

Safety Literature 19th May 2019

Characteristics associated with the postprandial hypotensive response in falling older adults

Madden KM, Feldman B, Meneilly GS. [Can. J. Aging](#) 2019; ePub(ePub): ePub.

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PMID

31084627

Abstract

ABSTRACT The magnitude of the postprandial hypotensive (PPH) response has been shown to be an independent risk factor for falls, fractures, and death. Despite this well-established risk, meal tests are rarely done in the falls clinic setting because of logistical issues. In order to better target potential PPH patients among older falling adults, this study examines which subject characteristics are associated with larger PPH responses. A total of 52 falls clinic patients (mean age 77.8 ± 0.9 years, 29 women, 23 men) were recruited for a 90 minute meal test. Significant variables were then entered into a stepwise multivariate linear model containing age, sex, presence of diabetes, presence of hypertension, baseline systolic blood pressure (SBP), and the orthostatic drop in SBP. Although further work is required, our study suggests that men, patients with higher blood pressure, and patients with an orthostatic drop might be more likely to have higher postprandial hemodynamic responses.

Language: en

Keywords

aging; chutes; falls; hypotension postprandiale; postprandial hypotension; syncope; vieillissement

Cognitive frailty in community-dwelling older Japanese people: prevalence and its association with falls

Kim H, Awata S, Watanabe Y, Kojima N, Osuka Y, Motokawa K, Sakuma N, Inagaki H, Eda Hiro A, Hosoi E, Won CW, Shinkai S. [Geriatr. Gerontol. Int.](#) 2019; ePub(ePub): ePub.

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31083795

Abstract

AIM: To investigate the prevalence and associated factors of cognitive frailty and cognitive frailty-related falls in community-dwelling older people.

METHODS: A total of 25 out of 1192 community-dwelling older people aged >70 years with cognitive frailty participated in the present cross-sectional study. Cognitive function was assessed using the Mini-Mental State Examination. Physical function measures included calf circumference, Timed Up and Go (TUG) and usual walking speed. Interviews were carried out to assess Council on Nutrition Appetite Questionnaire (CNAQ); chronic diseases including hypertension, diabetes and falls; as well as physical frailty, defined as having three of five criteria: muscle weakness, slowness, exhaustion, low activity and weight loss.

RESULTS: The prevalence of cognitive frailty was 2.1%. Participants with cognitive frailty had significantly reduced Mini-Mental State Examination and calf circumference; and higher instrumental activities of daily living disability and falls. Old age (OR 1.151, 95% CI 1.053-1.257), fall history (OR 3.577, 95% CI 1.381-9.263), having four or more chronic diseases (OR 7.419, 95% CI 2.117-26.005) and slower TUG (OR 1.234, 95% CI 1.041-1.462) were significantly associated with cognitive frailty, whereas greater calf circumference (OR 0.748, 95% CI 0.625-0.895) and CNAQ (OR 0.736, 95% CI 0.628-0.8631) had protective effects. Old age (OR 1.132, 95% CI 1.002-1.280), hospitalization (OR 10.090, 95% CI 2.554-39.854), having four or more chronic diseases (OR 5.120, 95% CI 1.113-23.557) and slower TUG (OR 1.394, 95% CI 1.167-1.665) were significantly associated with cognitive frailty-related falls, whereas CNAQ (OR 0.704, 0.571-0.868) had protective effects.

CONCLUSIONS: Age, chronic disease, TUG and CNAQ were significantly associated with cognitive frailty and cognitive frailty-related falls. The TUG and CNAQ have the greatest potential for improvement by intervention or lifestyle change. Further research is necessary to determine the efficacy of positive changes in these factors for symptomatic improvements. *Geriatr Gerontol Int* 2019; ●●: ●●-●●.

Language: en

Keywords

cognitive frailty; community-dwelling elderly; falls; mild cognitive impairment; physical frailty



Controlled trial of balance training using a video game console in community-dwelling older adults

Montero-Alía P, Miralles-Basseda R, López-Jiménez T, Muñoz-Ortiz L, Jiménez-González M, Prat-Rovira J, Albarrán-Sánchez JL, Manresa-Domínguez JM, Andreu-Concha CM, Rodríguez-Pérez MC, Martí-Cervantes JJ, Sañudo-Blanco L, Sánchez-Pérez CA, Dolader-Olivé S, Torán-Monserrat P. [Age Ageing](#) 2019; ePub(ePub): ePub.

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31081504

Abstract

BACKGROUND: gamification is a potentially attractive option for improving balance and reducing falls.

OBJECTIVES: to assess the effect of balance training using the Nintendo™ Wii game console on balance (primary outcome), falls and fear of falling.

DESIGN: quasi-randomised, open-label, controlled clinical trial in parallel groups, carried out on community-dwelling patients over 70 years, able to walk independently. Participants were assigned 1:1 to the intervention or control group. Balance training was conducted using the Nintendo WiiFit™ twice a week for 3 months. Balance was assessed using the Tinetti balance test (primary outcome), the unipedal stance and the Wii balance tests at baseline, 3 months and 1 year. Falls were recorded and Fear of falling was assessed by the Falls Efficacy Scale (Short-FES-I).

RESULTS: 1,016 subjects were recruited (508 in both the intervention and the control group; of whom 274 and 356 respectively completed the 3-month assessment). There was no between-group difference in the Tinetti balance test score, with a baseline mean of 14.7 (SD 1.8) in both groups, and 15.2 (1.3) at 3 months in the intervention group compared to 15.3 (1.7) in controls; the between-group difference was 0.06 (95% CI 0.30-0.41). No differences were seen in any of the other balance tests, or in incident falls. There was a reduction in the fear of falling at 3 months, but no effect at 1 year.

CONCLUSIONS: the study found no effect of balance training using the Nintendo™ Wii on balance or falls in older community-dwelling patients. The study protocol is available at clinicaltrials.gov under the code NCT02570178.

Language: en

Keywords

Nintendo WiiFit™; balance; community-dwelling; falls; older adults; quasi-randomized clinical trial



Correlation of the Korean version of Falls Efficacy Scale-International with quantitative balance and gait parameters through exercise program in elderly men

Citation

Ahn BR, Kang HJ, Choi EJ, Jang SW, Chung HS, Jeon KS. [Ann. Rehabil. Med.](#) 2019; 43(2): 195-203.

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PMID

31072086

Abstract

OBJECTIVE: To determine correlation of the Korean version of Falls Efficacy Scale-International (KFES-I) with other gait and balance parameters through exercise program in older men.

METHODS: Between July 2015 and April 2018, 50 men of 103 participants in an exercise program for preventing falls who aged over 60 years, completed the evaluation before and after the program, had fear of falling (FOF), and could walk independently as an outpatient were enrolled retrospectively. The program comprised lower extremities and core muscle strengthening exercises following stretching exercises twice a week for 8 weeks. FOF using the KFES-I, Berg Balance Scale (BBS), Modified Barthel Index (MBI), stair up and gait categories in MBI (MBI-gait), and Timed Up and Go test (TUG) were evaluated. Quantitative gait and balance parameters were measured by gait analysis, posturography, and isokinetic dynamometer. They were compared before and after the program. Moreover, correlations of KFES-I with other parameters were examined.

RESULTS: Fifty participants were enrolled. After the program, significant improvements were noted in right stride length ($p=0.013$) in gait analysis, MBI ($p=0.012$), BBS ($p<0.000$), TUG test ($p<0.000$), and KFES-I ($p<0.000$) scores. KFES-I was significantly correlated with MBI ($r=-0.35$, $p=0.013$), and MBI-gait ($r=-0.341$, $p=0.015$).

CONCLUSION: Risk of falls could be significantly improved through exercise. KFES-I had significant correlations with MBI-gait parameters. Participants showed increases in gait and balancing ability on quantitative measurements through exercises. Therefore, regular stretching, strengthening, and balancing exercises may help prevent falls in older people.

Language: en

Keywords

Elderly; Exercise; Falls; Fear; Koreans

Effects of the FIT-HIP intervention for fear of falling after hip fracture: a cluster-randomized controlled trial in geriatric rehabilitation

Scheffers-Barnhoorn MN, van Eijk M, van Haastregt JCM, Schols JMGA, van Balen R, van Geloven N, Kempen GJIM, Achterberg WP. [J. Am. Med. Dir. Assoc.](#) 2019; ePub(ePub): ePub.

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31078486

Abstract

OBJECTIVES: Fear of falling (FoF) is common after hip fracture and can impede functional recovery because of activity restriction. The Fear of falling InTervention in HIP fracture geriatric rehabilitation (FIT-HIP intervention) was designed to target FoF and consequently to improve mobility. The aim of this study was to evaluate the effect of the FIT-HIP intervention in patients with FoF in geriatric rehabilitation (GR) after hip fracture.

DESIGN, SETTING, AND PARTICIPANTS: This cluster-randomized controlled trial was performed in 11 post-acute GR units in the Netherlands (2016-2017). Six clusters were assigned to the intervention group, 5 to the usual care group. We included 78 patients with hip fracture and FoF (aged ≥ 65 years; 39 per group). **INTERVENTION(S):** The FIT-HIP intervention is a multicomponent cognitive behavioral intervention conducted by physiotherapists, embedded in usual care in GR. The FIT-HIP intervention was compared to usual care in GR. **MEASUREMENTS:** FoF was assessed with the Falls Efficacy Scale-International (FES-I) and mobility, with the Performance Oriented Mobility Assessment (POMA). Data were collected at baseline, discharge, and 3 and 6 months postdischarge from GR. Primary endpoints were change scores at discharge. Linear mixed models were used to evaluate the treatment effect.

RESULTS: No significant between-group differences were observed for primary outcome measures. With the usual care group as reference, the FES-I estimated difference between mean change scores was 3.3 [95% confidence interval (CI) -1.0, 7.5, $P = .13$] at discharge from GR; -4.1 (95% CI -11.8, 3.6, $P = .29$) after 3 months; and -2.8 (95% CI -10.0, 4.4, $P = .44$) after 6 months. POMA estimated difference was -0.3 (95% CI -6.5, 5.8, $P = .90$).

CONCLUSION/IMPLICATIONS: The FIT-HIP intervention was not effective in reducing FoF. Possibly FoF (shortly) after hip fracture can to some extent be appropriate. This may imply the study was not able to accurately identify and accordingly treat FoF that is maladaptive (reflective of disproportionate anxiety).

Language: en

Keywords

Fear of falling; cognitive behavioral therapy; geriatric rehabilitation; hip fracture; randomized controlled trial



Fall risk in stroke survivors: effects of stroke plus dementia and reduced motor functional capacity

Whitney DG, Dutt-Mazumder A, Peterson MD, Krishnan C. [J. Neurol. Sci.](#) 2019; 401: 95-100.

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31075685

Abstract

BACKGROUND: Despite extensive research on falls among individuals with stroke, little is known regarding the impact of neurological conditions with comorbid diagnoses and motor functional capacity on the risk of falls in these individuals. Hence, the purpose of this study was to determine the fall risk and the contribution of reduced motor functional capacity to fall risk in individuals with stroke, dementia, and stroke plus dementia.

METHODS: Data from the National Health and Aging Trends Study (NHATS), a nationally-representative sample of Medicare beneficiaries, were analyzed for this cross-sectional study. The odds of self-reported falls within the past month in three subgroups of neurological conditions [stroke (n = 751), dementia (n = 369), and stroke plus dementia (n = 141)] were evaluated with a reference group of individuals with no stroke/dementia [i.e., controls (n = 6337)] using logistic regression models.

RESULTS: The prevalence of a recent fall was significantly higher ($P < .05$) in the three neurological disorder groups compared with controls. After adjusting for sociodemographics, mobility device use, and other comorbidities (i.e., chronic disease, vision impairment, and major surgery), the odds of a recent fall were significantly elevated in individuals with stroke (odds ratio [OR] = 1.45), dementia (OR = 2.45), and stroke plus dementia (OR = 2.64) compared with controls. After further adjustment for the lower motor functional capacity, the elevated odds in individuals with stroke were attenuated (OR = 1.16); however, the odds remained significantly elevated in individuals with dementia (OR = 1.67) and stroke plus dementia (OR = 1.82).

CONCLUSION: Findings indicate that the odds for falls in stroke survivors are elevated in the presence of comorbid dementia. Further, lower motor functional capacity accounted for increased likelihood of a fall in individuals with stroke, but it was not sufficient to account for the increased likelihood of a fall in individuals with dementia or stroke plus dementia. Thus, interventions focusing on secondary prevention of dementia and improving motor functional capacity may reduce fall risk in individuals with stroke.

Keywords

Balance; Coordination; Dementia; Falls; Hemiparesis; Motor function



Four smart steps: fall prevention for community-dwelling older adults

Citation

Minnier W, Leggett M, Persaud I, Breda K. [Creat. Nurs.](#) 2019; 25(2): 169-175.

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31085672

Abstract

Falls are associated with enormous costs in morbidity and early mortality, as well as loss of safe, independent lifestyles for community-dwelling older adults. The purpose of this quality improvement project was to implement an author-designed, easy-to-remember guide to fall prevention for community-dwelling older adults and enhance their awareness and knowledge of fall risks in the home. A Four Smart Steps Fall Prevention program (exercise, eye exams, home safety, and primary care visits) presented fall prevention education for community-dwelling older adults. The project was implemented at a senior center by registered nurses and evaluated through an anonymous questionnaire. The desired outcome was an increase in safety awareness and knowledge of fall prevention for community-dwelling older adults. Community-dwelling older adults with enhanced education on fall prevention will be more likely to be able to live independently within a safe environment.

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Language: en

Keywords

community-dwelling older adults; education; fall prevention; quality improvement; safety awareness; senior centers

Gait symmetry in the dual task condition as a predictor of future falls among independent older adults: a 2-year longitudinal study

Gillain S, Boutaayamou M, Schwartz C, Dardenne N, Bruyere O, Bruls O, Croisier JL, Salmon E, Reginster JY, Garraux G, Petermans J. [Aging Clin. Exp. Res.](#) 2019; ePub(ePub): ePub.

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DOI

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31069697

Abstract

BACKGROUND: Given the potential consequences of falls among older adults, a major challenge is to identify people at risk before the first event. In this context, gait parameters have been suggested as markers of fall risk.

AIM: To examine, among older people, the prospective relationship between gait patterns assessed in comfortable and challenging walking conditions, and future fall(s).

METHOD: A total of 105 adults older than 65 years, living independently at home and without a recent fall history were included in a 2-year, longitudinal, observational study. All underwent physical and functional assessment. Gait speed, stride length, frequency, symmetry and regularity and Minimum Toe Clearance (MTC) were recorded in comfortable (CW), fast (FW) and dual task walking (DTW) conditions. Gait parameter changes occurring between CW and FW and between CW and DTW were calculated and expressed in percent. DTW cost was calculated as the change of DTW relative to CW. Fall events were recorded using fall diaries. Comparisons according to fall occurrence were performed by means of univariate analysis and multivariate binary logistic regression analysis.

RESULTS: Two-year follow-up was available for 96 participants, of whom 35 (36.5%) fell at least once. Comparative analysis showed that future fallers had shorter FW stride length and higher symmetry DTW cost than non-fallers ($p < 0.05$). Binary logistic regression analysis showed that each additional percent of stride symmetry cost was associated with an increase in future fall risk (odds ratio 1.018, 95% Confidence Interval (CI) 1.002-1.033; $p = 0.027$).

DISCUSSION: Our results confirm the association between a symmetry decrease in DTW and future fall(s). Indeed in this study, the mean symmetry DTW cost in fallers is almost 20% higher than in non-fallers, meaning a fall risk that is around 36% higher than among non-fallers.

CONCLUSION: This exploratory study shows the usefulness of considering gait parameters, particularly symmetry in challenging walking conditions, for early identification of future fallers.

Keywords

Dual task; Fall risk; Gait symmetry; Older people; Prospective study



Gait training using a robotic hip exoskeleton improves metabolic gait efficiency in the elderly

Martini E, Crea S, Parri A, Bastiani L, Faraguna U, McKinney Z, Molino-Lova R, Pratali L, Vitiello N. [Sci. Rep.](#) 2019; 9(1): e7157.

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PMID

31073188

Abstract

Robotic exoskeletons are regarded as promising technologies for neurological gait rehabilitation but have been investigated comparatively little as training aides to facilitate active aging in the elderly. This study investigated the feasibility of an exoskeletal Active Pelvis Orthosis (APO) for cardiopulmonary gait training in the elderly. Ten healthy elderly volunteers exhibited a decreased ($-26.6 \pm 16.1\%$) Metabolic Cost of Transport (MCoT) during treadmill walking following a 4-week APO-assisted training program, while no significant changes were observed for a randomly assigned control group ($n = 10$) performing traditional self-paced overground walking. Moreover, robot-assisted locomotion was found to require $4.24 \pm 2.57\%$ less oxygen consumption than free treadmill walking at the same speed. These findings support the adoption of exoskeletal devices for the training of frail individuals, thus opening new possibilities for sustainable strategies for healthy aging.

Language: en

How steady is the STEADI? Inferential analysis of the CDC fall risk toolkit

Nithman RW, Vincenzo JL. [Arch. Gerontol. Geriatr.](#) 2019; 83: 185-194.

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PMID

31075677

Abstract

INTRODUCTION: The CDC developed the STEADI toolkit to assist providers with incorporating fall risk screening, assessment of modifiable risk factors, and implementing evidence-based treatment strategies. The purpose of this study was two-fold: analyze the STEADI algorithm for strengths/weaknesses based upon inferential data and provide recommendations for additional research and possible limitations of the STEADI toolkit from a physical therapy perspective.

METHODS: This investigation employed a quantitative, cross-sectional cohort design collating data from community-dwelling and retirement-facility seniors ($n = 77$) from two regions of the U.S. Data is reported based upon descriptive statistics, correlation, and validity of the STEADI algorithm, its subcomponent tests, and self-reported fall data. All participants completed the Stay Independent Brochure (SIB) and the algorithm's mobility, balance, and lower extremity strength tests regardless of risk categorization.

RESULTS: Sensitivity of the STEADI with discriminating fallers and predicting future falls was better among community-dwellers (73-80%) versus the retirement facility-dwellers (56-62%). The STEADI demonstrated high false negative rates among those categorized as low risk as 57% community-dwellers and 24% facility-dwellers fell in the prior 12 months and several fell within 6 months following participation.

RESULTS suggest that it is important to conduct more than one mobility or balance screening test, and indicate that elevated STEADI risk classification was not associated with advancing age.

CONCLUSIONS: Outcomes from this study suggest that cut-off scores and the selection of functional fall screening tests, as well as the relative weights and scoring of items on the SIB/3KQ be reevaluated to maximize discriminate and predictive validity of the algorithm.

Language: en

Keywords

Elderly falls; Fall risk; Fall screening; Gait speed; Injury prevention; STEADI

Implementation of motivational interviewing in a fall prevention exercise program: experiences from a randomized controlled trial

Citation

Arkkukangas M, Hultgren S. [BMC Res. Notes](#) 2019; 12(1): e270.

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31088557

Abstract

OBJECTIVE: The elderly population over 65 is increasing globally, and interventions promoting health and preventive work, especially fall prevention, will constitute a large part of physiotherapists' duties in the near future. To address the challenges of promoting effective and sustainable health behavior changes among older persons, physiotherapists need support when it comes to how to apply behavior change strategies, especially in fall prevention. Therefore, the aim of this study was to describe implementation of motivational interviewing in a fall prevention exercise program. This study is a side product of another project.

RESULTS: Data from a recently performed three-armed randomized controlled trial were used to describe the implementation of motivational interviewing in the exercise group (n = 58). Level of motivation (priorities) and self-efficacy for both the physiotherapist and the participant in treatment, and to use a guide targeted towards the planned treatment are recommended actions. Regular meetings and follow ups as well as updates of motivational interviewing skills during a treatment period, should also be considered to achieve treatment fidelity. Trial registration NCT01778972, Retrospectively registered January 29, 2013.

Language: en

Keywords

Behavior; Exercise; Falls; Older adults; Physiotherapist

Physical activity, injurious falls, and physical function in aging: an umbrella review

DiPietro L, Campbell WW, Buchner DM, Erickson KI, Powell KE, Bloodgood B, Hughes T, Day KR, Piercy KL, Vaux-Bjerke A, Olson RD. [Med. Sci. Sports Exerc.](#) 2019; 51(6): 1303-1313.

Affiliation

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PMID

31095087

Abstract

PURPOSE: To review and update the evidence of the relationship between physical activity, risk of fall-related injury, and physical function in community-dwelling older people that was presented in the 2018 Physical Activity Guidelines Advisory Committee Scientific Report (PAGAC Report).

METHODS: Duplicate independent screenings of 1415 systematic reviews and meta-analyses published between 2006 and 2016 identified from PubMed®, Cochrane Library, and CINAHL databases yielded 111 articles used for the PAGAC Report. The PAGAC Aging Subcommittee members graded scientific evidence strength based upon a five-criteria rubric and assigned one of four grades: strong, moderate, limited, or not assignable. An updated search of 368 articles published between January 2017 and March 2018 yielded 35 additional pertinent articles.

RESULTS: Strong evidence demonstrated that physical activity reduced the risk of fall-related injuries by 32% to 40%, including severe falls requiring medical care or hospitalization. Strong evidence also supported that physical activity improved physical function and reduced the risk of age-related loss of physical function in an inverse graded manner among the general aging population, and improved physical function in older people with frailty and with Parkinson's disease. Aerobic, muscle-strengthening, and/or multicomponent physical activity programs elicited the largest improvements in physical function in these same populations. Moderate evidence indicated that for older adults who sustained a hip fracture or stroke, extended exercise programs and mobility-oriented physical activity improved physical function.

CONCLUSIONS: Regular physical activity effectively helps older adults improve or delay the loss of physical function and mobility while reducing the risk of fall-related injuries. These important public health benefits underscore the importance of physical activity among older adults, especially those living with declining physical function and chronic health conditions.

When will my patient fall? Sensor-based in-home walking speed identifies future falls in older adults

Citation

Piau A, Mattek N, Crissey R, Beattie Z, Dodge H, Kaye J. [J. Gerontol. A Biol. Sci. Med. Sci.](#) 2019; ePub(ePub): ePub.

Affiliation

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31095283

Abstract

BACKGROUND: Although there are known clinical measures that may be associated with risk of future falls in older adults, we are still unable to predict when the fall will happen. Our objective was to determine whether unobtrusive in-home assessment of walking speed can detect a future fall.

METHOD: In both ISAAC and ORCATECH Living Laboratory studies, a sensor-based monitoring system has been deployed in the homes of older adults. Longitudinal mixed effects regression models were used to explore trajectories of sensor-based walking speed metrics in those destined to fall vs. controls over time. Falls were captured during a 3 year period.

RESULTS: We observed no major differences between those destined to fall (n=55) and controls (n=70) at baseline in clinical functional tests. There was a longitudinal decline in median daily walking speed over the three months prior to a fall in those destined to fall as compared to controls, $p < 0.01$ (i.e. mean walking speed declined 0.1 cm.s⁻¹ per week). We also found pre-fall differences in sensor-based walking speed metrics in individuals who experienced a fall: walking speed variability was lower the month and the week just prior to the fall compared to three months prior to the fall, both $p < 0.01$.

CONCLUSIONS: While basic clinical tests were not able to differentiate who will prospectively fall, we found that significant variations in walking speed metrics prior to a fall were measurable. These results provide evidence of a potential sensor-based risk biomarker of prospective falls in community living older adults.

Language: en

Keywords

digital biomarkers; pervasive computing; technology

Screening for vestibular disorders using the modified clinical test of sensory interaction and balance and tandem walking with eyes closed

Citation

Cohen HS, Mulavara AP, Stitz J, Sangi-Haghpeykar H, Williams SP, Peters BT, Bloomberg JJ. [Otol. Neurotol.](#) 2019; 40(5): 658-665.

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PMID

31083095

Abstract

OBJECTIVES: Determine accurate cut-points and optimal combinations of screening tests of balance to detect patients with vestibular disorders. **STUDY DESIGN:** Case-control study. **SETTING:** Out-patient tertiary care.

SUBJECTS AND METHODS: Community-dwelling adults, without known neurological deficits or significant musculoskeletal disorders, including patients with vestibular disorders and healthy controls without vestibular disorders were tested while standing on medium density compliant foam with feet together and eyes closed under three head movement conditions, head stationary, and head moving in yaw and pitch at 0.33 Hz, for up to 30 seconds per trial. Dependent measures were trial duration, number of head movements during head movement trials, trunk kinematic measures, and number of correct tandem steps during tandem walking trials.

RESULTS: Receiver operator characteristics (ROC), sensitivity and specificity, and specific cut-points were calculated. Individual tests had moderate ROC values, from 0.67 to 0.84. ROC values were higher in the head moving trials than the head stationary trial and best for subjects aged 40 to 79. Using combined analyses of two or more tests, including published data on tandem walking, ROC values were higher, 0.80 to 0.90. Age- and sex-related performance differences were found.

CONCLUSION: Balance skills in standing and walking differ, so testing both skills is optimal and increases the likelihood of finding a deficit. Patients should be compared to age-appropriate norms. Kinematics and number of head movements were not very useful. This combined set of rapid, low-tech balance tests is useful in an initial approach to screening patients who may have vestibular disorders.

Language: en

Validation of an individualized reduction of falls intervention program among wheelchair and scooter users with multiple sclerosis

Rice LA, Peterson EW, Backus D, Sung J, Yarnot R, Abou L, Van Denend T, Shen S, Sosnoff JJ. [Medicine \(Baltimore\)](#) 2019; 98(19): e15418.

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PMID

31083170

Abstract

INTRODUCTION: Falls are a serious concern for wheelchair and scooter users with multiple sclerosis (MS). Approximately, 75% of the population reports at least one fall in a 6-month period and nearly half report frequent falls. Falls can result in physical injuries and contribute to activity curtailment. Despite the negative consequences, limited evidenced-based fall prevention programs designed specifically for wheelchair and scooter users with MS exist.

PURPOSE: Recognizing the threat falls pose to health and well-being and the dearth of fall prevention programs, the purpose of this study is to perform a structured process evaluation and examine the feasibility and efficacy of a community-based intervention specifically designed to reduce fall incidence among wheelchair and scooter users with MS. Secondary aims of the intervention are to improve functional mobility skills associated with fall risk (e.g., transfer and wheelchair skills, balance), increase knowledge of fall risk factors, decrease fear of falling, and enhance quality of life and community participation.

METHODS: To evaluate our specific aims, a clinical trial will be performed with 160 wheelchair and scooter users with MS. (ClinicalTrials.gov Identifier: NCT03705364). Participants will be recruited to participate in a small group-style community-based program. The content of the program will be based on factors found to be associated with falls among wheelchair and scooter users with MS. These factors include but are not limited to, wheelchair/scooter related characteristics, transfer activities, impaired seated balance, and environmental factors. A physical or occupational therapist, will implement the intervention, which is comprised of 6 sessions that occur once weekly. The incidence of falls, along with an examination of wheelchair/scooter and transfer skills, seated postural control and knowledge of fall related risk factors will be compared between intervention and control participants, with assessment periods occurring prior to the intervention, 1 to 2 weeks after completion of the 6-week intervention session, and 12 weeks after the intervention period is complete.

CONCLUSION: Results from this study will guide the refinement of the intervention program and inform future research among a large and diverse group of wheelchair and scooter users living with MS.