

Safety Literature 12th May 2019

Can older adults' balance and mobility improve with visual attention training?

Althomali MM, Vallis LA, Leat SJ. Eur. J. Appl. Physiol. 2019; ePub(ePub): ePub.

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Abstract

PURPOSE: We hypothesize that training older adults with a structured visual attention task will result in improved balance and mobility, potentially reducing their risk for falls.

METHODS: Healthy older adults aged 70 + took part in the study (mean age 80.3 ± 6 years). In this randomised control trial (NCT02030743), 15 participants were randomly assigned to a visual attention training group and 15 to a control group. Visual attention training was undertaken twice a week (45 min sessions) for 3 weeks (= six sessions) using versions of a selective attention useful field of view test and attended field of view test. The outcome measures were postural sway using a force plate, the Mini-Balance Evaluation Systems Test, the One-Legged Stance test, the 5 Meter Walking test, the Sit to Stand test, the Timed Up and Go test without and with a concurrent cognitive task.

RESULTS: There was a greater improvement in visual attention after training in the intervention group compared to the control group ($p < 0.01$). However, a mixed ANOVA (2× groups, 2× visit) showed no main effect of visit or group or any interaction for any of the force plate parameters. T tests of the changes over time between the intervention group and the control groups for the other balance and mobility assessment tools showed no improvement after the visual attention training.

CONCLUSION: It was found that there was no improvement in either mobility or balance after the visual attention training and no difference between the intervention and the control groups.

Keywords

Ageing; Balance; Falls; Mobility; Visual attention

Effect of creative dance on fitness, functional balance, and mobility control in the elderly

Joung HJ, Lee Y. Gerontology 2019; ePub(ePub): ePub.

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Abstract

BACKGROUND: In the literature on creativity in older adults, creative activities have been found to be an effective way of adapting to age-related psychological and physical changes, providing older adults with opportunities to think differently and be open to new ideas. On the other hand, physical activities play an important role in the prevention of physical decline. Thus, combining physical activity and certain creative activities, such as creative dance (CD), might help facilitate successful aging. Since the National Dance Association has expanded dance into educational and community facilities, CD programs have begun to be developed and widely used for all ages.

OBJECTIVE: We investigated the effects of a CD program on fitness, functional balance, and mobility in the elderly.

METHODS: Eighty-two community-dwelling older adults were randomly allocated to either a dance group (n = 41, age = 70.5 ± 7.89 years) or a stretching group (n = 41, age = 71.77 ± 7.78 years). Over 8 weeks, these groups participated in CD and stretching training (ST) classes, respectively, which lasted for 90 min and were held 2 days a week. The CD included tasks to explore movement elements (i.e., body, space, time, force), develop their own movement, and transform feelings or inner experiences into movement. The ST included several upper- and lower-body stretching poses. The outcome measures included the Senior Fitness Test (SFT), Berg Balance Scale (BBS), Timed Up and Go Test (TUG), Dynamic Gait Index (DGI), and 10-Meter Walking Test (gait speed).

RESULTS: A significant group × time interaction was found for the 30-s stand and 30-s arm curl, and for the BBS, TUG, DGI, and gait speed. Post hoc paired t tests revealed significantly increased scores for the 30-s stand, 30-s arm curl, back stretching, and chair sit and reach tests, and for the TUG, BBS, TUG, DGI, and gait speed in the CD group. The 30-s arm curl and chair sit and reach test scores significantly increased in the ST group.

CONCLUSION: CD and stretching may both benefit fitness and balance for older adults; however, CD may improve dynamic balance and mobility more than stretching. Therefore, CD may be a creative physical activity that contributes to successful aging.

Language: en

Keywords

Balance; Creative activity; Dance-based activity; Mobility; Successful aging

Prevalence of falls among older adults in the Gulf Cooperation Council countries: A systematic review and meta-analysis

Alqahtani BA, Alshehri MM, Hoover JC, Alenazi AM. Arch. Gerontol. Geriatr. 2019; 83: 169-174.

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Abstract

AIM: The aim of this study was to conduct a systematic review and meta-analysis for studies that have examined the prevalence and risk factors of falls in older adults living in the Gulf Cooperation Council countries (GCC).

METHODS: A literature search was performed using PubMed, Web of Science, Physiotherapy Evidence Database; and SCOPUS up to October 2018 to identify studies that have examined prevalence, risk factors, or consequences of falls in older adults living in the GCC.

RESULTS: A total of 6 studies met the inclusion criteria. The pooled prevalence of falls among older adults residing in GCC countries was 46.9%. Falls among included studies were associated with older age, female gender, low educational level, and number of medications.

CONCLUSIONS: The study shows a high prevalence of falls in older adults living in the GCC countries. The risk factors in the current study must be interpreted with caution, since some of the included studies did not report any risk factors. Due to the limited number of evidence evaluating risk factors and consequences of falls in the GCC countries population, a further longitudinal research is needed.

Language: en

Keywords

Elderly; Fall; Gulf Cooperation Council countries

Association between cumulative anticholinergic burden and falls and fractures in patients with overactive bladder: US-based retrospective cohort study

Szabo SM, Gooch K, Schermer C, Walker D, Lozano-Ortega G, Rogula B, Deighton A, Vonesh E, Campbell N. *BMJ Open* 2019; 9(5): e026391.

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Abstract

OBJECTIVE: To estimate the association between cumulative anticholinergic burden and falls and fractures in patients with overactive bladder (OAB).

DESIGN: A retrospective claims-based study (2007-2015) of patients with OAB; outcomes from a subset were contrasted to a non-OAB comparison. **SETTING:** United States, commercially and Medicare-insured population. **PARTICIPANTS:** 154 432 adults with OAB and 86 966 adults without OAB, mean age of 56 years, and 67.9% women. **MAIN OUTCOME MEASURES:** Cumulative anticholinergic burden, a unitless value representing exposure over time, was estimated over the 12 months pre-index ('at baseline') and every 6 months post index. Burden was categorised as no burden (0), low burden (1-89), medium burden (90-499) or high burden (500+). Unadjusted rates of falls or fractures were estimated, and the increased risk associated with anticholinergic burden (measured at the closest 6-month interval prior to a fall or fracture) was assessed using a Cox proportional hazards model and a marginal structural model.

RESULTS: Median (IQR) baseline anticholinergic burden was 30 (0.0-314.0) and higher among older (≥ 65 years, 183 [3.0-713.0]) versus younger (< 65 years, 13 [0.0-200.0]) adults. The unadjusted rate of falls or fractures over the period was 5.0 per 100 patient-years, ranging from 3.1 (95% CI 3.0-3.2) for those with no burden, to 7.4 (95% CI 7.1-7.6) for those with high burden at baseline. The adjusted risk of falls and fractures was greater with higher anticholinergic burden in the previous 6 months, with an HR of 1.2 (95% CI 1.2 to 1.3) for low burden versus no burden, to 1.4 (95% CI 1.3 to 1.4) for high versus no burden. Estimates from marginal structural models adjusting for time-varying covariates were lower but remained significantly higher with a higher anticholinergic burden. Rates of falls and fractures were approximately 40% higher among those with OAB (vs those without).

CONCLUSION: Higher levels of anticholinergic burden are associated with higher rates of falls and fractures, highlighting the importance of considering anticholinergic burden when treating patients with OAB.

Language: en

Keywords

anticholinergic burden; falls; fractures; marginal structural models; observational study; overactive bladder



Effect of a multistrain probiotic on cognitive function and risk of falls in patients with cirrhosis: a randomized trial

Román E, Nieto JC, Gely C, Vidal S, Pozuelo M, Poca M, Juárez C, Guarner C, Manichanh C, Soriano G. *Hepatology*. 2019; 3(5): 632-645.

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Abstract

Probiotics can modulate gut microbiota, intestinal permeability, and immune response and could therefore improve cognitive dysfunction and help avoid potential consequences, such as falls, in patients with cirrhosis. The aim of this study was to evaluate the effect of a multistrain probiotic on cognitive function, risk of falls, and inflammatory response in patients with cirrhosis. Consecutive outpatients with cirrhosis and cognitive dysfunction (defined by a Psychometric Hepatic Encephalopathy Score [PHES] < -4) and/or falls in the previous year were randomized to receive either a sachet of a high-concentration multistrain probiotic containing 450 billion bacteria twice daily for 12 weeks or placebo. We evaluated the changes in cognitive function (PHES); risk of falls (Timed Up and Go [TUG] test, gait speed, and incidence of falls); systemic inflammatory response; neutrophil oxidative burst; intestinal barrier integrity (serum fatty acid-binding protein 6 [FABP-6] and 2 [FABP-2] and zonulin and urinary claudin-3); bacterial translocation (lipopolysaccharide-binding protein [LBP]); and fecal microbiota. Thirty-six patients were included. Patients treated with the probiotic ($n = 18$) showed an improvement in the PHES ($P = 0.006$), TUG time ($P = 0.015$) and gait speed ($P = 0.02$), and a trend toward a lower incidence of falls during follow-up (0% compared with 22.2% in the placebo group [$n = 18$]; $P = 0.10$). In the probiotic group, we observed a decrease in C-reactive protein ($P = 0.01$), tumor necrosis factor alpha ($P = 0.01$), FABP-6 ($P = 0.009$), and claudin-3 ($P = 0.002$), and an increase in poststimulation neutrophil oxidative burst ($P = 0.002$). *Conclusion:* The multistrain probiotic improved cognitive function, risk of falls, and inflammatory response in patients with cirrhosis and cognitive dysfunction and/or previous falls.

Impact of tai chi exercise on balance disorders: a systematic review

Huang HW, Nicholson N, Thomas S. Am. J. Audiol. 2019; ePub(ePub): ePub.

Department of Library Education and Reference Services, University of Arkansas for Medical Sciences, Little Rock.

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Abstract

PURPOSE Tai chi is receiving increasing research attention with its benefit of improving flexibility and balance. The objective of this review was to examine the evidence concerning the impact of tai chi as a practical therapy for vestibular rehabilitation on individuals with balance and vestibular disorders.

METHOD A systematic review using 4 electronic databases was conducted. Randomized clinical trials and quasi-experimental studies were included.

RESULTS Four studies met the inclusion criteria and were included for data analysis.

RESULTS indicate positive effect of tai chi practice on dynamic postural stability in balance of its practitioners.

CONCLUSION Tai chi may be a useful therapy as for vestibular rehabilitation as it improves dynamic balance control and flexibility of individuals with balance and vestibular disorders.

The effects of hypoglycemia and dementia on cardiovascular events, falls and fractures and all-cause mortality in older people - a retrospective cohort study

Mattishent K, Richardson K, Dhatariya K, Savva GM, Fox C, Loke YK. *Diabetes Obes. Metab.* 2019; ePub(ePub): ePub.

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Abstract

AIMS: Older people with diabetes are susceptible to harm from hypoglycemia, however the consequences of hypoglycemia in older people with dementia are not known. We aimed to test association between hypoglycemia and serious adverse events in older patients with diabetes and dementia, and whether the consequences of hypoglycemia were affected by presence of dementia.

MATERIALS AND METHODS: Cohort study using Clinical Practice Research Datalink in England (1997-2016). We selected participants, intervention (exposure) and follow-up to mirror two hypothetical target randomised controlled trials. Target trial 1's exposure was hypoglycemia in patients with dementia. Target trial 2 examined adverse effects of hypoglycemia according to dementia status. We used Cox proportional hazard regression to estimate adjusted hazard ratios (aHR) for falls, fractures, cardiovascular events and mortality.

RESULTS: In target trial 1, hypoglycemia was associated with an increased risk during 12 months follow-up of falls and fractures - aHR 1.94 (95% CI 1.67 to 2.24), cardiovascular events - aHR 2.00 (95% CI 1.61 to 2.48) and mortality - aHR 2.36 (95% CI 2.09 to 2.67). In target trial 2, presence of dementia was associated with increased risk of adverse events after hypoglycemia (12 months follow-up): falls & fractures - aHR 1.72 (95% CI 1.51 to 1.96) and mortality - aHR 1.27 (95% CI 1.15 to 1.41), but had no effect on cardiovascular events - aHR 1.14 (95% CI 0.95 to 1.36).

CONCLUSIONS AND RELEVANCE: Hypoglycemia is associated with an early increased risk of serious adverse events in older people with diabetes and dementia.