

SafetyLit October 14th 2018**Antipsychotic drug dispensations in older adults, including continuation after a fall-related hospitalization: identifying adherence to screening tool of older persons' potentially inappropriate prescriptions criteria using the Nova Scotia Seniors' Pharmacare Program and Canadian Institute for Health's Discharge Databases**

Trenaman SC, Hill-Taylor BJ, Matheson KJ, Gardner DM, Sketris IS.

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Affiliation: College of Pharmacy, Dalhousie University, Halifax, Nova Scotia, Canada.

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DOI 10.1016/j.curtheres.2018.08.002 **PMID** 30294400 **PMCID** PMC6170214

Abstract

PURPOSE: Despite well-established concerns regarding adverse drug effects, antipsychotics are frequently prescribed for older adults. Our first objective was to identify trends in antipsychotic dispensations to older Nova Scotians. STOPP (Screening Tool of Older Persons' Potentially Inappropriate Prescriptions) criteria identify antipsychotic use in those with a history of falls as potentially inappropriate. Our second objective was to identify trends, predictors, and adherence with this STOPP criteria by identifying continued antipsychotic dispensations following a fall-related hospitalization.

METHODS: A descriptive cross-sectional cohort study of Nova Scotia Seniors' Pharmacare Program (NSSPP) beneficiaries ≥ 66 years with at least one antipsychotic dispensation annually from April 1, 2009 to March 31, 2014 was completed. As well, unique beneficiaries with at least one antipsychotic dispensation in the four-year period between April 1, 2009 and March 31, 2013 were linked to fall-related hospitalizations recorded in the Canadian Institute for Health Information Discharge Abstract Database. The relationship of age, sex, fiscal year, days supply and length-of-stay were studied to identify predictors of continued antipsychotic dispensation post-discharge. Descriptive statistics and multivariate logistic analysis were performed. Odds ratios for the association of risk factors and adherence to STOPP criteria were calculated.

FINDINGS: We identified that in each year observed, there were 6% of eligible NSSPP beneficiaries that received at least one antipsychotic dispensation. Approximately 70% of antipsychotic dispensations were for second generation agents, primarily quetiapine and risperidone. Of the unique beneficiaries with at least one antipsychotic dispensation in the four-year period between April 1, 2009 and March 31, 2013 who survived a fall-related hospitalization over 75% were dispensed an antipsychotic in the 100 days following hospital discharge. Logistic regression showed no statistically significant association between potentially inappropriate therapy and potential predictors in multivariate analysis.

IMPLICATIONS: In each year from 2009 to 2014, 6% of Nova Scotia Seniors' Pharmacare beneficiaries were dispensed at least one antipsychotic prescription. Over 75% of the older adults who received an antipsychotic dispensation in the 100 days prior to a fall-related hospitalization, continued the drug class after discharge. This demonstrates that despite the recommendations of quality indicators such as the STOPP criteria, antipsychotics are continued in individuals at a high risk of falling. Future investigations are needed to inform health team, system, and policy interventions to improve concordance with this antipsychotic specific STOPP criterion when appropriate.

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Development and validation of a fall prevention knowledge test

Dykes PC, Bogaisky M, Carter EJ, Duckworth M, Hurley AC, Jackson EM, Khasnabish S, Lindros ME, Lipsitz SR, Scanlan M, Yu SP, Bates DW, Adelman JS.

J. Am. Geriatr. Soc. 2018; ePub(ePub): ePub.

Affiliation: New York-Presbyterian Hospital, New York, New York.

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Abstract

Falls are a serious, persistent problem in hospitals. Ensuring that all hospital staff have adequate knowledge of how to prevent falls is the first step in prevention. We identified validated fall prevention knowledge tests (FPKTs) and planned to conduct a systematic literature review. When the review identified a lack of FPKTs, we developed and evaluated a FPKT, confirmed its conceptual framework, identified the content domain, drafted test items, devised the format, selected items for empirical examination, and conducted a psychometric evaluation. We randomly divided a 209-subject data set into test and validation samples to make item reduction decisions and examine reliability and validity. The typical respondent was a white, 42-year old female nurse with a bachelor's degree and 7 years' experience. Subjects were confident in their ability to prevent falls, rating themselves an 8 on a self-efficacy scale of 1 (not at all) to 10 (very). The 11-item FPKT scale (range 0-11) attained a tetrachoric coefficient of 0.73, confirming initial reliability. FPKT mean scores obtained before and after fall prevention education improved from 5.1 ± 1.8 to 6.6 ± 1.7 . Statistically significant differences (paired t-test = 12.4, $p < .001$) confirmed validity. A robust way to assess nurses' knowledge of fall prevention is needed to inform effective educational programs. Addressing gaps in validated FPKTs provides an opportunity to inform and evaluate effective fall prevention programs.

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Effectiveness of a multifactorial intervention for dizziness in older people in primary care: A cluster randomised controlled trial

Stam H, van der Wouden JC, Hugtenburg JG, Twisk JWR, van der Horst HE, Maarsingh OR.

PLoS One 2018; 13(10): e0204876.

Affiliation: Department of General Practice and Elderly Care Medicine, Amsterdam Public Health Research Institute, Amsterdam UMC, Vrije Universiteit, Amsterdam, The Netherlands.

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Abstract

OBJECTIVES: Dizziness is common in older people. Physicians are often unable to identify a specific cause for dizziness in older people, even after an extensive diagnostic work-up. A prognosis-oriented approach, i.e. treating modifiable risk factors for an unfavourable course of dizziness, may reduce dizziness-related impairment in older people in primary care.

DESIGN: Cluster randomized controlled trial.

SETTING: 45 primary care practices in The Netherlands.

PARTICIPANTS: 168 participants aged ≥ 65 y who consulted their general practitioner for dizziness and experienced significant dizziness-related impairment (Dizziness Handicap Inventory (DHI) ≥ 30). Participants were part of to the intervention group (n = 83) or control group (n = 85), depending on whether they were enlisted in an intervention practice or in a control practice.

INTERVENTIONS: The multifactorial intervention consisted of: medication adjustment in case of ≥ 3 prescribed fall-risk-increasing drugs (FRIDs) and/or stepped mental health care in case of anxiety disorder and/or depression and/or exercise therapy in case of impaired functional mobility. The intervention was compared to usual care. **OUTCOME MEASURES:** The primary outcome was dizziness-related impairment. Secondary outcomes were quality of life (QoL), dizziness frequency, fall frequency, anxiety and depression, use of FRIDs.

RESULTS: Intention-to-treat analysis showed no significant intervention effect on dizziness-related impairment (DHI score difference -0.69 [95% CI -5.66;4.28]; p = 0.79). The intervention proved effective in reducing the number of FRIDs (FRID difference -0.48 [95% CI -0.89;-0.06]; p = 0.02). No significant intervention effects were found on other secondary outcomes. The uptake of and adherence to the interventions was significantly lower in patients eligible for ≥ 2 interventions compared to patients eligible for one intervention (p<0.001).

CONCLUSIONS: The multifactorial intervention for dizziness in older patients showed no significant intervention effect on most outcomes and adherence to the multifactorial intervention was low. Although multifactorial treatment for older dizzy people seems promising in theory, we question its feasibility in daily practice. Future research could focus on a sequential treatment for dizziness, e.g. measuring effectiveness of various evidence-based therapies in a stepwise approach.

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Effects of 12-month home-based physiotherapy on duration of living at home and functional capacity among older persons with signs of frailty or with a recent hip fracture - protocol of a randomized controlled trial (HIPFRA study)

Soukkio P, Suikkanen S, Käärjä S, Kautiainen H, Sipilä S, Kukkonen-Harjula K, Hupli M. *BMC Geriatr.* 2018; 18(1): e232.

Affiliation: Rehabilitation, South Karelia Social and Health Care District, Valto Käkelän katu 3, FI-53130, Lappeenranta, Finland.

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Abstract

BACKGROUND: Health concerns, such as frailty and osteoporotic fractures decrease functional capacity and increase use of health and social care services in the aging population. The ability to continue living at home is dependent on functional capacity, which can be enhanced by rehabilitation. We study the effects of a 12-month home-based physiotherapy program with 12-month follow-up on duration of living at home, functional capacity, and the use of social and health care services among older persons with signs of frailty, or with a recently operated hip fracture. **METHODS:** This is a non-blinded, parallel group, randomized controlled trial performed in South Karelia Social and Health Care District, Finland (population 131,000). Three hundred community-dwelling older persons with signs of frailty (age ≥ 65) and 300 persons with a recent hip fracture (age ≥ 60) will be recruited. Frailty is screened by FRAIL questionnaire and verified by modified

Fried's frailty criteria. Both patient groups will be randomized separately to a physiotherapy and a usual care arm. Individualized, structured and progressive physiotherapy will be carried out for 60 min, twice a week for 12 months at the participant's home. The primary outcome at 24 months is duration of living at home. Our hypothesis is that persons assigned to the physiotherapy arm will live at home for six months longer than those in the usual care arm. Secondary outcomes are functional capacity, frailty status, health-related quality-of-life, falls, use and costs of social and health care services, and mortality. Assessments, among others Short Physical Performance Battery, Functional Independence Measure, Mini Nutritional Assessment, and Mini-Mental State Examination will be performed at the participant's home at baseline, 3, 6, and 12 months. Register data on the use and costs of social and health care services, and mortality will be monitored for 24 months.

DISCUSSION: Our trial will provide new knowledge on the potential of intensive, long-term home-based physiotherapy among older persons at risk for disabilities, to enhance functional capacity and thereby to postpone the need for institutional care, and diminish the use of social and health care services. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02305433 , Registered Nov 28, 2014.

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Prevalence of sarcopenia and its components in community-dwelling outpatient older adults and their relation with functionality

Bahat G, Tufan A, Kilic C, Karan MA, Cruz-Jentoft AJ.

Aging Male 2018; ePub(ePub): ePub.

Affiliation: Servicio de Geriatria, Hospital Universitario Ramón y Cajal , Madrid , Spain.

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Abstract

AIM: Sarcopenia is recognized with its adverse functional outcomes. We aimed to report the prevalence of European Working Group on Sarcopenia in Older People (EWGSOP) defined sarcopenia and its individual components in community dwelling outpatient older adults and study the correlations of EWGSOP defined sarcopenia, muscle mass, muscle strength, and physical performance with functional status.

MATERIAL AND METHODS: The subjects were prospectively recruited from the geriatrics outpatient clinics of our university hospital. Body composition was assessed with bioimpedance analysis. Muscle strength was assessed by measurement of hand grip strength with hydraulic hand dynamometer, physical performance was assessed by 4 meter usual gait speed (UGS). Impaired muscle function was defined as presence of low muscle strength and or slow gait speed. As a measure of functionality, modified version of Katz activities of daily living (ADL) and Lawton instrumental activities of daily living (IADL) were assessed.

RESULTS: A total of 242 community dwelling outpatients with mean age of 79.4 ± 5.7 years were enrolled. 31.8% were male. Prevalence of low muscle mass was 2.1% and impaired muscle function was 71.1%. Prevalence of EWGSOP defined sarcopenia was 0.8% (1.3% in men and 0.6% in women). Most correlated parameter with ADL and IADL was the usual gait speed ($r = 0.49$, $r = 0.63$; $p < .001$, respectively). Grip strength was also correlated with ADL and IADL ($r = 0.28$, $r = 0.35$; $p < .001$). However, the skeletal muscle mass index (SMMI) was not correlated with ADL, IADL ($p = .22$, $p = .22$, respectively). In regression analysis, both ADL score and IADL scores were most related to UGS

(beta = 0.5 and 0.6, $p < .001$), age (beta = -0.25 and -0.2, $p < .001$) and then sarcopenia (beta = 0.1 and 0.1, $p < .05$) but was not related to hand grip strength or SMMI.

CONCLUSIONS: The prevalence of sarcopenia was low as 0.8% albeit the presence of impaired muscle function in more than 2/3 of the cases. We have found that EWGSOP defined sarcopenia had association with ADL and IADL. The gait speed component of sarcopenia had the strongest associations with functional measures but SMMI component did not have any relation. We suggest that although low muscle mass may be a parameter related to worse functionality, it should not be regarded prerequisite for presence of sarcopenia analogous to low bone mineral density for osteoporosis.

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Rehabilitation services use of older adults according to fall-risk screening guidelines

Gell NM, Patel KV.

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Affiliation: Division of Gerontology and Geriatric Medicine, University of Washington, Seattle, Washington.

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Abstract

OBJECTIVES: To characterize rehabilitation services use of older adults according to fall-risk classification based on screening guidelines.

DESIGN: Cross-sectional analysis of 2015 National Health and Aging Trends Study.

SETTING: Study participants' homes.

PARTICIPANTS: National sample of 7,440 community-dwelling Medicare beneficiaries.

MEASUREMENTS: In-person interviews and functional assessments. Based on Centers for Disease Control and Prevention Stopping Elderly Accidents, Deaths and Injuries criteria, participants were classified as low, moderate, or high fall risk.

RESULTS: Twenty-three percent of older adults classified as moderate fall-risk ($n = 2602$) and 40.6% of those at high fall-risk ($n = 940$) reported rehabilitation services use in the past year. Among older adults who reported rehabilitation services in the past year ($n = 1,505$), treatment to address falls was reported by 2.8%, 12.6%, and 34.7% of those classified with low, moderate, and high fall-risk, respectively ($p < 0.001$). Older adults with high fall-risk who did not receive rehabilitation services had significantly better self-reported physical capacity ($p = 0.02$) but comparable physical performance (all p 's > 0.05) relative to those who received rehabilitation.

CONCLUSION: Older adults at high risk for falls were significantly more likely to report rehabilitation services use compared to those with low and moderate risk of falling. The findings also indicate that there is low adherence to national clinical recommendations for rehabilitation services use in older adults vulnerable to falls-related injury. Among the high fall-risk group, those who did not receive rehabilitation services had similarly low physical function as compared with those who received rehabilitation, indicating potential unmet need to address physical impairments related to fall-risk.

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Risk factors for hospital readmission among Swedish older adults

Hallgren J, Aslan AKD.

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Affiliation: Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden.

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Abstract

INTRODUCTION: Hospital readmissions of older persons are common and often associated with complex health problems. The objectives were to analyze risk factors for readmission within 30 days from hospital discharge.

METHODS: A prospective study with a multifactorial approach based on the population-based longitudinal Swedish Adoption/Twin Study of Aging (SATSA) was conducted. During 9 years of follow-up, information on hospitalizations, readmissions and associated diagnoses were obtained from national registers. Logistic regression models controlling for age and sex were conducted to analyze risk factors for readmissions.

RESULTS: Of the 772 participants, [mean age 69.7 (\pm 11.1), 84 (63%)] were hospitalized and among these 208 (43%) had one or several readmissions within 30 days during the follow-up period. Most of the readmissions (57%) occurred within the first week; mean days from hospital discharge to readmission was 7.9 (\pm 6.2). The most common causes of admission and readmission were cardiovascular diseases and tumors. Only 8% of the readmissions were regarded as avoidable admissions. In a multivariate logistic regression, falling within the last 12 months (OR 0.57, p = 0.039) and being a male (OR 1.84, p = 0.006) increased the risk of readmission.

CONCLUSIONS: Most older persons that are readmitted return to hospital within the first week after discharge. Experiencing a fall was a particular risk factor of readmission. Preventive actions should preferably take place already at the hospital to reduce the numbers of readmission. Still, it should be remembered that most readmissions were considered to be necessary.

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Validation of the stabilometer balance test: bridging the gap between clinical and research based balance control assessments for stroke patients

Brouwer R, Kal E, van der Kamp J, Houdijk H.

Gait Posture 2018; 67: 77-84.

Affiliation: Research and Development, Heliomare Rehabilitation Center, Relweg 51, 1949 EC, Wijk aan Zee, the Netherlands; Department of Human Movement Sciences, Faculty of Behavioural and Movement Sciences, Vrije Universiteit, De Boelelaan 1105, 1081 HV, Amsterdam, the Netherlands.

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Abstract

BACKGROUND: A pronounced discrepancy exists between balance assessments for stroke survivors that are used for clinical purposes and those used for research. Clinical assessments like the Berg Balance Scale generally have stronger ecological validity, whereas research-based assessments like posturography are generally more reliable and precise. We developed a stabilometer balance test

(SBT) that aims to couple measurement reliability and precision to clinical meaningfulness by means of a personalized and adaptive test procedure.

RESEARCH QUESTION: To examine the validity, reliability, and measurement error of the stabilometer balance test in inpatient stroke patients.

METHODS: In this cross-sectional study, inpatient stroke patients (FAC > 2) were tested on a stabilometer with adjustable resistance to mediolateral movement. A modified staircase procedure was used to adapt task difficulty (i.e., rotational stiffness) on a trial-by-trial basis. The main outcome was the threshold stiffness at which a patient could just stay balanced. Threshold stiffness was correlated with the Berg Balance Scale and posturography measurements to determine concurrent validity (N = 86). Test-retest reliability (N = 23) was analyzed with the Intraclass Correlation Coefficient (ICC). Floor and ceiling effects were assessed. The minimal detectable change was determined at individual and group level.

RESULTS: Threshold rotational stiffness moderately correlated with the Berg Balance Scale ($r = -0.559$, $p < 0.001$), and the absolute path length of the center of pressure during posturography ($r = 0.348$, $p = 0.006$). Test-retest reliability was good to excellent (ICC = 0.869; 95%CI = 0.696-0.944). There were no floor or ceiling effects. The minimal detectable change was sufficiently small to detect relevant changes in balance control both on individual and group level. **RELEVANCE:** The SBT is both a valid and reliable balance assessment in stroke patients. It is at least as precise as current clinically preferred measures and does not suffer from ceiling effects. Therefore, it is suitable for use in clinical practice as well as research.

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Effects of vitamin D supplementation on musculoskeletal health: a systematic review, meta-analysis, and trial sequential analysis

Bolland MJ, Grey A, Avenell A.

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Affiliation: Health Services Research Unit, University of Aberdeen, Foresterhill, Aberdeen, Scotland, UK.

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DOI 10.1016/S2213-8587(18)30265-1 **PMID** 30293909

Abstract

BACKGROUND: The effects of vitamin D on fractures, falls, and bone mineral density are uncertain, particularly for high vitamin D doses. We aimed to determine the effect of vitamin D supplementation on fractures, falls, and bone density.

METHODS: In this systematic review, random-effects meta-analysis, and trial sequential analysis, we used findings from literature searches in previously published meta-analyses. We updated these findings by searching PubMed, Embase, and Cochrane Central on Sept 14, 2017, and Feb 26, 2018, using the search term "vitamin D" and additional keywords, without any language restrictions. We assessed randomised controlled trials of adults (>18 years) that compared vitamin D with untreated controls, placebo, or lower-dose vitamin D supplements. Trials with multiple interventions (eg, co-administered calcium and vitamin D) were eligible if the study groups differed only by use of vitamin D. We excluded trials of hydroxylated vitamin D analogues. Eligible studies included outcome data

for total or hip fractures, falls, or bone mineral density measured at the lumbar spine, total hip, femoral neck, total body, or forearm. We extracted data about participant characteristics, study design, interventions, outcomes, funding sources, and conflicts of interest. The co-primary endpoints were participants with at least one fracture, at least one hip fracture, or at least one fall; we compared data for fractures and falls using relative risks with an intention-to-treat analysis using all available data. The secondary endpoints were the percentage change in bone mineral density from baseline at lumbar spine, total hip, femoral neck, total body, and forearm.

FINDINGS: We identified 81 randomised controlled trials (n=53 537 participants) that reported fracture (n=42), falls (n=37), or bone mineral density (n=41). In pooled analyses, vitamin D had no effect on total fracture (36 trials; n=44 790, relative risk 1.00, 95% CI 0.93-1.07), hip fracture (20 trials; n=36 655, 1.11, 0.97-1.26), or falls (37 trials; n=34 144, 0.97, 0.93-1.02).

RESULTS were similar in randomised controlled trials of high-dose versus low-dose vitamin D and in subgroup analyses of randomised controlled trials using doses greater than 800 IU per day. In pooled analyses, there were no clinically relevant between-group differences in bone mineral density at any site (range -0.16% to 0.76% over 1-5 years). For total fracture and falls, the effect estimate lay within the futility boundary for relative risks of 15%, 10%, 7.5%, and 5% (total fracture only), suggesting that vitamin D supplementation does not reduce fractures or falls by these amounts. For hip fracture, at a 15% relative risk, the effect estimate lay between the futility boundary and the inferior boundary, meaning there is reliable evidence that vitamin D supplementation does not reduce hip fractures by this amount, but uncertainty remains as to whether it might increase hip fractures. The effect estimate lay within the futility boundary at thresholds of 0.5% for total hip, forearm, and total body bone mineral density, and 1.0% for lumbar spine and femoral neck, providing reliable evidence that vitamin D does not alter these outcomes by these amounts.

INTERPRETATION: Our findings suggest that vitamin D supplementation does not prevent fractures or falls, or have clinically meaningful effects on bone mineral density. There were no differences between the effects of higher and lower doses of vitamin D. There is little justification to use vitamin D supplements to maintain or improve musculoskeletal health. This conclusion should be reflected in clinical guidelines. **FUNDING:** Health Research Council of New Zealand.

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Making it work: experience of living with a person who falls due to multiple sclerosis

Carling A, Nilsagård Y, Forsberg A.

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

Affiliation: Department of Physiotherapy , Faculty of Medicine and Health, Örebro University , Örebro , Sweden.

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Abstract

PURPOSE: The purpose of this study was to describe how everyday life is experienced by next of kin sharing residence with a person who falls due to multiple sclerosis (MS).

METHODS: Twenty face-to-face interviews were analysed using a qualitative content analysis.

RESULTS: The overall theme "Making it work" represents the next of kin's struggle to make life work.

It comprises three themes: "Taking responsibility", "Making adjustments", and "Standing aside for someone else". The two first themes reflect what relatives do to make the situation work, and the last theme represents what they give up.

CONCLUSION: Next of kin who share residence and everyday life with a person with MS are affected by that person's occasional falls. They often take on the responsibility of preventing such falls and adapt their lives practically and emotionally. However, adaptation is neither always enough or always possible. In these cases, relatives often deprioritize their own needs and free time to make everyday life in the home work. Implications for rehabilitation By highlighting that next of kin also are affected by the falls of their cohabiting person with multiple sclerosis enhances the importance of fall prevention activities that should include the next of kin. Next of kin to people who occasionally fall due to multiple sclerosis can be in need of both practical and emotional support from the health care system. Enhanced information from the health care system can empower and help them to take care of themselves while managing to live with, care for, and protect the person with multiple sclerosis from falls.

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New insights on emotional contributions to human postural control

Adkin AL, Carpenter MG.

Front. Neurol. 2018; 9: e789.

Affiliation: International Collaboration on Repair Discoveries, University of British Columbia, Vancouver, BC, Canada.

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Abstract

It has been just over 20 years since the effects of height-induced threat on human postural control were first investigated. Raising the height of the support surface on which individuals stood increased the perceived consequences of instability and generated postural control changes. Since this initial work, converging evidence has accumulated supporting the efficacy of using height-induced threat to study the effects of emotions on postural control and confirming a direct influence of threat-related changes in arousal, anxiety, and fear of falling on all aspects of postural control, including standing, anticipatory, and reactive balance. In general, threat-related postural changes promote a greater physical safety margin while maintaining upright stance. We use the static balance literature to critically examine the current state of knowledge regarding: (1) the extent to which threat-related changes in postural control are sensitive to threat-related changes in emotions; (2) the underlying neurophysiological and cognitive mechanisms that may contribute to explaining the relationship between emotions and postural control; and (3) the generalizability of threat-related changes across different populations and types of threat. These findings have important implications for understanding the neuromechanisms that control healthy balance, and highlight the need to recognize the potential contributions of psychological and physiological factors to balance deficits associated with age or pathology. We conclude with a discussion of the practical significance of this research, its impact on improving diagnosis and treatment of postural control deficits, and potential directions for future research.

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Value-added electrodiagnostics: targeting interventions for fall risk reduction

Hearn SL, Richardson JK.

Phys. Med. Rehabil. Clin. N. Am. 2018; 29(4): 645-657.

Affiliation: Department of Physical Medicine and Rehabilitation, Michigan Medicine, 325 E Eisenhower Parkway Suite 100, Ann Arbor, MI 48108-3364, USA.

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Abstract

Walking confers numerous health benefits, particularly for middle-aged and older patients with diabetes and metabolic syndrome. Nevertheless, it brings a risk of injurious falls, especially among populations with diabetes and metabolic syndrome-related distal neuromuscular decline and frank neuropathy. Those who stand to benefit most from walking are at greatest risk. Development of practical clinical tools to more precisely quantify neuromuscular function and link it to mobility outcomes will help clinicians target interventions toward those at risk for falls. Electrodiagnosis, with inclusion of several newer techniques, serves as a promising tool for objective evaluation of distal neuromuscular function.

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PDF N Endnote Y

Vitamin D and bone density, fractures, and falls: the end of the story?

Gallagher JC.

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Affiliation: Creighton University Medical Center, Omaha NE 68131, USA. Electronic address: jcg@creighton.edu.

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Abstract [Abstract unavailable]

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