

Know the Evidence

A report of the NQA Research and Education Committee

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Major contributor: PJ Klein, PT, EdD (contact: kleinqpj@roadrunner.com)

The legitimacy of any health care intervention is grounded by research evidence. *'Know the Evidence'* is a service of the National Qigong Association, Research and Education Committee. It is intended to inform our membership and the public on the most current evidence of effectiveness of qigong (*and tai chi practiced as tai chi*) therapy.

For economy of effort, the *'Know the Evidence'* resource is limited to reporting commentary on the most current systematic reviews and meta-analyses rather than the reporting of individual studies. Systematic reviews and meta-analyses are among the top level of the hierarchy of research evidence. They provide a comprehensive review of all relevant studies on a particular clinical or health-related topic/question. Research agenda follow a familiar pattern. Early preliminary studies provide evidence of feasibility and may suggest effect. Positive studies provide justification for further research. Larger more rigorous research is conducted. Then there is validation of findings across multiple studies. Eventually, a body of evidence can be judged by quantity, quality, and consistency of evidence. Following this progression, early systematic reviews become dated as new evidence emerges. So, periodically visit this site to become aware of updated information and use this information to accurately represent our practice as evidence-based.

The resource is organized into two major sections: internal qigong including mindful exercise and external qigong applied by a qigong practitioner. Clinical topics are subcategorized within the two major applications. PubMed is the major source of articles [<http://www.ncbi.nlm.nih.gov/pubmed>]. Reviews were selected based on relevance and most current reporting.

INTERNAL QIGONG

Internal qigong is most simply defined as energy cultivation (breath work). It is an ancient Chinese health care system that integrates physical postures (static and dynamic exercise), breathing techniques, and focused intention. Awareness of the potential benefits of internal qigong and tai chi performed as qigong by practitioners of traditional Western medicine was stimulated when it was introduced to the West in the 70s. However, rigorous research evidence of effect was slow to emerge in Western research literature. In 2004, Klein and Adams¹ authored a review of the literature through 2003 citing only 17 research studies. These authors concluded that in 2004, preliminary research on implementation

feasibility of Taiji (tai chi) programming existed for a variety of clinical populations. Over the next five years (2004-2009), through a growing awareness of the need for rigorous study and an expanding availability of research funding, the body of evidence strengthened. In 2010, Jahnke et al² published a review of 77 clinical research articles investigating qigong exercise and tai chi performed as qigong exercise concluding that consistent, significant results for a number of health benefits were confirmed through independent, quality research. These researchers also established the equivalency of therapeutic tai chi as qigong exercise. However at that time, many questions of efficacy still remained unanswered, and many clinical areas were, as yet, unexplored.

Most recently, a group of leading researchers including Dr. Guo-Yan Yang and colleagues from the Centre for Evidence-based Chinese Medicine, Beijing University of Chinese Medicine, Beijing, China, and Dr. Peter Wayne from the Osher Center for Integrative Medicine, Brigham and Women's Hospital and Harvard Medical School, collaborated to produce the most comprehensive review to date.³

1. Klein PJ, Adams WD. Comprehensive therapeutic benefits of Taiji: a critical review. *Am J Phys Med Rehabil.* 2004 Sep;83(9):735-45. Review. PMID: 15314540
2. Jahnke R, Larkey L, Rogers C, Etnier J, Lin F. A comprehensive review of health benefits of qigong and tai chi. *Am J Health Promot.* 2010 Jul-Aug;24(6):e1-e25. doi: 10.4278/ajhp.081013-LIT-248.
3. Yang G-Y, Wang L-Q, Ren J, et al. (2015) Evidence Base of Clinical Studies on Tai Chi: A Bibliometric Analysis. Scherer RW, ed. *PLoS ONE.* 2015;10(3):e0120655. doi:10.1371/journal.pone.0120655. Free PMC Article

Find below a brief synopsis of the most current information on evidence-based practice by clinical area as reported by leading researchers.

GENERAL HEALTH BENEFITS OF INTERNAL QIGONG (including tai chi performed as internal qigong exercise for health promotion) (2015)

In 2015, the quintessential review article on therapeutic tai chi (performed as qigong) was published. A panel of international researchers reviewed all studies published in this area. Over 500 articles were included in the final review, over 250 randomized clinical trials. A wide range of diseases/conditions such as hypertension, diabetes, osteoarthritis, osteoporosis, breast cancer, heart failure, COPD, coronary heart disease, schizophrenia, and depression were addressed in clinical studies. The majority of studies (94.1%) reported positive effects of Tai Chi. Evidence of benefits of therapeutic tai chi includes two major areas: physical performance and symptoms of physical well-being, Physical performance includes

strength, flexibility, cardiovascular function, balance, pulmonary function, body mass index, biomarkers of immune function, and mediation of inflammation. Symptoms of physical well-being include depression, stress, mood, fear of falling, self-efficacy, anxiety, self-esteem, social functioning, and quality of sleep. Of the 105 studies reporting on safety, no serious adverse events related to the practice of Tai Chi were reported. The researchers conclude that the quantity and evidence base of clinical studies on Tai Chi is substantial. However, there is a wide variation in Tai Chi intervention studied and the reporting of Tai Chi intervention needs to be improved. Further well-designed and reported studies are recommended to confirm the effects of Tai Chi for the frequently reported diseases/conditions.

Yang G-Y, Wang L-Q, Ren J, et al. (2015) Evidence Base of Clinical Studies on Tai Chi: A Bibliometric Analysis. Scherer RW, ed. *PLoS ONE*. 2015;10(3):e0120655. doi:10.1371/journal.pone.0120655. Free PMC Article

QIGONG IN CANCER CARE (2014)

In 2014, Zeng and colleagues, out of Guangzhou Medical University, published the most comprehensive review to date on qigong in cancer care. This meta-analysis included 13 RCTs. Nine RCTs were included in pooling of data for meta-analyses. Most studies were small pilot studies. The largest study, conducted by Oh et al, 2010, provided the strongest evidence. The Oh et al study found evidence of effect for outcomes of fatigue, quality of life (QOL), and mediation of inflammation. Zeng and colleagues concluded from their meta-analysis that qigong/tai chi had positive effects on cancer-specific QOL, fatigue, immune function, and cortisol levels of individuals experiencing cancer. In their discussion, Zeng et al noted that while there is evidence that exercise benefits those with cancer, there is no evidence that cancer-specific QOL benefits are found with traditional Western exercise. This finding is unique to Eastern exercise of qigong/tai chi.

NOTE: A number of new studies in this area have been published since the Wang review was conducted. A more recent systematic review on this topic is in submission for publication. This site will be updated as that research becomes available.

Zeng Y, Luo T, Xie H, Huang M, Cheng AS. Health benefits of qigong or tai chi for cancer patients: a systematic review and meta-analyses. *Complement Ther Med*. 2014 Feb;22(1):173-86. doi: 10.1016/j.ctim.2013.11.010. Epub 2013 Dec 18. Review. PubMed PMID: 24559833.

Oh B, Butow P, Mullan B, Clarke S, Beale P, Pavlakis N, Kothe E, Lam L, Rosenthal D (2010) Impact of medical Qigong on quality of life, fatigue, mood and inflammation in cancer patients: a randomized controlled trial. *Ann Oncol*21(3):608-14. doi:

QIGONG AND CARDIAC REHABILITATION (2014)

Dr. RM Neary, out of Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil, and colleagues conducted a systematic review of the literature and identified three topic-relevant RCTs. The panel of researchers concluded that preliminary evidence suggests that Tai Chi Chuan can be an unconventional form of cardiac rehabilitation, being an adjunctive therapy in the treatment of patients with stable coronary artery disease. However, the methodological quality of the included articles and the small sample sizes clearly indicate that new randomized controlled trials are needed in this regard.

Nery RM, Zanini M, Ferrari JN, et al. (2014) Tai Chi Chuan for Cardiac Rehabilitation in Patients with Coronary Arterial Disease. *Arquivos Brasileiros de Cardiologia*. 2014;102(6):588-592. doi:10.5935/abc.20140049.

QIGONG AND COGNITION (2014)

A panel of researchers led by Dr. Peter Wayne of the Osher Center for Integrative Medicine reviewed 20 studies including 2,553 participants, and concluded that Tai Chi shows potential to enhance cognitive function in older adults, particularly in the realm of executive functioning and in individuals without significant impairment. Larger and methodologically sound trials with longer follow-up periods are needed before more-definitive conclusions can be drawn.

Wayne PM, Walsh JN, Taylor-Piliae RE, [...] Yeh GY. (2014) The Impact of Tai Chi on Cognitive Performance in Older Adults: A Systematic Review and Meta-Analysis. *Journal of the American Geriatrics Society*. 2014;62(1):25-39. doi:10.1111/jgs.12611

QIGONG AND COPD (2014)

Wu and colleagues, from Department of Sports Medicine, Shanghai University of Sport, Shanghai, conducted a systematic review of 11 studies involving 824 patients. These researchers concluded that Tai Chi has beneficial effects on exercise capacity and HRQoL in COPD patients, and that this exercise can be recommended as an effective alternative training modality in pulmonary rehabilitation programs. Further studies are required to support the preliminary evidence and to observe the long-term effects of Tai Chi.

Wu W, Liu X, Wang L, Wang Z, Hu J, Yan J. Effects of Tai Chi on exercise capacity and

health-related quality of life in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis. *International Journal of Chronic Obstructive Pulmonary Disease*. 2014;9:1253-1263. doi:10.2147/COPD.S70862.

QIGONG FOR SYMPTOMS OF DEPRESSION (2015)

In a collaborative effort between Chinese and Australian researchers, Liu and colleagues reviewed 30 RCTs involving 2,328 subjects on effects of multiple forms of care including qigong, traditional tai chi, other exercises, education, and various other modalities, and concluded that only qigong exercises proved effective in reducing symptoms of depression. This study provides two important facts: (a) Qigong is effective, and in this clinical application (b) internal qigong is superior to traditional tai chi.

Liu X, Clark J, Siskind D, Williams GM, Byrne G, Yang JL, Doi SA(2015) A systematic review and meta-analysis of the effects of Qigong and Tai Chi for depressive symptoms. *Complementary Therapies in Medicine* , 23 (4): 516-534

QIGONG AND FALL PREVENTION

A panel of researchers, led by Dr. Leslie Gillespie out of New Zealand, updated a Cochrane review first published in 2009. These researchers reviewed 159 trials including 79,193 participants addressing multiple fall prevention interventions. They concluded that group and home-based exercise programs and home safety interventions reduce rate of falls and risk of falling. Among exercise programs, tai chi reduced risk of falling.

Two RCTs investigating effects of tai chi in fall prevention are notable. In 2005, Dr. Fuzong Li, out of Oregon Research Institute, and colleagues reported findings of an RCT involving 256 physically inactive, community-dwelling older adults. They concluded that a 3 x's/wk, 6-month Tai Chi program is effective in decreasing the number of falls, the risk for falling, and the fear of falling, and it improves functional balance and physical performance in physically inactive persons aged 70 years or older. Additionally in 2013, Dr. Tousignant, of Sherbrooke, Quebec, and colleagues reported results of an RCT involving 152 frail older adults and found that 15-wks of tai chi practice was more effective than conventional physical therapy for fall prevention.

Also of note, in a cost/benefit analysis, the Tai chi: Moving for Better Balance program was found superior to two well-known traditional exercise and fall prevention education programs (Otago and Stepping On). The return on investment (ROI) for the tai chi intervention was estimated at 509% for dollar spent.

Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, Lamb SE. (2012) Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev*. 2012 Sep 12;9:CD007146. doi: 10.1002/14651858.CD007146.pub3.

Li F, Harmer P, Fischer KJ, McAuley E., Chaumelon N, Eckstrom W, Wilson NL. (2005) Tai chi and fall reductions in older adults; a randomized controlled trial. *J Gerontol A Biol Sci Med Sci*. 2005 Feb;60(2):187-94. PMID: 15814861

Tousignant M, Corriveau H, Roy PM, Desrosiers J, Dubuc N, Hébert R. Efficacy of supervised Tai Chi exercises versus conventional physical therapy exercises in fall prevention for frail older adults: a randomized controlled trial. *Disabil Rehabil*. 2013 Aug;35(17):1429-35. doi: 10.3109/09638288.2012.737084. Epub 2012 Nov 20. PubMed PMID: 23167499.

Carande-Kulis V, Stevens JA, Florence CS, Beattie B, Arias I. (2015) A cost-benefit analysis of three older adult prevention interventions. (2015) *J Safety Res* 52:65-70 doi: 10.1016/j.jsr.2014.12.007. Epub 2015 Jan 6. PMID: 25662884

QIGONG AND FIBROMYALGIA (2012)

In 2012, Dr. R Lauche, of the University of Duisburg-Essen, Germany, and colleagues reviewed the literature and found seven topic-related trials. They concluded that, while qigong may be a useful approach, there was no strong evidence at this time to support superiority of qigong compared to conventional active treatments.

Lauche R, Cramer H, Häuser W, Dobos G, Langhorst J. (2013) A Systematic Review and Meta-Analysis of Qigong for the Fibromyalgia Syndrome. *Evidence-based Complementary and Alternative Medicine : eCAM*. 2013;2013:635182. doi:10.1155/2013/635182.

QIGONG IN PARKINSON'S (2015)

Tai Chi can significantly improve motor function and balance in individuals with PD, They further concluded that there is not enough evidence to confirm that Tai Chi is

effective for management of PD because of the small treatment effect, methodological flaws of eligible studies, and insufficient follow-up. Therefore at this time, there is no strong evidence to either support nor refute claims of effect.

Zhou J, Yin T, Gao Q, Yang XC. (2015) A Meta-Analysis on the Efficacy of Tai Chi in Patients with Parkinson's Disease between 2008 and 2014. *Evidence-based Complementary and Alternative Medicine : eCAM*. 2015;2015:593263. doi:10.1155/2015/593263.

QIGONG (as TCC) ASSOCIATED WITH PRIMARY PREVENTION OF STROKE (2015)

In a large systematic review out of China, a panel of researchers reviewed 36 studies with a total of 2,393 participants and concluded that Tai Chi Chuan exercise was associated with lowering of risk factors for stroke. They further concluded that, while promising, the evidence was somewhat lacking in rigor.

Zheng G, Huang M, Liu F, Li S, Tao J, Chen L. (2015) Tai Chi Chuan for the Primary Prevention of Stroke in Middle-Aged and Elderly Adults: A Systematic Review. *Evidence-based Complementary and Alternative Medicine : eCAM*. 2015;2015:742152. doi:10.1155/2015/742152.

EXTERNAL QIGONG: Biofield Therapy

In its simplest definition, external (biofield) qigong is the therapeutic passing of vital energy from one person to another. As a biofield therapy, external qigong is akin to Reiki, therapeutic touch, quantum touch, and other new-age bioenergy techniques. In 2002, a major paper on the topic was reported by Drs. Z. Lin and K. Chen [<http://www.qigonginstitute.org/html/papers/Waiqireview0630.pdf>]. They identified over 500 reports and concluded that, though much of the evidence was observational, all these studies, to differing degrees, have confirmed the objective existence of EQ or biofield effect. They recommended that future studies address the primary objective of theory validation (i.e.; understanding how EQ works, its effects in terms of bio-information, and its applications).

Lin Z, Chen K. (2002) Exploratory Studies of External Qi in China *Journal of International Society of Life Information Science (ISLIS)*. 2002;20 (2): 457-461.

Note: Much of the widely-available research published on EQ conducted since that 2002 review was performed on in vitro cell cultures, as animal research or as observational study.

EXTERNAL QIGONG AS A NON-PHYSICAL CONTACT (biofield) THERAPY (2014)

In 2014, a panel of three researchers from the Institute for Integrative Health, Baltimore, MD, reviewed the literature addressing effectiveness of non-physical contact treatment including external qigong (EQ), therapeutic touch, Reiki, and healing touch. They included 18 RCTs in their review. Three RCTs assessed effect of EQ. Conclusions of effect were challenged by low sample sizes within studies. They recommended continued research effort.

Hammerschlag R1, Marx BL, Aickin M. Nontouch biofield therapy: a systematic review of human randomized controlled trials reporting use of only non-physical contact treatment. J Altern Complement Med. 2014 Dec;20(12):881-92. doi: 10.1089/acm.2014.0017.