An evidence-based review of yoga as a complementary intervention for patients with cancer

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CRD summary
The authors concluded that yoga may be associated with some positive effects on psychological functioning, but noted that methodological weaknesses and differences in studies included may limit the review's findings. The authors' cautious conclusions reflected the evidence presented and are likely to be reliable, but should be viewed with caution given the small number of patients reviewed.

Authors' objectives
To assess the impact of yoga on psychological functioning in cancer patients.

Searching
EMBASE, PsycINFO, PsycARTICLES, Psychology (a SAGE full-text collection), MEDLINE, The Cochrane Library, Cochrane Database of Systematic Reviews, Complementary and Alternative Medicine Evidence Online (CAMEOL) and DARE databases and relevant websites (American Psychosomatic Society and American Society of Clinical Oncology) were searched without language restrictions. Searches were conducted between May 2007 and April 2008, but the dates covered by the searches were not reported. Dissertations, theses, The International Journal of Yoga Therapy and reference lists of retrieved articles were handsearched. Experts in the field were contacted.

Study selection
All studies that evaluated effects of yoga on psychological functioning in cancer patients were eligible for inclusion. Studies where yoga was evaluated as part of a larger intervention program, those that did not report findings specific to yoga, non-full text papers and those considered multiple publications were excluded. Unpublished studies and dissertations were included if they had not been fully published elsewhere.

Most patients were female and most received concurrent treatment (chemotherapy, radiotherapy). The mean age of patients was 52.4 years. Breast cancer was the most common diagnosis. The types and durations of yoga interventions were varied. Psychological outcomes assessed included: anxiety, depression, stress, mood, quality of life, fatigue and spiritual well-being.

The eligibility of identified studies was assessed by one reviewer.

Assessment of study quality
Study quality was assessed independently by two reviewers according to the following criteria: significance of the problem; clarity of the definition of the problem; adequacy of design; adequacy of control variables; adequacy of sample selection, reliability and validity measures; validity of data analysis; appropriateness of interpretations and generalisations; and adequacy of the research report. Disagreements were resolved by discussion. Each dimension was rated using a 5-point scale from 1 (poor) to 5 (excellent); ratings of each dimension were summed to create a total quality score (range 9 to 45) for each study. The final quality score was the average of the two rater's scores.

The adequacy of reporting of included randomised controlled trials (RCTs) was independently evaluated by two reviewers using the Consolidated Standards of Reporting Trials (CONSORT) checklist: a score out of 21 was created to measure compliance with CONSORT guidelines.

Data extraction
Two reviewers independently extracted data on the following using a standardised form: post-intervention means and standard deviations in the intervention and control groups in order to calculate Cohen's d effect size (ES); and quality factors.

Methods of synthesis
Study results were tabulated and summarised narratively.
Results of the review
Ten studies were included in this review (n=905 patients; range 13 to 398): six RCTs; three non-controlled studies (one unpublished); and one programme evaluation study. Study quality (mean score 33.6, on a 9 to 45 point scale) and reporting (mean CONSORT score 12.5, on a 21-point scale) were adequate.

**RCTs:** Yoga was associated with moderate to large improvements in measures of anxiety (ES range 1.34 to 4.67; two RCTs), depression (ES range 1.31 to 7.44; two RCTs), stress (ES range 1.24 to 2.25; two RCTs), quality of sleep (ES 0.98; one RCT), mood (ES range 0.27 to 0.74; two RCTs), quality of life (ES range 0.28 to 1.51; three RCTs) and spiritual well-being (ES 0.39; one RCT). In one RCT yoga was associated with small improvements in measures of distress (ES 0.04), anxiety (ES 0.04) and depression (ES 0.17). Similarly small improvements were reported for fatigue (ES range 0.00 to 0.05; two RCTs).

**Non-controlled trials:** Overall, yoga was associated with moderate to large improvements in psychological outcome measures.

Authors’ conclusions
Yoga may be associated with some positive effects on psychological functioning, but the review results were limited by methodological weaknesses and differences in studies included.

CRD commentary
The review addressed a clear question supported by appropriate eligibility criteria. Several relevant databases were searched for both published and unpublished literature. Appropriate steps were taken to minimise risk of error and bias in data extraction and validity assessment, but not explicitly with study selection. Study quality was assessed using appropriate criteria. Appropriate methods were used to summarise data numerically and narratively. A small number of patients was included in the available studies. This was a generally well-conducted review and the conclusions reflected the evidence presented. The authors’ conclusions are likely to be reliable, but apparent positive effects of yoga need to be viewed with caution given the small number of patients reviewed.

Implications of the review for practice and research
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further studies were needed to determine the most effective components of yoga and define subgroups of cancer patients where yoga would be most effective.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.