Associations of low-intensity light physical activity with physical performance in community-dwelling elderly Japanese: a cross-sectional study

Izawa KP, Shibata A, Ishii K, Miyawaki R, Oka K.

Abstract

BACKGROUND: Physical activity and physical performance relate to quality of life, mortality, and morbidity in elderly people. However, little is known about differences in physical performance related to low-intensity light physical activity (LLPA), high-intensity light physical activity (HLPA), and moderate-intensity physical activity (MPA) and how they are separated by sex in elderly populations.
AIMS: This study aimed to determine differences in LLPA, HLPA, MPA, and physical performance, and associations between these measures in community-dwelling elderly men and women.
METHODS: Physical activity and physical performance such as timed-up-and-go test, one-leg standing time, and maximum gait speed were measured in 181 community-dwelling elderly men (mean age, 75.1 ± 5.3 years) and 109 women (mean age, 73.4 ± 4.8 years) in 2013. Physical activity was classified as LLPA (1.6~1.9 METs of physical activity), HLPA (2.0~2.9 METs of physical activity), and MPA (over 3 METs of physical activity). The association between the values of these three intensities of physical activity in the participants was assessed by Pearson's correlation coefficients. Multiple linear regression analyses were used to assess the association of physical performance values with the three groups defined by accelerometer-measured physical activity intensity adjusted for sociographic, behavioral, and multiple diseases in the participants.
RESULTS: MPA was beneficially associated with all physical performance indicators in the men (all P<0.05) and women (all P<0.05). Only HLPA showed significant associations with the timed-up-and-go test (P = 0.001) and maximum gait speed (P = 0.006) in women.
DISCUSSION: These results may support the notion that not only HLPA in women but MPA in both sexes appears to improve physical performance in elderly populations.
CONCLUSION: The present study findings provide novel epidemiological evidence for the potential benefits of HLPA in women and also reinforce the potential benefits of MPA in both sexes, which is the mainstay of public health recommendations.

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Characteristics of fall recurrence: results of the Malaysian Falls Assessment and Intervention Trial (MYFAIT)

Tan PJ, Tan MP.

Abstract

Few falls studies exist in Asian developing nations. Our aim is to determine the characteristics of fall recurrence in urban, community-dwelling older adults in Malaysia.
The Malaysian Falls Assessment and Intervention Trial (MyFAIT; ISRCTN11674947) is a randomised-controlled trial evaluating the effects of multifactorial interventions on individuals 65 years and older, with two or more falls or one injurious fall in the past 12 months. Participants with dementia were excluded. Participants randomised to the intervention group received individually-tailored interventions which comprised of Otago exercises, visual correction, footwear advice, medication review, home hazards assessment and cardiovascular intervention. Control group participants received conventional care and health education. At baseline, falls history was taken. Fall recurrence was monitored prospectively using monthly fall diaries for 12 months. Fall recurrence was also

assessed.

PDF Y Endnote Y

Development and examination of a functional reactive agility test for older adults

Sobolewski EJ, Thompson BJ, Conchola EC, Ryan ED.
Aging Clin. Exp. Res. 2017; ePub(ePub): ePub.
Affiliation: Neuromuscular Research Laboratory, Department of Exercise and Sport Science, University of North Carolina-Chapel Hill, 209 Fetzer Hall, CB# 8700, Chapel Hill, NC, 27599-8700, USA. edryan@email.unc.edu.
Abstract
BACKGROUND: Reactive agility tests have become popular in sport for talent identification; however, the ability of these tests to evaluate physical function and falls risk in clinical populations warrants future study.
AIM: To examine the reliability and construct validity of a novel functional reactive agility test (FRAT) across the lifespan.
METHODS: Forty-three young (24 ± 2 years), 32 middle-aged (50 ± 2 years), and 19 old (66 ± 4 years) men performed a FRAT that included a rapid lateral movement (1.5 m) in response to a randomly delayed visual stimulus. Test-retest reliability and minimum difference (MD) scores were determined from a subset of participants.
RESULTS: There was no systematic error (P > 0.087) between testing days, and the intraclass correlation coefficients, standard error of measurement (% of the mean), and MD values for decision time, movement time, and total time ranged from 0.876 to 0.949, 4.16-9.24%, and 0.128-0.138 s, respectively. The young men had faster decision times (P = 0.027) when compared to the older men and faster total times when compared to the middle-aged and older men (P < 0.001).
DISCUSSION: The FRAT demonstrated acceptable reliability and construct validity between different age groups.
CONCLUSION: Due to its limited space requirements, the FRAT may serve as a useful tool in future studies examining clinical populations.
PDF Y Endnote Y

Evaluation of a multidisciplinary exercise and educational programme for older people in a day hospital setting

Ray-Chaudhuri E, Khoshnaw H, Anderson S, Brown T, Kumar S.
Age Ageing 2017; 46(Suppl 1): i1-i22.
Abstract
Falls in the elderly is a major factor threatening the independence and usually occur when impairments in multiple domains compromise the compensatory ability of the individual. 30% people over the age of 65 are at a higher risk of falling and 50% people over the age of 80 will fall at least once a year [1, 2] standard 6 aims "to reduce the number of falls resulting in serious injury and ensure effective treatment and rehabilitation for those who have fallen"....
We run a multidisciplinary balance programme, called the Be Stable Group, consisting of six sessions that takes place once a week for older people with falls and/or gait and balance problems. Patients are advised to continue the exercises after the course.
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Fall detection via human posture representation and support vector machine

Fan K, Wang P, Hu Y, Dou B.

Abstract

Accidental falls of elderly people are a major cause of fatal injuries, especially for those living alone. We present a novel vision-based fall detection approach that analyzes an extracted human body using described human postures. First, a human body extracted by a background subtraction technique is located by a minimum area-enclosing ellipse. Then, a normalized directional histogram is developed around the center of the ellipse to represent a human posture by multi-directional statistical analysis. After that, 12 static and 8 dynamic features are derived from the normalized directional histogram. These features are fed into a directed acyclic graph support vector machine to distinguish four closely related human postures (standing, crouching, lying, and sitting). A fall-like accident is detected by counting the occurrences of lying postures in a short temporal window. After conducting majority voting, a fall event is determined by immobility verification. From the experimental results, an overall accuracy of 97.1% is obtained for recognition of the four postures, and only 1.0% of postures are misclassified as lying postures. Our fall detection system achieves up to 95.2% fall detection accuracy on a public fall dataset.

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Head or brain injuries and Alzheimer's disease: a nested case-control register study

Tolppanen AM, Taipale H, Hartikainen S.

Affiliation: School of Pharmacy, University of Eastern Finland, Kuopio, Finland; Kuopio Research Centre of Geriatric Care, University of Eastern Finland, Kuopio, Finland; Department of Psychiatry, Kuopio University Hospital, Kuopio, Finland.

Abstract

INTRODUCTION: Many previous studies have been limited by self- or proxy-reported injury or short follow-up. We investigated whether head or brain injuries are associated with Alzheimer's disease (AD), possible modifying factors and dose-response relationship.

METHODS: Nested register-based case-control study of all community dwellers who received clinically verified AD diagnosis in Finland in 2005 to 2011 (n = 70,719) and one to four matched controls for each case (n of controls = 282,862).

RESULTS: The magnitude of association between hospital-treated head and/or brain injuries was strongly dependent on the lag time between exposure and outcome. With a 5-year lag time, head injury (adjusted odds ratio; 95% confidence interval 1.19; 1.15-1.23) or brain injury (1.23; 1.18-1.29) was associated with higher risk of AD. Dose-response relationship with number and severity of injuries was observed. Associations were stronger in those with earlier onset of AD.

CONCLUSIONS: Stronger associations with shorter lag times indicate that head and/or brain injuries may also reflect the ongoing AD disease process.

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High-dose monthly vitamin D3 can help to prevent acute respiratory infections in older long-term care residents, but may increase risk of falls

Amrein K, Altendorfer E.

Affiliation: Division of Endocrinology and Diabetology, Department of Internal Medicine, Medical University of Graz, Graz, Austria.
Abstract   [Abstract unavailable]
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International classification of function, disability and health framework for fall risk stratification in community dwelling older adults
Noohu MM, Dey AB, Sharma S, Hussain ME.
Abstract
Falls is an important cause for mortality and morbidity in older adults. The fall risk assessment is an integral component of fall prevention in older adults. The international classification of function, disability and health (ICF) can be an ideal comprehensive model for fall risk assessment. There is lack of information relating ICF and fall risk assessment in community dwelling older adults. In this study we tried to assess the fall risk using different domains of ICF using various clinical tools. A total of 255 subjects were recruited through convenient sampling method from geriatric clinic (OPD) of All India Institute of Medical Sciences, New Delhi. The study was single session cross-section design. The body mass index (BMI), grip strength, depression score (Geriatric depression scale:short form; GDS-S) and co morbidities were used to assess body function and structure domain, timed up and go (TUG), Berg balance scale (BBS) and elderly fall screening test (EFST) scores were used for activity domain, selfreported cause of fall, medications and uses of assistive device for environmental factors. Then the association of body function and structure, activity and environmental factors were determined with falls. There was an association of fall in analysis in subjects with no fall and one or more falls for, BMI, grip strength (kg), GDS-S score, no. of co morbidities, chronic pain, TUG, BBS, TUG (s), BBS, EFST, slip/trip, walking cane, hypoglycemic and antihypertensives medications (unadjusted and adjusted odds ratio).The diabetes, and hyper tension showed association for adjusted odds ratio only. In subjects with one fall and more than one fall, TUG, BBS, EFST, GDS-S score, NSAIDS and antidepressants use showed a significant association with fall (unadjusted and adjusted odds ratio). The ICF may be used in routine for fall risk assessment in community dwelling older adults.
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Measurement of lying and standing blood pressure in hospital as part of a falls prevention programme for older people
O'Riordan S, Hussain L, Vasilakis N, Schoo R, Martin F.
Abstract
A comprehensive national audit in 2015 of 4,846 patients aged 65+ from acute hospitals in England and Wales showed that only 16% of inpatients had their lying and standing blood pressure (LSBP) measured by the third day of admission. Orthostatic hypotension is common in older people, particularly during acute illness. It can therefore increase the risk of a fall in hospital.
An online survey using survey monkey was sent out to elderly care clinicians. This survey focused on the specifics and interpretation of LSBP recordings in hospital and gave defined responses for each question. Out of 316 respondents, 271 (86%) stated that they measured LSBP in their usual clinical

practice. These respondents (doctors, nurses or physiotherapists) were asked further questions.

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Opioids and other central nervous system-active polypharmacy in older adults in the United States

Gerlach LB, Olfson M, Kales HC, Maust DT.

Abstract

OBJECTIVES: To determine patterns of and trends in contributions to central nervous system (CNS) polypharmacy, defined by the Beers Criteria as three or more CNS-active medications of each medication class, of adults aged 65 and older seen in U.S. outpatient medical practices.

DESIGN: National Ambulatory Medical Care Survey (2004-2013).

SETTING: U.S. outpatient medical care.

PARTICIPANTS: Visits by older adults to outpatient physicians (N = 97,910).

MEASUREMENTS: Visits including three or more CNS medications including antipsychotics, benzodiazepines, nonbenzodiazepine benzodiazepine receptor agonist hypnotics (NBRAs), tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs), and opioids. The proportion of CNS polypharmacy that each medication class contributed during 2011 to 2013 was determined, and then logistic regression was used to determine trends from 2004 to 2013 in the contribution of individual medication classes to such polypharmacy.

RESULTS: Of recent CNS polypharmacy visits, 76.2% included an opioid, and 61.8% included a benzodiazepine; 66.0% of the polypharmacy visits with benzodiazepines included opioids, and 53.3% of the polypharmacy visits with opioids included benzodiazepines. Between 2011 and 2013, opioid and benzodiazepine co-prescribing occurred at approximately 1.50 million visits (95% confidence interval (CI) = 1.23-1.78 million) annually. From 2004 (reference) to 2013, the proportion of polypharmacy visits with opioids rose from 69.6% to 76.2% (adjusted odds ratio = 2.15, 95% CI = 1.19-3.91, P =.01), and the corresponding proportion that included benzodiazepines fell. Of the polypharmacy visits, the odds of SSRI, NBRA, and antipsychotic use were unchanged, and that of TCAs decreased.

CONCLUSION: In older adults, opioid use appears to be largely driving the recent national increase in CNS polypharmacy. Although concomitant use of opioids and benzodiazepines is associated with greater mortality, they are the most common contributors to CNS polypharmacy in older adults.
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Potential risk factors among individuals with recurrent and injurious falls recruited to the Malaysian Falls Assessment and Intervention Trial (MYFIT)

Izzati N, Khor HM, Tan PJ, Sumaiyah M, Nemala N, Tan MP.

Abstract

It has been widely accepted that falls usually occur as a results of multiple risk factors. Practice Guidelines for Prevention of Falls in Older Persons (AGS/BGS, 2011) suggest that clinical assessment remains an important part of classifying older fallers according to their risk of falls. The objective of this study was therefore to identify, using clinical evaluation, potential risk factors among individuals with recurrent and injurious falls in the preceding 12 months in a South East Asian setting.

Cases included participants aged ≥65 years old with 2 or more falls or one injurious fall in the past within the previous 12 months were recruited through the emergency department, primary care and

hospital outpatient clinics in a teaching hospital in Kuala Lumpur, Malaysia. All participants were evaluated with...

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Predictive validity of the functional independence and difficulty scale in community-dwelling Japanese older adults

Saito T, Matsui N, Watanabe S.
Affiliation: Graduate School of Gerontology, J. F. Oberlin University, Japan.
Abstract
PURPOSE: The newly developed Functional Independence and Difficulty Scale is a tool for assessing the performance of basic activities of daily living in terms of both independence and difficulty. The aim of this study was to examine the predictive validity of the scale for decline of instrumental activities of daily living ability and multiple falls during a 24-month follow-up period.
SUBJECTS AND METHODS: One-hundred forty older adults (median age 74.0, 60% women) completed baseline data collection and a follow-up postal survey. At baseline, background variables, the Functional Independence and Difficulty Scale, and instrumental activities of daily living ability assessed by the five sub-items of Tokyo Metropolitan Institute of Gerontology Index of Competence were recorded. At follow-up, data on instrumental activities of daily living ability and falls in the previous 12 months were obtained.
RESULTS: Of the 140 participants, 15 (10.7%) declined in instrumental activities of daily living ability and 14 (10.0%) experienced multiple falls. The Functional Independence and Difficulty Scale at baseline independently predicted decline of instrumental activities of daily living ability and multiple falls.
CONCLUSION: The Functional Independence and Difficulty Scale predicts subsequent decline of instrumental activities of daily living ability and multiple falls.
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Prevalence of self-reported falls, balance or walking problems in older cancer survivors from Surveillance, Epidemiology and End Results-Medicare Health Outcomes Survey

Huang MH, Blackwood J, Godoshian M, Pfalzer L.
Affiliation: Physical Therapy Department, School of Health Professions and Studies, University of Michigan - Flint, Flint, Michigan, United States.
Abstract
OBJECTIVE: To determine the prevalence of falls and balance/walking problems in the past 12months among older cancer survivors before and after cancer diagnosis.
MATERIALS AND METHODS: We analyzed cross-sectional data from individuals aged ≥65years with first primary cancer from the Surveillance, Epidemiology, and End Results and Medicare Health Outcomes Survey (SEER-MHOS) linkage (n=12,659). The first MHOS completed by each survivor from 0 to 2years before cancer diagnosis to 1-4years after cancer diagnosis were included. We estimated unadjusted and demographic-adjusted prevalence of falls and balance/walking problems for each type of cancer during five one-year time periods before and after cancer diagnosis.
RESULTS: Adjusted prevalence of falls was significantly higher post-diagnosis than pre-diagnosis in prostate (12% during years 1-2 pre-diagnosis vs. 17%-20% during years 1-4 post-diagnosis)(p=0.01) and lung cancer (17% during years 1-2 pre-diagnosis vs. 28% during years 1-2 post-

diagnosis)(p=0.019). Adjusted prevalence of balance/walking problems were significantly higher post-diagnosis than pre-diagnosis in non-Hodgkin's lymphoma (26% during years 1-2 pre-diagnosis vs. 45% during years 1-2 post-diagnosis)(p=0.012), breast (32% during years 1-2 pre-diagnosis vs. 41% during years 3-4 post-diagnosis)(p=0.001), prostate (22% during years 1-2 pre-diagnosis vs. 28%-29% during years 1-4 post-diagnosis)(p=0.012), and lung cancer (33% during years 1-2 pre-diagnosis vs. 40% during year 0-1 pre-diagnosis and 46% during years 1-2 post-diagnosis)(p=0.018). Prevalence did not differ across time periods in other cancers.

CONCLUSIONS: Falls and balance/walking problems may become more frequent after the diagnosis of some cancers. Screening, surveillance, and interventions need to consider functional deficits and cancer diagnosis.

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Relationship between head-turn gait speed and lateral balance function in community-dwelling older adults
Singh H, Sanders O, McCombe Waller S, Bair WN, Beamer B, Creath RA, Rogers MW.
Affiliation: Department of Physical Therapy and Rehabilitation Science, University of Maryland School of Medicine, Baltimore, MD 21201. Electronic address: mrogers@som.umaryland.edu.
Abstract
OBJECTIVE: To determine and compare gait speed during head-forward and side-to-side head-turn walking in individuals with lower versus greater lateral balance.

DESIGN: Cross-sectional study

SETTING: University research laboratory

PARTICIPANTS: Ninety-three older adults (42 men and 51 women) aged 73 ± 6.08 years who could walk independently participated in this study.

MAIN OUTCOME MEASURES: 1) 'balance tolerance limit' (BTL), defined as the lowest perturbation intensity where a multistep balance recovery pattern was first evoked in response to randomized lateral waist-pull perturbations of standing balance to the left and right sides, at six different intensities (range from level two: 4.5 cm displacement at 180cm/s(2) acceleration to level seven: 22.5 cm displacement at 900cm/s(2) acceleration), 2) gait speed, 3) balance, and 4) mobility using an instrumented gait mat, Timed-Up-and-Go (TUG) and Activities-Specific Confidence (ABC) scale, respectively.

RESULTS: Individuals with low versus high BTL had slower self-selected head-forward gait speed (HFGS) and head-turn gait speed (HTGS) (p = 0.002 and p < 0.001, respectively); the magnitude of difference was greater in HTGS than HFGS (Cohen's d = 1.0 versus 0.6). HTGS best predicted BTL. BTL was moderately and positively related (p = 0.003) to the ABC and negatively related (p = 0.017) to TUG.

CONCLUSIONS: HTGS is affected to a greater extent than HFGS in older individuals with poorer lateral balance and at greater risk of falls. Moreover, HTGS can be used to assess the interactions of limitations in lateral balance function and gait speed in relation to fall risk in older adults.
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Reliability of the Norwegian version of the short physical performance battery in older people with and without dementia
Olsen CF, Bergland A.

Affiliation: Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences, 0130, Oslo, Norway.

Abstract

BACKGROUND: The purpose of the study was to establish the test-retest reliability of the Norwegian version of the Short Physical Performance Battery (SPPB).

METHODS: This was a cross- sectional reliability study. A convenience sample of 61 older adults with a mean age of 88.4(8.1) was tested by two different physiotherapists at two time points. The mean time interval between tests was 2.5 days. The Intraclass Correlation Coefficient model 3.1 (ICC, 3.1) with 95% confidence intervals as well as the weighted Kappa (K) were used as measures of relative reliability. The Standard Error of Measurement (SEM) and Minimal Detectable Change (MDC) were used to measure absolute reliability. The results were also analyzed for a subgroup of 24 older people with dementia.

RESULTS: The ICC reflected high relative reliability for the SPPB summary score and the 4 m walk test (4mwt), both for the total sample (ICC = 0.92, and 0.91 respectively)) and for the subgroup with dementia (ICC = 0.84 and 0.90 respectively). Furthermore, weighted Ks for the SPPB subscales were 0.64 for the chair stand, 0.80 for gait and 0.52 for balance for the total sample and almost identical for the subgroup with dementia. MDC-values at the 95% confidence intervals (MDC95) were calculated at 0.8 for the total score of SPPB and 0.39 m/s for the 4mwt in the total sample. For the subgroup with dementia MDC95 was 1.88 for the total score of SPPB and 0.28 m/s for 4mwt.

CONCLUSIONS: The SPPB total score and the timed walking test showed overall high relative and absolute reliability for the total sample indicating that the Norwegian version of the SPPB is reliable when used by trained physiotherapists with older people. The reliability of the Norwegian SPPB in older people with dementia seems high, but due to a small sample size this needs further investigation.

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Risk factors associated with residential aged care, respite and transitional aged care admission for older people following an injury-related hospitalisation

Mitchell R, Harvey L, Draper B, Brodaty H, Close

J. Arch. Gerontol. Geriatr. 2017; 72: 59-66.

Affiliation: Falls, Balance and Injury Research Centre, Neuroscience Research Australia, University of New South Wales, Australia; Prince of Wales Clinical School, University of New South Wales, Australia.

Abstract

OBJECTIVES: To identify factors associated with admission to residential aged care (RAC), respite RAC and transitional care (TC) for older individuals following an injury hospitalisation.

METHOD: A retrospective analysis was conducted of individuals aged ≥65 years who had an injury hospitalisation and who were admitted to RAC during 1 July 2008 and 30 June 2013 in New South Wales, Australia. Multinominal logistic regression was used to examine the factors associated with admissions to aged care services compared to returning to the community.

RESULTS: Of 191,301 injury hospitalisations, 41,085 (21.5%) individuals either returned or were new admissions to long-term or respite RAC and 3,218 individuals were admitted to TC. Older individuals newly admitted to long-term RAC were four times more likely (OR: 4.36; 95%CI 4.15-4.57), those admitted to respite RAC were twice as likely (OR: 2.37; 95%CI 2.21-2.54) and people admitted to TC were less likely (OR: 0.60; 95%CI 0.53-0.68) to have dementia compared to individuals who returned to the community. Overall, individuals who were admitted to long-term or respite RAC had a higher likelihood of experiencing limitations associated with their physical, cognitive or social abilities, with

individuals admitted to TC having a higher likelihood of issues with hygiene and mobility, compared to individuals returning to the community.

CONCLUSION: Understanding the profile and predictive risk factors for injured older individuals using RAC (long-term, respite or TC services) can inform current and future aged care service resource use needs and can be used to understand factors associated with service use.

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Risk profiles for injurious falls in people over 60: a population-based cohort study

Ek S, Rizzuto D, Fratiglioni L, Johnell K, Xu W, Welmer AK.
Affiliation: Karolinska University Hospital, Stockholm, Sweden.
Abstract
BACKGROUND: Although falls in older adults are related to multiple risk factors, these factors have commonly been studied individually. We aimed to identify risk profiles for injurious falls in older adults by detecting clusters of established risk factors and quantifying their impact on fall risk.

METHODS: Participants were 2566 people, aged ≥60 years, from the population-based Swedish National Study on Aging and Care in Kungsholmen. Injurious falls was defined as hospitalization for or receipt of outpatient care because a fall. Cluster analysis was used to identify aggregation of possible risk factors including chronic diseases, fall-risk increasing drugs (FRIDs), physical and cognitive impairments, and lifestyle-related factors. Associations between the clusters and injurious falls over 3, 5 and 10 years were estimated using flexible parametric survival models.

RESULTS: Five clusters were identified including: a "healthy", a "well-functioning with multimorbidity", a "well-functioning, with multimorbidity and high FRID consumption", a "physically and cognitively impaired", and a "disabled" cluster. The risk of injurious falls for all groups was significantly higher than for the first cluster of healthy individuals in the reference category. Hazard ratios (95% confidence intervals) ranged from 1.71 (1.02-2.66) for the second cluster to 12.67 (7.38-21.75) for the last cluster over 3 years of follow-up. The highest risk was observed in the last two clusters with high burden of physical and cognitive impairments.

CONCLUSION: Risk factors for injurious fall tend to aggregate, representing different levels of risk for falls. Our findings can be useful to tailor and prioritize clinical and public health interventions.
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Short-term effectiveness of a community-implemented falls prevention referral service

Christoforou A, van der Linden ML, Koufaki P.
Affiliation: Centre of Health Activity and Rehabilitation Research, School of Health Sciences , Queen Margaret University , Edinburgh , UK.
Abstract
PURPOSE: To evaluate the effectiveness of the 16-week evidence-based Steady Steps exercise referral scheme at improving physical function, balance confidence, and quality of life (QoL) of community-dwelling older adults at risk of falling.

METHOD: A non-experimental, practice-based study involving a retrospective analysis of participant outcomes. Pre-post comparisons of three performance-based measures of gait and balance and of person-reported outcomes for balance confidence and QoL were performed. Effectiveness was evaluated in terms of statistically significant changes and relative to published fall-risk thresholds and minimal detectable changes (MDCs) or minimum clinically important differences.

RESULTS: One hundred and thirty-six participants completed the program over 19 months. Statistically significant differences were observed for all outcomes (p < 0.001), translating to an overall 42.6% reduction in falls-related risk. Approximately 63% of participants achieved an improvement ≥MDC in at least one of the performance-based tests. Greater than 55% achieved self-reported improvements in balance confidence ≥ MDC, while >40% reported

CONCLUSIONS: While the non-experimental design precludes conclusive evidence of causation, the highly significant and clinically meaningful improvements observed in individuals who completed the evidence-based Steady Steps program support its translation of evidence into effective practice. Continued implementation and evaluation of such practices and their longer-term effects are warranted.

IMPLICATIONS FOR REHABILITATION: Falls in older adults represent an escalating public health problem, and rehabilitation professionals are charged with developing and/or identifying feasible and effective evidence-based programs that target and reduce falls risk in this population. Our findings support Steady Steps as an effective third-sector referral rehabilitation service that successfully translates research evidence-based exercise interventions into effective practice, positively impacting physical function, balance confidence and quality of life (QoL) in community-dwelling older adults. Our study provides practice-based evidence of the effectiveness of exercise interventions that are progressively challenging, deliver a high dose of moderate to high intensity and target the main falls risk factors of muscle weakness and gait and balance impairment. In spite of their limitations, non-experimental, practice-based approaches provide rehabilitation professionals with feasible opportunities for evaluating existing services, such as Steady Steps, and contributing to the overall evidence-base for falls prevention and management.

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The complexity of standing postural sway associates with future falls in community-dwelling older adults: the MOBILIZE Boston Study

Zhou J, Habtemariam D, Iloputaife I, Lipsitz LA, Manor B.

Abstract

Standing postural control is complex, meaning that it is dependent upon numerous inputs interacting across multiple temporal-spatial scales. Diminished physiologic complexity of postural sway has been linked to reduced ability to adapt to stressors. We hypothesized that older adults with lower postural sway complexity would experience more falls in the future. 738 adults aged ≥70 years completed the Short Physical Performance Battery test (SPPB) test and assessments of single and dual-task standing postural control. Postural sway complexity was quantified using multiscale entropy. Falls were subsequently tracked for 48 months. Negative binomial regression demonstrated that older adults with lower postural sway complexity in both single and dual-task conditions had higher future fall rate (incident rate ratio (IRR) = 0.98, p = 0.02, 95% Confidence Limits (CL) = 0.96-0.99). Notably, participants in the lowest quintile of complexity during dual-task standing suffered 48% more falls during the four-year follow-up as compared to those in the highest quintile (IRR = 1.48, p = 0.01, 95% CL = 1.09-1.99). Conversely, traditional postural sway metrics or SPPB performance did not associate with future falls.

As compared to traditional metrics, the degree of multi-scale complexity contained within standing postural sway-particularly during dual task conditions- appears to be a better predictor of future falls in older adults.

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Timed up and go risk predictor of falls in elderly people residing in the community?

Rodrigues MMP, Falcão RMDM, Veras RFS, Barbosa KTF, Oliveira FMRL, Pereira MA, Pontes MLF, Fernandes MGM, Vasconcelos JMB, Oliveira JS.

Abstract

OBJECTIVE: evaluate the risk of falls of elderly people residing in a community in northeastern Brazil using the "Timed up and go".

METHOD: descriptive study, with a quantitative approach, performed with elderly people residing in a community. The collected data related to the sociodemographic and economic characteristics of episodes of falls in the last two years, regular practice of physical exercise and complaint of pain at the time of the interview; and, at last, the application of the "Timed Up and Go" test.

RESULT: Most of the elderly were classified as free and independent and independent. There is a direct relationship between advanced age and increased time to perform the test.

CONCLUSION: the "Timed Up and Go" test was not effective in predicting risk of falls alone and should associate with other indicators.

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Effect of obstacle training over gait to reduce the risk of falls in geriatric individuals

Baptist J, Dhote S, Palekar T, Kamble P.

Abstract

BACKGROUND: The aging process contributes to a decrease in muscle mass, vision, and joint range of motion leading to loss to balance and fear of falls. Tripping over obstacle is very common among older adults due to loss of balance leading to falls.

INTRODUCTION: Declines in all sensory systems (somatosensory, vision, vestibular) and all three stages of information processing (i.e sensory processing, sensorimotor integration, motor output) are found with aging. Older adults have more difficulty maintaining balance when sensory inputs from more than one system are greatly reduced, particularly when they rely solely on vestibular inputs for balance control. Balance problems occur most frequently among the elderly, falls are the leading cause of accidental death among older adults.

METHODOLOGY: 100 subjects were selected according to inclusion criteria and pre and post outcome measures were taken. They were randomly assigned to intervention & control group. Obstacle crossing was given for 2 weeks 3 times in a week.

RESULTS: showed statistical significant improvement in pre and post measures of BBS($p<0.000$) of the intervention group when compared to the control group.

CONCLUSION: Hence obstacle training on balance and risk of falls by obstacle crossing in geriatric individuals is more effective in improving gait and reducing the risk of falls.Key Words: Aging, Obstacle training, BBS (Berg Balance Scale), balance, risk of falls.

PDF Y Endnote Y

Trends in self-reported traumatic brain injury among Canadians, 2005-2014: a repeated cross-sectional analysis

Rao DP, McFaull S, Thompson W, Jayaraman GC.

Abstract

BACKGROUND: Concussion and other traumatic brain injuries (TBIs) are a form of unintentional injury that has been associated with both short- and long-term health effects, including possible disability. We investigated time trends in the incidence of all types of injury and TBIs among Canadians, and assessed characteristics of TBIs.

METHODS: We used data from annual cycles of the Canadian Community Health Survey, 2005 to 2014, to examine all types of injury and TBI among Canadians aged 12 years or more. We estimated TBI incidence among respondents who reported any type of injury in the previous year. We used descriptive methods to describe key characteristics (sex, age, season, activity and venue) and 5- and 10-year trends, and generalized linear models to estimate annual percent change in the incidence of all types of injury and TBI.

RESULTS: The incidence of all types of injury and of TBIs increased between 2005 and 2014, with an annual percent change of 1.4 (95% confidence interval [CI] 0.9-1.9) and 9.6 (95% CI 8.2-11.0), respectively. Sport venues (39.9% [95% CI 32.7-47.1)] and sports-related activities (49.7% [95% CI 42.4-57.0]) were commonly associated with TBIs, and falls were the most frequent mechanism of injury (53.9% [95% CI 46.7-61.0]) leading to a TBI.

INTERPRETATION: Our findings highlight the increasing trends in all types of injury and TBIs in Canada, and underscore the need for ongoing population level surveillance and targeted prevention efforts to mitigate risk.

PDF Endnote