Annotated Bibliography of Tai Chi Studies 2011 – 2012

Complied by Stephanie Taylor, MD PhD

Items 1 -84

1. Glob J Health Sci. 2011 Dec 29;4(1):237-44. doi: 10.5539/gjhs.v4n1p237.

Effects of Dao De Xin Xi exercise on balance and quality of life in Thai elderly women.

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Abstract

The objective of this study was to evaluate the effects of a 12-week Dao De Xin Xi exercise, modified short forms of Tai Chi, on balance and quality of life in Thai elderly population. Quasi-Experimental research, pretest-posttest one group design was done at Physical Medicine and Rehabilitation Department, Phramongkutklao Hospital. Thai healthy elderly women over the age of 60, requiring regular Dao De Xin Xi exercise were recruited from either patients or workers in the hospital. A 60-minute Dao De Xin Xi exercise class was set as 3 times per week for 12 weeks. At baseline and 12 weeks, participants were tested in their static balance (Single-Leg Stance Timed Test with eyes open and close), dynamic balance (Expanded Timed Up and Go (ETUG) Test). Quality of life was measured by the abbreviated Thai version of the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. Fourteen females were studied with mean age of 62.8±4.3 years old. The Single-Leg Stance Timed Test with eyes open and close, Expanded Timed Up and Go (ETUG) Test improved significantly (before versus after exercises $p < 0.001$). Significant improvement in quality of life were also found in each 4 domains, including physical health, psychological, social relationship, and environment (before versus after exercises $p = 0.001$, 0.001, 0.004 and 0.005 respectively). No significant improvement was found only in the right Single-Leg Stance Timed Test with eyes close ($p = 0.091$). A three times per week for 12-week Dao De Xin Xi exercise may help Thai elderly women improve both static, dynamic balance and quality of life.

PMID: 22980114 [PubMed - indexed for MEDLINE]

Related citations

2. Am J Phys Med Rehabil. 2012 Dec;91(12):1091-6. doi: 10.1097/PHM.0b013e31826edd21.

Tai Chi for stroke rehabilitation: a focused review.

Ding M.

College of Physical Education, Shandong Normal University, Jinan, China.

Abstract

This focused review summarizes and critically evaluates clinical trial evidence for the effectiveness of Tai Chi as a supportive therapy for stroke rehabilitation. All prospective, controlled clinical trials published in English or Chinese and involving the use of Tai Chi by survivors of stroke were searched in eight electronic databases. Information from the included studies was extracted and synthesized. The methodological quality of all studies was assessed with the Jadad score. Five randomized controlled trials, four in English and one in Chinese, met the inclusion criteria and were reviewed. The methodological quality of the trials was moderate (Jadad score, range, 1-4; average score, 2.6). Meta-analysis was not performed because of the heterogeneity of the study conditions and outcome measures. Three studies reported benefits of Tai Chi with respect to improved balance in participants who have had a stroke. Three studies assessed mobility function and reported no improvement after Tai Chi intervention in survivors of stroke. Improvements in quality-of-life and mental health were reported in three trials. This focused review suggests that Tai Chi exercise might be beneficial with respect to balance, quality-of-life, and mental health in survivors of stroke. More rigorous randomized controlled trials are required to determine whether Tai Chi is effective in stroke rehabilitation.

PMID: 23064479 [PubMed - indexed for MEDLINE]

Related citations

3. Cochrane Database Syst Rev. 2012 Sep 12;9:CD007146. doi: 10.1002/14651858.CD007146.pub3.

Interventions for preventing falls in older people living in the community.

Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, Lamb SE.

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Update of

- Cochrane Database Syst Rev. 2009;(2):CD007146.

Abstract

BACKGROUND:

Approximately 30% of people over 65 years of age living in the community fall each year. This is an update of a Cochrane review first published in 2009.

OBJECTIVES:

To assess the effects of interventions designed to reduce the incidence of falls in older people living in the community.

SEARCH METHODS:

We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (February 2012), CENTRAL (The Cochrane Library 2012, Issue 3), MEDLINE (1946 to March 2012), EMBASE (1947 to March 2012), CINAHL (1982 to February 2012), and online trial registers.

SELECTION CRITERIA:

Randomised trials of interventions to reduce falls in community-dwelling older people.

DATA COLLECTION AND ANALYSIS:

Two review authors independently assessed risk of bias and extracted data. We used a rate ratio (RaR) and 95% confidence interval (CI) to compare the rate of falls (e.g. falls per person year) between intervention and control groups. For risk of falling, we used a risk ratio (RR) and 95% CI based on the number of people falling (fallers) in each group. We pooled data where appropriate.

MAIN RESULTS:

We included 159 trials with 79,193 participants. Most trials compared a fall prevention intervention with no intervention or an intervention not expected to reduce falls. The most common interventions tested were exercise as a single intervention (59 trials) and multifactorial programmes (40 trials). Sixty-two per cent (99/159) of trials were at low risk of bias for sequence generation, 60% for attrition bias for falls (66/110), 73% for attrition bias for fallers (96/131), and only 38% (60/159) for allocation concealment.Multiple-

component group exercise significantly reduced rate of falls (RaR 0.71, 95% CI 0.63 to 0.82; 16 trials; 3622 participants) and risk of falling (RR 0.85, 95% CI 0.76 to 0.96; 22 trials; 5333 participants), as did multiple-component home-based exercise (RaR 0.68, 95% CI 0.58 to 0.80; seven trials; 951 participants and RR 0.78, 95% CI 0.64 to 0.94; six trials; 714 participants). For Tai Chi, the reduction in rate of falls bordered on statistical significance (RaR 0.72, 95% CI 0.52 to 1.00; five trials; 1563 participants) but Tai Chi did significantly reduce risk of falling (RR 0.71, 95% CI 0.57 to 0.87; six trials; 1625 participants).Multifactorial interventions, which include individual risk assessment, reduced rate of falls (RaR 0.76, 95% CI 0.67 to 0.86; 19 trials; 9503 participants), but not risk of falling (RR 0.93, 95% CI 0.86 to 1.02; 34 trials; 13,617 participants).Overall, vitamin D did not reduce rate of falls (RaR 1.00, 95% CI 0.90 to 1.11; seven trials; 9324 participants) or risk of falling (RR 0.96, 95% CI 0.89 to 1.03; 13 trials; 26,747 participants), but may do so in people with lower vitamin D levels before treatment.Home safety assessment and modification interventions were effective in reducing rate of falls (RR 0.81, 95% CI 0.68 to 0.97; six trials; 4208 participants) and risk of falling (RR 0.88, 95% CI 0.80 to 0.96; seven trials; 4051 participants). These interventions were more effective in people at higher risk of falling, including those with severe visual impairment. Home safety interventions appear to be more effective when delivered by an occupational therapist.An intervention to treat vision problems (616 participants) resulted in a significant increase in the rate of falls (RaR 1.57, 95% CI 1.19 to 2.06) and risk of falling (RR 1.54, 95% CI 1.24 to 1.91). When regular wearers of multifocal glasses (597 participants) were given single lens glasses, all falls and outside falls were significantly reduced in the subgroup that regularly took part in outside activities. Conversely, there was a significant increase in outside falls in intervention group participants who took part in little outside activity.Pacemakers reduced rate of falls in people with carotid sinus hypersensitivity (RaR 0.73, 95% CI 0.57 to 0.93; three trials; 349 participants) but not risk of falling. First eye cataract surgery in women reduced rate of falls (RaR 0.66, 95% CI 0.45 to 0.95; one trial; 306 participants), but second eye cataract surgery did not.Gradual withdrawal of psychotropic medication reduced rate of falls (RaR 0.34, 95% CI 0.16 to 0.73; one trial; 93 participants), but not risk of falling. A prescribing modification programme for primary care physicians significantly reduced risk of falling (RR 0.61, 95% CI 0.41 to 0.91; one trial; 659 participants).An anti-slip shoe device reduced rate of falls in icy conditions (RaR 0.42, 95% CI 0.22 to 0.78; one trial; 109 participants). One trial (305 participants) comparing multifaceted podiatry including foot and ankle exercises with standard podiatry in people with disabling foot pain significantly reduced the rate of falls (RaR 0.64, 95% CI 0.45 to 0.91) but not the risk of falling.There is no evidence of effect for cognitive behavioural interventions on rate of falls (RaR 1.00, 95% CI 0.37 to 2.72; one trial; 120 participants) or risk of falling (RR 1.11, 95% CI 0.80 to 1.54; two trials; 350 participants).Trials testing interventions to increase knowledge/educate about fall prevention alone did

not significantly reduce the rate of falls (RaR 0.33, 95% CI 0.09 to 1.20; one trial; 45 participants) or risk of falling (RR 0.88, 95% CI 0.75 to 1.03; four trials; 2555 participants).No conclusions can be drawn from the 47 trials reporting fall-related fractures.Thirteen trials provided a comprehensive economic evaluation. Three of these indicated cost savings for their interventions during the trial period: home-based exercise in over 80-year-olds, home safety assessment and modification in those with a previous fall, and one multifactorial programme targeting eight specific risk factors.

AUTHORS' CONCLUSIONS:

Group and home-based exercise programmes, and home safety interventions reduce rate of falls and risk of falling.Multifactorial assessment and intervention programmes reduce rate of falls but not risk of falling; Tai Chi reduces risk of falling.Overall, vitamin D supplementation does not appear to reduce falls but may be effective in people who have lower vitamin D levels before treatment.

PMID: 22972103 [PubMed - indexed for MEDLINE]

Related citations

4. J Appl Biomech. 2012 Aug 23. [Epub ahead of print]

Foot Forces Induced through Tai Chi Push-Hand Exercises.

Wong SH, Ji T, Hong Y, Fok SL, Wang L.

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Abstract

The low impact forces of Tai Chi push-hand exercises may be particularly suited for older people and for those with arthritis; however the biomechanics of push-hand exercises have not previously been reported. This paper examines the ground reaction forces (GRF) and plantar force distributions during Tai Chi push-hand exercises in a stationary stance with and without an opponent. Ten male Tai Chi practitioners participated in the study. The GRF of each foot were measured in three perpendicular directions using two force plates (Kistler). The plantar force distribution of each foot was measured concurrently using an insole sensor system (Novel). The results showed that the average maximum vertical GRF of each foot was not more than 88% ± 6.1% of the body weight and the sum of the vertical forces (103% ± 1.4%) generated by the two feet approximately equals the body weight at any one

time. The horizontal ground reaction forces generated by the two feet were in the opposite directions and the measured mean peak values were not more than 12% ± 2.8% and 17% ± 4.3% of the body weight in the medio-lateral and antero-posterior directions respectively. Among the nine plantar areas, the toes sustained the greatest plantar force. This study indicates that push-hand exercises generate lower vertical forces than those induced by walking, bouncing, jumping and Tai Chi gait, and that the greatest plantar force is located in the toe area which may have an important application in balance training particularly for older adults.

PMID: 22927546 [PubMed - as supplied by publisher]

Related citations

5. Altern Ther Health Med. 2012 May-Jun;18(3):16-22.

Tai chi exercise for patients with heart disease: a systematic review of controlled clinical trials.

Ng SM, Wang CW, Ho RT, Ziea TC, He J, Wong VC, Chan CL.

Centre on Behavioral Health and Department of Social Work and Social Administration, University of Hong Kong.

Erratum in

- Altern Ther Health Med. 2012 Nov-Dec;18(6):79. Tin-Hung Ho, Rainbow [corrected to Ho, Rainbow Tin-Hung]; Tat-Chi Ziea, Eric [corrected to Ziea, Tat-Chi]; He, J [removed]; Chi-Woon Taam Wong, Vivian [corrected to Wong, Vivian Chi-Woon]; Lai-Wan Chan, Cecilia [corrected to Chan, Cecilia Lai-Wan].

Abstract

CONTEXT:

To summarize and evaluate the available evidence from controlled clinical trials of tai chi (TC) exercise for patients with heart disease.

SEARCH METHODS:

Fourteen databases were searched up to November 2010 with the terms tai chi, taichi, tai ji, taiji, taijichuan, cardiac, heart, coronary, myocardial, and atrial fibrillation in the title, abstract, or key words. No language restrictions were imposed. The quality and validity of randomized clinical trials (RCTs) were evaluated using the Jadad Scale. The strength of the evidence for all included studies was evaluated using the Oxford Centre for Evidence-based

Medicine Levels of Evidence.

RESULTS:

Nine studies including 5 RCTs and 4 nonrandomized controlled clinical trials met the inclusion criteria. Three studies examined the effectiveness of TC exercise for patients with chronic heart failure (CHF), and 6 studies examined the effectiveness of TC exercise among patients with coronary heart disease (CHD). Overall, these studies demonstrated favorable effects of TC exercise for the patients with heart disease.

CONCLUSIONS:

The existing evidence suggests that TC exercise is a good option for heart patients with very limited exercise tolerance and can be an adjunct to rehabilitation programs for patients with CHD or CHF.

PMID: 22875558 [PubMed - indexed for MEDLINE]

Related citations

6. J Altern Complement Med. 2012 Aug;18(8):744-8. doi: 10.1089/acm.2011.0314. Epub 2012 Jul 30.

A pilot study exploring the effects of a 12-week t'ai chi intervention on somatic symptoms of depression in patients with heart failure.

Redwine LS, Tsuang M, Rusiewicz A, Pandzic I, Cammarata S, Rutledge T, Hong S, Linke S, Mills PJ.

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Abstract

BACKGROUND:

Patients with chronic heart failure (HF) and with elevated depression symptoms are at greater risk of morbidity and mortality. Somatic symptoms of depression are particularly prevalent in HF and are related to worse disease prognosis. T'ai chi practice is related to increased emotional well-being in various clinical populations; however, relatively little is known about t'ai chi's effects on somatic versus cognitive symptom dimensions of depression in HF.

PURPOSE:

The objective of the study was to measure whether a t'ai chi intervention

effectively reduces somatic and/or cognitive symptoms of depression in patients with HF.

METHODS:

Patients with HF were assigned to either t'ai chi training (n=16) or a usual-care group (n=12). At baseline and after the 12-week intervention period, participants were evaluated for changes in depressive symptoms using Beck Depression Inventory (BDI) total scores (BDI-t) and subcategorized scores of BDI-somatic (BDI-s) and BDI-cognitive (BDI-c), and for symptoms of fatigue using the Multidimensional Fatigue Symptom Inventory-Short Form.

RESULTS:

Patients with HF in the t'ai chi group compared to the usual-care group had reduced BDI-s ($p \leq 0.017$), but not BDI-c ($p=0.50$) scores from pre- to postintervention. Although t'ai chi did not significantly reduce fatigue, changes in physical fatigue ($p \leq 0.05$) were independently associated with changes in BDI-t scores.

CONCLUSIONS:

T'ai chi practice reduced somatic symptoms of depression, which have been linked to worse prognosis in HF. Reductions in fatigue appear to explain some but not all of the reductions in somatic symptoms of depression.

PMCID: PMC3419850 [Available on 2013/8/1]
PMID: 22845485 [PubMed - indexed for MEDLINE]
Related citations

7. J Nutr Health Aging. 2012 Jul;16(7):642-6.

Tai chi diminishes oxidative stress in Mexican older adults.

Rosado-Pérez J, Santiago-Osorio E, Ortiz R, Mendoza-Núñez VM.

Unidad de Investigación en Gerontología, Facultad de Estudios Superiores Zaragoza, Universidad Nacional Autónoma de México, DF México.

Abstract

OBJECTIVE:

To determine the effect of Tai Chi on oxidative stress in a population of elderly Mexican subjects.

DESIGN:

It was carried out a quasi-experimental study with a sample of 55 healthy subjects randomly divided into two age-matched groups: (i) a control group with 23 subjects and (ii) an experimental group with 32 subjects. The experimental group received daily training in Tai Chi for 50 min.

MEASUREMENTS:

It was measured before and after 6-month of exercise period: thiobarbituric acid reactive substances (TBARS), total antioxidant status (TAS), superoxide dismutase (SOD), and glutathione peroxidase (GPx).

RESULTS:

It was found that the experimental group exhibited a statistically significant decrease in glucose levels, total cholesterol, low-density lipoprotein cholesterol (LDLC), and systolic blood pressure, as well as an increase in SOD and GPx activity and TAS compared with the control group ($p < 0.05$).

CONCLUSIONS:

Our findings suggest that the daily practice of Tai Chi is useful for reducing OxS in healthy older adults.

PMID: 22836707 [PubMed - indexed for MEDLINE]

Related citations

8. Clin Interv Aging. 2012;7:185-90. doi: 10.2147/CIA.S32600. Epub 2012 Jun 22.

A randomized controlled trial of Tai chi for balance, sleep quality and cognitive performance in elderly Vietnamese.

Nguyen MH, Kruse A.

Institute of Gerontology, Heidelberg University, Heidelberg, Germany. hung.nguyen@gero.uni-heidelberg.de

Abstract

OBJECTIVE:

To evaluate the effects of Tai chi exercise on balance, sleep quality, and

cognitive performance in community-dwelling elderly in Vinh city, Vietnam.

DESIGN:

A randomized controlled trial.

PARTICIPANTS:

One hundred two subjects were recruited.

INTERVENTION:

Subjects were divided randomly into two groups. The Tai chi group was assigned 6 months' Tai chi training. The control group was instructed to maintain their routine daily activities.

OUTCOME MEASURES:

The Falls Efficacy Scale (FES), Pittsburgh Sleep Quality Index (PSQI), and Trail Making Test (TMT) were used as primary outcome measures.

RESULTS:

Participants in the Tai chi group reported significant improvement in TMT (part A) ($F [1, 71] = 78.37$, $P < 0.001$) and in TMT (part B), ($F [1, 71] = 175.00$, $P < 0.001$) in comparison with the control group. Tai chi participants also reported better scores in FES ($F [1, 71] = 96.90$, $P < 0.001$) and in PSQI ($F [1,71] = 43.69$, $P = 0.001$) than the control group.

CONCLUSION:

Tai chi is beneficial to improve balance, sleep quality, and cognitive performance of the elderly.

PMCID: PMC3396052 **Free PMC Article**
PMID: 22807627 [PubMed - indexed for MEDLINE]
Related citations

9. Am J Phys Med Rehabil. 2012 Oct;91(10):863-70.

Tai chi treatment for depression in Chinese Americans: a pilot study.

Yeung A, Lepoutre V, Wayne P, Yeh G, Slipp LE, Fava M, Denninger JW, Benson H, Fricchione GL.

Benson Henry Institute, Massachusetts General Hospital, Boston, USA.

Abstract

OBJECTIVE:

This study examined the feasibility, safety, and efficacy of using tai chi for treating major depressive disorder.

DESIGN:

Thirty-nine Chinese Americans with major depressive disorder were randomized into a 12-wk tai chi intervention or a waitlisted control group in a 2:1 ratio. The key outcome measurement was the 17-item Hamilton Rating Scale for Depression. Positive response was defined as a decrease of 50% or more on the 17-item Hamilton Rating Scale for Depression, and remission was defined as a score of 7 or lower on the 17-item Hamilton Rating Scale for Depression.

RESULTS:

Of the participants (n = 39), 77% were women, and mean (SD) age was 55 (10) years. There were 26 (67%) participants in the tai chi intervention group and 13 (33%) in the control group. Of the participants in the tai chi group, 73% completed the intervention; no adverse events were reported. We observed trends toward improvement in the tai chi intervention group, compared with the control group, in positive treatment-response rate (24% vs. 0%) and remission rate (19% vs. 0%), although the differences in our small sample did not reach statistical significance.

CONCLUSIONS:

A randomized controlled trial of tai chi is feasible and safe in Chinese American patients with major depressive disorder. These promising pilot study results inform the design of a more definitive trial.

PMID: 22790795 [PubMed - indexed for MEDLINE]

Related citations

10. Aust N Z J Public Health. 2012 Jun;36(3):241-8. doi: 10.1111/j.1753-6405.2011.00811.x. Epub 2012 Jan 2.

The cost-effectiveness of falls prevention interventions for older community-dwelling Australians.

Church J, Goodall S, Norman R, Haas M.

Centre for Health Economics Research and Evaluation, University of Technology, New South Wales.

Abstract

OBJECTIVE:

To evaluate the cost-effectiveness of strategies designed to prevent falls among older people.

METHODS:

A decision analytic Markov model of interventions designed to prevent falls was developed. Incremental cost-effectiveness ratios (ICERs) using quality adjusted life year (QALYs) as the measure, were calculated for those interventions aimed at the general population (home exercise, group exercise, tai chi, multiple and multi-factorial interventions); high-risk populations (group exercise, home hazard assessment/modification and multi-factorial interventions); and specific populations (cardiac pacing, expedited cataract surgery and psychotropic medication withdrawal). Uncertainty was explored using univariate and probabilistic sensitivity analysis.

CONCLUSION:

In the general population, compared with no intervention the ICERs were tai chi ($44,205), group-based exercise ($70,834), multiple interventions ($72,306), home exercise ($93,432), multifactorial interventions with only referral ($125,868) and multifactorial interventions with an active component ($165,841). The interventions were ranked by cost in order to exclude dominated interventions (more costly, less effective) and extendedly dominated interventions (where an intervention is more costly and less effective than a combination of two other interventions). Tai chi remained the only cost-effective intervention for the general population.

IMPLICATIONS:

Interventions designed to prevent falls in older adults living in the community can be cost-effective. However, there is uncertainty around some of the model parameters which require further investigation.

PMID: 22672030 [PubMed - indexed for MEDLINE]
Related citations

11. Rheumatology (Oxford). 2012 Sep;51(9):1707-13. Epub 2012 Jun 1.

A systematic review of evidence for the effectiveness of practitioner-based complementary and alternative therapies in the management of rheumatic diseases: rheumatoid arthritis.

Macfarlane GJ, Paudyal P, Doherty M, Ernst E, Lewith G, MacPherson H, Sim J, Jones GT; Arthritis Research UK Working Group on Complementary and Alternative Therapies for the Management of the Rheumatic Diseases.

Epidemiology Group, School of Medicine and Dentistry, University of Aberdeen, Foresterhill, Aberdeen, UK. g.j.macfarlane@abdn.ac.uk

Abstract

OBJECTIVE:

To critically review the evidence on the effectiveness of complementary therapies for patients with RA.

METHODS:

Randomized controlled trials, published in English up to May 2011, were identified using systematic searches of bibliographic databases and searching of reference lists. Information was extracted on outcomes and statistical significance in comparison with alternative treatments and reported side effects. The methodological quality of the identified studies was determined using the Jadad scoring system. All outcomes were considered but with a focus on patient global assessment and pain reporting.

RESULTS:

Eleven eligible trials were identified covering seven therapies. Three trials that compared acupuncture with sham acupuncture reported no significant difference in pain reduction between the groups but one out of two reported an improvement in patient global assessment. Except for reduction in physician's global assessment of treatment and disease activity reported in one trial, no other comparative benefit of acupuncture was seen. There were two studies on meditation and one each on autogenic training, healing therapy, progressive muscle relaxation, static magnets and tai chi. None of these trials reported positive comparative effects on pain but some positive effects on patient global assessment were noted at individual time points in the healing therapy and magnet therapy studies. A small number of other outcomes showed comparative improvement in individual trials. There were no reports of major adverse events. Conclusion: The very limited evidence

available indicates that for none of the practitioner-based complementary therapies considered here is there good evidence of efficacy or effectiveness in the management of RA.
PMID: 22661556 [PubMed - indexed for MEDLINE]
Related citations

12. Reg Anesth Pain Med. 2012 Jul-Aug;37(4):372-82. doi: 10.1097/AAP.0b013e31824f6629.

Tai chi and chronic pain.

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Abstract

In the last 2 decades, a growing body of research aimed at investigating the health benefits of Tai Chi in various chronic health conditions has been recognized in the literature. This article reviewed the history, the philosophy, and the evidence for the role of Tai Chi in a few selected chronic pain conditions. The ancient health art of Tai Chi contributes to chronic pain management in 3 major areas: adaptive exercise, mind-body interaction, and meditation. Trials examining the health benefit of Tai Chi in chronic pain conditions are mostly low quality. Only 5 pain conditions were reviewed: osteoarthritis, fibromyalgia, rheumatoid arthritis, low back pain, and headache. Of these, Tai Chi seems to be an effective intervention in osteoarthritis, low back pain, and fibromyalgia. The limitations of the Tai Chi study design and suggestions for the direction of future research are also discussed.
PMID: 22609642 [PubMed - indexed for MEDLINE]
Related citations

13. J Am Geriatr Soc. 2012 May;60(5):841-8. doi: 10.1111/j.1532-5415.2012.03928.x.

Effectiveness of tai chi as a community-based falls prevention intervention: a randomized controlled trial.

Taylor D, Hale L, Schluter P, Waters DL, Binns EE, McCracken H, McPherson K, Wolf SL.

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Abstract

OBJECTIVES:

To compare the effectiveness of tai chi and low-level exercise in reducing falls in older adults; to determine whether mobility, balance, and lower limb strength improved and whether higher doses of tai chi resulted in greater effect.

DESIGN:

Randomized controlled trial.

SETTING:

Eleven sites throughout New Zealand.

PARTICIPANTS:

Six hundred eighty-four community-residing older adults (mean age 74.5; 73% female) with at least one falls risk factor.

INTERVENTION:

Tai chi once a week (TC1) (n = 233); tai chi twice a week (TC2) (n = 220), or a low-level exercise program control group (LLE) (n = 231) for 20 wks.

MEASUREMENTS:

Number of falls was ascertained according to monthly falls calendars. Mobility (Timed-Up-and-Go Test), balance (step test), and lower limb strength (chair stand test) were assessed.

RESULTS:

The adjusted incident rate ratio (IRR) for falls was not significantly different between the TC1 and LLE groups (IRR = 1.05, 95% confidence interval (CI) = 0.83-1.33, P = .70) or between the TC2 and LLE groups (IRR = 0.88, 95% CI = 0.68-1.16, P = .37). Adjusted multilevel mixed-effects Poisson regression showed a significant reduction in logarithmic mean fall rate of -0.050 (95% CI = -0.064 to -0.037, P < .001) per month for all groups. Multilevel fixed-effects analyses indicated improvements in balance (P < .001 right and left leg) and lower limb strength (P < .001) but not mobility (P = .54) in all groups over time, with no differences between the groups (P = .37 (right leg), P = .66 (left leg), P = .21, and P = .44, respectively).

CONCLUSION:

There was no difference in falls rates between the groups, with falls reducing similarly (mean falls rate reduction of 58%) over the 17-month follow-up period. Strength and balance improved similarly in all groups over time.

PMID: 22587850 [PubMed - indexed for MEDLINE]

Related citations

14. Clin Rheumatol. 2012 Aug;31(8):1205-14. doi: 10.1007/s10067-012-1996-2. Epub 2012 May 13.

A randomized controlled trial of 8-form Tai chi improves symptoms and functional mobility in fibromyalgia patients.

Jones KD, Sherman CA, Mist SD, Carson JW, Bennett RM, Li F.

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Abstract

Previous researchers have found that 10-form Tai chi yields symptomatic benefit in patients with fibromyalgia (FM). The purpose of this study was to further investigate earlier findings and add a focus on functional mobility. We conducted a parallel-group randomized controlled trial FM-modified 8-form Yang-style Tai chi program compared to an education control. Participants met in small groups twice weekly for 90 min over 12 weeks. The primary endpoint was symptom reduction and improvement in self-report physical function, as measured by the Fibromyalgia Impact Questionnaire (FIQ), from baseline to 12 weeks. Secondary endpoints included pain severity and interference (Brief Pain Inventory (BPI), sleep (Pittsburg sleep Inventory), self-efficacy, and functional mobility. Of the 101 randomly assigned subjects (mean age 54 years, 93 % female), those in the Tai chi condition compared with the education condition demonstrated clinically and statistically significant improvements in FIQ scores (16.5 vs. 3.1, p = 0.0002), BPI pain severity (1.2 vs. 0.4, p = 0.0008), BPI pain interference (2.1 vs. 0.6, p = 0.0000), sleep (2.0 vs. -0.03, p = 0.0003), and self-efficacy for pain control (9.2 vs. -1.5, p = 0.0001). Functional mobility variables including timed get up and go (-.9 vs. -.3, p = 0.0001), static balance (7.5 vs. -0.3, p 0.0001), and dynamic balance (1.6 vs. 0.3, p = 0.0001) were significantly improved with Tai chi compared with education control. No adverse events were noted. Twelve weeks of Tai chi, practice twice weekly, provided worthwhile improvement in common FM symptoms

including pain and physical function including mobility. Tai chi appears to be a safe and an acceptable exercise modality that may be useful as adjunctive therapy in the management of FM patients. (ClinicalTrials.gov Identifier, NCT01311427).

PMID: 22581278 [PubMed - indexed for MEDLINE]

Related citations

15. J Am Med Dir Assoc. 2012 Jul;13(6):568.e15-20. doi: 10.1016/j.jamda.2012.03.008. Epub 2012 May 11.

A 1-year randomized controlled trial comparing mind body exercise (Tai Chi) with stretching and toning exercise on cognitive function in older Chinese adults at risk of cognitive decline.

Lam LC, Chau RC, Wong BM, Fung AW, Tam CW, Leung GT, Kwok TC, Leung TY, Ng SP, Chan WM.

Department of Psychiatry, the Chinese University of Hong Kong, Hong Kong. cwlam@cuhk.edu.hk

Abstract

OBJECTIVES:

To compare the effectiveness of Chinese-style mind-body exercise (24 forms simplified Tai Chi) versus stretching and toning exercise in the maintenance of cognitive abilities in Chinese elders at risk of cognitive decline.

DESIGN:

A 1-year single-blind cluster randomized controlled trial.

SETTINGS:

Community centers and residential homes for elders in Hong Kong.

PARTICIPANTS:

A total of 389 subjects at risk of cognitive decline (Clinical Dementia Rating, CDR 0.5 or amnestic-MCI) participated in an exercise intervention program.

INTERVENTION:

A total of 171 subjects were trained with Tai Chi (Intervention [I]) and 218 were trained with stretching and toning exercise (Control [C]).

METHODS:

Cognitive and functional performance were assessed at the baseline, and at 5, 9, and 12 months. Data were analyzed using multilevel mixed models. Primary outcomes included progression to clinical dementia as diagnosed by DSM-IV criteria, and change of cognitive and functional scores. Secondary outcomes included postural balance measured by the Berg Balance Scale neuropsychiatric and mood symptoms measured by the Neuropsychiatric Inventory, and Cornell Scale for Depression in Dementia.

RESULTS:

At 1 year, 92 (54%) and 169 (78%) participants of the I and C groups completed the intervention. Multilevel logistic regression with completers-only analyses controlled for baseline differences in education revealed that the I group had a trend for lower risk of developing dementia at 1 year (odds ratio 0.21, 95% CI 0.05-0.92, P = .04). The I group had better preservation of CDR sum of boxes scores than the C group in both intention-to-treat (P = .04) and completers-only analyses (P = .004). In completers-only analyses, the I group had greater improvement in delay recall (P = .05) and Cornell Scale for Depression in Dementia scores (P = .02).

CONCLUSION:

Regular exercise, especially mind-body exercise with integrated cognitive and motor coordination, may help with preservation of global ability in elders at risk of cognitive decline; however, logistics to promote long-term practice and optimize adherence needs to be revisited.

PMID: 22579072 [PubMed - indexed for MEDLINE]

Related citations

16. Gait Posture. 2012 Jul;36(3):361-6. doi: 10.1016/j.gaitpost.2012.03.029. Epub 2012 May 4.

Biomechanical characteristics of stepping in older Tai Chi practitioners.

Wu G.

Department of Rehabilitation and Movement Science, University of Vermont, Burlington, VT 05405, United States. ge.wu@uvm.edu

Abstract

This study compared the biomechanical characteristics of stepping in 10 older (aged 55+ years) Tai Chi (TC) practitioners and 10 age-matched non-TC (NTC) controls. Subjects were asked to take a step on an auditory cue as fast as possible, in the forward and backward directions, and with and without mental distractions, respectively. Stepping characteristics included step initiation time, preparation time for foot off, foot contact time, and step length and width. The results showed that both groups had similar step initiation time, step length and forward step width ($p>0.466$). Although mental distraction significantly delayed step initiation time and foot contact time, and shortened step length in both groups ($p<0.003$), TC practitioners had significantly shorter preparation and foot contact time, and wider backward step width than controls regardless of mental distraction ($p<0.024$). These group differences are in favor of TC practitioners in situations of postural recovery from potential falls, even with mental distractions, and may explain the positive effect of TC practice on fall reduction in older adults.

PMID: 22560715 [PubMed - indexed for MEDLINE]

Related citations

17. N Engl J Med. 2012 May 3;366(18):1737-8; author reply 1738. doi: 10.1056/NEJMc1202921#SA2.

Tai chi for patients with Parkinson's disease.

Corcos DM, Comella CL, Goetz CG.

Comment on

- Tai chi and postural stability in patients with Parkinson's disease. [N Engl J Med. 2012]

  Tai chi and postural stability in patients with Parkinson's disease.*Li F, Harmer P, Fitzgerald K, Eckstrom E, Stock R, Galver J, Maddalozzo G, Batya SS. N Engl J Med. 2012 Feb 9; 366(6):511-9.*

PMID: 22551137 [PubMed - indexed for MEDLINE]

Related citations

18. N Engl J Med. 2012 May 3;366(18):1737; author reply 1738. doi: 10.1056/NEJMc1202921#SA1.

Tai chi for patients with Parkinson's disease.

Liu T, Lao L.

Comment on

- Tai chi and postural stability in patients with Parkinson's disease. [N Engl J Med. 2012]

  Tai chi and postural stability in patients with Parkinson's disease.*Li F, Harmer P, Fitzgerald K, Eckstrom E, Stock R, Galver J, Maddalozzo G, Batya SS. N Engl J Med. 2012 Feb 9; 366(6):511-9.*

PMID: 22551136 [PubMed - indexed for MEDLINE]
Related citations

19. Arch Phys Med Rehabil. 2012 Aug;93(8):1400-7. doi: 10.1016/j.apmr.2012.03.018. Epub 2012 Mar 28.

Impact of tai chi on impairment, functional limitation, and disability among preclinically disabled older people: a randomized controlled trial.

Day L, Hill KD, Jolley D, Cicuttini F, Flicker L, Segal L.

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Abstract

OBJECTIVES:

To test the effect of tai chi on the progression of preclinical disability to manifest disability compared with seated flexibility exercise, and to examine whether tai chi mediates delayed disability by reducing impairments in musculoskeletal, cardiovascular, and neurologic systems, and related functional limitations.

DESIGN:

Multisite parallel group individually randomized controlled trial.

SETTING:

General community.

PARTICIPANTS:

Preclinically disabled community-dwelling people older than 70 years (n=503), without major medical conditions or moderate to severe cognitive

impairment.

INTERVENTION:

Modified Sun style tai chi exercise compared with seated flexibility exercise, both programs delivered in groups for 60 minutes twice weekly for 24 weeks.

MAIN OUTCOME MEASURES:

Disability measured with the Late-Life Function and Disability Instrument. Secondary outcomes were impairments and functional limitations of the musculoskeletal, neurologic, and cardiovascular systems.

RESULTS:

There was little change within or between the 2 groups. The mean change in the Disability Frequency Score was 0.3 and 0.1 points (100-point scale) for the intervention and control groups, respectively (adjusted difference -.21; 95% confidence interval [CI] -.99 to .56). The mean change in the Disability Limitation Score was -0.1 and -.04 points for the intervention and control groups, respectively (adjusted difference -0.6; 95% CI -2.31 to 1.11). There was little effect on impairments or functional limitations. A higher proportion of intervention participants ceased attending the exercise program (difference=17.9%, 95% CI 9.6-25.8). Multiple imputation of missing data did not change the results.

CONCLUSIONS:

Modified Sun style tai chi did not have an impact on impairment, functional limitations, or disability in preclinically disabled older people when delivered for 24 weeks. Withdrawal from the exercise classes was high but did not explain the null result. Improved compliance, or a longer or more intensive program, may be required.

PMID: 22465404 [PubMed - indexed for MEDLINE]
Related citations

20. J Altern Complement Med. 2012 Mar;18(3):281-6. doi: 10.1089/acm.2011.0008.

Comparing the health status of U.S. taijiquan and qigong practitioners to a national survey sample across ages.

Komelski MF, Miyazaki Y, Bliesznер R.

Department of Human Development, Virginia Polytechnic Institute and State University, Blacksburg, VA 24060, USA. Komelski@vt.edu

Abstract

PURPOSE:

The purpose of this study is to examine and compare health status across ages using a volunteer sample of U.S. Taijiquan and Qigong (TQG) practitioners (N=120; age range=24-83, M=54.77) and a nationally representative sample (N=414,629; age range=18-99, M=54.86) collected by the Centers for Disease Control and Prevention (CDC).

DESIGN:

The study design was cross-sectional, between-group comparisons.

METHODS:

An online survey designed to collect data on health-related quality of life (HRQoL), lifestyle variables, and TQG practice regimens was administered to a volunteer sample of taijiquan practitioners. A link to the survey was e-mailed to registrants of the International T'ai Chi Symposium who further forwarded (snowballed) the link to other practitioners across the country and around the world. The HRQoL and demographic sections of the survey were adapted from the CDC's Behavioral Risk Factor Surveillance System (BRFSS). Taiji practitioner data and BRFSS data were then merged and three groups--No Exercise, Some Exercise, and TQG Exercise--were created for the analysis. Health status was regressed on age, exercise group membership, and the interaction between age and group membership while controlling for income and education.

RESULTS:

After controlling for the effects of income and education, a significant interaction effect ($p<0.001$) was detected between age and group membership. Group membership was not a substantial predictor of health among younger individuals, but among older adults, substantive and significant between-group differences appeared, with the TQG group evincing the best average health trajectory across ages.

CONCLUSIONS:

Although this cross-sectional comparison cannot establish causality or rule

out cohort effects, the extraordinary trajectory of health status among TQG practitioners in this U.S. sample is significantly better than average exercising and nonexercising U.S. Americans, even while controlling for the influence of income and education levels. Lifespan developmental theory is utilized to consider several factors beyond the physical exercise value of TQG that may be responsible for the exercise group differences.
PMID: 22420740 [PubMed - indexed for MEDLINE]
Related citations

21. Am J Chin Med. 2012;40(2):245-53.

Effect of Tai Chi on body balance: randomized controlled trial in elderly men with dizziness.

Maciaszek J, Osinski W.

Department of Theory of Physical Education and Anthropomotorics, University School of Physical Education in Poznań, Poznań, Poland. jmaciaszek@awf.poznan.pl

Abstract

The purpose of this study was to assess the effect of 18-week Tai Chi training on body balance in a dynamic trial among elderly men with dizziness. The study covered subjects aged 60 to 80 years. We identified 40 men who reported a history of dizziness. The subjects were recruited using direct mailings and a community information campaign. The participants were randomly assigned to either the exercise intervention (n = 20) or control group (n = 20). The Tai Chi group participated in an 18-week exercise class held for 45 minutes twice a week. Body balance was studied in two ways: using the "8 foot up and go test" (Rikli and Jones 2001) and using a Computer Posturographic System PE 90 (manufactured by Military Institute of Aviation Medicine in Warsaw and outfitted with Pro-Med modified software). The ability to perform specific tasks (maximal deflections in four directions) was measured on the posturographic platform. The variation in results obtained on the first and second date of tests in the experimental and control groups was confirmed statistically using four parameters, i.e. "8 foot up to and go test (H = 8.21;p = 0.003), forward deflection (H = 3.70;p = 0.050), backward deflection (H = 5.04;p = 0.024) and maximum sway area (H = 8.86;p = 0.002). Consequently, we found that the 18-week period of Tai-Chi exercises, with a frequency of twice a week for 45 minutes, is beneficial for dynamic balance, which is important for the reduction of fall risk factors among elderly men with dizziness.
PMID: 22419420 [PubMed - indexed for MEDLINE]
Related citations

22. Arch Phys Med Rehabil. 2012 Jul;93(7):1138-46. doi:

10.1016/j.apmr.2012.01.023. Epub 2012 Mar 11.

Pilot study comparing changes in postural control after training using a video game balance board program and 2 standard activity-based balance intervention programs.

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Abstract

OBJECTIVE:

To compare the impacts of Tai Chi, a standard balance exercise program, and a video game balance board program on postural control and perceived falls risk.

DESIGN:

Randomized controlled trial.

SETTING:

Research laboratory.

PARTICIPANTS:

Independent seniors (N=40; 72.5±8.40) began the training, 27 completed.

INTERVENTIONS:

Tai Chi, a standard balance exercise program, and a video game balance board program.

MAIN OUTCOME MEASURES:

The following were used as measures: Timed Up & Go, One-Leg Stance, functional reach, Tinetti Performance Oriented Mobility Assessment, force plate center of pressure (COP) and time to boundary, dynamic posturography (DP), Falls Risk for Older People-Community Setting, and Falls Efficacy Scale.

RESULTS:

No significant differences were seen between groups for any outcome measures at baseline, nor were significant time or group × time differences for any field test or questionnaire. No group × time differences were seen for any COP measures; however, significant time differences were seen for total COP, 3 of 4 anterior/posterior displacement and both velocity, and 1 displacement and 1 velocity medial/lateral measure across time for the entire sample. For DP, significant improvements in the overall score (dynamic movement analysis score), and in 2 of the 3 linear and angular measures were seen for the sample.

CONCLUSIONS:

The video game balance board program, which can be performed at home, was as effective as Tai Chi and the standard balance exercise program in improving postural control and balance dictated by the force plate postural sway and DP measures. This finding may have implications for exercise adherence because the at-home nature of the intervention eliminates many obstacles to exercise training.

PMID: 22414490 [PubMed - indexed for MEDLINE]
Related citations

23. Arch Gerontol Geriatr. 2012 Sep-Oct;55(2):460-7. doi: 10.1016/j.archger.2012.02.003. Epub 2012 Mar 2.

Psychological effects of Tai Chi Chuan.

Jimenez PJ, Melendez A, Albers U.

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Abstract

This article reviews the scientific studies which have been carried out at the international level on the psychological benefits that Tai Chi Chuan (TCC) brings to those who practice it. It analyzes the framework in which the research was performed, the real benefits that this activity achieves and their causes. The present article brings a new analytical perspective to the reviews carried out to date in regard to classifying and analyzing the psychological variables involved in the practice of TCC and offers a homogeneous framework within which to develop research in this field

based on the model proposed by Spirduso et al. (2005).

PMID: 22386602 [PubMed - indexed for MEDLINE]
Related citations

24. Nihon Ronen Igakkai Zasshi. 2011;48(6):699-706.

[The effects of Tai-chi exercise for the prevention of long-term care in community-dwelling frail elderly people -new care-need certification and mortality-].

[Article in Japanese]
Fujimoto S, Yamazaki S, Wakabayashi A, Matsuzaki Y, Yasumura S.

Department of Public Health, Fukushima Medical University, School of Medicine.

Abstract

AIM:

The purpose of this study was to examine the effects of a Tai Chi Yuttari-exercise based care prevention program aimed at frail elderly people on new care-need certification and mortality.

METHODS:

Participants were elderly individuals (≥65 years of age) who lived in Kitakata City and who had experienced a fall in the past year but were not receiving support or long-term care. Those who agreed to participate in the exercise program were the intervention group (n=34), and those who did not participate were the control group (n=84). The intervention program was carried out once a week for a total of 15 times during the period spanning December 5, 2006 to March 22, 2007. In the intervention group we measured and analyzed changes in physical functions and administered a questionnaire before and after the intervention. We confirmed any deaths and determined whether certification for long-term care had been issued to the participants, in March 2010.

RESULTS:

New care-need certification was issued to 2 participants (6.3%) in the intervention group and 19 (24.1%) in the control group. Logistic regression analysis revealed that participants in the intervention group tended to require less new certification than those in the control group (p=0.098).

There was no significant difference in the number of deaths between the intervention (2 participants; 5.9%) and control (5 participants; 6.0%) groups. We observed significant changes between pre- and post-intervention on several variables, including motor fitness scale, maximum walking speed over 10 meters, functional reach test, ability to stand after a long period of sitting, and maximum one step width.

CONCLUSION:

The Tai Chi Yuttari-exercise based intervention program for frail elderly people reduced the need for new care-need certification and was useful as a care prevention program.

Free Article

PMID: 22322043 [PubMed - indexed for MEDLINE]

Related citations

25. N Engl J Med. 2012 Feb 9;366(6):511-9. doi: 10.1056/NEJMoa1107911.

Tai chi and postural stability in patients with Parkinson's disease.

Li F, Harmer P, Fitzgerald K, Eckstrom E, Stock R, Galver J, Maddalozzo G, Batya SS.

Oregon Research Institute, Eugene, OR 97403, USA. fuzhongl@ori.org

Comment in

- [In Process Citation]. [Praxis (Bern 1994). 2012]

  [In Process Citation].*Steurer J. Praxis (Bern 1994). 2012 Jun 6; 101(12):799-800.*

- Tai chi for patients with Parkinson's disease. [N Engl J Med. 2012]

  Tai chi for patients with Parkinson's disease.*Liu T, Lao L. N Engl J Med. 2012 May 3; 366(18):1737; author reply 1738.*

- Parkinson disease: Tai chi improves balance in Parkinson disease. [Nat Rev Neurol. 2012]

  Parkinson disease: Tai chi improves balance in Parkinson disease.*Parekh V. Nat Rev Neurol. 2012 Mar 20; 8(4):179. Epub 2012 Mar 20.*

- Tai chi for patients with Parkinson's disease. [N Engl J Med. 2012]

  Tai chi for patients with Parkinson's disease.*Corcos DM, Comella CL, Goetz CG. N Engl J Med. 2012 May 3; 366(18):1737-8; author reply 1738.*

Abstract

BACKGROUND:

Patients with Parkinson's disease have substantially impaired balance, leading to diminished functional ability and an increased risk of falling. Although exercise is routinely encouraged by health care providers, few programs have been proven effective.

METHODS:

We conducted a randomized, controlled trial to determine whether a tailored tai chi program could improve postural control in patients with idiopathic Parkinson's disease. We randomly assigned 195 patients with stage 1 to 4 disease on the Hoehn and Yahr staging scale (which ranges from 1 to 5, with higher stages indicating more severe disease) to one of three groups: tai chi, resistance training, or stretching. The patients participated in 60-minute exercise sessions twice weekly for 24 weeks. The primary outcomes were changes from baseline in the limits-of-stability test (maximum excursion and directional control; range, 0 to 100%). Secondary outcomes included measures of gait and strength, scores on functional-reach and timed up-and-go tests, motor scores on the Unified Parkinson's Disease Rating Scale, and number of falls.

RESULTS:

The tai chi group performed consistently better than the resistance-training and stretching groups in maximum excursion (between-group difference in the change from baseline, 5.55 percentage points; 95% confidence interval [CI], 1.12 to 9.97; and 11.98 percentage points; 95% CI, 7.21 to 16.74, respectively) and in directional control (10.45 percentage points; 95% CI, 3.89 to 17.00; and 11.38 percentage points; 95% CI, 5.50 to 17.27, respectively). The tai chi group also performed better than the stretching group in all secondary outcomes and outperformed the resistance-training group in stride length and functional reach. Tai chi lowered the incidence of falls as compared with stretching but not as compared with resistance training. The effects of tai chi training were maintained at 3 months after the intervention. No serious adverse events were observed.

CONCLUSIONS:

Tai chi training appears to reduce balance impairments in patients with mild-to-moderate Parkinson's disease, with additional benefits of improved functional capacity and reduced falls. (Funded by the National Institute of Neurological Disorders and Stroke; ClinicalTrials.gov number, NCT00611481.).

PMCID: PMC3285459 **Free PMC Article**
PMID: 22316445 [PubMed - indexed for MEDLINE]
Related citations

26. BMC Complement Altern Med. 2012 Jan 30;12:7. doi: 10.1186/1472-6882-12-7.

Impact of Tai Chi exercise on multiple fracture-related risk factors in post-menopausal osteopenic women: a pilot pragmatic, randomized trial.

Wayne PM, Kiel DP, Buring JE, Connors EM, Bonato P, Yeh GY, Cohen CJ, Mancinelli C, Davis RB.

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Abstract

BACKGROUND:

Tai Chi (TC) is a mind-body exercise that shows potential as an effective and safe intervention for preventing fall-related fractures in the elderly. Few randomized trials have simultaneously evaluated TC's potential to reduce bone loss and improve fall-predictive balance parameters in osteopenic women.

METHODS:

In a pragmatic randomized trial, 86 post-menopausal osteopenic women, aged 45-70, were recruited from community clinics. Women were assigned to either nine months of TC training plus usual care (UC) vs. UC alone. Primary outcomes were changes between baseline and nine months of bone mineral density (BMD) of the proximal femur and lumbar spine (dual-energy X-ray absorptiometry) and serum markers of bone resorption and formation. Secondary outcomes included quality of life. In a subsample (n = 16), quiet standing fall-predictive sway parameters and clinical balance tests were also

assessed. Both intent-to-treat and per-protocol analyses were employed.

RESULTS:

For BMD, no intent-to-treat analyses were statistically significant; however, per protocol analyses (i.e., only including TC participants who completed ≥ 75% training requirements) of femoral neck BMD changes were significantly different between TC and UC (+0.04 vs. -0.98%; P = 0.05). Changes in bone formation markers and physical domains of quality of life were also more favorable in per protocol TC vs. UC (P = 0.05). Changes in sway parameters were significantly improved by TC vs. UC (average sway velocity, P = 0.027; anterior-posterior sway range, P = 0.014). Clinical measures of balance and function showed non-significant trends in favor of TC.

CONCLUSIONS:

TC training offered through existing community-based programs is a safe, feasible, and promising intervention for reducing multiple fracture risks. Our results affirm the value of a more definitive, longer-term trial of TC for osteopenic women, adequately powered to detect clinically relevant effects of TC on attenuation of BMD loss and reduction of fall risk in this population.

TRIAL REGISTRATION:

ClinicalTrials.gov: NCT01039012.

PMCID: PMC3298524 **Free PMC Article**
PMID: 22289280 [PubMed - indexed for MEDLINE]
Related citations

27. Semin Oncol Nurs. 2012 Feb;28(1):64-74. doi: 10.1016/j.soncn.2011.11.007.

Traditional Chinese Medicine for cancer-related symptoms.

Smith ME, Bauer-Wu S.

Director of Chinese Medicine Services, UNM Center for Life, University of New Mexico, Department of Internal Medicine, Albuquerque, NM 87109, USA. mesmith@salud.unm.edu

Abstract

OBJECTIVE:

To familiarize oncology nurses about the theory and research related to Traditional Chinese Medicine (TCM) for management of cancer-related symptoms.

DATA SOURCES:

Peer-reviewed journal articles, TCM texts, professional experience.

CONCLUSION:

The increasing integration of TCM into mainstream medicine mandates that oncology professionals be familiar with the benefits as well as risks. Clinical research on acupuncture in cancer care is growing and demonstrates it is safe for cancer patients, although results on efficacy across symptoms have been mixed.

IMPLICATIONS FOR NURSING PRACTICE:

Informed oncology nurses can assist patients by making appropriate referrals to licensed acupuncturists and qualified TCM practitioners to help alleviate unpleasant symptoms associated with cancer and conventional cancer treatment.

PMID: 22281311 [PubMed - indexed for MEDLINE]
Related citations

28. Curr Pain Headache Rep. 2012 Apr;16(2):153-61. doi: 10.1007/s11916-012-0245-3.

The role of exercise and types of exercise in the rehabilitation of chronic pain: specific or nonspecific benefits.

Sullivan AB, Scheman J, Venesy D, Davin S.

Mellen Center for Multiple Sclerosis Treatment and Research, Cleveland Clinic, Cleveland, OH 44195, USA.

Abstract

Chronic pain is one of the most common complaints seen in general practitioners' offices, and it contributes to social, emotional, physical, and economical losses. The management of this problem poses challenges for health care providers when the current treatment of choice for chronic pain

is pharmacological management, which may not be a sufficient and/or holistic approach to the management of chronic pain. Our goal is to increase awareness of the significance of physical activity, as well as examine additional cost-effective, integrated approaches to help manage the complex and debilitating effects of this condition. This article summarizes the types of exercise in the rehabilitation of chronic pain patients and provides practical recommendations for the clinician based on empirical and clinical experience. This safe, cost-free, nonpharmacologic way of managing pain has been found to reduce anxiety and depression, improve physical capacity, increase functioning and independence, and reduce morbidity and mortality.

PMID: 22258395 [PubMed - indexed for MEDLINE]

Related citations

29. Res Sports Med. 2012 Jan;20(1):37-58. doi: 10.1080/15438627.2012.634697.

Review of Tai Chi as an effective exercise on falls prevention in elderly.

Schleicher MM, Wedam L, Wu G.

Department of Nutrition, The University of Vermont, Burlington, Vermont 05405, USA.

Abstract

The risk of accidental falls and fall-related injuries increases with age. Regular physical exercises can delay the age-related changes affecting postural balance and reduce the risk of falls. Although Tai Chi (TC) has become a popular exercise among the elderly, does regular TC exercise lead to fewer falls and fall-related injuries? Who would receive the most benefit from TC exercise? What style of TC is best for fall risk reductions? What is the minimum amount of TC exercise needed before its positive effect is observed? How does the effect of TC exercise compare to other physical exercises? The goal of this study is to conduct a systematic review of recent literature on TC's effectiveness for reducing fall risks in elders. A summary and analysis is provided for the following variables: targeted subject population, TC curriculum, comparative effect, and outcome measures.

PMID: 22242736 [PubMed - indexed for MEDLINE]

Related citations

30. Psychoneuroendocrinology. 2012 Aug;37(8):1171-80. doi: 10.1016/j.psyneuen.2011.12.007. Epub 2012 Jan 4.

Taiji practice attenuates psychobiological stress reactivity--a

randomized controlled trial in healthy subjects.

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Abstract

BACKGROUND:

Stress reducing effects of Taiji, a mindful and gentle form of body movement, have been reported in previous studies, but standardized and controlled experimental studies are scarce. The present study investigates the effect of regular Taiji practice on psychobiological stress response in healthy men and women.

METHODS:

70 participants were randomly assigned to either Taiji classes or a waiting list. After 3 months, 26 (8 men, 18 women) persons in the Taiji group and 23 (9 men, 14 women) in the waiting control group underwent a standardized psychosocial stress test combining public speaking and mental arithmetic in front of an audience. Salivary cortisol and α-amylase, heart rate, and psychological responses to psychosocial stress were compared between the study groups. (ClinicalTrials.gov number, NCT01122706.)

RESULTS:

Stress induced characteristic changes in all psychological and physiological measures. Compared to controls, Taiji participants exhibited a significantly lower stress reactivity of cortisol ($p = .028$) and heart rate ($p = .028$), as well as lower α-amylase levels ($p = .049$). They reported a lower increase in perceived stressfulness ($p = .006$) and maintained a higher level of calmness ($p = .019$) in response to psychosocial stress.

CONCLUSION:

Our results consistently suggest that practicing Taiji attenuates psychobiological stress reactivity in healthy subjects. This may underline the role of Taiji as a useful mind-body practice for stress prevention.

PMID: 22222120 [PubMed - indexed for MEDLINE]
Related citations

31. Complement Ther Clin Pract. 2012 Feb;18(1):54-9. doi: 10.1016/j.ctcp.2011.04.002. Epub 2011 May 4.

Exercise research on children and adolescents.

Field T.

Touch Research Institute, University of Miami Medical School, PO Box 016820 Miami, FL 33101, USA. TField@med.miami.edu

Abstract

This paper is a review of studies published during the last several years on exercise effects on overweight, growth, chronic illnesses, depression and anxiety in children and adolescents. Although the lion's share of the research involves aerobic exercise, studies on yoga and tai chi are also reviewed. Following exercise, body mass index and lipid profiles have improved in overweight children, and those with asthma, diabetes and depression have also benefited from exercise. The yoga studies reviewed here focused on ADHD and anxiety, and the tai chi studies involved children with ADHD and asthma. A potential underlying mechanism for the positive effects of exercise, yoga and tai chi may be the stimulation of pressure receptors leading to increased vagal activity, decreased stress hormones and increased production of anti-pain and antidepressant neurotransmitters such as serotonin. Further studies are needed using convergent behavioral, physiological and biochemical measures. Nonetheless, the current literature highlights the importance of adding exercise programs to clinics, schools and families for the physical and psychological well-being of children and adolescents.

PMID: 22196575 [PubMed - indexed for MEDLINE]

Related citations

32. Complement Ther Clin Pract. 2012 Feb;18(1):26-30. doi: 10.1016/j.ctcp.2011.02.005. Epub 2011 Mar 12.

Tai Chi effects on neuropsychological, emotional, and physical functioning following cancer treatment: a pilot study.

Reid-Arndt SA, Matsuda S, Cox CR.

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Abstract

OBJECTIVE:

To examine the effects of a 10-week Tai Chi (TC) program on neuropsychological, psychological, and physical health of female cancer survivors.

DESIGN:

Twenty-three women with a history of cancer participated in 60-min TC classes two times/week for 10-weeks.

MAIN OUTCOME MEASURES:

Before and after the intervention, participants completed neuropsychological tests (memory, executive functioning, language, and attention); 5 tests of balance; and self-report questionnaires of neuropsychological complaints, stress and mood, and fatigue.

RESULTS:

After the 10-week session, participants evidenced fewer neuropsychological complaints and enhanced neuropsychological functioning. They also demonstrated improved balance and reported better psychological functioning.

CONCLUSIONS:

Results suggest that TC may promote gains in neuropsychological functioning, in addition to previously demonstrated improvements in physical and psychological health. These findings support the need for controlled trials examining the potential benefits of TC on neuropsychological functioning after cancer.

PMID: 22196570 [PubMed - indexed for MEDLINE]
Related citations

33. Age Ageing. 2012 Mar;41(2):254-9. doi: 10.1093/ageing/afr146. Epub 2011 Dec 16.

The effects of Tai Chi on the balance control of elderly persons with visual impairment: a randomised clinical trial.

Chen EW, Fu AS, Chan KM, Tsang WW.

Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China.

Abstract

BACKGROUND:

balance control is a major problem for older individuals with poor vision. There are limitations, however, for visually impaired elderly persons wishing to participate in exercise programmes. The benefits of Tai Chi for balance control, muscle strength and preventing falls have been demonstrated with sighted elderly subjects. This study was designed to extend those findings to elderly persons with visual impairment.

OBJECTIVE:

to investigate the effects of Tai Chi on the balance control of elderly persons with visual impairment.

DESIGN:

randomised clinical trial.

SETTING:

residential care homes.

SUBJECTS:

forty visually impaired persons aged 70 or over.

METHODS:

the participants were randomly divided into Tai Chi and control groups and assessed pre- and post-intervention using three tests: (i) passive knee joint repositioning to test knee proprioception; (ii) concentric isokinetic strength of the knee extensors and flexors and (iii) a sensory organisation test to quantify an individual's ability to maintain balance in a variety of complex sensory conditions.

RESULTS:

after intervention, the Tai Chi participants showed significant improvements in knee proprioception and in their visual and vestibular ratios compared

with the control group.

CONCLUSION:

practicing Tai Chi can improve the balance control of visually impaired elderly persons.

PMID: 22180415 [PubMed - indexed for MEDLINE]

Related citations

34. J Cancer Surviv. 2012 Jun;6(2):146-54. doi: 10.1007/s11764-011-0205-7. Epub 2011 Dec 10.

Health-related quality of life and biomarkers in breast cancer survivors participating in tai chi chuan.

Sprod LK, Janelsins MC, Palesh OG, Carroll JK, Heckler CE, Peppone LJ, Mohile SG, Morrow GR, Mustian KM.

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Abstract

INTRODUCTION:

Breast cancer survivors experience diminished health-related quality of life (HRQOL). We report on the influence of tai chi chuan exercise (TCC) on HRQOL and explore associations between changes in HRQOL and biomarkers.

METHODS:

Breast cancer survivors (N = 21) were randomly assigned to TCC or standard support therapy (SST) for 12 weeks (three times/week; 60 min/session). Interleukin-6, interleukin-8 (IL-8), insulin-like growth factor-1 (IGF-1), insulin-like growth factor-binding protein (IBFBP)-1, IGFBP-3, glucose, insulin, and cortisol were measured pre- and postintervention. Overall HRQOL and subdomains were assessed at preintervention (T1), midintervention (T2) and postintervention (T3) and biomarkers at T1 and T3.

RESULTS:

The TCC group improved in total HRQOL (T1-T2:CS = 8.54, P = 0.045), physical functioning (T1-T2:CS = 1.89, P = 0.030), physical role limitations (T1-T2 CS = 1.55, P = 0.023), social functioning (T1-T3:CS = 1.50,

P = 0.020), and general mental health (T1-T2:CS = 2.67, P = 0.014; T1-T3:CS = 2.44, P = 0.019). The SST improved in social functioning (T1-T2:CS = 0.64, P = 0.043) and vitality (T1-T2:CS = 0.90, P = 0.01). There were relationships between changes in IGF-1 and overall HRQOL (r = -0.56; P < 0.05), physical role limitation (r = -0.68; P < 0.05), and social functioning (r = -0.56; P < 0.05). IGFBP-1 changes were associated with physical role limitations changes (r = 0.60; P < 0.05). IGFBP-3 changes were associated with physical functioning changes (r = 0.46; P ≤ 0.05). Cortisol changes were associated with changes in physical role limitations (r = 0.74; P < 0.05) and health perceptions (r = 0.46; P < 0.05). Glucose changes were associated with emotional role limitation changes (r = -0.70; P < 0.001). IL-8 changes were associated with emotional role limitation changes (r = 0.59; P < 0.05).

DISCUSSION/CONCLUSIONS:

TCC may improve HRQOL by regulating inflammatory responses and other biomarkers associated with side effects from cancer and its treatments.

IMPLICATIONS FOR CANCER SURVIVORS:

TCC may be an intervention capable of improving HRQOL in breast cancer survivors.

PMID: 22160628 [PubMed - indexed for MEDLINE]

Related citations

35. Eur J Appl Physiol. 2012 Jul;112(7):2663-9. doi: 10.1007/s00421-011-2243-2. Epub 2011 Nov 22.

Effects of Tai Chi on pre-landing muscle response latency during stepping down while performing a concurrent mental task in older adults.

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Abstract

To investigate whether elderly Tai Chi practitioners are better able to descend a step while performing a concurrent mental task than non-practitioners. The design includes cross-sectional study. The setting includes university-based rehabilitation center. The subjects were 16 young women, 29 elderly women, and 31 elderly women who had been practicing Tai Chi regularly for at least half a year. Pre-landing muscle response latencies in their tibialis anterior (TA) and medial gastrocnemius (MG) muscles were

measured during stepping down (single task) and stepping down while performing a concurrent mental activity (dual tasking). The non-practitioners had earlier onset of muscle activity in the TA in preparation for landing than the other subjects. The response latency of the Tai Chi practitioners was not significantly different from that of the young controls. When the cognitive task was added, the pre-landing response in the TA was significantly altered in both elderly groups. Response was significantly delayed among the non-practitioners, but significantly earlier among the Tai Chi subjects. The average change in response latency was significantly greater in the non-Tai Chi group compared with the young subjects and the Tai Chi practitioners ($p = 0.006$). Such findings suggest that practicing Tai Chi helps the elderly maintain the same strategy as much as younger subjects during stepping down. Tai Chi practitioners seem to have a greater capacity to shift attention between mental and physical tasks than other elderly women.

PMID: 22105705 [PubMed - indexed for MEDLINE]

Related citations

36. Cochrane Database Syst Rev. 2011 Nov 9;(11):CD004963. doi: 10.1002/14651858.CD004963.pub3.

Exercise for improving balance in older people.

Howe TE, Rochester L, Neil F, Skelton DA, Ballinger C.

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Update of

- Cochrane Database Syst Rev. 2007;(4):CD004963.

Abstract

BACKGROUND:

In older adults, diminished balance is associated with reduced physical functioning and an increased risk of falling. This is an update of a Cochrane review first published in 2007.

OBJECTIVES:

To examine the effects of exercise interventions on balance in older people, aged 60 and over, living in the community or in institutional care.

SEARCH METHODS:

We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register, CENTRAL (The Cochrane Library 2011, Issue 1), MEDLINE and EMBASE (to February 2011).

SELECTION CRITERIA:

Randomised controlled studies testing the effects of exercise interventions on balance in older people. The primary outcomes of the review were clinical measures of balance.

DATA COLLECTION AND ANALYSIS:

Pairs of review authors independently assessed risk of bias and extracted data from studies. Data were pooled where appropriate.

MAIN RESULTS:

This update included 94 studies (62 new) with 9,917 participants. Most participants were women living in their own home.Most trials were judged at unclear risk of selection bias, generally reflecting inadequate reporting of the randomisation methods, but at high risk of performance bias relating to lack of participant blinding, which is largely unavoidable for these trials. Most studies only reported outcome up to the end of the exercise programme.There were eight categories of exercise programmes. These are listed below together with primary measures of balance for which there was some evidence of a statistically significant effect at the end of the exercise programme. Some trials tested more than one type of exercise. Crucially, the evidence for each outcome was generally from only a few of the trials for each exercise category. 1. Gait, balance, co-ordination and functional tasks (19 studies of which 10 provided primary outcome data): Timed Up & Go test (mean difference (MD) -0.82 s; 95% CI -1.56 to -0.08 s, 114 participants, 4 studies); walking speed (standardised mean difference (SMD) 0.43; 95% CI 0.11 to 0.75, 156 participants, 4 studies), and the Berg Balance Scale (MD 3.48 points; 95% CI 2.01 to 4.95 points, 145 participants, 4 studies).2. Strengthening exercise (including resistance or power training) (21 studies of which 11 provided primary outcome data): Timed Up & Go Test (MD -4.30 s; 95% CI -7.60 to -1.00 s, 71 participants, 3 studies); standing on one leg for as long as possible with eyes closed (MD 1.64 s; 95% CI 0.97 to 2.31 s, 120 participants, 3 studies); and walking speed (SMD 0.25; 95% CI 0.05 to 0.46, 375 participants, 8 studies).3. 3D (3 dimensional) exercise (including Tai Chi, qi gong, dance, yoga) (15 studies of which seven provided primary outcome data): Timed Up & Go Test (MD -1.30 s; 95% CI -2.40 to -0.20 s, 44 participants, 1 study); standing on one leg for as long as possible with eyes open (MD 9.60 s; 95%

CI 6.64 to 12.56 s, 47 participants, 1 study), and with eyes closed (MD 2.21 s; 95% CI 0.69 to 3.73 s, 48 participants, 1 study); and the Berg Balance Scale (MD 1.06 points; 95% CI 0.37 to 1.76 points, 150 participants, 2 studies).4. General physical activity (walking) (seven studies of which five provided primary outcome data). 5. General physical activity (cycling) (one study which provided data for walking speed). 6. Computerised balance training using visual feedback (two studies, neither of which provided primary outcome data). 7. Vibration platform used as intervention (three studies of which one provided primary outcome data).8. Multiple exercise types (combinations of the above) (43 studies of which 29 provided data for one or more primary outcomes): Timed Up & Go Test (MD -1.63 s; 95% CI -2.28 to -0.98 s, 635 participants, 12 studies); standing on one leg for as long as possible with eyes open (MD 5.03 s; 95% CI 1.19 to 8.87 s, 545 participants, 9 studies), and with eyes closed ((MD 1.60 s; 95% CI -0.01 to 3.20 s, 176 participants, 2 studies); walking speed (SMD 0.04; 95% CI -0.10 to 0.17, 818 participants, 15 studies); and the Berg Balance Scale ((MD 1.84 points; 95% CI 0.71 to 2.97 points, 80 participants, 2 studies).Few adverse events were reported but most studies did not monitor or report adverse events.In general, the more effective programmes ran three times a week for three months and involved dynamic exercise in standing.

AUTHORS' CONCLUSIONS:

There is weak evidence that some types of exercise (gait, balance, co-ordination and functional tasks; strengthening exercise; 3D exercise and multiple exercise types) are moderately effective, immediately post intervention, in improving clinical balance outcomes in older people. Such interventions are probably safe. There is either no or insufficient evidence to draw any conclusions for general physical activity (walking or cycling) and exercise involving computerised balance programmes or vibration plates. Further high methodological quality research using core outcome measures and adequate surveillance is required.

PMID: 22071817 [PubMed - indexed for MEDLINE]

Related citations

37. Arthritis Care Res (Hoboken). 2011 Nov;63(11):1576-83. doi: 10.1002/acr.20594.

Tai chi exercise for treatment of pain and disability in people with persistent low back pain: a randomized controlled trial.

Hall AM, Maher CG, Lam P, Ferreira M, Latimer J.

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Abstract

OBJECTIVE:

To determine the effect of tai chi exercise on persistent low back pain.

METHODS:

We performed a randomized controlled trial in a general community setting in Sydney, New South Wales, Australia. Participants consisted of 160 volunteers between ages 18 and 70 years with persistent nonspecific low back pain. The tai chi group (n = 80) consisted of 18 40-minute sessions over a 10-week period delivered in a group format by a qualified instructor. The waitlist control group continued with their usual health care. Bothersomeness of back symptoms was the primary outcome. Secondary outcomes included pain intensity and pain-related disability. Data were collected at pre- and postintervention and analyzed by intent-to-treat.

RESULTS:

Tai chi exercise reduced bothersomeness of back symptoms by 1.7 points on a 0-10 scale, reduced pain intensity by 1.3 points on a 0-10 scale, and improved self-report disability by 2.6 points on the 0-24 Roland-Morris Disability Questionnaire scale. The followup rate was >90% for all outcomes. These results were considered a worthwhile treatment effect by researchers and participants.

CONCLUSION:

This is the first pragmatic randomized controlled trial of tai chi exercise for people with low back pain. It showed that a 10-week tai chi program improved pain and disability outcomes and can be considered a safe and effective intervention for those experiencing long-term low back pain symptoms.

PMID: 22034119 [PubMed - indexed for MEDLINE]

Related citations

38. J Altern Complement Med. 2011 Oct;17(10):931-8. doi: 10.1089/acm.2010.0645. Epub 2011 Oct 14.

Changes in mindfulness, well-being, and sleep quality in college students through taijiquan courses: a cohort control study.

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Abstract

OBJECTIVES:

This study sought to determine whether participants in taijiquan classes would report increases in mindfulness greater than that of a comparison group, and whether changes in mindfulness were associated with improvements in mood, perceived stress, self-regulatory self-efficacy, and sleep quality.

DESIGN:

The study design was quasi-experimental with repeated measures.

SETTINGS/LOCATION:

The study was set in a midsized public university.

SUBJECTS:

Students aged 18-48 years old enrolled in 15-week courses of either taijiquan (n=76) or special recreation (control group, n=132).

INTERVENTION:

Chen-style taijiquan classes were offered 2 times per week for 50 minutes each time.

OUTCOME MEASURES:

Self-report of mindfulness (Five Facet Mindfulness Questionnaire), mood (Four Dimensional Mood Scale), perceived stress (Perceived Stress Scale), self-regulatory self-efficacy (Self-regulatory Self-Efficacy Scale), and sleep quality (Pittsburgh Sleep Quality Index).

RESULTS:

Increases in total mindfulness scores occurred only in the taijiquan group, not in the control group. All well-being variables showed a pattern of improvement in the taijiquan group, with either stability or decline over time in the control group. Increases in mindfulness were significantly correlated

with improvements on all well-being measures and with sleep quality.

CONCLUSIONS:

Relative to a recreation control group, taijiquan classes for college students are associated with increased mindfulness and improved sleep quality, mood, and perceived stress, but not self-regulatory self-efficacy. Randomized control design studies are needed to substantiate the causal role of taijiquan exercise in the development of mindfulness and associated improvements in well-being.

PMCID: PMC3199537 **Free PMC Article**
PMID: 21999153 [PubMed - indexed for MEDLINE]
Related citations

39. J Tradit Chin Med. 2011 Jun;31(2):141-6.

Effects of tai chi on lower-limb myodynamia in the elderly people: a meta-analysis.

Liu B, Liu ZH, Zhu HE, Mo JC, Cheng DH.

Guangzhou Institute of Respiratory Diseases, First Affiliated Hospital of Guangzhou Medical College, Guangzhou 510120, China. qingding1976@yahoo.com.cn

Abstract

OBJECTIVE:

To assess the effects of Tai Chi (Chinese shadow boxing exercise) for improving the lower-limb muscle strength in elderly people.

METHODS:

The PUBMED database (from 1950), EMBASE-ASP database (from 1974), Cochrane Library (from 1991), Elsevier sciences database (from 1990), OVID full text database (from 1997), Springer-link database (from 1997), The National Research Register database, ISI Web of knowledge (from 1963), Chinese Medical Citation Index/Chinese Medical Current Contents (CMCI/CMCC, from 1989), China Knowledge Resource Integrated Database (CNKI, from 1915), VIP database (from 1989), and Wanfang database (from 1977) have been searched only for the English and Chinese literatures updated to 10-30-2010. Two researchers independently assessed the methodological quality of studies, extracted and checked the data one

another according to the include/exclude standards. Disagreement was resolved by discussions or with the third person. The Review Manage Software 5.0 was used for Meta-analysis.

RESULTS:

Eventually, 2 randomized controled studies and 2 non-randomized controled studies met the inclusion criteria, with 163 subjects involved in the present meta-analysis. The meta-analysis demonstrated that Tai Chi exercise could improve the ankle flexor/extensor muscle strength and the knee extensor/flexor muscle strength, tested with an isokinetic dynamometer. The limb muscle strength increased significantly after Tai Chi exercise ($P < 0.01$).

CONCLUSION:

The meta-analysis favours Tai Chi exercise for improving the lower-limb muscle strength in the older people.

PMID: 21977816 [PubMed - indexed for MEDLINE]

Related citations

40. Disabil Rehabil. 2012;34(3):196-201. doi: 10.3109/09638288.2011.591891.

The effect of supervised Tai Chi intervention compared to a physiotherapy program on fall-related clinical outcomes: a randomized clinical trial.

Tousignant M, Corriveau H, Roy PM, Desrosiers J, Dubuc N, Hébert R, Tremblay-Boudreault V, Beaudoin AJ.

Research Centre on Aging, Sherbrooke Geriatric University Institute, Faculty of Medicine and Health Sciences, University of Sherbrooke, Sherbrooke, Canada.

Abstract

PURPOSE:

To assess some fall-related clinical variables (balance, gait, fear of falling, functional autonomy, self-actualization and self-efficacy) that might explain the fact that supervised Tai Chi has a better impact on preventing falls compared to a conventional physiotherapy program.

METHODS:

The participants (152 older adults over 65 who were admitted to a geriatric

day hospital program) were randomly assigned to either a supervised Tai Chi group or the usual physiotherapy. The presence of the clinical variables related to falls was evaluated before the intervention (T1), immediately after (T2), and 12 months after the end of the intervention (T3).

RESULTS:

Both exercise programs significantly improved fall-related outcomes but only the Tai Chi intervention group decreased the incidence of falls. For both groups, most variables followed the same pattern, i.e. showed significant improvement with the intervention between T1 and T2, and followed by a statistically significant decrease at the T3 evaluation. However, self-efficacy was the only variable that improved solely with the Tai Chi intervention ($p = 0.001$).

CONCLUSIONS:

The impact of supervised Tai Chi on fall prevention can not be explained by a differential effect on balance, gait and fear of falling. It appeared to be related to an increase of general self-efficacy, a phenomenon which is not seen in the conventional physiotherapy program.

PMID: 21958377 [PubMed - indexed for MEDLINE]

Related citations

41. Eur J Appl Physiol. 2012 Jun;112(6):2363-8. doi: 10.1007/s00421-011-2182-y. Epub 2011 Sep 27.

Effects of 12-week Tai Chi training on soleus H-reflex and muscle strength in older adults: a pilot study.

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Abstract

The purpose of this study was to determine the effects of 12-week Tai Chi (TC) training on the soleus (SOL) H-reflex modulation and plantarflexion muscle strength in older adults. Twenty volunteers were assigned into training ($N = 14$; 72.2 ± 3.7 years of age) and control ($N = 6$; 74.2 ± 6.1 years of age) groups. The participants in the TC group practiced Yang style TC 1 h per session, 3 sessions per week, for 12 weeks, guided by a qualified TC instructor. The ratio of the maximal peak-to-peak amplitude of SOL H-reflex (H (max)) to M-wave (M (max)) was determined during bipedal standing under four sensory conditions: stable surface and eyes open (SO),

stable surface and eyes closed (SC), unstable surface and eyes open (UO), and unstable surface and eyes closed (UC). The maximal isometric plantarflexion muscle strength was also assessed by using a dynamometer. The results showed that the SOL H (max)/M (max) ratio increased significantly after the 12 weeks of TC training under the SC (37.0%), UO (33.3%) and UC (36.0%) conditions ($P < 0.05$). The maximal plantarflexion strength also improved significantly after training (19.8%; $P < 0.05$). In contrast, the control group showed no significant changes in all measurements after the 12 weeks.

PMID: 21947456 [PubMed - indexed for MEDLINE]

Related citations

42. Clin Rehabil. 2012 Feb;26(2):121-31. doi: 10.1177/0269215511419381. Epub 2011 Sep 21.

Community-based Yang-style Tai Chi is safe and feasible in chronic stroke: a pilot study.

Taylor-Piliae RE, Coull BM.

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Abstract

OBJECTIVE:

Examine the safety and feasibility of a 12-week Tai Chi intervention among stroke survivors. Design: Two-group, prospective pilot study with random allocation.

SETTING:

Outpatient rehabilitation facility. Subjects: Stroke survivors ≥50 years and at ≥three months post-stroke. Interventions: Tai Chi subjects attended group-based Yang Style classes three times/week for 12-weeks, while Usual Care subjects received weekly phone calls along with written materials/resources for participating in community-based physical activity.

MAIN OUTCOME MEASURES:

Indicators of study safety and feasibility included recruitment rates, intervention adherence, falls or adverse events, study satisfaction, drop-outs, and adequacy of the outcomes measures. Results: Interested persons pre-screened by phone (n = 69) were on average 68 years old, (SD = 13) years old, 48% (n = 33) women, 94% (n = 65) were at least three months post-stroke. A total of 28 subjects aged 69 (SD = 11) years enrolled in this

pilot study. Intervention adherence rates were very high (≥92%). There were no falls or other adverse events. The dose of Tai Chi exercise (≥150 minutes/week) was well tolerated. Overall study satisfaction was high (8.3 (SD = 1.9); 1 = not satisfied, 10 = most satisfied), while drop-outs (n = 3, 11%) were unrelated to study intervention. Score distributions for the outcome measures were approximately normal, sensitive to change, and seemed to favor the Tai Chi intervention.

CONCLUSIONS:

Tai Chi is a safe, community-based exercise program for stroke survivors. Our data suggest that recruitment and retention of an adequate sample is feasible, and that in a full-scale study 52 subjects/group are needed to detect statistically significant between group differences (alpha = 0.05, power = 0.80).

PMID: 21937523 [PubMed - indexed for MEDLINE]

Related citations

43. Am J Geriatr Psychiatry. 2012 Sep;20(9):764-72. doi: 10.1097/JGP.0b013e3182330fd3.

Mitigating cellular inflammation in older adults: a randomized controlled trial of Tai Chi Chih.

Irwin MR, Olmstead R.

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Abstract

OBJECTIVES:

To evaluate the effects of a behavioral intervention, Tai Chi Chih (TCC) on circulating markers of inflammation in older adults.

DESIGN:

A prospective, randomized, controlled trial with allocation to two arms, TCC and health education (HE), 16 weeks of intervention administration, and 9 weeks follow-up.

PARTICIPANTS:

A total of 83 healthy older adults, aged 59 to 86 years.

MEASUREMENTS:

The primary endpoint was circulating levels of interleukin 6 (IL-6). Secondary outcomes were circulating levels of C-reactive protein, soluble IL-1 receptor antagonist, soluble IL-6 receptor, soluble intercellular adhesion molecule, and IL-18. Severity of depressive symptoms, sleep quality, and physical activity was also assessed over the treatment trial.

RESULTS:

Among those older adults with high levels of IL-6 at entry, a trend for a treatment group by time interaction was found ($F[1,70] = 3.48$, $p = 0.07$), in which TCC produced a drop of IL-6 levels comparable to those found in TCC and HE subgroups who had low levels of IL-6 at entry ($t72$'s = 0.80, 1.63, p's >0.10), whereas IL-6 in HE remained higher than the TCC and HE subgroups with low entry IL-6 ($t72 = 2.47$, $p = 0.02$; $t72 = 1.71$, $p = 0.09$). Decreases in depressive symptoms in the two treatment groups correlated with decreases of IL-6 ($r = 0.28$, $p < 0.05$). None of the other cellular markers of inflammation changed in TCC versus HE.

CONCLUSION:

TCC can be considered a useful behavioral intervention to reduce circulating levels of IL-6 in older adults who show elevated levels of this inflammatory marker and are at risk for inflammation-related morbidity.

PMCID: PMC3247625 [Available on 2013/9/1]
PMID: 21934474 [PubMed - indexed for MEDLINE]
Related citations

44. J Nutr Health Aging. 2011 Aug;15(7):577-84.

Dietary intakes and antioxidant status in mind-body exercising pre- and postmenopausal women.

Palasuwan A, Margaritis I, Soogarun S, Rousseau AS.

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Abstract

OBJECTIVE:

The decline in antioxidant defenses due to both estrogen loss and frequent

adoption of poor dietary choices exposes postmenopausal women to cardiovascular diseases. Adequate nutrition and physical exercise are two factors of health promotion. This study investigated whether regular practice of mind-body exercise (yoga and/or tai chi) alters dietary intake and antioxidant status and balances the menopause-related increases in lipid peroxidation and cardiovascular risk.

DESIGN:

Cross-sectional study. Setting: The study was conducted in an urban community in Bangkok (Thailand) between May and August 2007.

PARTICIPANTS:

Premenopausal (Pre M; 39±8 yrs; n=56) and postmenopausal (Post M; 54±5 yrs; n=39) women who had been practicing yoga (Y) and/or tai chi (TC) more than 3 hours/week for a year, or who had no regular physical activity practice (sedentary, S).

MEASUREMENTS:

All participants completed food frequency questionnaires and 4-day food and activity records. Blood was collected on day 5. Factorial ANOVA tests were performed according to menopause status, exercise, and hormone replacement therapy (HRT) groups.

RESULTS:

Post M had higher ($p = 0.01$) dietary fiber intake compared with Pre M. Yoga practitioners had lower BMI ($p = 0.004$) and lower fat intake ($p = 0.02$) compared with their S and TC counterparts. Plasma total antioxidant status was significantly and independently lower and higher in Y and Post M groups, respectively. However, no difference was shown after adjusting for BMI. Regardless of menopause status and HRT, the activity of erythrocyte glutathione peroxidase - an aerobic training-responsive enzyme - was higher ($p < 0.001$) in TC practitioners compared with other groups. No effects were shown on erythrocyte superoxide dismutase activity, plasma lipid peroxidation (TBARS) or total homocysteine concentrations.

CONCLUSION:

Yoga and tai chi exercises can be used as components of a strategy to promote healthy lifestyles (balanced diet and moderate intensity exercise) in vulnerable populations, such as menopausal women, in order to prevent aging induced oxidative stress-related diseases.
PMID: 21808936 [PubMed - indexed for MEDLINE]

Related citations

45. Osteoporos Int. 2012 May;23(5):1541-52. doi: 10.1007/s00198-011-1731-x. Epub 2011 Jul 16.

Effect of green tea and Tai Chi on bone health in postmenopausal osteopenic women: a 6-month randomized placebo-controlled trial.

Shen CL, Chyu MC, Yeh JK, Zhang Y, Pence BC, Felton CK, Brismée JM, Arjmandi BH, Doctolero S, Wang JS.

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Abstract

Postmenopausal women with osteopenia received green tea polyphenols (GTP) supplement and/or Tai Chi exercise for 6 months. Bone turnover biomarkers, calcium metabolism, and muscle strength were measured. This study showed that GTP supplementation and Tai Chi exercise increased bone formation biomarkers and improved bone turnover rate. Tai Chi exercise increased serum parathyroid hormone. GTP supplementation, Tai Chi exercise, and the combination of the two all improved muscle strength in postmenopausal women with osteopenia.

INTRODUCTION:

This study evaluated the effect of GTP supplementation and Tai Chi (TC) exercise on serum markers of bone turnover (bone-specific alkaline phosphatase, BAP, and tartrate-resistant acid phosphatase, TRAP), calcium metabolism, and muscle strength in postmenopausal osteopenic women.

METHODS:

One hundred and seventy-one postmenopausal osteopenic women were randomly assigned to four groups: (1) placebo (500 mg starch/day), (2) GTP (500 mg GTP/day), (3) placebo + TC (placebo plus TC training at 60 min/session, three sessions/week), and (4) GTP + TC (GTP plus TC training). Overnight fasting blood and urine samples were collected at baseline, 1, 3, and 6 months for biomarker analyses. Muscle strength was evaluated at baseline, 3, and 6 months. One hundred and fifty subjects completed the 6-month study.

RESULTS:

Significant increases in BAP level due to GTP intake (at 1 month) and TC (at

3 months) were observed. Significant increases in the change of BAP/TRAP ratio due to GTP (at 3 months) and TC (at 6 months) were also observed. Significant main effect of TC on the elevation in serum parathyroid hormone level was observed at 1 and 3 months. At 6 months, muscle strength significantly improved due to GTP, TC, and GTP + TC interventions. Neither GTP nor TC affected serum TRAP, serum and urinary calcium, and inorganic phosphate.

CONCLUSION:

In summary, GTP supplementation and TC exercise increased BAP and improved BAP/TRAP ratio. TC exercise increased serum parathyroid hormone. GTP supplementation, TC exercise, and the combination of the two all improved muscle strength in postmenopausal women with osteopenia.

PMCID: PMC3288336 [Available on 2013/5/1]
PMID: 21766228 [PubMed - indexed for MEDLINE]
Related citations

46. Curr Aging Sci. 2012 Feb;5(1):19-27.

Effects of Tai Chi exercise on physical and psychological health of older people.

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Abstract

Tai Chi is a traditional Chinese form of conditioning exercise derived from martial arts and rooted in eastern philosophy and Chinese Medicine. Based on the inter-relatedness of mind, body and spirit this form of exercise focuses on producing an inner calmness which is thought to have both physical and psychological therapeutic value. This article provides a brief overview of selected current evidence examining the relationship between Tai Chi and physical, neurocognitive and psychosocial outcomes in older people. This is an emerging and growing area of research and improvements have often been reported in health functioning, physical and emotional health, reducing falls, fear of falling and risk of falls, and possibly enhancing cardiovascular functioning in older adults although the effects on bone density, cognitive and immunological functioning are less clear. Results overall are inconsistent and health improvements have not been evident in all studies. Tai Chi is becoming increasingly popular in practice, and more recent evidence is emerging which is based on experimental and longitudinal

designs, although many of the proposed benefits of Tai Chi are yet to be validated in large, randomised controlled trials.
PMID: 21762093 [PubMed - indexed for MEDLINE]
Related citations

47. Complement Ther Clin Pract. 2011 Aug;17(3):141-6. doi: 10.1016/j.ctcp.2010.10.002. Epub 2010 Oct 24.

Tai Chi research review.

Field T.

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Abstract

This review briefly summarizes recent Tai Chi research on physical benefits including balance and muscle strength and psychological benefits including attentiveness, sleep and anxiety. Cardiovascular changes following Tai Chi include decreased heart rate and blood pressure, increased vagal activity and decreased cholesterol. Pain syndromes that have been affected include fibromyalgia, osteoarthritis and rheumatoid arthritis. Autoimmune and immune conditions recently researched and reviewed here include osteoporosis, diabetes and HIV. Methodological problems with this research include the variability in forms (series of postures) used across studies as well as the intensity of the Tai Chi schedule. Further, most of the studies are based on within group changes rather than attention control group comparisons. Nonetheless, significant clinical improvements have been noted.

PMID: 21742279 [PubMed - indexed for MEDLINE]
Related citations

48. J Altern Complement Med. 2011 Aug;17(8):665-8. doi: 10.1089/acm.2011.0147. Epub 2011 Jul 6.

Kinematics and energy expenditure of sitting t'ai chi.

Lee KY, Jones AY, Hui-Chan CW, Tsang WW.
PMID: 21732800 [PubMed - indexed for MEDLINE]
Related citations

49. J Am Acad Nurse Pract. 2011 Jul;23(7):376-81. doi: 10.1111/j.1745-7599.2011.00597.x. Epub 2011 Mar 31.

The impact of Tai Chi exercise on coronary heart disease: a systematic review.

Dalusung-Angosta A.

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Abstract

PURPOSE:

(a) To explore current studies on Tai Chi and its impact on coronary heart disease (CHD), (b) provide critique of existing studies, and (c) provide recommendations for clinical practice and future research.

DATA SOURCES:

Comprehensive review of literature.

CONCLUSIONS:

Tai Chi is a safe alternative exercise for patients who are at risk of CHD or with existing CHD. Implementing Tai Chi exercise may improve serum lipids, blood pressure, and heart rate.

IMPLICATIONS FOR PRACTICE:

Nurse practitioners (NPs) are in an ideal position to facilitate health promotion and disease prevention. NPs may prescribe Tai Chi as an alternative exercise therapy for their patients who are at risk for developing CHD and even for those with existing CHD. Tai Chi exercise may help prevent and even reverse the progression of cardiac disease.

PMID: 21696487 [PubMed - indexed for MEDLINE]

Related citations

50. Clin Breast Cancer. 2011 Jun;11(3):161-70. doi:

10.1016/j.clbc.2011.03.013. Epub 2011 Apr 20.

Effects of Tai Chi Chuan on insulin and cytokine levels in a randomized controlled pilot study on breast cancer survivors.

Janelsins MC, Davis PG, Wideman L, Katula JA, Sprod LK, Peppone LJ, Palesh OG, Heckler CE, Williams JP, Morrow GR, Mustian KM.

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Abstract

BACKGROUND:

Tai Chi Chuan (TCC) is an integrative medicine mind-body practice with a physical activity component that has positive effects on aerobic capacity, muscular strength, and quality of life among cancer survivors, similar to the effects elicited by other modes of moderate-intensity exercise. Inflammatory cytokines and insulin and insulin-related signaling molecules may contribute to weight gain and affect cancer recurrence rates and survival; exercise can curb cancer- and treatment-related weight gain, increase survival, and reduce levels of insulin and inflammatory cytokines. Despite knowing the beneficial effects of conventional exercise interventions on these mediators, little is known about the physiologic effects of TCC on these pathways in breast cancer survivors.

METHODS:

We assessed the effects of a 12-week, moderately intense, TCC intervention (n = 9) compared with a non-physical activity control (n = 10) consisting of psychosocial support therapy (PST), on levels of insulin, insulin-like growth factor (IGF)-1, insulin growth factor-like binding protein (IGFBP)-1, IGFBP-3, and cytokines interleukin (IL)-6, IL-2, and interferon (IFN)-γ in breast cancer survivors.

RESULTS:

Levels of insulin are significantly different in TCC and PST groups; levels remained stable in the TCC group but increased in the PST control group ($P = .099$). Bivariate analysis revealed novel and significant correlations (all $r > 0.45$, all $P \leq .05$) of both decreased fat mass and increased fat-free mass with increased IL-6 and decreased IL-2 levels.

CONCLUSIONS:

This pilot study shows that TCC may be associated with maintenance of insulin levels and changes in cytokine levels that may be important for maintenance of lean body mass in breast cancer survivors.

PMCID: PMC3156577 **Free PMC Article**
PMID: 21665136 [PubMed - indexed for MEDLINE]
Related citations

51. Am Fam Physician. 2011 Jun 1;83(11):1287-92.

Treatment of knee osteoarthritis.

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Summary for patients in

- Am Fam Physician. 2011 Jun 1;83(11):1294.

Abstract

Knee osteoarthritis is a common disabling condition that affects more than one-third of persons older than 65 years. Exercise, weight loss, physical therapy, intra-articular corticosteroid injections, and the use of nonsteroidal anti-inflammatory drugs and braces or heel wedges decrease pain and improve function. Acetaminophen, glucosamine, ginger, S-adenosylmethionine (SAM-e), capsaicin cream, topical nonsteroidal anti-inflammatory drugs, acupuncture, and tai chi may offer some benefit. Tramadol has a poor trade-off between risks and benefits and is not routinely recommended. Opioids are being used more often in patients with moderate to severe pain or diminished quality of life, but patients receiving these drugs must be carefully selected and monitored because of the inherent adverse effects. Intra-articular corticosteroid injections are effective, but evidence for injection of hyaluronic acid is mixed. Arthroscopic surgery has been shown to have no benefit in knee osteoarthritis. Total joint arthroplasty of the knee should be considered when conservative symptomatic management is ineffective.

Free Article

PMID: 21661710 [PubMed - indexed for MEDLINE]
Related citations

52. N S W Public Health Bull. 2011 Jun;22(3-4):60-8. doi: 10.1071/NB10051.

An economic evaluation of community and residential aged care falls prevention strategies in NSW.

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Abstract

AIM:

To evaluate the cost-effectiveness of strategies designed to prevent falls amongst people aged 65 years and over living in the community and in residential aged-care facilities.

METHODS:

A systematic review and meta-analysis of the literature was conducted. The pooled fall rate ratio was used in a decision analytic model that combined a Markov model and decision tree to estimate the costs and outcomes of potential interventions and/or strategies. The resulting cost per quality-adjusted life year was estimated.

RESULTS:

The most cost-effective falls prevention strategy in community-dwelling older people was Tai Chi. Expedited cataract surgery and psychotropic medication withdrawal were also found to be cost-effective; however, the effectiveness of these interventions is less certain due to small numbers of trials and participants. The most cost-effective falls prevention strategies in residential aged-care facilities were medication review and vitamin D supplementation.

PMID: 21632001 [PubMed - indexed for MEDLINE]
Related citations

53. Am J Med Sci. 2012 Mar;343(3):233-42. doi: 10.1097/MAJ.0b013e3182121034.

Evaluation and management of hip fracture risk in the aged.

Rubin CD.

Department of Internal Medicine, Section of Geriatrics, University of Texas Southwestern Medical Center, Dallas, USA. craig.rubin@utsouthwestern.edu
PMID: 21629043 [PubMed - indexed for MEDLINE]
Related citations

54. Arch Phys Med Rehabil. 2011 Jun;92(6):886-91. doi: 10.1016/j.apmr.2010.12.043.

Effect of 12 weeks of Tai Chi training on soleus Hoffmann reflex and control of static posture in older adults.

Chen YS, Zhou S, Cartwright C.

School of Health and Human Sciences, Southern Cross University, Lismore, New South Wales, Australia.

Abstract

OBJECTIVE:

To investigate the effect of 12 weeks of Tai Chi training on soleus (SOL) Hoffmann reflex (H-reflex) modulation and postural control in standing under 4 sensory conditions in older adults.

DESIGN:

Experimental research design with pre- and posttraining tests in a training group and a control group.

SETTING:

University biomechanics laboratory.

PARTICIPANTS:

Community-dwelling older adults (N=34) were assigned to a training (n=20; mean ± SD age, 72.9±4.4y) and a control (n=14; mean ± SD age, 72.9±6.5y) group.

INTERVENTION:

Tai Chi participants attended a 1-hour session of Yang style Tai Chi, 3 sessions a week, for 12 weeks, while control participants maintained their regular daily activities during the same period.

MAIN OUTCOME MEASURES:

SOL H-reflex (maximal amplitudes of H-reflex [H(max)] and M-wave [M(max)] waves) and mean displacement of the center of pressure (COP) in the anterior-posterior (COP(A-P)) and medial-lateral (COP(M-L)) directions were measured during bipedal standing, with the feet placed on a forceplate and the heels 6cm apart, under 4 sensory conditions: stable surface with eyes open, stable surface with eyes closed, unstable surface with eyes open, and unstable surface with eyes closed.

RESULTS:

SOL H(max)/M(max) ratio in the Tai Chi group was upregulated significantly in all 4 sensory tasks after the 12-week Tai Chi training ($P<.05$). No significant change in COP measurements (mean displacement of COP(A-P) and COP(M-L)) was found in either the Tai Chi or control group after the 12-week period.

CONCLUSIONS:

An increase in SOL H(max)/M(max) ratio during static postural tasks is observed after 12 weeks of Tai Chi training in older adults under all 4 sensory conditions. However, training-induced changes in H-reflex were not accompanied by improvement of performance in the static postural control tasks.

PMID: 21621664 [PubMed - indexed for MEDLINE]
Related citations

55. Altern Ther Health Med. 2011 Jan-Feb;17(1):40-8.

Tai chi as an intervention to improve balance and reduce falls in older adults: A systematic and meta-analytical review.

Leung DP, Chan CK, Tsang HW, Tsang WW, Jones AY.

Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hunghom.

Abstract

OBJECTIVE:

The evidence of tai chi for balance improvement and fall reduction in older adults was updated and reviewed.

METHOD:

A systematic review was carried out by two independent reviewers among nine electronic databases to identify randomized controlled trials (RCTs) that examined the effects of tai chi on balance improvement and fall reduction in older adults using such key words as tai chi, falls, balance, and randomized trial.

RESULTS:

The results based on 13 RCTs indicated that tai chi was effective in improving balance of older adults but may not necessarily be superior to other interventions. Results also showed that in the absence of other interventions, tai chi reduced falls in the nonfrail elderly.

CONCLUSION:

Tai chi is recommended as an alternative treatment for improving balance so as to reduce falls. Future research with improved research designs such as more consistent outcome measures on balance and fall reduction and longer postintervention follow-up should be conducted to unravel the efficacy of different types of tai chi.

PMID: 21614943 [PubMed - indexed for MEDLINE]

Related citations

56. Gait Posture. 2011 Jun;34(2):191-6. doi: 10.1016/j.gaitpost.2011.04.008. Epub 2011 May 20.

Strategies of stepping over obstacles: The effects of long-term exercise in older adults.

Zhang C, Mao D, Riskowski JL, Song Q.

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Abstract

BACKGROUND:

Stepping over obstacles challenges stability and is a leading cause of falls in older adult populations. As walking and Tai Chi (TC) exercise have been suggested practices for older adults for fall prevention, the purpose of this study was to evaluate the obstacle-crossing strategies of long-term TC practitioners and exercise walkers.

METHODS:

Thirty healthy older women (average age: 65.7 years) with either TC (n=15) experience (average experience: 8.2 years) or walking exercise (n=15; average experience: 8.8 years) participated in this study. We used three trial conditions: (1) normal walking, (2) crossing a 15cm (20% of leg length) obstacle, and (3) crossing a 23cm (30% of leg length) to assess obstacle-crossing strategy. Sagittal plane obstacle-crossing kinematic parameters and plantar pressures were used to evaluate the obstaclecrossing strategy. A MANOVA assessed differences between groups.

RESULTS:

Individuals with a TC background crossed the obstacle significantly faster with a significantly longer step relative to the exercise walkers. Plantar pressure profiles between the two groups also differed. Exercise walkers showed greater plantar pressure in the forefoot; TC practitioners demonstrated greater medial heel plantar pressure during obstacle-crossing.

CONCLUSIONS:

Our results suggest that obstacle-crossing strategies were affected by the type of longterm exercise. The strategies each group used had important attributes that affect stability during obstacle-crossing. Future studies are needed to understand how obstacle-crossing strategies are adopted and how exercise may influence the strategy used.

PMID: 21601460 [PubMed - indexed for MEDLINE]
Related citations

57. Br J Sports Med. 2012 Aug;46(10):713-8. doi: 10.1136/bjsm.2010.080622. Epub 2011 May 16.

Systematic reviews of t'ai chi: an overview.

Lee MS, Ernst E.

Brain Disease Research Centre, Korea Institute of Oriental Medicine, 461-24, Jeonmin-dong, Yuseong-gu, Daejeon 305-811, South Korea. drmslee@gmail.com

Abstract

Several systematic reviews (SRs) have assessed the effectiveness of t'ai chi for many conditions including hypertension, osteoarthritis and fall prevention; however, their conclusions have been contradictory. The aim of this overview was to critically evaluate the SRs of t'ai chi for any improvement of medical conditions or clinical symptoms. English, Chinese and Korean electronic databases were searched for relevant articles, and data were extracted according to predefined criteria; 35 SRs met our inclusion criteria. They were related to the following conditions: cancer, older people, Parkinson's disease, musculoskeletal pain, osteoarthritis, rheumatoid arthritis (RA), muscle strength and flexibility, improving aerobic capacity, cardiovascular disease and risk factors, lowering resting blood pressure, osteoporosis or bone mineral density, type 2 diabetes, psychological health, fall prevention and improving balance, and any chronic conditions. In several instances, the conclusions of these articles were contradictory. Relatively clear evidence emerged to suggest that t'ai chi is effective for fall prevention and improving psychological health and was associated with general health benefits for older people. However, t'ai chi seems to be ineffective for the symptomatic treatment of cancer and RA. In conclusion, many SRs of t'ai chi have recently been published; however, the evidence is convincingly positive only for fall prevention and for improvement of psychological health.

PMID: 21586406 [PubMed - indexed for MEDLINE]

Related citations

58. Medsurg Nurs. 2011 Mar-Apr;20(2):63-9; quiz 70.

The effect of tai chi on cognition in elders with cognitive impairment.

Chang JY, Tsai PF, Beck C, Hagen JL, Huff DC, Anand KJ, Roberson PK, Rosengren KS, Beuscher L.

Department of Neurobiology and Developmental Sciences, College of Medicine, University of Arkansas for Medical Sciences, Little Rock, AR, USA.

Abstract

This one-arm pilot study investigated the effect of tai chi on cognition in elders with cognitive impairment. Although no significant difference existed between pre- and post-test performance on all cognition measures, a dose-

response relationship was demonstrated between attendance and some cognition measures.

PMCID: PMC3320763 **Free PMC Article**
PMID: 21560956 [PubMed - indexed for MEDLINE]
Related citations

59. Menopause. 2011 Sep;18(9):974-9. doi: 10.1097/gme.0b013e3182127c89.

Effects of tai chi training in dynapenic and nondynapenic postmenopausal women.

Barbat-Artigas S, Filion ME, Dupontgand S, Karelis AD, Aubertin-Leheudre M.

Groupe de Recherche en Activité Physique Adaptée, Department of Kinanthropology, University of Quebec at Montreal, Quebec, Canada.

Abstract

OBJECTIVE:

The purpose of the present study was to investigate the effects of a 12-week tai chi program in type I dynapenic and nondynapenic postmenopausal women.

METHODS:

Sixty-two postmenopausal women were recruited. Body composition, handgrip strength, functional capacities, cardiorespiratory functions (forced expiratory volume in 1 s and oxygen consumption per unit time peak), and quality of life (36-item Short-Form Health Survey) were measured before and after the intervention.

RESULTS:

Type I dynapenic postmenopausal women showed a significant decrease in body weight ($P = 0.004$), fat mass percentage ($P = 0.02$), and skeletal muscle mass (SM; in kilograms; $P = 0.02$), whereas handgrip strength (in kilograms per SMkg; $P = 0.04$), functional capacity test scores ($P \leq 0.050$), and general health perception ($P = 0.01$) significantly increased. In nondynapenic postmenopausal women, we observed a significantly decreased waist circumference ($P = 0.04$) and a significantly increased chair-stand test ($P < 0.001$) and one-leg stance test ($P = 0.04$) scores. In addition, significantly lower systolic ($P \leq 0.001$) and diastolic ($P \leq 0.005$) blood pressures were observed in both groups after the intervention. Finally,

type I dynapenic women showed a more pronounced general health perception increase compared with nondynapenic individuals (P = 0.03).

CONCLUSIONS:

Tai chi training improved body composition, muscle strength, functional capacities, and general health perception in postmenopausal women, and this last improvement was more pronounced in type I dynapenic individuals. Therefore, tai chi may be considered as an alternative physical training method in preventing the occurrence of disabilities and frailty in postmenopausal women with type I dynapenia.

PMID: 21555960 [PubMed - indexed for MEDLINE]

Related citations

60. J Altern Complement Med. 2011 May;17(5):389-95. doi: 10.1089/acm.2010.0175. Epub 2011 May 6.

Opposing systematic reviews: the effects of two quality rating instruments on evidence regarding t'ai chi and bone mineral density in postmenopausal women.

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Abstract

PURPOSE:

This article compares and contrasts two systematic reviews of t'ai chi (TC) interventions on bone mineral density in postmenopausal women. The aim is to examine how chosen quality rating instruments can impact systematic reviews of TC literature.

METHODS:

The rating instruments in the reviews, the three-item scale of Jadad et al. and the ad hoc checklist of Wayne et al., were analyzed using Oxman's evaluation criteria for systematic reviews regarding inclusion of articles, interpretation of results, and overall implications for the efficacy of TC on bone mineral density.

RESULTS:

According to Oxman's criteria, the Jadad scale did not address advances in statistical methods and was not comprehensive enough to adapt to the clinical context or topic. In contrast, the checklist by Wayne et al. was comprehensive, adaptable to clinical context and topical relevance, and compatible with recent developments in statistics and experimental design. These quality rating instruments were critical in the inclusion of studies, analyses, and overall conclusions summarizing the TC literature. The conclusions from the two systematic reviews were starkly opposing; Lee et al. found no convincing evidence, dismissing TC studies as low quality, while Wayne et al. stated that TC may be an effective, safe, and practical intervention.

CONCLUSIONS:

Readers must exercise caution concerning high or low ratings from systematic reviews of TC studies because the choice of quality rating tool can dramatically influence the summary and conclusions of the reviews. There is no consensus on quality rating standards at this time. Of the two, the Jadad scale was not only inadequate but also inappropriate for reviewing TC studies, potentially misleading researchers, clinicians and policymakers. Future systematic reviews of TC should utilize instruments that are updated to current scientific standards, comprehensive, adaptable to clinical context, and relevant to the research topic.

PMCID: PMC3096495 **Free PMC Article**
PMID: 21548814 [PubMed - indexed for MEDLINE]
Related citations

61. Arch Intern Med. 2011 Apr 25;171(8):750-7. doi: 10.1001/archinternmed.2011.150.

Tai chi exercise in patients with chronic heart failure: a randomized clinical trial.

Yeh GY, McCarthy EP, Wayne PM, Stevenson LW, Wood MJ, Forman D, Davis RB, Phillips RS.

Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Brookline, MA 02446, USA. gyeh@bidmc.harvard.edu

Comment in

- Mind or body: evaluating mind-body therapy efficacy in heart failure trials. [Arch Intern Med. 2011]

Mind or body: evaluating mind-body therapy efficacy in heart failure trials.*Teerlink JR. Arch Intern Med. 2011 Apr 25; 171(8):758-9.*

- Yin and yang of tai chi exercise. [Arch Intern Med. 2011]

  Yin and yang of tai chi exercise.*Lin GM, Tzeng BH. Arch Intern Med. 2011 Oct 10; 171(18):1685; author's reply 1685-6.*

Abstract

BACKGROUND:

Preliminary evidence suggests that meditative exercise may have benefits for patients with chronic systolic heart failure (HF); this has not been rigorously tested in a large clinical sample. We sought to investigate whether tai chi, as an adjunct to standard care, improves functional capacity and quality of life in patients with HF.

METHODS:

A single-blind, multisite, parallel-group, randomized controlled trial evaluated 100 outpatients with systolic HF (New York Heart Association class I-III, left ventricular ejection fraction ≤40%) who were recruited between May 1, 2005, and September 30, 2008. A group-based 12-week tai chi exercise program (n = 50) or time-matched education (n = 50, control group) was conducted. Outcome measures included exercise capacity (6-minute walk test and peak oxygen uptake) and disease-specific quality of life (Minnesota Living With Heart Failure Questionnaire).

RESULTS:

Mean (SD) age of patients was 67 (11) years; baseline values were left ventricular ejection fraction, 29% (8%) and peak oxygen uptake, 13.5 mL/kg/min; the median New York Heart Association class of HF was class II. At completion of the study, there were no significant differences in change in 6-minute walk distance and peak oxygen uptake (median change [first quartile, third quartile], 35 [-2, 51] vs 2 [-7, 54] meters, P = .95; and 1.1 [-1.1, 1.5] vs -0.5 [-1.2, 1.8] mL/kg/min, P = .81) when comparing tai chi and control groups; however, patients in the tai chi group had greater improvements in quality of life (Minnesota Living With Heart Failure Questionnaire, -19 [-23, -3] vs 1 [-16, 3], P = .02). Improvements with tai chi were also seen in exercise self-efficacy (Cardiac Exercise Self-efficacy Instrument, 0.1 [0.1, 0.6] vs -0.3 [-0.5, 0.2], P < .001) and mood (Profile of Mood States total mood disturbance, -6 [-17, 1] vs -1 [-13, 10], P = .01).

CONCLUSION:

Tai chi exercise may improve quality of life, mood, and exercise self-efficacy in patients with HF. Trial Registration clinicaltrials.gov Identifier: NCT00110227.

PMCID: PMC3277798 **Free PMC Article**
PMID: 21518942 [PubMed - indexed for MEDLINE]
Related citations

62. Age Ageing. 2011 May;40(3):297-306. doi: 10.1093/ageing/afr037.

Interventions for addressing low balance confidence in older adults: a systematic review and meta-analysis.

Rand D, Miller WC, Yiu J, Eng JJ.

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Abstract

BACKGROUND:

low balance confidence is a major health problem among older adults restricting their participation in daily life.

OBJECTIVES:

to determine what interventions are most effective in increasing balance confidence in older adults.

DESIGN:

systematic review with meta-analysis of randomised controlled trials including at least one continuous end point of balance confidence. Studies, including adults 60 years or older without a neurological condition, were included in our study.

METHODS:

the standardised mean difference (SMD) of continuous end points of balance confidence was calculated to estimate the pooled effect size with random-effect models. Methodological quality of trials was assessed using the

Physical Therapy Evidence Database (PEDro) Scale.

RESULTS:

thirty studies were included in this review and a meta-analysis was conducted for 24 studies. Interventions were pooled into exercise (n = 9 trials, 453 subjects), Tai Chi (n = 5 trials, 468 subjects), multifactorial intervention (n = 10 trials, 1,233 subjects). Low significant effects were found for exercise and multifactorial interventions (SMD 0.22-0.31) and medium (SMD 0.48) significant effects were found for Tai Chi.

CONCLUSION:

Tai chi interventions are the most beneficial in increasing the balance confidence of older adults.

PMCID: PMC3283571 **Free PMC Article**
PMID: 21508204 [PubMed - indexed for MEDLINE]
Related citations

63. Int J Geriatr Psychiatry. 2011 Jul;26(7):733-40. doi: 10.1002/gps.2602. Epub 2010 Dec 9.

Interim follow-up of a randomized controlled trial comparing Chinese style mind body (Tai Chi) and stretching exercises on cognitive function in subjects at risk of progressive cognitive decline.

Lam LC, Chau RC, Wong BM, Fung AW, Lui VW, Tam CC, Leung GT, Kwok TC, Chiu HF, Ng S, Chan WM.

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Abstract

OBJECTIVES:

We reported the interim findings of a randomized controlled trial (RCT) to examine the effects of a mind body physical exercise (Tai Chi) on cognitive function in Chinese subjects at risk of cognitive decline.

SUBJECTS:

389 Chinese older persons with either a Clinical Dementia Rating (CDR 0.5)

or amnestic-MCI participated in an exercise program. The exercise intervention lasted for 1 year; 171 subjects were trained with 24 forms simplified Tai Chi (Intervention, I) and 218 were trained with stretching and toning exercise (Control, C). The exercise comprised of advised exercise sessions of at least three times per week.

RESULTS:

At 5th months (2 months after completion of training), both I and C subjects showed an improvement in global cognitive function, delayed recall and subjective cognitive complaints (paired t-tests, $p < 0.05$). Improvements in visual spans and CDR sum of boxes scores were observed in I group (paired t-tests, $p < 0.001$). Three (2.2%) and 21(10.8%) subjects from the I and C groups progressed to dementia (Pearson chi square = 8.71, OR = 5.34, 95% CI 1.56-18.29). Logistic regression analysis controlled for baseline group differences in education and cognitive function suggested I group was associated with stable CDR (OR = 0.14, 95%CI = 0.03-0.71, $p = 0.02$).

CONCLUSIONS:

Our interim findings showed that Chinese style mind body (Tai Chi) exercise may offer specific benefits to cognition, potential clinical interests should be further explored with longer observation period.

PMID: 21495078 [PubMed - indexed for MEDLINE]
Related citations

64. Am J Chin Med. 2011;39(2):251-60.

Effects of long-term tai chi practice on balance and H-reflex characteristics.

Guan H, Koceja DM.

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Abstract

The purpose of the present study was to examine the effects of long-term Tai Chi practice on postural balance and H-reflex. Sixteen healthy volunteers, eight with three or more years of experience in Tai Chi training (Tai Chi Group-TCG), and eight with no experience in Tai Chi training (Control Group-CG) participated in the study. Postural sways were measured under four experimental conditions: (1) Standing still with eyes open (EO);

(2) Standing still with eyes closed (EC); (3) Standing and turning head to left and right with eyes open (EOT); and (4) Standing and turning head to left and right with eyes closed (ECT). Paired reflex depression (PRD) of the soleus muscle was measured under two conditions: supine and standing. Less significant postural sway was observed in the TCG than in the CG under four conditions including EO, EC, EOT, and ECT ($p < 0.01$). The TCG demonstrated 14.1%, 30.6%, 33.3% and 22.7% less postural sway, respectively. Significant PRD change from a supine to standing position was observed between TCG and CG ($p < 0.05$). A significant correlation between PRD change (from supine to standing) and years of Tai Chi practice was observed ($r = 0.80$, $p < 0.05$). The findings of this study support the positive effects of Tai Chi exercise on balance control under different conditions. Long-term Tai Chi exercisers also demonstrated different reflex modulation from a supine to standing position, and long-term Tai Chi practice may lead to a change of PRD modulation as neuroadaptation.
PMID: 21476203 [PubMed - indexed for MEDLINE]
Related citations

65. Environ Health Prev Med. 2011 Jan;16(1):61-3. doi: 10.1007/s12199-010-0159-9. Epub 2010 May 29.

Influence of personal patterns of behavior on the effects of Tai Chi: a pilot study.

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Abstract

OBJECTIVES:

To investigate the influence of individual patterns of personality and behavior on the change in mood status after a brief period of Tai Chi exercise.

METHODS:

The mood status in 22 healthy females was evaluated before and after a period of Tai Chi exercise using the Profile of Mood States (POMS) score. Patterns of personal behavior were also assessed by written questionnaire.

RESULTS:

In the type A behavior pattern group, the score for total mood disturbance decreased significantly after a brief period (20 min) of Tai Chi exercise. No change was observed in the type B behavior pattern group.

CONCLUSIONS:

These findings suggest that a brief period of Tai Chi exercise is mentally beneficial, particularly to individuals with type A characteristics.

PMCID: PMC2999687 **Free PMC Article**
PMID: 21432218 [PubMed - indexed for MEDLINE]
Related citations

66. J Med Assoc Thai. 2011 Jan;94(1):123-32.

Effects of two modes of exercise on physical fitness and endothelial function in the elderly: exercise with a flexible stick versus Tai Chi.

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Abstract

OBJECTIVE:

Determine the effects of exercise with flexible stick training on physical fitness and endothelial function and compare it with Tai Chi training.

MATERIAL AND METHOD:

Thirty older women volunteered for the present study and were divided into EF group (EF: n=16; 70.3 + 2.5 yr) and TC group (TC: n=14; 69.5 +/- 4.5 yr). Both training groups performed training assigned protocol that consisted of 70% of maximal heart rate, 40 minutes per day, four days per week for 12 weeks. Health related physical fitness and biochemical data were assessed in all participants. Post-Occlusive Reactive Hyperemia (PORH) was used to monitor endothelial function by using a Laser-Doppler fluxmeter.

RESULT:

The health related physical fitness was significantly higher in the EF group ($p < 0.05$). Plasma malondialdehyde and von Willebrand factor, an indicator of free radical damage and endothelial dysfunction, respectively as well as

cholesterol level were significantly lower ($p < 0.05$) in the EF group. The peak Laser-Doppler flux (LDF)/baseline LDE and recovery time were significantly improved after 12 weeks of EF training ($p < 0.05$). This was not observed after 12 weeks of TC training.

CONCLUSION:

EF, a Thai novel exercise that combined endurance and strength training was a more effective exercise modality than TC for improving physical fitness and endothelial function. It improved reactive oxygen species in the elderly.

PMID: 21425738 [PubMed - indexed for MEDLINE]

Related citations

67. Zhong Xi Yi Jie He Xue Bao. 2011 Mar;9(3):287-91.

[Comprehensive traditional Chinese medicine intervention for perimenopausal syndrome in women: a community study].

[Article in Chinese]

Zheng J, Li J, Song LY, Ni S, Chen YC, Huang SD.

Department of Gynaecology, Longhua Hospital, Shanghai University of Traditional Chinese Medicine, Shanghai 200032, China; E-mail: singasong61@hotmail.com.

Abstract

BACKGROUND:

As perimenopausal syndrome is a particularly disturbing condition to the patient, it is practical and necessary to establish a program of comprehensive traditional Chinese medicine therapy for women with perimenopausal syndrome.

OBJECTIVE:

To observe the therapeutic effects of a comprehensive traditional Chinese medicine therapy for women with perimenopausal syndrome in the community.

DESIGN, SETTING, PARTICIPANTS AND INTERVENTIONS:

Women with perimenopausal syndrome who met the inclusion criteria in 3 communities of Shanghai were selected for this study. Comprehensive traditional Chinese medicine therapy, including administration of Chinese

herbs, auricular point therapy, psychological counseling and the practice of Tai Chi, was applied for these women.

MAIN OUTCOME MEASURES:

The modified Kupperman index was measured once every 4 weeks for 12 weeks; the indexes of menopause-specific quality of life (MENQOL) questionnaire were measured before and after the treatment.

RESULTS:

There was no significant difference in 4 groups of negative conversion ratio of the modified Kupperman index at the 4th, 8th and 12th week, respectively. The indexes of the MENQOL questionnaire showed significant differences in 4 groups before and after the treatment. The overall efficacy rate of the comprehensive traditional Chinese medicine therapy in women with perimenopausal syndrome achieved 97.84% at the 8th and the 12th week.

CONCLUSION:

The comprehensive traditional Chinese medicine therapy can achieve significant improvements in women with perimenopausal syndrome who exhibit both physical and psychological symptoms. With such significant clinical effects, the comprehensive traditional Chinese medicine therapy should be promoted in the community.

Free Article

PMID: 21419081 [PubMed - indexed for MEDLINE]

Related citations

68. Am J Mens Health. 2011 Sep;5(5):421-9. doi: 10.1177/1557988311400063. Epub 2011 Mar 15.

Preliminary findings of a 4-month Tai Chi intervention on tenderness, functional capacity, symptomatology, and quality of life in men with fibromyalgia.

Carbonell-Baeza A, Romero A, Aparicio VA, Ortega FB, Tercedor P, Delgado-Fernández M, Ruiz JR.

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Abstract

The study aimed to determine the effects of a 4-month Tai Chi intervention

on tenderness, functional capacity, symptomatology, and quality of life in men with fibromyalgia. The effect of a 3-month detraining period was also analyzed. Six men with fibromyalgia (age 52.3 ± 9.3 years) followed a 4-month Tai Chi intervention. The outcome variables were tenderness, functional capacity (30-second chair stand, handgrip strength, chair sit and reach, back scratch, blind flamingo, 8 feet up and go, and 6-minute walk tests), and self-administered questionnaires. A significant improvement ($p = .028$) after the intervention period for the chair sit and reach test was found, such improvement was maintained after the detraining phase. Tenderness, symptomatology, and quality of life did not significantly change after the intervention period or the detraining phase. In summary, a 4-month Tai Chi intervention improved lower body flexibility in men with fibromyalgia. This improvement persisted after the detraining period.

PMID: 21406488 [PubMed - indexed for MEDLINE]

Related citations

69. Am J Geriatr Psychiatry. 2011 Oct;19(10):839-50. doi: 10.1097/JGP.0b013e31820ee9ef.

Complementary use of tai chi chih augments escitalopram treatment of geriatric depression: a randomized controlled trial.

Lavretsky H, Alstein LL, Olmstead RE, Ercoli LM, Riparetti-Brown M, Cyr NS, Irwin MR.

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Abstract

BACKGROUND:

Nearly two-thirds of elderly patients treated for depression fail to achieve symptomatic remission and functional recovery with first-line pharmacotherapy. In this study, we ask whether a mind-body exercise, Tai Chi Chih (TCC), added to escitalopram will augment the treatment of geriatric depression designed to achieve symptomatic remission and improvements in health functioning and cognitive performance.

METHODS:

: One hundred twelve older adults with major depression age 60 years and older were recruited and treated with escitalopram for approximately 4 weeks. Seventy-three partial responders to escitalopram continued to receive escitalopram daily and were randomly assigned to 10 weeks of

adjunct use of either 1) TCC for 2 hours per week or 2) health education (HE) for 2 hours per week. All participants underwent evaluations of depression, anxiety, resilience, health-related quality of life, cognition, and inflammation at baseline and during 14-week follow-up.

RESULTS:

Subjects in the escitalopram and TCC condition were more likely to show greater reduction of depressive symptoms and to achieve a depression remission as compared with those receiving escitalopram and HE. Subjects in the escitalopram and TCC condition also showed significantly greater improvements in 36-Item Short Form Health Survey physical functioning and cognitive tests and a decline in the inflammatory marker, C-reactive protein, compared with the control group.

CONCLUSION:

: Complementary use of a mind-body exercise, such as TCC, may provide additional improvements of clinical outcomes in the pharmacologic treatment of geriatric depression.

PMCID: PMC3136557 **Free PMC Article**
PMID: 21358389 [PubMed - indexed for MEDLINE]
Related citations

70. J Altern Complement Med. 2011 Mar;17(3):187-9. doi: 10.1089/acm.2010.0650. Epub 2011 Feb 25.

T'ai-Chi intervention in men with fibromyalgia: a multiple-patient case report.

Carbonell-Baeza A, Romero A, Aparicio VA, Tercedor P, Delgado-Fernández M, Ruiz JR.
PMID: 21348799 [PubMed - indexed for MEDLINE]
Related citations

71. Osteoarthritis Cartilage. 2011 Apr;19(4):366-74. doi: 10.1016/j.joca.2011.01.021. Epub 2011 Feb 13.

Osteoarthritis year 2010 in review: non-pharmacologic therapy.

Hawker GA, Mian S, Bednis K, Stanaitis I.

Canadian Osteoarthritis Research Program, Women's College Research Institute, Women's College Hospital, University of Toronto, Toronto, ON M5S 1B2, Canada.g.hawker@utoronto.ca

Abstract

OBJECTIVE:

To highlight seminal publications in the past year on the topic of non-pharmacologic management of osteoarthritis (OA).

DESIGN:

A systematic search of the PUBMED and Cochrane databases from September 2009 to September 2010 was conducted to identify articles reporting on studies examining the safety or efficacy of non-pharmacologic therapies in the management of OA. Non-pharmacologic therapies were those considered in the 2008 OARSI OA guidelines. Identified articles were reviewed for quality; those of highest quality and deemed to have greatest potential impact on the management of OA were summarized.

RESULTS:

The search identified 117 unique articles. Of these, four studies were chosen to highlight. A nested two-stage trial found that traditional Chinese acupuncture (TCA) was not superior to sham acupuncture, but that the providers' style affected both pain reduction and satisfaction with treatment, suggesting that the analgesic benefits of acupuncture may be partially mediated by the acupuncturists' behavior. A systematic review found little evidence of a significant effect for electrostimulation vs sham or no intervention on pain in knee OA. A single-blinded trial of Tai Chi vs attention controls found that 12 weeks of Tai Chi was associated with improvements in symptoms and disability in patients with knee OA. A randomized trial of early ACL reconstructive surgery and rehabilitation vs structured rehabilitation alone in subjects with acute anterior cruciate ligament tears found that, at 24 months following randomization, all study participants had improved, suggesting that a strategy of structured rehabilitation followed acute ACL injury may preclude the need for surgical reconstruction.

CONCLUSIONS:

High quality studies of the safety and efficacy of non-pharmacologic agents in the management of OA remain challenging due to difficulties with adequate blinding and appropriate selection of attention controls. High quality studies suggest modest, if any, benefit of many non-pharmacologic therapies over attention control or placebo, but a significant impact of both over no intervention at all.

PMID: 21324369 [PubMed - indexed for MEDLINE]
Related citations

72. J Transcult Nurs. 2011 Apr;22(2):201-4. doi: 10.1177/1043659610395770.

How to prescribe Tai chi therapy.

Allen J, Meires J.

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Abstract

Exercise has been shown to positively influence quality of life for people with a wide variety of medical illnesses. Tai chi,a slow and graceful form of exercise and meditation, has been offered as the ideal exercise for diverse conditions such as chronic heart failure and for breast cancer survivors. In one recent study, tai chi was found to improve exercise capacity,sleep stability, and quality of life in heart failure patients. Another study focusing on breast cancer survivors revealed tai chi to be superior to psychosocial support in increasing aerobic capacity, muscular strength, flexibility, and quality of life. Primary care providers can play a vital role in encouraging their patients with chronic illnesses to participate in safe forms of exercise such as tai chi in order to improve their healing experience, physical function, and overall quality of life.

PMID: 21317403 [PubMed - indexed for MEDLINE]
Related citations

73. Complement Ther Med. 2011 Feb;19(1):3-11. doi: 10.1016/j.ctim.2010.12.007. Epub 2011 Jan 17.

Tai chi Qigong improves lung functions and activity tolerance in COPD clients: a single blind, randomized controlled trial.

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Abstract

OBJECTIVE:

To evaluate the effectiveness of a Tai chi Qigong (TCQ) program in enhancing respiratory functions and activity tolerance in clients with chronic

obstructive pulmonary disease (COPD).

DESIGN:

A single-blind, randomized controlled trial.

SETTING:

Five general outpatient clinics in Hong Kong.

INTERVENTION:

In total, 206 COPD clients were randomly assigned into one of the three groups, namely, TCQ, exercise, and control group. Subjects in the TCQ group received a TCQ program consisting of two 60-min sessions each week for three months. Subjects in the exercise group were taught to practice breathing techniques combined with walking as an exercise. Subjects in the control group were instructed to maintain their usual activities. Data collection was performed at baseline and at the 6-week and 3-month marks.

OUTCOMES:

Lung functions, 6-min walk test, and COPD exacerbation rate.

RESULTS:

Results of repeated measures of analysis of covariance demonstrated that there were significant interaction effects between time and group in forced vital capacity ($p=.002$, $\eta(2)=.06$), forced expiratory volume in 1s ($p<.001$, $\eta(2)=.02$), walking distance ($p<.001$), and exacerbation rate ($p=.006$, $\eta(2)=.06$) at 3 months. Improvements were noted in the TCQ group. No changes were observed in the exercise group, while a decline in lung functions was noticed in the control group.

CONCLUSION:

Tai chi Qigong was able to improve respiratory functions and activity tolerance level in COPD clients. The breathing and walking exercise helped maintain lung functions and slow down disease progression.

PMID: 21296261 [PubMed - indexed for MEDLINE]
Related citations

74. J Altern Complement Med. 2011 Jan;17(1):77-81. doi: 10.1089/acm.2009.0710. Epub 2011 Jan 11.

Physiologic correlates of t'ai chi chuan.

Iuliano B, Grahn D, Cao V, Zhao B, Rose J.

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Abstract

BACKGROUND:

T'ai chi chuan, the ancient Chinese martial art, is practiced by millions of people worldwide and is an activity of moderate intensity that involves slow, circular movements. Evidence of substantial health benefits of t'ai chi chuan is emerging, however, the physiologic mechanisms are not well-understood. T'ai chi chuan masters routinely report sensing qi or internal energy flow, particularly in the hands. The purpose of this case study was to determine whether physiologic responses normally associated with thermoregulation are activated during a basic t'ai chi chuan exercise.

METHODS:

Trials consisted of three focus periods and one withdraw period (during which the subject withdrew internal energy in the hands), each followed by a rest period. Measurements included infrared-thermography (IR), thermocoupled temperature measures, and laser Doppler flowmetry.

RESULTS:

Substantial increases in local palmar and face surface temperatures were observed with IR thermography during focus periods and substantial decreases were observed during the withdraw period. Fingertip surface baseline temperatures were 31.1°C for one trial, increased by 1.8°C during the focus period, and then decreased by 4.9°C during the withdraw period. A twofold increase in blood flow through fingertip regions paralleled changes in fingertip surface temperatures during focus periods.

CONCLUSIONS:

Changes in regional blood flow and surface temperatures closely paralleled onsets of focus, rest, and withdraw periods and appear to be volitional activations of known vasomotor mechanisms underlying non-hairy skin regions such as the hands and face. Changes in blood flow through these vascular structures are generally autonomic thermoregulatory responses, not normally under voluntary control, but may also represent a relaxation

response.
PMID: 21222533 [PubMed - indexed for MEDLINE]
Related citations

75. Rheum Dis Clin North Am. 2011 Feb;37(1):19-32. doi: 10.1016/j.rdc.2010.11.002. Epub 2010 Dec 4.

Tai chi and rheumatic diseases.

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Abstract

Tai chi is a complex multicomponent mind-body exercise. Many studies have provided evidence that tai chi benefits patients with a variety of chronic disorders. This form of mind-body exercise enhances cardiovascular fitness, muscular strength, balance, and physical function and seems to be associated with reduced stress, anxiety, and depression and improved quality of life. Thus, despite certain limitations in the evidence, tai chi can be recommended to patients with osteoarthritis, rheumatoid arthritis, and fibromyalgia as a complementary and alternative medical approach. This article overviews the current knowledge about tai chi to better inform clinical decision making for rheumatic patients.

PMCID: PMC3058626 **Free PMC Article**
PMID: 21220083 [PubMed - indexed for MEDLINE]
Related citations

76. J Adv Nurs. 2011 May;67(5):961-71. doi: 10.1111/j.1365-2648.2010.05553.x. Epub 2011 Jan 7.

Reducing the fear of falling among community-dwelling elderly adults through cognitive-behavioural strategies and intense Tai Chi exercise: a randomized controlled trial.

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Abstract

AIM:

To examine the effectiveness of cognitive-behavioural strategies with/without intense Tai Chi exercise in reducing fear of falling among community-dwelling elderly adults. Background. Fear of falling is a major health problem among community-dwelling older persons. The prevalence of this fear ranges from 29% to 77%, indicating the importance of developing effective strategies to reduce fear of falling among elderly adults.

METHODS:

Data were collected from January to December 2007. A randomized controlled trial with three groups (control, cognitive-behavioural and cognitive-behavioural with Tai Chi). Participants were assessed at baseline for demographic data, falls-related history, and fear of falling. Data on these variables plus falls, mobility, social support behaviour and satisfaction, and quality of life were also collected at 2 and 5 months after interventions.

RESULTS:

Participants in the three groups differed significantly in both measures of fear of falling ($F = 20{\cdot}89$, $P < 0{\cdot}001$; $F = 6{\cdot}09$, $P < 0{\cdot}001$) and mobility ($F = 30{\cdot}33$, $P < 0{\cdot}001$), social support behaviour and satisfaction ($F = 3{\cdot}32$, $P < 0{\cdot}05$ and $F = 6{\cdot}35$, $P < 0{\cdot}001$, respectively), and quality of life ($F = 16{\cdot}66$, $P< 0{\cdot}001$). In addition, participants who received the cognitive-behavioural intervention with Tai Chi had significantly lower fear of falling scores ($P < 0{\cdot}001$) and higher mobility ($P < 0{\cdot}001$), social support satisfaction ($P < 0{\cdot}01$) and quality of life ($P < 0{\cdot}001$) than the cognitive-behavioural alone and control groups at 5 months. The three groups did not differ significantly in falls.

CONCLUSION:

The results of this trial suggest that the cognitive-behavioural intervention with Tai Chi exercise helped community-dwelling elderly adults to enhance their mobility, to manage their fear of falling and to increase their quality of life.

PMID: 21214623 [PubMed - indexed for MEDLINE]

Related citations

77. Arch Gerontol Geriatr. 2011 May-Jun;52(3):e198-203. doi: 10.1016/j.archger.2010.11.010. Epub 2010 Dec 8.

The development of a Tai Chi exercise regimen for the prevention of conditions requiring long-term care in Japan.

Nomura T, Nagano K, Takato J, Ueki S, Matsuzaki Y, Yasumura S.

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Abstract

This study was to examine an effect of such an exercise program on preventing conditions requiring long-term care in the Japanese frail elderly who participated in a Tai Chi Yuttari-exercise program. The first-intervention group underwent an intervention program by participating in a Tai Chi Yuttari-exercise session once a week for 3 months. Each session lasted 90 min including a break time. Moreover, the subjects received a video recording of the exercise, and instructions to carry out the exercise at home. The same program was administered to the second-intervention group. Physical function improved significantly in the first-intervention group, with single-leg balance (SLB) increasing, and trunk anteflexion increasing after the intervention program. Furthermore, the total score of the Motor Fitness Scale (MFS) improved significantly. On the other hand, mono- and multi-variate analyses showed no significant differences observed in the second-intervention group during the study period. A careful interpretation of the results suggests that Tai Chi Yuttari-exercise improves physical function and ability for frail elderly individuals and could reduce the need for long-term care.

PMID: 21145120 [PubMed - indexed for MEDLINE]

Related citations

78. Eur J Cardiovasc Nurs. 2012 Mar;11(1):34-43. doi: 10.1016/j.ejcnurse.2010.11.001.

Tai Chi as an adjunct physical activity for adults aged 45 years and older enrolled in phase III cardiac rehabilitation.

Taylor-Piliae RE, Silva E, Sheremeta SP.

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Abstract

BACKGROUND:

Cardiac rehabilitation improves physical, cognitive and psychosocial functioning, yet services are greatly underutilized with increasing patterns of attrition over time. Tai Chi has been suggested as a possible adjunct to cardiac rehabilitation exercise training.

AIM:

To describe differences in physical, cognitive and psychosocial functioning among adults ≥ 45 years old attending phase III cardiac rehabilitation, who have or have not self-selected Tai Chi exercise as an adjunct physical activity.

METHODS:

A cross-sectional design compared subjects attending group-based Wu style Tai Chi classes plus cardiac rehabilitation, with cardiac rehabilitation only. Subjects had a battery of physical and cognitive functioning tests administered to examine aerobic endurance, balance, strength, and flexibility, verbal retrieval/recall, attention, concentration and tracking. Subjects completed a health survey to ascertain cardiac event information, medical history, and psychosocial functioning (i.e. health-related quality of life, stress, depressive symptoms, social support, and Tai Chi self-efficacy).

RESULTS:

A total of 51 subjects (75% married, 84% college-educated, 96% White/European-American) participated. Subjects were on average 70 (± 8) years old and had attended cardiac rehabilitation for 45 (± 37) months. Approximately 45% (n = 23) attended Tai Chi classes plus cardiac rehabilitation, while 55% (n = 28) attended cardiac rehabilitation only. Subjects attending Tai Chi plus cardiac rehabilitation had better balance, perceived physical health, and Tai Chi self-efficacy compared to those attending cardiac rehabilitation only ($p \leq 0.03$).

CONCLUSION:

Tai Chi can be easily implemented in any community/cardiac rehabilitation facility, and may offer adults additional options after a cardiac event.
PMID: 21095159 [PubMed - indexed for MEDLINE]
Related citations

79. Contemp Clin Trials. 2011 Mar;32(2):267-72. doi:

10.1016/j.cct.2010.11.006. Epub 2010 Nov 13.

A study design to investigate the effect of short-form Sun-style Tai Chi in improving functional exercise capacity, physical performance, balance and health related quality of life in people with Chronic Obstructive Pulmonary Disease (COPD).

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Abstract

The effectiveness of exercise training in people with COPD is well established. However, alternative methods of training such as Tai Chi have not been widely evaluated. This paper describes the study design of a clinical trial which aims to determine if short form Sun-style Tai Chi improves exercise capacity and quality of life in people with COPD. METHOD: This randomised controlled trial will be conducted with concealed allocation and blinded outcome assessment. Participants will be recruited from Concord Repatriation General Hospital, Sydney. After baseline measurement, participants will be randomised into either a Tai Chi Group or a Control Group. Participants in the Tai Chi Group will undergo supervised training twice weekly for twelve weeks. Participants in the Control Group will undergo usual medical care. Measurements will be taken at baseline (week 0) and after the study period (week 12). The primary outcome measurement is endurance walking capacity assessed by the endurance shuttle walk test. Secondary outcomes include measures related to peak walking capacity, physical performance, balance, muscle strength and quality of life. Details of the physiological responses during Tai Chi will be collected in a small cohort to determine the training intensity of Sun-style Tai Chi. DISCUSSION: If short form Sun-style Tai Chi improves exercise capacity, physical performance and quality of life in people with COPD, this would provide an alternate form of exercise training which does not require exercise equipment thus making effective exercise training more accessible for the large numbers of people with COPD.

PMID: 21078418 [PubMed - indexed for MEDLINE]
Related citations

80. Appl Nurs Res. 2012 Feb;25(1):54-9. doi: 10.1016/j.apnr.2010.01.002. Epub 2010 Apr 13.

Tai Chi for older nurses: a workplace wellness pilot study.

Palumbo MV, Wu G, Shaner-McRae H, Rambur B, McIntosh B.

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Abstract

PURPOSE:

The purpose of this pilot study was to assess the feasibility of a Tai Chi workplace wellness program as a cost effective way of improving physical and mental health, reducing work related stress, and improving work productivity among older nurses in a hospital setting Design A randomized control trial of two groups (control and Tai Chi group).

DESIGN:

A randomized control trial of two groups (control and Tai Chi group).

SETTINGS:

Northeastern academic medical center.

SUBJECTS:

A convenience sample of eleven female nurses (mean age 54.4 years).

INTERVENTION:

The Tai Chi group (n = 6) was asked to attend Tai Chi classes once a week offered at their worksite and to practice on their own for 10 minutes each day at least 4 days per week for 15 weeks. Controls (n = 5) received no intervention.

MEASURES:

SF-36 Health Survey, Nursing Stress Scale (NSS), Perceived Stress Scale (PSS), Sit-and-Reach test, Functional Reach test, the Work Limitations Questionnaire, workplace injury and unscheduled time off.

ANALYSIS:

The two study groups were compared descriptively and changes across time

in the intervention versus control were compared.

RESULTS:

The Tai Chi group took no unscheduled time-off hours, whereas, the control group was absent 49 hours during the study period. There was also a 3% increase in work productivity and significant improvement in functional reach (p=0.03) compared to the control group. Other outcomes were not statistically significant.

CONCLUSION:

This pilot study demonstrates the feasibility of Tai Chi with older female workers as a cost effective wellness option in the workplace; thus encouraging replication with a larger sample. Methodological implications were also addressed.

PMCID: PMC3029490
PMID: 20974089 [PubMed - indexed for MEDLINE]
Related citations

81. Arch Gerontol Geriatr. 2011 May-Jun;52(3):357-62. doi: 10.1016/j.archger.2010.05.013. Epub 2010 Jun 9.

Explaining the ineffectiveness of a Tai Chi fall prevention training for community-living older people: a process evaluation alongside a randomized clinical trial (RCT).

Logghe IH, Verhagen AP, Rademaker AC, Zeeuwe PE, Bierma-Zeinstra SM, Van Rossum E, Faber MJ, Van Haastregt JC, Koes BW.

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Abstract

The results of a randomized clinical trial (RCT) on the effects of a Tai Chi fall prevention in community-living older people with a high risk of falling in the Netherlands showed no beneficial effects on falls and secondary outcomes (e.g., balance, fear of falling). The aim of this study is to provide insight in process-related factors that may have influenced the effectiveness of the intervention. The intervention consisted of Tai Chi Chuan (TCC) training for 1 h twice a week for 13 weeks. We used self-administered questionnaires

and registration forms to collect data from participants and instructors. We analyzed quantitative data by means of descriptive statistics and categorized qualitative data based on the content of the answers given. Of the participants, that started the program 89 (79%) completed the intervention, but a minority of 47% attended 80% of more of the lessons. All participants and instructors were positive about the program and most participants reported benefits from the intervention. Suggestions for improvements mainly relate to adjustments of training aspects. The main process-related factors that may be have influenced the lack of beneficial effects on falls and secondary outcomes are the relatively high withdrawal and the low adherence rates.

PMID: 20965096 [PubMed - indexed for MEDLINE]
Related citations

82. Arch Gerontol Geriatr. 2011 Sep-Oct;53(2):e133-7. doi: 10.1016/j.archger.2010.07.009. Epub 2010 Sep 25.

Does different exercise have the same effect of health promotion for the elderly? Comparison of training-specific effect of Tai Chi and swimming on motor control.

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Abstract

It remains unclear whether Tai Chi Chuan (TCC) instead of swimming yields a training-specific effect on dynamic balance. The objective of the present study is to test if the practice of TCC provides a distinctive benefit of balance in the elderly. The participants in TCC (n = 32) and swimming groups (n = 20) practiced regular swimming and TCC respectively for at least 3 years before the recruitment. Thirty-four healthy and active elderly volunteers were also recruited as the control group. To evaluate balance, we used SMART Balance Master that yields balance parameters including maximal stability, center-of-pressure velocity, and percentage ankle strategy obtained under six different balance conditions. We evaluated eye-hand coordination by measuring the movement time required to accurately point from one target to the next. In the most challenging balance conditions, the TCC group performed significantly better than the swimming and control groups. In eye-hand coordination tasks, both the TCC and swimming groups yielded significantly shorter movement time compared with the control group; however, no significant difference was observed between them. We

concluded that both TCC and swimming improve eye-hand coordination in the elderly. However, TCC yields a better training effect on dynamic balance.

PMID: 20870302 [PubMed - indexed for MEDLINE]
Related citations

83. J Sci Med Sport. 2011 Jan;14(1):4-9. doi: 10.1016/j.jsams.2010.08.002. Epub 2010 Sep 17.

A review of the clinical evidence for exercise in osteoarthritis of the hip and knee.

Bennell KL, Hinman RS.

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Abstract

Osteoarthritis (OA) is a chronic joint disease with the hip and knee being commonly affected lower limb sites. Osteoarthritis causes pain, stiffness, swelling, joint instability and muscle weakness, all of which can lead to impaired physical function and reduced quality of life. This review of evidence provides recommendations for exercise prescription in those with hip or knee OA. A narrative review was performed. Conservative non-pharmacological strategies, particularly exercise, are recommended by all clinical guidelines for the management of OA and meta-analyses support these exercise recommendations. Aerobic, strengthening, aquatic and Tai chi exercise are beneficial for improving pain and function in people with OA with benefits seen across the range of disease severities. The optimal exercise dosage is yet to be determined and an individualized approach to exercise prescription is required based on an assessment of impairments, patient preference, co-morbidities and accessibility. Maximising adherence is a key element dictating success of exercise therapy. This can be enhanced by the use of supervised exercise sessions (possibly in class format) in the initial exercise period followed by home exercises. Bringing patients back for intermittent consultations with the exercise practitioner, or attendance at "refresher" group exercise classes may also assist long-term adherence and improved patient outcomes. Few studies have evaluated the effects of exercise on structural disease progression and there is currently no evidence to show that exercise can be disease modifying. Exercise plays an important role in managing symptoms in those with hip and knee OA.

PMID: 20851051 [PubMed - indexed for MEDLINE]
Related citations

84. Eur J Appl Physiol. 2011 Jan;111(1):57-66. doi: 10.1007/s00421-010-1628-y. Epub 2010 Sep 1.

Effects of Tai Chi on adiponectin and glucose homeostasis in individuals with cardiovascular risk factors.

Chang RY, Koo M, Ho MY, Lin ZZ, Yu ZR, Lin YF, Wang BJ.

Division of Cardiology, Department of Internal Medicine, Chia-Yi Christian Hospital, Chiayi, Taiwan, ROC.

Abstract

The aim of this study was to evaluate the acute effect of a single bout of Tai Chi (TC) exercise on adiponectin and glucose homeostasis in individuals with cardiovascular risk factors. Twenty-six individuals (mean age 60.2 years) with at least one cardiovascular risk factor who had been practicing Yang's style TC exercise for at least 3 months were recruited from a regional hospital in Taiwan. A one-group repeated measured quasi-experimental design was used. Participants completed a 60-min Yang's style TC exercise routine including warm up, stretching exercises, and TC followed by a 30-min resting period. After a 1-week washout period, the same group of participants underwent a control condition in which they were instructed to remain seated for 90 min at the study location. Blood samples were collected both before and after the TC intervention or the sitting condition. The difference between pre-post measurements for adiponectin was 0.58 ± 1.42 μg/ml in the TC trial and -0.46 ± 0.99 μg/ml in the sitting trial. The differences between the two trials were statistically significant ($P = 0.004$). The changes from pretrial to posttrial were significantly greater for glycerol ($P < 0.001$), cholesterol ($P = 0.046$), and LDL-C ($P = 0.038$) in the TC trial compared with those in the sitting trial. Conversely, the changes were significantly lesser for HOMA-IR ($P = 0.004$), log (HOMA-IR) ($P = 0.001$), and glucose ($P = 0.003$) in TC trial compared with those in the sitting trial. In conclusion, a single bout of TC exercise had a significant positive effect on blood adiponectin concentrations in individuals with cardiovascular risk factors.

PMID: 20809228 [PubMed - indexed for MEDLINE]
Related citations