

# The Effects of Pranayama or Deep Breathing Exercises on Fatigue and Sleep Quality in Women Receiving Radiation Therapy for Breast Cancer

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**OBJECTIVES:** To evaluate the effects of pranayama and deep breathing exercises on fatigue and sleep quality in women undergoing radiation therapy for breast cancer.

**SAMPLE & SETTING:** This randomized controlled study was conducted on the outpatient radiation oncology unit of a hospital with 20 patients each in pranayama, deep breathing, and standard care groups (N = 60).

**METHODS & VARIABLES:** The Piper Fatigue Scale and the Pittsburgh Sleep Quality Index were used to evaluate the participants' fatigue and sleep quality.

**RESULTS:** The control group showed a significant increase in fatigue levels at the end of radiation therapy compared to the beginning. Sleep quality was improved only in the pranayama group.

**IMPLICATIONS FOR NURSING:** Pranayama can be learned easily, can be performed anywhere, and does not require any equipment, making it a convenient exercise for patients. Oncology nurses can take the lead in suggesting pranayama for symptom management.

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**KEYWORDS** fatigue; sleep quality; pranayama; deep breathing exercises; symptom management  
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Breast cancer is the most common cancer in women worldwide (Ferlay et al., 2021). Radiation therapy is a local treatment method applied after surgery and/or after chemotherapy, and is an important component of breast cancer treatment that minimizes the possibility of recurrence and increases the likelihood of progression-free survival (Leonardi et al., 2016). However, side effects of radiation therapy can have a negative impact on patient quality of life. Fatigue is one of the most common symptoms that emerges as a side effect of radiation therapy at the beginning of treatment as well as during and after treatment, depending on previous treatments (e.g., surgery, chemotherapy) (Abrahams et al., 2016; Hauth et al., 2021; Hofsø et al., 2013; LaRiviere et al., 2020; Xiao & Torres, 2019). Patients may experience decreased quality of sleep as another side effect of radiation therapy (Abrahams et al., 2016; Hofsø et al., 2013; Milton et al., 2022; Rades et al., 2021). In addition, studies have demonstrated that fatigue and sleep quality are related to each other, with fatigue negatively affecting sleep quality (Fox et al., 2020; Imanian et al., 2019; Sanei et al., 2021). Interventions aimed at improving sleep quality may also affect fatigue (Dun et al., 2022; Momayyezi et al., 2021). In this context, nonpharmacologic approaches are recommended and may be effective in preventing or reducing fatigue and improving sleep quality. These interventions may include exercise, patient education, cognitive behavioral therapies, mind-body techniques, acupuncture, acupressure, yoga, and relaxation exercises (Bennett et al., 2016; Dean, 2022; Halemani et al., 2021; Lyman et al., 2018; Takemura et al., 2020; Tarrasch et al., 2018).

Among nonpharmacologic approaches is deep breathing, a relaxation technique that involves slowing