



Research Summary for Yoga Therapists: Yoga Therapy during Cancer Treatment

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Research Summaries for Yoga Therapists are a service provided by IAYT to help yoga therapists navigate the twists and turns of the research landscape. The full reference can be found here:

Danhauer, S. C., Sohl, S. J., Addington, E. L., Chaoul, A., & Cohen, L. (2016). Yoga therapy during cancer treatment. In: S. B. S. Khalsa, L. Cohen, T. McCall, & S. Telles (Eds.), *The principles and practice of yoga in health care*, 339–372. Pencaitland, United Kingdom: Handspring Publishing.

Definition of the disorder

Cancer is typically defined by the observance of abnormal cell growth typically found within a specific organ (e.g., prostate, breast) or white blood cells (e.g., leukemia, lymphoma).

The primary allopathic treatments are surgery, chemotherapy, radiotherapy, hormonal blockade, and other pharmacological treatments. Often, these treatments have adverse side effects, including chemotherapy-induced vomiting and nausea, peripheral neuropathy, cognitive impairment, fatigue, pain, sleep disturbances, mood disorders, and chemotherapy-induced immunosuppression.

Prevalence (How common are the conditions?)

According to the World Health Organization (WHO), 8.2 million deaths worldwide are attributed to cancer and more than 14 million people are diagnosed with cancer annually.

Etiology (What are the suspected risk factors?)

Risk factors include high body mass index (BMI), tobacco use, physical inactivity, unhealthy diet, and excessive use of alcohol. Chronic stress and depression are also implicated as risk factors for cancer.

Rationale for yoga

Chronic stress or stress-related changes in the body can lead to lowered immunity and increased inflammatory responses that can exacerbate cancer symptoms. Yoga may lead to reduced stress, which may in turn reduce inflamma-

tion and boost immunity. Yoga may also alleviate symptoms that cause reduced quality of life and poor mental health.

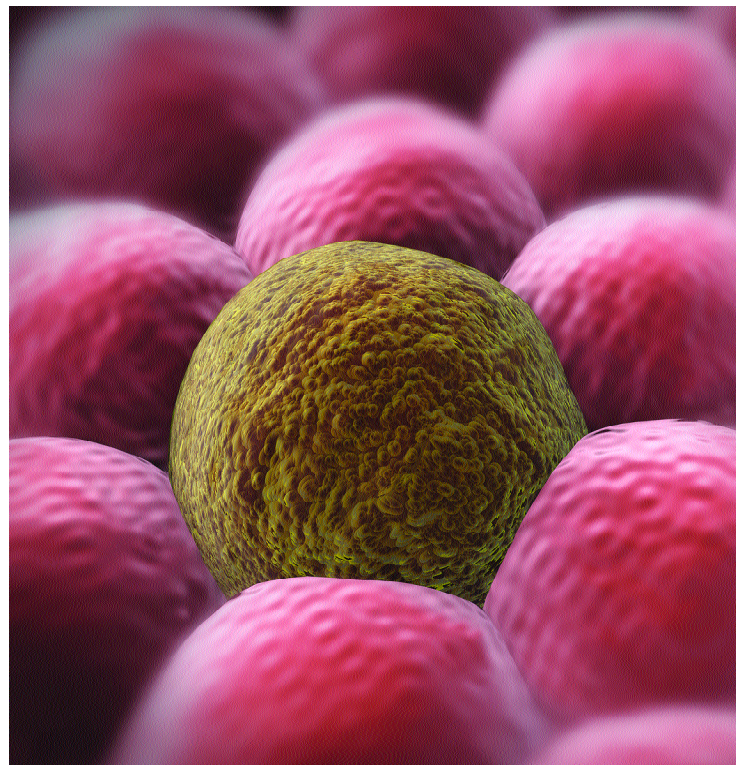
General methods

The review of the published research included uncontrolled (pre–post designs) and randomized controlled trials (RCTs). The studies are divided into *adult* and *pediatric* studies, although no RCTs were reported in pediatric populations at the time of printing.

1. Adults

Who was studied?

Uncontrolled: Adults (mostly female–94%) diagnosed with some form of cancer (e.g., lymphoma, gynecological, breast, lung) at varying stages of severity. Age range was 18–82. Cancer treatment received during the study involved chemotherapy and radiation.



RCTs: Adults with an age range of 18–79, primarily women diagnosed with breast cancer, with the exception of one study that included only lymphoma participants. Cancer treatment received during all of these studies involved surgery, chemotherapy, radiation, and unspecified medical treatment.

How were the studies conducted?

Uncontrolled:

- Six single-group (pre–post) pilot studies were included in the review. The samples ranged from as few as 4 to up to 51 participants.
- Yoga approaches combined traditional techniques such as movement, breathing, meditation, and yogic philosophy. Only four studies indicated specific yoga styles: Restorative (one), Iyengar (two), and Tibetan (one).
- The amount and duration of yoga varied, with sessions ranging from 15 to 120 minutes, once per week for 3 weeks to three times per week for 5–10 weeks.
- Outcomes included quality of life (QOL) measures for mental, physical, and spiritual health. Note: Most of these nonrandomized, uncontrolled studies were preliminary in nature and not designed to assess clinical outcome measures but instead to determine feasibility and acceptance within a research study. Qualitative data may not be tested statistically but do provide insight into the participant's experience and are sometimes used to corroborate quantitative analysis when available.

RCTs:

- Eleven RCTs were included in this review. The sample sizes ranged from 8–84.
- Control groups used in this selection of RCTs involved supportive counseling, waitlist controls, active controls (e.g., stretching or standard physiotherapy), usual care, and standard of care.
- Yoga styles were Vivekananda Yoga Anusandhana Samsthana (VYASA, five studies), Tibetan (one), Restorative (one), Hatha (one), Anusara (one), Yoga in Daily Life (one), and unspecified (one).
- The amount of yoga, where specified, ranged from one session per day to three sessions per week, over 1 to 12 weeks. Each session ranged from 60–90 minutes.
- Outcomes were assessed for anxiety, depression, QOL, sleep, fatigue, distress, spiritual wellbeing, other mood states, and physical/medical outcomes. Salivary cortisol (a biomarker for stress) and a physiologic response for immunity were also measured. Validated measures were mostly used.

What did the researchers find?

Uncontrolled:

- One study found significant improvements in mental

health, such as improved mood and reduced anxiety, depression, and negative affect.

- One study found significant differences in physical health, such as increased vigor and reduced fatigue.
- One study found significant improvements in sleep disturbances.
- Qualitative changes in outcomes were reported for some studies and included self-efficacy, social support, empowerment, and coping.

RCTs:

- All studies found significant improvements in some or all outcomes measures, including mental health, positive and negative affect, stress, depression, and anxiety.
- Two studies reported greater spiritual wellbeing among yoga participants.
- Two out of 11 studies observed nonsignificant effects on depression and sleep.
- Three studies found significantly better emotional, mental, social, physical, and general QOL compared to controls.
- Two studies reported a decrease in symptoms related to cancer treatment, such as distress, appetite loss, pain, nausea, and vomiting.
- One study reported improved postoperative outcomes, including earlier removal of sutures and drainage tubes and shorter hospitalization.
- Two studies reported significantly improved levels of salivary cortisol.
- Two studies reported a significantly improved immune response.

Were adverse events reported?

Adverse events were not reported in the chapter summary.

2. Pediatrics

Who was studied?

Children and adolescents with different types of cancers were included in the studies. The age range for the children and adolescents was 5–18.

How were the studies conducted?

- Only three uncontrolled (pre–post) studies were included in this review.
- Sample sizes ranged from 8 to 49.
- The yoga interventions involved movement, strengthening, balance, breathing, relaxation, and body awareness. One study specified Bendy Kids Yoga and another study used Peaceful Play Yoga (Hatha-based). One study did not report specific details.
- The primary outcome for these studies was to establish feasibility (i.e., recruitment, attrition, adherence, safety, intervention satisfaction). Other outcomes included phys-

ical function or functional mobility, state anxiety, and other pediatric QOL factors. Qualitative data were also collected to determine the participant's experience given the yoga intervention.

What did the researchers find?

- Feasibility was confirmed in two out of three studies.
- Pediatric QOL measures showed promising results in two studies.
- Yoga was found to have an effect on reduction of state anxiety. Two studies showed statistically significant improvements in physical function and mobility.

Were adverse events reported?

No adverse events were reported in the chapter summary.

What were the limitations of the overall review?

- Studies used self-reported measures, which are limited by bias, almost exclusively. The number of different measures reported makes it difficult to make comparisons across studies or to evaluate the body of evidence as a whole.
- The studies also differed substantially in design parameters, yoga intervention, frequency, and duration, making comparisons across studies difficult and limiting the generalizability of findings.
- It may also be important to note that the yoga teachers in the cancer research studies were not trained in teaching yoga to cancer patients; this may have influenced participant engagement and the feasibility of the interventions.
- The uncontrolled studies were not powered to detect statistically significant changes. With no comparison group, outcomes were intended only to provide preliminary data on the effects of yoga for future, larger studies.
- Attrition (dropout) rates varied from 8% to 43% and were related to travel distance, change of interest, scheduling, and health issues, all of which highlights the logistical challenges of conducting studies in patient populations.
- Research for pediatric populations is still in the early stages, but showed support for safety and feasibility, despite the lack of RCTs.

Take-away message

Six uncontrolled studies and 11 RCTs evaluating yoga for patients undergoing cancer treatments were reported in this review. For the most part, the studies supported the feasibility and safety of conducting studies in the adult and pediatric populations. Feasibility assesses recruitment and retention potential, attrition, adherence, safety, and intervention satisfaction. Feasibility studies provide important information for future, larger studies designed to test the effects of yoga on symptoms related to cancer treatment. Several adult studies support yoga as a therapy for mental health outcomes and other QOL measures, such as sleep. More RCTs in the pediatric population are needed, as well as with adult populations, to advance the field.

Clinical relevance

The research on yoga for patients undergoing cancer treatments, while encouraging, is limited both by methodological concerns and, in some cases, by the very small numbers of subjects. A number of benefits, both physical and psychological in nature, were documented, and no adverse side effects were reported. Studies to date involve multiple styles of yoga and offer little guidance to practicing yoga therapists as to how to work with clients undergoing cancer treatment. Of note, none of the yoga teachers involved in the studies had received training in working with cancer patients. Given this state of affairs, yoga therapists are advised to continue to work with clients during cancer treatment in accordance with their training and experience.