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CRITICAL REVIEW

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

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Abstract: 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.

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Key words: External qigong, qigong, pain, systematic review.

Pain is often difficult to adequately control, and treatment options include pharmacologic and non-pharmacologic approaches. Because of the potential for adverse reactions to pharmacologic therapy, complementary therapies, which are often viewed as safer, are popular. Possible options include acupuncture, massage, and qigong.

Qigong is one energy-healing intervention used to prevent and cure ailments and to improve health through regular practice.^{17,21} Internal and external qigong can be distinguished. Internal qigong refers to a self-training method without a practitioner to achieve optimal health in both mind and body.^{3,21} External qigong refers to the process by which qigong practitioners, who have mastered the technique, direct their qi energy to relieve pain or other illnesses.

External qigong has similarities with other energy healing modalities such as therapeutic touch, Reiki, and healing touch.¹⁷ Previous studies of energy healing reported positive treatment effects in pain control.^{2,24} Although qigong—neither itself nor its postulated mechanism of action—are within the paradigm of modern Western medical science, effects on the human body could be possible. The objective of this systematic review

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is to summarize and critically assess the evidence from randomized clinical trials (RCTs) of external qigong for pain management.

Methods

Data Sources

The following electronic databases were searched from their respective inceptions through January 2007: Medline, Amed, British Nursing Index, CINAHL, EMBASE, PsycInfo, Pubmed, The Cochrane Library 2007, Issue 1, Korean Medical Databases (Korean Studies Information, DBPIA, Korea Institute of Science, Technology Information, Research Information Center for Health Database, Korean Medline, and National Assembly Library) and Chinese Medical Databases (China Academic Journal, Century Journal Project, China Doctor/Master Dissertation Full text DB, China Proceedings Conference Full text DB), and Qigong and Energy Medicine Database (Version 7.4; Qigong Institute, Melon Park, CA). The search terms used were qigong or chi adj gong or chi adj kung or qi adj kung or jih adj gong or qi adj gong or the Chinese letter for qigong and pain. Experts were contacted and asked to contribute material, particularly unpublished trials. In addition, the references of all located articles, relevant published book chapters, and our departmental files were hand-searched for further articles.

Study Selection

Prospective, controlled, clinical trials were included if they were randomized studies of external qigong for pain of any origin. Trials comparing qigong with any type of control group were included. We excluded trials of internal qigong. No language restrictions were imposed. Hard copies of all articles were obtained and read in full.

Data Extraction, Quality, and Validity Assessment

Data were extracted independently by 2 authors (MSL, MHP), using a specifically designed data extraction form. For each study, trial design, randomization, blinding, and handling of dropouts, inclusion and exclusion criteria, details of treatment and control procedures, main outcomes measures, and main results were extracted. Methodological quality was assessed using the Jadad score.⁹ Taking into account that qigong practitioners are impossible to be blinded to the treatment, we used a modification of this scale.²⁵ Points were awarded for a maximum of 5 as follows: One point if the study was described as randomized; 1 point for appropriate method; 1 point deducted if randomization method was inappropriate; 1 point if subject was blinded to intervention; 1 point if evaluator was blinded to intervention; 1 point for description of withdrawals and dropouts. Subject blinding was assumed where the control intervention was indistinguishable, even if the word "blinding" did not occur in the report. Trial validity was assessed on the 16-point Oxford Pain Validity Scale

(OPVS).²³ Discrepancies were resolved by discussion between the 2 reviewers (MSL, MHP), and, if needed, by seeking the opinion of the third reviewer (EE).

Data Analysis

The mean change of pain VAS compared with baseline was defined as the primary outcome measure. It was used to assess the differences between the intervention and control groups. Weighted mean differences (WMD) and 95% confidence intervals (CI) were calculated using the Cochrane Collaboration's software (Review Manager [RevMan] Version 4.2 for Windows, Microsoft Corp., Redmond, WA, Copenhagen: The Nordic Cochrane Centre). The variance of the change was imputed using a correlation factor of 0.4, suggested by the Cochrane Collaboration. The χ^2 test and the Higgins I^2 test were used to assess heterogeneity. Homogeneous data sets were statistically pooled, using a random-effects model.

Results

Study Description

The literature searches revealed 141 possibly relevant studies. One hundred thirty-six studies were excluded (Fig 1). Key data of the remaining 5 RCTs included are summarized in Table 1.

Study Quality and Validity

The methodological quality of the trials was variable (ranged from 1–5, Table 1). Of the 5 included RCTs, 3^{10,13,29} described the methods of randomization and only 1¹⁰ described assessor and subject blinding for a maximum of 5 points. Three studies^{11,14,29} made an attempt at neither

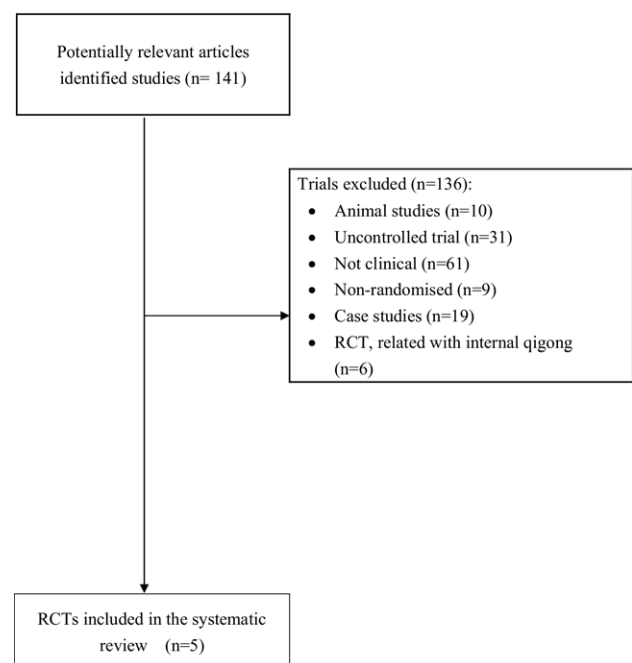


Figure 1. Flow chart of trial selection process.

Table 1. Key Data of Randomized Clinical Trials of External Qigong for Pain

<i>FIRST AUTHOR (YEAR)</i>	<i>STUDY DESIGN QUALITY SCORE,* [VALIDITY SCORE],†</i>	<i>CONDITION SAMPLE SIZE (RANDOMIZED/ANALYZED)</i>	<i>INTERVENTION (REGIMEN)</i>	<i>CONTROL (REGIMEN)</i>	<i>PAIN MEASUREMENT METHODS</i>	<i>MAIN RESULT</i>	<i>AUTHORS' CONCLUSION</i>
Lee (2001) ¹⁴	Parallel open 1,[8], adequate	Chronic pain 40/40	External qigong (10 min, twice weekly for 2 weeks, n = 20)	General care (n = 20)	100 mm VAS	After 1 ($P < .05$) and 2 weeks ($P < .01$), pain scores were reduced in qigong group compared with control	"External qigong may have a role in helping the elderly to cope with their pain."
Lee (2003) ¹³	Parallel patient blind 3, [13], n.r.	Chronic pain 94/94	External qigong (10 min, once, n = 47)	Sham external qigong (10 min, once, n = 47)	1) 100 mm VAS 2) Number of pain points	1) VAS scores significantly decreased in both groups compared with baseline. 2) Significant difference for the number of pain points compared with control ($P < .001$)	"External qigong may successfully relieve pain acutely in elderly patients with chronic pain."
Jang (2004) ¹⁰	Parallel assessor and patient blind 5, [13], n.r.	Premenstrual syndrome 36/36	External qigong (10 min, 4 times at 14, 7, 4, and 1 day before menses for 2 menstrual cycles, n = 18)	Sham external qigong (10 min, 4 times at 14, 7, 4, and 1 day before menses for 2 menstrual cycles, n = 18)	Pain intensity on premenstrual syndrome diary subscale (5-point Likert scale)	Pain intensity significantly reduced in qigong group compared with control ($P < .001$)	"External qigong may be an effective therapy for pain relieve in PMS."
Jang (2004) ¹¹	Parallel open 2,[7], adequate	Premenstrual syndrome 46/45	External qigong (10 min at 7, 4, 1 day before and 7, 14 days after menses for 2 menstrual cycles, n = 23)	Waiting list (n = 23)	100 mm VAS	Pain intensity significantly reduced in qigong group compared with control ($P < .01$)	"External qigong is effective for reducing pain in PMS."
Yang (2005) ²⁹	Parallel open 3, [8], n.r.	Chronic pain 43/40	External qigong (20 min, twice weekly for 4 weeks, n = 20)	General care (n = 23)	100 mm VAS	Pain intensity significantly reduced in qigong group compare to control.	"External qigong significantly reduced pain levels in elderly with chronic pain."

Abbreviations: VAS, visual analogue scale; n.r., not reported.

*Quality score: Jadad score (max, 5).

†Validity score: Oxford Pain Validity Score (max, 16).

Review: Qigong (external) for pain
 Comparison: 01 External qigong vs general care control
 Outcome: 01 Pain reduction (VAS 100mm)

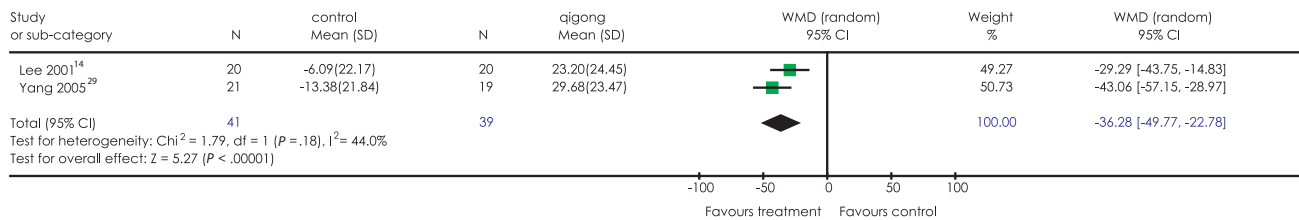


Figure 2. Meta-analysis of trial data. *Unpublished data provided by the author.

subjects or assessor blinding. Sufficient details of dropouts and withdrawals were described in 3 trials.^{10,11,29} Only 2 trials^{11,14} reported details on allocation concealment. OPVS scores ranged from 7 – 13 of a maximum of 16. Two placebo-controlled trials^{10,13} scored 13. Points were lost mostly for the lack of blinding and group size less than 20. One trial²⁹ was rated as high-quality but as low-validity.

Outcomes

All 5 studies testing external qigong suggested significant differences in pain measures compared with sham treatment or routine care. External qigong was compared with routine care control groups in 2 studies,^{14,29} which reported intergroup differences for pain on VAS scales (Table 1). The meta-analysis of these RCTs suggested a significant effect compared with general care control for treating chronic pain (Pain 100 mm VAS; WMD, 36.3 mm; 95% CI, 22.8 to 49.8; $P < .001$, heterogeneity: $\chi^2 = 1.79$, $P = .18$, $I^2 = 44.0\%$, $n = 80$; Fig 2). When compared with sham control,^{10,13} intergroup differences on pain measures were reported for acute¹³ and longer-term effects.¹⁰

Discussion

The evidence from RCTs of qigong for treating pain is positive. The results for external qigong the data suggest some effectiveness compared with sham and general care controls. However, the total number of trials included in our analysis and the total sample size are too small to distinguish between any nonspecific or specific effects, which preclude any firm conclusions.

External qigong was compared with various types of control interventions. Compared with general care controls^{14,29} such as hot packs and self-massage, external qigong reduced pain to some extent and may suggest some effectiveness. Alternatively it could merely depict the fact that both types of interventions are ineffective. Compared with sham,^{10,13} external qigong may reduce pain acutely and for some duration and may show effects beyond placebo. However, the treatment duration and sample size were too small, and further and larger trials are therefore required to test the effectiveness of external qigong for pain management.

In general, qigong consists of a physical routine, breathing practice, and meditation. For external qigong,

the assumption is that with constant practice, a skilful qigong practitioner is able to emit qi energy to help break down qi blockages or balance the qi system. Several overviews of clinical studies^{3,4,16,20-22,27} as well as laboratory and animal experiments exist.^{3,4,27,28,30} External qigong has similar features as other forms of energy healing—for example, therapeutic touch, Reiki. The effect sizes (ES) of external qigong in this review (ES = 1.53 compared with general care^{14,29} and 0.63 for placebo^{10,13}) seem larger compared with those of similar therapies.^{2,24} However, due the use of different assessment measures for evaluating pain and the use of different controls, such comparisons are problematic.

One argument in favor of qigong for pain management is that it might be safer than conventional drug treatment. However, some studies reported that qigong may also be linked to adverse events such as abnormal psychosomatic responses and even mental disorders.^{1,12,15,18,26} Relative to those of standard drug treatments, these may be infrequent or even negligible. This systematic review focused on the effectiveness of qigong and thus adverse events were only assessed as reported in the included RCTs. A systematic safety review using adequate methodology is required.

The mechanisms that may be involved in qigong are hypothetical. An increase in the pain threshold combined with a relaxation effects and release of endorphins may be part of it.^{22,31}

Future trials testing the efficacy of external qigong should test the health benefits and medical applications of qigong and adhere to rigorous trial designs that are adequately suited to the research question that is being asked.⁴ Such trials should preferably be randomized, control for placebo effect, have sample sizes based on proper power calculations, use validated primary outcome measures, and include a full description of the actual interventions that are being tested.⁷

Limitations of our review pertain to the potential incompleteness of the reviewed evidence. We aimed to all RCTs on the topic. The distorting effects on the systematic reviews arising from publication bias and location bias are well documented.^{5,6,8,19} Another limitation is that all relevant articles on external qigong were conducted in the department of one of the authors of this review (MSL). However, the literature was systematically searched by using transparent and reproducible meth-

ods and thus can be verified by independent groups. Further limitations include the paucity and the often suboptimal quality of the primary data. In conclusion,

the evidence for the effectiveness of external qigong for treating pain is encouraging but not convincing. Further studies are warranted.

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