

Chan, A. W., A. Lee, et al. "Effectiveness of a Tai chi Qigong program in promoting health-related quality of life and perceived social support in chronic obstructive pulmonary disease clients." Qual Life Res **19**(5): 653-64.

PURPOSE: This paper evaluates the effectiveness of a 3-month Tai chi Qigong (TCQ) program in promoting the psychosocial functional health of clients with chronic obstructive pulmonary disease (COPD) in Hong Kong. **METHODS:** This study employed a single-blind, randomized controlled trial. Two hundred and six COPD clients were randomly assigned into three groups, namely, TCQ group, exercise group, and control group. Subjects in the TCQ group received a TCQ program, consisting of two 60-min sessions each week for 3 months. Subjects in the exercise group were taught to practice breathing techniques combined with walking as an exercise. Subjects in the control group received their usual care. Data collections were performed at baseline, on the sixth week and on the third month. The primary outcomes were health-related quality of life using St. George Respiratory Questionnaire-Hong Kong Chinese version and perceived social support using the Multidimensional Scale of Perceived Social Support-Chinese version. **RESULTS:** The TCQ group showed greater improvements in the symptom ($F_{4, 404}=3.351, P=0.010$) and activity domains ($F_{4, 404}=2.611, P=0.035$). No differences were detected in perceived social support among the three groups. **CONCLUSIONS:** Tai chi Qigong promoted health outcomes with respect to clients' perception of their respiratory symptoms. Moreover, TCQ decreased disturbances to their physical activities.

Dechamps, A., P. Diolez, et al. "Effects of exercise programs to prevent decline in health-related quality of life in highly deconditioned institutionalized elderly persons: a randomized controlled trial." Arch Intern Med **170**(2): 162-9.

BACKGROUND: Our objective was to assess the effects of targeted exercise programs on health-related quality of life compared with usual care based on the ability to perform activities of daily living (ADL) and the Neuropsychiatric Inventory scores in geriatric institutionalized persons. **METHODS:** A randomized controlled trial of 2 exercise programs vs usual care was conducted in 160 institutionalized persons 65 years or older who were able to understand basic motor commands and to move from one position to another. Interventions were performed over 6 months and were either an adapted tai chi program (4 times 30 min/wk) or a cognition-action program (2 times 30-45 min/wk) that focused primarily on an adapted guidance of patient-centered communication skills. The control group received usual care. The study was conducted at 4 settings. The main outcomes were changes in health-related quality of life based on ADL and Neuropsychiatric Inventory scores after 12 months. **RESULTS:** The control group experienced a decline in ADL over the 12-month period compared with the adapted tai chi and cognition-action groups, but the differences were not significant ($P = .24$ and $P = .15$, respectively). Also, the components of ADL, eg, ability to walk, continence, and nutrition, were maintained better in the intervention groups than in the control group. The total Neuropsychiatric Inventory score also worsened significantly in the control group, while it was

unchanged or improved in the intervention groups. The differences between the cognition-action group and the control group were significant ($P > .001$). Neuropsychiatric diagnosis subgroups (such as dementia and psychosis) did not show a specific response from any intervention. **CONCLUSION:** Adapted exercise programs can slow down the decline in health-related quality of life among heterogeneous, institutionalized elderly persons. **TRIAL REGISTRATION:** clinicaltrials.gov Identifier: NCT00623532.

Fouladbakhsh, J. M. and M. Stommel "Gender, symptom experience, and use of complementary and alternative medicine practices among cancer survivors in the U.S. cancer population." Oncol Nurs Forum **37**(1): E7-E15.

PURPOSE/OBJECTIVES: To identify relationships among gender, physical and psychological symptoms (pain, insomnia, fatigue, and depression), and use of specific complementary and alternative medicine (CAM) practices among survivors in the U.S. cancer population. **DESIGN:** Secondary analysis of the 2002 National Health Interview Survey (NHIS). The CAM Healthcare Model, an extension of the Behavioral Model for Health Services Use, guided the study. **SETTING:** United States. **Sample:** 2,262 adults (aged 18 years and older) diagnosed with cancer representing more than 14.3 million cancer survivors in the United States. **METHODS:** NHIS interview data on use of CAM practices (diet, yoga, tai chi, qigong, meditation, guided imagery, relaxation, and deep breathing) were examined in relationship to gender and symptoms. Analysis was conducted using Stata 9.2 software for population estimation. Binary logistic regression, the primary statistical model employed in the analysis, focused on between-subject differences in practice use. **MAIN RESEARCH VARIABLES:** Dichotomous outcome variables included use of at least one CAM practice and use of specific individual CAM practices. Independent variables included gender, age, education, race, provider contact, cancer diagnosis, pain, insomnia, fatigue, depression, and health status. **FINDINGS:** CAM practice use was more prevalent among female, middle-aged, Caucasian, and well-educated subjects. Pain, depression, and insomnia were strong predictors of practice use, with differences noted by gender and practice type. **CONCLUSIONS:** CAM practices are widely used in the U.S. cancer population, especially among women. Symptom experience influences likelihood of use, with increased odds when men report symptoms. **IMPLICATIONS FOR NURSING:** Study findings inform oncology nurses on the benefits of integrating self-care CAM practices in relationship to gender into the symptom management care plan for cancer survivors. Findings reported in this study will help guide future CAM practice intervention studies.

Frick, K. D., J. Y. Kung, et al. "Evaluating the cost-effectiveness of fall prevention programs that reduce fall-related hip fractures in older adults." J Am Geriatr Soc **58**(1): 136-41.

OBJECTIVES: To model the incremental cost-utility of seven interventions reported as effective for preventing falls in older adults. **DESIGN:** Mathematical epidemiological model populated by data based on direct clinical experience and

a critical review of the literature. **SETTING:** Model represents population level interventions. **PARTICIPANTS:** No human subjects were involved in the study. **MEASUREMENTS:** The last Cochrane database review and meta-analyses of randomized controlled trials categorized effective fall-prevention interventions into seven groups: medical management (withdrawal) of psychotropics, group tai chi, vitamin D supplementation, muscle and balance exercises, home modifications, multifactorial individualized programs for all elderly people, and multifactorial individualized treatments for high-risk frail elderly people. Fall-related hip fracture incidence was obtained from the literature. Salary figures for health professionals were based on Bureau of Labor Statistics data. Using an integrated healthcare system perspective, healthcare costs were estimated based on practice and studies on falls in older adults. Base case incremental cost utility ratios were calculated, and probabilistic sensitivity analyses were conducted. **RESULTS:** Medical management of psychotropics and group tai chi were the least-costly, most-effective options, but they were also the least studied. Excluding these interventions, the least-expensive, most-effective options are vitamin D supplementation and home modifications. Vitamin D supplementation costs less than home modifications, but home modifications cost only \$14,794/quality-adjusted life year (QALY) gained more than vitamin D. In probabilistic sensitivity analyses excluding management of psychotropics and tai chi, home modification is most likely to have the highest economic benefit when QALYs are valued at \$50,000 or \$100,000. **CONCLUSION:** Of single interventions studied, management of psychotropics and tai chi reduces costs the most. Of more-studied interventions, home modifications provide the best value. These results must be interpreted in the context of the multifactorial nature of falls.

Gyllensten, A. L., C. W. Hui-Chan, et al. "Stability limits, single-leg jump, and body awareness in older Tai Chi practitioners." *Arch Phys Med Rehabil* **91**(2): 215-20.

DESIGN: Cross-sectional study. **SETTING:** University-based rehabilitation center. **PARTICIPANTS:** Tai Chi practitioners (n=24; age \pm -SD, 68.5 \pm -6.6 y) and control subjects (n=20; age, 71.3 \pm -6.7 y) were recruited. **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Measures included the following: (1) subjects' intentional weight shifting to 8 different spatial positions within their base of support using the limits of stability test, (2) the ability to leave the floor in single-leg jumping and to maintain balance on landing using force platform measurements, and (3) body awareness and movement behaviors using the Body Awareness Scale-Health (BAS-H). **RESULTS:** The findings showed that Tai Chi practitioners had a significantly better ability to lean further without losing stability and better directional control (P<0.01). They had a better ability to jump off the floor (P<0.05) and to maintain a longer single-leg stance after landing (P<0.05) and better overall body awareness (P<0.001). The single-leg jumps also correlated significantly with limits of stability measures of movement velocity, endpoint excursions, and maximum excursions but not with directional control. The BAS-H scores correlated significantly with the limits of stability measures

except directional control. They also correlated significantly with the ability to jump off the floor and maintain stability after landing. **CONCLUSIONS:** When compared with healthy controls, Tai Chi practitioners had better stability limits, increased ability to perform a single-leg jump, and more stability in landing on 1 leg as well as better body awareness. Significant correlations among limits of stability measures, single-leg jumping tests, and the BAS-H scores indicate the importance of body awareness in limits of stability, single-leg jumping, and landing.

Huang, H. C., C. Y. Liu, et al. "Community-based interventions to reduce falls among older adults in Taiwan - long time follow-up randomised controlled study." J Clin Nurs **19**(7-8): 959-68.

AIMS: The aim of the study was to examine the effects of different interventions that are used to prevent falls. These were education, Tai Chi Chuan and education plus Tai Chi Chuan; the study involved a five-month implantation period and a one-year follow-up period. **BACKGROUND:** With advancing years, a fall can be very serious and an increased number of falls/re-falls among older adults has been noted. Hence, both education about risk factors and balance exercise programs such as Tai Chi Chuan may help to prevent falls. **DESIGN:** This study adopted a randomised case-controlled design with a two-by-two factorial approach. It included three intervention groups and one control group in a community-based program. **METHODS:** Cluster-randomised sampling was used and four villages in Taiwan City were selected. Three interventions groups and one control group were involved over five-months from late July 2000-January 2001 and each participant was followed up one year later (n = 163). **RESULTS:** The intervention involving education plus Tai Chi Chuan resulted in a statistically significant reduction in falls and the risk factors of falls over the five-month intervention. After one-year follow-up, participants receiving any one of the interventions showed a reduction in falls compared with the control group. **CONCLUSIONS:** Tai Chi Chuan was able to improve gait balance significantly. Education may also help participants to prevent falls-by eliminating related risk factors present in their environment. However, it was found that at the one-year follow-up, any one of the three interventions had reduced falls significantly. **RELEVANCE TO CLINICAL PRACTICE:** The prevention of falls among older adults seems to need multiple interventions. Education plus Tai Chi Chuan has both an immediately and a long-term effect and it is possible that a shorter intervention period using this approach would also be successful.

Innes, K. E., T. K. Selfe, et al. "Mind-body therapies for menopausal symptoms: A systematic review." Maturitas.

OBJECTIVE: To systematically review the peer-reviewed literature regarding the effects of self-administered mind-body therapies on menopausal symptoms. **METHODS:** To identify qualifying studies, we searched 10 scientific databases and scanned bibliographies of relevant review papers and all identified articles. The methodological quality of all studies was assessed systematically using

predefined criteria. **RESULTS:** Twenty-one papers representing 18 clinical trials from 6 countries met our inclusion criteria, including 12 randomized controlled trials (N=719), 1 non-randomized controlled trial (N=58), and 5 uncontrolled trials (N=105). Interventions included yoga and/or meditation-based programs, tai chi, and other relaxation practices, including muscle relaxation and breath-based techniques, relaxation response training, and low-frequency sound-wave therapy. Eight of the nine studies of yoga, tai chi, and meditation-based programs reported improvement in overall menopausal and vasomotor symptoms; six of seven trials indicated improvement in mood and sleep with yoga-based programs, and four studies reported reduced musculoskeletal pain. Results from the remaining nine trials suggest that breath-based and other relaxation therapies also show promise for alleviating vasomotor and other menopausal symptoms, although intergroup findings were mixed. Most studies reviewed suffered methodological or other limitations, complicating interpretation of findings. **CONCLUSIONS:** Collectively, findings of these studies suggest that yoga-based and certain other mind-body therapies may be beneficial for alleviating specific menopausal symptoms. However, the limitations characterizing most studies hinder interpretation of findings and preclude firm conclusions regarding efficacy. Additional large, methodologically sound trials are needed to determine the effects of specific mind-body therapies on menopausal symptoms, examine long-term outcomes, and investigate underlying mechanisms.

Iwamoto, J., Y. Sato, et al. "Effectiveness of exercise in the treatment of lumbar spinal stenosis, knee osteoarthritis, and osteoporosis." *Aging Clin Exp Res* **22**(2): 116-22. **BACKGROUND AND AIMS:** Lumbar spinal stenosis (LSS), osteoarthritis (OA) of the knee, and osteoporosis are major locomotive diseases in the elderly population. The aim of this study was to examine the effectiveness of exercise in these three diseases. **METHODS:** We reviewed the relevant literature, i.e., systematic reviews and meta-analyses searched with PubMed. **RESULTS:** There is not sufficient evidence to draw conclusions regarding the effectiveness of exercise for LSS. However, muscle strengthening and aerobic exercises are effective in reducing pain and improving physical function in patients with mild to moderate OA of the knee. On the other hand, aerobics, weight bearing and resistance exercises are effective in increasing the bone mineral density of the spine in postmenopausal women, and walking is effective for the hips. Muscle strengthening, balance training and traditional Chinese Tai Chi reduce the risk of falls in the elderly. **CONCLUSIONS:** Based on a review of the literature, appropriate exercises should be emphasized for elderly patients, especially for those with mild to moderate OA of the knee or osteoporosis.

Kanodia, A. K., A. T. Legedza, et al. "Perceived benefit of Complementary and Alternative Medicine (CAM) for back pain: a national survey." *J Am Board Fam Med* **23**(3): 354-62.

BACKGROUND: Complementary and alternative medicine (CAM) is commonly used to treat back pain, but little is known about factors associated with improvement. **METHODS:** We used data from the 2002 National Health Interview Survey to examine the associations between the perceived helpfulness of various CAM therapies for back pain. **RESULTS:** Approximately 6% of the US population used CAM to treat their back pain in 2002. Sixty percent of respondents who used CAM for back pain perceived a "great deal" of benefit. Using multivariable logistic regression, the factor associated with perceived benefit from CAM modalities was reporting that a reason for using CAM was that "conventional medical treatment would not help" (odds ratio [OR], 1.46; 95% CI, 1.14-1.86). The 2 factors associated with less perceived benefit from CAM modalities were fair to poor self-reported health status (OR, 0.58; 95% CI, 0.41-0.82) and referral by a conventional medical practitioner for CAM (OR, 0.7; 95% CI, 0.54-0.92). Using chiropractic as a reference, massage (OR, 0.62; 95% CI, 0.46-0.83), relaxation techniques (OR, 0.25; 95% CI, 0.14-0.45), and herbal therapy (OR, 0.3; 95% CI, 0.19-0.46) were all associated with less perceived benefit whereas those with similar perceived benefit included yoga/tai chi/qi gong (OR, 0.71; 95% CI, 0.41-1.22) and acupuncture (OR, 0.71; 95% CI, 0.37-1.38). **CONCLUSIONS:** The majority of respondents who used CAM for back pain perceived benefit. Specific factors and therapies associated with perceived benefit warrant further investigation.

Kwok, J. C., C. W. Hui-Chan, et al. "Effects of aging and Tai Chi on finger-pointing toward stationary and moving visual targets." *Arch Phys Med Rehabil* **91**(1): 149-55.
Kwok JC, Hui-Chan CW, Tsang WW. Effects of aging and Tai Chi on finger-pointing toward stationary and moving visual targets. **OBJECTIVE:** To examine the aging effect on speed and accuracy in finger pointing toward stationary and moving visual targets between young and older healthy subjects and whether or not Tai Chi practitioners perform better than healthy older controls in these tasks. **DESIGN:** Cross-sectional study. **SETTING:** University-based rehabilitation center. **PARTICIPANTS:** University students (n=30) (aged 24.2+/-3.1y), were compared with healthy older control subjects (n=30) (aged 72.3+/-7.2y) and experienced (n=31) (mean years of practice, 7.1+/-6.5y) Tai Chi practitioners (aged 70.3+/-5.9y). **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Subjects pointed with the index finger of their dominant hand from a fixed starting position on a desk to a visual signal (1.2cm diameter dot) appearing on a display unit, as quickly and as accurately as possible. Outcome measures included (1) reaction time-the time from the appearance of the dot to the onset of the anterior deltoid electromyographic response; (2) movement time-the time from onset of the electromyographic response to touching of the dot; and (3) accuracy-the absolute deviation of the subject's finger-pointing location from center of the dot. **RESULTS:** Young subjects achieved significantly faster reaction and movement times with significantly better accuracy than older control subjects in all finger-pointing tasks. Tai Chi practitioners attained significantly better accuracy than older controls in pointing to stationary visual signals

appearing contralaterally and centrally to their pointing hand. They also demonstrated significantly better accuracy when the target was moving. Accuracy in Tai Chi practitioners was similar to young controls. **CONCLUSIONS:** Eye-hand coordination in finger-pointing declines with age in time and accuracy domains. However, Tai Chi practitioners attained significantly better accuracy than control subjects similar in age, sex, and physical activity level.

Lee, E. O., Y. R. Chae, et al. "Feasibility and effects of a tai chi self-help education program for Korean gastric cancer survivors." *Oncol Nurs Forum* **37**(1): E1-6.

PURPOSE/OBJECTIVES: To determine the feasibility of conducting a study of a tai chi self-help education program in Korean adults with gastric cancer and to describe the effects of a six-month tai chi self-help education program on depression, health-related quality of life (HRQOL), and immune markers.

DESIGN: One-group, pre- and post-test design. **SETTING:** Outpatient clinics of two large hospitals in the Republic of Korea. **Sample:** Convenience sample of 33 Korean adults with gastric cancer diagnoses after gastrectomy. **METHODS:** The Korean gastric cancer survivors participated in a 24-week tai chi self-help education program. The participants completed the Center for Epidemiologic Studies-Depression (Korean version) and the Functional Assessment of Cancer Therapy-General (Korean version) for HRQOL and provided blood samples for immune markers. All measurements were conducted at baseline and at one week following the 24-week intervention. **MAIN RESEARCH VARIABLES:**

Feasibility was determined as the percentage of participants completing the 24-week protocol. Preliminary data on depression, HRQOL, and immune markers were obtained. **Findings:** The dropout rate was 36.4%; 21 of 33 survivors participated in the tai chi self-help education program for 24 weeks. No complications or injuries occurred to the participants during the program. No significant differences were noted in depression, HRQOL, and immune markers before and after the intervention. **CONCLUSIONS:** Tai chi exercise, in combination with a self-help program, can be safe and feasible for Korean gastric cancer survivors. This feasibility study did not show that the tai chi self-help education program improves depression, HRQOL, and immune markers in Korean gastric cancer survivors. **IMPLICATIONS FOR NURSING:** Additional studies are needed to determine the long-term impact relative to usual care.

Lee, L. Y., D. T. Lee, et al. "The psychosocial effect of Tai Chi on nursing home residents." *J Clin Nurs* **19**(7-8): 927-38.

AIM: To determine the psychosocial effect of Tai Chi on nursing home residents. **BACKGROUND:** Moving into a nursing home usually imposes a certain degree of psychosocial challenge to older people. However, there is limited evidence suggesting a promising intervention that can promote the psychosocial health for this group. Although previous studies suggest that Tai Chi has the potential to enhance psychosocial well-being, existing evidence is deemed scarce and thus imposes a limitation on drawing out conclusions on this matter. **DESIGN:** Non-equivalent pretest-posttest control group design. **METHODS:** A convenience

sample of 139 residents from six nursing homes in Hong Kong was recruited for this study. The experimental group (n = 66) participated in a 26-week Tai Chi programme, while the control group (n = 73) continued its normal daily activities. The outcome measures included state self-esteem, the physical and mental component of health-related quality of life, social support network and social support satisfaction. Resident satisfaction was identified as a covariate because it demonstrated significant correlation with the outcome variables and, likewise, showed significant difference between the two study groups at baseline. Doubly multivariate analysis of covariance was performed to examine the effect of the intervention. RESULTS: Results indicate significant Group x Time interactions, with the experimental group experiencing significant improvement in the composite outcome of state self-esteem, the physical component of health-related quality of life and the mental component of health-related quality of life across the 26-week study period [$F(6, 131) = 2.61, p = 0.02$]. No significant changes were detected regarding the effect of the Tai Chi programme on social support. CONCLUSION: Tai Chi practice is beneficial for nursing home residents. RELEVANCE TO CLINICAL PRACTICE: Tai Chi has unique characteristics that are particularly suitable in the practice of health exercise for nursing home residents. The inclusion of Tai Chi in residential care practice for older people is recommended.

Lee, M. S., T. Y. Choi, et al. "Tai chi for breast cancer patients: a systematic review." Breast Cancer Res Treat **120**(2): 309-16.

The objective of this review was to assess the effectiveness of tai chi for supportive breast cancer care. Eleven databases were searched from inception through December 2009. Controlled trials testing tai chi in patients with breast cancer that assessed clinical outcome measures were considered. The selection of studies, data extraction, and validations were performed independently by two reviewers. Risk of bias was assessed using Cochrane criteria. Three randomized clinical trials (RCTs) and four non-randomized controlled clinical trials (CCTs) met our inclusion criteria. The three RCTs tested the effects of tai chi on breast cancer care compared with walking exercise, psychological support therapy, or spiritual growth or standard health care and showed no significant differences between tai chi and these control procedures in quality of life and psychological and physical outcome measures. The meta-analysis also failed to demonstrate significant effects of tai chi compared with control interventions (n = 38, SMD, 0.45, 95% CI -0.25 to 1.14, P = 0.21; heterogeneity: $\chi^2(2) = 0.23, P = 0.63$; I² = 0%). All of the four CCTs showed favorable effects of tai chi. Three trials suggested effectiveness in psychological and physical outcome measures, whereas one study was too poorly reported to be evaluated in detail. All of the CCTs had a high risk of bias. Collectively, the existing trial evidence does not show convincingly that tai chi is effective for supportive breast cancer care. Future studies should be of high methodological quality, with a particular emphasis on including an adequate control intervention.

Lelard, T., P. L. Doutrelot, et al. "Effects of a 12-week Tai Chi Chuan program versus a balance training program on postural control and walking ability in older people." Arch Phys Med Rehabil **91**(1): 9-14.

Lelard T, Doutrelot P-L, David P, Ahmaidi S. Effects of a 12-week Tai Chi Chuan program versus a balance training program on postural control and walking ability in older people. OBJECTIVE: To compare the respective effects of 2 balance training programs: a Tai Chi (TC) program and a balance training program on static postural control and walking ability. DESIGN: Randomized controlled trial. SETTING: General community. PARTICIPANTS: Older subjects (N=28) participated in the study. INTERVENTIONS: The TC group (n=14; mean age +/- SD, 76.8+/-5.1y) and the balance training group (n=14; 77.0+/-4.5y) were both trained for 12 weeks. MAIN OUTCOME MEASURES: Static postural control was assessed via measurement of center of pressure sway under eyes open (EO) and eyes closed (EC) conditions. Walking speed over a 10-meter course was also assessed. RESULTS: After the 12-week training period, there were no significant differences in walking speed or postural parameters in either the EO or EC conditions for the TC and balance training groups. Performance in the EC condition was lower than in the EO condition in pretest and posttest for the balance training and TC groups. The Romberg quotient (EO/EC ratio) was significantly higher after the balance training program than the TC program (P<.05). CONCLUSIONS: We cannot conclude that the balance training program has better effects than the TC program on postural control or walking ability. None of the outcome measures showed significant change posttraining in either the TC or the balance training groups. However, the differences described in the Romberg quotient after the training period between the TC and the balance training groups suggest that TC should be helpful to limit the deleterious effects of eye closure on postural balance.

Li, H., G. N. Waite, et al. "Balance improvements after a week-long tai chi workshop as determined by dynamic posturography - biomed 2010." Biomed Sci Instrum **46**: 172-7.

The purpose of this study was threefold: 1) to explore static and dynamic posturography as an objective measure of balance performance after intensive practice of Tai Chi; 2) to determine whether multi-day Tai Chi workshops are viable venues to gather data from long-term Tai Chi practitioners and 3) to determine whether a 6-day, intensive Tai Chi intervention would improve the balance of participants. For posturography measurements we used the CAPS Professional System (Vestibular Technologies, Cheyenne, WY), a portable computerized device which monitors body sway for 20 seconds, with eyes open or closed, when standing on a hard (static) or unstable (dynamic) surface. We employed the system to test 54 participants in a 6-day Tai Chi workshop at South Hadley, MA. The beginning data showed that all participants had a stability score which fell into the acceptably normal category when normalized according to age and gender. Thirty-three participants performed the identical tests again at the end of the workshop. Changes of 2.1 points or larger on tests with the unstable surface were considered statistically significant at the 95% confidence

level. On the test with eyes closed, the stability score changed on average by 3.0 (n=33). There was also a trend towards increased improvement of balance scores with increasing age when tested with eyes closed (highest average change of 4.2 for 61-70 year old group). Although with large individual variability, males (n=12, change in balance score of 3.6) showed on average a greater improvement in balance scores than females (n=21, change in balance score of 2.8). These data indicate that computerized posturography can successfully be used to monitor changes in balance performance such as occurring after intensive practice of Tai Chi as coordination exercise.

Liu, X., Y. D. Miller, et al. "A preliminary study of the effects of Tai Chi and Qigong medical exercise on indicators of metabolic syndrome, glycaemic control, health-related quality of life, and psychological health in adults with elevated blood glucose." Br J Sports Med.

Objectives To evaluate the feasibility, acceptability and effects of a Tai Chi and Qigong exercise programme in adults with elevated blood glucose. **Design, Setting, and Participants** A single group pre-post feasibility trial with 11 participants (3 male and 8 female; aged 42-65 years) with elevated blood glucose. **Intervention** Participants attended Tai Chi and Qigong exercise training for 1 to 1.5 h, 3 times per week for 12 weeks, and were encouraged to practise the exercises at home. **Main Outcome Measures** Indicators of metabolic syndrome (body mass index (BMI), waist circumference, blood pressure, fasting blood glucose, triglycerides, HDL-cholesterol); glucose control (HbA1c, fasting insulin and insulin resistance (HOMA)); health-related quality of life; stress and depressive symptoms. **Results** There was good adherence and high acceptability. There were significant improvements in four of the seven indicators of metabolic syndrome including BMI (mean difference -1.05, $p < 0.001$), waist circumference (-2.80 cm, $p < 0.05$), and systolic (-11.64 mm Hg, $p < 0.01$) and diastolic blood pressure (-9.73 mm Hg, $p < 0.001$), as well as in HbA1c (-0.32%, $p < 0.01$), insulin resistance (-0.53, $p < 0.05$), stress (-2.27, $p < 0.05$), depressive symptoms (-3.60, $p < 0.05$), and the SF-36 mental health summary score (5.13, $p < 0.05$) and subscales for general health (19.00, $p < 0.01$), mental health (10.55, $p < 0.01$) and vitality (23.18, $p < 0.05$). **Conclusions** The programme was feasible and acceptable and participants showed improvements in metabolic and psychological variables. A larger controlled trial is now needed to confirm these promising preliminary results.

Maciaszek, J. and W. Osinski "The effects of Tai Chi on body balance in elderly people- a review of studies from the early 21st century." Am J Chin Med **38**(2): 219-29.

We performed a systematic review of studies regarding the effects of Tai Chi on the body balance of people older than 60 years. The Medline, SPORTDiscus and Academic Search Complete databases were searched for relevant studies published after the year 2000. Original randomized controlled trials, non-randomized controlled studies and observational studies were included in this review if they evaluated Tai Chi for the treatment of body balance disorder or fall

prevention, and if they contained at least one of the following key words: Tai Chi, body balance, stability, elderly, old, training or posturography. These studies suggest that participation in Tai Chi may improve the body balance of elderly people; however, more information is needed to determine the extent to which Tai Chi is more effective than other methods, especially different types of physical exercise. In addition, subgroup analyses should be performed to determine the effects of Tai Chi in people with different physical characteristics. Directions for future research are discussed.

Ni, G. X., L. Song, et al. "Tai chi improves physical function in older Chinese women with knee osteoarthritis." *J Clin Rheumatol* **16**(2): 64-7.

BACKGROUND: Tai chi (TC) is proposed as a potential option for the management of osteoarthritis (OA), however, its beneficial effect on patients with knee OA has not been convincing. **OBJECTIVES:** To evaluate the effect of a 24-week TC program on physical functions in older Chinese women with knee OA. **METHODS:** Thirty-five older Chinese women with knee OA were randomized into TC group (n = 18) and attention control (wellness education and stretching) group (n = 17). Subjects in the TC group practiced the 24-form simplified Yang-style TC 2 to 4 times a week for 24 weeks with frequency gradually increased. Physical function was assessed using the Western Ontario and McMaster University Osteoarthritis Index (WOMAC), 6-minute walk distance and stair climb time. **RESULTS:** Compared with the control group, the participants in TC group had statistically significant improvements in changes of the WOMAC total score (6.18 +/- 2.13 vs. 1.71 +/- 2.73, P = 0.000), the WOMAC pain subscale (1.36 +/- 0.22 vs. 0.07 +/- 1.00, P = 0.001), the WOMAC stiffness subscale (0.66 +/- 0.25 vs. 0.05 +/- 0.38, P = 0.043), the WOMAC function subscale (6.17 +/- 1.96 vs. 1.72 +/- 2.63, P = 0.000), the 6-minute walk distance (32.43 +/- 14.20 vs. 6.67 +/- 16.76, P = 0.003), and the stair climb time (2.27 +/- 0.74 vs. 0.27 +/- 1.24, P = 0.001). **CONCLUSIONS:** This study suggests that TC provides a safe, feasible and useful exercise option for older Chinese female patients with knee OA.

Osteras, N. and C. Fongen "Tai Chi reduces pain and improves physical function for people with knee OA." *Aust J Physiother* **56**(1): 57.

Park, I. S., R. Song, et al. "Managing cardiovascular risks with Tai Chi in people with coronary artery disease." *J Adv Nurs* **66**(2): 282-92.

AIM: The paper is a report of the study to determine the effects of the cardiovascular risk management programme with Tai Chi on cardiovascular risks, health behaviours and quality of life in individuals with coronary artery disease. **BACKGROUND:** Many eligible patients with coronary artery disease do not participate in programmes for cardiovascular risk management, mainly because of lack of motivation, high cost or limited accessibility. Tai Chi has been introduced by health professionals to promote cardiovascular functioning and quality of life. **METHODS:** A quasi-experimental design with a non-equivalent control group was used. Eighty-five people with a mean age of 66 years

completed pretest and 6-month follow-up measures in the following three groups: Tai Chi with education (n = 33), Tai Chi only (n = 19) and control (n = 33). Analysis of covariance was used to compare outcome variables with pretest variables as covariates to adjust for baseline differences. The data were collected in 2005-2006. **RESULTS:** In the Tai-Chi-with-education group there were statistically significant reductions in modifiable cardiovascular risk factors ($F = 3.49, P = 0.035$) and improvements in health behaviours ($F = 6.12, P = 0.003$), mental scores ($F = 3.96, P = 0.023$), and in the role-emotional ($F = 7.30, P = 0.001$) and vitality ($F = 3.81, P = 0.026$) dimensions of quality of life. **CONCLUSION:** Tai Chi was safely implemented as an alternative form of exercise in a cardiovascular risk management programme. Whether the beneficial effects of Tai Chi in cardiovascular risk management are comparable with those induced by other types of aerobic exercise requires further investigation.

Rogers, C., C. Keller, et al. "Perceived benefits of meditative movement in older adults." Geriatr Nurs **31**(1): 37-51.

Several meditative movement interventions have been designed for older adults in the community setting. Previous reviews have reported on the objective efficacy of interventions, but little has been reported on the effectiveness of such interventions. The purpose of this review is to report the perceived psychosocial benefits and health outcomes of meditative movement such as Tai chi (TC) and Qigong to inform clinicians on what interventions "work" under what conditions and for whom. Thirty seven studies were included in this review and were synthesized with three content areas: perceived improved outcomes and mediators; and perceived factors for initiating TC. The 37 studies included 1856 participants (mean age 67.76) who were mostly women (n=1435) and white (n=808). Some were Taiwanese (n=117), non-white (n=72), Chinese (n=39) and African American (n=28) and the studies were conducted in 9 countries. Clinicians can use the findings of this review to identify motivational factors for initiation and adherence and identify specific benefits from an effective TC intervention.

Romero Zurita, A. "[Effects of tai chi on health-related quality of life in the elderly]." Rev Esp Geriatr Gerontol **45**(2): 97-102.

Thai Chi is increasingly used in the field of medicine and rehabilitation as an alternative therapy. The results of this review show that older persons obtain physical and psychological benefits from this activity. These benefits are reflected in improved physical functions, reduced fear and fewer falls, which also reduce levels of depression. Furthermore, symptoms are considerably reduced in distinct groups with various diseases, thus improving health-related quality of life.

Saeed, S. A., D. J. Antonacci, et al. "Exercise, yoga, and meditation for depressive and anxiety disorders." Am Fam Physician **81**(8): 981-6.

Anxiety and depression are among the most common conditions cited by those seeking treatment with complementary and alternative therapies, such as exercise, meditation, tai chi, qigong, and yoga. The use of these therapies is increasing. Several studies of exercise and yoga have demonstrated therapeutic effectiveness superior to no-activity controls and comparable with established depression and anxiety treatments (e.g., cognitive behavior therapy, sertraline, imipramine). High-energy exercise (i.e., weekly expenditure of at least 17.5 kcal per kg) and frequent aerobic exercise (i.e., at least three to five times per week) reduce symptoms of depression more than less frequent or lower-energy exercise. Mindful meditation and exercise have positive effects as adjunctive treatments for depressive disorders, although some studies show multiple methodological weaknesses. For anxiety disorders, exercise and yoga have also shown positive effects, but there are far less data on the effects of exercise on anxiety than for exercise on depression. Tai chi, qigong, and meditation have not shown effectiveness as alternative treatments for depression and anxiety.

Schieir, O., A. Adeponle, et al. "Efficacy of Tai Chi for chronic musculoskeletal pain conditions: is the evidence ready for meta-analysis? Comment on the article by Hall et al." Arthritis Care Res (Hoboken) **62**(1): 139-40; author reply 140.

Song, R., B. L. Roberts, et al. "A randomized study of the effects of t'ai chi on muscle strength, bone mineral density, and fear of falling in women with osteoarthritis." J Altern Complement Med **16**(3): 227-33.

PURPOSE: Individuals with osteoarthritis can experience difficulty walking and poor strength, possibly leading to falls and fractures. Exercise has been found to increase strength and bone mineral density. The purpose of this study was to determine the effects of 6 months of t'ai chi on knee muscle strength, bone mineral density, and fear of falling in older women with osteoarthritis. **METHODS:** Eighty-two (82) women with osteoarthritis, recruited from outpatient clinics and community health centers, were randomly assigned to either a t'ai chi group and took part in a t'ai chi program, or a control group. Of these, 30 subjects (mean age = 63 years) in the t'ai chi group and 35 (mean age = 61 years) in the control group completed post-test measures at 6 months. **RESULTS:** After the 6-month study period, subjects in the t'ai chi program had significantly greater knee extensor endurance (pre- to post-test mean increase = 36.4 W/kg, versus 1.1 W/kg for the controls), and significantly greater bone mineral density in the neck of the proximal femur (mean change = 0.09, versus -0.10 for the controls), Ward's triangle (mean change = 0.04, versus -0.04 for the controls), and trochanter (mean change = 0.07, versus -0.05 for the controls) than the controls. However, knee extensor and flexor strength did not differ significantly between the groups. The fear of falling during daily activities reduced significantly more in the t'ai chi group (mean change = -2.40, versus 0.66 for the controls). **CONCLUSIONS:** T'ai chi increased knee extensor muscle endurance and bone mineral density in older women with osteoarthritis, and decreased their fear of falling during daily activities. Further study with long-term follow-up is needed to

substantiate the role of t'ai chi exercise in the prevention of fall and its related fracture.

Tai, H. C., C. D. Lin, et al. "Homemade transumbilical port: an alternative access for laparoendoscopic single-site surgery (LESS)." *Surg Endosc* **24**(3): 705-8.

BACKGROUND: Laparoendoscopic single-site surgery (LESS) is a possible advancement for minimally invasive surgical interventions. However, this technique requires a specialized multichannel port for introducing laparoscope and instruments. We present our preliminary experience of using a homemade transumbilical single-port access for performing LESS. **METHOD:** An Alexis wound retractor was placed through the umbilical incision, and a pair of sterile surgical gloves was then snapped onto it. Standard laparoscopic trocars were inserted through the gloves after the upper half parts of the gloves were truncated. Using this port and Roticulator articulating instruments, we performed 14 urologic LESS procedures on porcine laboratory and cadaveric cases, and we performed 10 transabdominal pre-peritoneal inguinal hernia repairs (TAPP), and 5 laparoscopic varicocelectomies on human cases, respectively. All procedures were performed with instruments inserted through this port without the need for any extraumbilical incisions or conversion to standard laparoscopic surgery. **RESULTS:** All LESS procedures were successfully completed without any complications. The time to achieve the transumbilical port ready for subsequent LESS was short (range, 4-8 (median, 6) minutes). The total operative time was between 60 and 190 minutes. No port-related complications were noted, and the cosmetic results were excellent. **CONCLUSIONS:** This homemade transumbilical port offers a safe, reliable, flexible, and cost-effective access for LESS procedures. This technique may be an alternative for current specialized port systems.

Takasugi, S. and Y. Iwamoto "[Musculoskeletal rehabilitation and bone. Application of motivation theory for rehabilitation of the elderly]." *Clin Calcium* **20**(4): 576-85.

Selection and application of the exercise programs for rehabilitation of the elderly should not only be based on a short-term efficiency, but also be based on the self-determination and motivation of the participants themselves. In this paper, we will review the functional improvement of the elderly by Tai Chi, Hula, Ball Exercise, and Arcade Games, and will discuss about the motivation theory to apply in practice. The intrinsic motivation is the essential element of the theory and is composed of enjoyment, interest and satisfaction.

Uhlig, T., C. Fongen, et al. "Exploring Tai Chi in rheumatoid arthritis: a quantitative and qualitative study." *BMC Musculoskelet Disord* **11**: 43.

BACKGROUND: Rheumatoid arthritis (RA) is a chronic, inflammatory and systemic disease which affects the musculoskeletal system. Exercise programmes are reported to improve physical functioning in patients with RA. Tai Chi is a traditional Chinese martial art which combines slow and gentle movements with mental focus. The purpose of this study was to study in which

way Tai Chi group exercise impacted on disease activity, physical function, health status and experience in RA patients, applying quantitative and qualitative methods. **METHODS:** Fifteen patients with RA (13 females, age 33-70 years) were recruited from a rheumatology department into a single group study. The patients were instructed in Tai Chi exercise twice weekly for 12 weeks. Assessments at baseline, 12 weeks, and 12 weeks follow-up were performed with a wide range of measures, including disease activity, self-reported health status, physical performance tests (Walking in Figure of Eight, Timed-Stands Test, and Shoulder Movement Impairment Scale). Qualitative data were obtained from a focus group interview conducted after completed intervention with taping and verbatim transcription. Review of the transcripts identified themes important to patients practicing Tai Chi. **RESULTS:** Within the group, Tai Chi practice lead to improved lower-limb muscle function at the end of intervention and at 12 weeks follow-up. Qualitative analyses showed that patients experienced improved physical condition, confidence in moving, balance and less pain during exercise and in daily life. Other experience included stress reduction, increased body awareness, confidence in moving and indicated that Tai Chi was a feasible exercise modality in RA. **CONCLUSIONS:** Improved muscle function in lower limbs was also reflected when patient experiences with Tai Chi were studied in depth in this explorative study. The combination of qualitative and quantitative research methods shows that Tai Chi has beneficial effects on health not related to disease activity and standardised health status assessment, and may contribute to an understanding of how Tai Chi exerts its effects. **TRIAL REGISTRATION:** NCT00522054.

Upchurch, D. M., C. E. Dye, et al. "Demographic, behavioral, and health correlates of complementary and alternative medicine and prayer use among midlife women: 2002." J Womens Health (Larchmt) **19**(1): 23-30.

OBJECTIVE: This study investigated the demographic, behavioral, and health correlates of the most frequently used types of complementary and alternative medicine (CAM) therapy and the use of prayer for health among midlife women. We also examined the extent to which women used CAM for treatment of health conditions, including menopausal symptoms, and for general health and well-being. **METHODS:** Data from the 2002 National Health Interview Survey (NHIS), a cross-sectional, household survey representative of the U.S. civilian adult population, were used. Midlife women aged 40-59 years (n = 5849) were analyzed. Bivariate prevalence estimates were obtained, and binomial logistic regression models were estimated; all analyses were weighted. **RESULTS:** Overall, 46% of midlife women used any type of CAM in the past 12 months, and 54% reported using prayer for health reasons. The top five specific CAM therapies used were herbs and natural products; relaxation techniques; chiropractic care; yoga, tai chi, or qi gong; and massage. Multivariate results demonstrated different patterns of association between demographic, health, and behavioral characteristics and specific CAM therapies. A higher percentage of women used chiropractic care for an existing health condition than those using

relaxation techniques, and few women used CAM specifically for menopausal symptoms. CONCLUSIONS: CAM and prayer are frequently used by midlife women, and herbs and natural supplements are the mostly frequently used. The findings underscore the importance, particularly in the clinical setting, of asking women about their use of individual CAM therapies. Such clinical assessment is also important because of the potential for interactions of CAM therapies with prescribed therapies.

Wayne, P. M., J. E. Buring, et al. "Tai Chi for osteopenic women: design and rationale of a pragmatic randomized controlled trial." BMC Musculoskelet Disord **11**: 40.

BACKGROUND: Post-menopausal osteopenic women are at increased risk for skeletal fractures. Current osteopenia treatment guidelines include exercise, however, optimal exercise regimens for attenuating bone mineral density (BMD) loss, or for addressing other fracture-related risk factors (e.g. poor balance, decreased muscle strength) are not well-defined. Tai Chi is an increasingly popular weight bearing mind-body exercise that has been reported to positively impact BMD dynamics and improve postural control, however, current evidence is inconclusive. This study will determine the effectiveness of Tai Chi in reducing rates of bone turnover in post-menopausal osteopenic women, compared with standard care, and will preliminarily explore biomechanical processes that might inform how Tai Chi impacts BMD and associated fracture risks.

METHODS/DESIGN: A total of 86 post-menopausal women, aged 45-70y, T-score of the hip and/or spine -1.0 and -2.5 , have been recruited from primary care clinics of a large healthcare system based in Boston. They have been randomized to a group-based 9-month Tai Chi program plus standard care or to standard care only. A unique aspect of this trial is its pragmatic design, which allows participants randomized to Tai Chi to choose from a pre-screened list of community-based Tai Chi programs. Interviewers masked to participants' treatment group assess outcomes at baseline and 3 and 9 months after randomization. Primary outcomes are serum markers of bone resorption (C-terminal cross linking telopeptide of type I collagen), bone formation (osteocalcin), and BMD of the lumbar spine and proximal femur (dual-energy X-ray absorptiometry). Secondary outcomes include health-related quality-of-life, exercise behavior, and psychological well-being. In addition, kinetic and kinematic characterization of gait, standing, and rising from a chair are assessed in subset of participants ($n = 16$) to explore the feasibility of modeling skeletal mechanical loads and postural control as mediators of fracture risk.

DISCUSSION: Results of this study will provide preliminary evidence regarding the value of Tai Chi as an intervention for decreasing fracture risk in osteopenic women. They will also inform the feasibility, value and potential limitations related to the use of pragmatic designs for the study of Tai Chi and related mind-body exercise. If the results are positive, this will help focus future, more in-depth, research on the most promising potential mechanisms of action identified by this study. TRIAL REGISTRATION: This trial is registered in ClinicalTrials.gov, with the ID number of NCT01039012.

Wooton, A. C. "An integrative review of Tai Chi research: an alternative form of physical activity to improve balance and prevent falls in older adults." Orthop Nurs **29**(2): 108-16; quiz 117-8.

The purpose of this integrative review is to analyze the current research literature on Tai Chi (TC) and its potential effect on balance and prevention of falls in older adults. The evidence for improving balance is somewhat conflicting because few research studies identify which balance exercises are effective. The question of how TC achieves improvements in balance remains. To promote functional independence and improve quality of life in the later years of one's life, it is important to improve balance and prevent falls in older adults. TC poses challenges related to the complexity of the practice. By reviewing the current research literature on TC focusing on balance and falls in older adults, strategies may be developed to incorporate TC to improve balance and modify the known risk factors for falling. This article also discusses potential applications and limitations of the current research.