

COMMENTARY ON THE COCHRANE REVIEW OF TAI CHI FOR RHEUMATOID ARTHRITIS

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ABSTRACT OF THE COCHRANE REVIEW

Background: Rheumatoid arthritis (RA) is a chronic, systemic inflammatory autoimmune disease that results in the destruction of the musculoskeletal system. The major goals of treatment are to relieve pain, reduce inflammation, slow down or stop joint damage, prevent disability, and preserve or improve the person's sense of well-being and ability to function. Tai Chi, interchangeably known as Tai Chi Chuan, is an ancient Chinese health-promoting martial art form that has been recognized in China as an effective arthritis therapy for centuries.

Objectives: To assess the effectiveness and safety of Tai Chi as a treatment for people with RA.

Search strategy: We searched the Cochrane Controlled Trials Register (CCTR),

MEDLINE, Pedro, and CINAHL databases up to September 2002, using the Cochrane Collaboration search strategy for randomized controlled trials. We also searched the Chinese Biomedical Database up to December 2003 and the Beijing Chinese Academy of Traditional Medicine up to December 2003.

Selection criteria: Randomized controlled trials and controlled clinical trials examining the benefits and harms of exercise programs with Tai Chi instruction or incorporating principles of Tai Chi philosophy were selected. We included control groups who received no therapy, sham therapy, or another type of therapy.

Data collection and analysis: Two reviewers determined the studies to be included in this review, rated the methodological quality, and extracted data using standardized forms.

Main results: Four trials including 206 participants were included in this review. Tai Chi-based exercise programs had no clinically important or statistically significant effect on most outcomes of disease activity, which included activities of daily living, tender and swollen joints, and patient global overall rating. For range of motion, Tai Chi participants had statistically significant and clinically important improvements in ankle plantar flexion. No detrimental effects were found. One study found that compared to people who participated in traditional ROM exercise/rest programs, those in a Tai Chi dance program reported a significantly higher level of participation in and enjoyment of exercise both immediately and four months after completion of the Tai Chi program.

Conclusions: The results suggest Tai Chi does not exacerbate symptoms of rheumatoid arthritis. In addition, Tai Chi has statistically significant benefits on lower extremity range of motion, in particular ankle range of motion, for people

with RA. The included studies did not assess the effects on patient-reported pain.

CRITIQUE OF COCHRANE REVIEW

Overall, this review by Han et al¹ represents an important look at the status of the tai chi literature through 2002-2003 with regard to rheumatoid arthritis. The authors followed the rigorous search and reporting procedures of the Cochrane Musculoskeletal Group and found four studies, which they included in the review. They concluded that tai chi does not exacerbate symptoms and may benefit range of motion, but could make no statements regarding pain or quality of life. The author's conclusions were, unfortunately, limited by overall poor quality and limited reporting of the few primary studies. This Cochrane Review highlights some important issues regarding reviews of the tai chi literature, which may also share common themes and identify common problems that apply to the study of mind-body and CAM therapies in general.

The first important issue is related to inclusion criteria selection for a systematic review. In the treatment of chronic conditions such as rheumatoid arthritis, particularly when it comes to complementary modalities such as tai chi, therapies are often used and studied in conjunction with other treatments. Although these heterogeneous interventions may better represent how care is delivered in real-world settings, they sometimes create problems when it comes to interpreting research findings. How do you appropriately decide which studies to include in a review of a particular single therapy? The review by Han et al¹ included only four studies, two of which evaluated mixed interventions that clearly included more than just tai chi and where not all patients necessarily received tai chi. One study by Jianjiang et al² compared Chinese herbal medicine with

and without daily exercise, massage, and hot compresses (where exercise included slow running, walking, gymnastics, and tai chi). Another study by Van Deusen and Harlowe³ compared a control group to a health education class of guided relaxation, group discussion, poetry, music, and a range-of-motion dance program (that incorporated principles of occupational therapy and tai chi). Since the publication of this Cochrane review in 2004, there has been a second review of the same topic by Lee et al⁴ published in *Rheumatology* in 2007 that criticized this point and subsequently included only single tai chi interventions in their analyses. Although the studies by Jianjiang et al² and Van Deusen and Harlowe³ evaluate pragmatic, real-world interventions, they create unnecessary heterogeneity in a review paper, may make it impossible to tease out individual component effects, and make combining results or comparing across studies a formidable challenge.

This discussion brings us to a second related issue. Single tai chi interventions are far from simple or straightforward. In our reviews, omitting trials that study combination interventions and including only those that appear to study a single tai chi intervention solve only a proportion of the research problem. As with many other mind-body and CAM interventions, tai chi as a therapeutic intervention is inherently varied and heterogeneous and unlike a pharmaceutical drug that might be easily standardized. Any two tai chi interventions in the literature may differ in a number of aspects; differences in style, protocol, numbers of movements, dose/duration of intervention, emphases on movement versus meditation, inclusion/exclusion of other warm-up activities (such as Qigong meditation), and type/qualifications of the instructors are just a few examples. Making sense of this heterogeneity and creating a useful body of literature from which we can draw meaningful conclusions will require that investigators and authors properly describe their interventions. Details of these types of information are lacking in each of the tai chi studies contained within Han's review.

On a further level, tai chi, much like any other mind-body modality, is not a simple intervention because it integrates multiple potentially therapeutic compo-

nents. An insightful paper by Wayne and Kaptchuk⁵ presents tai chi as a multimodal, complex intervention that may include interacting physical, cognitive, and ritualistic components (including, for example, elements of musculoskeletal efficiency, breathing, mindfulness, psychosocial interactions, rituals, and environment). These components add a desired richness and multidimensionality to any given tai chi intervention, yet again pose significant challenges to the design and interpretation of studies.

The third issue worth mentioning is use of the Jadad scale. Although this is a widely accepted scale for assessing methodological quality and rigor of randomized controlled trials, we have found that it is insufficient for many CAM therapies, particularly mind-body interventions such as tai chi where double-blinding is a huge challenge, often impractical or impossible. In the review by Han et al,¹ they rate studies using the Jadad scale, whereas at the same time acknowledge the difficulty for studies to achieve true double-blinding (as patients in exercise studies will know whether or not they are receiving exercise). In our own reviews of the tai chi literature, we have used a modified Jadad scale, giving one point for proper assessor single-blinding.⁶

There also remains a great need for a set of recommendations that would improve the reporting of mind-body exercise trials, akin to STRICTA (Standards for Reporting Interventions in Controlled Trials of Acupuncture)/CONSORT (Consolidated Standards of Reporting Trials).⁷ Such a reporting system specifically for non-pharmacological, mind-body approaches would guide trial investigators in maintaining minimum standards for reporting and thus allow more accurate and comprehensive assessment of overall study quality. This would, in turn, greatly facilitate and improve our ability to synthesize the results of multiple trials and draw useful conclusions.

Finally, it was surprising to see that the review by Han et al¹ was the only review in the Cochrane database examining tai chi as a therapeutic intervention. From our own searches, we have found that from 1974 to 2007, there are over 450 English language publications to date, roughly 20% being randomized controlled trials. Two areas with considerable research

interest have been balance and fall prevention, and cardiorespiratory physiology. Although there have been other literature reviews in these areas, Cochrane reviews on the topics do not exist. When one looks at the Cochrane database for mind-body interventions overall, the numbers are not much higher. Since the review by Han et al¹ was conducted in 2002-2003, the tai chi literature has dramatically grown, with approximately 50% of the tai chi literature published in the last three to four years. This remarkable rate of publication growth highlights the need for quality systematic reviews in this area and also underscores the need for continually updating reviews as new information becomes available.

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