the sample design.

SETTING: In-person interviews of a nationally representative sample of community-dwelling older adults.

PARTICIPANTS: 7,062 Medicare beneficiaries from NHATS.

INTERVENTIONS: Not Applicable

MAIN OUTCOMES MEASURES: Rehabilitation utilization categorized into fall-related rehabilitation, other rehabilitation, or no rehabilitation.

RESULTS: Fall status (single fall OR=2.96, CI: 1.52, 5.77; recurrent falls OR=14.21, CI: 7.45, 27.10), fear of falling (OR=3.11, CI: 1.90, 5.08), poor Short Physical Performance Battery scores (score 0 OR=6.62, CI: 3.31, 13.24; score 1-4 OR=4.65, CI: 2.23, 9.68) and hip fracture (OR=3.24 CI: 1.46, 7.20) were all associated with receiving fall-related rehabilitation. Lower education level (less than high school diploma compared to 4-year college degree OR=0.21, CI: 0.11, 0.40) and Hispanic ethnicity (OR=0.37, CI: 0.15, 0.87) were associated with not receiving fall-related rehabilitation.

CONCLUSION: Hispanic older adults and older adults who are less educated are less likely to receive fall related rehabilitation. Recurrent fallers followed by those who fell once in the past year were more likely to receive fall related rehabilitation than are older adults who have not had a fall in the past year.

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PDF Y Endnote Y

Retention of gait stability improvements over 1.5 years in older adults: effects of perturbation exposure and triceps surae neuromuscular exercise

Epro G, Mierau A, McCrum C, Leyendecker M, Brüggemann GP, Karamanidis K.

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

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(Copyright © 2018, American Physiological Society)

DOI 10.1152/jn.00513.2017 **PMID** 29537914

Abstract

The plantar flexors play a crucial role in recovery from sudden disturbances to gait. The objective of this study was to investigate whether medium (months) or long-term (years) exercise-induced enhancement of triceps surae (TS) neuromuscular capacities affects older adults' ability to retain improvements in reactive gait stability during perturbed walking acquired from perturbation training sessions. Thirty-four female adults (65±7y) were recruited to a perturbation training group (n=13) or a group which additionally completed 14 weeks of TS neuromuscular exercise (n=21), 12 of whom continued with the exercise for 1.5 years. The margin of stability (MoS) was analyzed at touchdown of the perturbed step and first recovery step following eight separate unexpected trip perturbations during treadmill walking. TS muscle-tendon unit mechanical properties and motor skill performance were assessed using ultrasonography and dynamometry. Two perturbation training sessions (baseline and after 14w) caused an improvement in the reactive gait stability to the perturbations (increased MoS) in both groups. The perturbation training group

retained the reactive gait stability improvements acquired over 14 weeks and over 1.5 years, with a minor decay over time. Despite the improvements in TS capacities in the additional exercise group, no benefits for the reactive gait stability following perturbations were identified. Therefore, older adults' neuromotor system shows rapid plasticity to repeated unexpected perturbations and an ability to retain these adaptations in reactive gait stability over a long time period, but an additional exercise-related enhancement of TS capacities seems not to further improve these effects.

PDF Y Endnote Y

Review: In older adults, exercise alone and some combination interventions reduce injurious falls vs usual care

Hall WJ.

Ann. Intern Med. 2018; 168(6): JC27.

(Copyright © 2018, American College of Physicians)

DOI 10.7326/ACPJC-2018-168-6-027 PMID 29554665

Abstract [Abstract unavailable]

PDF Y Endnote Y

Sensory-challenge balance exercises improve multisensory reweighting in fall-prone older adults

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J. Neurol. Phys. Ther. 2018; 42(2): 84-93.

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(Copyright © 2018, Neurology Section, American Physical Therapy Association)

DOI 10.1097/NPT.0000000000000214 PMID 29547483

Abstract

BACKGROUND AND PURPOSE: Multisensory reweighting (MSR) deficits in older adults contribute to fall risk. Sensory-challenge balance exercises may have value for addressing the MSR deficits in fall-prone older adults. The purpose of this study was to examine the effect of sensory-challenge balance exercises on MSR and clinical balance measures in fall-prone older adults.

METHODS: We used a quasi-experimental, repeated-measures, within-subjects design. Older adults with a history of falls underwent an 8-week baseline (control) period. This was followed by an 8-week intervention period that included 16 sensory-challenge balance exercise sessions performed with computerized balance training equipment. Measurements, taken twice before and once after intervention, included laboratory measures of MSR (center of mass gain and phase, position, and velocity variability) and clinical tests (Activities-specific Balance Confidence Scale, Berg Balance Scale, Sensory Organization Test, Limits of Stability test, and lower extremity strength and range of motion).

RESULTS: Twenty adults 70 years of age and older with a history of falls completed all 16 sessions. Significant improvements were observed in laboratory-based MSR measures of touch gain ($P = 0.006$) and phase ($P = 0.05$), Berg Balance Scale ($P = 0.002$), Sensory Organization Test ($P = 0.002$), Limits of Stability Test ($P = 0.001$), and lower extremity strength scores ($P = 0.005$). Mean values of

vision gain increased more than those for touch gain, but did not reach significance.

DISCUSSION AND CONCLUSIONS: A balance exercise program specifically targeting multisensory integration mechanisms improved MSR, balance, and lower extremity strength in this mechanistic study. These valuable findings provide the scientific rationale for sensory-challenge balance exercise to improve perception of body position and motion in space and potential reduction in fall risk.

PDF N Endnote Y

Serum DHEA and its sulfate are associated with incident fall risk in older men - the MrOS Sweden Study

Ohlsson C, Nethander M, Karlsson MK, Rosengren BE, Ribom E, Mellström D, Vandenput L.
J. Bone Miner. Res. 2018; ePub(ePub): ePub.

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(Copyright © 2018, American Society for Bone and Mineral Research)

DOI 10.1002/jbmr.3418 **PMID** 29528519

Abstract

The adrenal-derived hormones dehydroepiandrosterone (DHEA) and its sulfate (DHEAS) are the most abundant circulating hormones and their levels decline substantially with age. Many of the actions of DHEAS are considered to be mediated through metabolism into androgens and estrogens in peripheral target tissues. The predictive value of serum DHEA and DHEAS for the likelihood of falling is unknown. The aim of this study was, therefore, to assess the associations between baseline DHEA and DHEAS levels and incident fall risk in a large cohort of older men. Serum DHEA and DHEAS levels were analyzed with mass spectrometry in the population-based Osteoporotic Fractures in Men study in Sweden (n = 2516, age 69-81 years). Falls were ascertained every 4 months by mailed questionnaires. Associations between steroid hormones and falls were estimated by generalized estimating equations. During a mean follow-up of 2.7 years, 968 (38.5%) participants experienced a fall. High serum levels of both DHEA (odds ratio [OR] per SD increase 0.85, 95% CI 0.78-0.92) and DHEAS (OR 0.88, 95% CI 0.81-0.95) were associated with a lower incident fall risk in models adjusted for age, BMI and prevalent falls. Further adjustment for serum sex steroids or age-related comorbidities only marginally attenuated the associations between DHEA or DHEAS and the likelihood of falling. Moreover, the point estimates for DHEA and DHEAS were only slightly reduced after adjustment for lean mass and/or grip strength. Also, the addition of the narrow walk test did not substantially alter the associations between serum DHEA or DHEAS and fall risk. Finally, the association with incident fall risk remained significant for DHEA but not for DHEAS after simultaneous adjustment for lean mass, grip strength, and the narrow walk test. This suggests that the associations between DHEA and DHEAS and falls are only partially mediated via muscle mass, muscle strength, and/or balance. In conclusion, older men with high DHEA or DHEAS levels have a lesser likelihood of a fall. This article is protected by copyright. All rights reserved.

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PDF Y Endnote Y

Social frailty leads to the development of physical frailty among physically non-frail adults: a four-year follow-up longitudinal cohort study

Makizako H, Shimada H, Doi T, Tsutsumimoto K, Hotta R, Nakakubo S, Makino K, Lee S.

Int. J. Environ. Res. Public Health 2018; 15(3): e15030490.

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DOI 10.3390/ijerph15030490 **PMID** 29534470

Abstract

Social frailty domains may play an important role in preventing physical decline and disability. The aim of this study is to examine the impact of social frailty as a risk factor for the future development of physical frailty among community-dwelling older adults who are not yet physically frail. A total of 1226 physically non-frail older adults were analyzed to provide a baseline. Participants completed a longitudinal assessment of their physical frailty 48 months later. Their baseline social frailty was determined based on their responses to five questions, which identified participants who went out less frequently, rarely visited friends, felt less like helping friends or family, lived alone and did not talk to another person every day. Participants with none of these characteristics were considered not to be socially frail; those with one characteristic were considered socially pre-frail; and those with two or more characteristics were considered socially frail. At the four-year follow-up assessment, 24 participants (2.0%) had developed physical frailty and 440 (35.9%) had developed physical pre-frailty. The rates of developing physical frailty and pre-frailty were 1.6% and 34.2%, respectively, in the socially non-frail group; 2.4% and 38.8%, respectively, in the socially pre-frail group; and 6.8% and 54.5%, respectively, in the socially frail group. Participants classified as socially frail at the baseline had an increased risk of developing physical frailty, compared with participants who were not socially frail (OR = 3.93, 95% CI = 1.02-15.15). Participants who were socially frail at the baseline also had an increased risk of developing physical pre-frailty (OR = 2.50, 95% CI = 1.30-4.80). Among independent community-dwelling older adults who are not physically frail, those who are socially frail may be at greater risk of developing physical frailty in the near future. Social frailty may precede (and lead to the development of) physical frailty.

PDF Y Endnote Y**Socio-demographic correlates of physical activity among European older people**

Peralta M, Martins J, Guedes DP, Sarmiento H, Marques A.

Eur. J. Ageing 2018; 15(1): 5-13.

Affiliation: Centro de Investigação em Saúde Pública, Escola Nacional de Saúde Pública, Universidade NOVA de Lisboa, Lisbon, Portugal.

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DOI 10.1007/s10433-017-0430-7 **PMID** 29531510 **PMCID** PMC5840091

Abstract

From a public health perspective, identifying factors related to attaining the physical activity (PA) recommendations is important in order to identify subgroups for intervention programs. The aim of this study is to identify the socio-demographic correlates of attaining the recommended levels of PA in the older European population. Using data from the European Social Survey round 6, PA and

socio-demographic characteristics were collected from 10,148 participants (4556 men, 5592 women), aged 65 years and over, from 28 countries in 2012. PA was assessed using the question "On how many of the last seven days did you walk quickly, do sports, or other PA for 30 min or longer?" and meeting PA guidelines was assessed using World Health Organization criteria. Overall, 59.7% of the participants attained the PA-recommended levels. The likelihood of attaining PA recommendations was higher among older people with higher education levels ($p < 0.05$; $p < 0.01$; $p < 0.001$). Men who lived in a town or small city ($p < 0.05$) and lived in a rural area ($p < 0.001$) were more likely to attain the PA recommendations. Women who lived with a partner were more likely to attain the PA recommendations ($p < 0.001$). Promotion of PA is critical to health among older people; therefore, intervention programs must consider these socio-demographic factors when planning an increase in PA.

PDF Y Endnote Y

Walking balance is mediated by muscle strength and bone mineral density in postmenopausal women: an observational study

Ibeneme SC, Ekanem C, Ezuma A, Iloanusi N, Lasebikan NN, Lasebikan OA, Oboh OE.

BMC Musculoskelet. Disord. 2018; 19(1): e84.

Affiliation: Department of Radiotherapy, University of Benin Teaching Hospital, Benin, Edo, Nigeria. (Copyright © 2018, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1186/s12891-018-2000-3 **PMID** 29544536

Abstract

BACKGROUND: Depletion of ovarian hormone in postmenopausal women has been associated with changes in the locomotor apparatus that may compromise walking function including muscle atrophy/weakness, weight gain, and bone demineralization. Therefore, handgrip strength (HGS), bone mineral density (BMD) and body composition [percentage body fat mass (%BFM), fat mass (FM), Fat-free mass (FFM) and body mass index (BMI)], may significantly vary and predict WB in postmenopausal women. Consequently, the study sought to 1. Explore body composition, BMD and muscle strength differences between premenopausal and postmenopausal women and 2. Explore how these variables [i.e., body composition, BMD and muscle strength] relate to WB in postmenopausal women.

METHOD: Fifty-one pre-menopausal (35.74 ± 1.52) and 50 postmenopausal (53.32 ± 2.28) women were selected by convenience sampling and studied. Six explanatory variables (HGS, BMD, %BFM, FFM, BMI and FM) were explored to predict WB in postmenopausal women: Data collected were analyzed using multiple linear regression, ANCOVA, independent t-test and Pearson correlation coefficient at $p < 0.05$.

RESULT: Postmenopausal women had higher BMI ($t = + 1.72$; $p = 0.04$), %BFM ($t = + 2.77$; $p = .003$), FM ($t = + 1.77$; $p = 0.04$) and lower HGS ($t = - 3.05$; $p = 0.001$), compared to the premenopausal women. The predicted main effect of age on HGS was not significant, $F(1, 197) = 0.03$, $p = 0.06$, likewise the interaction between age and %BFM, $F(1, 197) = 0.02$, $p = 0.89$; unlike the predicted main effect of %BFM, $F(1, 197) = 10.34$, $p = .002$, on HGS. HGS was the highest predictor of WB ($t = 2.203$; $\beta = 0.3046$) in postmenopausal women and combined with T-score right big toe (Tscore_{rt}) to produce $R^2 = 0.11$; $F(2, 47) = 4.11$; $p = 0.02$ as the best fit for the predictive model. The variance (R^2) change was significant from HGS model ($R^2 = 0.09$; $p = 0.03$) to HGS + Tscore_{rt} model ($R^2 = 0.11$; $p = 0.02$). The

regression model equation was therefore given as: $WB = 5.4805 + 0.1578(HGS) + (- 1.3532) Tscore$.
CONCLUSION: There are differences in body composition suggesting re-compartmentalization of the body, which may adversely impact the (HGS) muscle strength in postmenopausal women. Muscle strength and BMD are associated with WB, although, only contribute to a marginal amount of the variance for WB. Therefore, other factors in addition to musculoskeletal health are necessary to mitigate fall risk in postmenopausal women.

PDF Y Endnote Y

Fall incidence and associated risk factors among people with a lower limb amputation during various stages of recovery - a systematic review

Steinberg N, Gottlieb A, Siev-Ner I, Plotnik M.

Disabil. Rehabil. 2018; ePub(ePub): ePub.

Affiliation: Sagol School of Neuroscience , Tel Aviv University , Tel Aviv , Israel.

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DOI 10.1080/09638288.2018.1449258 **PMID** 29540083

Abstract

PURPOSE: The objective of this study was to estimate fall incidence and describe associated risk factors among people with a lower limb amputation (LLA) during various stages of recovery: the surgical ward, in-patient rehabilitation and return to community life.

MATERIALS AND METHODS: A systematic search of relevant English language articles was performed using PubMed and EMBASE. Out of 310 initial "hits," six retrospective cohort studies, one prospective cohort study and eleven cross-sectional studies from which fall incidence and risk factors could be extracted, were selected for critical review. Fall incidence and associated risk factors were extracted and analyzed in the context of various clinical stages of recovery after amputation. The studies were evaluated for quality using the "Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies." **RESULTS:** Results showed that during all stages of recovery, people with a LLA are at increased risk of falling compared with able-bodied individuals, as well as other clinical populations. Each stage of recovery is associated with different fall risk factors. The current review is limited mainly by the paucity of studies on the topic.

CONCLUSIONS: Specialised care focusing on the most relevant risk factors for each stage of recovery may enhance fall prevention during post-fall recovery.

Implications for rehabilitation:

- People with a lower limb amputation are at a high risk of falling in all stages of their clinical course.
- Health professionals should be aware that people with a lower limb amputation in the first 4 years of amputation or with four or more health-related problems are at an increased risk.
- Health professionals should also be aware that increased gait variability, excess confidence in balance and walking abilities and less cautious stair walking, impose an elevated risk of falling and should focus their efforts in reducing these factors.

PDF Y Endnote Y

Reply to letter regarding "The effect of hearing aids and cochlear implants on balance during gait"

Weaver TS, Shayman CS, Hullar TE.

Otol. Neurotol. 2018; 39(4): 519-520.**Affiliation:** Department of Otolaryngology-Head and Neck Surgery, Oregon Health & Science University, Portland, Oregon.

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DOI 10.1097/MAO.0000000000001739 **PMID** 29533343**Abstract** [Abstract unavailable]**PDF Y Endnote Y****Response to Weaver TS, Shayman CS, Huller TE. The effect of hearing aids and cochlear implants on balance during gait. *Otol neurotol* 2017;38: 1327-1332**

Hallemans A, Herssens N, Mertens G, Van de Heyning P, Van Rompaey V.

Otol. Neurotol. 2018; 39(4): 518-519.**Affiliation** Rehabilitation Sciences and Physiotherapy, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium Multidisciplinary Motor Center Antwerp, University of Antwerp, Antwerp, Belgium Translational Neurosciences, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium Department of Otorhinolaryngology, Antwerp University Hospital, Edegem, Belgium Multidisciplinary Motor Center Antwerp, University of Antwerp, Antwerp, Belgium Translational Neurosciences, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium Department of Otorhinolaryngology, Antwerp University Hospital, Edegem, Belgium Translational Neurosciences, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium Department of Otorhinolaryngology, Antwerp University Hospital, Edegem, Belgium.

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DOI 10.1097/MAO.0000000000001738 **PMID** 29533342**Abstract** [Abstract unavailable]**PDF Y Endnote Y****Six hours of task-oriented training optimizes walking competency post stroke: a randomized controlled trial in the public health-care system of South Africa**

Knox M, Stewart A, Richards CL.

Clin. Rehabil. 2018; ePub(ePub): ePub.**Affiliation:** Department of Rehabilitation and Centre for Interdisciplinary Research in Rehabilitation and Social Integration, Université Laval, Quebec City, QC, Canada.

(Copyright © 2018, Sage Publications)

DOI 10.1177/0269215518763969 **PMID**29529870**Abstract**

OBJECTIVE: To evaluate a minimal dose intervention of six 1-hour sessions of task-oriented circuit gait training including a caregiver over a 12-week period to persons post stroke in the South African public health sector.

DESIGN: Stratified, single blinded, randomized controlled trial with three intervention groups.

PARTICIPANTS: Persons post stroke (n = 144, mean age 50 years, 72 women), mean 9.5 weeks post stroke.

INTERVENTIONS: Task group (n = 51)-accompanied by a caregiver; task-oriented circuit gait training (to improve strength, balance, and task performance while standing and walking). Strength group (n = 45); strength training of lower extremities while sitting and lying. Control group (n = 48); one 90-minute educational session on stroke management.

MEASURES: The six-minute walk test (6MinWT) was the primary outcome; the secondary outcomes included comfortable and fast gait speeds, Berg Balance Scale (BBS), and Timed Up and Go (TUG). Participants evaluated at baseline, post intervention (12 weeks), and at follow-up 12 weeks later. Change scores were compared using generalized repeated measures analysis of variance (ANOVA).

RESULTS: Task group change scores for all outcomes post intervention and at follow-up were improved compared to the other groups (P-values between 0.000005 and 0.04). The change scores (mean, 1SD) between baseline and follow-up for the Task, Strength, and Control groups, respectively, were as follows: 6MinWT:119.52 m (81.92), 81.05 m (79.53), and 60.99 m (68.38); comfortable speed 0.35 m/s (0.23), 0.24 m/s (0.22), and 0.19 m/s (0.21); BBS: 9.94 (7.72), 6.93 (6.01), and 5.19 (4.80); and TUG: -14.24 seconds (16.86), -6.49 seconds (9.88), and -5.65 seconds (8.10).

CONCLUSION: Results support the efficacy of a minimal dose task-oriented circuit training program with caregiver help to enhance locomotor recovery and walking competency in these persons with stroke.

PDF Y Endnote Y

Weather conditions and their effect on seasonality of incident osteoporotic hip fracture

Mazzucchelli R, Crespí-Villarías N, Pérez-Fernández E, Durbán Reguera ML, Guzón Illescas O, Quirós J, García-Vadillo A, Carmona L, Rodríguez-Caravaca G, Gil de Miguel A.

Arch. Osteoporos. 2018; 13(1): e28.

Affiliation: Department of Preventive Medicine and Public Health, Universidad Rey Juan Carlos, Madrid, Spain.

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DOI 10.1007/s11657-018-0438-4 **PMID** 29546463

Abstract

Our aim was to analyze the seasonality and the effect of weather conditions on the incidence of osteoporotic hip fracture in a Southern European region.

INTRODUCTION: The objective of this work is to evaluate seasonality and the effect of weather conditions on the incidence of osteoporotic hip fracture in a Southern European region.

METHODS: This retrospective cohort study included all patients admitted to Alcorcón Foundation University Hospital with a diagnosis of osteoporotic hip fracture between the years 1999 and 2015. In a time series analysis, we examined the association between hip fracture incidence and different weather conditions and seasonality using general additive models (with Poisson distribution). The incidence rate ratio (IRR) crude and adjusted by season was estimated for all parameters. Hip incidence was further analyzed by sex and age (below or over 75) subgroups.

RESULTS: Four thousand two hundred seventy-one patients with an osteoporotic hip fracture were included (79% females, mean age 83.8). Season fracture rate was significantly higher in fall and

winter (67.06 and 64.41 fractures/season) compared to summer and spring (59.71 and 60.06; $p < 0,001$). Hip fracture incidence was 15% greater in autumn and winter than in spring and summer. Fog [IRR 1.15 (95% CI: 1.003-1.33)], atmospheric pressure (per 100 mb) [IRR 1.05 (95% CI: 1.004-1.114)], and frost [IRR 1.15 (95% CI: 1.03-1.30)] were significantly associated with increased hip fracture. Haze [IRR 1.10 (95% CI: 0.99-1.23)] showed a trend without statistical significance. Daily average temperature (per 5 °C) [IRR 0.98 (95% CI: 0.957-0.996)], rain (per 10 ml) [IRR 0.99 (95% CI: 0.981-1.0)], wind speed [IRR = 0.952, (95% CI: 0.907-0.998)], and daily ultraviolet radiation (per 100 joules) [IRR 0.998 (95% CI: 0.996-1.0)] were negatively associated with fracture. After adjusting by season and trend, all these associations disappear.

CONCLUSIONS: In this Southern region, hip fracture incidence exhibits a seasonal pattern different from those communicated in Northern regions. There is short-term association with different weather conditions that partly explain this seasonal pattern.

PDF Y Endnote Y

Yoga improves quality of life and fall risk-factors in a sample of people with chronic pain and Type 2 Diabetes

Schmid AA, Adler KE, Malcolm MP, Grimm LA, Klindinst TC, Marchant DR, Marchant TP, Portz JD. *Complement. Ther. Clin. Pract.* 2018; ePub(ePub): ePub.

Affiliation: Colorado State University, School of Social Work, University of Colorado School of Medicine, United States.

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DOI 10.1016/j.ctcp.2018.01.003 **PMID** 29526474

Abstract

OBJECTIVE: Assess pre to-post outcomes for people with chronic pain and Type 2 Diabetes Mellitus (T2DM) randomized to an 8-week yoga intervention or usual care.

METHODS: Participants were included if they self-reported: chronic pain; T2DM; >18 years old; no exercise restrictions or consistent yoga; and consented to the study.

RESULTS: After yoga, there were significant improvements in: Brief Pain Inventory pain interference (49 ± 15.00 vs. 41.25 ± 19.46 , $p = .034$); Fullerton Advanced Balance scale (14.2 ± 14.1 vs. 20.4 ± 13.5 , $p = .03$); upper extremity strength (7.7 ± 6.3 vs. 10.8 ± 6.5 , $p = .02$); lower extremity strength (4.1 ± 3.8 vs. 6.7 ± 4.8 , $p = .02$); and RAND 36-item Health Survey quality of life scores (81.1 ± 7.7 vs. 91.9 ± 8.9 , $p = .04$). Balance scores became significantly worse during the 8 weeks for people randomized to the control (27.1 ± 9.9 vs. 21.7 ± 13.4 , $p = .01$).

CONCLUSION: Data from this small RCT indicates yoga may be therapeutic and may improve multiple outcomes in this seemingly at-risk population. **CLINICAL TRIALS NUMBER:** NCT03010878.

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