

# A Pilot Study of the Feasibility and Outcomes of Yoga for Lung Cancer Survivors

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Lung cancer affects almost 400,000 individuals in the United States annually and more than 2 million people worldwide, with increasing prevalence reported (American Cancer Society, 2013; International Agency for Research on Cancer, 2012). Although the five-year survival rate for non-small cell lung cancer (NSCLC) has increased, excessive symptom burden during the survivorship period remains extremely prevalent (Fouladbakhsh & Stommel, 2008, 2010; Podnos, Borneman, Koczywas, Uman, & Ferrell, 2007; Sarna et al., 2008) and is associated with increased stress, poorer functional status, lower quality of life (QOL), and higher mortality (Ferreira et al., 2008; Hansen & Sawatzky, 2008; Sarna, Cooley, & Brown, 2010; Snyder et al., 2008). Emerging evidence strongly suggests benefits of yoga for health promotion and symptom management among those with cancer and other chronic illnesses (Büssing, Ostermann, Lüdtke, & Michalsen, 2012; Carson et al., 2007; Chadwani et al., 2010; Cohen, Wameke, Fouladi, Rodriguez, & Chaoul-Reich, 2004; Donesky-Cuenco, Nguyen, Paul, & Carrieri-Kohlman, 2009; Ulger & Yagli, 2010), although clinical trials are lacking among lung cancer survivors. Research is needed to determine the effectiveness of complementary and alternative medicine (CAM) therapies such as yoga, which may help manage burdensome symptoms that persist over time. This article reports on a pilot study that examined the feasibility of yoga for post-treatment stages I–IIIa NSCLC survivors and the effects of yoga practice on sleep, mood, salivary cortisol levels (as a measure of stress), and QOL.

## Literature Review

### Lung Cancer and Symptom Burden

Individuals with lung cancer experience a complex array of symptoms that have devastating effects on physical and psychological functioning and may seriously compromise their overall QOL throughout the

**Purpose/Objectives:** To determine the feasibility of a standardized yoga intervention for survivors of non-small cell lung cancer (NSCLC) and, effects on sleep, mood, salivary cortisol levels, and quality of life (QOL).

**Design:** This 14-week, one-group, repeated-measures study included a three-week preintervention phase, eight weeks of yoga classes (40 minutes once per week) and home practice, and a three-week postintervention phase. Follow-up occurred at three and six months poststudy.

**Setting:** A community-based cancer support center in the midwestern United States.

**Sample:** 7 adults who had completed initial treatment for stages I–IIIa NSCLC.

**Methods:** A standardized yoga protocol was developed prior to the study by experts in the field. Breathing ease was monitored before, during, and after classes to assess feasibility of movement without compromising respiratory status while doing yoga. Data analysis included descriptive statistics, repeated-measures analysis of variance, and salivary cortisol analysis.

**Main Research Variables:** Sleep quality, mood, salivary cortisol, and QOL were assessed using the Pittsburgh Sleep Quality Index, Profile of Mood States–Brief, a cortisol measurement, and the Medical Outcomes Survey SF-36®, respectively. Breathing ease was assessed using a dyspnea numeric rating scale as well as observation of participants.

**Findings:** Participants with varying stages of disease and length of survivorship were able to perform yoga without respiratory distress. Class attendance exceeded 95%, and all practiced at home. Mood, sleep efficiency, and QOL significantly improved; salivary cortisol levels decreased over time.

**Conclusions:** Yoga was feasible for NSCLC survivors without further compromising breathing with movement. Potential benefits were identified, supporting the need for future clinical trials with larger samples stratified by cancer stage, treatment, and length of survivorship.

**Implications for Nursing:** Nurses and healthcare providers should consider yoga as a mind-body practice to manage stress, improve mood and sleep, and potentially enhance QOL for NSCLC survivors.

**Key Words:** lung cancer; yoga; symptoms

ONF, 41(2), 162–174. doi:10.1188/14.ONF.162-174