

2004

Yeh, G. Y., M. J. Wood, et al. (2004). "Effects of tai chi mind-body movement therapy on functional status and exercise capacity in patients with chronic heart failure: a randomized controlled trial." *Am J Med* 117(8): 541-8.

PURPOSE: To examine the effects of a 12-week tai chi program on quality of life and exercise capacity in patients with heart failure. **METHODS:** Thirty patients with chronic stable heart failure and left ventricular ejection fraction $< \text{or} = 40\%$ (mean $[\pm \text{SD}]$ age, 64 \pm 13 years; mean baseline ejection fraction, 23% \pm 7%; median New York Heart Association class, 2 [range, 1 to 4]) were randomly assigned to receive usual care (n = 15), which included pharmacologic therapy and dietary and exercise counseling, or 12 weeks of tai chi training (n = 15) in addition to usual care. Tai chi training consisted of a 1-hour class held twice weekly. Primary outcomes included quality of life and exercise capacity. Secondary outcomes included serum B-type natriuretic peptide and plasma catecholamine levels. For 3 control patients with missing data items at 12 weeks, previous values were carried forward. **RESULTS:** At 12 weeks, patients in the tai chi group showed improved quality-of-life scores (mean between-group difference in change, -25 points, $P = 0.001$), increased distance walked in 6 minutes (135 meters, $P = 0.001$), and decreased serum B-type natriuretic peptide levels (-138 pg/mL, $P = 0.03$) compared with patients in the control group. A trend towards improvement was seen in peak oxygen uptake. No differences were detected in catecholamine levels. **CONCLUSION:** Tai chi may be a beneficial adjunctive treatment that enhances quality of life and functional capacity in patients with chronic heart failure who are already receiving standard medical therapy.

Xu, D., Y. Hong, et al. (2004). "Effect of tai chi exercise on proprioception of ankle and knee joints in old people." *Br J Sports Med* 38(1): 50-4.

OBJECTIVES: To assess if tai chi, a traditional Chinese form of exercise, could improve proprioception in old people and if the effects of tai chi on proprioception are more evident than other exercise forms in the elderly. **METHODS:** By detecting the threshold of passive movement, ankle and knee joint kinaesthesia was measured in 21 elderly long term tai chi practitioners (TC group), 20 elderly long term swimmers/runners (S/R group), and 27 elderly sedentary controls (control group). **RESULTS:** Ankle joint kinaesthesia differed significantly among the three groups ($p = 0.001$). Subjects in the TC group could detect a significantly smaller amount of motion than those in the S/R group ($p = 0.022$) and control group ($p = 0.001$). No significant difference was found between the S/R group and the control group ($p = 0.701$). The threshold for detection of passive motion was significantly different in knee extension and flexion. For knee flexion, the TC group showed a significantly lower mean threshold for detection of passive motion than the control group ($p = 0.026$). There were no significant differences between the S/R group and control group ($p = 0.312$), or between the TC group and S/R group ($p = 0.533$). For knee extension, no significant difference was noted among the three groups ($p = 0.597$). **CONCLUSIONS:** The elderly people who regularly practiced tai chi not only showed better proprioception at the ankle and knee joints than sedentary controls, but also better ankle kinaesthesia than swimmers/runners. The large benefits of tai chi exercise on proprioception may result in the maintenance of balance control in older people.

Wu, G., W. Liu, et al. (2004). "Spatial, temporal and muscle action patterns of Tai Chi gait." *J Electromyogr Kinesiol* 14(3): 343-54.

This study was to quantitatively characterize the spatial, temporal, and neuromuscular activation patterns of Tai Chi gait (TCG). Ten healthy young subjects were tested. The kinematics of TCG and normal gait (NG) were measured

using a marker-based motion analysis system and two biomechanical force plates. Surface electromyography (EMG) was recorded from six left-side muscles: tibialis anterior, soleus, peroneus longus, rectus femoris, semitendinosus, and tensor fasciae latae. The results showed that TCG had (1) a longer cycle duration (11.9±2.4 vs. 1.3±0.2 s) and a longer duration of single-leg stance time (1.8±0.6 vs. 0.4±0.05 s); (2) a larger joint motion in ankle dorsi/plantar flexion (40±9 degrees vs. 20±8 degrees), knee flexion (82±8 degrees vs. 53±10 degrees), hip flexion (81±7 degrees vs. 24±4 degrees), and hip abduction (20±8 degrees vs. 0±3 degrees); (3) a larger lateral body shift (>25% vs. 5% body height); and (4) significant involvement of ankle dorsiflexors, knee extensors/hip flexors and hip abductors, as indicated by significantly higher peak (88±14%, 80±18% and 83±17% vs. 35±10%, 14±8% and 28±19% peak amplitude, respectively) and root-mean-square values of their EMG (37±6%, 32±7% and 33±7% vs. 23±7%, 11±8% and 22±11% peak amplitude, respectively), longer proportions of action (76±19%, 68±8% and 65±19% vs. 59±23%, 16±23% and 40±32% gait cycle duration, respectively), longer proportions of isometric and eccentric actions, and longer proportions of co-activations. These results demonstrate that the biomechanical characteristics of TCG can be quantified. The quantification of TCC movements is important for understanding its effect on balance, flexibility, strength, and health.

Wayne, P. M., D. E. Krebs, et al. (2004). "Can Tai Chi improve vestibulopathic postural control?" *Arch Phys Med Rehabil* 85(1): 142-52.

OBJECTIVES: To evaluate the rationale and scientific support for Tai Chi as an intervention for vestibulopathy and to offer recommendations for future studies. DATA SOURCES: A computer-aided search, including MEDLINE and Science Citation Index, to identify original Tai Chi studies published in English; relevant references cited in the retrieved articles were also included. STUDY SELECTION: A preliminary screening selected all randomized controlled trials (RCTs), non-RCTs, case-control studies, and case series that included Tai Chi as an intervention and had at least 1 outcome variable relevant to postural stability. DATA EXTRACTION: Authors critically reviewed studies and summarized study designs and outcomes in a summary table. DATA SYNTHESIS: Twenty-four Tai Chi studies met screening criteria. No studies specifically studying Tai Chi for vestibulopathy were found. Collectively, the 24 studies provide sometimes contradictory but generally supportive evidence that Tai Chi may have beneficial effects for balance and postural impairments, especially those associated with aging. Ten RCTs were found, of which 8 provide support that Tai Chi practiced alone, or in combination with other therapies, can reduce risk of falls, and/or impact factors associated with postural control, including improved balance and dynamic stability, increased musculoskeletal strength and flexibility, improved performance of activities of daily living (ADLs), reduced fear of falling, and general improvement in psychologic well-being. Studies using other designs support the results observed in RCTs. CONCLUSIONS: At present, few data exist to support the contention that Tai Chi specifically targets the impairments, functional limitations, disability, and quality of life associated with peripheral vestibulopathy. There are, however, compelling reasons to further investigate Tai Chi for vestibulopathy, in part because Tai Chi appears useful for a variety of nonvestibulopathy etiologic balance disorders, and is safe. Especially needed are studies that integrate measures of balance relevant to ADLs with other psychologic and cognitive measures; these might help identify specific mechanisms whereby Tai Chi can remedy balance disorders.

Wang, C., J. P. Collet, et al. (2004). "The effect of Tai Chi on health outcomes in patients with chronic conditions: a systematic review." *Arch Intern Med* 164(5): 493-501.

OBJECTIVE: To conduct a systematic review of reports on the physical and psychological effects of Tai Chi on various chronic medical conditions. DATA SOURCES: Search of 11 computerized English and Chinese databases. STUDY SELECTION: Randomized controlled trials, nonrandomized controlled studies, and observational studies published in English or Chinese. DATA EXTRACTION: Data were extracted for the study objective, population characteristics, study setting, type of Tai Chi intervention, study design, outcome assessment, duration of follow-up, and key results. DATA SYNTHESIS: There were 9 randomized controlled trials, 23 nonrandomized controlled studies, and 15 observational studies in this review. Benefits were reported in balance and strength, cardiovascular and respiratory function, flexibility, immune system, symptoms of arthritis, muscular strength, and psychological effects. CONCLUSIONS: Tai Chi appears to have physiological and psychosocial benefits and also appears to be safe and effective in promoting balance control, flexibility, and cardiovascular fitness in older patients with chronic conditions. However, limitations or biases exist in most studies, and it is difficult to draw firm conclusions about the benefits reported. Most indications in which Tai Chi was applied lack a theoretical foundation concerning the mechanism of benefit. Well-designed studies are needed.

Wang, Y. T., L. Taylor, et al. (2004). "Effects of Tai Chi exercise on physical and mental health of college students." *Am J Chin Med* 32(3): 453-9.

The purpose of this pilot study is to examine the effects of Tai Chi Quan, a body-mind harmony exercise, on college students' perceptions of their physical and mental health. A three-month intervention of Tai Chi exercise was administered to college students, and multidimensional physical (PHD) and mental (MHD) health scores were assessed using the SF-36v2 health survey questionnaire before and after the intervention. Thirty college students participated in a 1-hour-long Tai Chi exercise intervention twice a week for 3 months. Each practice session included 10 minutes of breathing and stretching exercises followed by 50 minutes of Tai Chi Quan 24-form practice. PHD including physical function (PF), role physical (RP), bodily pain (BP), general health (GH), and MHD including social function (SF), role mental/emotion function (RE), vitality (VT), perceptions of mental health (MH) were assessed. The normalized scores of each variable and the combined PHD or MHD scores before and after the Tai Chi intervention were examined by paired t-test ($p < 0.05$). Physical measures of BP and GH, and mental measures of RE, VT and MH were significantly improved after Tai Chi exercise intervention. When the overall PHD or MHD scores were evaluated, the MHD had increased significantly. In conclusion, Tai Chi exercise had positive effects on the self-assessed physical and mental health of college students. Scores on the mental health dimension appeared to be particularly sensitive to change. Colleges/universities might consider offering Tai Chi as a component of their ongoing physical activity programs available to students.

Verhagen, A. P., M. Immink, et al. (2004). "The efficacy of Tai Chi Chuan in older adults: a systematic review." *Fam Pract* 21(1): 107-13.

OBJECTIVES: The purpose of this study was to assess the effect of Tai Chi Chuan (TCC) on fall prevention, balance and cardiorespiratory functions in the elderly. METHODS: A systematic review was carried out according to the Cochrane standards. A computerized literature search was carried out. Studies were selected when they had an experimental design; the age of the study population was >50 ; one of the interventions was a form of TCC; and when falls, balance or cardiorespiratory functions were used as an outcome measure. A total of seven studies were included, with in total 505 participants, of whom all but 27 were healthy seniors, age between 53 and 96 years. RESULTS: In most studies, the intervention of TCC is a modified Yang style, varying from 10 to 24 forms. The intensity of TCC varies from 1 h weekly for 10 weeks to 1 h every morning for 1

year. One study used falls as outcome measure and reported a beneficial effect of 47% in the TCC group. All studies mention a beneficial effect of TCC, but in most studies this conclusion was based on a pre-post analysis. CONCLUSION: There is limited evidence that TCC is effective in reducing falls and blood pressure in the elderly.

Tsang, W. W., V. S. Wong, et al. (2004). "Tai Chi improves standing balance control under reduced or conflicting sensory conditions." *Arch Phys Med Rehabil* 85(1): 129-37.

OBJECTIVE: To investigate the effects of long-term Tai Chi practice on balance control when healthy elderly Tai Chi practitioners stood under reduced or conflicting somatosensory, visual, and vestibular conditions, as compared with healthy elderly non-Tai Chi practitioners and young subjects. DESIGN: Cross-sectional study. SETTING: University-based rehabilitation center in Hong Kong. PARTICIPANTS: Twenty elderly Tai Chi practitioners (mean experience +/- standard deviation, 7.2+/-7.2 y) were compared with 20 elderly non-Tai Chi practitioners and 20 young, healthy university students. INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURES: The amplitude of anteroposterior body sway under different somatosensory, visual, and vestibular conditions was measured using computerized dynamic posturography, whereby subjects underwent 6 combinations of visual and support surface conditions. RESULTS: The Tai Chi practitioners had significantly better balance control than the non-Tai Chi subjects in the visual and vestibular ratios, but not in the somatosensory ratio. Furthermore, there were no significant differences in any of these 3 sensory ratios when the Tai Chi practitioners were compared with those of the young, healthy subjects. CONCLUSIONS: Long-term Tai Chi practice improved balance control in the elderly population when there was an increased reliance on the visual and vestibular systems during stance. Of particular interest is that our elderly Tai Chi practitioners attained the same level of balance control performance as did young, healthy subjects when standing under reduced or conflicting somatosensory, visual, and vestibular conditions.

Tsang, W. W. and C. W. Hui-Chan (2004). "Effect of 4- and 8-wk intensive Tai Chi Training on balance control in the elderly." *Med Sci Sports Exerc* 36(4): 648-57.

PURPOSE: The objective of this study was to examine whether 4 and/or 8 wk of intensive Tai Chi practice could improve balance control in the healthy elderly subjects. METHODS: Forty-nine community-dwelling elderly subjects (aged 69.1 +/- SD 5.8 yr) voluntarily participated in an intervention program of either supervised Tai Chi or general education for 1.5 h, 6x wk for 8 wk. Two balance tests were administered using computerized dynamic posturography before, at 4 and 8 wk during training, and at 4 wk after training ended: 1) the sensory organization test measured subjects' abilities to use somatosensory, visual, and vestibular information to control their body sway during stance under six sensory conditions; and 2) the limits of stability test measured subjects' abilities to voluntarily weight shift to eight spatial positions within their base of support. These outcome measures were compared between the two intervention groups, and with those of experienced Tai Chi practitioners having means of 7.2 and 10.1 yr of practice from two previous studies. RESULTS: Statistical analysis demonstrated that, after 4 and 8 wk of intensive Tai Chi training, the elderly subjects achieved significantly better 1) vestibular ratio in the sensory organization test ($P = 0.006$) and 2) directional control of their leaning trajectory in the limits of stability test ($P = 0.018$), when compared with those of the control group. These improvements were maintained even at follow-up 4 wk afterward. Furthermore, the improved balance performance from week 4 on was comparable to that of experienced Tai Chi practitioners. CONCLUSIONS: The above findings indicated that even 4 wk of intensive Tai Chi training are sufficient to improve balance control in the elderly subjects.

Tsang, W. W. and C. W. Hui-Chan (2004). "Effects of exercise on joint sense and balance in elderly men: Tai Chi versus golf." *Med Sci Sports Exerc* 36(4): 658-67.

PURPOSE: Our previous studies showed that experienced Tai Chi practitioners had better joint proprioception and balance control during weight shifting. The objective of the present study was to examine whether experienced golfers had attained similar improvement when compared with the Tai Chi practitioners, as well as healthy elderly subjects and young university students. **METHODS:** We compared 12 experienced elderly Tai Chi practitioners, with 11 experienced elderly golfers, 12 healthy elderly subjects, and 12 young university students, who were all males, using: 1) passive knee joint repositioning test to assess their joint proprioceptive acuity and 2) limits of stability test to assess their ability to voluntarily weight shift within their base of support. **RESULTS:** Both Tai Chi practitioners and golfers had better knee joint proprioceptive acuity than did the elderly control subjects ($P < 0.05$). Of special interest is that their performance was similar to that of the young subjects. In the limits of stability test, Tai Chi practitioners and golfers had faster reaction time, leaned further without losing stability, and showed better control of leaning trajectory than did elderly control subjects (all $P < 0.05$). The latter two outcome measures were also comparable to those of the young subjects. **CONCLUSION:** These results demonstrate that both experienced Tai Chi practitioners and golfers had improved knee joint proprioception and limits of stability, when compared with those of elderly control subjects similar in age, gender (male), and physical activity level. Such improved outcome measures were comparable to those of young male subjects. These findings suggest that experienced Tai Chi practitioners and golfers had improved joint proprioceptive acuity and dynamic standing balance control, despite the known aging effects in these specific sensorimotor functions.

Thornton, E. W., K. S. Sykes, et al. (2004). "Health benefits of Tai Chi exercise: improved balance and blood pressure in middle-aged women." *Health Promot Int* 19(1): 33-8.

Tai Chi has been widely practiced as a Chinese martial art that focuses on slow sequential movements, providing a smooth, continuous and low intensity activity. It has been promoted to improve balance and strength and to reduce falls in the elderly, especially those 'at risk'. The potential benefits in healthy younger age cohorts and for wider aspects of health have received less attention. The present study documented prospective changes in balance and vascular responses for a community sample of middle-aged women. Seventeen relatively sedentary but healthy normotensive women aged 33-55 years were recruited into a three times per week, 12-week Tai Chi exercise programme. A further 17 sedentary subjects matched for age and body size were recruited as a control group. Dynamic balance measured by the Functional Reach Test was significantly improved following Tai Chi, with significant decreases in both mean systolic (9.71 mmHg) and diastolic (7.53 mmHg) blood pressure. The data confirm that Tai Chi exercise can be a good choice of exercise for middle-aged adults, with potential benefits for ageing as well as the aged.

Taylor-Piliae, R. E. and E. S. Froelicher (2004). "Effectiveness of Tai Chi exercise in improving aerobic capacity: a meta-analysis." *J Cardiovasc Nurs* 19(1): 48-57.

PURPOSE: Meta-analysis involves the integration of several studies with small sample sizes, enabling the investigator to summarize research results into useful clinical information. Tai Chi exercise has recently gained the attention of Western researchers as a potential form of aerobic exercise. A goal of this meta-analysis was to estimate the effect of Tai Chi exercise on aerobic

capacity. METHODS: A computerized search of 7 databases was done using key words and all languages. Sixteen study elements were critically appraised to determine study quality. D-STAT software was used to calculate the standardized mean differences (ESsm) and the 95% confidence intervals (CI), using means and standard deviations (SD) reported on aerobic capacity expressed as peak oxygen uptake (VO₂peak) (mL x kg⁻¹ x min⁻¹). RESULTS: Of 441 citations obtained, only 7 focused on aerobic capacity in response to Tai Chi exercise (4 experimental and 3 cross-sectional). Older adults including those with heart disease participated (n = 344 subjects); on average men were aged 55.7 years (SD = 12.7) and women 60.7 years (SD = 6.2). Study quality scores ranged from 22 to 28 (mean = 25.1, SD = 2.0). Average effect size for the cross-sectional studies was large and statistically significant (ESsm = 1.01; CI = +0.37, +1.66), while in the experimental studies the average effect size was small and not significant (ESsm = 0.33; CI = -0.41, +1.07). Effect sizes of aerobic capacity in women (ESsm = 0.83; CI = -0.43, +2.09) were greater than those for men (ESsm = 0.65; CI = -0.04, +1.34), though not statistically significant. Aerobic capacity was higher in subjects performing classical Yang style (108 postures) Tai Chi (ESsm = 1.10; CI = +0.82, +1.38), a 52-week Tai Chi exercise intervention (ESsm = 0.94; C = +0.06, +1.81), compared with sedentary subjects (ESsm = 0.80; CI = +0.19, +1.41). CONCLUSIONS: This meta-analysis suggests that Tai Chi may be an additional form of aerobic exercise. The greatest benefit was seen from the classical Yang style of Tai Chi exercise when performed for 1-year by sedentary adults with an initial low level of physical activity habits. Recommendations for future research are provided and the effect sizes generated provide information needed for sample size calculations. Randomized clinical trials in diverse populations, including those with chronic diseases, would expand the current knowledge about the effect of Tai Chi on aerobic capacity.

Taylor-Piliae, R. E. and E. S. Froelicher (2004). "Measurement properties of Tai Chi exercise self-efficacy among ethnic Chinese with coronary heart disease risk factors: a pilot study." *Eur J Cardiovasc Nurs* 3(4): 287-94.

BACKGROUND: Improvement in aerobic capacity and reduction in blood pressure after Tai Chi exercise programs in persons with coronary heart disease (CHD) or with CHD risk factors have been reported. Self-efficacy has been shown to be a consistent predictor of behavioral outcomes, now being applied to Tai Chi exercise. AIM: To assess the utility and appropriateness of existing tools measuring aspects of Tai Chi exercise self-efficacy (TCSE) in a new population, ethnic Chinese with CHD risk factors. Specific objectives were: (1) examine acceptability and feasibility; (2) determine score distributions; (3) assess the reliability and known-groups validity; (4) translate tool into an equivalent Chinese version and determine if there were any differences between ethnic Chinese and non-Chinese. METHODS: Following a review of the literature, two existing tools used with Caucasians were found and modified; a 9-item exercise self-efficacy tool developed by Resnick and Jenkins [Resnick B, Jenkins LS, *Testing the reliability and validity of the Self-Efficacy for Exercise scale. Nurs. Res.* 49(3) (2000) 154-159], and a 3-item tool developed by Li et al. [Li F, McAuley E, Harmer P, Duncan TE, Chaumeton NR, *Tai Chi enhances self-efficacy and exercise behavior in older adults. J. Aging Phys. Act.* 9 (2001) 161-171] to assess gradations of the challenge to perform Tai Chi among elderly populations. The modified TCSE tool was translated into Chinese and back-translated. A pilot study was conducted to pre-test the modified 14-item TCSE tool in ethnic Chinese and non-Chinese. RESULTS: A total of 18 subjects (mean age = 60 years, S.D. = 18.4) participated. Seven subjects (39%) identified themselves as ethnic Chinese. Ten subjects (56%) had experience performing Tai Chi, ranging from 3 months to 17 years (mean = 5.0 years, S.D.=5.0). Half of the subjects reported having a history of hypertension (n = 9, 50%), while nearly one-third reported having high cholesterol (n = 5, 28%). No significant difference in TCSE mean

scores was found between ethnic Chinese and non-Chinese ($p > 0.05$). Internal consistency estimates were very high (TCSE Barriers, $r = 0.95$; TCSE Performance, $r = 0.97$). A statistically significant difference was found in the TCSE mean scores between Tai Chi practitioners and non-practitioners (TCSE Barriers, $t = -3.3$, $p = 0.01$; TCSE Performance, $t = -2.7$, $p = 0.03$), with Tai Chi practitioners reporting higher self-efficacy; thus providing initial evidence of known-groups validity. CONCLUSIONS: Measurement of self-efficacy to overcome barriers to Tai Chi exercise (TCSE Barriers) and self-efficacy to perform Tai Chi (TCSE Performance) functioned well in this sample. The acceptability and feasibility of this tool was established and known-groups validity was confirmed. Further research using this tool among ethnic Chinese with CHD or CHD risk factors, including those with less than high school education or low literacy, is recommended as the next step in development of TCSE.

Taylor-Piliae, R. E. (2004). "Response to the systematic review of Tai Chi." *Arch Intern Med* 164(22): 2503; author reply 2504.

Sherrington, C., S. R. Lord, et al. (2004). "Physical activity interventions to prevent falls among older people: update of the evidence." *J Sci Med Sport* 7(1 Suppl): 43-51.

Injuries resulting from falls are a significant public health issue, particularly for older people. This review provides an update of the evidence on the effects of various physical activity (PA) or exercise intervention strategies for the prevention of unintentional falls among older people. Six systematic reviews, and three randomised controlled trials not incorporated in previous reviews, were located with a literature search. There is clear evidence that a targeted supervised home exercise program of strength and balance exercise and walking practice, prescribed by a trained health professional, can prevent falls among older community dwellers. There is also an indication that untargeted group exercise (ie, not individually prescribed) can prevent falls among community dwellers, particularly if it involves Tai Chi or other exercises which challenge balance. There is some indication that individual prescription of PA is more important in frailer groups. Further investigation is required to establish the effects of PA in residential aged care, and the relative effects of different types of PA in different populations. In addition, multidisciplinary, multifactorial. health/environmental risk factor screening/intervention programs have been found to be effective in preventing falls. For many individuals with physical risk factors for falls (eg, impaired strength, balance or functional ability), PA alone is likely to reduce the risk of falls. For those with additional risk factors (eg, visual impairments, psychoactive medication use), other interventions may also be required.

Sherman, K. J., D. C. Cherkin, et al. (2004). "Complementary and alternative medical therapies for chronic low back pain: What treatments are patients willing to try?" *BMC Complement Altern Med* 4: 9.

BACKGROUND: Although back pain is the most common reason patients use complementary and alternative medical (CAM) therapies, little is known about the willingness of primary care back pain patients to try these therapies. As part of an effort to refine recruitment strategies for clinical trials, we sought to determine if back pain patients are willing to try acupuncture, chiropractic, massage, meditation, and t'ai chi and to learn about their knowledge of, experience with, and perceptions about each of these therapies. METHODS: We identified English-speaking patients with diagnoses consistent with chronic low back pain using automated visit data from one health care organization in Boston and another in Seattle. We were able to confirm the eligibility status (i.e., current low back pain that had lasted at least 3 months) of 70% of the patients with such diagnoses and all eligible respondents were interviewed. RESULTS:

Except for chiropractic, knowledge about these therapies was low. Chiropractic and massage had been used by the largest fractions of respondents (54% and 38%, respectively), mostly for back pain (45% and 24%, respectively). Among prior users of specific CAM therapies for back pain, massage was rated most helpful. Users of chiropractic reported treatment-related "significant discomfort, pain or harm" more often (23%) than users of other therapies (5-16%). Respondents expected massage would be most helpful (median of 7 on a 0 to 10 scale) and meditation least helpful (median of 3) in relieving their current pain. Most respondents indicated they would be "very likely" to try acupuncture, massage, or chiropractic for their back pain if they did not have to pay out of pocket and their physician thought it was a reasonable treatment option. CONCLUSIONS: Most patients with chronic back pain in our sample were interested in trying therapeutic options that lie outside the conventional medical spectrum. This highlights the need for additional studies evaluating their effectiveness and suggests that researchers conducting clinical trials of these therapies may not have difficulties recruiting patients.

Sanglier, I., M. Sarazin, et al. (2004). "[Tai Chi, body and cognitive rehabilitation of Alzheimer's and related diseases]." *Soins*(685): 42-3.

Rispail, D. (2004). "[Tai Chi Chuan and personnel development]." *Soins*(682 Pt 1): 24-6.

Newton, M., N. Detling, et al. (2004). "Relationship between achievement goal constructs and physical self-perceptions in a physical activity setting." *Percept Mot Skills* 99(3 Pt 1): 757-70.

The relations of achievement goal theory constructs and physical self-perceptions were explored with 225 students (91 men, 109 women, and 25 nonindicators; M age=23.5 yr., SD=9.2), enrolled in basic physical activity classes (aerobics, weight training, modern dance, badminton, yoga, tai chi, basketball, racquetball, gymnastics, bowling, aquatone, and step aerobics) in a university setting. Goal orientations (Task and Ego Orientation in Sport Questionnaire), perceptions of the motivational climate (Perceived Motivational Climate in Sport Questionnaire-2), and physical self-perceptions (Physical Self-perception Profile) were assessed. Data were analyzed separately by sex. Ego orientation was the only predictor of Physical Self-perceptions in men, accounting for between 12 and 15% of the variance in Physical Self-worth, Sport Competence, Physical Conditioning, and Body Attractiveness. Constructs of achievement goal theory were not predictive of Physical Self-perceptions in the women. The results are discussed in light of achievement goal theory and the nature of the sample.

Mustian, K. M., J. A. Katula, et al. (2004). "Tai Chi Chuan, health-related quality of life and self-esteem: a randomized trial with breast cancer survivors." *Support Care Cancer* 12(12): 871-6.

GOALS: Health-related quality of life (HRQL) and self-esteem are often diminished among women diagnosed and treated for breast cancer. Tai Chi is a moderate form of exercise that may be an effective therapy for improving HRQL and self-esteem among these women. We sought to compare the efficacy of Tai Chi Chuan (TCC) and psychosocial support (PST) for improving HRQL and self-esteem among breast cancer survivors. PATIENTS AND METHODS: A group of 21 women diagnosed with breast cancer, who had completed treatment within the last 30 months were randomized to receive 12 weeks of TCC or PST. Participants in both groups met three times a week for 60 minutes. HRQL and self-esteem were assessed at baseline, 6 weeks, and 12 weeks. RESULTS: The TCC group demonstrated significant improvements in HRQL, while the PST group reported declines in HRQL, with the differences between the two groups approaching significance at week 12.

Additionally, the TCC group exhibited improvements in self-esteem, while the PST group reported declines in self-esteem, with the differences between groups reaching statistical significance at week 12. These findings, coupled with a visual inspection of the raw change scores, support the plausibility of a dose-response relationship concerning Tai Chi. CONCLUSIONS: In this pilot investigation, the TCC group exhibited improvements in HRQL and self-esteem from baseline to 6 and 12 weeks, while the support group exhibited declines. Randomized, controlled clinical trials with larger sample sizes are needed.

McGibbon, C. A., D. E. Krebs, et al. (2004). "Tai Chi and vestibular rehabilitation effects on gaze and whole-body stability." *J Vestib Res* 14(6): 467-78.

Tai Chi (TC) is a comparatively new intervention for peripheral vestibular hypofunction, which is often treated with vestibular rehabilitation (VR). We compared gaze stability (GZS), whole-body stability (WBS) and footfall stability (FFS) during locomotion among 26 people with vestibulopathy (VSP), randomized into two treatment arms (13 TC and 13 VR). Each intervention program was offered for 10 weeks. GZS improved more for VR than for TC, but WBS (and FFS) improved more for TC than for VR. There was a significant relationship between changes in GZS and WBS for the VR subjects ($r=0.60$, $p=0.01$), but not for TC subjects. There was a significant relationship between changes in WBS and FFS for both VR ($r=0.65$, $p < 0.01$) and TC ($r=0.58$, $p=0.02$) groups; the relationship disappeared in the VR but not the TC group when controlling for GZS. These findings suggest that VR and TC both benefit patients with VSP but via differing mechanisms. Moreover, these data are the first to test the assumption that improving gaze control among patients with VSP perforce improves postural stability: it does not. We conclude that GZS is most improved in those who receive VR, but that TC improves WBS and FFS without improving GZS, suggesting patients with VSP can rely on non-gaze related mechanisms to improve postural control.

Luskin, F. (2004). "Transformative practices for integrating mind-body-spirit." *J Altern Complement Med* 10 Suppl 1: S15-23.

This paper explores the clinical use of transformative practices that arose from the varied religious traditions of the world. Examples include prayer, meditation, mantra, affirmation, tai chi, and yoga. The purpose of these practices was to lead the practitioner to long term spiritual transformation toward an enhanced awareness of spirit, and a corresponding diminishment of identification with the mental and physical aspects of life. Unfortunately, the vagueness of the definition of transformation demonstrates that it is a broad and diffuse multidimensional concept difficult to quantify and resistant to rigorous research. However, these spiritual practices, offered as interventions separate from their spiritual tradition, have begun to be evaluated to document their effect on psychological and physical well-being. Currently, there are a number of well-designed studies that attest to the health-enhancing and suffering-reducing benefits derived from religiously transformative practices. There also is research, although sporadic and mostly on forgiveness, slowly emerging to show that prosocial positive emotion skills can be taught, and when measured, demonstrate benefit. Randomized trials of transformative practices are needed to help all levels of the health care system focus their attention on the manifestations and effect of the care delivered.

Li, F., K. J. Fisher, et al. (2004). "Tai chi and self-rated quality of sleep and daytime sleepiness in older adults: a randomized controlled trial." *J Am Geriatr Soc* 52(6): 892-900.

OBJECTIVES: To determine the effectiveness of tai chi on self-rated sleep quality and daytime sleepiness in older adults reporting moderate sleep complaints. DESIGN: Randomized, controlled trial with allocation to tai chi or

exercise control. SETTING: General community. PARTICIPANTS: One hundred eighteen women and men aged 60 to 92. INTERVENTION: Participants were randomized into tai chi or low-impact exercise and participated in a 60-minute session, three times per week, for 24 consecutive weeks. MEASUREMENTS: Primary outcome measures were the seven subscales of the Pittsburgh Sleep Quality Index (PSQI), PSQI global score, and Epworth Sleepiness Scale (ESS). Secondary outcome measures were physical performance (single leg stand, timed chair rise, 50-foot speed walk) and 12-item short form (SF-12) physical and mental summary scores. RESULTS: Tai chi participants reported significant improvements in five of the PSQI subscale scores (sleep quality, sleep-onset latency, sleep duration, sleep efficiency, sleep disturbances) ($P < .01$), PSQI global score ($P = .001$), and ESS scores ($P = .002$) in comparison with the low-impact exercise participants. Tai chi participants reported sleep-onset latency of about 18 minutes less per night (95% confidence interval (CI) = -28.64 to -7.12) and sleep duration of about 48 minutes more per night (95% CI = 14.71-82.41) than low-impact exercise participants. Tai chi participants also showed better scores in secondary outcome measures than low-impact exercise participants. Both groups reported improvements in SF-12 mental summary scores. CONCLUSION: Older adults with moderate sleep complaints can improve self-rated sleep quality through a 6-month, low- to moderate-intensity tai chi program. Tai chi appears to be effective as a nonpharmacological approach to sleep enhancement for sleep-disturbed elderly individuals.

Li, F., P. Harmer, et al. (2004). "Tai Chi: improving functional balance and predicting subsequent falls in older persons." *Med Sci Sports Exerc* 36(12): 2046-52.

PURPOSE: To determine whether improved functional balance through a Tai Chi intervention is related to subsequent reductions in falls among elderly persons. METHODS: Two hundred fifty-six healthy, physically inactive older adults aged 70-92 (mean age \pm SD = 77.48 \pm 4.95), recruited from a local health system in Portland, OR, participated in a 6-month randomized controlled trial, with allocation to Tai Chi or exercise stretching control, followed by a 6-month postintervention follow-up. Functional balance measures included Berg balance scale, dynamic gait index, and functional reach, assessed during the 6-month intervention period (baseline, 3-month, and 6-month intervention endpoint) and again at the 6-month postintervention follow-up. Fall counts were recorded during the 6-month postintervention follow-up period. Data were analyzed through intention-to-treat analysis of variance and logistic regression procedures. RESULTS: Tai Chi participants who showed improvements in measures of functional balance at the intervention endpoint significantly reduced their risk of falls during the 6-month postintervention period, compared with those in the control condition (odds ratio (OR), 0.27, 95% confidence interval (CI), 0.07-0.96 for Berg balance scale; OR, 0.27, 95% CI, 0.09-0.87 for dynamic gait index; OR, 0.20, 95% CI, 0.05-0.82 for functional reach). CONCLUSIONS: Improved functional balance through Tai Chi training is associated with subsequent reductions in fall frequency in older persons.

Lee, E. N. (2004). "[The effects of tai chi exercise program on blood pressure, total cholesterol and cortisol level in patients with essential hypertension]." *Taehan Kanho Hakhoe Chi* 34(5): 829-37.

PURPOSE: The purpose of this study was to determine the effects of a 6-week Tai Chi exercise program on reducing blood pressure for hypertensive patients. METHOD: A non-equivalent pretest-posttest experimental design was used. Participants were recruited from the Community Health Center in Busan, Korea. Twenty-eight hypertensive patients participated in this study. Among them, fourteen were in the experimental group and the rest are in the control group. Members in the experimental group participated in a 6-week program of Tai Chi exercise. In order to evaluate the effects of the Tai Chi program, blood

pressure, total cholesterol, and cortisol level were measured before and after week 6. RESULT: After the 6-week Tai Chi program, there were significant differences in systolic pressure ($t=-3.13$, $p= .004$) and diastolic blood pressure ($t=-4.75$, $p= .000$) in the experimental group when compared to the control group. However there were no significant differences in the total cholesterol ($t=1.07$, $p=.294$) and cortisol level ($F=1.35$, $p= .256$). CONCLUSION: These results suggest that a 6-week Tai Chi program can be utilized as an effective nursing program to reduce blood pressure for hypertensive patients.

Lan, C., S. W. Chou, et al. (2004). "The aerobic capacity and ventilatory efficiency during exercise in Qigong and Tai Chi Chuan practitioners." *Am J Chin Med* 32(1): 141-50.

The objective of this study was to compare cardiorespiratory responses to exercise among older Qigong participants, Tai Chi Chuan (TCC) practitioners and normal sedentary controls during cycle ergometry. Thirty-six community-dwelling men with a mean age of 59.1 ± 6.6 years participated in this study. Each group (Qigong, TCC and control) included 12 subjects with matched age and body size. The Qigong group practiced Qigong regularly for 2.3 ± 1.5 years; the TCC group practiced Yang TCC for 4.7 ± 2.3 years. Heart rate (HR) responses were measured during the practice of Qigong and TCC. Additionally, breath-by-breath measurement of cardiorespiratory function was performed during the incremental exercise of leg cycling. The mean HR during Qigong and TCC practice was 91 ± 5 bpm and 129 ± 7 bpm, respectively. At the peak exercise and the ventilatory threshold (VeT), TCC group displayed highest oxygen uptake (VO₂), O₂ pulse and work rate among the three groups. The Qigong group also showed higher oxygen uptake and O₂ pulse than the control group. At the same relative exercise intensity, the Qigong group had the highest tidal volume among the three groups. In conclusion, Qigong and TCC show a beneficial effect to aerobic capacity in older individuals, but TCC displays a better training effect than Qigong due to its higher exercise intensity. However, Qigong can enhance breathing efficiency during exercise due to the training effect of diaphragmatic breathing.

Lan, C., S. Y. Chen, et al. (2004). "Relative exercise intensity of Tai Chi Chuan is similar in different ages and gender." *Am J Chin Med* 32(1): 151-60.

This study aims to determine the relative exercise intensity of classical Yang Tai Chi Chuan (TCC) in different ages and gender. One hundred TCC practitioners (54 men and 46 women) aged 25 to 80 years participated in this investigation. Men and women were separated into three groups: young (25-44 y/o), middle-aged (45-64 y/o) and elderly (65-80 y/o). Heart rate (HR) responses during TCC practice were measured by using electrocardiographic telemetry. An exercise test with breath-by-breath measurements of cardiorespiratory function was also performed for each subject during the incremental exercise of leg cycling. Measurements obtained during the TCC practice and exercise testing were compared to determine the exercise intensity of TCC. While performing TCC, the mean HR of men was 141 ± 12 bpm, 132 ± 9 bpm and 120 ± 10 bpm in the young, middle-aged and elderly groups, respectively. Men practiced TCC with mean HR corresponding to $57.8 \pm 3.7\%$, $56.6 \pm 3.4\%$ and $55.1 \pm 3.1\%$ of heart rate reserve (HRR) in the three groups. Meanwhile, the mean HR of women was 136 ± 10 bpm, 126 ± 11 bpm and 115 ± 12 bpm in the young, middle-aged and elderly groups, respectively. Women practiced TCC with mean HR corresponding to $52.7 \pm 2.8\%$, $51.5 \pm 2.6\%$ and $50.3 \pm 2.9\%$ of HRR in the three age groups. The results demonstrate that classical Yang TCC is an exercise with moderate intensity, and its exercise intensity is similar across different ages in each gender. In conclusion, TCC is an aerobic exercise and suitable for participants of different ages and gender to improve their functional capacity.

Lam, P. (2004). "Tai chi." *Diabetes Self Manag* 21(4): 7-10, 12, 14.

Kressig, R. W. and O. Beauchet (2004). "[Gait analysis and tailored exercise prescription in older adults]." *Z Gerontol Geriatr* 37(1): 15-9.

Examining gait characteristics in older adults enhances our understanding of movement control in this population and helps to better target preventive interventions. Walking is a highly automated, regular motor behavior that is mostly controlled by subcortical locomotor brain regions. With increasing age, walking requires higher levels of attention and thus more cortical involvement in motor control. This can affect gait regularity by increasing stride-to-stride variability that is characteristically high among fallers. A growing number of clinical gait analysis systems is now available to determine gait variability and thus the falling risk in older adults. Interventions targeting high gait variability in older adults need to consider basic principles of motor learning. Previously common and automatic gait patterns have to be relearned and again brought up to a highly automated level of motor control. Regular walking exercise, and particularly T'ai Chi with its emphasis on sequenced, slow, and highly controlled movements, might be helpful in this relearning process. Further research is needed to explore other interventions that could favorably affect stride-to-stride variability of older adults.

Jong, S. Y., Y. Y. Fang, et al. (2004). "[The effect of Tai-Chi-Qui-Gong exercises on patients' pulmonary function, exercise capacity, and quality of life after lobectomy]." *Hu Li Za Zhi* 51(6): 46-54.

The purpose of this study was to evaluate the effect of Tai-Chi-Qui-Gong (TCQG) practice on patients' pulmonary function, activity capacity, and quality of life after lobectomy. Subjects admitted at a chest surgical ward of a medical center in Taipei city were included voluntarily after signing informed consents. The first 20 subjects were assigned to the control group, and the next 20 were assigned to the experimental group. Subjects in the experimental group received a training class on 10 motions of TCQG two days before surgery. They began to practice the TCQG exercises twice per day from the first postoperative day. They started with three motions on the first day, increasing to 10 on the fifth day. The control group received standard post-lobectomy care, which did not include the TCQG exercises. All subjects received measures on pulmonary function and six-minutes walk distance (6MWD) two days prior to the operation, as well as one week, and one month after the operation. Quality of life was measured two days before the operation and one month after the operation. The major statistical procedures applied in data management included: Chi-square, two-way ANOVA, independent-T test, and repeated-measures ANOVA. The p value level of $< .05$ was used as the significant level. The results indicated that subjects in the experimental group had significant improvement in their tidal volume and 6MWD after lobectomy, while subjects in the control group did not. The 6MWD of the subjects in the experimental group reverted to the preoperative status at the end of the first week, and was even better one month later. The postoperative quality of life of the subjects in the experimental group was significantly better than that of in the control group. These findings indicate that 10 motions of TCQG exercise were effective in improving pulmonary function, activity capacity, and quality of life of patients after lobectomy.

Irwin, M., J. Pike, et al. (2004). "Shingles Immunity and Health Functioning in the Elderly: Tai Chi Chih as a Behavioral Treatment." *Evid Based Complement Alternat Med* 1(3): 223-232.

Both the incidence and severity of herpes zoster (HZ) or shingles increase markedly with increasing age in association with a decline in varicella zoster virus (VZV)-specific immunity. Considerable evidence shows that behavioral stressors, prevalent in older adults, correlate with impairments of cellular immunity. Moreover, the presence of depressive symptoms in older adults is

associated with declines in VZV-responder cell frequency (VZV-RCF), an immunological marker of shingles risk. In this review, we discuss recent findings that administration of a relaxation response-based intervention, tai chi chih (TCC), results in improvements in health functioning and immunity to VZV in older adults as compared with a control group. TCC is a slow moving meditation consisting of 20 separate standardized movements which can be readily used in elderly and medically compromised individuals. TCC offers standardized training and practice schedules, lending an important advantage over prior relaxation response-based therapies. Focus on older adults at increased risk for HZ and assay of VZV-specific immunity have implications for understanding the impact of behavioral factors and a behavioral intervention on a clinically relevant end-point and on the response of the immune system to infectious pathogens.

Hass, C. J., R. J. Gregor, et al. (2004). "The influence of Tai Chi training on the center of pressure trajectory during gait initiation in older adults." *Arch Phys Med Rehabil* 85(10): 1593-8.

OBJECTIVE: To determine if a program of intense Tai Chi exercise that has been shown to reduce the risk of falling in older adults improves postural control by altering the center of pressure (COP) trajectory during gait initiation. DESIGN: Before-after trial. SETTING: Biomechanics research laboratory. PARTICIPANTS: Twenty-eight older adults transitioning to frailty who participated in either a 48-week intervention of intense Tai Chi training or a wellness education (WE) program. INTERVENTIONS: Eight Tai Chi forms emphasizing trunk rotation, weight shifting, coordination, and narrowing of lower-extremity stance were taught twice weekly. WE program participants met once a week and received lectures focused on health. Main outcome measures The COP was recorded during gait initiation both before and after the 48-week intervention by using a forceplate sampling at 300 Hz. The COP trajectory was divided into 3 periods (S1, S2, S3) by identifying 2 landmark events. Displacement and average velocity of the COP trace in the anteroposterior (x) and mediolateral (y) directions, as well as smoothness, were calculated. RESULTS: Tai Chi training increased the posterior displacement of the COP during S1 and improved the smoothness of the COP during S2. CONCLUSIONS: Tai Chi improved the mechanism by which forward momentum is generated and improved coordination during gait initiation, suggesting improvements in postural control.

Hart, J., H. Kanner, et al. (2004). "Tai Chi Chuan practice in community-dwelling persons after stroke." *Int J Rehabil Res* 27(4): 303-4.

Eighteen community-dwelling first-stroke survivors, aged 45 to 65, underwent following examinations: Romberg's Test, standing on the unaffected leg, Emory Fractional Ambulation Profile, the Berg Balance Test, the Timed 'Up and Go' Test and the Duke Health Profile. They were then randomly divided into two matched groups of 9 subjects each. The study group (SG) received Tai Chi exercises and the control group (CG) physiotherapy exercises focused on improvement of balance, both groups for 1 h twice weekly for 12 weeks. On completion of exercises, SG subjects showed improvement in social and general functioning whereas CG subjects showed improvement in balance and speed of walking. It is concluded that there are potential and no adverse effects in Tai Chi practice in stroke survivors.

Han, A., V. Robinson, et al. (2004). "Tai chi for treating rheumatoid arthritis." *Cochrane Database Syst Rev*(3): CD004849.

BACKGROUND: Rheumatoid arthritis (RA) is a chronic, systemic inflammatory autoimmune disease that results in the destruction of the musculoskeletal system. The major goals of treatment are to relieve pain, reduce inflammation, slow down or stop joint damage, prevent disability, and preserve or improve the

person's sense of well-being and ability to function. Tai Chi, interchangeably known as Tai Chi Chuan, is an ancient Chinese health-promoting martial art form that has been recognized in China as an effective arthritis therapy for centuries. OBJECTIVES: To assess the effectiveness and safety of Tai Chi as a treatment for people with RA. SEARCH STRATEGY: We searched the Cochrane Controlled Trials Register (CCTR), MEDLINE, Pedro and CINAHL databases up to September 2002, using the Cochrane Collaboration search strategy for randomised controlled trials. We also searched the Chinese Biomedical Database up to December 2003 and the Beijing Chinese Academy of Traditional Medicine up to December 2003. SELECTION CRITERIA: Randomized controlled trials and controlled clinical trials examining the benefits and harms of exercise programs with Tai Chi instruction or incorporating principles of Tai Chi philosophy were selected. We included control groups who received no therapy, sham therapy or another type of therapy. DATA COLLECTION AND ANALYSIS: Two reviewers determined the studies to be included in this review, rated the methodological quality and extracted data using standardized forms. MAIN RESULTS: Four trials including 206 participants, were included in this review. Tai Chi-based exercise programs had no clinically important or statistically significant effect on most outcomes of disease activity, which included activities of daily living, tender and swollen joints and patient global overall rating. For range of motion, Tai Chi participants had statistically significant and clinically important improvements in ankle plantar flexion. No detrimental effects were found. One study found that compared to people who participated in traditional ROM exercise/rest programs those in a Tai Chi dance program reported a significantly higher level of participation in and enjoyment of exercise both immediately and four months after completion of the Tai Chi program. REVIEWERS' CONCLUSIONS: The results suggest Tai Chi does not exacerbate symptoms of rheumatoid arthritis. In addition, Tai Chi has statistically significant benefits on lower extremity range of motion, in particular ankle range of motion, for people with RA. The included studies did not assess the effects on patient-reported pain.

Hainsworth, T. (2004). "The role of exercise in falls prevention for older patients." *Nurs Times* 100(18): 28-9.

Falls prevention is a key area of health promotion that is familiar to all nurses who work with older people. However, the suggestion that t'ai chi should be used as a prevention intervention may be new to many nurses. The evidence supporting t'ai chi and many other forms of exercise have been evaluated within the National Institute for Clinical Evidence (NICE) falls guidance. This should enable nurses to look at the prevention interventions that they currently recommend and question the evidence for or against their effectiveness. Nurses should also be able to identify factors that may present as barriers to participation.

Colcombe, S. J., A. F. Kramer, et al. (2004). "Neurocognitive aging and cardiovascular fitness: recent findings and future directions." *J Mol Neurosci* 24(1): 9-14.

In the first century, ce, the Roman satirist Juneval famously observed *Orandum est, ut sit mens sana in corpore sano*, or "A sound mind in a sound body is something to be prayed for." This implicit link between mental and physical health, also paralleled by Eastern philosophies and practices such as tai chi, has survived the millennia since Juneval and his contemporaries. More recently, controlled examinations of the effects of physical fitness on cognitive performance have shown that improving cardiovascular fitness (CVF) can help to reduce the deleterious effects of age on cognition and brain structure. Thus, as we age, it may well be the case that a sound mind is a natural concomitant of a sound body. Numerous cross-sectional and longitudinal studies have examined the effects of aerobic exercise on cognitive performance in aging humans since

earlier studies, which found that physically fit older adults performed better on simple cognitive tasks than their less-fit counterparts. This base of knowledge recently has been furthered through examinations of cortical structure (Colcombe et al., 2003) and neurocognitive function in aging humans via functional and structural magnetic resonance imaging techniques. In this manuscript, we will briefly review some of our recent research on the effects of CVF on brain function, structure, and behavior in older adults. We will then outline some of our current and future directions in this area.

Chu, D. A. (2004). "Tai Chi, Qi Gong and Reiki." *Phys Med Rehabil Clin N Am* 15(4): 773-81, vi.

Tai Chi, Qi Gong, and Reiki are complementary therapies that are gaining popularity with patients. Although these therapies seem simple and attractive in their philosophy and are easy to apply, more objective, well-designed research is needed to prove their efficacy and to gain acceptance from the medical community.

Chou, K. L., P. W. Lee, et al. (2004). "Effect of Tai Chi on depressive symptoms amongst Chinese older patients with depressive disorders: a randomized clinical trial." *Int J Geriatr Psychiatry* 19(11): 1105-7.

Chan, K., L. Qin, et al. (2004). "A randomized, prospective study of the effects of Tai Chi Chun exercise on bone mineral density in postmenopausal women." *Arch Phys Med Rehabil* 85(5): 717-22.

OBJECTIVE: To evaluate the potential benefits of programmed Tai Chi Chun (TCC) exercise on the weight-bearing bones of early postmenopausal women. **DESIGN:** Age-matched and randomized prospective intervention. **SETTING:** University medical school. **PARTICIPANTS:** One hundred thirty-two healthy postmenopausal women (mean age, 54.0+/-3.5y) within 10 years of menopause onset were recruited and randomized into the TCC exercise group (n=67) or the sedentary control group (n=65). **INTERVENTION:** Supervised TCC exercise was performed by the TCC group for 45 minutes a day, 5 days a week, for 12 months; control subjects retained a sedentary life style. **Main outcome measures** Bone mineral density (BMD) was measured in the lumbar spine and proximal femur by using dual-energy x-ray absorptiometry and in the distal tibia by using multislice peripheral quantitative computed tomography (pQCT). All BMD measurements were repeated after 12 months in both groups. Fracture rate was also documented. **RESULTS:** Baseline measurements showed homogeneity in age, anthropometric variables, and menstruation status between the TCC and control groups. Exactly 81.6% of the subjects in the TCC group and 83.1% of subjects in the control group completed the 12-month follow-up study. BMD measurements revealed a general bone loss in both TCC and sedentary control subjects at all measured skeletal sites, but with a reportedly slower rate in the TCC group. A significant 2.6- to 3.6-fold retardation of bone loss ($P < .01$) was found in both trabecular and cortical compartments of the distal tibia in the TCC group as compared with the controls, as measured by pQCT. A total of 4 fracture cases were documented during follow-up, including 3 subjects in the control group and 1 in the TCC group. **CONCLUSIONS:** This is the first prospective and randomized study to show that a programmed TCC exercise intervention is beneficial for retarding bone loss in weight-bearing bones in early postmenopausal women. Long-term follow-up is needed to substantiate the role of TCC exercise in the prevention of osteoporosis and its related fracture.

Ades, P. A. and G. Wu (2004). "Benefits of tai chi in chronic heart failure: body or mind?" *Am J Med* 117(8): 611-2.

(2004). "Tai chi: a bevy of benefits." *Health News* 10(5): 11.

(2004). "Tai chi: meditated motion. This increasingly popular exercise routine is helping older adults prevent falls and live healthier lives." Health News 10(12): 8-9.