Medical research abstracts related to Qigong

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ABSTRACTS

J Holist Nurs. 2011 Jun;29(2):118-28; quiz 129-31. Epub 2010 Nov 9.

Spring Forest Qigong and chronic pain: making a difference.

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PURPOSE: Research completed in Asia on various forms of qigong over time has repeatedly linked the practice to positive health outcomes. To demonstrate that Spring Forest Qigong (SFQ) knowledge is easily accessible, promotes self-efficacy, and has measurable health benefits, a pilot study on SFQ and chronic pain was designed.

DESIGN: This mixed-methods study oriented 122 subjects to Level 1 SFQ.

METHOD: Participants were required to complete four symptom surveys (including the Visual Analog Scale), attend three group meetings (beginning, middle, end of study), practice SFQ for 30 minutes per day for 8 weeks, and keep a practice record.

FINDINGS: Pearson correlation coefficients were computed pairwise between the symptom surveys. Pearson's chi-square tests were used to assess the association of these variables between the four survey time points, with statistical significance assessed at α =.05. The hypothesis was statistically supported. The active exercise and the meditation aspects of SFQ are effective self-care modalities for persons with perceived chronic physical pain and/or emotional distress.

CONCLUSIONS: Subjects (n = 86) demonstrated significant improvement both statistically and anecdotally during the study period. Clinical relevance : Findings indicate that health care providers could promote this promising evidenced-based modality for adults to actualize health promotion practices.

Spine (Phila Pa 1976). 2011 Mar 15;36(6):419-27.

Qigong versus exercise versus no therapy for patients with chronic neck pain: a randomized controlled trial.

Rendant D, Pach D, Lüdtke R, Reisshauer A, Mietzner A, Willich SN, Witt CM. Institute of Social Medicine, Epidemiology, and Health Economics, Charité University Medical Center, Berlin, Germany.

STUDY DESIGN: Randomized controlled trial.

OBJECTIVE: To evaluate whether qigong is more effective than no treatment and not inferior to exercise therapy.

SUMMARY OF BACKGROUND DATA: Lifetime prevalence of chronic neck pain is close to 50%. Qigong is often used by patients, although, the evidence is still unclear.

METHODS: Patients (aged 20-60 years) with chronic neck pain (visual analog scale, VAS ≥ 40 mm) were randomized to 1) qigong or 2) exercise therapy (18 sessions over 6 months) or 3) waiting list (no treatment). At baseline and after 3 and 6 months, patients completed standardized questionnaires assessing neck pain (VAS), neck pain and disability, and quality of life (Short Form SF-36 questionnaire, SF-36). The primary endpoint was average pain in the last 7 days on VAS at 6-month follow-up. Statistical analysis included generalized estimation equation models adjusted for baseline values and patient expectation.

RESULTS: A total of 123 patients (aged 46 ± 11 years, 88% women) suffering from chronic neck pain for 3.2 (SD ± 1.6) years were included. After 6 months, a significant difference was seen between the qigong and waiting list control groups (VAS mean difference: -14 mm [95%CI = -23.1 to -5.4], P = 0.002). Mean improvements in the exercise group were comparable to those in the qigong group (difference between groups -0.7 mm [CI = -9.1 to 7.7]) but failed to show statistical significance (P = 0.092). Neck pain and disability, and SF-36 results also yielded superiority of qigong over no treatment and similar results in the qigong and exercise therapy groups.

CONCLUSION: Qigong was more effective than no treatment in patients with chronic neck pain. Further studies could be designed without waiting list control and should use a larger sample to clarify the value of qigong compared to exercise therapy.

Complement Ther Med. 2011 Feb;19(1):3-11. Epub 2011 Jan 17.

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

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OBJECTIVE: To evaluate the effectiveness of a Tai chi Qigong (TCQ) program in enhancing respiratory functions and activity tolerance in clients with chronic obstructive pulmonary disease (COPD).

DESIGN: A single-blind, randomized controlled trial.

SETTING: Five general outpatient clinics in Hong Kong.

INTERVENTION: In total, 206 COPD clients were randomly assigned into one of the three groups, namely, TCQ, exercise, and control group. Subjects in the TCQ group received a TCQ program consisting of two 60-min sessions each week for three months. Subjects in the exercise group

were taught to practice breathing techniques combined with walking as an exercise. Subjects in the control group were instructed to maintain their usual activities. Data collection was performed at baseline and at the 6-week and 3-month marks.

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

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

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

Biol Res Nurs. 2011 Mar 8. [Epub ahead of print]

Effects of Qigong in Promoting Health of the Wheelchair-Bound Older Adults in Long-Term Care Facilities.

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Institutional wheelchair-bound older adults often do not get regular exercise and are prone to health problems. The aim of this study was to test the effects of a 12-week qigong exercise program on the physiological and psychological health of wheelchair-bound older adults in long-term care facilities. Study design was quasi-experimental, pre-post test, nonequivalent control group. Participants comprised a convenience sample of 72 wheelchair-bound older adults (qigong = 34; control = 38). The qigong group exercised 35 min/day, 5 days/week for 12 weeks. Measures for physical health (blood pressure, heart rate variability, and distal skin temperature) and psychological health (Brief Symptom Rating Scale-5) were collected before and during study Weeks 4, 8, and 12. The qigong group participants' blood pressure, distal skin temperature, and psychological health were significantly improved (all $p < .001$). These findings suggest that qigong exercise is a suitable daily activity for elderly residents in long-term care facilities and may help in the control of blood pressure among older adults.

J Altern Complement Med. 2011 Mar;17(3):243-51.

Functional and psychosocial effects of health qigong in patients with COPD: a randomized controlled trial.

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CONTEXT: The initial gain from a Pulmonary Rehabilitation Program (PRP) among patients with chronic obstructive pulmonary disease (COPD) begins to fade away 6 months after the completion of a rehabilitation program. One possible reason may be due to the poor compliance of the patients to the existing forms of home exercise program (e.g., walking, weight training activities, etc.).

OBJECTIVES: This study tested the efficacy of health qigong (HQG), a traditional Chinese exercise, as an adjunct home exercise program in optimizing the gains obtained from PRP until 6 months after discharge.

DESIGN: This was a randomized controlled trial (RCT) on a mind-body exercise intervention.

PARTICIPANTS: Eighty (80) patients with COPD receiving conventional PRP pulmonary rehabilitation program were randomized to the HQG intervention group (n = 40) and control group (n = 40).

OUTCOME MEASURES: Assessments were undertaken by blinded assessors at baseline, discharge from training, and follow-up (FU) at 3 and 6 months. Primary outcomes involved functional capacity scales and secondary outcomes involved quality-of-life scales.

RESULTS: Intention-to-treat analysis identified trends of improvement in all outcome measures in the HQG group, whereas lesser improvement and trends of deteriorations were identified in the control group. Ancillary analysis using a per-protocol method, however, identified significantly better improvements in functional capacity measures among the HQG at the 6-month FU.

CONCLUSIONS: This RCT provided some evidence to support the positive effect of HQG as an adjunct home exercise for rehabilitation among people with COPD and to support further related research.

Chin J Integr Med. 2011 Apr 26. [Epub ahead of print]

The qigong of 18 Luohan Hands and yoga for prevention of low back pain: A conceptual synthesis.

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The practice of hathayoga is based on the following assumptions: complexity and multidimensionality of various positive influences on an individual's wholeness through the mind, body and their conscious control. On the other hand, the practice of the qigong of 18 Luohan Hands is based on slow movements designed to mobilise qi within the body. This article presents a conceptual integration of yoga and qigong when considering the congruence of beneficial effects for various systems of the body and prevention of low back pain (LBP). The author emphasizes the usefulness of qigong and yoga practice in clinical units and explains how the essence of these practices relates to each other. The justification of this fusion as well as differences between these two modalities are also described and explained. Within the

scope of this article the existence of several similarities between these two practices has been suggested for both practitioners and researchers. They can obtain valuable and additional arguments through cross-fertilization of ideas across presented studies united by shared, underlying biomechanical concepts and physiological effects. Such conceptual enrichment may be a useful source of inspiration for qigong and yoga practitioners who tend to prevent LBP and therapists (physiotherapists, occupational therapists, rehabilitants, nurses, bodywork and movement therapists or massage therapists) intended to manage their patients' back pains and overall health on a daily basis.

Am J Chin Med. 2011;39(3):461-75.

A pilot study of qigong practice and upper respiratory illness in elite swimmers.

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Upper respiratory tract infections (URIs) are a common complaint in competitive swimmers and can adversely affect performance. No intervention has yet been shown to reduce URI incidence in intensively trained athletes. The University of Virginia varsity swim team received three weeks of training in qigong for the purpose of reducing stress and improving health. Our primary objective was to assess the relationship between qigong practice and symptoms of URI during a time when swimmers would be at high URI risk. Secondary objectives were to assess degree of compliance with a qigong practice regimen, to evaluate differences between qigong practitioners and non-practitioners, and to determine the response-rate and reliability of a newly developed internet-based, self-report survey. The design was observational, cross-sectional, and prospective. Weekly data on cold and flu symptoms, concurrent health problems and medication use, and qigong practice were gathered for seven weeks. Retrospective information on health and qigong training response was also collected. Participants were 27 of the 55 members of the University of Virginia Swim Team in the Virginia Athletic Department. Main outcomes were measures of aggregated cold/flu symptoms and Qigong practice. Survey completion was 100%, with no missing data, and reliability of the instrument was acceptable. Cold and flu symptoms showed a significant non-linear association with frequency of qigong practice ($R(2) = 0.33$, $p < 0.01$), with a strong, inverse relationship between practice frequency and symptom scores in swimmers who practised qigong at least once per week ($R(2) = 0.70$, $p < 0.01$). Qigong practitioners did not differ from non-practitioners in demographic or lifestyle characteristics, medical history, supplement or medication use, or belief in qigong. These preliminary findings suggest that qigong practice may be protective against URIs among elite swimmers who practice at least once per week.

Support Care Cancer. 2011 Jun 19. [Epub ahead of print]

Effect of medical Qigong on cognitive function, quality of life, and a biomarker of inflammation in cancer patients: a randomized controlled trial.

Oh B, Butow PN, Mullan BA, Clarke SJ, Beale PJ, Pavlakis N, Lee MS,

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PURPOSE: Cancer patients often experience diminished cognitive function (CF) and quality of life (QOL) due to the side effects of treatment and the disease symptoms. This study evaluates the effects of medical Qigong (MQ; combination of gentle exercise and meditation) on CF, QOL, and inflammation in cancer patients.

METHODS: Eighty-one cancer patients recruited between October 2007 and May 2008 were randomly assigned to two groups: a control group ($n = 44$) who received the usual health care and an intervention group ($n = 37$) who participated in a 10-week MQ program. Self-reported CF was measured by the European Organization for Research and Treatment of Cancer (EORTC-CF) and the Functional Assessment of Cancer Therapy-Cognitive (FACT-Cog). The Functional Assessment of Cancer Therapy-General (FACT-G) was used to measure QOL. C-reactive protein (CRP) was assessed as a biomarker of inflammation.

RESULTS: The MQ group self-reported significantly improved CF (mean difference (MD) = 7.78, $t(51) = -2.532$, $p = 0.014$) in the EORTC-CF and all the FACT-Cog subscales [perceived cognitive impairment ($MD = 4.70$, $t(43) = -2.254$, $p = 0.029$), impact of perceived cognitive impairment on QOL ($MD = 1.64$, $t(45) = -2.377$, $p = 0.024$), and perceived cognitive abilities ($MD = 3.61$, $t(45) = -2.229$, $p = 0.031$)] compared to controls. The MQ group also reported significantly improved QOL ($MD = 12.66$, $t(45) = -5.715$, $p < 0.001$) and had reduced CRP levels ($MD = -0.72$, $t(45) = 2.092$, $p = 0.042$) compared to controls.

CONCLUSIONS: Results suggest that MQ benefits cancer patients' self-reported CF, QOL, and inflammation. A larger randomized controlled trial including an objective assessment of CF is planned.

Integr Cancer Ther. 2011 Jun 28. [Epub ahead of print]

A Critical Review of the Effects of Medical Qigong on Quality of Life, Immune Function, and Survival in Cancer Patients.

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Background: Due to the limitations and side effects of conventional cancer treatment, especially in relation to quality of life (QOL), patients are increasingly utilizing complementary and alternative medicine (CAM) to supplement health-related outcomes. However, evidence

for the safety and efficacy of such treatments is lacking. The purpose of the current review was to investigate evidence for the role of one CAM, medical Qigong (MQ), in supportive care.

METHODS: The literature was searched for reported effects of MQ in improving QOL, immune function, and survival in cancer patients.

RESULTS: Although many studies possessed methodological limitations and small sample sizes, encouraging evidence was found for the effects of MQ on these health-related outcomes. More robust evidence in the form of randomized controlled trials with larger sample sizes also reflected positive results for the role of MQ in improving QOL, mood and fatigue parameters, and reducing inflammation.

CONCLUSION: Given such encouraging results, further research is recommended in methodologically sound approaches to further delineate the action of MQ. These findings support the utilization of MQ by cancer patients and the place for such programs in comprehensive cancer care.

BMC Public Health. 2011 Jul 9;11:546.

Effect of Qigong on quality of life: a cross-sectional population-based comparison study in Taiwan.

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BACKGROUND: Qigong, similar to Tai Chi Chuan, is beneficial to health. In Taiwan, Waitankung, a type of Qigong, is as popular as Tai Chi Chuan. This population-based comparison study compares the health-related quality of life between people practicing Waitankung and their comparable community residents.

METHODS: A total of 165 individuals practicing Waitankung were matched by age and sex with 660 general individuals for comparison. Information about health-related quality of life, measured by the SF-36, and other basic and health conditions was obtained from the questionnaires. This study used the linear mixed-effect regression model to examine the association between health-related quality of life and the practice of Waitankung.

RESULTS: Compared with either sedentary individuals or individuals practicing other types of exercise, the Waitankung group scored higher for eight and five out of ten SF-36 components, respectively. The Waitankung group scored better in general health, vitality, and physical component summary compared to individuals participating in other types of exercise, even when considering the energy expended by exercise.

CONCLUSION: The results suggest that Waitankung exercising is significantly associated with health-related quality of life. Waitankung may serve as an exercise choice for middle-aged and older people to improve overall quality of life.

J Aging Res. 2011;2011:650210. Epub 2011 Jun 26.

Subjective experiences of older adults practicing taiji and qigong.

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This article presents a qualitative study following a 6-month Taiji (T'ai Chi)/Qigong (Ch'i Kung) intervention for older adults. The researchers conducted in-depth interviews of eight selected participants who elected to continue practicing Taiji after the intervention ended, in order to explore their subjective experiences of Taiji's effects and their motivations for continuing to practice. We created a Layers Model to capture the significance and meaning of the multidimensionality of their reported experiences. Participants not only reported simple benefits along five dimensions of experience (physical, mental, emotional, social and spiritual) but also described complex multidimensional experiences. Overall findings indicate that participants derived a very wide variety of perceived benefits, the most meaningful being a felt sense of body-mind-spirit integration. Our results support the important role of qualitative studies in researching the effects of Taiji and Qigong.

Holist Nurs Pract. 2010 Nov-Dec;24(6):345-54.

Qigong: an innovative intervention for rural women at risk for type 2 diabetes.

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Perceived healthiness and a belief in one's ability to make lifestyle changes may exert influence on individual health behaviors and outcomes. The purpose of this study was to determine the relationship of qigong exercise with perception of healthiness as well as with selected serum laboratory measures and blood pressure in women at risk for type 2 diabetes. Perception of healthiness was favorably affected; however, no significant differences were noted in serum laboratory measures or blood pressure. The centuries-old traditional Chinese medicine practice of qigong has potential to improve perceptions of healthiness, as well as physiologic measurements of health, among women at risk for type 2 diabetes.

Impact of medical Qigong on quality of life, fatigue, mood and inflammation in cancer patients: a randomized controlled trial.

Ann Oncol. 2010 Mar;21(3):608-14. Epub 2009 Oct 30.

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BACKGROUND: Substantial numbers of cancer patients use complementary medicine therapies, even without a supportive evidence base. This study aimed to evaluate in a randomized controlled trial, the use of Medical Qigong (MQ) compared with usual care to improve the quality of life (QOL) of cancer patients.

PATIENTS AND METHODS: One hundred and sixty-two patients with a range of cancers were recruited. QOL and fatigue were measured by Functional Assessment of Cancer Therapy-General and Functional Assessment of Cancer Therapy-Fatigue, respectively, and mood status by Profile of Mood State. The inflammatory marker serum C-reactive protein (CRP) was monitored serially.

RESULTS: Regression analysis indicated that the MQ group significantly improved overall QOL ($t(144) = -5.761$, $P < 0.001$), fatigue ($t(153) = -5.621$, $P < 0.001$), mood disturbance ($t(122) = 2.346$, $P = 0.021$) and inflammation (CRP) ($t(99) = 2.042$, $P < 0.044$) compared with usual care after controlling for baseline variables.

CONCLUSIONS: This study indicates that MQ can improve cancer patients' overall QOL and mood status and reduce specific side-effects of treatment. It may also produce physical benefits in the long term through reduced inflammation.

Effects of Qigong on Glucose Control in Type 2 Diabetes. A randomized controlled pilot study

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Qigong is a traditional Chinese energy medicine practice combining breathing, movement, and meditation. Although previous studies suggest that Qigong may be a beneficial adjunct treatment for individuals with type 2 diabetes (1–3), few randomized controlled trials of Qigong in patients with type 2 diabetes have been performed. The purpose of the present study was to investigate the effects of Qigong relative to physical exercise or standard care on glucose control in adults with type 2 diabetes.

Two hundred fifty-one potential subjects were phone screened, 46 individuals were further evaluated at Bastyr University, and 32 eligible participants enrolled in the study. Age- and sex-matched participants were randomly assigned to one of three groups: group 1 (n = 11) received the Qigong intervention, group 2 (n = 10) served as the control group, and group 3 (n = 11) received the progressive resistance training (PRT) intervention as an active comparator. The mean age of the participants was 56.3 ± 8.1 years. Participants in all three groups were asked to maintain their conventional diabetes care, including medications, diet, and exercise, during the study. All participants were taking oral diabetes medication; however, none were taking insulin. Participants attended weekly Qigong or PRT group sessions (60 min per week) conducted by certified instructors in addition to practicing twice a week at home for 30 min per session. The study protocol was approved by Bastyr University Institutional Review Board, and informed consent was obtained from all participants.

Fasting plasma glucose, insulin, and A1C were measured before and after the 12-week intervention. Insulin resistance was estimated using the homeostasis model assessment of insulin resistance (HOMA-IR) index score based on fasting glucose and insulin values before and after the intervention (4). Statistically significant reductions in plasma glucose levels were observed in the Qigong group (184.9 ± 35.3 vs. 161.9 ± 40.5 mg/dl, $P = 0.003$ by paired t test). All participants in this group showed a reduction in fasting glucose by the end of the intervention relative to their starting value. In contrast, both the PRT group and the control group increased plasma glucose levels over time (143.8 ± 35.0 vs. 154.0 ± 44.7 and 156.4 ± 36.6 vs. 168.4 ± 49.1 mg/dl, respectively; not significant [NS]). Fasting glucose of the Qigong group significantly improved compared with that of the PRT group and the control group ($P < 0.003$ and $P < 0.001$, respectively, by one-way ANOVA). A1C remained unchanged in the control group during the intervention (7.9 ± 0.8 vs. 7.9 ± 1.6%) but declined slightly in both the PRT group (8.6 ± 1.2 vs. 7.9 ± 1.6, NS) and the Qigong group (8.8 ± 1.1 vs. 8.1 ± 1.3, NS). Fasting plasma insulin levels increased slightly in both the PRT group (24.3 ± 28.8 vs. 30.2 ± 39.9, NS) and the control group (12.6 ± 4.6 vs. 20.1 ± 10, $P = 0.08$) but remained unchanged during the intervention in the Qigong group (13.3 ± 6.2 vs. 13.4 ± 5.7, NS). Although differences were not statistically significant, HOMA-IR scores shifted favorably in the Qigong group (5.3 ± 2.3 vs. 4.7 ± 2.2) and unfavorably in both the PRT group (6.60 ± 6.00 vs. 8.91 ± 9.55) and the control group (4.48 ± 2.30 vs. 7.51 ± 4.21, $P = 0.06$).

Qigong therapy for 12 weeks resulted in significant reductions in fasting glucose levels in patients with type 2 diabetes and demonstrated trends toward improvement in insulin resistance and A1C. These results suggest that Qigong may be an effective complementary therapy for individuals with type 2 diabetes.

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Qi Gong's relationship to educational kinesiology: A qualitative approach.

J Bodyw Mov Ther. 2010 Jan;14(1):73-9.

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This paper qualitatively reviews two complementary therapies; Qi Gong and educational kinesiology (EK). It is being suggested that Qi Gong and EK may be united through a qualitative convergence and a shared underlying concept. The authors hypothesize that a coherent rationale can be formed through this conceptual synthesis and propose that to some extent Qi Gong movements and EK can be considered to work in unison with each other. The logical synthesis of these two therapies is being presented to identify Qi Gong movements with concepts of brain gymnastics and also to explain how this new construct can be developed and implemented into practice. When verified, this hypothesis will allow individuals to better understand Chinese health exercises from the modern science perspective such as neuroanatomy, neurophysiology and psychoneuroimmunology.

Perceived benefits of meditative movement in older adults.

Geriatr Nurs. 2010 Jan-Feb;31(1):37-51.

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

Effectiveness of a Tai chi Qigong program in promoting health-related quality of life and perceived social support in chronic obstructive pulmonary disease clients.

Qual Life Res. 2010 Mar 15. [Epub ahead of print]

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PURPOSE: This paper evaluates the effectiveness of a 3-month Tai chi Qigong (TCQ) program in promoting the psychosocial functional health of clients with chronic obstructive pulmonary disease (COPD) in Hong Kong.

METHODS: This study employed a single-blind, randomized controlled trial. Two hundred and six COPD clients were randomly assigned into three groups, namely, TCQ group, exercise group, and control group. Subjects in the TCQ group received a TCQ program, consisting of two 60-min sessions each week for 3 months. Subjects in the exercise group were taught to practice breathing techniques combined with walking as an exercise. Subjects in the control group received their usual care. Data collections were performed at baseline, on the sixth week and on the third month. The primary outcomes were health-related quality of life using St. George Respiratory Questionnaire-Hong Kong Chinese version and perceived social support using the Multidimensional Scale of Perceived Social Support-Chinese version.

RESULTS: The TCQ group showed greater improvements in the symptom ($F(4, 404) = 3.351$, $P = 0.010$) and activity domains ($F(4, 404) = 2.611$, $P = 0.035$). No differences were detected in perceived social support among the three groups. CONCLUSIONS: Tai chi Qigong promoted health outcomes with respect to clients' perception of their respiratory symptoms. Moreover, TCQ decreased disturbances to their physical activities.

Diaphragmatic Breathing Reduces Exercise-induced Oxidative Stress.

Evid Based Complement Alternat Med. 2009 Oct 29. [Epub ahead of print]

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Diaphragmatic breathing is relaxing and therapeutic, reduces stress, and is a fundamental procedure of Pranayama Yoga, Zen, transcendental meditation and other meditation practices. Analysis of oxidative stress

levels in people who meditate indicated that meditation correlates with lower oxidative stress levels, lower cortisol levels and higher melatonin levels. It is known that cortisol inhibits enzymes responsible for the antioxidant activity of cells and that melatonin is a strong antioxidant; therefore, in this study, we investigated the effects of diaphragmatic breathing on exercise-induced oxidative stress and the putative role of cortisol and melatonin hormones in this stress pathway. We monitored 16 athletes during an exhaustive training session. After the exercise, athletes were divided in two equivalent groups of eight subjects. Subjects of the studied group spent 1 h relaxing performing diaphragmatic breathing and concentrating on their breath in a quiet place. The other eight subjects, representing the control group, spent the same time sitting in an equivalent quite place. Results demonstrate that relaxation induced by diaphragmatic breathing increases the antioxidant defense status in athletes after exhaustive exercise. These effects correlate with the concomitant decrease in cortisol and the increase in melatonin. The consequence is a lower level of oxidative stress, which suggests that an appropriate diaphragmatic breathing could protect athletes from long-term adverse effects of free radicals.

2009 (until October 14, 2009)

Qigong as a Mindfulness Practice for Counseling Students. A Qualitative Study

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This qualitative study explores the effects of qigong, an ancient Chinese mindfulness practice involving movement, on master's-level counseling students. Students responded in writing both after an initial experience of qigong and after practicing the movements for 15 weeks during a mindfulness-based course in self-care. Themes of physical, emotional, and mental changes were present in both sets of responses. Additional themes of familiarity with the practice as well as group consciousness and interdependence emerged in the final experience of qigong. The results of this study indicate qigong is a contemplative practice that could have positive outcomes for counseling students. Because of its accessible nature, immediate results, and ability to foster connectedness, qigong is currently underutilized as a form of teaching mindfulness.

Randomized clinical trial of medical qigong on quality of life, fatigue, side effects, mood, status, and inflammation of cancer patients

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Background: The quality of life (QOL) of cancer patients is often diminished due to the side effects of treatment and symptoms of the disease itself. This study examines the impact of Medical Qigong (MQ), including gentle exercise and relaxation through meditation and breathing exercise based on the Chinese Medicine theory of energy channels, on quality of life (QOL), fatigue, side effects, mood status and inflammation. Methods: One hundred sixty two patients diagnosed with a range of cancers recruited from three university teaching hospitals were randomly assigned to two groups: a control group (n=83) that received usual health care and an intervention group (n=79) who participated in a MQ program for 10 weeks in addition to receiving usual health care at the hospital. Quality of life and symptoms were measured by the FACT-G, cancer related fatigue by FACT-F and mood status by POMS. The inflammatory marker serum C-reactive protein (CRP) was also monitored serially. Results: Regression analysis indicated that the MQ intervention group significantly improved on measures of overall QOL ($t144= -5.761$, $p<0.001$), fatigue ($t153= -5.621$, $p<0.001$), mood disturbance ($t122=2.346$, $p=0.021$) and inflammation (CRP) ($t99=2.042$, $p<0.044$) compared to the usual care control group after controlling for baseline variables. Analysis of the FACT-G subscales revealed that the MQ intervention group also significantly improved in satisfaction with sex life ($t92=-3.783$, $p<0.001$) and reduced side effects of nausea ($t152=-2.071$, $p=0.040$) and sleep disturbance ($t150=-2.603$, $p=0.010$) compared to the usual care control group. Pain was improved in both intervention and control groups. Conclusions: This study suggests that MQ with usual health care can improve overall QOL, fatigue, positive mood status and reduce the side effects of nausea, sleep disturbance and inflammation of cancer patients. This study supports the use of MQ as an intervention for cancer care.

Effects of external qi of qigong with opposing intentions on proliferation of Escherichia coli.

J Altern Complement Med. 2009 May;15(5):567-71.

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BACKGROUND: The existence and characteristics of external qi (EQ) in qigong therapy has long been subject to scientific debate and rigorous examination. The therapist's intent has played an important role in many studies. This study investigates the effect of EQ with opposing intentions on the proliferation of Escherichia coli.

METHODS: We performed two studies with the same design. In study 1, 75 5-mL tubes containing test samples (3 mL each) were randomly divided into three groups: control, promoted, and inhibited group (25 each). In study 2, three 96-well plates with test samples (200 microL each) were randomly designated as control, promoted, or inhibited.

Test samples were placed 60 cm apart on a bench with control in the middle. A qigong therapist performed EQ with either promoting or killing intent for 15 minutes each on the treatment groups. After incubation for 24 hours, optical density of the E. coli samples was measured at 600 nm (OD(600)).

RESULTS: In the initial experiment of both studies, the OD(600) value of the promoted group was significantly higher than that of control ($p < 0.05$), while the OD(600) value of the inhibited group was significantly lower than that of the control group ($p < 0.01$), suggesting that the healer's intent played a critical role in the effects of EQ on E.coli proliferation. However, subsequent experiments did not replicate the initial finding in either study and showed a pattern of declining effect. CONCLUSION: A healer's intent may affect the proliferation of microbes with specificity and directivity, so future studies of bioenergy healing should take the role of intention into consideration. The circumstances surrounding replication of the results in such biofield studies need further exploration.

An analytical review of the Chinese literature on Qigong therapy for diabetes mellitus.

Am J Chin Med. 2009;37(3):439-57.

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Diabetes rates have doubled in China over the past decade. However, as conventional medicine offers neither a sound explanation nor an effective cure, patients with diabetes increasingly seek complementary and alternative therapies. It was reported that the traditional Chinese medical approach, Qigong, might produce therapeutic benefits with minimal side-effects in this condition. The Qigong Database, the China National Knowledge Infrastructure, and the library databases of Chinese institutions from 1978 to middle of 2008 on open trials, laboratory studies, and controlled clinical studies were reviewed. Over 35 studies were identified and reviewed. Qigong therapy for diabetic patients included self-practice, group qi-field therapy, external qi therapy, and Qigong in combination with other therapies. Only 2 randomized controlled trials were found; both evaluate Qigong as an adjuvant to conventional therapy. All studies reported some therapeutic effect or improvement. Some reported significant reduction in fasting plasma glucose. Others reported complete cures, which were unlikely to be the result of placebo effect as objective outcome measures were used. Qigong therapy may be an important complement to conventional medicine in treating diabetes, but the quality of studies needs to be improved. These preliminary data are promising and support the need for further randomized controlled trials.

The efficacy of Kiko exercises on the prevention of migraine headaches: a pilot study.

Am J Chin Med. 2009;37(3):459-70.

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Migraine headaches, a common chronic medical problem, require prophylactic treatment when they are frequent and severe. This is the first study to investigate the efficacy of Kiko, a Japanese practice of Qigong that uses repetitive coordinated breathing and movement as a prophylactic treatment of migraine headaches. This pilot study, a single arm, non-randomized 4-month trial, investigated whether 3 months of Kiko training would reduce the severity and/or frequency of migraine and/or MIDAS scores. The baseline migraine data were collected from participants in the first month and then participants were taught Kiko exercises in 3 monthly sessions. Participants practiced at home and had the opportunity to utilize a Kiko DVD. The participants were instructed by Washin-Ryu style martial arts Master, Hidy Ochiai. Subjects completed monthly diaries that recorded the frequency and severity of their migraines, as well as the frequency and duration of their home Kiko practice. Six of the original 13 subjects completed the trial. All the individuals who completed the study had measurable improvement in their migraines. All participants reported a positive experience in learning the technique, and there were no reported adverse effects. Although the results of this study need to be confirmed in a larger clinical trial with adequate controls for placebo effects, these preliminary results are consistent with other trials that have documented the potential benefits of mind-body practices in controlling symptoms and improving the quality of life of patients suffering from chronic medical illness.

Qigong massage treatment for sensory and self-regulation problems in young children with autism: a randomized controlled trial.

Am J Occup Ther. 2009 Jul-Aug;63(4):423-32.

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Autism is commonly associated with sensory and self-regulatory disturbances. This article presents a randomized controlled study evaluating the effect of a 5-month intervention directed toward improving sensory impairment, digestion, and sleep in 46 children with autism < age 6. The intervention, Qigong Sensory Training (QST), is a qigong massage intervention based in Chinese medicine. It is two-pronged: Trainers work with children directly 20 times over 5 months, and parents give the massage daily to their children. Improvement was evaluated in two settings--preschool and home--by teachers (blind to group) and parents. Teacher evaluations showed that treated children had significant classroom

improvement of social and language skills and reduction in autistic behavior compared with wait-list control participants. These findings were confirmed by parent data, indicating that the gains had generalized across contexts. A model and supporting data for understanding and treating sensory and self-regulation problems in autism is presented.

T'ai chi and qigong for health: patterns of use in the United States.

J Altern Complement Med. 2009 Sep;15(9):969-73.

Birdee GS, Wayne PM, Davis RB, Phillips RS, Yeh GY.

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BACKGROUND: Little is known in the United States about those who practice t'ai chi and qigong, two mind-body techniques that originated in Asia. OBJECTIVE: The objective of this study is to characterize use of t'ai chi and qigong for health with regard to sociodemographics, health status, medical conditions, perceptions of helpfulness, and disclosure of use to medical professionals.

METHODS: We analyzed associations of t'ai chi and qigong use for health using cross-sectional data from the 2002 National Health Interview Survey (NHIS) Alternative Medicine Supplement (n = 31,044). The 2002 NHIS estimated the number of t'ai chi and qigong users for health to be 2.5 and 0.5 million persons, respectively. We collapsed t'ai chi and qigong use into a single category (TCQ) for analysis, representing 2.8 million individuals.

RESULTS: We found that neither age nor sex was associated with TCQ use. TCQ users were more likely than nonusers to be Asian than white (odds ratio [OR] 2.02, 95% confidence interval [CI] 1.30-3.15), college educated (OR 2.44, 95% CI 1.97-3.03), and less likely to live in the Midwest (OR 0.64, 95% CI 0.42-0.96) or the southern United States (OR 0.51, 95% CI 0.36-0.72) than the West. TCQ use was associated independently with higher reports of musculoskeletal conditions (OR 1.43, 95% CI 1.11-1.83), severe sprains (OR 1.65, 95% CI 1.14-2.40), and asthma (OR 1.50, 95% CI 1.08-2.10). Half of TCQ users also used yoga for health in the last 12 months. Most TCQ users reported their practice to be important to maintain health, but only a quarter of users disclosed their practice to a medical professional.

CONCLUSIONS: In the United States, TCQ is practiced for health by a diverse population, and users report benefits for maintaining health. Further research is needed to establish efficacy and safety for target populations, including those with musculoskeletal and pulmonary disease, as well as for preventive health.

Yoga and qigong in the psychological prevention of mental health disorders: a conceptual synthesis.

Chin J Integr Med. 2009 Sep 15.

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The study proposes to explore two alternative medicine therapies-qigong and yoga for balancing the essential duo of holistic mind-body and consequently offer a solution for stress, uncertainty, anxiety and depression. Qualitative research methods have been used to create a conceptual synthesis of yoga and qigong. It is suggested that an increased sense of control is the interface between these two modalities. This conceptual congruence of qigong and yoga is thought to be a selective, curative method, a prescription for ideal living and a ground of human essence existence. Furthermore, this essence is thought to enhance the mind's self-regulatory processes and prevent mental health disorders. The two alternative therapies can prevent mental health disorders such as anxiety, depression and, minimize mental health disruptions such as stress and poor quality of life. It is suggested that patients and/or clients can benefifi t from this fusion.

Exercise intention, age and stress predict increased qigong exercise adherence.

J Bodyw Mov Ther. 2009 Apr;13(2):205-11.

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Adherence to exercise is paramount if desired health effects are to be achieved. Drop-out rates in excess of 50% have been reported, with the intensity of the exercise performed frequently blamed. Qigong is a low-intensity mind-body technique that may offer an alternative to more intense modes of exercise. The aim of this study was therefore, to determine if exercise motives, exercise intention, age, stress and energy levels predict adherence to qigong exercise. Participants (n=87) were assessed by self-rated retrospective physical activity behavior, by performed qigong exercise and concentration level, and by sport motivation scale, planned behavior questionnaire, and stress and energy scale. Exercise intention, age and stress predicted exercise frequency (R(2)=.29); when level of concentration (a non-baseline assessment) was included as a predictor, prediction strength increased (R(2)=.38). Results suggest that health-professionals who are aiming to secure activity adherence and exercise frequency, should focus on strengthening the individual's intention to exercise, promoting a calm energy state before commencement of exercise, and encouraging a heightened level of concentration during exercise.

Tai Chi Qigong for the quality of life of patients with knee osteoarthritis: a pilot, randomized, waiting list controlled trial.

Clin Rehabil. 2009 Apr 23. [Epub ahead of print]

Lee HJ, Park HJ, Chae Y, Kim SY, Kim SN, Kim ST, Kim JH, Yin CS, Lee H.

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OBJECTIVE: To evaluate the effects of Tai Chi Qigong training on the quality of life and physical function of patients with osteoarthritis of the knee.Design: A preliminary, single-blind, randomized controlled trial.

SETTING: General community, performed at Hwaseong City Health Center.Participants: Forty-four elderly subjects (mean age, 69.1 +/- 5.4 years) with knee osteoarthritis. Intervention: The patients were randomized (2:1) to: (1) an eight-week Tai Chi Qigong training programme or (2) a waiting list control group. The programme involved eight weeks of group Tai Chi Qigong sessions, with 60 minutes per session twice a week.

MAIN OUTCOME MEASURES: The primary outcome was quality of life measured with the Short Form 36 (SF-36) at baseline and week 8. Secondary outcomes included the Western Ontario and McMaster University Osteoarthritis Index (WOMAC) and 6-m walking time.

RESULTS: The training group had statistically significant improvements in the quality of life (changes of SF-36, Qigong versus control: 21.6 +/- 16.8 versus 9.8 +/- 13.6, $P < 0.05$) and 6-m walking test (change in walking time, Qigong versus control: -1.6 +/- 1.7 versus -0.2 +/- 0.8 s, $P < 0.01$). The WOMAC scores in the training group were markedly improved, although the differences were not statistically significant.Conclusions: Tai Chi Qigong training appears to have beneficial effects in terms of the quality of life and physical functioning of elderly subjects with knee osteoarthritis.However, more rigorous trials are needed to confirm the efficacy of this training for patients with osteoarthritis of the knee.

Exploration on medical qigong terms in perspective of antonymy.

Liu LL, Liu TJ.

Zhong Xi Yi Jie He Xue Bao. 2009 Mar;7(3):288-90.

Full free text at http://www.jcimjournal.com/en/showAbstrPage.aspx?articleid=jcim20090318.

Int J Behav Med. 2009 Jan 16. [Epub ahead of print]

Cognitively Oriented Behavioral Rehabilitation in Combination with Qigong for Patients on Long-Term Sick Leave Because of Burnout: REST-A Randomized Clinical Trial.

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BACKGROUND: Despite an increase in the occurrence of burnout, there is no agreement on what kind of rehabilitation these patients should be offered.

PURPOSE: Primary aim of this study was to evaluate effects on psychological variables and sick leave rates by two different group rehabilitation programs for patients on long-term sick leave because of burnout. Rehabilitation program A (Cognitively oriented Behavioral Rehabilitation (CBR) and Qigong) was compared with rehabilitation program B (Qigong only).

METHOD: In a randomized clinical trial, 96 women and 40 men with a mean age of 41.6 +/- 7.4 years were allocated to one of the two rehabilitation programs.

RESULTS: A per-protocol analysis showed no significant difference in treatment efficacy between the groups. Both groups improved significantly over time with reduced levels of burnout, self-rated stress behavior, fatigue, depression, anxiety, obsessive-compulsive symptoms, and sick leave rates. In an intention-to-treat analysis, patients in program A had fewer obsessive-compulsive symptoms and larger effect sizes in self-rated stress behavior and obsessive-compulsive symptoms compared to patients in program B.

CONCLUSION: This study showed no differences in effect between CBR and Qigong compared with Qigong only in a per-protocol analysis. Both rehabilitation programs showed positive effect for patients with burnout.

A forty-five year follow-up EEG study of Qigong practice.

Int J Neurosci. 2009;119(4):538-52.

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A follow-up EEG study was conducted on a subject with 50 years of experiences in Qigong. Resting EEG at present showed frontally dominant alpha-1 as compared to occipitally dominant alpha-2 described in 1962. During the Qigong practice alph-1 enhanced quickly and became far more prominent than 50 years ago. Compared with baseline, these activities remained to be higher at rest after the Qigong practice. These results suggest that extended practice in meditation may change the EEG pattern and its underlying neurophysiology. It remains to be explored as to what biological significance and clinical relevance do these physiological changes might mean.

Psychophysiological outcomes of health qigong for chronic conditions: A systematic review.

Psychophysiology. 2009 Mar;46(2):257-69. Epub 2009 Jan 21.

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We aimed to unravel the clinical benefits and the plausible underlying psychophysiological mechanism based on available randomized controlled trials (RCTs). Meta-analysis of 26 RCTs shortlisted from electronic databases from 1997 to 2006 shows that qigong had some effects on increasing the numbers of white blood cells and lymphocytes, stroke volume, peak early transmitral filling velocity, peak late transmitral filling velocity, forced vital capacity, and forced expiratory volume, and, conversely,

lowering of total cholesterol, systolic blood pressure, diastolic blood pressure, and depressive mood scores. Explanatory pathways may pertain to stress reduction via nervous, endocrine, and immune systems. Limitations on methodology are discussed and directions for further studies are suggested. Because of its safety, minimal cost, and clinical benefit, health qigong can be advocated as an adjunctive exercise therapy for older people with chronic conditions.

A review of clinical trials of tai chi and qigong in older adults.

West J Nurs Res. 2009 Mar;31(2):245-79.

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Initiation and maintenance of physical activity (PA) in older adults is of increasing concern as the benefits of PA have been shown to improve physical functioning, mood, weight, and cardiovascular risk factors. Meditative movement forms of PA, such as tai chi and qigong (TC & QG), are holistic in nature and have increased in popularity over the past few decades. Several randomized controlled trials have evaluated TC & QG interventions from multiple perspectives, specifically targeting older adults. The purpose of this report is to synthesize intervention studies targeting TC & QG and identify the physical and psychological health outcomes shown to be associated with TC & QG in community dwelling adults older than 55. Based on specific inclusion criteria, 36 research reports with a total of 3,799 participants were included in this review. Five categories of study outcomes were identified, including falls and balance, physical function, cardiovascular disease, and psychological and additional disease-specific responses. Significant improvement in clusters of similar outcomes indicated interventions utilizing TC & QG may help older adults improve physical function and reduce blood pressure, fall risk, and depression and anxiety. Missing from the reviewed reports is a discussion of how spiritual exploration with meditative forms of PA, an important component of these movement activities, may contribute to successful aging.

Qigong and Exercise Therapy for Elderly Patients With Chronic Neck Pain (QIBANE): A Randomized Controlled Study.

J Pain. 2009 Feb 20. [Epub ahead of print]

von Trott P, Wiedemann AM, Lüdtke R, Reißhauer A, Willich SN, Witt CM.

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The aim of this study was to evaluate the effectiveness of qigong compared with exercise therapy and no treatment. Elderly patients with chronic neck pain (>6 months) were randomly assigned to qigong or exercise therapy (each 24 sessions over a period of 3 months) or to a waiting list control. Patients completed standardized questionnaires at baseline and after 3 and 6 months. The main outcome measure was average neck pain on the visual analogue scale after 3 months. Secondary outcomes were neck pain and disability (NPAD) and quality of life (SF-36). One hundred seventeen patients (age, 76 +/- 8 years, 95% women) were included in the intention-to-treat analysis. The average duration of neck pain was 19.0 +/- 14.9 years. After 3 months, no significant differences were observed between the qigong group and the waiting list control group (visual analogue scale mean difference, -11 mm [CI, -24.0; 2.1], P = .099) or between the qigong group and the exercise therapy group (-2.5 mm [- 15.4; 10.3], P = .699). Results for the NPAD were similar (qigong vs waiting list -6.7 (-15.4; 2.1), P = .135; qigong vs exercise therapy 2.3 (-6.2; 10.8); P = .600). We found no significant effect after 3 months of qigong or exercise therapy compared with no treatment. Further studies should include outcomes more suitable to elderly patients, longer treatment, and patients with less chronic pain.

PERSPECTIVE: In a randomized controlled study, we evaluated whether a treatment of 24 qigong sessions over a period of 3 months is (1) superior to no treatment and (2) superior to the same amount of exercise therapy in elderly patients (age, 76 +/- 8 years, 95% women) with long-term chronic neck pain (19.0 +/- 14.9 years). After 3 and 6 months, we found no significant differences for pain, neck pain, disability, and quality of life among the 3 groups.

Exercise intervention in brain injury: a pilot randomized study of Tai Chi Qigong.

Clin Rehabil. 2009 Feb 23. [Epub ahead of print]

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OBJECTIVE: To examine the effects of a brief Tai Chi Chuan Qigong ('Qigong') exercise intervention on individuals with traumatic brain injury.Design: A single-centre randomized controlled trial pilot study.

SETTING: A registered charity day centre in the community.

SUBJECTS: Twenty individuals with traumatic brain injury. Intervention: Intervention participants attended a Qigong exercise session for one hour per week over eight weeks. Control participants engaged in non-exercise-based social and leisure activities for the same intervention period.

MEASURES: Outcome was assessed at baseline and post intervention using the General Health Questionnaire-12, the Physical Self-Description Questionnaire and the Social Support for Exercise Habits Scale, to measure perceived mood, self-esteem, flexibility, coordination, physical activity and social support.

RESULTS: Groups were comparable at baseline. After the intervention, mood was improved in the exercise group when compared with controls (U = 22.0, P = 0.02). Improvements in self-esteem (Z = 2.397, P = 0.01) and mood (Z = -2.032, P = 0.04) across the study period were also evident in the exercise group only. There were no

significant differences in physical functioning between groups. In view of the sample size, these findings are inconclusive.Conclusions: This study provides preliminary evidence that a brief Qigong exercise intervention programme may improve mood and self-esteem for individuals with traumatic brain injury. This needs to be tested in a large-scale randomized trial.

Serum cytokines, mood and sleep after a qigong program: is qigong an effective psychobiological tool?

J Health Psychol. 2009 Jan;14(1):60-7.

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Qigong is an ancient Chinese psychosomatic exercise that integrates movement, breathing and meditation into a single multifaceted practice. The present study was designed to assess the effects of qigong practice on serum cytokines, mood and subjective sleep quality. Experimental participants underwent a qigong training program for one month. Blood samples for the quantification of TNF-alpha and IFN-gamma, and several instruments to assess anxiety and depression symptoms as well as SSQ, were obtained before and after the program. Our findings revealed that while the practice of qigong for one month did not alter serum cytokines, it enhanced psychological well-being, including sleep duration.

2008

A preliminary study of the effects of Tai Chi and Qigong medical exercise on indicators of metabolic syndrome, glycaemic

Br J Sports Med. 2008 Oct 16. [Epub ahead of print]

control, health related quality of life, and psychological health in adults with elevated blood glucose.

Liu X, Miller YD, Burton NW, Brown WJ.

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OBJECTIVES: To evaluate the feasibility, acceptability and effects of a Tai Chi and Qigong exercise program in adults with elevated blood glucose. Design, Setting, and

PARTICIPANTS: A single group pre-post feasibility trial with 11 participants (3 male and 8 female; aged 42-65 years) with elevated blood glucose.

INVERVENTION: Participants attended Tai Chi and Qigong exercise training for 1 to 1.5 hours, 3 times per week for 12 weeks, and were encouraged to practice the exercises at home.

MAIN OUTCOME MEASURES: Indicators of metabolic syndrome (body mass index[BMI], waist circumference, blood pressure, fasting blood glucose, triglycerides, HDL-cholesterol), glucose control (HbA1c, fasting insulin and insulin resistance [HOMA]), health-related quality of life; stress and depressive symptoms.

RESULTS: There was good adherence and high acceptability. There were significant improvements in four of the seven indicators of metabolic syndrome including BMI (mean difference -1.05, $p<0.001$), waist circumference (-2.80 cm, $p<0.05$), and systolic (-11.64 mm Hg, $p<0.01$) and diastolic blood pressure (-9.73 mm Hg , $p<0.001$), as well as in HbA1c (-0.32 %, $p<0.01$), insulin resistance (-0.53, $p<0.05$), stress (-2.27, $p<0.05$), depressive symptoms (-3.60, $p<0.05$), and the SF-36 mental health summary score (5.13, $p<0.05$) and sub-scales for general health (19.00, $p<0.01$), mental health (10.55, $p<0.01$) and vitality (23.18, $p<0.05$.

CONCLUSIONS: The program was feasible and acceptable and participants showed improvements in metabolic and psychological variables. A larger controlled trial is now needed to confirm these promising preliminary results.

External Qi of Yan Xin Qigong induces G2/M arrest and apoptosis of androgen-independent prostate cancer cells by inhibiting Akt and NF-kappa B pathways.

Mol Cell Biochem. 2008 Mar;310(1-2):227-34. Epub 2007 Dec 16.

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Long-term clinical observations and ongoing studies have shown antitumor effects of external Qi of Yan Xin Qigong (YXQG-EQ) that originated from traditional Chinese medicine (TCM). In order to understand the molecular mechanisms underlying the antitumor effects of YXQG-EQ, we investigate the effects of YXQG-EQ on growth and apoptosis in androgen-independent prostate cancer PC3 cells. We found that exposure to YXQG-EQ led to G2/M arrest associated with reduced cyclin B1 expression and apoptosis in PC3 cells. YXQG-EQ treatment inhibited constitutive and epidermal growth factor-induced Akt phosphorylation, basal and TNF-alpha-induced NF-kappaB activation, and downregulated anti-apoptotic Bcl-2 and Bcl-xL expression. In contrast, exposure to YXQG-EQ increased phosphorylation of Akt and Erk1/2 in human umbilical vein endothelial cells (HUVEC), and had no cytotoxic effect on either HUVEC or peripheral blood mononuclear cells (PBMC). These results indicate that YXQG-EQ has profound effects on growth and apoptosis of prostate cancer cells by targeting survival pathways including the Akt and NF-kappa B pathways.

Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress.

Psychoneuroendocrinology. 2009 Jan;34(1):87-98.

Pace TW, Negi LT, Adame DD, Cole SP, Sivilli TI, Brown TD, Issa MJ, Raison CL.

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Meditation practices may impact physiological pathways that are modulated by stress and relevant to disease. While much attention has been paid to meditation practices that emphasize calming the mind, improving focused attention, or developing mindfulness, less is known about meditation practices that foster compassion. Accordingly, the current study examined the effect of compassion meditation on innate immune, neuroendocrine and behavioral responses to psychosocial stress and evaluated the degree to which engagement in meditation practice influenced stress reactivity. Sixty-one healthy adults were randomized to 6 weeks of training in compassion meditation (n=33) or participation in a health discussion control group (n=28) followed by exposure to a standardized laboratory stressor (Trier social stress test [TSST]). Physiologic and behavioral responses to the TSST were determined by repeated assessments of plasma concentrations of interleukin (IL)-6 and cortisol as well as total distress scores on the Profile of Mood States (POMS). No main effect of group assignment on TSST responses was found for IL-6, cortisol or POMS scores. However, within the meditation group, increased meditation practice was correlated with decreased TSST-induced IL-6 (r(p)=-0.46, p=0.008) and POMS distress scores (r(p)=-0.43, p=0.014). Moreover, individuals with meditation practice times above the median exhibited lower TSST-induced IL-6 and POMS distress scores compared to individuals below the median, who did not differ from controls. These data suggest that engagement in compassion meditation may reduce stress-induced immune and behavioral responses, although future studies are required to determine whether individuals who engage in compassion meditation techniques are more likely to exhibit reduced stress reactivity.

Loving-kindness meditation increases social connectedness.

Emotion. 2008 Oct;8(5):720-4.

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The need for social connection is a fundamental human motive, and it is increasingly clear that feeling socially connected confers mental and physical health benefits. However, in many cultures, societal changes are leading to growing social distrust and alienation. Can feelings of social connection and positivity toward others be increased? Is it possible to self-generate these feelings? In this study, the authors used a brief loving-kindness meditation exercise to examine whether social connection could be created toward strangers in a controlled laboratory context. Compared with a closely matched control task, even just a few minutes of loving-kindness meditation increased feelings of social connection and positivity toward novel individuals on both explicit and implicit levels. These results suggest that this easily implemented technique may help to increase positive social emotions and decrease social isolation.

Qigong Ameliorates Symptoms of Chronic Fatigue: A Pilot Uncontrolled Study.

Evid Based Complement Alternat Med. 2008 Jul 15. [Epub ahead of print]

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Traditional Chinese Medicine practitioners consider that chronic fatigue reflects a disharmony and depletion in the supply of qi in the body. Qigong is one of the traditional complementary interventions used to strengthen qi through self-practice, and to manage the state of qi to prevent and cure disease. The aim of this study is to assess whether qigong could be used to manage the symptoms of chronic fatigue. Eighteen Caucasian, British female participants were recruited, taught a qigong routine during weekly classes over 6 months, and asked to practice it daily for 15 min. Participants completed the core set of the RAND Medical Outcomes Study questionnaire (RAND MOS) and a sleep diary during the 2-week baseline control period, and at 3 and 6 months following the start of the trial. The qigong intervention resulted in significant changes in sleep rate score and in the following subscales of the RAND MOS: SF36 Vitality, Sleep Problems, Social Activity, Social Activity Limitation due to Health, Health Distress, Mental Health Index and Psychological Well-being. Qigong seems to improve factors related to chronic fatigue such as sleep, pain, mental attitude and general mobility after 3 and 6 months. Qigong's positive effects indicate that it represents a potentially safe method of treatment for chronic fatigued patients. However, we cannot completely discount the possible influence of placebo effects, and more objective clinical measures are needed to reproduce our findings with long-term follow-up in a randomized, controlled study involving a larger number of subjects.

Intrinsically motivated qigong exercisers are more concentrated and less stressful.

Am J Chin Med. 2008;36(6):1051-60.

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Low-intensity qigong exercise has been suggested as an alternative to more vigorous exercise when striving for health benefits. The purpose of this study was to investigate whether self-determined motivation and perceived stress are related to concentration during exercise, and to the amount of exercise carried out. Leisure-time qigong exercisers (n = 279) were assessed by using the Sport Motivation Scale, Stress and Energy Scale, and by self-rated Concentration. Exercise sessions per week, Session time, and ability to Set a time for exercise, and perceived Disturbance during exercise were also recorded. Participants who were in a Calm energy mood (low-stress, high-energy, able to set a time for exercise),

displayed an increased Concentration on qi-flow (R(2) = 0.13) during exercise. An elevated stress-level correlated negatively with Health, Energy, Concentration, Sessions per week, Session time, Sessions performed during the previous week, ability to Set a time for exercise, and feeling Undisturbed during exercise (all $p < 0.01$). Intrinsic motivation was positively correlated with Concentration (0.24, $p < 0.01$) and negatively correlated with Stress (-0.19, $p < 0.05$). Individuals who adhere to a regular qigong exercise regimen are more intrinsically motivated, less stressed, and more concentrated while exercising than those who do not adhere to a regular regime. This suggests that health-professionals need to be aware of these factors when prescribing qigong exercise for health benefits.

Effectiveness of tai chi for Parkinson's disease: A critical review.

Parkinsonism Relat Disord. 2008 Mar 26. [Epub ahead of print]

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The objective of this review is to assess the effectiveness of tai chi as a treatment option for Parkinson's disease (PD). We have searched the literature using 21 databases from their inceptions to January 2008, without language restrictions. We included all types of clinical studies regardless of their design. Their methodological quality was assessed using the modified Jadad score. Of the seven studies included, one randomised clinical trial (RCT) found tai chi to be superior to conventional exercise in terms of the Unified PD Rating Scale (UPDRS) and prevention of falls. Another RCT found no effects of tai chi on locomotor ability compared with qigong. The third RCT failed to show effects of tai chi on the UPDRS and the PD Questionnaires compared with wait list control. The remaining studies were either non-randomised (n=1) or uncontrolled clinical trials (n=3). Collectively these data show that RCTs of the tai chi for PD are feasible but scarce. Most investigations suffer from methodological flaws such as inadequate study design, poor reporting of results, small sample size, and publication without appropriate peer review process. In conclusion, the evidence is insufficient to suggest tai chi is an effective intervention for PD. Further research is required to investigate whether there are specific benefits of tai chi for people with PD, such as its potential effect on balance and on the frequency of falls.

Menopause, the metabolic syndrome, and mind-body therapies.

Menopause. 2008 Apr 17. [Epub ahead of print]

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Cardiovascular disease risk rises sharply with menopause, likely due to the coincident increase in insulin resistance and related atherogenic changes that together comprise the metabolic or insulin resistance syndrome, a cluster of metabolic and hemodynamic abnormalities strongly implicated in the pathogenesis and progression of cardiovascular disease. A growing body of research suggests that traditional mind-body practices such as yoga, tai chi, and qigong may offer safe and cost-effective strategies for reducing insulin resistance syndrome-related risk factors for cardiovascular disease in older populations, including postmenopausal women. Current evidence suggests that these practices may reduce insulin resistance and related physiological risk factors for cardiovascular disease; improve mood, well-being, and sleep; decrease sympathetic activation; and enhance cardiovagal function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

Effects of a traditional taiji/qigong curriculum on older adults'immune response to influenza vaccine.

Med Sport Sci. 2008;52:64-76.

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Previous studies have suggested that Taiji (T'ai Chi) practice may improve immune function. The current study examined whether 5 months of moderate traditional Taiji and Qigong (TQ) practice could improve the immune response to influenza vaccine in older adults. Fifty older adults participated in this study. Baseline pre-vaccine blood samples were collected. Subjects received the 2003-2004 influenza vaccine during the 1st week of the intervention. Post-vaccine blood samples were collected 3, 6 and 20 weeks after intervention for analysis of anti-influenza hemagglutination inhibition titers. Findings indicated a significant increase in the magnitude and duration of the antibody response to influenza vaccine in TQ participants when compared to controls. There was a significant between-group difference at 3 and 20 weeks after vaccine, and at 20 weeks the TQ group had significantly higher titers compared to the pre-vaccine time point, whereas the controls did not. A higher percentage of TQ subjects also responded to the influenza A strains with a protective antibody response, but differences between groups were not statistically significant. Traditional TQ practice improves the antibody response to influenza vaccine in older adults, but further study is needed to determine whether the enhanced response is sufficient to provide definitive protection from influenza infection.

Tactile acuity in experienced Tai Chi practitioners: evidence for use dependent plasticity as an effect of sensory-attentional training.

Exp Brain Res. 2008 Jun;188(2):317-22. Epub 2008 May 30.

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The scientific discovery of novel training paradigms has yielded better understanding of basic mechanisms underlying cortical plasticity, learning and development. This study is a first step in evaluating Tai Chi (TC), the Chinese slow-motion meditative exercise, as a training paradigm that, while not engaging in direct tactile stimulus training, elicits enhanced tactile acuity in long-term practitioners. The rationale for this study comes from the fact that, unlike previously studied direct-touch tactile training paradigms, TC practitioners focus specific mental attention on the body's extremities including the fingertips and hands as they perform their slow routine. To determine whether TC is associated with enhanced tactile acuity, experienced adult TC practitioners were recruited and compared to age-gender matched controls. A blinded assessor used a validated method (Van Boven et al. in Neurology 54(12): 2230-2236, 2000) to compare TC practitioners' and controls' ability to discriminate between two different orientations (parallel and horizontal) across different grating widths at the fingertip. Study results showed that TC practitioners' tactile spatial acuity was superior to that of the matched controls ($P < 0.04$). There was a trend showing TC may have an enhanced effect on older practitioners ($P < 0.066$), suggesting that TC may slow age related decline in this measure. To the best of our knowledge, this is the first study to evaluate a long-term attentional practice's effects on a perceptual measure. Longitudinal studies are needed to examine whether TC initiates or is merely correlated with perceptual changes and whether it elicits long-term plasticity in primary sensory cortical maps. Further studies should also assess whether related somatosensory attentional practices (such as Yoga, mindfulness meditation and Qigong) achieve similar effects.

Acute psychological responses to qigong exercise of varying durations.

Am J Chin Med. 2008;36(3):449-58.

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Qigong exercise has been shown to induce acute psychological changes of a positive nature; but whether longer durations have greater effects than shorter ones is not known. Forty-one regular qigong practitioners therefore engaged in either 30 or 60 min of qigong exercise within a randomized cross-over design. Measures of mood, anxiety, activation, and hedonic tone were obtained pre- and post-exercise. Results showed benefits of the same magnitude in the two conditions: more positive mood states, reduced state anxiety, and enhanced perceived pleasure. Thirty minutes of qigong exercise thereby seems to be sufficient to provide psychological benefits, and with no additional benefits detected after 60 min. This finding is important for those having little time or motivation to engage in activities of longer durations. In addition, health professionals prescribing exercise for health benefits can prescribe shorter exercise sessions with confidence knowing that positive psychological effects can also occur after a shorter exercise bout.

Clinical effect of qigong practice on essential hypertension: a meta-analysis of randomized controlled trials.

J Altern Complement Med. 2008 Jan-Feb;14(1):27-37.

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OBJECTIVES: This study was designed to quantitatively assess the effectiveness of self-practiced qigong for treatment of essential hypertension. METHODS: Six major electronic databases were searched up to July 2006 to retrieve any potential randomized controlled trials designed to evaluate the clinical effectiveness of self-practiced qigong for essential hypertension reported in any language, with main outcome measures as systolic blood pressure (SBP) and diastolic blood pressure (DBP). The quality of included studies were assessed with the Jadad Scale and a customized standard quality assessment scale.

RESULTS: Ninety-two (92) studies were identified. Nine (9) of these studies qualified for meta-analysis, comprising a total of 908 cases. Results were as follows: (1) The mean decrease of SBP in those practicing qigong was a 17.03 mm Hg reduction (95% confidence interval (CI) 11.53-22.52) compared with nonspecific intervention controls, but not superior to that in drug controls (1.19 mm Hg, 95% CI -5.40-7.79) and conventional exercise controls (-1.51 mm Hg, 95% CI -6.98-3.95). (2) Mean decrease of DBP in those practicing qigong was 9.98 mm Hg (95% CI 2.55-17.41) compared with nonspecific intervention controls, but not superior to that in drug controls (2.49 mm Hg, 95% CI -0.16-5.13) and conventional exercise controls (-1.59 mm Hg, 95% CI -4.91-1.74). (3) No obvious side effects were identified.

CONCLUSIONS: Self-practiced qigong for less than 1 year is better in decreasing BP in patients with essential hypertension than in no-treatment controls, but is not superior to that in active controls. More methodologically strict studies are needed to prove real clinical benefits of qigong, and to explore its potential mechanism.

Medical qigong for cancer patients: pilot study of impact on quality of life, side effects of treatment and inflammation.

Am J Chin Med. 2008;36(3):459-72.

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Quality of life (QOL) of cancer patients is often diminished due to the side effects of treatment and symptoms of the disease itself. Medical Qigong (coordination of gentle exercise and relaxation through meditation and breathing exercise based on Chinese medicine theory of energy channels) may be an effective therapy for improving QOL, symptoms and side effects, and longevity of cancer patients. In this pilot study, the feasibility, acceptability, and impact of Medical Qigong (MQ) were evaluated on outcomes in cancer patients. Thirty patients diagnosed with heterogeneous cancers, were randomly assigned to two groups: a control group that received usual medical care and an intervention group who participated in a MQ program for 8 weeks in addition to receiving usual medical care. Randomization was stratified by completion of cancer treatment (n = 14) or under chemotherapy (n = 16). Patients completed measures before and after the program. Quality of life and symptoms were measured by the EORTC QLQ-C 30 and progress of disease by the inflammation biomarker (CRP: c-reactive protein) via a blood test was assessed. The MQ intervention group reported clinically significant improved global QOL scores pre- and post-intervention. The MQ intervention also reduced the symptoms of side effects of cancer treatment and inflammation biomarker (CRP) compare to the control group. Due to the small sample size, however, the results were not statistically significant between treatment and the control groups. Data from the pilot study suggest that MQ with usual medical treatment can enhance the QOL of cancer patients and reduce inflammation. This study needs a further investigation with a larger sample size.

Qigong Improving Physical Status in Middle-Aged Women.

West J Nurs Res. 2008 Jul 8. [Epub ahead of print]

Tsai YK, Chen HH, Lin IH, Yeh ML.

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Regular exercise has been shown to benefit its practitioners and prevent and control diseases. Muscle/Tendon Change Classic (MTCC) qigong, characterized by simple, slow, and full-body exercise, is appropriate for the middle-age population. This study aims to evaluate the effect of the MTCC qigong program in improving physical status for middle-aged women. A quasi-experimental design was used. The experimental group (n = 37) received an 8-week MTCC qigong program, whereas the control group (n = 34) received none. Physiological parameters of muscular performance, body composition, and bone strength were measured before and after the program. The average age was 49 +/- 4.13 years for the experimental group and 50 +/- 4.74 years for the control group. The demographic characteristics were homogeneous between the two groups. There were statistically significant differences between the two groups in muscular endurance, body fat, waist-to-hip ratio, and body mass index at the completion of 8-week MTCC qigong program. The MTCC qigong could improve muscle endurance and body composition but not bone strength for middle-aged women, thereby demonstrating the qigong practice has certain health-preserving effects on women in this stage of life.

Effects of Qigong exercises on 3 different parameters of human saliva.

Chin J Integr Med. 2008 Dec;14(4):262-6.

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OBJECTIVE: To analyze the effects of a Qigong program on various parameters of unstimulated saliva, including volume, pH and secretory immunoglobulin A (S-IgA) level.

METHODS: Twice a day from the beginning of Fall 2005, twenty-three healthy volunteers aged 22-24 did special Qigong exercises and massage of acupuncture points which stimulated the energy cycle and increased body water energy. The unstimulated saliva volume and pH were recorded every week in Spring (April, May, June) 2005 before the volunteers started to learn and exercise Qigong, and after Qigong intervention in Spring (April, May, June) 2006. During the period of study, saliva was collected in the same location and on similar dates at the Dental Faculty of Tehran University of Medical Sciences. The S-IgA levels of the last samples of the last week of Spring 2005 and 2006 were measured.

RESULTS: The unstimulated saliva volume after Qigong exercises (2.94 + or - 0.20 mL/5min) was significantly higher as compared to the pre-Qigong phase (1.65 + or -0.102 mL/5min, $P<0.05$). The S-IgA level was 105.45 + or - 9.41 mg/mL before doing Qigong exercises, and 156.23 + or - 88.56 mg/mL after doing Qigong exercises, and a statistically significant difference was seen between the two measurements ($P=0.005$). The change in pH was not statistically significant.

CONCLUSIONS: The application of Qigong is beneficial for increasing salivary volume and other parameters. Moreover, the results suggest that Qigong may be a useful medication for patients with salivary hyposecretion. Further research is recommended in examining the long-term effects of Qigong on improving salivary volume and other parameters in individuals with salivary hyposecretion.

American Public Health Association 2008 Annual Meeting & Exposition in San Diego, CA October 25-29, 2008

Simple, effective, fun, and available—essential factors for the successful continuation of an evidence-based Taiji (T'ai Chi) and Qigong (Chi Kung) exercise program at a local senior center following a six month research intervention

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One well-known difficulty in effectively translating physical activity research into practice is that research staff bring a level of expertise and quality control in behavior interventions that is typically greater than that of health care workers charged with implementing research curriculum. In spring 2005 University of Illinois researchers completed a six month randomized controlled trial on older adults (mean age 80.4, std. dev. 8.6) on the efficacy of Taiji for balance and strength. Since then, one novice health care worker has successfully adopted the Taiji-Qigong (TQ) program used in that intervention and has institutionalized the program at a local senior living center. Nine older adults initially participated in TQ training at that facility during the intervention. Due to the efforts of the Activities Director there, and without additional support or training from research staff, the TQ exercise program has become the most popular activity at the center and active participation has now expanded to a total attendance of approximately 40 participants.

Whereas the intervention curriculum was designed and taught by a nationally recognized instructor with over 30 years of traditional TQ training, the health care worker that institutionalized the program received initial training along with intervention participants. According to the curriculum designer, successful institutionalization of TQ exercise requires that the program be adaptable, easily learned, and enjoyable, the benefits quickly perceived by the participants, and organized instruction made readily available.

Journal Molecular and Cellular Biochemistry

External Qi of Yan Xin Qigong induces G2/M arrest and apoptosis of androgen-independent prostate cancer cells by inhibiting Akt and NF-κB pathways

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Long-term clinical observations and ongoing studies have shown antitumor effects of external Qi of Yan Xin Qigong (YXQG-EQ) that originated from traditional Chinese medicine (TCM). In order to understand the molecular mechanisms underlying the antitumor effects of YXQG-EQ, we investigate the effects of YXQG-EQ on growth and apoptosis in androgen-independent prostate cancer PC3 cells. We found that exposure to YXQG-EQ led to G2/M arrest associated with reduced cyclin B1 expression and apoptosis in PC3 cells. YXQG-EQ treatment inhibited constitutive and epidermal growth factor-induced Akt phosphorylation, basal and TNF-α-induced NF-κB activation, and downregulated anti-apoptotic Bcl-2 and Bcl-xL expression. In contrast, exposure to YXQG-EQ increased phosphorylation of Akt and Erk1/2 in human umbilical vein endothelial cells (HUVEC), and had no cytotoxic effect on either HUVEC or peripheral blood mononuclear cells (PBMC). These results indicate that YXQG-EQ has profound effects on growth and apoptosis of prostate cancer cells by targeting survival pathways including the Akt and NF-κB pathways.

Journal Environmental Health and Preventive Medicine

Positive effects of a qigong and aerobic exercise program on physical health in elderly Japanese women: an exploratory study Volume 13, Number 3 / May, 2008, Pages 162-168

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OBJECTIVE: To determine the effects of a 12-week qigong and aerobic exercise program on the physical well-being of relatively healthy elderly Japanese women.

METHODS: In the first study, 72 elderly Japanese women who were relatively healthy and naive to qigong completed the 12-week qigong and aerobic exercise program. Physical function, body composition, and abdominal fat were evaluated. In the second study, we examined the effects of qigong alone on physical function. Twenty-nine participants in each of two groups (divided according to their residences) underwent a 12-week program: qigong and aerobic exercise (residents in Yura Town) or qigong exercise alone (residents in Mihama Town).

RESULTS: In the first study, physical function including lung capacity, trunk bending, normal walking for 30 m, and rising from a supine position significantly improved after the 12-week program. In addition, body fat diminished significantly during the program. In the second study, both exercise programs ("qigong and aerobic" and "qigong alone") similarly increased walking speed (normal and maximum walking) and rising speed.

CONCLUSIONS: The findings of this exploratory study demonstrated that a 12-week qigong and aerobic exercise program was associated with improvements in physical function and a reduction in body fat. The qigong exercise program alone positively influenced physical function. The qigong program appears to be an appealing means of improving the physical health of elderly persons.

American Public Health Association 2008 Annual Meeting & Exposition in San Diego, CA October 25-29, 2008

Mechanisms for improved balance afforded by traditional Taiji and Qigong exercise: A randomized controlled trial of older adults

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Taiji (T'ai Chi) has been shown to have generally positive effects on functional balance and may reduce the probability of falls in older adults. However, few studies have investigated the mechanisms by which Taiji may improve balance. Further, standing and sitting Qigong meditation exercises are fundamental components of traditional Taiji training, but these exercises have been mentioned in only one previous Taiji study to date.

In this study we aimed to evaluate changes in sensory and biomechanical balance mechanisms as a consequence of a Taiji exercise program for healthy older adults that intentionally emphasized both sitting and standing meditation and Taiji forms. Forty-nine healthy older adults (mean age 80.4, std. dev. 8.6) were randomized to participate in Taiji-Qigong (TQ) training (N=33) or a wait-list control group (WC, N=16). Sensory Organization Test (SOT), quiet stance Base of Support (BoS), and feet opening angle (α) measures were collected prior to instruction (T0), at two months (T2), and six months (T6).

Baseline normalized TQ group SOT vestibular ratio scores were +21% and +53% greater than WC at T2 and T6, respectively. Baseline normalized TQ group BoS scores were +16% and +27% greater than WC at T2 and T6, respectively, though no differences were observed in (α).

We conclude that improved use of vestibular input and wider stances are two mechanisms by which TQ training may improve healthy older adults' balance. Further study is needed to evaluate other balance mechanisms afforded by TQ practice and the individual and combined effects of different aspects of traditional Taiji practice.

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Yan Xin Qigong (YXQ) in health promotion and disease prevention: Evidence from a survey study

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INTRODUCTION: Qigong is the foundation and an important component of Traditional Chinese Medicine and has been widely used throughout China for therapeutic treatment and health promotion. Yan Xin Qigong (YXQ), a Qigong method recommended by the Chinese government for its safety and effectiveness, is a Traditional Chinese Advanced Qigong taught by Dr. YAN Xin, a chief physician and a renowned grand Qigong Master. YXQ has distinguished itself in rigorous scientific studies conducted in laboratory settings by Dr. Yan and scientists at leading universities. The peer-reviewed literature demonstrates effects of YXQ at various scales and suggests physiological pathways possibly related to its mechanism of healing.

PURPOSE: To investigate the effects of YXQ on health promotion and disease prevention based on a comprehensive survey conducted in 2001 in North America.

METHOD: Data were collected from participants of an international conference. Besides individuals' socio-demographic information, questions regarding participants' health conditions/problems were used to evaluate their physical and mental health both before and after learning YXQ. Questions specific to women and senior health were also used. Regression methods were applied to investigate the effects of learning YXQ on various aspects of health status and disease condition improvements.

RESULTS: 1,155 individuals participated in the survey. Learning YXQ had substantial and comprehensive health effects. Health improvements were positively associated with YXQ learning variables.

Am J Occup Ther. 2008 Sep-Oct;62(5):538-46.

Outcomes of a pilot training program in a qigong massage intervention for young children with autism.

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Sensory impairment is a common and significant feature of children on the autism spectrum. In 2005, a qigong massage intervention based on Chinese medicine and delivered by a doctor of Chinese medicine was shown to

improve sensory impairment and adaptive behavior in a small controlled study of young children with autism. In 2006, the Qigong Sensory Training (QST) program was developed to train early intervention professionals to provide the QST intervention. This article describes the preliminary evaluation of the QST program as piloted with 15 professionals and 26 children and outcomes testing using standardized tests of sensory impairment and adaptive behavior. Results of outcomes comparing delivery by QST-trained therapists with delivery by a doctor of Chinese medicine showed that both groups improved and that there was no difference in outcome between the two groups. The intervention and training program are described, and implications for future research are discussed.

J Altern Complement Med. 2008 Sep 29. [Epub ahead of print]

Qigong Stress Reduction in Hospital Staff.

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ABSTRACT OBJECTIVE: The aim of this study was to investigate the effectiveness of a qigong training program in reducing stress in hospital staff.

METHODS: Subjects were randomly assigned to a 6-week intervention of either qigong practice (n = 16) or a waiting list (n = 21). The primary measure of stress was the Perceived Stress Scale. Secondary measures included the Short Form 36 (SF-36) quality-of-life measure and a 100-mm analog pain scale.

RESULTS: The qigong group demonstrated a statistically significant reduction of perceived stress compared to the control group (p = 0.02). On the Social Interaction subscale of the SF-36, the qigong group demonstrated greater improvement compared to controls (p = 0.04). Within-groups analyses demonstrated that the qigong group (p = 0.03), but not the control group, experienced a significant reduction of pain intensity. A regression analysis demonstrated an association between higher baseline stress levels and greater improvement within the qigong group (R(2) = 0.34; p = 0.02).

CONCLUSIONS: These results suggest that short-term exposure to qigong was effective in reducing stress in hospital staff. Further studies are needed to evaluate the possible effectiveness of qigong in reducing pain and in improving quality of life.

Arthritis Rheum. 2008 Oct 15;59(10):1399-406.

Stephens S, Feldman BM, Bradley N, Schneiderman J, Wright V, Singh-Grewal D, Lefebvre A, Benseler SM, Cameron B, Laxer R, O'brien C, Schneider R, Silverman E, Spiegel L, Stinson J, Tyrrell PN, Whitney K, Tse SM.

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OBJECTIVE: To determine the feasibility of conducting a randomized controlled trial of a 12-week exercise intervention in children with fibromyalgia (FM) and to explore the effectiveness of aerobic exercise on physical fitness, function, pain, FM symptoms, and quality of life (QOL).

METHODS: FM patients ages 8-18 years were randomized to a 12-week exercise intervention of either aerobics or qigong. Both groups participated in 3 weekly training sessions. Program adherence and safety were monitored at each session. Data were collected at 3 testing sessions, 2 prior to and 1 after the intervention, and included FM symptoms, function, pain, QOL, and fitness measures.

RESULTS: Thirty patients participated in the trial. Twenty-four patients completed the program; 4 patients dropped out prior to training and 2 dropped out of the aerobics program. Better adherence was reported in the aerobics group than in the qigong group (67% versus 61%). Significant improvements in physical function, functional capacity, QOL, and fatigue were observed in the aerobics group. Anaerobic function, tender point count, pain, and symptom severity improved similarly in both groups.

CONCLUSION: It is feasible to conduct an exercise intervention trial in children with FM. Children with FM tolerate moderate-intensity exercise without exacerbation of their disease. Significant improvements in physical function, FM symptoms, QOL, and pain were demonstrated in both exercise groups; the aerobics group performed better in several measures compared with the qigong group. Future studies may need larger sample sizes to confirm clinical improvement and to detect differences in fitness in childhood FM.

J Health Psychol. 2008 Oct;13(7):857-63.

A Review on Neurobiological and Psychological Mechanisms Underlying the Anti-depressive Effect of Qigong Exercise.

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Elders with chronic medical conditions are vulnerable to depression. Mainstream interventions for treating their depression is however far from satisfactory which stimulates the interests of researchers to look for alternative therapies to alleviate geriatric depression. Qigong, a Chinese mindful exercise, is demonstrated to have anti-depressive effects. Results of our earlier studies shed light on the psychological mechanism underlying this effect. The neurobiological mechanism remains unclear. This article attempts to review extant evidence and suggests possible neurobiological pathways of the anti-depressive effect of qigong based on the neurotransmitter, neuroendocrine,

and neurotropic perspectives. Further research to consolidate its scientific base is suggested.

J Altern Complement Med. 2008 Sep;14(7):801-6.

Treating survivors of torture and refugee trauma: a preliminary case series using qigong and t'ai chi.

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OBJECTIVES: This paper seeks to explore the potential value of qigong and t'ai chi practice as a therapeutic intervention to aid in the treatment of survivors of torture and refugee trauma.

DESIGN: The common effects of torture and refugee trauma are surveyed with a focus on post-traumatic stress disorder. An alternative theoretical framework for conceptualizing and healing trauma is presented. Evidence is reviewed from the scientific literature that describes how qigong and t'ai chi have been used in studies of the general population to alleviate symptoms that are also expressed in torture survivors. Observations are presented from a combined, simplified qigong and t'ai chi intervention with a convenience sample of four refugee survivors of torture.

RESULTS: Preliminary observations from four cases and a review of the literature support the potential efficacy of incorporating qigong and t'ai chi into the treatment of survivors of torture and refugee trauma.

CONCLUSIONS: The incorporation of qigong and t'ai chi into the treatment of torture survivors, within a new framework for healing trauma, merits further investigation.

Forsch Komplementmed. 2008 Aug;15(4):195-202. Epub 2008 Aug 15.

Developing a qigong intervention and an exercise therapy for elderly patients with chronic neck pain and the study protocol.

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BACKGROUND: In the so far published trials on qigong and exercise therapies, the methods and especially the interventions applied are rarely described in detail. Therefore, we report on the development of the interventions, the study design and protocols of a randomised controlled multi-centre trial.

OBJECTIVE: The aim of the study was to develop a qigong intervention and an exercise therapy for elderly patients and to evaluate whether qigong is more effective than (1) no treatment or (2) the exercise therapy.

DEVELOPMENT OF THE INTERVENTIONS: In a consensus process with qigong experts and physiotherapists special interventions for elderly patients were developed allowing most exercises to be performed in a sitting position. Both interventions will be held by qualified therapists for a period of 3 months twice per week for 45 min. In addition, patients will be encouraged to exercise on their own. Study Protocol: In a randomised controlled multi-centre study with 3 groups and a total follow-up time of 6 months, 120 patients from 4 residences for elderly people in Berlin (age >or= 55 years) with chronic neck pain should be included.

MAIN OUTCOME MEASURE: Average pain intensity of the past 7 days measured by a visual analogue scale (VAS). Secondary parameters are neck pain and disability (Neck Pain and Disability Scale, NPAD), depression (General Depression Scale, ADS) and health-related quality of life (SF-36). IMPLICATIONS: The results of this study may help clarify, if qigong is a feasible, safe and effective intervention for elderly people with neck pain.

Menopause. 2008 Sep-Oct;15(5):1005-13.

Menopause, the metabolic syndrome, and mind-body therapies.

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Cardiovascular disease risk rises sharply with menopause, likely due to the coincident increase in insulin resistance and related atherogenic changes that together comprise the metabolic or insulin resistance syndrome, a cluster of metabolic and hemodynamic abnormalities strongly implicated in the pathogenesis and progression of cardiovascular disease. A growing body of research suggests that traditional mind-body practices such as yoga, tai chi, and qigong may offer safe and cost-effective strategies for reducing insulin resistance syndrome-related risk factors for cardiovascular disease in older populations, including postmenopausal women. Current evidence suggests that these practices may reduce insulin resistance and related physiological risk factors for cardiovascular disease; improve mood, well-being, and sleep; decrease sympathetic activation; and enhance cardiovagal function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

Brain Dev. 2008 Aug 29. [Epub ahead of print]

A newly proposed disease condition produced by light exposure during night: Asynchronization.

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The bedtime of preschoolers/pupils/students in Japan has become progressively later with the result sleep duration has become progressively shorter. With these changes, more than half of the preschoolers/pupils/students in Japan recently have complained of daytime sleepiness, while approximately one quarter of junior and senior high

school students in Japan reportedly suffer from insomnia. These preschoolers/pupils/students may be suffering from behaviorally induced insufficient sleep syndrome due to inadequate sleep hygiene. If this diagnosis is correct, they should be free from these complaints after obtaining sufficient sleep by avoiding inadequate sleep hygiene. However, such a therapeutic approach often fails. Although social factors are often involved in these sleep disturbances, a novel clinical notion - asynchronization - can further a deeper understanding of the pathophysiology of these disturbances. The essence of asynchronization is a disturbance in various aspects (e.g., cycle, amplitude, phase and interrelationship) of the biological rhythms that normally exhibit circadian oscillation, presumably involving decreased activity of the serotonergic system. The major trigger of asynchronization is hypothesized to be a combination of light exposure during the night and a lack of light exposure in the morning. In addition to basic principles of morning light and an avoidance of nocturnal light exposure, presumable potential therapeutic approaches for asynchronization involve both conventional ones (light therapy, medications (hypnotics, antidepressants, melatonin, vitamin B12), physical activation, chronotherapy) and alternative ones (kampo, pulse therapy, direct contact, control of the autonomic nervous system, respiration (qigong, tanden breathing), chewing, crawling). A morning-type behavioral preference is described in several of the traditional textbooks for good health. The author recommends a morning-type behavioral lifestyle as a way to reduce behavioral/emotional problems, and to lessen the likelihood of falling into asynchronization.

Indian J Exp Biol. 2008 May;46(5):384-8.

Common threads.

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Acupuncture and Qigong are aspects of Chinese medicine, an antique medicine of energy which is thousands of years old. Its primary method of diagnosis is the pulse at the wrist, subtle information accessible to physicians only after years of training. Biophotonics presents the same information visually and makes it available to researchers everywhere, setting in place new experimental protocols for acupuncture and energy medicines. Combining this contemporary tool of technology with principles of the ancient medicine will facilitate in the development of not only medical sciences of energy, but all of the sciences of energy that are coming.

Clin Rheumatol. 2008 Jul 25. [Epub ahead of print]

Effects of external qigong therapy on osteoarthritis of the knee : A randomized controlled trial.

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The objective of our study was to assess the efficacy of external qigong therapy (EQT), a traditional Chinese medicine practice, in reducing pain and improving functionality of patients with knee osteoarthritis (OA). One hundred twelve adults with knee OA were randomized to EQT or sham treatment (control); 106 completed treatment and were analyzed. Two therapists performed EQT individually, five to six sessions in 3 weeks. The sham healer mimicked EQT for the same number of sessions and duration. Patients and examining physician were blinded. Primary outcomes were Western Ontario MacMaster (WOMAC) pain and function; other outcomes included McGill Pain Questionnaire, time to walk 15 m, and range of motion squatting. Results of patients treated by the two healers were analyzed separately. Both treatment groups reported significant reduction in WOMAC scores after intervention. Patients treated by healer 2 reported greater reduction in pain (mean improvement -25.7 +/- 6.6 vs. -13.1 +/- 3.0; $p < 0.01$) and more improvement in functionality (-28.1 +/- 9.7 vs. -13.2 +/- 3.4; $p < 0.01$) than those in sham control and reduction in negative mood but not in anxiety or depression. Patients treated by healer 1 experienced improvement similar to control. The results of therapy persisted at 3 months follow-up for all groups. Mixed-effect models confirmed these findings with controlling for possible confounders. EQT might have a role in the treatment of OA, but our data indicate that all EQT healers are not equivalent. The apparent efficacy of EQT appears to be dependent on some quality of the healer. Further study on a larger scale with multiple EQT healers is necessary to determine the role (if any) of EQT in the treatment of OA and to identify differences in EQT techniques.

1128546

The Gender Difference of Ryodoraku Bio-energy Response of Qigong Regimen Exercise in Adults

(Chien-Min Cheng); (Tsung-Kuei Kao); (Shin-Tho Huang) (2008/04) (3-M) (CTL) 24 SPSS 12.01for window (One-way ANOVA) T-Test LT>CTL>3-M ($p<.05$) ($p>.05$) ($p<.05$) LT>3M>CTL ($p<.05$) 3-M CTL ($p<.05$)

PURPOSE: The purpose of this study is to investigate the Ryodoraku Bio-energy Response of Qigong Regimen Exercise in Adults.

METHODS: There were 70 subjects particicipated in this research and combine 25 males and 45 females. They have the following demographics: age 60.56 ± 10.23 years, height of 160.60 ± 5.26 cm, weight of 62.91 ± 7.76 kg, and BMI of 24.35 ± 2.40. The subjects had pedometers and took an average of 6407 steps per week. They were subsequently divided into three groups: long-term group (LT), 3 month experiment group (3-M), and the control group. Measurement of each subject is performed in the pre and post time period using the Ryodoraku Detector of Channel and Acupuncture Points. This device can assess the health of the Zang Fu organs based on a theory first purposed by Yoshio Nakatani. Measurements of this device are performed while the subject is in a sitting position. The SPSS 12.0, Excel 2000 for Windows statistic analysis, ANOVA, a dependent and independent t-test are then conducted to identify the effects. The significance is set at $\alpha=.05$.

RESULTS: First, the pre mean bio-energy measure showed that the LT group was greater than the CTL group which was higher than the 3-M group ($p<.05$); in the post, whereas the LT group's bio-energy values were significantly lower than 3-M and CTL in male group. Secondly, the pre mean bio-energy measure showed that the LT group was greater than the CTL and 3-M group ($p<.05$), in the post, whereas the LT group's bio-energy values were significantly lower than 3-M and CTL in female group. Male also had a significantly higher bio-energy measure than females.

CONCLUSION: This research reveals that no matter what in the pre or post test, the Ryodoraku bio-energy of the males are higher than females among the groups.

Some Medical References Related to Qigong from 2004 to July 2008

The main source: www.ncbi.nlm.nih.gov/sites/entrez

J Altern Complement Med. 2007 Oct;13(8):831-9.

Biopsychosocial effects of qigong as a mindful exercise for people with anxiety disorders: a speculative review.

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In view of the inadequacies of mainstream treatments for anxiety disorders, we suggest that qigong, an ancient oriental mindful exercise, may be a useful adjunctive treatment. We base this on a biopsychosocial model for health. Evidence suggests that the benefits of exercise on personal well-being can be explained using six theories: cognitive behaviour; distraction; social interaction; cardiovascular fitness; amine; and endorphin theories. To date, not much has been done to employ these theories to analyze the benefits of mindful exercises. We try here to reorganize these theories into psychosocial and physiologic perspectives and integrate them with the "mind regulation," "body regulation," and "breath regulation" components of qigong. We propose, because of its potential therapeutic effects, that qigong can be considered as an alternative therapy to help meet the increasing demand of nonpharmacologic modalities in achieving biopsychosocial health for those suffering from anxiety in the general population.

Med Sci Monit. 2007 Dec;13(12):CR560-6.

Biochemical changes after a qigong program: lipids, serum enzymes, urea, and creatinine in healthy subjects.

Vera FM, Manzaneque JM, Maldonado EF, Carranque GA, Cubero VM, Blanca MJ, Morell M.

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BACKGROUND: The aim of the present study was to analyze the effects of a qigong training program on blood biochemical parameters.

MATERIAL/METHODS: Twenty-nine healthy subjects participated in the study of whom 16 were randomly assigned to the experimental group and 13 to the control. The experimental subjects underwent daily qigong training for one month. Blood samples for the quantification of biochemical parameters (total cholesterol, HDL, LDL, triglycerides, phospholipids, GOT, GPT, GGT, urea, creatinine) were taken before and after the training program. As statistical analysis, ANCOVA was performed.

RESULTS: Statistically significant differences were found showing that the experimental group had lower serum levels of GOT (glutamic-oxaloacetic transaminase), GPT (glutamic-pyruvic transaminase), and urea and that there was a trend towards significance in GGT (gamma-glutamyltransferase).

CONCLUSIONS: This study demonstrates that after practicing qigong for the short period of one month, noteworthy changes in several blood biochemical parameters were induced. While it is tempting to speculate on the relevance and implications of these biochemical variations, further investigation is needed to elucidate the scope of these findings.

Mol Cell Biochem. 2008 Mar;310(1-2):227-34. Epub 2007 Dec 16.

External Qi of Yan Xin Qigong induces G2/M arrest and apoptosis of androgen-independent prostate cancer cells by inhibiting Akt and NF-kappa B pathways.

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Long-term clinical observations and ongoing studies have shown antitumor effects of external Qi of Yan Xin Qigong (YXQG-EQ) that originated from traditional Chinese medicine (TCM). In order to understand the molecular mechanisms underlying the antitumor effects of YXQG-EQ, we investigate the effects of YXQG-EQ on growth and apoptosis in androgen-independent prostate cancer PC3 cells. We found that exposure to YXQG-EQ led to G2/M arrest associated with reduced cyclin B1 expression and apoptosis in PC3 cells. YXQG-EQ treatment inhibited constitutive and epidermal growth factor-induced Akt phosphorylation, basal and TNF-alpha-induced NF-kappaB activation, and downregulated anti-apoptotic Bcl-2 and Bcl-xL expression. In contrast, exposure to YXQG-EQ increased phosphorylation of Akt and Erk1/2 in human umbilical vein endothelial cells (HUVEC), and had no cytotoxic effect on either HUVEC or peripheral blood mononuclear cells (PBMC). These results indicate that YXQG-EQ has profound effects on growth and apoptosis of prostate cancer cells by targeting survival pathways including the Akt and NF-kappa B pathways.

Arthritis Rheum. 2007 Oct 15;57(7):1202-10.

The effects of vigorous exercise training on physical function in children with arthritis: a randomized, controlled, single-blinded trial.

Singh-Grewal D, Schneiderman-Walker J, Wright V, Bar-Or O, Beyene J, Selvadurai H, Cameron B, Laxer RM, Schneider R, Silverman ED, Spiegel L, Tse S, Leblanc C, Wong J, Stephens S, Feldman BM.

The Hospital for Sick Children, Toronto, Ontario, Canada.

OBJECTIVE: To examine the effectiveness of high-intensity aerobic training compared with low-intensity training in terms of energy cost of locomotion, peak oxygen uptake, peak power, and self-reported physical function in children with juvenile idiopathic arthritis (JIA).

METHODS: Eighty children with JIA, ages 8-16 years, were enrolled in a randomized, single-blind controlled trial. Both groups participated in a 12-week, 3-times-weekly training program consisting of high-intensity aerobics in the experimental group and qigong in the control group. Subjects underwent exercise testing measuring submaximal oxygen uptake at 3 km/hour (VO(2submax)) as the primary outcome, maximal oxygen uptake, and peak power at the beginning and end of the program. Physical function was measured using the Child Health Assessment Questionnaire (C-HAQ).

RESULTS: The exercise program was well tolerated in both groups. There was no difference in VO(2submax) or any other exercise testing measures between the groups through the study period and no indication of improvement. Both groups showed significant improvements in C-HAQ with no difference between the groups. Adherence was higher in the control group than the experimental group.

CONCLUSION: Our findings suggest that activity programs with or without an aerobic training component are safe and may result in an important improvement in physical function. The intensity of aerobic training did not seem to provide any additional benefits, but higher adherence in the qigong program may suggest that less intensive regimens are easier for children with JIA to comply with, and provide a degree of benefit equivalent to more intensive programs.

Spine. 2007 Oct 15;32(22):2415-22.

Qigong and exercise therapy in patients with long-term neck pain: a prospective randomized trial.

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STUDY DESIGN: A randomized, controlled, multicenter trial: 1-year follow-up.

OBJECTIVE: To compare the effectiveness of qigong and exercise therapy in subjects with long-term nonspecific neck pain.

SUMMARY OF BACKGROUND DATA: The evidence for the benefit of treatment programs focusing on persons with long-term, nonspecific neck pain is conflicting. Several studies have shown support for exercise therapy, but the efficacy of qigong has not been scientifically evaluated.

METHODS: A total of 122 patients were randomly assigned to receive either qigong (n = 60) or exercise therapy (n = 62). Most of them were women (70%), and the mean age was 44 years. A maximum of 12 treatments were given over a period of 3 months. Neck pain frequency and intensity, neck disability (NDI), grip strength, and cervical range of motion were recorded before and immediately after, at 6 months, and at 12 months after the treatment period. Changes in outcome variables were analyzed and dichotomized as improved or unchanged/deteriorated.

RESULTS: Clinical and demographic characteristics were similar among groups at baseline. No differences were found between the 2 interventions: qigong and exercise therapy. Both groups significantly improved immediately after treatment and this was maintained at the 6- and 12-month follow-ups in 5 of 8 outcome variables: average neck pain in the most recent week, current neck pain (with exception for immediately after treatment period), neck pain diary, NDI, and cervical range of motion in rotation.

CONCLUSION: These results indicate that treatments including supervised qigong or exercise therapy resulting in reduced pain and disability can be recommended for persons with long-term nonspecific neck pain.

Am J Chin Med. 2007;35(6):937-45.

fMRI study of pain reaction in the brain under state of "Qigong".

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In this study, 4 male Qigong masters (aged 60 +/- 12) who had Qigong practicing experience for more than 30 years were tested. By using the technique of fMRI, the change of brain function under the state of Qigong was observed through the peripheral pain stimulation generated by potassium penetrating method. The fMRI examination was running on a GE signa VH/3.0 T MRI machine and block design was used. The test was repeated several times, which was carried out before and 15 min after Qigong practicing. The heart and respiration rate of these 4 Qigong masters were monitored during the whole test. SPM2 was used for the data analysis, and the result showed that before Qigong practicing, besides SI and SII-insula regions, many other Brodmann areas, the cigulate cortex, the thalamus, and the cerebellum were all activated, while 15 min after that, the activated areas were decreased obviously, which were mainly at the SII-insula region and some other Brodmann areas. Since the SII-insula region

was activated in both of these two states, further analysis of the response curve was focused on it. Its response amplitude under the state of Qigong (3.5%) was greater than that before Qigong (1.2%). Our result indicated that the main manifestation of brain functional change under Qigong was functional suppressing, but in some particular regions such as SII-insula region in our study, the response amplitude was increased. Further study of the exact physiological mechanism of Qigong is needed.

Zhongguo Zhen Jiu. 2007 Dec;27(12):871-4.

[Brief talk about the main cultural quintessence and diagnostic and therapeutic techniques of acupuncture and moxibustion protection]

[Article in Chinese]

Zhang L, Yang JS, Zhu B, Wu XD, Zhang LJ, Li SY, Wang YY.

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Acupuncture and moxibustion are a distinctive therapy created by ancient working people of our country, with a long history. Medical practices of long-term form the theories about channels and collaterals, acupoints and indications of acupoints and produce a series of therapeutic methods, such as Ziwu Liuzhu method, filiform needle needling method, moxibustion, scrapping therapy, cupping therapy and Qigong therapy. These distinctive traditional therapeutic ways play great roles in prevention and treatment of diseases in the Chinese nation. The authors expound culture concept and origins of history culture, and facing problems and challenge of above-mentioned theories and therapeutic methods and hold that main culture quintessence and diagnostic and therapeutic techniques of acupuncture and moxibustion very need to be inherited, protected and further sorted out and studied.

Parkinsonism Relat Disord. 2008 Mar 26. [Epub ahead of print]

Effectiveness of tai chi for Parkinson's disease: A critical review.

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The objective of this review is to assess the effectiveness of tai chi as a treatment option for Parkinson's disease (PD). We have searched the literature using 21 databases from their inceptions to January 2008, without language restrictions. We included all types of clinical studies regardless of their design. Their methodological quality was assessed using the modified Jadad score. Of the seven studies included, one randomised clinical trial (RCT) found tai chi to be superior to conventional exercise in terms of the Unified PD Rating Scale (UPDRS) and prevention of falls. Another RCT found no effects of tai chi on locomotor ability compared with qigong. The third RCT failed to show effects of tai chi on the UPDRS and the PD Questionnaires compared with wait list control. The remaining studies were either non-randomised (n=1) or uncontrolled clinical trials (n=3). Collectively these data show that RCTs of the tai chi for PD are feasible but scarce. Most investigations suffer from methodological flaws such as inadequate study design, poor reporting of results, small sample size, and publication without appropriate peer review process. In conclusion, the evidence is insufficient to suggest tai chi is an effective intervention for PD. Further research is required to investigate whether there are specific benefits of tai chi for people with PD, such as its potential effect on balance and on the frequency of falls.

Br J Sports Med. 2008 Apr 2. [Epub ahead of print]

A preliminary study of the effects of Tai Chi and Qigong medical exercise on indicators of metabolic syndrome and glycaemic control in adults with elevated blood glucose.

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OBJECTIVES: To evaluate the feasibility, acceptability and effects of a Tai Chi and Qigong medical exercise program that aimed to improve indicators of metabolic syndrome and glycaemic control in adults with elevated blood glucose.

DESIGN, SETTING, AND PARTICIPANTS: A single group pre-post trial of 11 participants (3 male and 8 female; aged 42-65 years) with elevated blood glucose, conducted from August to November 2005 at a university in Australia. Invervention: Participants attended Tai Chi and Qigong exercise training for 1 to 1.5 hours, 3 times per week for 12 weeks, and were encouraged to practice the exercises at home.

MAIN OUTCOME MEASURES: Indicators of metabolic syndrome (body mass index, waist circumference, blood pressure, fasting blood glucose, triglycerides, HDL-cholesterol), and glucose control (HbA1c, fasting insulin and insulin resistance).

RESULTS: There was good adherence and high acceptability for the group based program. There were significant improvements in four of the seven indicators of metabolic syndrome including body mass index [mean difference -1.05 (95% CI: -1.48, -0.63), $p<0.001$], waist circumference [-2.80 cm (-4.97, -0.62), $p<0.05$)], and both systolic [-11.64 mm Hg (-19.46, -3.51), $p<0.01$)] and diastolic blood pressure [-9.73 mm Hg (-13.58, -5.88), $p<0.001$)]. There were also small improvements in HbA1c [-0.32 % (-0.49, -0.15), $p<0.01$)], fasting insulin [-9.93 pmol/L (-19.93, 0.07), $p = 0.051$] and insulin resistance [-0.53 (-0.97, -0.09), $p<0.05$].

CONCLUSIONS: The program was shown to be feasible and acceptable and the findings suggest that it may be helpful for control of indicators of metabolic syndrome and glycaemic control. Larger controlled studies are needed to confirm these promising results.

Menopause. 2008 Apr 17. [Epub ahead of print]

Menopause, the metabolic syndrome, and mind-body therapies.

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Cardiovascular disease risk rises sharply with menopause, likely due to the coincident increase in insulin resistance and related atherogenic changes that together comprise the metabolic or insulin resistance syndrome, a cluster of metabolic and hemodynamic abnormalities strongly implicated in the pathogenesis and progression of cardiovascular disease. A growing body of research suggests that traditional mind-body practices such as yoga, tai chi, and qigong may offer safe and cost-effective strategies for reducing insulin resistance syndrome-related risk factors for cardiovascular disease in older populations, including postmenopausal women. Current evidence suggests that these practices may reduce insulin resistance and related physiological risk factors for cardiovascular disease; improve mood, well-being, and sleep; decrease sympathetic activation; and enhance cardiovagal function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

Med Sport Sci. 2008;52:64-76.

Effects of a traditional taiji/qigong curriculum on older adults'immune response to influenza vaccine.

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Previous studies have suggested that Taiji (T'ai Chi) practice may improve immune function. The current study examined whether 5 months of moderate traditional Taiji and Qigong (TQ) practice could improve the immune response to influenza vaccine in older adults. Fifty older adults participated in this study. Baseline pre-vaccine blood samples were collected. Subjects received the 2003-2004 influenza vaccine during the 1st week of the intervention. Post-vaccine blood samples were collected 3, 6 and 20 weeks after intervention for analysis of anti-influenza hemagglutination inhibition titers. Findings indicated a significant increase in the magnitude and duration of the antibody response to influenza vaccine in TQ participants when compared to controls. There was a significant between-group difference at 3 and 20 weeks after vaccine, and at 20 weeks the TQ group had significantly higher titers compared to the pre-vaccine time point, whereas the controls did not. A higher percentage of TQ subjects also responded to the influenza A strains with a protective antibody response, but differences between groups were not statistically significant. Traditional TQ practice improves the antibody response to influenza vaccine in older adults, but further study is needed to determine whether the enhanced response is sufficient to provide definitive protection from influenza infection.

Exp Brain Res. 2008 Jun;188(2):317-22. Epub 2008 May 30.

Tactile acuity in experienced Tai Chi practitioners: evidence for use dependent plasticity as an effect of sensory-attentional training.

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The scientific discovery of novel training paradigms has yielded better understanding of basic mechanisms underlying cortical plasticity, learning and development. This study is a first step in evaluating Tai Chi (TC), the Chinese slow-motion meditative exercise, as a training paradigm that, while not engaging in direct tactile stimulus training, elicits enhanced tactile acuity in long-term practitioners. The rationale for this study comes from the fact that, unlike previously studied direct-touch tactile training paradigms, TC practitioners focus specific mental attention on the body's extremities including the fingertips and hands as they perform their slow routine. To determine whether TC is associated with enhanced tactile acuity, experienced adult TC practitioners were recruited and compared to age-gender matched controls. A blinded assessor used a validated method (Van Boven et al. in Neurology 54(12): 2230-2236, 2000) to compare TC practitioners' and controls' ability to discriminate between two different orientations (parallel and horizontal) across different grating widths at the fingertip. Study results showed that TC practitioners' tactile spatial acuity was superior to that of the matched controls ($P < 0.04$). There was a trend showing TC may have an enhanced effect on older practitioners ($P < 0.066$), suggesting that TC may slow age related decline in this measure. To the best of our knowledge, this is the first study to evaluate a long-term attentional practice's effects on a perceptual measure. Longitudinal studies are needed to examine whether TC initiates or is merely correlated with perceptual changes and whether it elicits long-term plasticity in primary sensory cortical maps. Further studies should also assess whether related somatosensory attentional practices (such as Yoga, mindfulness meditation and Qigong) achieve similar effects.

Am J Chin Med. 2008;36(3):449-58.

Acute psychological responses to qigong exercise of varying durations.

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Qigong exercise has been shown to induce acute psychological changes of a positive nature; but whether

longer durations have greater effects than shorter ones is not known. Forty-one regular qigong practitioners therefore engaged in either 30 or 60 min of qigong exercise within a randomized cross-over design. Measures of mood, anxiety, activation, and hedonic tone were obtained pre- and post-exercise. Results showed benefits of the same magnitude in the two conditions: more positive mood states, reduced state anxiety, and enhanced perceived pleasure. Thirty minutes of qigong exercise thereby seems to be sufficient to provide psychological benefits, and with no additional benefits detected after 60 min. This finding is important for those having little time or motivation to engage in activities of longer durations. In addition, health professionals prescribing exercise for health benefits can prescribe shorter exercise sessions with confidence knowing that positive psychological effects can also occur after a shorter exercise bout.

J Altern Complement Med. 2008 Jan-Feb;14(1):27-37.

Clinical effect of qigong practice on essential hypertension: a meta-analysis of randomized controlled trials.

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OBJECTIVES: This study was designed to quantitatively assess the effectiveness of self-practiced qigong for treatment of essential hypertension.

METHODS: Six major electronic databases were searched up to July 2006 to retrieve any potential randomized controlled trials designed to evaluate the clinical effectiveness of self-practiced qigong for essential hypertension reported in any language, with main outcome measures as systolic blood pressure (SBP) and diastolic blood pressure (DBP). The quality of included studies were assessed with the Jadad Scale and a customized standard quality assessment scale.

RESULTS: Ninety-two (92) studies were identified. Nine (9) of these studies qualified for meta-analysis, comprising a total of 908 cases. Results were as follows: (1) The mean decrease of SBP in those practicing qigong was a 17.03 mm Hg reduction (95% confidence interval (CI) 11.53-22.52) compared with nonspecific intervention controls, but not superior to that in drug controls (1.19 mm Hg, 95% CI -5.40-7.79) and conventional exercise controls (-1.51 mm Hg, 95% CI -6.98-3.95). (2) Mean decrease of DBP in those practicing qigong was 9.98 mm Hg (95% CI 2.55-17.41) compared with nonspecific intervention controls, but not superior to that in drug controls (2.49 mm Hg, 95% CI -0.16-5.13) and conventional exercise controls (-1.59 mm Hg, 95% CI -4.91-1.74). (3) No obvious side effects were identified.

CONCLUSIONS: Self-practiced qigong for less than 1 year is better in decreasing BP in patients with essential hypertension than in no-treatment controls, but is not superior to that in active controls. More methodologically strict studies are needed to prove real clinical benefits of qigong, and to explore its potential mechanism.

Am J Chin Med. 2008;36(3):459-72.

Medical qigong for cancer patients: pilot study of impact on quality of life, side effects of treatment and inflammation.

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Quality of life (QOL) of cancer patients is often diminished due to the side effects of treatment and symptoms of the disease itself. Medical Qigong (coordination of gentle exercise and relaxation through meditation and breathing exercise based on Chinese medicine theory of energy channels) may be an effective therapy for improving QOL, symptoms and side effects, and longevity of cancer patients. In this pilot study, the feasibility, acceptability, and impact of Medical Qigong (MQ) were evaluated on outcomes in cancer patients. Thirty patients diagnosed with heterogeneous cancers, were randomly assigned to two groups: a control group that received usual medical care and an intervention group who participated in a MQ program for 8 weeks in addition to receiving usual medical care. Randomization was stratified by completion of cancer treatment (n = 14) or under chemotherapy (n = 16). Patients completed measures before and after the program. Quality of life and symptoms were measured by the EORTC QLQ-C 30 and progress of disease by the inflammation biomarker (CRP: c-reactive protein) via a blood test was assessed. The MQ intervention group reported clinically significant improved global QOL scores pre- and post-intervention. The MQ intervention also reduced the symptoms of side effects of cancer treatment and inflammation biomarker (CRP) compare to the control group. Due to the small sample size, however, the results were not statistically significant between treatment and the control groups. Data from the pilot study suggest that MQ with usual medical treatment can enhance the QOL of cancer patients and reduce inflammation. This study needs a further investigation with a larger sample size.

West J Nurs Res. 2008 Jul 8. [Epub ahead of print]

Qigong Improving Physical Status in Middle-Aged Women.

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Regular exercise has been shown to benefit its practitioners and prevent and control diseases. Muscle/Tendon Change Classic (MTCC) qigong, characterized by simple, slow, and full-body exercise, is appropriate for the middle-age population. This study aims to evaluate the effect of the MTCC qigong program in improving physical status for middle-aged women. A quasi-experimental design was used. The experimental group (n = 37) received an 8-week MTCC qigong program, whereas the control group (n = 34) received none. Physiological parameters of muscular

performance, body composition, and bone strength were measured before and after the program. The average age was 49 +/- 4.13 years for the experimental group and 50 +/- 4.74 years for the control group. The demographic characteristics were homogeneous between the two groups. There were statistically significant differences between the two groups in muscular endurance, body fat, waist-to-hip ratio, and body mass index at the completion of 8-week MTCC qigong program. The MTCC qigong could improve muscle endurance and body composition but not bone strength for middle-aged women, thereby demonstrating the qigong practice has certain health-preserving effects on women in this stage of life.

J Clin Nurs. 2007 Apr;16(4):769-76.

Qigong practice among chronically ill patients during the SARS outbreak.

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Aims and objectives. This research aimed at exploring the motivations and experiences of chronically ill participants practising qigong during the severe acute respiratory syndrome outbreak in Hong Kong. Background. Although biomedicine is the mainstream medical system in Hong Kong, many people employ complementary and alternative medicine in dealing with their chronic health problems. Practising qigong is one of the most popular forms of complementary and alternative medicine used among chronically ill patients. Little is known about the experiences of the chronically ill patients practising qigong in the severe acute respiratory syndrome outbreak and even less is known how this practice is related to the social context of Hong Kong during the outbreak. Design and methods. Qualitative methods using participant-observation from three qigong classes in Hong Kong and in-depth semi-structured interviews with 30 participants were employed. Content analysis and discourse analysis were used to identify major themes of the data. Results. Both the underlying and trigger motivations could motivate these chronically ill participants to practise qigong. Legitimacy of qigong in health maintenance, deterioration of health and unpleasant experiences in biomedical treatment on their chronic illnesses served as the underlying motivations. Stigmatization of and discrimination against the chronically ill and the sense of searching coping strategy during the severe acute respiratory syndrome outbreak further motivated their practice. Conclusion. To the participants, practising qigong not only could strengthen their health, but was also a coping strategy for them to regain an active control and the sense of security in their health and enabled them to overcome the social stigmatization and discrimination during the outbreak. Relevance to clinical practice. Searching for emotional support and a more active role in health conditions could be seen from the chronically ill participants. Understanding and paying more attention to the particular needs of the chronically ill patients can enable health-care professionals to provide better care and support for the chronically ill during an epidemic crisis.

Complement Ther Clin Pract. 2007 May;13(2):78-84. Epub 2006 Nov 28.

Qigong reduces stress in computer operators.

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Chinese research indicates that the Qigong method reduces psychosomatic and physical symptoms through an effect on the sympathetic nervous system.

OBJECTIVES: The aim was to investigate the effects of Qigong on stress among computer operators.

DESIGN: Ten women were included in a Qigong group and an equal number in a control group. Heart rate, blood pressure, and finger temperature were measured at the beginning and at the end of the working day during 5 weeks. twenty four-hours urine samples were collected in the first and last weeks to measure catecholamine excretion in urine. Participants kept a daily record of psychological measures of strain and weekly measures of stress levels.

RESULTS AND CONCLUSIONS: Qigong reduced noradrenaline excretion in urine ($p<0.05$), and influenced the heart rate and temperature, indicating reduced activity of the sympathetic nervous system. Moreover, Qigong reduced low-back symptoms ($p<0.05$). In conclusion, Qigong exercise may reduce stress at computerised work.3/2007

Conf Proc IEEE Eng Med Biol Soc. 2005;5:5317-9.

Studies of chinese original quiet sitting by using functional magnetic resonance imaging.

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Since different meditations may activate different regions in brain, we can use functional magnetic resonance imaging (fMRI) to investigate it. Chinese original quiet sitting is mainly one kind of traditional Chinese meditation. It contains two different parts: a short period of keeping phrase and intake spiritual energy, and a long period of relaxation with no further action. In this paper, both those two stages were studied by fMRI. We performed two different paradigms and found the accurate positions in the brain. The pineal gland and the hypothalamus showed positive activation during the first and second stages of this meditation. The BOLD (Blood Oxygenation Level Dependent) signal changes had also been found.

Am J Chin Med. 2006;34(6):949-57.

Qigong exercise with concentration predicts increased health.

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Regular physical activity has many positive health effects. Despite this, approximately 50% of all adults are not exercising enough to enjoy better health and may, therefore, need an alternative to vigorous physical exercise. Qigong offers a gentle way to exercise the body. A questionnaire sample of 253 participants was collected and correlations with the variable health-now were analyzed. Results showed that health-now was positively correlated with number of completed qigong courses ($p < 0.05$), with level of concentration ($p < 0.01$), session-time ($p < 0.01$), and years of practice ($p < 0.05$). Among these variables, concentration predicts an increased feeling of health ($R(2) = 0.092$). Qigong exercise thereby seems to offer a viable alternative to other more vigorous physical activities when wellness is the primary goal. When interpreted using self-determination theory, qigong seems to satisfy needs related to autonomy, competence and relatedness, thereby, primarily attracting individuals who are intrinsically motivated.

J Altern Complement Med. 2006 Nov;12(9):851-6.

A pilot study of external qigong therapy for patients with fibromyalgia.

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OBJECTIVES: Although qigong is an important part of Traditional Chinese medicine (TCM) based on a philosophy similar to acupuncture, few studies of qigong exist in the Western medicine literature. To evaluate qigong therapy as a modality in treating chronic pain conditions such as fibromyalgia syndrome (FMS), we report a pilot trial of 10 women with severe FMS who experienced significant improvement after external qigong therapy (EQT).

DESIGN: Ten patients with FMS completed five to seven sessions of EQT over 3 weeks with pre- and posttreatment assessment and a 3-month follow-up. Each treatment lasted approximately 40 minutes.

OUTCOME MEASURES: Tender point count (TPC) and Fibromyalgia Impact Questionnaire (FIQ) were the primary measures. McGill Pain Questionnaire (MPQ), Beck Depression Inventory (BDI), anxiety, and self-efficacy were the secondary outcomes.

RESULTS: Subjects demonstrated improvement in functioning, pain, and other symptoms. The mean TPC was reduced from 136.6 to 59.5 after EQT treatment; mean MPQ decreased from 27.0 to 7.2; mean FIQ from 70.1 to 37.3; and mean BDI from 24.3 to 8.3 (all $p < 0.01$). Many subjects reported reductions in other FMS symptoms, and two reported they were completely symptom-free. Results from the 3-month follow-up indicated some slight rebound from the post-treatment measures, but still much better than those observed at baseline.

CONCLUSIONS: Treatment with EQT resulting in complete recovery for some FMS patients suggests that TCM may be very effective for treating pain and the multiplicity of symptoms associated with FMS. Larger controlled trials of this promising intervention are urgently needed.

Prev Cardiol. 2007 Winter;10(1):22-5.

Functional capacity after traditional Chinese medicine (qi gong) training in patients with chronic atrial fibrillation: a randomized controlled trial.

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Evidence indicates that low energy expenditure protocols derived from traditional Chinese medicine may benefit patients with cardiac impairment; therefore, the authors carried out a randomized controlled trial to test a 16-week medically assisted qi gong training program for the physical rehabilitation of patients with stable chronic atrial fibrillation and preserved left ventricular function. Functional capacity variation was evaluated using the 6-minute walk test, which was performed at baseline, at the end of the intervention, and after 16 weeks. Thirty men and 13 women (mean age, 68+/-8 years) were randomized to the intervention protocol or to a wait-list control group. Qi gong training was well tolerated and, compared with baseline, trained patients walked an average 114 meters more (27%) at the end of treatment ($P<.001$) and 57 meters more (13.7%) 16 weeks later ($P=.008$). Control subjects showed no variation in functional capacity. These results seem promising and deserve confirmation with further research.

Am J Chin Med. 2006;3c4(6):959-68.

Comparison of the effects of Tai Chi Chuan and Wai Tan Kung exercises on autonomic nervous system modulation and on hemodynamics in elder adults.

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The health of the middle-aged and elderly people is a major concern given the rapid aging population and rising costs of medical care. Low-impact exercise on a regular basis is ideal for maintaining the well-being of an aging population. Tai Chi Chuan (TCC) is the most well-known and most widely practiced form of low-impact martial arts therapy and has been shown to have positive health effects. A lesser-known form of martial arts therapy is Wai Tan Kung (WTK), which our previous study found to have positive health effects as well. The present study compares the effects of TCC and WTK on autonomic nervous system modulation and on hemodynamics in adults among non-exercising control (30), TCC practitioners (30) and WTK practitioners (30). Our study found that in a short-term, WTK and TCC exercises enhanced the vagal modulation,

lowered the sympathetic modulation and lowered arterial blood pressures in the practitioners. It was also observed that the forced vital capacity of TCC practitioners was significantly higher than that of WTK practitioners before exercise. There were no significant differences in the percentage changes in HRV measures and hemodynamics between WTK and TCC practitioners 30 and 60 min after exercise, indicating that the effects of WTK and TCC were similar in magnitude. In conclusion, TCC and WTK are comparable to each other in terms of their effects on autonomic nervous system modulation and hemodynamics, thus suggesting that WTK can be just as beneficial as TCC as a form of low-impact exercise for elderly adults.

Med Sci Monit. 2007 Aug;13(8):CR339-348.

Effect of combined Taiji and Qigong training on balance mechanisms: A randomized controlled trial of older adults.

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Background: Taiji (T'ai Chi) has been shown to have generally positive effects on functional balance. However, few studies have investigated the mechanisms by which Taiji may improve balance. The goal of this study was to evaluate changes in sensory and biomechanical balance mechanisms as a consequence of a traditional Taiji exercise program for healthy older adults that intentionally emphasized both Taiji forms and Qigong meditation.

Material/Methods: This was a randomized controlled trial with blind testers. Forty-nine healthy older adults (mean age 80.4, SD. 8.6) were randomized to participate in Taiji-Qigong (TQ) training (N=33) or a wait-list control group (WC, N=16). TQ instruction was provided 1 hour/session, 3 sessions a week for six months. Somatosensory, visual, and vestibular ratios of the Sensory Organization Test, and quiet stance Base of Support (BoS) and feet opening angle measures were collected prior to instruction (T0), at two months (T2), and six months (T6).

Results: TQ group vestibular ratio scores (normalized to T0) were +22% and +47% greater than WC at T2 and T6, respectively. The TQ group exhibited an increase in quiet stance BoS over time but not feet opening angle, indicating that the increase in BoS was due to the adoption of wider stances.

Conclusions: Improved use of vestibular input and wider stances are two mechanisms by which Taiji-Qigong training may improve healthy older adults' balance. Further study is needed to evaluate other balance mechanisms and the individual and combined effects of different aspects of traditional Taiji practice.

J Hypertens. 2007 Aug;25(8):1525-32.

Qigong for hypertension: a systematic review of randomized clinical trials.

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OBJECTIVES: To assess systematically the clinical evidence of qigong for hypertension.

METHODS: Databases were searched up to August 2006. All randomized clinical trials (RCTs) testing qigong in patients with hypertension of any origin and assessing clinically relevant outcomes were considered. Trials using any type of control intervention were included. The selection of studies, data extraction and quality assessment were performed independently by at least two reviewers. Methodological quality was evaluated using the Jadad score.

RESULTS: A total of 121 potentially relevant articles were identified and 12 RCTs were included. Seven RCTs tested qigong in combination with antihypertensive drugs compared with antihypertensive drugs alone. The meta-analysis of two trials reporting adequate data suggested beneficial effects in favour of qigong [weighted mean difference, systolic blood pressure (SBP) -12.1 mmHg, 95% confidence interval (CI) -17.1 to -7.0; diastolic blood pressure -8.5 mmHg, 95% CI -12.6 to -4.4]. Qigong was compared with waiting list control in two RCTs and was found to reduce SBP significantly (weighted mean difference -18.5 mmHg, 95% CI -23.1 to -13.9). In three further RCTs the comparisons made were: qigong combined with conventional therapy versus muscle relaxation combined with conventional therapy; qigong as a sole treatment versus exercise. All reported positive results in at least some of the relevant outcome measures. The methodological quality of the studies was low.

CONCLUSION: There is some encouraging evidence of qigong for lowering SBP, but the conclusiveness of these findings is limited. Rigorously designed trials are warranted to confirm these results.

Am J Chin Med. 2007;35(3):393-406.

Improvement in sensory impairment and social interaction in young children with autism following treatment with an original qigong massage methodology.

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In clinical research, sensory impairment is considered one of the core deficits in autism and is associated with impaired socialization, behavioral disturbances and bowel and sleep problems. The effectiveness of the Cignolini methodology, an original Qigong massage methodology,

in treating sensory impairment in young children with autism was evaluated in a small, controlled study. Thirteen children with autism between the ages of three and six received daily treatment according to the methodology for 5 months. Compared with untreated children, treated children experienced significant improvement of their sensory impairment ($p < 0.01$), and demonstrated increased social skills ($p < 0.04$) and basic living skills ($p < 0.02$) on standardized measures. In addition, all of the children with bowel and sleep abnormalities demonstrated improvement after treatment.

J Altern Complement Med. 2007 May;13(4):427-33.

A qualitative review of the role of qigong in the management of diabetes.

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OBJECTIVE: To review the evidence relating to the effectiveness of qigong in the management of diabetes.

METHODS: We performed a systematic literature review of qigong intervention studies published in English or Chinese since 1980, retrieved from English-language databases and Chinese journals. Qigong intervention studies conducted with adults with diabetes, which reported both preintervention and postintervention measures of fasting blood glucose and/or hemoglobin A(1c)(HbA(1c)) were included. Sample characteristics, intervention frequency/duration, and metabolic outcomes were reviewed.

RESULTS: Sixty-nine intervention studies were located. Of these, only 11 met the criteria for inclusion. There were consistent and statistically significant positive associations between participation in qigong and fasting and 2-hour oral glucose tolerance test results, blood glucose, and triglycerides and total cholesterol. Effects on insulin and HbA(1c) were inconsistent. There was no evidence of any effect of qigong on weight. Most of the studies were of short duration, involved small samples, and did not include a control group.

CONCLUSIONS: Although qigong has beneficial effects on some of the metabolic risk factors for type 2 diabetes, methodologic limitations make it difficult to draw firm conclusions about the benefits reported. Randomized controlled trials are required to confirm the potential beneficial effects of qigong on the management of type 2 diabetes.

J Pain. 2007 Aug 7; [Epub ahead of print]

External Qigong for Pain Conditions: A Systematic Review of Randomized Clinical Trials.

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The aim of this systematic review was to assess the clinical evidence of external qigong as a treatment option for pain conditions. Databases were searched up to January 2007. Randomized, clinical trials (RCTs) testing external qigong in patients with pain of any origin assessing clinical outcomes were considered. Trials using any type of control group were included. The selection of studies, data extraction, and validation were performed independently by at least 2 reviewers. One hundred forty-one potentially relevant studies were identified and 5 RCTs could be included. All RCTs of external qigong demonstrated greater pain reductions in the qigong groups compared with control groups. Meta-analysis of 2 RCTs showed a significant effect of external qigong compared with general care for treating chronic pain (Pain 100 mm VAS; weighted main differences, 36.3 mm; 95% CI, 22.8 to 49.8; $P < .001$; heterogeneity: $chi(2) = 1.79$, $P = .18$, $I(2) = 44.0\%$, $n = 80$). The evidence from RCTs testing the effectiveness of external qigong for treating pain is encouraging. Further studies are warranted. PERSPECTIVE: This review of clinical studies focused on the efficacy of qigong, an energy-healing intervention used to prevent and cure ailments. A meta-analysis shows that evidence for the effectiveness of external qigong is encouraging, though further studies are warranted.

Yang Y, Verkuilen J, Rosengren KS, Mariani RA, Reed M, Grubisich SA, Woods JA..

Effects of a taiji and qigong intervention on the antibody response to influenza vaccine in older adults.

Am J Chin Med. 2007;35(4):597-607.

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Previous studies have suggested that Taiji practice may improve immune function. This study was intended to examine whether 5 months of moderate Taiji and Qigong (TQ) practice could improve the immune response to influenza vaccine in older adults. Fifty older adults (mean age 77.2 +/- 1.3 years) participated in this study (TQ N = 27; wait-list control [CON] N = 23). Baseline pre-vaccine blood samples were collected. All subjects then received the 2003-2004 influenza vaccine during the first week of the intervention. Post-vaccine blood samples were collected 3, 6 and 20 weeks post-intervention for analysis of anti-influenza hemagglutination inhibition (HI) titers. We found a significant ($p < 0.05$) increase in the magnitude and duration of the antibody response to influenza vaccine in TQ participants when compared to CON. The vaccination resulted in a 173, 130, and 109% increase in HI titer at 3, 6, and 20 weeks post-vaccine, respectively, in the TQ group compared to 58, 54, and 10% in CON. There was a significant between group difference at 3 and 20 weeks post-vaccine and at 20 weeks the TQ group had significantly higher titers compared to the pre-vaccine time point, whereas the CON group did not. A higher percentage of TQ subjects also responded to the influenza A strains with a protective (> 40HI) antibody response (37% TQ vs. 20% CON for the H1N1 strain and 56% TQ vs. 45%

CON for the H3N2 strain), but the differences between groups were not statistically significant. Traditional TQ practice improves the antibody response to influenza vaccine in older adults, but further study is needed to determine whether the enhanced response is sufficient to provide definitive protection from influenza infection.

Clin Rheumatol. 2007 Sep 14; [Epub ahead of print]

Tai chi for osteoarthritis: a systematic review.

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The aim of this study was to evaluate data from controlled clinical trials testing the effectiveness of tai chi for treating osteoarthritis. Systematic searches were conducted on MEDLINE, AMED, British Nursing Index, CINAHL, EMBASE, PsycInfo, The Cochrane Library 2007, Issue 2, the UK National Research Register and ClinicalTrials.gov, Korean medical databases, the Qigong and Energy database and Chinese medical databases (until June 2007). Hand searches included conference proceedings and our own files. There were no restrictions regarding the language of publication. All controlled trials of tai chi for patients with osteoarthritis were considered for inclusion. Methodological quality was assessed using the Jadad score. Five randomised clinical trials (RCTs) and seven non-randomised controlled clinical trials (CCTs) met all inclusion criteria. Five RCTs assessed the effectiveness of tai chi on pain of osteoarthritis (OA). Two RCTs suggested significant pain reduction on visual analog scale or Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) compared to routine treatment and an attention control program in knee OA. Three RCTs did not report significant pain reduction on multiple sites pain. Four RCTs tested tai chi for physical functions. Two of these RCTs suggested improvement of physical function on activity of daily living or WOMAC compared to routine treatment or wait-list control, whilst two other RCTs failed to do so. In conclusion, there is some encouraging evidence suggesting that tai chi may be effective for pain control in patients with knee OA. However, the evidence is not convincing for pain reduction or improvement of physical function. Future RCTs should assess larger patient samples for longer treatment periods and use appropriate controls.

Disabil Rehabil. 2007 Jun 15;:1-9 [Epub ahead of print]

The effect of Qigong on Fibromyalgia (FMS): A controlled randomized study.

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Purpose. To evaluate the effect of a 7-week Qigong intervention on subjects with Fibromyalgia Syndrome (FMS). Methods. The study was a controlled randomized study with repeated measures. Fifty-seven FMS female subjects were randomly assigned to an intervention group (n = 29) or a waiting-list control group (n = 28). After completion of the experimental part, the control group received the same intervention. Collection of data was made at pre- and post-treatment and at 4-month follow-up for both groups. Results. During the experimental part of the study, significant improvements were found for the intervention group, at post-treatment, regarding different aspects of pain and psychological health and distress. Almost identical results were found for the combined group. At 4-month follow-up, the majority of these results were either maintained or improved. Conclusion. The overall results show that Qigong has positive and reliable effects regarding FMS. A high degree of completion, 93%, and contentment with the intervention further support the potential of the treatment. The results of the study are encouraging and suggest that Qigong intervention could be a useful complement to medical treatment for subjects with FMS.

Arthritis Rheum. 2007 Sep 28;57(7):1202-1210 [Epub ahead of print]

The effects of vigorous exercise training on physical function in children with arthritis: A randomized, controlled, SINGLE-BLINDED trial.

Singh-Grewal D, Schneiderman-Walker J, Wright V, Bar-Or O, Beyene J, Selvadurai H, Cameron B, Laxer RM, Schneider R, Silverman ED, Spiegel L, Tse S, Leblanc C, Wong J, Stephens S, Feldman BM.

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OBJECTIVE: To examine the effectiveness of high-intensity aerobic training compared with low-intensity training in terms of energy cost of locomotion, peak oxygen uptake, peak power, and self-reported physical function in children with juvenile idiopathic arthritis (JIA).

METHODS: Eighty children with JIA, ages 8-16 years, were enrolled in a randomized, single-blind controlled trial. Both groups participated in a 12-week, 3-times-weekly training program consisting of high-intensity aerobics in the experimental group and qigong in the control group. Subjects underwent exercise testing measuring submaximal oxygen uptake at 3 km/hour (VO(2submax)) as the primary outcome, maximal oxygen uptake, and peak power at the beginning and end of the program. Physical function was measured using the Child Health Assessment Questionnaire (C-HAQ).

RESULTS: The exercise program was well tolerated in both groups. There was no difference in VO(2submax) or any other exercise testing measures between the groups through the study period and no indication of improvement. Both groups showed significant improvements in C-HAQ with no difference between the groups. Adherence was higher in the control group than the experimental group.

CONCLUSION: Our findings suggest that activity programs with or without an aerobic training component are safe and may result in an important improvement in physical function. The intensity of aerobic training did

not seem to provide any additional benefits, but higher adherence in the qigong program may suggest that less intensive regimens are easier for children with JIA to comply with, and provide a degree of benefit equivalent to more intensive programs.

Issues Ment Health Nurs. 2007 Oct;28(10):1141-55.

The effectiveness of tai chi, yoga, meditation, and reiki healing sessions in promoting health and enhancing problem solving abilities of registered nurses.

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Given the current necessity of retaining qualified nurses, a self-care program consisting of Yoga, Tai Chi, Meditation classes, and Reiki healing sessions was designed for a university-based hospital. The effectiveness of these interventions was evaluated using self-care journals and analyzed using a Heideggerian phenomenological approach. Outcomes of the self-care classes described by nurses included: (a) noticing sensations of warmth, tingling, and pulsation which were relaxing, (b) becoming aware of an enhanced problem solving ability, and (c) noticing an increased ability to focus on patient needs. Hospitals willing to invest in self-care options for nurses can anticipate patient and work related benefits.

Acta Oncol. 2007;46(6):717-22.

Qigong for cancer treatment: a systematic review of controlled clinical trials.

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Qigong is a mind-body integrative exercise or intervention from traditional Chinese medicine used to prevent and cure ailments, to improve health and energy levels through regular practice. The aim of this systematic review is to summarize and critically evaluate the effectiveness of qigong used as a stand-alone or additional therapy in cancer care. We have searched the literature using the following databases from their respective inceptions through November 2006: MEDLINE, AMED, British Nursing Index, CINAHL, EMBASE, PsycInfo, The Cochrane Library 2006, Issue 4, four Korean Medical Databases, Qigong and Energy Medicine Database from Qigong Institute and four Chinese Databases. Randomised and non-randomised clinical trials including patients with cancer or past experience of cancer receiving single or combined qigong interventions were included. All clinical endpoints were considered. The methodological quality of the trials was assessed using the Jadad score. Nine studies met our inclusion criteria (four were randomised trials and five were non-randomised studies). Eight of these trials tested internal qigong and one trial did not reported details. The methodological quality of these studies varies greatly and was generally poor. All trials related to palliative/supportive cancer care and none to qigong as a curative treatment. Two trials suggested effectiveness in prolonging life of cancer patients and one failed to do so. We conclude that the effectiveness of qigong in cancer care is not yet supported by the evidence from rigorous clinical trials.

Am J Chin Med. 2006;34(6):949-57.

Qigong exercise with concentration predicts increased health.

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Regular physical activity has many positive health effects. Despite this, approximately 50% of all adults are not exercising enough to enjoy better health and may, therefore, need an alternative to vigorous physical exercise. Qigong offers a gentle way to exercise the body. A questionnaire sample of 253 participants was collected and correlations with the variable health-now were analyzed. Results showed that health-now was positively correlated with number of completed qigong courses ($p < 0.05$), with level of concentration ($p < 0.01$), session-time ($p < 0.01$), and years of practice ($p < 0.05$). Among these variables, concentration predicts an increased feeling of health ($R(2) = 0.092$). Qigong exercise thereby seems to offer a viable alternative to other more vigorous physical activities when wellness is the primary goal. When interpreted using self-determination theory, qigong seems to satisfy needs related to autonomy, competence and relatedness, thereby, primarily attracting individuals who are intrinsically motivated.

J Aging Phys Act. 2006 Jul;14(3):241-53.

Pilot study comparing physical and psychological responses in medical qigong and walking.

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Identifying alternative exercise modalities in an effort to stimulate and promote participation in physical activity, especially among older adults, is a critical health consideration. The purpose of this study was to compare physiological and psychological responses to medical qigong with self-paced brisk walking. Older women (55-79 years) performed 22 min of either qigong or walking on two separate days. During exercise performance, heart rate and ratings of perceived exertion were assessed. Psychological affect, blood pressure, and pulse rate were assessed before and after the exercise bouts. Heart-rate data indicated that both forms of exercise were at a moderate level of intensity. In addition, similar values were found for the physiological and psychological variables as a function of the two forms of exercise. Therefore, it was concluded that this form of medical qigong can be considered a moderate-intensity physical activity that should have both physiological and psychological benefits for older women.

Am J Chin Med. 2006;34(5):741-7.

The effects of baduanjin qigong in the prevention of bone loss for middle-aged women.

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This study aimed to assess the efficacy of a 12-week Baduanjin qigong training program in preventing bone loss for middle-aged women. An experimental design was adopted, and subjects were assigned randomly into an experimental group (n = 44) and a control group (n = 43). The experimental group received a 12-week Baduanjin qigong training program, whereas the control group did not. Interleukin-6 (IL-6) and bone mineral density (BMD) were measured before and after the intervention. The results showed significant differences in IL-6 ($t = -5.19$, $p < 0.000$) and BMD ($t = 1.99$, $p = 0.049$) between the groups. Baduanjin reduced IL-6 and maintained BMD in the experimental group. In conclusion, this study demonstrates promising efficacy of Baduanjin in preventing bone loss commonly occurring in middle-aged women. Thus, Baduanjin is valuable for promoting and maintaining the health status of middle-aged women.

Int J Geriatr Psychiatry. 2006 Sep;21(9):890-7.

Effect of a qigong exercise programme on elderly with depression.

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OBJECTIVES: This report released findings of a randomized controlled trial conducted in Hong Kong to further our understanding of the psychosocial effects of qigong on elderly persons with depression.

DESIGN: Eighty-two participants with a diagnosis of depression or obvious features of depression were recruited and randomly assigned into the intervention and comparison group. The intervention group was given a 16-week period of Qigong practice while the comparison group participated in a newspaper reading group with same duration and frequency.

RESULTS: After eight weeks of qigong practice, the intervention group participants outstripped themselves in improvement in mood, self-efficacy and personal well being, and physical and social domains of self-concept when compared with comparison subjects. After 16 weeks of practice, the improvement generalized to the daily task domain of the self-concept.

CONCLUSIONS: This report shows that regular qigong practice could relieve depression, improve self-efficacy and personal well being among elderly persons with chronic physical illness and depression. Copyright (c) 2006 John Wiley & Sons, Ltd.

Int J Biochem Cell Biol. 2006;38(12):2102-13. Epub 2006 Jun 27.

External Qi of Yan Xin Qigong differentially regulates the Akt and extracellular signal-regulated kinase pathways and is cytotoxic to cancer cells but not to normal cells.

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Long-term clinical observations and ongoing studies have shown significant antitumor effect of external Qi of Yan Xin Qigong which originated from traditional Chinese medicine. In order to understand the molecular and cellular mechanisms underlying the antitumor effect of external Qi of Yan Xin Qigong, we have examined its cytotoxic effect on BxPC3 pancreatic cancer cells and its effect on the Akt and extracellular signal-regulated kinase pathways. We found that external Qi of Yan Xin Qigong dramatically inhibited basal phosphorylation levels of Akt and extracellular signal-regulated kinases, epidermal growth factor-mediated phosphorylation of extracellular signal-regulated kinases, and phosphatidylinositol 3-kinase activity. External Qi of Yan Xin Qigong also inhibited constitutive and inducible activities of nuclear factor-kappa B, a target of the Akt and epidermal growth factor receptor pathways. Furthermore, a single 5min exposure of BxPC3 cells to external Qi of Yan Xin Qigong induced apoptosis, accompanied by a dramatic increase of the sub-G1 cell population, DNA fragmentation, and cleavage of caspases 3, 8 and 9, and poly(ADP-ribose) polymerase. Prolonged treatment with external Qi of Yan Xin Qigong caused rapid lysis of BxPC3 cells. In contrast, treatment of fibroblasts with external Qi of Yan Xin Qigong induced transient activation of extracellular signal-regulated kinases and Akt, and caused no cytotoxic effect. These findings suggest that external Qi of Yan Xin Qigong may differentially regulate these survival pathways in cancer versus normal cells and exert cytotoxic effects preferentially on cancer cells, and that it could potentially be a valuable approach for therapy of pancreatic carcinomas.

Int J Neurosci. 2006 Sep;116(9):1055-64.

Is there any difference in the effects of Qi therapy (external Qigong) with and without touching? A pilot study.

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The aim of this study was to evaluate differences in the effects of Qi therapy without touching or with touching on anxiety, mood, neurohormones, and cellular immune function. Twenty-four healthy male subjects were randomly assigned to either QTN (n = 12) or QTT (n = 12). They received Qi therapy (external Qigong) without touching (QTN) or with touching (QTT). Nonparametric statistical

tests revealed no significant differences between the effects of QTN and QTT (all $p > .05$). Separate Wilcox signed rank tests for each intervention revealed significant effects on anxiety, alertness, depression, fatigue, tension, cortisol levels, and NK cell cytotoxicity for both QTN and QTT, and on neutrophil function for QTN only. These findings suggest that there are few differences between the effects of QTN and QTT. However, the reproducibility of the findings should be tested with multiple sessions, and long-term follow-up tests.

Am J Chin Med. 2006;34(1):37-46.

Effects of chan-chuang qigong on improving symptom and psychological distress in chemotherapy patients.

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The purpose of this study was to explore the effect of Chan-Chuang qigong on symptoms distress and psychological distress of breast cancer patients who underwent chemotherapy. A quasi-experimental design was adopted. Subjects were recruited from breast cancer outpatients receiving chemotherapy at an 1800-bed medical center in Taipei, Taiwan. Of these subjects, 35 were assigned to the control group and 32 to the experimental group in which Chan-Chuang qigong was administered. Assignment was not random. The instruments included a 21-item symptom distress scale and psychological distress with the symptom checklist-90-revised. Data of the symptoms and psychological distress were collected on the day before chemotherapy as baseline values, and also collected on days 8, 15 and 22 of chemotherapy. The results showed that the overall severity of symptom distress in the experimental group was significantly lower than the control group on day 22 ($p < 0.05$). The symptoms with significant improvement included pain, numbness, heartburn and dizziness ($p < 0.05$). With regard to psychological distress, the difference of overall severity between the two groups was not statistically significant ($p > 0.05$). However, the items of "unwillingness to live" ($p < 0.05$) and "hopelessness about the future" ($p < 0.05$) were significantly improved in the experimental group. In conclusion, Chan-Chuang qigong had the effect of attenuating the symptom distress and probably some part of the psychological distress of chemotherapy patients.

Eur J Cancer Care (Engl). 2005 Dec;14(5):457-62.

Effects of Qi therapy (external Qigong) on symptoms of advanced cancer: a single case study.

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The aim of this study was to examine the effectiveness of Qi therapy (external Qigong) in the management of symptoms of advanced cancer in a man. We used a single case study design to evaluate the effectiveness of Qi therapy (external Qigong) in a 35-year-old man with advanced cancer (Stage IV) involving metastases in the stomach, lung and bone (Karnofsky performance scale: KPS, 40: requires special care and assistance, disabled). Treatment involved six days of pre-assessment, eight treatment sessions on alternate days over 16 days, and a two-week follow-up phase. A visual analogue scale (VAS) was used to assess the patient's self-reported symptoms of cancer over the intervention and follow-up periods. Following treatment, VAS scores' analysis revealed beneficial effects on pain, vomiting, dyspnoea, fatigue, anorexia, insomnia, daily activity and psychological calmness. These improvements were maintained over the two-week follow-up phase. After the first Qi therapy session, the patient discontinued medication and could sit by himself; after the fourth session, the patient was able to walk and use the toilet without assistance (improvement in KPS: 70: care for self, unable to perform normal activity or to do active work). Although limited by the single case study approach, our results support previous studies on this topic and provide reasons to conduct controlled clinical trials.

Mov Disord. 2006 Apr;21(4):543-8.

Qigong exercise for the symptoms of Parkinson's disease: a randomized, controlled pilot study.

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Irrespective of limited evidence, not only traditional physiotherapy, but also a wide array of complementary methods are applied by patients with Parkinson's disease (PD). We evaluated the immediate and sustained effects of Qigong on motor and nonmotor symptoms of PD, using an add-on design. Fifty-six patients with different levels of disease severity (mean age/standard deviation [SD], 63.8/7.5 years; disease duration 5.8/4.2 years; 43 men [76%]) were recruited from the outpatient movement disorder clinic of the Department of Neurology, University of Bonn. We compared the progression of motor symptoms assessed by Unified Parkinson's Disease Rating Scale motor part (UPDRS-III) in the Qigong treatment group ($n = 32$) and a control group receiving no additional intervention ($n = 24$). Qigong exercises were applied as 90-minute weekly group instructions for 2 months, followed by a 2 months pause and a second 2-month treatment period. Assessments were carried out at baseline, 3, 6, and 12 months. More patients improved in the Qigong group than in the control group at 3 and 6 months ($P = 0.0080$ at 3 months and $P = 0.0503$ at 6 months; Fisher's exact test). At 12 months, there was a sustained difference between groups only when changes in UPDRS-III were related to baseline. Depression scores decreased in both groups, whereas the incidence of several nonmotor symptoms decreased in the treatment group only.

Am J Chin Med. 2005;33(4):579-88.

Nonlinear analysis of heart rate variability during Qi therapy (external Qigong).

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Heart rate variability (HRV) was compared in 30 subjects receiving external Qi therapy (EQT) or placebo control therapy, in a crossover design experiment. Subjects who received the EQT reported more pleasant and calm emotions than did the placebo group. Qi therapy reduced the heart rate and increased HRV as indicated by a reduced low frequency/high frequency power ratio of HRV. With nonlinear analysis, the Poincaré plot index of HRV and approximate entropy was greater in the EQT group than in the control group. These findings suggest that EQT stabilizes the sympathovagal function and cardiac autonomic nervous system by inducing more positive emotions than the placebo therapy. In conclusion, EQT may act by stabilizing both the autonomic nervous system and the emotional state.

Int J Neurosci. 2005 Jul;115(7):949-63.

Efficacy of Qi-therapy (external Qigong) for elderly people with chronic pain.

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To test the efficacy of Qi-therapy (external Qigong) in improving symptoms of pain and mood states in elderly peoples with chronic pain. Forty-three elderly people with chronic pain were randomly assigned either to an intervention or a general care group. The intervention group was given four weeks of Qi-therapy whereas the control group was given standard care. Compared with the control group, Qi-therapy participants experienced improvements in positive mood and psychological variables over the four-week program. Compared with baseline values, pain and psychological benefits remained significantly improved after two weeks of follow-up. These findings suggest that Qi-therapy may help the elderly cope with pain and associated mood disturbances.

Int J Neurosci. 2005 Sep;115(9):1345-50.

Effects of Qi-therapy (external Qigong) on cardiac autonomic tone: a randomized placebo controlled study.

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Heart-rate variability (HRV) was compared in 40 subjects receiving external Qi-therapy (QT) or placebo control therapy, in a randomized placebo controlled design experiment. There were significant time, and group x time interactions in heart rate (HR), low frequency (LF), high frequency (HF), and LF/HF. These suggest that QT reduced the HR and increased HRV as indicated by a reduced LF/HF power ratio of HRV. These findings suggest that QT stabilizes the sympathovagal function more than placebo therapy.

Int J Neurosci. 2005 Aug;115(8):1099-104.

Qi-training (qigong) enhanced immune functions: what is the underlying mechanism?

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The authors observed that Qi-training enhances immune function and modulates neurohormone concentrations. The exact signal and priming mechanism for enhanced neutrophil function by Qi-training has not yet been demonstrated. This study investigated the effect of Qi-training on intracellular signaling leading to the enhancement of immune function. The growth hormone (GH) concentrations and O2- production by neutrophils (PMNs) was significantly increased after 1 h of Qi-training compared with the basal state. To verify that endogenous GH mediates the priming of PMNs, serum obtained from elderly subjects in the basal state and after Qi-training was incubated with neutrophils isolated from young subjects for 60 min and triggered with N-formyl-1-methionyl-1-leucyl-1-phenylalanine (fMLP). Significant O2- production was observed in the PMNs incubated with serum collected after a Qi-training ($p < .05$). On the other hand, the priming effect on the PMNs was abolished in Qi-training sera depleted of endogenous GH with anti-human GH polyclonal antibody ($p < .01$) and the tyrosine kinase inhibitor, genistein ($p < .01$). The authors suggest that the endogenous GH released during and immediately after Qi-training mediates the priming events through tyrosine kinase activation in PMNs.

Complement Ther Clin Pract. 2005 Aug;11(3):211-3.

Two case reports of the acute effects of Qi therapy (external Qigong) on symptoms of cancer: short report.

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This paper reports upon two case studies addressing the short-term effects of Qi therapy on symptoms of cancer in two terminally ill oncology patients. Changes in anxiety state, pain, discomfort, depression, mood, alertness, and fatigue in two cancer patients were assessed. Treatment involved four therapy sessions on alternate days over a

7-day period. After 20 min of Qi therapy, both patients experienced improvements in mood and alertness, and a reduction in pain, anxiety, depression, discomfort, and fatigue, on both the first and last days of the interventions. Furthermore, the scores recorded on the last day for most symptoms were improved than those recorded on the first day. Although the results of these two case studies do not constitute conclusive evidence, the data suggest that Qi therapy may have some beneficial effects on some symptoms of cancer.

Hu Li Za Zhi. 2005 Jun;52(3):65-70.

[The application of qi-gong therapy to health care] [Article in Chinese]

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A great number of clinical studies merging traditional Chinese medicine (TCM) and Western medicine have proved the complementary healing effects of qi-gong in medical science. Traditional Chinese respiration exercises help to regulate our mind, body and breathing and coordinate our internal organs, remove toxins and enhance immunity. Domestic and foreign studies indicate that qi-gong can relieve chronic pain, reduce tension, increase activities of phagocytes in coenocytes, improve cardiopulmonary function, improve eyesight, influence the index of blood biochemistry, etc. Due to the obvious healing effects of qi-qong therapy, through introducing qi-gone concepts and related medical research, this paper aims to inspire health care workers to integrate qi-qong therapy into medical treatments and nursing care, or to carry out further studies in order to make good the shortfall in provision of holistic medicine and nursing in the interests of the quality of patient care.

Am J Chin Med. 2005;33(2):315-27.

A medical qigong methodology for early intervention in autism spectrum disorder: a case series.

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A medical Qigong protocol was applied to a group of eight autistic children under the age of six. The children received medical Qigong massage twice weekly from the physician and daily Qigong massage from the parents for a five-week period, followed by daily parent massage for an additional four weeks. Standardized tests showed a decrease in autistic behaviors and increase in language development in all the children, as well as improvement in motor skills, sensory function and general health.

J Hum Hypertens. 2005 Sep;19(9):697-704.

Randomised controlled trial of qigong in the treatment of mild essential hypertension.

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Exercise and relaxation decrease blood pressure. Qigong is a traditional Chinese exercise consisting of breathing and gentle movements. We conducted a randomised controlled trial to study the effect of Guolin qigong on blood pressure. In all, 88 patients with mild essential hypertension were recruited from the community and randomised to Goulin qigong or conventional exercise for 16 weeks. The main outcome measurements were blood pressure, health status (SF-36 scores), Beck Anxiety and Depression Inventory scores. In the qigong group, blood pressure decreased significantly from 146.3+/-7.8/93.0+/-4.1 mmHg at baseline to 135.5+/-10.0/87.1+/-7.7 mmHg at week 16. In the exercise group, blood pressure also decreased significantly from 140.9+/-10.9/93.1+/-3.5 mmHg to 129.7+/-11.1/86.0+/-7.0 mmHg. Heart rate, weight, BMI, waist circumference, total cholesterol, renin and 24 h urinary albumin excretion significantly decreased in both groups after 16 weeks. General health, bodily pain, social functioning and depression also improved in both groups. No significant differences between qigong and conventional exercise were found. In conclusion, Guolin qigong and conventional exercise have similar effects on blood pressure in patients with mild hypertension. While no additional benefits were identified, it is nevertheless an alternative to conventional exercise in the nondrug treatment of hypertension.

Am J Chin Med. 2005;33(1):139-41.

Qi therapy (external qigong) for chronic fatigue syndrome: case studies.

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The aim of this study was to examine the effects of Qi therapy (QT) on the symptoms of chronic fatigue syndrome (CFS), including fatigue and complications. QT affected the experience of mental and emotional relaxation in the subjects of these case studies, who also gained strength to overcome their pain and fatigue. Although the results of these two case studies may not constitute conclusive evidence, they provide a foundation for the exploration of QT as a complementary therapy in the reduction of negative symptoms of chronic fatigue syndrome.

J Altern Complement Med. 2005 Feb;11(1):41-7.

Qigong for schoolchildren: a pilot study.

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OBJECTIVE: To evaluate the effects of qigong lessons on schoolchildren in terms of their achievements at school, social behavior, and general health.

DESIGN: A controlled intervention pilot study was conducted with children in two second-grade classes at an elementary school and in two eighth-grade classes at a high school.

SETTING/LOCATION AND INTERVENTION: One class from each school received qigong lessons for 20 minutes at least twice weekly over a period of 6 months, while the control class from the same school received no intervention. Two additional classes at two elementary schools participated in the qualitative analysis only.

MEASURES: Teachers, parents, and students answered standardized questionnaires at the beginning of the study and after 6 months, covering complaints, concentration, creativity, grades, quality of life (QOL) (assessed by the KINDL questionnaire), and social behavior. In addition to this quantitative study, we conducted in-depth, semi-structured interviews with all participating teachers at the end of the project to evaluate individual effects.

RESULTS: Of a total of 90 participants in the study (52% boys and 48% girls), 40 students attended elementary school (20 per class, mean age 7.4 +/- 0.5 years) and 50 high school (25 per class, mean age 13 +/- 0.8 years). Factor analysis yielded three scales for the teacher questionnaire (learning process, social behavior, appropriate behavior) and four scales for the parent questionnaire (creativity, concentration, well-being, restlessness). The qigong group showed significantly better results in the teacher questionnaire (especially for appropriate behavior) and in grades in comparison to the control group, but no effect was found in the parent questionnaire, medical complaints, sick days, or in the children's assessment of QOL. Qualitative analyses indicated a relevant decrease of individual complaints for some children in the qigong group.

CONCLUSIONS: The feasibility of integrating qigong in school lessons was shown. Six months after starting qigong lessons, schoolchildren improved in social behavior and showed stable grades, while inappropriate behavior decreased, compared to the control. Combining quantitative and qualitative research methods appeared to be useful to detect the effects of qigong in individuals. Due to the limitations of our pilot study, further studies with larger sample sizes and long-term follow-up are needed.

J Altern Complement Med. 2005 Feb;11(1):29-39.

Genomic profiling of neutrophil transcripts in Asian Qigong practitioners: a pilot study in gene regulation by mind-body interaction.

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BACKGROUND AND OBJECTIVES: The great similarity of the genomes of humans and other species stimulated us to search for genes regulated by elements associated with human uniqueness, such as the mind-body interaction. DNA microarray technology offers the advantage of analyzing thousands of genes simultaneously, with the potential to determine healthy phenotypic changes in gene expression. The aim of this study was to determine the genomic profile and function of neutrophils in Falun Gong (FLG, an ancient Chinese Qigong) practitioners, with healthy subjects as controls.

SUBJECTS AND DESIGN: Six (6) Asian FLG practitioners and 6 Asian normal healthy controls were recruited for our study. The practitioners have practiced FLG for at least 1 year (range, 1-5 years). The practice includes daily reading of FLG books and daily practice of exercises lasting 1-2 hours. Selected normal healthy controls did not perform Qigong, yoga, t'ai chi, or any other type of mind-body practice, and had not followed any conventional physical exercise program for at least 1 year. Neutrophils were isolated from fresh blood and assayed for gene expression, using microarrays and RNase protection assay (RPA), as well as for function (phagocytosis) and survival (apoptosis).

RESULTS: The changes in gene expression of FLG practitioners in contrast to normal healthy controls were characterized by enhanced immunity, downregulation of cellular metabolism, and alteration of apoptotic genes in favor of a rapid resolution of inflammation. The lifespan of normal neutrophils was prolonged, while the inflammatory neutrophils displayed accelerated cell death in FLG practitioners as determined by enzyme-linked immunosorbent assay. Correlating with enhanced immunity reflected by microarray data, neutrophil phagocytosis was significantly increased in Qigong practitioners. Some of the altered genes observed by microarray were confirmed by RPA.

CONCLUSION: Qigong practice may regulate immunity, metabolic rate, and cell death, possibly at the transcriptional level. Our pilot study provides the first evidence that Qigong practice may exert transcriptional regulation at a genomic level. New approaches are needed to study how genes are regulated by elements associated with human uniqueness, such as consciousness, cognition, and spirituality.

Eur J Cardiovasc Prev Rehabil. 2005 Feb;12(1):5-11.

Cardiac rehabilitation for the elderly: Qi Gong and group discussions.

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BACKGROUND: Over the last decade several studies have shown that patients with coronary artery disease even above the age of 70 can be successfully treated with advanced medical and surgical methods. Unfortunately, rehabilitation programmes for this group are rarely offered. It is important to develop forms of rehabilitation that are adapted to the specific needs of this increasing group of elderly patients. The aim of this randomized study was to investigate whether the combination of Qi Gong and group discussions would increase physical ability for elderly patients > or =73 years with coronary artery disease.

METHODS: A total of 95 patients (66 men and 29 women), with documented coronary artery disease, were randomized to an intervention group (n=48) mean age 77+/-3 (73-82) or to a control group (n=47) mean age 78+/-3 (73-84). The intervention groups met weekly over 3 months. The control group got usual care. Physical ability was assessed at baseline and after the intervention.

RESULTS: Patients in the intervention group increased their self-estimated level of physical activity (P=0.011), and their performance in the one-leg stance test for the right leg (P=0.029), co-ordination (P=0.021) and the box-climbing test for right leg (P=0.035).

CONCLUSION: A combination of Qi Gong and group discussions appear to be a promising rehabilitation for elderly cardiac patients in terms of improving self-reported physical activity, balance and co-ordination. This could be an option for elderly patients who do not participate in the ordinary cardiac rehabilitation.

Wien Med Wochenschr. 2004 Dec;154(23-24):564-7.

[Is Qi Gong suitable for the prevention of low back pain?]

[Article in German]

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Low back pain is one of the main problems of health care, and has many causes. To prevent low back pain daily activities are highly important--static work as well as dynamic movement--carried out in an ergonomic and economical way. Studies have shown that the compliance of patients with regard to exercise training and ergonomic recommendations is not very high. The main posture of Qi Gong training is similar to the recommended posture by low back schools. Qi gong exercises respect basic physiological and ergonomic principles of movement in every way. Qi Gong fulfils the most important criteria for the prevention and therapy of idiopathic low back pain. Qi Gong training requires no special equipment. It is simple and can be undertaken everywhere. A growing number of people have become interested in Qi Gong, and train regularly and effectively. Low back pain rarely occurs in such people, and therefore Qi Gong should be considered as one of the most effective means of prevention.

J Holist Nurs. 2004 Dec;22(4):351-73.

Qigong as a therapeutic intervention with older adults.

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The use of complementary therapies in the United States is growing. One complementary therapy that has received little attention in the nursing literature is Qigong. Qigong is the cornerstone of traditional Chinese medicine and consists of gentle flowing body movements, breathing, and quieting the mind. Qigong facilitates the movement of qi, the vital life energy, throughout the body, thereby enhancing health and healing disease. Preliminary research indicates that Qigong may be an effective complementary therapy for promoting health and wellness in older adults and an effective adjuvant intervention for managing chronic conditions in older adults. This article provides an overview of Qigong, reviews the English-language research literature on the therapeutic effects of Qigong, discusses the implications of Qigong as a complementary therapy for older adults, and suggests directions for further research on the use of Qigong as a therapeutic approach for older adults.

Int J Neurosci. 2004 Oct;114(10):1313-22.

Qi-training enhances neutrophil function by increasing growth hormone levels in elderly men.

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This article investigated the effects of Qi-training on the neuroendocrine response and superoxide generation by neutrophils in healthy elderly men. One hour of Qi-training significantly reduced the plasma concentration of cortisol, and increased plasma concentrations of growth hormone and melatonin. Generation of superoxide by neutrophils increased significantly immediately after Qi-training ($p < .01$). The change in neutrophil superoxide generation was significantly correlated with the change in growth hormone concentration after Qi-training ($p < .01$). These data indicate that, in elderly men, Qi-training enhances superoxide generation by neutrophils, possibly via the changes in plasma growth hormone concentration.

J Altern Complement Med. 2004 Aug;10(4):681-3.

Effect of qi training on neutrophil function in young and elderly males.

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OBJECTIVES: To examine the effect of qi training on neutrophil bactericidal function (superoxide generation and adhesion).

METHODS: We studied the effects of one session of qi training on superoxide generation and adhesion of neutrophils immediately after (Post I), and 2 hours after qi training (Post II), in nine young and nine elderly male subjects.

RESULTS: The qi training significantly enhanced the superoxide generation and adhesion of neutrophils, and there were significant differences at Post I compared to before qi training (Pre) in both groups.

CONCLUSION: Our current observations show that qi training enhances superoxide generation and adhesion of neutrophils. It is supposed that qi training may increase the

resistance of trained individuals against common infection and inflammation.

J Altern Complement Med. 2004 Jun;10(3):456-62.

Effects of qi therapy (external qigong) on premenstrual syndrome: a randomized placebo-controlled study.

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OBJECTIVES: To assess the effects of qi therapy on premenstrual symptoms in women with premenstrual syndrome (PMS).

DESIGN: A randomized placebo-controlled trial.

SUBJECTS: Thirty-six (36) college women with symptoms of PMS.

INTERVENTION: After 2 months of screening, subjects with PMS were randomized to receive real qi therapy (18 subjects) or placebo (18 subjects). The subjects were informed that they would receive one of two types of treatment. They did not know which treatment they received. Each intervention was performed eight times during the second and third cycles with subjects completing a PMS diary.

RESULTS: There were significant improvements in the symptoms of negative feeling, pain, water retention, and total PMS symptoms in subjects receiving qi therapy compared to placebo controls.

CONCLUSION: Qi therapy may be an effective complementary therapy for managing the symptoms of PMS.

BMC Complement Altern Med. 2004 Mar 15;4:5. s

In vitro test of external Qigong.

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BACKGROUND: Practitioners of the alternative medical practice 'external Qigong' generally claim the ability to emit or direct "healing energy" to treat patients. We investigated the ability of experienced Qigong practitioners to enhance the healthy growth of cultured human cells in a series of studies, each following a rigorously designed protocol with randomization, blinding and controls for variability.

METHODS: Qigong practitioners directed healing intentionality toward normal brain cell cultures in a basic science laboratory. Qigong treatments were delivered for 20 minutes from a minimum distance of 10 centimeters. Cell proliferation was measured by a standard colony-forming efficiency (CFE) assay and a CFE ratio (CFE for treated samples/CFE for sham samples) was the dependent measure for each experiment.

RESULTS: During a pilot study (8 experiments), a trend of increased cell proliferation in Qigong-treated samples (CFE Qigong/sham ratios > 1.0) was observed (P = 0.162). In a formal study (28 experiments), a similar trend was observed, with Qigong-treated samples showing on average more colony formation than sham samples (P = 0.036). In a replication study (60 experiments), no significant difference between Qigong-treated samples and sham samples was observed (P = 0.465).

CONCLUSION: We observed an apparent increase in the proliferation of cultured cells following external Qigong treatment by practitioners under strictly controlled conditions, but we did not observe this effect in a replication study. These results suggest the need for more controlled and thorough investigation of external Qigong before scientific validation is claimed.

J Altern Complement Med. 2004 Feb;10(1):159-62.

A case study of simultaneous recovery from multiple physical symptoms with medical qigong therapy.

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BACKGROUND: It is well known that qigong practice is beneficial to human health, but it is less known, even in China, that qigong may also be an effective therapy to treat various diseases. This report documents the story of a 58-year-old Caucasian male patient with a series of chronic conditions, including high prostate-specific antigen (PSA) levels (but not a confirmed cancer), atrial septal defect, asthma, allergies, multiple injuries following an automobile accident, high blood pressure, and edema in the legs. Can medical qigong help such a patient to cure multiple symptoms simultaneously?

METHOD: The intensive qigong workshop involved the training and practice of gathering qi, magnifying qi energy and using it for self-healing with visualization and guided imaginary; plus supervised energetic fasting. The patient practiced qigong 4-plus hours per day during intensive training, and approximately 1 to 2 hours daily thereafter. About 10 sessions of external qi healing were performed by a qigong master for his pain and systematic adjustment. Settings/Location: The intensive medical qigong workshop took place in the World Institute for Self-Healing, Inc. (WISH) office at Middlesex, NJ; and the patient practiced qigong at home for the rest of time.

RESULTS: After the workshop and qigong therapy, the patient discontinued all medications (8 in total) and lost 35 pounds; his blood pressure dropped from 220/110 with medication to 120/75 without medication (in 2 weeks); pulse rate dropped from 88 beats per minute resting to 68 beats per minute in the mornings and 55 bpm in the evening; the edema in his legs went away; symptoms of asthma or allergies disappeared; the PSA level dropped from 11 to 4 (normal), all without any medications.

CONCLUSION: This kind of simultaneous recovery from multiple "incurable" conditions and other documented successes cannot be explained by any known medical

theories, and call for formal clinical trials to closely examine the qigong self-healing therapy.

Effects of Qigong on Glucose Control in Type 2 Diabetes. A randomized controlled pilot study

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Qigong is a traditional Chinese energy medicine practice combining breathing, movement, and meditation. Although previous studies suggest that Qigong may be a beneficial adjunct treatment for individuals with type 2 diabetes (1–3), few randomized controlled trials of Qigong in patients with type 2 diabetes have been performed. The purpose of the present study was to investigate the effects of Qigong relative to physical exercise or standard care on glucose control in adults with type 2 diabetes.

Two hundred fifty-one potential subjects were phone screened, 46 individuals were further evaluated at Bastyr University, and 32 eligible participants enrolled in the study. Age- and sex-matched participants were randomly assigned to one of three groups: group 1 (n = 11) received the Qigong intervention, group 2 (n = 10) served as the control group, and group 3 (n = 11) received the progressive resistance training (PRT) intervention as an active comparator. The mean age of the participants was 56.3 ± 8.1 years. Participants in all three groups were asked to maintain their conventional diabetes care, including medications, diet, and exercise, during the study. All participants were taking oral diabetes medication; however, none were taking insulin. Participants attended weekly Qigong or PRT group sessions (60 min per week) conducted by certified instructors in addition to practicing twice a week at home for 30 min per session. The study protocol was approved by Bastyr University Institutional Review Board, and informed consent was obtained from all participants.

Fasting plasma glucose, insulin, and A1C were measured before and after the 12-week intervention. Insulin resistance was estimated using the homeostasis model assessment of insulin resistance (HOMA-IR) index score based on fasting glucose and insulin values before and after the intervention (4). Statistically significant reductions in plasma glucose levels were observed in the Qigong group (184.9 ± 35.3 vs. 161.9 ± 40.5 mg/dl, P = 0.003 by paired t test). All participants in this group showed a reduction in fasting glucose by the end of the intervention relative to their starting value. In contrast, both the PRT group and the control group increased plasma glucose levels over time (143.8 ± 35.0 vs. 154.0 ± 44.7 and 156.4 ± 36.6 vs. 168.4 ± 49.1 mg/dl, respectively; not significant [NS]). Fasting glucose of the Qigong group significantly improved compared with that of the PRT group and the control group (P < 0.003 and P < 0.001, respectively, by one-way ANOVA). A1C remained unchanged in the control group during the intervention (7.9 ± 0.8 vs. 7.9 ± 1.6%) but declined slightly in both the PRT group (8.6 ± 1.2 vs. 7.9 ± 1.6, NS) and the Qigong group (8.8 ± 1.1 vs. 8.1 ± 1.3, NS). Fasting plasma insulin levels increased slightly in both the PRT group (24.3 ± 28.8 vs. 30.2 ± 39.9, NS) and the control group (12.6 ± 4.6 vs. 20.1 ± 10, P = 0.08) but remained unchanged during the intervention in the Qigong group (13.3 ± 6.2 vs. 13.4 ± 5.7, NS). Although differences were not statistically significant, HOMA-IR scores shifted favorably in the Qigong group (5.3 ± 2.3 vs. 4.7 ± 2.2) and unfavorably in both the PRT group (6.60 ± 6.00 vs. 8.91 ± 9.55) and the control group (4.48 ± 2.30 vs. 7.51 ± 4.21, P = 0.06).

Qigong therapy for 12 weeks resulted in significant reductions in fasting glucose levels in patients with type 2 diabetes and demonstrated trends toward improvement in insulin resistance and A1C. These results suggest that Qigong may be an effective complementary therapy for individuals with type 2 diabetes.

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Qi Gong's relationship to educational kinesiology: A qualitative approach.

J Bodyw Mov Ther. 2010 Jan;14(1):73-9.

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This paper qualitatively reviews two complementary therapies; Qi Gong and educational kinesiology (EK). It is being suggested that Qi Gong and EK may be united through a qualitative convergence and a shared underlying concept. The authors hypothesize that a coherent rationale can be formed through this conceptual synthesis and propose that to some extent Qi Gong movements and EK can be considered to work in unison with each other. The logical synthesis of these two therapies is being presented to identify Qi Gong movements with concepts of brain gymnastics and also to explain how this new construct can be developed and implemented into practice. When verified, this hypothesis will allow individuals to

better understand Chinese health exercises from the modern science perspective such as neuroanatomy, neurophysiology and psychoneuroimmunology.

Perceived benefits of meditative movement in older adults.

Geriatr Nurs. 2010 Jan-Feb;31(1):37-51.

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

Effectiveness of a Tai chi Qigong program in promoting health-related quality of life and perceived social support in chronic obstructive pulmonary disease clients.

Qual Life Res. 2010 Mar 15. [Epub ahead of print]

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PURPOSE: This paper evaluates the effectiveness of a 3-month Tai chi Qigong (TCQ) program in promoting the psychosocial functional health of clients with chronic obstructive pulmonary disease (COPD) in Hong Kong.

METHODS: This study employed a single-blind, randomized controlled trial. Two hundred and six COPD clients were randomly assigned into three groups, namely, TCQ group, exercise group, and control group. Subjects in the TCQ group received a TCQ program, consisting of two 60-min sessions each week for 3 months. Subjects in the exercise group were taught to practice breathing techniques combined with walking as an exercise. Subjects in the control group received their usual care. Data collections were performed at baseline, on the sixth week and on the third month. The primary outcomes were health-related quality of life using St. George Respiratory Questionnaire-Hong Kong Chinese version and perceived social support using the Multidimensional Scale of Perceived Social Support-Chinese version.

RESULTS: The TCQ group showed greater improvements in the symptom ($F(4, 404) = 3.351$, $P = 0.010$) and activity domains ($F(4, 404) = 2.611$, $P = 0.035$). No differences were detected in perceived social support among the three groups.

CONCLUSIONS: Tai chi Qigong promoted health outcomes with respect to clients' perception of their respiratory symptoms. Moreover, TCQ decreased disturbances to their physical activities.

Diaphragmatic Breathing Reduces Exercise-induced Oxidative Stress.

Evid Based Complement Alternat Med. 2009 Oct 29. [Epub ahead of print]

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Diaphragmatic breathing is relaxing and therapeutic, reduces stress, and is a fundamental procedure of Pranayama Yoga, Zen, transcendental meditation and other meditation practices. Analysis of oxidative stress levels in people who meditate indicated that meditation correlates with lower oxidative stress levels, lower cortisol levels and higher melatonin levels. It is known that cortisol inhibits enzymes responsible for the antioxidant activity of cells and that melatonin is a strong antioxidant; therefore, in this study, we investigated the effects of diaphragmatic breathing on exercise-induced oxidative stress and the putative role of cortisol and melatonin hormones in this stress pathway. We monitored 16 athletes during an exhaustive training session. After the exercise, athletes were divided in two equivalent groups of eight subjects. Subjects of the studied group spent 1 h relaxing performing diaphragmatic breathing and concentrating on their breath in a quiet place. The other eight subjects, representing the control group, spent the same time sitting in an equivalent quite place. Results demonstrate that relaxation induced by diaphragmatic breathing increases the antioxidant defense status in athletes after exhaustive exercise. These effects correlate with the concomitant decrease in cortisol and the increase in melatonin. The consequence is a lower level of oxidative stress, which suggests that an appropriate diaphragmatic breathing could protect athletes from long-term adverse effects of free radicals.

J Bodyw Mov Ther. 2009 Apr;13(2):205-11. Epub 2008 Dec 3.

Exercise intention, age and stress predict increased qigong exercise adherence.

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Adherence to exercise is paramount if desired health effects are to be achieved. Drop-out rates in excess of 50% have been reported, with the intensity of the exercise performed frequently blamed. Qigong is a low-intensity mind-body technique that may offer an alternative to more intense modes of exercise. The aim of this study was therefore, to determine if exercise motives, exercise intention, age, stress and energy levels predict adherence to qigong exercise. Participants (n=87) were assessed by self-rated retrospective physical activity behavior, by performed qigong exercise and concentration level, and by sport motivation scale, planned behavior questionnaire, and stress and energy scale. Exercise intention, age and stress predicted exercise frequency (R(2)=.29); when level of concentration (a non-baseline assessment) was included as a predictor, prediction strength increased (R(2)=.38). Results suggest that health-professionals who are aiming to secure activity adherence and exercise frequency, should focus on strengthening the individual's intention to exercise, promoting a calm energy state before commencement of exercise, and encouraging a heightened level of concentration during exercise.

Psychophysiology. 2009 Mar;46(2):257-69. Epub 2009 Jan 21.

Psychophysiological outcomes of health qigong for chronic conditions: A systematic review.

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We aimed to unravel the clinical benefits and the plausible underlying psychophysiological mechanism based on available randomized controlled trials (RCTs). Meta-analysis of 26 RCTs shortlisted from electronic databases from 1997 to 2006 shows that qigong had some effects on increasing the numbers of white blood cells and lymphocytes, stroke volume, peak early transmitral filling velocity, peak late transmitral filling velocity, forced vital capacity, and forced expiratory volume, and, conversely, lowering of total cholesterol, systolic blood pressure, diastolic blood pressure, and depressive mood scores. Explanatory pathways may pertain to stress reduction via nervous, endocrine, and immune systems. Limitations on methodology are discussed and directions for further studies are suggested. Because of its safety, minimal cost, and clinical benefit, health qigong can be advocated as an adjunctive exercise therapy for older people with chronic conditions.

West J Nurs Res. 2009 Mar;31(2):245-79.

A review of clinical trials of tai chi and qigong in older adults.

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Initiation and maintenance of physical activity (PA) in older adults is of increasing concern as the benefits of PA have been shown to improve physical functioning, mood, weight, and cardiovascular risk factors. Meditative movement forms of PA, such as tai chi and qigong (TC & QG), are holistic in nature and have increased in popularity over the past few decades. Several randomized controlled trials have evaluated TC & QG interventions from multiple perspectives, specifically targeting older adults. The purpose of this report is to synthesize intervention studies targeting TC & QG and identify the physical and psychological health outcomes shown to be associated with TC & QG in community dwelling adults older than 55. Based on specific inclusion criteria, 36 research reports with a total of 3,799 participants were included in this review. Five categories of study outcomes were identified, including falls and balance, physical function, cardiovascular disease, and psychological and additional disease-specific responses. Significant improvement in clusters of similar outcomes indicated interventions utilizing TC & QG may help older adults improve physical function and reduce blood pressure, fall risk, and depression and anxiety. Missing from the reviewed reports is a discussion of how spiritual exploration with meditative forms of PA, an important component of these movement activities, may contribute to successful aging.

Clin Rehabil. 2009 Feb 23. [Epub ahead of print]

Exercise intervention in brain injury: a pilot randomized study of Tai Chi Qigong.

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OBJECTIVE: To examine the effects of a brief Tai Chi Chuan Qigong ('Qigong') exercise intervention on individuals with traumatic brain injury.

DESIGN: A single-centre randomized controlled trial pilot study.

SETTING: A registered charity day centre in the community.
SUBJECTS: Twenty individuals with traumatic brain injury.
Intervention: Intervention participants attended a Qigong exercise session for one hour per week over eight weeks. Control participants engaged in non-exercise-based social and leisure activities for the same intervention period.

MEASURES: Outcome was assessed at baseline and post intervention using the General Health Questionnaire-12, the Physical Self-Description Questionnaire and the Social Support for Exercise Habits Scale, to measure perceived mood, self-esteem, flexibility, coordination, physical activity and social support.

RESULTS: Groups were comparable at baseline. After the intervention, mood was improved in the exercise group when compared with controls ($U = 22.0$, $P = 0.02$). Improvements in self-esteem ($Z = 2.397$, $P = 0.01$) and mood ($Z = -2.032$, $P = 0.04$) across the study period were also evident in the exercise group only. There were no significant differences in physical functioning between

groups. In view of the sample size, these findings are inconclusive.

CONCLUSIONS: This study provides preliminary evidence that a brief Qigong exercise intervention programme may improve mood and self-esteem for individuals with traumatic brain injury. This needs to be tested in a large-scale randomized trial.

Int J Neurosci. 2009;119(4):538-52.

A forty-five year follow-up EEG study of Qigong practice.

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A follow-up EEG study was conducted on a subject with 50 years of experiences in Qigong. Resting EEG at present showed frontally dominant alpha-1 as compared to occipitally dominant alpha-2 described in 1962. During the Qigong practice alph-1 enhanced quickly and became far more prominent than 50 years ago. Compared with baseline, these activities remained to be higher at rest after the Qigong practice. These results suggest that extended practice in meditation may change the EEG pattern and its underlying neurophysiology. It remains to be explored as to what biological significance and clinical relevance do these physiological changes might mean.

J Health Psychol. 2009 Jan;14(1):60-7.

Serum cytokines, mood and sleep after a qigong program: is qigong an effective psychobiological tool?

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Qigong is an ancient Chinese psychosomatic exercise that integrates movement, breathing and meditation into a single multifaceted practice. The present study was designed to assess the effects of qigong practice on serum cytokines, mood and subjective sleep quality. Experimental participants underwent a qigong training program for one month. Blood samples for the quantification of TNF-alpha and IFN-gamma, and several instruments to assess anxiety and depression symptoms as well as SSQ, were obtained before and after the program. Our findings revealed that while the practice of qigong for one month did not alter serum cytokines, it enhanced psychological well-being, including sleep duration.

Int J Behav Med. 2009 Jan 16. [Epub ahead of print]

Cognitively Oriented Behavioral Rehabilitation in Combination with Qigong for Patients on Long-Term Sick Leave Because of Burnout: REST-A Randomized Clinical Trial.

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BACKGROUND: Despite an increase in the occurrence of burnout, there is no agreement on what kind of rehabilitation these patients should be offered.

PURPOSE: Primary aim of this study was to evaluate effects on psychological variables and sick leave rates by two different group rehabilitation programs for patients on long-term sick leave because of burnout. Rehabilitation program A (Cognitively oriented Behavioral Rehabilitation (CBR) and Qigong) was compared with rehabilitation program B (Qigong only).

METHOD: In a randomized clinical trial, 96 women and 40 men with a mean age of 41.6 +/- 7.4 years were allocated to one of the two rehabilitation programs.

RESULTS: A per-protocol analysis showed no significant difference in treatment efficacy between the groups. Both groups improved significantly over time with reduced levels of burnout, self-rated stress behavior, fatigue, depression, anxiety, obsessive-compulsive symptoms, and sick leave rates. In an intention-to-treat analysis, patients in program A had fewer obsessive-compulsive symptoms and larger effect sizes in self-rated stress behavior and obsessive-compulsive symptoms compared to patients in program B.

CONCLUSION: This study showed no differences in effect between CBR and Qigong compared with Qigong only in a per-protocol analysis. Both rehabilitation programs showed positive effect for patients with burnout.

Chin J Integr Med. 2008 Dec;14(4):262-6.

Effects of Qigong exercises on 3 different parameters of human saliva.

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OBJECTIVE: To analyze the effects of a Qigong program on various parameters of unstimulated saliva, including volume, pH and secretory immunoglobulin A (S-IgA) level.

METHODS: Twice a day from the beginning of Fall 2005, twenty-three healthy volunteers aged 22-24 did special Qigong exercises and massage of acupuncture points which stimulated the energy cycle and increased body water energy. The unstimulated saliva volume and pH were recorded every week in Spring (April, May, June) 2005 before the volunteers started to learn and exercise Qigong, and after Qigong intervention in Spring (April, May, June) 2006. During the period of study, saliva was collected in the same location and on similar dates at the Dental Faculty of Tehran University of Medical Sciences. The S-IgA levels of the last samples of the last week of Spring 2005 and 2006 were measured.

RESULTS: The unstimulated saliva volume after Qigong

exercises (2.94 + or - 0.20 mL/5min) was significantly higher as compared to the pre-Qigong phase (1.65 + or -0.102 mL/5min, P<0.05). The S-IgA level was 105.45 + or - 9.41 mg/mL before doing Qigong exercises, and 156.23 + or - 88.56 mg/mL after doing Qigong exercises, and a statistically significant difference was seen between the two measurements (P=0.005). The change in pH was not statistically significant.

CONCLUSIONS: The application of Qigong is beneficial for increasing salivary volume and other parameters. Moreover, the results suggest that Qigong may be a useful medication for patients with salivary hyposecretion. Further research is recommended in examining the long-term effects of Qigong on improving salivary volume and other parameters in individuals with salivary hyposecretion.

Br J Sports Med. 2008 Oct 16. [Epub ahead of print]

A preliminary study of the effects of Tai Chi and Qigong medical exercise on indicators of metabolic syndrome, glycaemic control, health related quality of life, and psychological health in adults with elevated blood glucose.

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OBJECTIVES: To evaluate the feasibility, acceptability and effects of a Tai Chi and Qigong exercise program in adults with elevated blood glucose.

DESIGN, SETTING, AND PARTICIPANTS: A single group pre-post feasibility trial with 11 participants (3 male and 8 female; aged 42-65 years) with elevated blood glucose. Invervention: Participants attended Tai Chi and Qigong exercise training for 1 to 1.5 hours, 3 times per week for 12 weeks, and were encouraged to practice the exercises at home.

MAIN OUTCOME MEASURES: Indicators of metabolic syndrome (body mass index[BMI], waist circumference, blood pressure, fasting blood glucose, triglycerides, HDL-cholesterol), glucose control (HbA1c, fasting insulin and insulin resistance [HOMA]), health-related quality of life; stress and depressive symptoms.

RESULTS: There was good adherence and high acceptability. There were significant improvements in four of the seven indicators of metabolic syndrome including BMI (mean difference -1.05, p<0.001), waist circumference (-2.80 cm, p<0.05), and systolic (-11.64 mm Hg, p<0.01) and diastolic blood pressure (-9.73 mm Hg , p<0.001), as well as in HbA1c (-0.32 %, p<0.01), insulin resistance (-0.53, p<0.05), stress (-2.27, p<0.05), depressive symptoms (-3.60, p<0.05), and the SF-36 mental health summary score (5.13, p<0.05) and sub-scales for general health (19.00, p<0.01), mental health (10.55, p<0.01) and vitality (23.18, p<0.05.

CONCLUSIONS: The program was feasible and acceptable and participants showed improvements in metabolic and psychological variables. A larger controlled trial is now needed to confirm these promising preliminary results.

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Qigong Ameliorates Symptoms of Chronic Fatigue: A Pilot Uncontrolled Study.

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Traditional Chinese Medicine practitioners consider that chronic fatigue reflects a disharmony and depletion in the supply of qi in the body. Qigong is one of the traditional complementary interventions used to strengthen qi through self-practice, and to manage the state of qi to prevent and cure disease. The aim of this study is to assess whether qigong could be used to manage the symptoms of chronic fatigue. Eighteen Caucasian, British female participants were recruited, taught a qigong routine during weekly classes over 6 months, and asked to practice it daily for 15 min. Participants completed the core set of the RAND Medical Outcomes Study questionnaire (RAND MOS) and a sleep diary during the 2-week baseline control period, and at 3 and 6 months following the start of the trial. The qigong intervention resulted in significant changes in sleep rate score and in the following subscales of the RAND MOS: SF36 Vitality, Sleep Problems, Social Activity, Social Activity Limitation due to Health, Health Distress, Mental Health Index and Psychological Well-being. Qigong seems to improve factors related to chronic fatigue such as sleep, pain, mental attitude and general mobility after 3 and 6 months. Qigong's positive effects indicate that it represents a potentially safe method of treatment for chronic fatigued patients. However, we cannot completely discount the possible influence of placebo effects, and more objective clinical measures are needed to reproduce our findings with long-term follow-up in a randomized, controlled study involving a larger number of subjects.

Am J Chin Med. 2008;36(6):1051-60.

Intrinsically motivated qigong exercisers are more concentrated and less stressful.

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Low-intensity qigong exercise has been suggested as an alternative to more vigorous exercise when striving for health benefits. The purpose of this study was to investigate whether self-determined motivation and perceived stress are related to concentration during exercise, and to the amount of exercise carried out. Leisure-time qigong exercisers (n = 279) were assessed by using the Sport Motivation Scale, Stress and Energy Scale, and by self-rated Concentration. Exercise sessions per week, Session time, and ability to Set a time for exercise, and perceived Disturbance during exercise were also recorded. Participants who were in a Calm energy mood

(low-stress, high-energy, able to set a time for exercise), displayed an increased Concentration on qi-flow (R(2) = 0.13) during exercise. An elevated stress-level correlated negatively with Health, Energy, Concentration, Sessions per week, Session time, Sessions performed during the previous week, ability to Set a time for exercise, and feeling Undisturbed during exercise (all $p < 0.01$). Intrinsic motivation was positively correlated with Concentration (0.24, $p < 0.01$) and negatively correlated with Stress (-0.19, $p < 0.05$). Individuals who adhere to a regular qigong exercise regimen are more intrinsically motivated, less stressed, and more concentrated while exercising than those who do not adhere to a regular regime. This suggests that health-professionals need to be aware of these factors when prescribing qigong exercise for health benefits.

External Qigong for Pain Conditions: A Systematic Review of Randomized Clinical Trials

The Journal of Pain, Volume 8, Issue 11, Pages 827-831

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Konec formulá e

The aim of this systematic review was to assess the clinical evidence of external qigong as a treatment option for pain conditions. Databases were searched up to January 2007. Randomized, clinical trials (RCTs) testing external qigong in patients with pain of any origin assessing clinical outcomes were considered. Trials using any type of control group were included. The selection of studies, data extraction, and validation were performed independently by at least 2 reviewers. One hundred forty-one potentially relevant studies were identified and 5 RCTs could be included. All RCTs of external qigong demonstrated greater pain reductions in the qigong groups compared with control groups. Meta-analysis of 2 RCTs showed a significant effect of external qigong compared with general care for treating chronic pain (Pain 100 mm VAS; weighted main differences, 36.3 mm; 95% CI, 22.8 to 49.8; $P < .001$; heterogeneity: 2 = 1.79, P = .18, I2 = 44.0%, n = 80). The evidence from RCTs testing the effectiveness of external qigong for treating pain is encouraging. Further studies are warranted.

PERSPECTIVE: This review of clinical studies focused on the efficacy of qigong, an energy-healing intervention used to prevent and cure ailments. A meta-analysis shows that evidence for the effectiveness of external qigong is encouraging, though further studies are warranted.

An Evaluation of Two Behavioral Rehabilitation Programs, Qigong Versus Progressive Relaxation, in Improving the Quality of Life in Cardiac Patients

Peggy Ngor Hui, Maurice Wan, Wai Kwong Chan, Paul Man Bun Yung. The Journal of Alternative and Complementary Medicine. May 2006, 12(4): 373-378. doi:10.1089/acm.2006.12.373.

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OBJECTIVES: The aim of the current study was to evaluate and compare two different behavioral rehabilitation programs in improving the quality of life in cardiac patients in Hong Kong.

DESIGN AND SETTING: The current study was carried out in the outpatient unit of Occupational Therapy Department in the United Christian Hospital, Hong Kong. Convenience sampling with referral from the cardiac specialty was used in the present study.

SUBJECTS: A total of 65 subjects, with a mean age 65 (range, 42 to 76), were recruited in the study. The cardiac diseases included myocardial infarct, postcoronary intervention, valve replacement, and also ischemic heart disease.

INTERVENTIONS: Patients were alternately allocated to the two groups. The first group of patients received instructions and practiced on progressive relaxation. The second group of patients underwent training in qigong. A total of eight sessions were conducted and each session lasted 20 minutes.

OUTCOME MEASURES: Demographic and clinical data such as gender, age, and systolic and diastolic blood pressure were recorded. The psychological and Quality of Life assessment was performed using the Chinese versions of Short Form 36 (C-SF36), State-Trait Anxiety Inventory (C-STAI), and General Health Questionnaire (C-GHQ-12).

RESULTS: Fifty-nine (59) subjects (44 men and 15 women) completed all eight rehabilitation sessions in the study. Patients allocated to the two treatment groups had comparable baseline characteristics. Progressive relaxation was more effective in reducing blood pressures compared to qigong. Relaxation appeared to be particularly beneficial in somatic domains. qigong group demonstrated greater improvement in psychologic measures in addition to reduction in systolic blood pressure.

CONCLUSIONS: Progressive relaxation and qigong exercise improved the quality of life for cardiac patients with reference to certain physiologic and psychologic measures. The result was supported by previous studies and literature reviews on qigong in terms of its effect on the psychologic dimension.

Psychoneuroendocrinology. 2008 Oct 3. [Epub ahead of print]

Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress.

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Meditation practices may impact physiological pathways that are modulated by stress and relevant to disease. While much attention has been paid to meditation practices that emphasize calming the mind, improving focused attention, or developing mindfulness, less is known about meditation practices that foster compassion. Accordingly, the current study examined the effect of compassion meditation on innate immune, neuroendocrine and behavioral responses to psychosocial stress and evaluated the degree to which engagement in meditation practice influenced stress reactivity. Sixty-one healthy adults were randomized to 6 weeks of training in compassion meditation (n=33) or participation in a health discussion control group (n=28) followed by exposure to a standardized laboratory stressor (Trier social stress test [TSST]). Physiologic and behavioral responses to the TSST were determined by repeated assessments of plasma concentrations of interleukin (IL)-6 and cortisol as well as total distress scores on the Profile of Mood States (POMS). No main effect of group assignment on TSST responses was found for IL-6, cortisol or POMS scores. However, within the meditation group, increased meditation practice was correlated with decreased TSST-induced IL-6 (r(p)=-0.46, p=0.008) and POMS distress scores (r(p)=-0.43, p=0.014). Moreover, individuals with meditation practice times above the median exhibited lower TSST-induced IL-6 and POMS distress scores compared to individuals below the median, who did not differ from controls. These data suggest that engagement in compassion meditation may reduce stress-induced immune and behavioral responses, although future studies are required to determine whether individuals who engage in compassion meditation techniques are more likely to exhibit reduced stress reactivity.

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Loving-kindness meditation increases social connectedness.

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The need for social connection is a fundamental human motive, and it is increasingly clear that feeling socially connected confers mental and physical health benefits. However, in many cultures, societal changes are leading to growing social distrust and alienation. Can feelings of social connection and positivity toward others be increased? Is it possible to self-generate these feelings? In this study, the authors used a brief loving-kindness meditation exercise to examine whether social connection could be created toward strangers in a controlled laboratory context. Compared with a closely matched control task, even just a few minutes of loving-kindness meditation increased feelings of social connection and positivity toward novel individuals on both explicit and implicit levels. These results suggest that this easily implemented technique may help to increase positive social emotions and decrease social isolation.

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