

# Nausea at the End of Adjuvant Cancer Treatment in Relation to Exercise During Treatment in Patients With Breast Cancer

Jiyeon Lee, RN, PhD, Marilyn J. Dodd, RN, PhD, FAAN, Suzanne L. Dibble, RN, DNSc, and Donald I. Abrams, MD

**Purpose/Objectives:** To evaluate the relationship between nausea and exercise during and after adjuvant cancer treatment (chemotherapy and radiation therapy or chemotherapy alone).

**Design:** Secondary data analysis from a longitudinal, single-blinded, three-arm, randomized controlled trial. The trial failed to show a significant effect of an exercise intervention on nausea control (by intent to treat analysis); therefore, patients were analyzed together to evaluate the relationship between nausea and actual exercise behavior.

**Setting:** Outpatient cancer treatment clinics.

**Sample:** 112 female patients with breast cancer who were receiving adjuvant cancer treatment.

**Methods:** Actual exercise behavior-based analysis was conducted with nausea intensity and the participant's exercise status measured three times during and after adjuvant cancer treatment. Participants were considered exercisers if actual exercise behaviors corresponded to the recommendation of the American College of Sports Medicine: aerobic exercise at a minimum of moderate intensity, 20 minutes per session, and three times per week. Mann-Whitney U tests evaluated the difference in nausea intensity depending on actual exercise status.

**Main Research Variables:** Nausea intensity and exercise status.

**Findings:** Exercisers experienced significantly less intense nausea than nonexercisers at the completion of adjuvant cancer treatment.

**Conclusions:** A moderate level of aerobic exercise is related to less intense nausea at the completion of adjuvant cancer treatment.

**Implications for Nursing:** A moderate level of aerobic exercise is recommended during adjuvant cancer treatment because of the possibility of reducing nausea intensity as well as alleviating other symptoms from adjuvant cancer treatment.

## Key Points . . .

- ▶ Current nausea control with antiemetics continues to be inadequate and requires additional intervention.
- ▶ Studies of exercise for nausea control are limited and provide inconsistent results.
- ▶ A moderate level of aerobic exercise is related to less intense nausea at the completion of adjuvant cancer treatment.

peated verbal reports from participants about the effects of exercise in controlling their nausea during a pilot trial stimulated the researchers to investigate further. Their randomized clinical trial included 42 women with breast cancer receiving chemotherapy. Participants were randomized to an exercise group, a placebo group, or a control group. Aerobic exercise on a cycle ergometer at a rate prescribed to reach 60%–85% of maximal heart rate was performed by patients in the exercise group three times a week for 10 weeks. The placebo group performed stretching and flexibility exercises but not an aerobic exercise. The control group did not perform any exercise. The 16 participants in the exercise group demonstrated marked improvement with less nausea compared to the placebo and control groups ( $p = 0.03$ ). No antiemetics were administered, although all participants were on moderately emetogenic chemotherapy regimens that included cyclophosphamide, methotrexate, and 5-fluorouracil. Suboptimal control of nausea during this evaluation of exercise effect could raise the question of whether the achieved exercise effect on nausea control could be reproduced when antiemetics were used according to current antiemetic guidelines.

*Jiyeon Lee, RN, PhD, is a doctoral graduate and Marilyn J. Dodd, RN, PhD, FAAN, is a professor emerita, both in the School of Nursing; and Suzanne L. Dibble, RN, DNSc, is a professor emerita at the Institute for Health and Aging and Donald I. Abrams, MD, is a professor in the School of Medicine, all at the University of California, San Francisco. Funding for this study was provided by the National Institutes of Health, National Cancer Institute (CA 83316). No financial relationships to disclose. (Submitted November 2007. Accepted for publication January 11, 2008.)*

Digital Object Identifier: 10.1188/08.ONF.830-835

Exercise has been suggested as a possible intervention for cancer-related symptoms (American Cancer Society, 2007). In considering exercise as an intervention for patients with cancer, guidelines provide specifics for the exercise regime, such as the mode, intensity, duration, and frequency. In 1998, the American College of Sports Medicine (ACSM) recommended aerobic exercise of moderate intensity for 20–60 minutes per session, three to five times per week. Exercise has shown positive effects in controlling well-known and prevalent symptoms, such as fatigue, in patients with cancer (Mitchell, Beck, Hood, Moore, & Tanner, 2007; Mock et al., 2001, 2005; Schneider, Hsieh, Sprod, Carter, & Hayward, 2007a, 2007b). However, studies of exercise for nausea control are limited and provide inconsistent results.

Winningham and MacVicar (1988) first reported researching the positive effects of exercise on nausea control. Re-