2005

Zetaruk, M. N., M. A. Violan, et al. (2005). "Injuries in martial arts: a comparison of five styles." Br J Sports Med 39(1): 29-33.

OBJECTIVE: To compare five martial arts with respect to injury outcomes. METHODS: A one year retrospective cohort was studied using an injury survey. Data on 263 martial arts participants (Shotokan karate, n = 114; aikido, n = 47; tae kwon do, n = 49; kung fu, n = 39; tai chi, n = 14) were analysed. Predictor variables included age, sex, training frequency (<or=3 h/week v >3 h/week), experience (<3 years v >or=3 years), and martial art style. Outcome measures were injuries requiring time off from training, major injuries (>or=7 days off), multiple injuries (>or=3), body region, and type of injury. Logistic regression was used to determine odds ratios (OR) and confidence intervals (CI). Fisher's exact test was used for comparisons between styles, with a Bonferroni correction for multiple comparisons. RESULTS: The rate of injuries, expressed as percentage of participants sustaining an injury that required time off training a year, varied according to style: 59% tae kwon do, 51% aikido, 38% kung fu, 30% karate, and 14% tai chi. There was a threefold increased risk of injury and multiple injury in tae kwon do than karate ($p<0.001$). Subjects >or=18 years of age were at greater risk of injury than younger ones ($p<0.05$; OR 3.95; CI 1.48 to 9.52). Martial artists with at least three years experience were twice as likely to sustain injury than less experienced students ($p<0.005$; OR 2.46; CI 1.51 to 4.02). Training >3 h/week was also a significant predictor of injury ($p<0.05$; OR 1.85; CI 1.13 to 3.05). Compared with karate, the risks of head/neck injury, upper extremity injury, and soft tissue injury were all higher in aikido ($p<0.005$), and the risks of head/neck, groin, and upper and lower extremity injuries were higher in tae kwon do ($p<0.001$). No sex differences were found for any of the outcomes studied. CONCLUSIONS: There is a higher rate of injury in tae kwon do than Shotokan karate. Different martial arts have significantly different types and distribution of injuries. Martial arts appear to be safe for young athletes, particularly those at beginner or intermediate levels.

Xu, D. Q., J. X. Li, et al. (2005). "Effect of regular Tai Chi and jogging exercise on neuromuscular reaction in older people." Age Ageing 34(5): 439-44.

OBJECTIVES: to investigate the effects of regular Tai Chi (TC) or jogging exercise on neuromuscular reaction in older people. DESIGN: cross-sectional study. SETTING: university biomechanics laboratory. SUBJECTS: 21 long-term elderly TC practitioners were compared with 18 regular elderly joggers and 22 sedentary counterparts. MEASUREMENTS: electromyography (EMG) was used to detect the neuromuscular reaction of the leg muscles to an unexpected ankle inversion perturbation. The latency of the muscles, which was defined as the time that the moment of perturbation began to the onset of the EMG response, was evaluated. RESULTS: a one-way ANOVA revealed that there were significant differences in the latency of the rectus femoris (R) and anterior tibialis (T) muscles between the three groups, but that there were no differences in the latency of the semitendinosus (S) and gastrocnemius (G) muscles. Further tests indicated that the R and T muscles in the TC and jogging groups were activated significantly faster than those in the control group. No significant difference was found for the muscle onset latencies between the TC and jogging groups. CONCLUSION: maintaining information processing speed during ageing is important, because of the role that it plays in many everyday events. The R and T muscles in the regular TC and jogging groups showed faster responses to unexpected ankle inversion perturbations, which is helpful for the timely correction of postural disturbances, than those in the sedentary control group.

Wu, G. and J. Hitt (2005). "Ground contact characteristics of Tai Chi gait." Gait Posture 22(1): 32-9.

BACKGROUND: To date, no direct measurement has been done that quantitatively characterizes the foot-ground contact during Tai Chi Chuan movements. The goal of this study was to quantify the biomechanical characteristics of foot-ground contact during a Tai Chi gait (TCG), one of the basic but common Tai Chi Chuan movements. METHODS: The ground reaction force profiles, center of pressure (COP) and plantar pressure patterns under the stance foot of TCG were directly measured in a sample of 10 healthy young individuals. RESULTS: The medial force reached a peak value of 12 +/- 2% body weight (BW) during early stance. The vertical force reached and maintained a peak value of 109 +/- 2% BW during single stance, and shifted within a range of 10% and 70% BW during double stance phases. There was a uniformly small rate of loading in all three directions throughout stance. The peak plantar pressure was fairly constant throughout stance in the rear-foot region (maximum value of 0.27 +/- 0.07 kPa/kg), but changed from 0 to 0.16 +/- 0.04 kPa/kg in the fore-foot region. The peak pressure difference between the fore-foot and rear-foot regions was less than 0.06 +/- 0.01 kPa/kg during single stance and the second double stance. The maximum plantar contact area during TCG was 60 +/- 9% of the foot area. The foot COP displaced largely during the early and late part of the stance and maintained fairly stationary during single stance. The maximum COP displacement in the medial-lateral direction was 64 +/- 8% of foot width. CONCLUSIONS: TCG had a low impact force, a fairly evenly distributed body weight between the fore-foot and rear-foot regions, and a large medial-lateral displacement of the foot COP.

Wayne, P. M., D. M. Scarborough, et al. (2005). "Tai Chi for vestibulopathic balance dysfunction: a case study." Altern Ther Health Med 11(2): 60-6.

Wang, C., R. Roubenoff, et al. (2005). "Effect of Tai Chi in adults with rheumatoid arthritis." Rheumatology (Oxford) 44(5): 685-7.

Wall, R. B. (2005). "Tai Chi and mindfulness-based stress reduction in a Boston Public Middle School." J Pediatr Health Care 19(4): 230-7.

This article provides a description of a clinical project that used combined Tai Chi and mindfulness-based stress reduction as an educational program. The 5-week program demonstrated that sustained interest in this material in middle school-aged boys and girls is possible. Statements the boys and girls made in the process suggested that they experienced well-being, calmness, relaxation, improved sleep, less reactivity, increased self-care, self-awareness, and a sense of interconnection or interdependence with nature. The curriculum is described in detail for nurses, teachers, and counselors who want to replicate this type of instruction for adolescent children. This project infers that Tai Chi and mindfulness-based stress reduction may be transformational tools that can be used in educational programs appropriate for middle school-aged children. Recommendations are made for further study in schools and other pediatric settings.

Visovsky, C. and C. Dvorak (2005). "Exercise and cancer recovery." Online J Issues Nurs 10(2): 7.

Disease and cancer treatment-related side effects such as decreased energy level, muscle weakness, and declines in functional status and body mass have been well documented. There is evidence that exercise, such as low intensity aerobics walking, Tai Chi, or cycling, results in an overall decrease in fatigue levels over the course of cancer treatment. Additionally, there is evidence that regular physical activity or exercise can decrease emotional stress, blood pressure, the duration of neutropenia, thrombocytopenia, and pain. Exercise also has been shown to increase quality of life and improve the maximal oxygen uptake during exertion, sleep patterns, and cognition. However, the majority of studies

of exercise and cancer have been conducted with women with early stage breast cancer, limiting the generalizability of these studies to other cancer populations. The purpose of this systematic review is to provide a synthesis of the extant research evidence about th e benefits of exercise related to cancer recovery.

Venglar, M. (2005). "Case report: Tai Chi and Parkinsonism." Physiother Res Int 10(2): 116-21.

BACKGROUND AND PURPOSE: To describe the effects of an eight-week Tai Chi class on two patients: one with Parkinson's disease, the other with multiple system atrophy. METHOD AND RESULTS: Both patients demonstrated improved scores on the Activities-specific Balance Confidence Scale and the Functional Reach Test. One subject also demonstrated improved scores for the Timed Up and Go test. Both subjects reported subjective improvements in balance and balance awareness. CONCLUSIONS: Tai Chi may be a viable option for improving balance in patients with mild Parkinsonism.

Uhlig, T., C. Larsson, et al. (2005). "No improvement in a pilot study of tai chi exercise in rheumatoid arthritis." Ann Rheum Dis 64(3): 507-9.

Tsang, W. W. and C. W. Hui-Chan (2005). "Comparison of muscle torque, balance, and confidence in older tai chi and healthy adults." Med Sci Sports Exerc 37(2): 280-9.

PURPOSE: The objectives of this cross-sectional study were to examine whether older Tai Chi practitioners had better knee muscle strength, less body sway in perturbed single-leg stance, and greater balance confidence than healthy older adults. METHODS: Tai Chi and control subjects (N = 24 each, aged 69.3 +/- 5.0 and 71.6 +/- 6.1 yr, respectively) were matched with respect to age, gender, height, weight, and physical activity level. Concentric and eccentric isokinetic tests of the subjects" dominant knee extensors and flexors were conducted at an angular velocity of 30 degrees.s(-1). Control of body sway was assessed in static double-leg stance and in single-leg stance perturbed by forward or backward platform perturbations. The Activities-specific Balance Confidence (ABC) scale was used to investigate subjects" balance confidence in daily activities. RESULTS: Tai Chi practitioners had higher peak torque-to-body weight ratios in concentric and eccentric isokinetic contractions of their knee extensors and flexors ($P = 0.044$). They manifested less anteroposterior body sway angles in perturbed single-leg but not static double-leg stance than did control subjects ($P < 0.001$). Tai Chi practitioners also reported significantly higher balance confidence score ratios ($P = 0.001$). Older adults" knee muscle strengths showed negative correlations with body sway angles in perturbed single-leg stance and positive correlations with ABC score ratios. Moreover, their body sway angles in perturbed single-leg stance were negatively correlated with their ABC score ratios (all $P < 0.05$). CONCLUSION: Our results demonstrate that long-term Tai Chi practitioners had better knee muscle strength, less body sway in perturbed single-leg stance, and greater balance confidence. Significant correlations among these three measures uncover the importance of knee muscle strength and balance control during perturbed single-leg stance in older adults" balance confidence in their daily activities.

Thomas, G. N., A. W. Hong, et al. (2005). "Effects of Tai Chi and resistance training on cardiovascular risk factors in elderly Chinese subjects: a 12-month longitudinal, randomized, controlled intervention study." Clin Endocrinol (Oxf) 63(6): 663-9.

BACKGROUND: Tai Chi is rapidly gaining in popularity, worldwide. This study was performed to assess its impact on cardiovascular risk factors in comparison with resistance training exercises in elderly Chinese subjects.

METHODS: A total of 207 healthy elderly participants (65-74 years, 113/207 (55%) men) were randomly assigned to one of three intervention groups: (1) Tai Chi, three times/week for 1 h/session (n = 64); (2) resistance training exercise, three times/week for 1 h/session (n = 65); (3) usual level of physical activity control group (n = 78). Anthropometric measures, dual X-ray densitometry body composition, blood pressure, lipids, glycaemic and insulin sensitivity indices were measured at baseline and 12 months. Repeated-measures analysis of variance (anova) was used to assess the between-group changes using a last-observation-carried-forward intention-to-treat approach. RESULTS: A total of 180 (87.0%) subjects completed the study. No significant changes were identified in the Tai Chi group compared to the resistance training or control group. Of the primary outcomes, only the improvement in the insulin sensitivity index differed, being significantly greater in the resistance training than in the control group [mean difference 0.018 (95% confidence interval (CI) 0.000-0.037) mmol glucose/min, P = 0.02), and tending to be greater than in the Tai Chi group (mean difference 0.019 (95% CI 0.000-0.038) mmol glucose/min, P < 0.06). CONCLUSION: Tai Chi had no significant effect on any measure compared to the controls, whereas resistance training improved the insulin sensitivity index in this 12-month study.

Tafari, L. (2005). "Tai chi." J Epidemiol Community Health 59(1): 48.

Sattin, R. W., K. A. Easley, et al. (2005). "Reduction in fear of falling through intense tai chi exercise training in older, transitionally frail adults." J Am Geriatr Soc 53(7): 1168-78.

OBJECTIVES: To determine whether an intense tai chi exercise program could reduce fear of falling better than a wellness education (WE) program in older adults who had fallen previously and meet criteria for transitioning to frailty. DESIGN: Cluster-randomized, controlled trial of 48 weeks' duration. SETTING: Ten matched pairs of congregate living facilities in the greater Atlanta area. PARTICIPANTS: Sample of 291 women and 20 men, aged 70 to 97. MEASUREMENTS: Activity-related fear of falling using the Activities-Specific Balance Confidence Scale (ABC) and the Fall Efficacy Scale at baseline and every 4 months for 1 year. Demographics, time to first fall and all subsequent falls, functional measures, Centers for Epidemiologic Studies Depression Scale, medication use, level of physical activity, comorbidities, and adherence to interventions. RESULTS: Mean ABC was similar in both cohort groups at the time of randomization but became significantly higher (decreased fear) in the tai chi cohort at 8 months (57.9 vs 49.0, P<.001) and at study end (59.2 vs 47.9, P<.001). After adjusting for covariates, the mean ABC after 12 months of intervention was significantly greater in the tai chi group than in the WE group, with the differences increasing with time (mean difference at 12 months=9.5 points, 95% confidence interval=4.8-14.2, P<.001). CONCLUSION: Tai chi led to a significantly greater reduction in fear of falling than a WE program in transitionally frail older adults. The mean percentage change in ABC scores widened between tai chi and WE participants over the trial period. Tai chi should be considered in any program designed to reduce falling and fear of falling in transitionally frail older adults.

Qin, L., W. Choy, et al. (2005). "Beneficial effects of regular Tai Chi exercise on musculoskeletal system." J Bone Miner Metab 23(2): 186-90.

This study was performed to evaluate the potential benefits of regular Tai Chi Chun (TCC) exercise on bone mineral density (BMD) and neuromuscular function in postmenopausal women. In this cross-sectional study, 99 healthy postmenopausal women, with a mean age of 55.9+/-3.1 years and within 10 years after the menopause, were recruited; including 48 subjects who had been regularly practicing TCC exercise for more than 3 h/week and 51 age- and sex-

matched sedentary controls (CON). BMD was measured in the lumbar spine and proximal femur of the non-dominant leg (femoral neck, greater trochanter, and Ward's triangle), using dual-energy X-ray absorptiometry (DXA). Neuromuscular function was evaluated, including magnitude of trunk bend-and-reach, quadriceps muscle strength, and single-stance time on the nondominant leg. The TCC group showed overall higher BMD at all measurement sites, with a significant difference found at the spine (7.1%), greater trochanter (7.2%), and Ward's triangle (7.1%) of the proximal femur (all; P<0.05). Functional tests revealed an average 43.3% significantly greater quadriceps strength (P<0.01), and 67.8% significantly longer single-stance time in the TCC group as compared with the CON group (P<0.05), as well as a greater magnitude of trunk bend-and-reach in the TCC group (P=0.08). Bivariate linear correlation analysis showed that quadriceps muscle strength was significantly correlated with the single-stance time (r=0.41; P<0.01). This study revealed that regular TCC exercise may have an association with higher BMD and better neuromuscular function in early postmenopausal women.

Mustata, S., L. Cooper, et al. (2005). "The effect of a Tai Chi exercise program on quality of life in patients on peritoneal dialysis: a pilot study." Perit Dial Int 25(3): 291-4.

McGibbon, C. A., D. E. Krebs, et al. (2005). "Tai Chi and vestibular rehabilitation improve vestibulopathic gait via different neuromuscular mechanisms: preliminary report." BMC Neurol 5(1): 3.

BACKGROUND: Vestibular rehabilitation (VR) is a well-accepted exercise program intended to remedy balance impairment caused by damage to the peripheral vestibular system. Alternative therapies, such as Tai Chi (TC), have recently gained popularity as a treatment for balance impairment. Although VR and TC can benefit people with vestibulopathy, the degree to which gait improvements may be related to neuromuscular adaptations of the lower extremities for the two different therapies are unknown. METHODS: We examined the relationship between lower extremity neuromuscular function and trunk control in 36 older adults with vestibulopathy, randomized to 10 weeks of either VR or TC exercise. Time-distance measures (gait speed, step length, stance duration and step width), lower extremity sagittal plane mechanical energy expenditures (MEE), and trunk sagittal and frontal plane kinematics (peak and range of linear and angular velocity), were measured. RESULTS: Although gait time-distance measures were improved in both groups following treatment, no significant between-groups differences were observed for the MEE and trunk kinematic measures. Significant within groups changes, however, were observed. The TC group significantly increased ankle MEE contribution and decreased hip MEE contribution to total leg MEE, while no significant changes were found within the VR group. The TC group exhibited a positive relationship between change in leg MEE and change in trunk velocity peak and range, while the VR group exhibited a negative relationship. CONCLUSION: Gait function improved in both groups consistent with expectations of the interventions. Differences in each group's response to therapy appear to suggest that improved gait function may be due to different neuromuscular adaptations resulting from the different interventions. The TC group's improvements were associated with reorganized lower extremity neuromuscular patterns, which appear to promote a faster gait and reduced excessive hip compensation. The VR group's improvements, however, were not the result of lower extremity neuromuscular pattern changes. Lower-extremity MEE increases corresponded to attenuated forward trunk linear and angular movement in the VR group, suggesting better control of upper body motion to minimize loss of balance. These data support a growing body of evidence that Tai Chi may be a valuable complementary treatment for vestibular disorders.

Li, F., K. J. Fisher, et al. (2005). "Falls self-efficacy as a mediator of fear of falling in an exercise intervention for older adults." J Gerontol B Psychol Sci Soc Sci 60(1): P34-40.

This study examined the role of falls self-efficacy as a potential mediator of the exercise and fear-of-falling relationship. The study sample involved 256 community-dwelling older adults aged 70-92 years (M = 77.48, SD = 4.95) who were recruited from a local health care system in Portland, Oregon, and participated in either a Tai Chi (n = 125) or a stretching control (n = 131) exercise intervention, three times per week, for 6 consecutive months. Measures of falls self-efficacy and fear of falling were assessed at baseline and at 3-month and 6-month follow-ups. Intention-to-treat analyses were conducted to evaluate the hypothesis of falls self-efficacy as a mediator of change in fear of falling that resulted from the 6-month Tai Chi intervention. Results supported the mediational hypothesis in that Tai Chi participants, who evidenced improvement in falls self-efficacy over the course of the intervention, reported greater reductions in fear of falling, compared with those in the stretching control condition. Results suggest that exercise interventions designed to improve falls self-efficacy are likely to reduce fear of falling in older adults.

Li, F., P. Harmer, et al. (2005). "Tai Chi and fall reductions in older adults: a randomized controlled trial." J Gerontol A Biol Sci Med Sci 60(2): 187-94.

BACKGROUND: The authors' objective was to evaluate the efficacy of a 6-month Tai Chi intervention for decreasing the number of falls and the risk for falling in older persons. METHODS: This randomized controlled trial involved a sample of 256 physically inactive, community-dwelling adults aged 70 to 92 (mean age, 77.48 years; standard deviation, 4.95 years) who were recruited through a patient database in Portland, Oregon. Participants were randomized to participate in a three-times-per-week Tai Chi group or to a stretching control group for 6 months. The primary outcome measure was the number of falls; the secondary outcome measures included functional balance (Berg Balance Scale, Dynamic Gait Index, Functional Reach, and single-leg standing), physical performance (50-foot speed walk, Up&Go), and fear of falling, assessed at baseline, 3 months, 6 months (intervention termination), and at a 6-month postintervention follow-up. RESULTS: At the end of the 6-month intervention, significantly fewer falls (n=38 vs 73; p=.007), lower proportions of fallers (28% vs 46%; p=.01), and fewer injurious falls (7% vs 18%; p=.03) were observed in the Tai Chi group compared with the stretching control group. After adjusting for baseline covariates, the risk for multiple falls in the Tai Chi group was 55% lower than that of the stretching control group (risk ratio,.45; 95% confidence interval, 0.30 to 0.70). Compared with the stretching control participants, the Tai Chi participants showed significant improvements (p<.001) in all measures of functional balance, physical performance, and reduced fear of falling. Intervention gains in these measures were maintained at a 6-month postintervention follow-up in the Tai Chi group. CONCLUSIONS: A three-times-per-week, 6-month Tai Chi program is effective in decreasing the number of falls, the risk for falling, and the fear of falling, and it improves functional balance and physical performance in physically inactive persons aged 70 years or older.

Lam, L. C., V. W. Lui, et al. (2005). "Subjective memory complaints in Chinese subjects with mild cognitive impairment and early Alzheimer's disease." Int J Geriatr Psychiatry 20(9): 876-82.

BACKGROUND: Mild cognitive impairment (MCI) represents a transitional state between normal aging and dementia. However, there is inconsistent opinion as to the validity of subjective memory complaints as a criterion for diagnosis. OBJECTIVE: This study aimed to examine the potential significance of applying a

short memory questionnaire in the assessment of Chinese subjects with MCI and early dementia. METHODS: Three hundred and six ambulatory Chinese subjects were recruited. Each participant completed a short memory questionnaire. They were also assessed with the Chinese versions of the mini-mental state examination (CMMSE), Alzheimer's disease assessment scale-cognitive subscale (ADAS-Cog), category verbal fluency test (CVFT) and span tests. Severity of cognitive impairment was evaluated using the Clinical Dementia Rating (CDR); subjects with CDR 0.5 were further classified into MCI not demented (MCIND) and MCI possible incipient dementia (MCIID) depending on the subscale scores of CDR. RESULTS: An increasing frequency of memory complaints with increasing CDR was observed (Kruskal Wallis test, chi square = 21.29, df 3, $p < 0.001$). With a cutoff of 3 or more memory complaints, the memory questionnaire demonstrated a sensitivity of 65.3% and 70.4% in identifying subjects with incipient and early dementia respectively. Significant associations between memory complaints and most cognitive test performance were found (Spearman's correlations, $p < 0.01$). Logistic regression analysis revealed that educational level, the memory questionnaire, ADAS-Cog total and delayed recall scores were significant predictors of MCIID status. CONCLUSIONS: The findings suggested that a short memory questionnaire is useful in the screening of MCI, particularly in subjects who already present with subtle functioning disturbances. Subjective memory complaints were significant correlated with objective performance of memory functions, reflecting the usefulness of memory complaints in the assessment of MCI.

Kobayashi, H. and M. Ishii (2005). "Mind-Body, Ki (Qi) and the Skin: Commentary on Irwin's 'Shingles Immunity and Health Functioning in the Elderly: Tai Chi Chih as a Behavioral Treatment'." Evid Based Complement Alternat Med 2(1): 113-116.

Jones, A. Y., E. Dean, et al. (2005). "Effectiveness of a community-based Tai Chi program and implications for public health initiatives." Arch Phys Med Rehabil 86(4): 619-25.

OBJECTIVES: To establish whether the reported beneficial physiologic effects of Tai Chi when performed under stringent experimental conditions can be generalized to the community. DESIGN: Phase 1: pre-post comparison in a group inexperienced in Tai Chi. Phase 2: baseline comparison between inexperienced and experienced Tai Chi groups. SETTING: A community in Hong Kong. PARTICIPANTS: Phase 1: 51 subjects inexperienced in Tai Chi (novice group) participated in the program. Phase 2: baseline measures of the novice group were compared with those of an experienced group (n=49) who had practiced Tai Chi for at least 6 months. INTERVENTION: A Cheng 119 style program was taught by a Tai Chi master for 1.5 hours, 3 times weekly, for 12 weeks. MAIN OUTCOME MEASURES: Lung function and physical activity evaluated before and after the completion of the program. Resting heart rate, blood pressure, oxygen saturation, handgrip strength, flexibility, and balance measured at the program commencement, 6 weeks, and 12 weeks. RESULTS: Phase 1: after the program, the novice group had increased handgrip strength, flexibility, and peak expiratory flow rate. Phase 2: the experienced group had greater flexibility, lower resting heart rate but higher diastolic blood pressure than the novice group prior to training. CONCLUSIONS: A community-based Tai Chi program produces beneficial effects comparable to those reported from experimental laboratory trials of Tai Chi; therefore, it should be considered as a public health strategy.

Hsu, Y. C. and K. M. Chen (2005). "Challenges of doing intervention research with the elderly taiwanese population: example of a tai chi/movement therapy." Geriatr Nurs 26(6): 358-65.

The purpose of this article is to address the challenges of conducting intervention research with an elderly population by using the example of a tai chi intervention study. Various difficulties can arise while conducting interventions with the elderly; these can involve factors related to long-term care facilities, health care providers, and the research team, as well as the institutionalized elders themselves. Any difficulty may influence research results. As a consequence, challenges must be dealt with in a positive manner to conduct a valid geriatric study. Modifications and strategies that the research team engaged to manage the challenges in this study are discussed.

Hogan, M. (2005). "Physical and cognitive activity and exercise for older adults: a review." Int J Aging Hum Dev 60(2): 95-126.

Age-related reduction in musculoskeletal, cardiovascular, and central nervous system resilience can result in wide-ranging limitations in adaptive capacity associated with negative outcomes such as cognitive decline, increased risk of cardiovascular disease, mobility problems, and increased incidence of debilitating falls. This article reviews the benefits of both cognitive and physical activity within the broad context of multiple system resilience in adult aging. Research on a unique form of combined physical/cognitive exercise, Tai Chi Chuan, is presented. The relationship between physiological and psychological gain associated with an activity intervention program is discussed in light of principles of rehabilitation, intervention compliance, subjective and objective gain, and the hypothesized value of combining physical exercise, cognitive exercise, and relaxation into a single program designed to promote resilience in older adults.

Galantino, M. L., K. Shepard, et al. (2005). "The effect of group aerobic exercise and t'ai chi on functional outcomes and quality of life for persons living with acquired immunodeficiency syndrome." J Altern Complement Med 11(6): 1085-92.

OBJECTIVE: This study aimed to assess the usefulness of two interventions in a group rehabilitation medicine setting to determine strategies and exercise guidelines for long-term care of the HIV/AIDS population with human immunodeficiency virus (HIV) and/or acquired immunodeficiency syndrome (AIDS). DESIGN: This was a randomized clinical trial investigating the effects of tai chi (TC) and aerobic exercise (EX) on functional outcomes and quality of life (QOL) in patients with AIDS. SETTING: Two outpatient infectious disease clinics in a mid-atlantic state were the setting. SUBJECTS AND INTERVENTION: Thirty-eight (38) subjects with advanced HIV (AIDS) were randomized to one of three groups: TC, EX, or control. Experimental groups exercised twice weekly for 8 weeks. OUTCOME MEASURES: The primary outcomes included QOL as measured by the Medical Outcomes Short Form (MOS-HIV) and Spirituality Well-Being Scale (SWB). Functional measures included the functional reach (FR) for balance, sit and reach (SR) for flexibility, and sit-up (SU) test for endurance. The physical performance test (PPT) was used to determine overall function, and the Profile of Mood States (POMS) was used to evaluate psychologic changes. To consider the patients' explanations for these measurements, qualitative data were collected from subjects' journals, focus groups, and nonparticipant observation. RESULTS: Thirty-eight (38) subjects were included in data analysis: 13 in the TC group, 13 in the EX group, and 12 in the control group. Results of analysis of covariance showed significant changes in the exercise groups in overall functional measures ($p < 0.001$). The MOS-HIV showed a significant difference on the subscale of overall health ($p = 0.04$). The POMS showed significant main effect for time in confusion-bewilderment ($p = 0.000$) and tension-anxiety ($p = 0.005$). Three dominant themes emerged from the qualitative data, including: positive physical changes, enhanced psychologic coping, and improved social interactions. CONCLUSIONS: This study shows that TC and EX improve physiologic

parameters, functional outcomes, and QOL. Group intervention provides a socialization context for management of chronic HIV disease. This study supports the need for more research investigating the effect of other types of group exercise for this population. This study sets the stage for a larger randomized controlled trial to examine the potential short- and long-term effects of group exercise that may prove beneficial in the management of advanced HIV disease. Further research is warranted to evaluate additional exercise interventions that are accessible, safe, and cost-effective for the HIV population.

Choi, J. H., J. S. Moon, et al. (2005). "Effects of Sun-style Tai Chi exercise on physical fitness and fall prevention in fall-prone older adults." J Adv Nurs 51(2): 150-7.

AIM: This paper reports a study to determine changes in the physical fitness (knee and ankle muscle strength, balance, flexibility, and mobility), fall avoidance efficacy, and fall episodes of institutionalized older adults after participating in a 12-week Sun-style Tai Chi exercise programme. BACKGROUND: Fall prevention has a high priority in health promotion for older people because a fall is associated with serious morbidity in this population. Regular exercise is effective in fall prevention for older adults because of improvements in strength and balance. Tai Chi exercise is considered to offer great potential for health promotion and rehabilitation, particularly in the maintenance of good mental and physical condition in older people. METHODS: A quasi-experimental design with a non-equivalent control group was used. Data were collected from September 2001 to January 2002. A total of 68 fall-prone older adults with a mean age of 77.8 years participated in the study, and 29 people in the Tai Chi group and 30 controls completed the post-test measures. The Tai Chi exercise programme was provided three times a week for 12 weeks in the experimental group. Data were analysed for group differences using t-tests. RESULTS: At post-test, the experimental group showed significantly improved muscle strength in knee and ankle flexors ($P < 0.001$) and extensors ($P < 0.01$), and improved flexibility ($P < 0.01$) and mobility ($P < 0.001$) compared with the control group. There was no significant group difference in fall episodes, but the relative risk ratio for the Tai Chi exercise group compared with the control group was 0.62. The experimental group reported significantly more confidence in fall avoidance than did the control group. CONCLUSION: The findings reveal that Tai Chi exercise programmes can safely improve physical strength and reduce fall risk for fall-prone older adults in residential care facilities.

Chen, K. M., W. T. Chen, et al. (2005). "Frail elders' views of Tai Chi." J Nurs Res 13(1): 11-20.

The beneficial effects of Tai Chi on an elder's well-being have been well documented; however, not many frail elders practice it. The purpose of this descriptive study was to explore the perspectives frail elders have about Tai Chi, including its movements, practice frequency and duration, and practice preferences. Using focus groups, 40 frail elders who lived in long-term care facilities were interviewed. Results indicated that Tai Chi styles with slow and large motions were manageable. Subjects preferred to practice Tai Chi in a group of 10 to 20 people, twice a week with 31 to 60 minutes of practice in the early morning or in the afternoon after napping. The practice locations should be wide, flat, non-disturbed, and well-ventilated. Tai Chi instructors should be experienced, gentle, considerate, and have clarity in expression. Findings can be used to design a simple Tai Chi program that is specifically tailored to the needs of frail elders.

Burks, K. (2005). "Osteoarthritis in older adults: current treatments." J Gerontol Nurs 31(5): 11-9; quiz 59-60.

Although there is no cure for osteoarthritis, numerous treatments are available for symptom relief. Pharmacological treatments primarily focus on pain relief; however, in older adults there is continuing concern related to the risk of side effects and interactions with other medications. In contrast, non-pharmacological treatments, such as exercise, joint protection, and stress reduction, provide symptom relief with few side effects. In addition, alternative treatments such as nutritional supplements, herbal preparations, acupuncture, and tai chi are being investigated for their efficacy. Nurses should encourage patients to use a combination of treatments that provide optimum symptom relief with the fewest side effects.

(2005). "Tai chi: an ancient art that helps the heart? The easy exercises and deep breathing of the Chinese martial art could offer excellent self-defense for the damaged or failing heart." Harv Heart Lett 15(6): 3.