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A pilot randomized controlled trial of the effects of chair yoga on pain and physical function among community-dwelling older adults with lower extremity osteoarthritis

Park J, McCaffrey R, Newman D, Liehr P, Ouslander JG.

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Abstract

OBJECTIVES: To determine effects of Sit 'N' Fit Chair Yoga, compared to a Health Education program (HEP), on pain and physical function in older adults with lower extremity osteoarthritis (OA) who could not participate in standing exercise.

DESIGN: Two-arm randomized controlled trial.

SETTING: One HUD senior housing facility and one day senior center in south Florida.

PARTICIPANTS: Community-dwelling older adults (N = 131) were randomly assigned to chair yoga (n = 66) or HEP (n = 65). Thirteen dropped after assignment but prior to the intervention; six dropped during the intervention; 106 of 112 completed at least 12 of 16 sessions (95% retention rate).

INTERVENTIONS: Participants attended either chair yoga or HEP. Both interventions consisted of twice-weekly 45-minute sessions for 8 weeks.

MEASUREMENTS: Primary: pain, pain interference; secondary: balance, gait speed, fatigue, functional ability measured at baseline, after 4 weeks of intervention, at the end of the 8-week intervention, and post-intervention (1 and 3 months).

RESULTS: The chair yoga group showed greater reduction in pain interference during the intervention (P = .01), sustained through 3 months (P = .022). WOMAC pain (P = .048), gait speed (P = .024), and fatigue (P = .037) were improved in the yoga group during the intervention (P = .048) but improvements were not sustained post intervention. Chair yoga had no effect on balance.

CONCLUSION: An 8-week chair yoga program was associated with reduction in pain, pain interference, and fatigue, and improvement in gait speed, but only the effects on pain interference were sustained 3 months post intervention. Chair yoga should be further explored as a nonpharmacologic intervention for older people with OA in the lower extremities.

Trial Registration: ClinicalTrials.gov: NCT02113410.

PDF Y Endnote Y

Association between serum vitamin B12 level and frailty in older adults

Dokuzlar O, Soysal P, Isik AT.

North. Clin. Istanb. 2017; 4(1): 22-28.

Affiliation: Center for Aging Brain and Dementia, Department of Geriatric Medicine, Dokuz Eylul University Faculty of Medicine, Izmir, Turkey.

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Abstract

OBJECTIVE: Frailty is associated with recurrent falls, fractures, limitation of daily living activities, cognitive impairment, increase in hospitalization, placement in nursing home, and mortality rate in older adults. Although malnutrition is one of the most important etiological factors, role of micronutrients is unclear. The aim of this study was to investigate association between frailty and

vitamin B12, which has been demonstrated to be related to numerous geriatric syndromes.

METHODS: Total of 335 patients who presented at geriatric outpatient clinic and underwent comprehensive geriatric assessment were included in this study. All patients were evaluated with both Fatigue, Resistance, Ambulation, Illnesses, and Loss of Weight (FRAIL) scale and Fried criteria for frailty. Vitamin B12 deficiency was defined as serum vitamin B12 level of less than 400 pg/mL.

RESULTS: In total of 335 patients, 88 (26.3%) were assessed as frail, 156 (46.6%) were prefrail, and 91 (27.2%) were robust. When the 3 groups were compared, it was found that patients in frail group had highest average age and lowest education level ($p < 0.001$) and that complaints of urinary incontinence, balance disorders, recurrent falls, sleep disorders, amnesia, chronic pain, and constipation were more frequent in this group ($p < 0.05$). Albumin and 25-hydroxy vitamin D levels decreased as frailty level increased ($p < 0.05$), but no association between vitamin B12 levels and frailty was found. Patients were divided into 2 groups: vitamin B12 level above and below 400 pg/mL. Groups were then compared in terms of subparameters of both the FRAIL and Fried criteria, and no significant difference between groups was found ($p > 0.05$).

CONCLUSION: Results of this study determined no association between vitamin B12 level and frailty in geriatric population; however, longitudinal studies are needed to clarify relationship.

PDF Y Endnote Y

Association between visual impairment and low vision and sleep duration and quality among older adults in South Africa

Peltzer K, Phaswana-Mafuya N.

Int. J. Environ. Res. Public Health 2017; 14(7): e14070811.

Affiliation: Department of Social Work, University of Limpopo, Sovenga 0727, South Africa.

nphaswanamafuya@hsrc.ac.za.

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Abstract

This study aims to estimate the association between visual impairment and low vision and sleep duration and poor sleep quality in a national sample of older adults in South Africa. A national population-based cross-sectional Study of Global Ageing and Adults Health (SAGE) wave 1 was conducted in 2008 with a sample of 3840 individuals aged 50 years or older in South Africa. The interviewer-administered questionnaire assessed socio-demographic characteristics, health variables, sleep duration, quality, visual impairment, and vision.

RESULTS indicate that 10.0% of the sample reported short sleep duration (≤ 5 h), 46.6% long sleep (≥ 9 h), 9.3% poor sleep quality, 8.4% self-reported and visual impairment (near and/or far vision); and 43.2% measured low vision (near and/or far vision) (0.01-0.25 decimal) and 7.5% low vision (0.01-0.125 decimal). In fully adjusted logistic regression models, self-reported visual impairment was associated with short sleep duration and poor sleep quality, separately and together. Low vision was only associated with long sleep duration and poor sleep quality in unadjusted models. Self-reported visual impairment was related to both short sleep duration and poor sleep quality. Population data on sleep patterns may want to include visual impairment measures.

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Characteristics of disability in activity of daily living in elderly people associated with locomotive disorders

Iwaya T, Doi T, Seichi A, Hoshino Y, Ogata T, Akai M. *BMC Geriatr.* 2017; 17(1): e165.

Affiliation International University of Health and Welfare, 4F, Aoyama 1-Chome Tower, 1-3-3 Minami-Aoyama, Minato-ku, Tokyo, 107-0062, Japan. akai-masami@iuhw.ac.jp.

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Abstract

BACKGROUND: Ageing is associated with a decline of motor function and ability to perform daily activities. Locomotive disorders are one of the major disorders resulting in adverse health condition in elderly people. Concept of Locomotive syndrome (LoS) was proposed to tackle the problems and prolong healthy life expectancy of people with locomotive disorders. To develop intervention strategy for LoS it is mandatory to investigate impairments, functional disabilities which people with locomotive disorder experience and to examine relationships among these parameters. For this purpose we have developed Geriatric Locomotive Function Scale-25 (GLFS-25). Though several physical performance tests were reported for identification or monitoring the severity of LoS, there are few studies reported on characteristics of disability which people with locomotive disorders experience. The aim of this study was to report the characteristics of ADL disabilities in elderly people with locomotive disorders in terms of numbers and degree of activity limitations.

METHODS: We organized a cohort study and recruited 314 participants aged 65 years and over from five orthopedic clinics or nursing care facilities. This was a cross-sectional study to use the baseline data of such cohort. ADL disabilities were assessed using GLFS-25 scale arranging the GLFS-25 scores in ordinal levels using "R language" program. Numbers and degrees of activity limitations were determined and compared among the levels. Frequency of limitation in activities regarding social activity, housework, locomotion, mobility and self-care was compared among across the disability level.

RESULTS: The GLFS-25 score was mathematically categorized into 7 levels. The number of activity limitations and the degrees of each activity limitation were significantly greater in high GLFS-25 levels than in low levels. Difficulties in mobility appeared in less severe level, difficulties in domestic and social life appeared in moderately severe level, and difficulties in self-care appeared in advanced level.

CONCLUSIONS: High GLFS-25 score represented high degree of disability on ADLs. Concordant increase of numbers of activity limitation and severity progression in activity limitation may contribute to progression of disability. Activity limitation may occur in the following order: sports activity, walking, transferring, and self-care.

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Distress associated with dementia-related psychosis and agitation in relation to healthcare utilization and costs

Maust DT, Kales HC, McCammon RJ, Blow FC, Leggett A, Langa KM.

Am. J. Geriatr. Psychiatry 2017; ePub(ePub): ePub.

Affiliation: Department of Psychiatry, University of Michigan, Ann Arbor, MI; Institute for Healthcare Policy and Innovation, University of Michigan, Ann Arbor, MI; Department of Medicine, University of Michigan, Ann Arbor, MI; Institute for Social Research, University of Michigan, Ann

Arbor, MI; Center for Clinical Management Research, VA Ann Arbor Healthcare System, Ann Arbor, MI.

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Abstract

OBJECTIVES: Explore the relationship between behavioral and psychological symptoms of dementia (BPSD; specifically, delusions, hallucinations, and agitation/aggression) and associated caregiver distress with emergency department (ED) utilization, inpatient hospitalization, and expenditures for direct medical care.

DESIGN/SETTING/PARTICIPANTS: Retrospective cross-sectional cohort of participants with dementia (N = 332) and informants from the Aging, Demographics, and Memory Study, a nationally representative survey of U.S. adults >70 years old.

MEASUREMENTS: BPSD of interest and associated informant distress (trichotomized as none/low/high) were assessed using the Neuropsychiatric Inventory (NPI). Outcomes were determined from one year of Medicare claims and examined according to presence of BPSD and associated informant distress, adjusting for participant demographics, dementia severity, and comorbidity.

RESULTS: Fifty-eight (15%) participants with dementia had clinically significant delusions, hallucinations, or agitation/aggression. ED visits, inpatient admissions, and costs were not significantly higher among the group with significant BPSD. In fully adjusted models, a high level of informant distress was associated with all outcomes: ED visit incident rate ratio (IRR) 3.03 (95% CI: 1.98-4.63; $p < 0.001$), hospitalization IRR 2.78 (95% CI: 1.73-4.46; $p < 0.001$), and relative cost ratio 2.00 (95% CI: 1.12-3.59; $p = 0.02$).

CONCLUSIONS: A high level of informant distress related to participant BPSD, rather than the symptoms themselves, was associated with increased healthcare utilization and costs. Effectively identifying, educating, and supporting distressed caregivers may help reduce excess healthcare utilization for the growing number of older adults with dementia.

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PDF Y Endnote Y

Effects of Pedalo(®) training on balance and fall risk in stroke patients

Kim DY, Lim CG.

J. Phys. Ther. Sci. 2017; 29(7): 1159-1162.

Affiliation: Department of Physical Therapy, College of Health Science, Gachon University, Republic of Korea.

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Abstract

PURPOSE: This study sought to examine the effects of Pedalo(®) training on balance and fall risk in stroke patients.

SUBJECTS AND METHODS: Thirty-one subjects with stroke were recruited and randomly allocated into two groups: the Pedalo(®) group (n=15) and the Treadmill group (n=16). The Pedalo(®) group performed conventional physical therapy program with Pedalo(®) training for 30 minutes, five times a week, for 8 weeks, while the Treadmill group conducted conventional physical therapy programs and treadmill gait training for 30 minutes, five times a week, for 8 weeks.

RESULTS: After intervention, both groups showed a significant improvement in balance. A significant greater balance improvement was found in the Pedalo[®] group compared to the Treadmill group. Also, a significant reduction in risk of fall was seen in both group but this reduction was not significantly different between the two groups.

CONCLUSION: Pedalo[®] training may be used to improve balance and reduce fall risk in stroke patients.

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Effects of traumatic brain injury and posttraumatic stress disorder on development of Alzheimer's disease in Vietnam Veterans using the Alzheimer's Disease Neuroimaging Initiative: Preliminary Report

Weiner MW, Harvey D, Hayes J, Landau SM, Aisen PS, Petersen RC, Tosun D, Veitch DP, Jack CR, Decarli C, Saykin AJ, Grafman J, Neylanthe TC.

Alzheimers Dement. (N Y) 2017; 3(2): 177-188.

Affiliation: Department of Psychiatry, University of California, San Francisco, CA, USA.

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Abstract

INTRODUCTION: Traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) have previously been reported to be associated with increased risk of Alzheimer's disease (AD). We are using biomarkers to study Vietnam Veterans with/without mild cognitive impairment with a history of at least one TBI and/or ongoing PTSD to determine whether these contribute to the development of AD.

METHODS: Potential subjects identified by Veterans Administration records underwent an initial telephone screen. Consented subjects underwent clinical evaluation, lumbar puncture, structural MRI and amyloid PET scans.

RESULTS: We observed worse cognitive functioning in PTSD and TBI + PTSD groups, worse global cognitive functioning in the PTSD group, lower superior parietal volume in the TBI + PTSD group, and lower amyloid positivity in the PTSD group, but not the TBI group compared to controls without TBI/PTSD. Medial temporal lobe atrophy was not increased in the PTSD and/or TBI groups.

DISCUSSION: Preliminary results do not indicate that TBI or PTSD increase the risk for AD measured by amyloid PET. Additional recruitment, longitudinal follow-up, and tau PET scans will provide more information in the future.

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Fall risk and function in older women after gynecologic surgery

Miller KL, Richter HE, Graybill CS, Neumayer LA.

Arch. Gerontol. Geriatr. 2017; 73: 37-42.

Affiliation: University of Utah, Department of Surgery, 30 North 1900 East, Salt Lake City, UT 84132, USA. Electronic address: lneumayer@surgery.arizona.edu.

(Copyright © 2017, Elsevier Publishing)

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Abstract

PURPOSE OF STUDY: To examine change in balance-related fall risk and daily functional abilities in the first 2 post-operative weeks and up to 6 weeks after gynecologic surgery.

MATERIALS AND METHODS: Prospective cohort study in gynecologic surgery patients age 65 and older. Balance confidence (Activities-specific Balance Confidence Scale) and functional status (basic and instrumental activities of daily living) were recorded pre- and post-operatively daily for 1 week and twice the second week. Physical performance balance and functional mobility were measured pre- and 1 week post-operatively using the Tinetti Fall Risk Scale, Timed Up and Go, and 6-Minute Walk test. Measures were repeated 6 weeks after surgery. Non-parametric tests for paired data were used comparing scores baseline to post-operative (POD) 7 and to POD 42.

RESULTS: Median age was 72 years (range 65-88). Fall risk was elevated during the first 2 post-operative weeks, greatest on the median discharge day, POD 2 ($p < 0.01$). Balance performance and functional mobility at 1 week were significantly lower than baseline ($p < 0.01$). Functional abilities declined, including new dependence in medication management at home in 22% of these independent and cognitively intact women.

CONCLUSIONS: After gynecologic surgery, older women's fall risk is highest on POD 2 and remains elevated from baseline for 2 weeks. Functional limitations in the early home recovery period include the anticipated (bathing, cooking, etc.) and some unanticipated (medication management) ones. This information may help with post-operative discharge planning.

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Frailty as a risk factor for falls among community dwelling people: evidence from a meta-analysis

Cheng MH, Chang SF.

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Affiliation: Professor, School of Nursing, College of Nursing, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan.

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Abstract

PURPOSE: This study was conducted to investigate the relationships between different frailty stages and the fall incidence rates of community-dwelling older adults. The differences between various frailty indicators regarding assessment accuracy of the fall incidence rates of community-dwelling elders were also analyzed. Finally, the relationship between frailty and recurrent falls was explored.

METHODS: This study comprised a systematic literature review and meta-analysis. Two researchers independently examined and extracted the related literature. The key search terms included frailty, frail, fall, older people, older, geriatric, and senior. The literature sampling period was from January 2001 to December 2016. The quality of each paper was assessed according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The databases of the Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and MEDLINE were used to conduct a systematic literature search by using the random effect mode to analyze the compiled papers.

FINDINGS: A total of 102,130 community-dwelling older adults ≥ 65 years of age and 33,503 older adults who had experienced a fall were compiled to investigate the relationship between frailty and falls. The meta-analysis results revealed that compared with robust older adults, frail older adults demonstrated the greatest risk for falls, followed by prefrail older adults. Furthermore, the use of different frailty indicators to predict the fall incidence rates of older adults yielded nonsignificantly

different outcomes. In short, studies of either cardiovascular health or osteoporotic fracture indicators are effective for predicting the risk for falls in older people. Finally, this study confirmed that compared with robust older adults, frail older adults were more likely to experience recurrent falls.

CONCLUSIONS: Frailty is a crucial healthcare topic of people with geriatric syndromes. Frail older adults are likely to experience recurrent falls. In addition, the evidence-based study indicated that once older people enter the prefrail stage, they are likely to experience falls. Therefore, older adults should be evaluated for the possibility of geriatric syndromes such as frailty, which may be addressed to reduce the risk for bone fractures and death. **CLINICAL RELEVANCE:** Professional nurses should use frailty assessment indicators as early as possible to evaluate the possibility of frailty in community-dwelling older people. Meanwhile, effective frailty prevention strategies should be applied to prevent frailty, thereby reducing the incidence of falls and enhancing older persons' quality of life.

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Identifying characteristics and outcomes that are associated with fall-related fatalities: multi-year retrospective summary of fall deaths in older adults from 2005-2012

Deprey SM, Biedrzycki L, Klenz K.

Inj. Epidemiol. 2017; 4(1): e21.

Affiliation: Waukesha County Medical Examiner's Office, Waukesha, 53188, USA.

(Copyright © 2017, The author(s), Publisher Springer Science+Business Media)

DOI 10.1186/s40621-017-0117-8 **PMID** 28736795

Abstract

BACKGROUND: Fall-related deaths continue to be the leading cause of accidental deaths in the older adult (65+ year) population. However, many fall-related fatalities are unspecified and little is known about the fall characteristics and personal demographics at the time of the fall. Therefore, this report describes the characteristics, circumstances and injuries of falls that resulted in older adult deaths in one U.S. County and explores the variables associated with fatal injuries from falls.

METHODS: This is a continued retrospective analysis of 841 older adults whose underlying cause of death was due to a fall over an 8-year period (2005-2012). Demographics and logistic regression of fall characteristics and injuries were analyzed.

RESULTS: Falls that led to death most often occurred when walking in one's own home. Most of the residents in this study were community-dwellers who had previous comorbidities taking an average of six medications prior to their fall. Survival after a fall was on average 31 days. The two most common injuries after a fatal fall were hip fractures (54%), and head injuries (21%). A logistic regression identified two variables associated with hip fracture, advancing age (OR = 1.05, 95% confidence interval [CI] = 1.02-1.08) and diagnosis of a prior neurological condition (OR = 2.1, 95% CI = 1.4-3.1). Variables associated with head injuries included younger age (OR = .91, 95% CI = .89-.94), male gender (OR = 2.5, 95% CI = 1.7-3.8), prescribed anticoagulants (OR = 2.4, 95% CI = 1.5-3.9) and negative musculoskeletal comorbidity (OR = 1.9, 95% CI = 1.1-3.0).

CONCLUSION: Hip fractures and head injuries were the most common injury after a fall that led to death in older adults greater than 65 years. There are opposing risk factors for older adults who incur a hip fracture compared to a head injury.

Thus, health professionals will need to individualize prevention efforts to reduce fall fatalities.

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Intervention to prevent falls: community-based clinics

Baker DI, Leo-Summers L, Murphy TE, Katz B, Capobianco BA.

J. Appl. Gerontol. 2017; ePub(ePub): ePub.

Affiliation: VNA Community Healthcare, Guilford, CT, USA.

(Copyright © 2017, Sage Publications)

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Abstract

PURPOSE: The purpose of this study was to document results of State funded fall prevention clinics on rates of self-reported falls and fall-related use of health services.

METHODS: Older adults participated in community-based fall prevention clinics providing individual assessments, interventions, and referrals to collaborating community providers. A pre-post design compares self-reported 6-month fall history and fall-related use of health care before and after clinic attendance.

RESULTS: Participants (N = 751) were predominantly female (82%) averaging 81 years of age reporting vision (75%) and mobility (57%) difficulties. Assessments revealed polypharmacy (54%), moderate- to high-risk mobility issues (39%), and postural hypotension (10%). Self-reported preclinic fall rates were 256/751(34%) and postclinic rates were 81/751 (10.8%), (p =.0001). Reported use of fall-related health services, including hospitalization, was also significantly lower after intervention.

IMPLICATIONS: Evidence-based assessments, risk-reducing recommendations, and referrals that include convenient exercise opportunities may reduce falls and utilization of health care services. Estimates regarding health care spending and policy are presented.

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Longitudinal association between subjective fatigue and future falls in community-dwelling older adults: the Locomotive Syndrome and Health Outcomes in the Aizu Cohort Study (LOHAS)

Kamitani T, Yamamoto Y, Kurita N, Yamazaki S, Fukuma S, Otani K, Sekiguchi M, Onishi Y, Takegami M, Ono R, Konno S, Kikuchi S, Fukuhara S.

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

Affiliation: Fukushima Medical University, Japan.

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Abstract

OBJECTIVE: We examined the longitudinal association between the severity of fatigue and falls in community-dwelling older adults.

METHOD: Subjective fatigue was assessed using the Short Form 36 Health Survey (SF-36) Vitality subscale and classified into four categories by quartile (mildest, mild, moderate, severe). The main outcome was the incidence of any falls during the 2-year follow-up period.

RESULTS: Of the 751 participants, 236 (31.4%) experienced falls during the 2-year period. In multivariable logistic regression analysis with adjustment for possible confounding factors, the adjusted odds ratios (and 95% confidence intervals) for mild, moderate, and severe categories (vs. mildest category) of 1.60 (0.94-2.75), 1.87 (1.12-3.11), and 2.15 (1.23-3.76), respectively (p for trend =.007).

DISCUSSION: Our results suggest that the severity of fatigue is associated with the risk of subsequent falls for community-dwelling older adults even after adjustment for possible confounding factors.

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Mobile monitoring of traumatic brain injury in older adults: challenges and opportunities

Irimia A, Wei S, Lu N, Moore CM, Kennedy DN.

Neuroinformatics 2017; ePub(ePub): ePub.

Affiliation: Eunice Kennedy Shriver Center & Department of Psychiatry, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA, 01605, USA.

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DOI 10.1007/s12021-017-9335-z **PMID** 28748392

Abstract [Abstract unavailable] Editorial

PDF Y Endnote Y

Older adults must hurry at pedestrian lights! A cross-sectional analysis of preferred and fast walking speed under single- and dual-task conditions

Eggenberger P, Tomovic S, Münzer T, de Bruin ED.

PLoS One 2017; 12(7): e0182180.

Affiliation: Centre for Evidence Based Physiotherapy, Maastricht University, Maastricht, Netherlands.

(Copyright © 2017, Public Library of Science)

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Abstract

Slow walking speed is strongly associated with adverse health outcomes, including cognitive impairment, in the older population. Moreover, adequate walking speed is crucial to maintain older pedestrians' mobility and safety in urban areas. This study aimed to identify the proportion of Swiss older adults that didn't reach 1.2 m/s, which reflects the requirements to cross streets within the green-yellow phase of pedestrian lights, when walking fast under cognitive challenge. A convenience sample, including 120 older women (65%) and men, was recruited from the community (88%) and from senior residences and divided into groups of 70-79 years ($n = 59$, 74.8 ± 0.4 y; mean \pm SD) and ≥ 80 years ($n = 61$, 85.5 ± 0.5 y). Steady state walking speed was assessed under single- and dual-task conditions at preferred and fast walking speed. Additionally, functional lower extremity strength (5-chair-rises test), subjective health rating, and retrospective estimates of fall frequency were recorded.

RESULTS showed that 35.6% of the younger and 73.8% of the older participants were not able to walk faster than 1.2 m/s under the fast dual-task walking condition. Fast dual-task walking speed was higher compared to the preferred speed single- and dual-task conditions (all $p < .05$, $r = .31$ to $.48$). Average preferred single-task walking speed was 1.19 ± 0.24 m/s (70-79 y) and 0.94 ± 0.27 m/s (≥ 80 y), respectively, and correlated with performance in the 5-chair-rises test ($r_s = -.49$, $p < .001$), subjective health ($\tau = .27$, $p < .001$), and fall frequency ($\tau = -.23$, $p = .002$). We conclude that the fitness status of many older people is inadequate to safely cross streets at pedestrian lights and maintain mobility in the community's daily life in urban areas. Consequently, training measures to improve the older population's cognitive and physical fitness should be promoted to enhance walking speed and safety of older pedestrians.

PDF Y Endnote Y

Physical activity level and fall risk among community-dwelling older adults

Low ST, Balaraman T.

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Affiliation Physiotherapy program, Faculty of Health and Life Sciences, INTI International University, Malaysia.

(Copyright © 2017, Society of Physical Therapy Science)

DOI 10.1589/jpts.29.1121 **PMID** 28744029 **PMCID** PMC5509573

Abstract

PURPOSE: To find the physical activity level and fall risk among the community-dwelling Malaysian older adults and determine the correlation between them.

SUBJECTS AND METHODS: A cross-sectional study was conducted in which, the physical activity level was evaluated using the Rapid Assessment of Physical Activity questionnaire and fall risk with Fall Risk Assessment Tool. Subjects recruited were 132 community-dwelling Malaysian older adults using the convenience sampling method.

RESULTS: The majority of the participants were under the category of under-active regular light-activities and most of them reported low fall risk. The statistical analysis using Fisher's exact test did not show a significant correlation between physical activity level and fall risk. [Conclusion] The majority of community-dwelling Malaysian older adults are performing some form of physical activity and in low fall risk category. But this study did not find any significant correlation between physical activity level and fall risk among community-dwelling older adults in Malaysia.

PDF Y Endnote Y

Postural balance and functional independence of elderly people according to gender and age: cross-sectional study

Nakagawa HB, Ferraresi JR, Prata MG, Scheicher ME.

Sao Paulo Med. J. 2017; 135(3): 260-265.

Affiliation: Department of Physiotherapy and Occupational Therapy, Universidade Estadual Paulista "Júlio de Mesquita Filho" (Unesp), Campus de Marília, Marília (SP), Brazil.

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DOI 10.1590/1516-3180.2016.0325280217 **PMID** 28746661

Abstract

CONTEXT AND OBJECTIVE:: Aging causes changes in men and women. Studies have shown that women have worse postural balance and greater functional dependence than men, but there is no consensus regarding this. The aim of this study was to compare the balance and functional independence of elderly people according to sex and age, and to evaluate the association between postural balance and the number of drugs taken. **DESIGN AND SETTING::** Cross-sectional at a state university.

METHODS:: 202 elderly people were evaluated regarding balance (Berg Scale), independence (Barthel Index), age, sex, number of medications and physical activity.

RESULTS:: The subjects comprised 117 women (70.2 ± 5.6 years old) and 85 men (71.1 ± 6.9 years old). For balance, there was no significant difference regarding sex, but there was a difference regarding age ($P < 0.0001$). For functional independence, there was a difference regarding sex ($P = 0.003$), but not regarding age. The variables of age, medications and physical activity were significant for predicting the Berg score. For the Barthel index, only age and sex were significant. Elderly people who took three or more medications/day showed higher risk of falling than those who took up two

drugs/day (odds ratio = 5.53, $P < 0.0001$, 95% confidence interval, 2.3-13.0).

CONCLUSIONS: There was no sexual difference in relation to postural balance. However, people who were more elderly presented a high risk of falling. Functional dependence was worse among females. There was an association between the number of medication drugs and risk of falling.

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Prediction of the incidence of falls and deaths among elderly nursing home residents: the SENIOR study

Buckinx F, Croisier JL, Reginster JY, Lenaerts C, Brunois T, Rygaert X, Petermans J, Bruyere O.
J. Am. Med. Dir. Assoc. 2017; ePub(ePub): ePub.

Affiliation: Department of Public Health, Epidemiology, and Health Economics, University of Liège, Liège, Belgium; Department of Sport and Rehabilitation Sciences, University of Liège, Liège, Belgium.
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Abstract

OBJECTIVE: The objective of this study was to evaluate, among nursing home residents, the extent to which the various operational definitions of frailty predict mortality and falls at 1 year.

METHODS: We studied 662 participants from the Sample of Elderly Nursing home Individuals: An Observational Research (SENIOR) cohort aged 83.2 ± 8.99 years, including 484 (72.5%) women and living in nursing homes. Among this cohort, 584 and 565 participants, respectively, were monitored over 12 months for mortality assessment and for occurrence of falls (ie, by mean of their medical records). Each patient was subjected to a clinical examination at baseline, during which many original clinical characteristics were collected. Stepwise regression analyses were carried out to predict mortality and falls.

RESULTS: Among the participants included in the study, 93 (15.9%) died and 211 (37.3%) experienced a fall during the 1-year of follow-up. After adjustment, none of the definitions of frailty assessed predicted the 1-year occurrence of negative health outcomes. When comparing the clinical characteristics of deceased participants and those still alive, being a man (OR = 1.89; 95% CI: 1.19-3.01; $P = .002$) and being diagnosed with sarcopenia (OR = 1.7; 95% CI: 1.1-2.92; $P = .03$) were independent factors associated with 1-year mortality. Other independent factors that were significantly associated with the 1-year occurrence of falls were the results obtained with the Tinetti test (OR = 0.93; 95% CI: 0.87-0.98; $P = .04$), with the grip strength test (OR = 0.95; 95% CI: 0.90-0.98, $P = .03$), and with the isometric strength test of elbow extensors (OR = 0.93; 95%CI: 0.87-0.97; $P = .04$).

CONCLUSIONS: Within the operational definitions of frailty assessed, none is sufficiently sensitive to predict the occurrence of falls and deaths at 1 year among nursing home residents. Globally, the frequency of undesirable health outcomes seems to be higher among participants with lower muscle strength and mobility. Medical strategy or adapted physical activity, with the aim of improving specific isometric muscle strength and mobility could potentially, but significantly, reduce the occurrence of falls and even deaths.

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Promoting older adult physical activity throughout care transitions using an interprofessional approach

Miller JM, Sabol VK, Pastva AM.

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Abstract

The nurse practitioner plays a key role in monitoring and improving physical activity and function of older adults. Physical activity is an essential component of care management for all older adults, even those who are frail with multimorbidities. All physical activity, no matter how small, has the potential to impact functional independence and quality of life. Partnering with the older adult and caregivers along with interprofessional providers, such as a physical therapist or occupational therapist and community-based resources, facilitates the development of successful goals and plans and the implementation of activities to promote physical activity across the continuum of care.

PDF Y Endnote Y

Psychomotor, functional, and cognitive profiles in older people with and without dementia: what connections?

Morais A, Santos S, Lebre P.

Dementia (Sage) 2017; ePub(ePub): ePub.

Affiliation: Department of Education, Social Sciences and Humanities, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal.

(Copyright © 2017, Sage Publications)

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Abstract

BACKGROUND: In typical aging, it is possible to observe a decline in psychomotor domains, such as balance or global and fine motor skills as well as a cognitive and functional decline. Although, it is not clear which psychomotor domains are mostly affected in elderly with dementia and the association with the cognitive and functional level.

OBJECTIVE: To identify the correlation between psychomotor, cognitive, and functional skills, and seeking whether there are differences among persons with and without dementia. Design and Methods A total of 120 persons with dementia (ages between 61 and 99 years old; mean age 80.6 ± 7.4) and 377 persons without dementia (ages between 60 and 99 years old; mean age 77.2 ± 8.7) were recruited from nursing homes, day-care centers, and home care. Consenting participants were assessed in psychomotor, cognitive, and functional domains using the Mini Mental State Examination (MMSE) to assess cognitive impairment, the Barthel Index (BI), and Lawton Index (LI) to identify basic and instrumental activities of daily living and a Portuguese Version of *Examen Geronto-Psychomoteur (P-EGP)* to evaluate psychomotor skills.

RESULTS: People with dementia showed a higher percentage of cognitive deficit and higher level of dependency in basic and instrumental activities of daily living. Further, findings also showed significant differences in psychomotor domains and total of P-EGP, with exception of Joint Mobilizations of Upper and Lower Limbs. There were moderate to strong correlations between the totals of the scales, and between the totals and domains.

CONCLUSIONS: The population with dementia has higher percentage of cognitive deficit, higher dependency on the performance of basic and instrumental activities of daily living and poorer

psychomotor performance, except in joint mobilizations. It was also possible to find strong correlations between the total of P-EGP and the total of cognitive and functional scales. Implications for future research and practice are discussed.

PDF Endnote

Reliability and validity of the sequential weight-shifting test: a new functional approach to the assessment of the sitting balance of older adults

Lee KYT, Hui-Chan CWY, Tsang WWN.

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Abstract

PURPOSE: The evaluation of sitting balance is important for the prevention of falls in older adults, especially those who have a disability involving the lower extremities. However, no studies have been designed to assess a patient's dynamic sitting balance using a sequential protocol. The objective of this study was to investigate the psychometric properties of the sequential weight-shifting (SWS) test.

SUBJECTS AND METHODS: Twenty-three older adults who were physically dependent with regard to ambulation were recruited by convenience sampling. In study 1, 10 participants performed the SWS test and repeated the procedure 1 week later. In study 2, 23 participants were assessed using the SWS test, forward and lateral reach tests in a sitting position, tests of shoulder flexor and hand grip strength, an eye-hand coordination test, mobility tests, and pulmonary function tests. The test-retest reliability of the SWS test and its correlations with the different physical dimensions were examined.

RESULTS: The intraclass correlation coefficient (3,1) of the SWS test was 0.67. The results of the SWS test correlated significantly with forward reach in the sitting position, arm muscle strength, eye-hand coordination, mobility, and pulmonary function (all $p < 0.05$).

CONCLUSION: The SWS test demonstrated satisfactory psychometric properties and can be considered a useful functional approach for the measurement of sitting balance.

PDF Y Endnote Y

Risk of injury higher in older adults with dementia than in those without

Lach HW.

Evid. Based Nurs. 2017; ePub(ePub): ePub.

Affiliation: School of Nursing, Saint Louis University, St. Louis, Missouri, USA.

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Abstract [Abstract unavailable]

PDF Y Endnote Y

Tai chi for risk of falls. A meta-analysis

Lomas-Vega R, Obrero-Gaitán E, Molina-Ortega FJ, Del-Pino-Casado R.

J. Am. Geriatr. Soc. 2017; ePub(ePub): ePub.

Affiliation: Department of Nursing, University of Jaén, Jaén, Spain.

(Copyright © 2017, John Wiley and Sons)

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Abstract

OBJECTIVES: To analyze the effectiveness of tai chi for falls prevention.

DESIGN: Systematic review and meta-analysis.

SETTING: Pubmed, Scopus, CINAHL, and Physiotherapy Evidence Database (PEDro) were searched to May 26, 2016.

PARTICIPANTS: Older adult population and at-risk adults. **INTERVENTION:** Randomized controlled trials analyzing the effect of tai chi versus other treatments on risk of falls. **MEASUREMENTS:** The incidence rate ratio (IRR) for falls incidence and hazard ratio (HR) for time to first fall.

RESULTS: The search strategy identified 891 potentially eligible studies, of which 10 met the inclusion criteria. There was high-quality evidence of a medium protective effect for fall incidence over the short term (IRR = 0.57; 95% CI = 0.46, 0.70) and a small protective effect over the long term (IRR = 0.87; 95% CI = 0.77, 0.98). Regarding injurious falls, we found very low-quality evidence of a medium protective effect over the short term (IRR = 0.50; 95% CI = 0.33, 0.74) and a small effect over the long term (IRR = 0.72; 95% CI = 0.54, 0.95). There was no effect on time to first fall, with moderate quality of evidence (HR = 0.98; 95% CI = 0.69, 1.37).

CONCLUSION: In at-risk adults and older adults, tai chi practice may reduce the rate of falls and injury-related falls over the short term (<12 months) by approximately 43% and 50%, respectively. Tai chi practice may not influence time to first fall in these populations. Due to the low quality of evidence, more studies investigating the effects of tai chi on injurious falls and time to first fall are required.

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PDF Y Endnote Y

The effects of occupation-centered activity program on fall-related factors and quality of life in patients with dementia

Kim KU, Kim SH, Oh HW.

J. Phys. Ther. Sci. 2017; 29(7): 1188-1191.

Affiliation: Department of Occupational Therapy, Woosuk University, Republic of Korea.

(Copyright © 2017, Society of Physical Therapy Science)

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Abstract

PURPOSE: The purpose of this study was to investigate the effects of an occupation-centered activity program for dementia patients living in a local community, and examined the effects of the occupation-centered activity program on their cognitive functions, fall-related factors, and quality of life.

SUBJECTS AND METHODS: Thirty subjects were divided into two groups: the experiment group (n=15) and the control group (n=15). The occupation-centered activity program was then applied to dementia patients for 60 minutes, 5 times/week for 12 weeks. To identify their cognitive functions before and after the intervention occupation-centered activity program, Mini-Mental State Examination-Korea (MMSE-K) and the Global Deterioration Scale (GDS) were used. To assess fall-related factors, Korean Falls Efficacy Scale for the Elderly (FES-K) was used and leg strength, agility, and balance of the participants was measured. To examine quality of life, the Korean version of Quality of Life-Alzheimer's Disease Scale (KQOL-AD) was used.

RESULTS: The results of the intervention showed that although cognitive function improved in both the experimental and control groups, fall-related factors and the quality of life significantly improved only in the experimental group. [Conclusion] This indicates that the occupation-centered activity program had a positive effect on dementia patients' cognitive functions, fall-related factors, and quality of life.

PDF Y Endnote Y

The relationship between physical function in the elderly and judgment error in walking speed

Sakamoto Y, Ohashi Y.

J. Phys. Ther. Sci. 2017; 29(7): 1176-1180.

Affiliation: Department of Physical Therapy, School of Healthcare, Ibaraki Prefectural University of Health Sciences, Japan.

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DOI 10.1589/jpts.29.1176 **PMID** 28744041 **PMCID** PMC5509585

Abstract

PURPOSE: "Judgment error," defined as a difference between the actual and the imagined performance, is often observed in elderly persons. The aims of this study were to assess subjective judgment errors in elderly persons, and to evaluate the relationship between physical function and judgment error in walking speed.

[**SUBJECTS AND METHODS:** A total of 106 community-dwelling elderly individuals participated.

Subjects observed video footage of a model walking an obstacle course, and were asked to subjectively compare the model's gait speed with their own gait speed. When the subjective comparison differed from the actual difference, it was considered as a judgment error. Physical function was compared between those with and without judgment error.

RESULTS: Significant interaction effects between the actual performance and subjective perception were found for the walking time on the obstacle course and the Activities-specific Balance Confidence Scale score (utilized as an index of self-confidence in own balance ability and a fear of falling).

CONCLUSION: The results demonstrate that some elderly persons tend to overestimate their balance and ambulation function compared to another person, even though they had low physical function and low self-confidence in terms of balance. These elderly individuals might have a high risk of accidents.

PDF Y Endnote Y

Validation and reliability of Falls Risk for Hospitalized Older People (FRHOP): Taiwan version

Chang YW, Chang YH, Pan YL, Kao TW, Kao S.

Medicine (Baltimore) 2017; 96(31): e7693.

Affiliation: Division of Geriatric Medicine, Tri-Service General Hospital Graduate Institute of Medical Science, Department of Nursing Department of Family Medicine, Tri-Service General Hospital, School of Public Health, Graduate Institute of Life Science, National Defense Medical Center, Taipei, Taiwan.

(Copyright © 2017, Lippincott Williams and Wilkins)

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Abstract

A comprehensive fall risk assessment can provide information for effective prevention and intervention measures and reduce falls among hospitalized elderly people. The purpose of this study was to develop a Chinese version of an inpatient fall risk assessment tool and evaluate its validity and reliability. This study employed the Falls Risk for Hospitalised Older People (FRHOP) assessment to construct a FRHOP-Taiwan Version (Tw-FRHOP) through forward, synthesized, and backward translation. A face validation was conducted by 5 clinical nurses and a content validation was conducted by 5 specialists using the content validity index (CVI) to validate the proposed model. Thirty hospitalized older adults in an internal care unit were selected for an interrater reliability assessment, conducted separately by specialists in 4 disciplines (i.e., nurses, physicians, occupational therapists, and physiotherapists) by using Cohen kappa statistic and intraclass correlation coefficients (ICCs). Specifically, the assessment rating developed in the Tw-FRHOP was compared with the Morse Fall Scale (MFS), St. Thomas Risk Assessment Tool in Falling Elderly Inpatients (STRATIFY), and the Hendrich II Fall Risk Model (HIIIFRM) for criterion validation. According to the analysis results, the CVI was 0.94, and the indexes of criterion-related validity for the FRHOP-Taiwan Version, MFS, STRATIFY, and HIIIFRM were 0.49, 0.63, and 0.54 (all $P < .001$), respectively. In addition, after interrater reliability testing was conducted, the results indicated that the index of response consistency in each discipline was 86.7% to 100%, and the values of Cohen kappa were 0.651 to 1.000. The ICCs of the discipline-related subscale were 0.97 to 1.00. The Tw-FRHOP is a multidisciplinary comprehensive fall risk assessment that can serve as a satisfactorily valid and reliable reference tool for medical personnel with full professional training, as well as inpatient fall prevention interventions for multidisciplinary teams in hospitals.

PDF Y Endnote Y

Yarning about fall prevention: community consultation to discuss falls and appropriate approaches to fall prevention with older Aboriginal and Torres Strait Islander people

Lukaszyc C, Coombes J, Turner NJ, Hillmann E, Keay L, Tiedemann A, Sherrington C, Ivers R.
BMC Public Health 2017; 18(1): e77.

Affiliation: School of Nursing and Midwifery, Flinders University, Sturt Rd, Bedford Park, SA, 5042, Australia.

(Copyright © 2017, BioMed Central)

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Abstract

BACKGROUND: Fall related injury is an emerging issue for older Indigenous people worldwide, yet few targeted fall prevention programs are currently available for Indigenous populations. In order to inform the development of a new Aboriginal-specific fall prevention program in Australia, we conducted community consultation with older Aboriginal people to identify perceptions and beliefs about falls, and to identify desired program elements.

METHODS: Yarning Circles were held with Aboriginal and Torres Strait Islander people aged 45 years and over. Each Yarning Circle was facilitated by an Aboriginal researcher who incorporated six indicative questions into each discussion. Questions explored the impact of falls on Yarning Circle participants, their current use of fall prevention services and investigated Yarning Circle participant's preferences regarding the design and mode of delivery of a fall prevention program.

RESULTS: A total of 76 older Aboriginal people participated in ten Yarning Circles across six sites in the state of New South Wales. Participants associated falls with physical disability, a loss of emotional well-being and loss of connection to family and community. Many participants did not use

existing fall prevention services due to a lack of availability in their area, having no referral provided by their GP and/or being unaware of fall prevention programs in general. Program elements identified as important by participants were that it be Aboriginal-specific, group-based, and on-going, with the flexibility to be tailored to specific communities, with free transport provided to and from the program.

CONCLUSIONS: Older Aboriginal people reported falls to be a priority health issue, with a significant impact on their health and well-being. Few older Aboriginal people accessed prevention programs, suggesting there is an important need for targeted Aboriginal-specific programs. A number of important program elements were identified which if incorporated into prevention programs, may help to address the rising burden of falls.

PDF Y Endnote Y

Evaluation of sensor technology to detect fall risk and prevent falls in acute care

Potter P, Allen K, Costantinou E, Klinkenberg WD, Malen J, Norris T, O'Connor E, Roney W, Tymkew HH, Wolf L.

Jt. Comm. J. Qual. Patient Saf. 2017; 43(8): 414-421.

(Copyright © 2017, Joint Commission on Accreditation of Healthcare Organizations)

DOI 10.1016/j.jcjq.2017.05.003 **PMID** 28738987

Abstract

BACKGROUND: Sensor technology that dynamically identifies hospitalized patients' fall risk and detects and alerts nurses of high-risk patients' early exits out of bed has potential for reducing fall rates and preventing patient harm. During Phase 1 (August 2014-January 2015) of a previously reported performance improvement project, an innovative depth sensor was evaluated on two inpatient medical units to study fall characteristics. In Phase 2 (April 2015-January 2016), a combined depth and bed sensor system designed to assign patient fall probability, detect patient bed exits, and subsequently prevent falls was evaluated.

METHODS: Fall detection depth sensors remained in place on two medicine units; bed sensors used to detect patient bed exits were added on only one of the medicine units. Fall rates and fall with injury rates were evaluated on both units.

RESULTS: During Phase 2, the designated evaluation unit had 14 falls, for a fall rate of 2.22 per 1,000 patient-days-a 54.1% reduction compared with the Phase 1 fall rate. The difference in rates from Phase 1 to Phase 2 was statistically significant ($z = 2.20$; $p = 0.0297$). The comparison medicine unit had 30 falls-a fall rate of 4.69 per 1,000 patient-days, representing a 57.9% increase as compared with Phase 1.

ONCLUSION: A fall detection sensor system affords a level of surveillance that standard fall alert systems do not have. Fall prevention remains a complex issue, but sensor technology is a viable fall prevention option.

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PDF Y Endnote Y

The critical phase for visual control of human walking over complex terrain

Matthis JS, Barton SL, Fajen BR.

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Affiliation: Cognitive Science Department, Rensselaer Polytechnic Institute, Troy, NY 12180.

(Copyright © 2017, National Academy of Sciences)

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Abstract

To walk efficiently over complex terrain, humans must use vision to tailor their gait to the upcoming ground surface without interfering with the exploitation of passive mechanical forces. We propose that walkers use visual information to initialize the mechanical state of the body before the beginning of each step so the resulting ballistic trajectory of the walker's center-of-mass will facilitate stepping on target footholds. Using a precision stepping task and synchronizing target visibility to the gait cycle, we empirically validated two predictions derived from this strategy: (1) Walkers must have information about upcoming footholds during the second half of the preceding step, and (2) foot placement is guided by information about the position of the target foothold relative to the preceding base of support. We conclude that active and passive modes of control work synergistically to allow walkers to negotiate complex terrain with efficiency, stability, and precision.

PDF Y Endnote Y

Toe grip strength in middle-aged individuals as a risk factor for falls

Tsuyuguchi R, Kurose S, Seto T, Takao N, Tagashira S, Tsutsumi H, Otsuki S, Kimura Y.
J. Sports Med. Phys. Fitness 2017; ePub(ePub): ePub.

Affiliation: Department of Medical Science, Kansai Medical University, Kansai, Japan.

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Abstract

BACKGROUND: Toe grip strength is the force of a toe on a surface. The objective of this study was to investigate the relationship between falls in middle-aged individuals and physical strength factors such as toe grip strength and knee extension strength.

METHODS: The subjects were 194 middle-aged individuals (388 feet) who were independent in daily life, received no nursing care, and participated in a health sports event organized by a sports club. We evaluated the body composition, blood pressure, vascular age, systemic response, bone density, knee extension strength, and toe grip strength, and examined their relationship using a self-administered questionnaire survey.

RESULTS: The fall, near-fall, and no fall groups included 7, 36, and 151 subjects, respectively; the high and low risk groups included 43 and 151 subjects, respectively. Logistic regression analysis was performed with risk of falls as the dependent variable, and factors that showed a significant difference in the comparison of the high and low risk groups as independent variables. In this analysis, toe grip strength and diastolic blood pressure were identified as independent risk factors for a fall.

CONCLUSIONS: Toe grip strength is an independent risk factor for falls, and improvement of toe grip strength might prevent falls.

PDF Endnote