# Exercise During Breast Cancer Treatment May Improve Cardiovascular Function

Study supports incorporating supervised exercise programs into breast cancer treatment guidelines.

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Women who underwent a supervised program of cardiovascular exercise during adjuvant breast cancer treatment experienced better cardiovascular function than those who were not part of the exercise program, according to results of the EBBA-II trial presented at the 2018 San Antonio Breast Cancer Symposium, held Dec. 4–8.

“Breast cancer survival rates have improved, but many survivors experience a decline in cardiovascular function,” said the study’s lead author, Inger Thune, MD, PhD, professor and senior consultant in oncology, Oslo University Hospital, Norway. “Treatment-induced cardiotoxicity is a major concern, and cardiovascular disease is a competing cause of death among breast cancer survivors.”

Thune said that while previous studies have indicated that exercise can benefit breast cancer survivors, little research has examined type, dose, intensity, and duration of exercise during adjuvant breast cancer therapy and whether patients benefit from exercising after the initial therapy.

In this study, researchers enrolled 375 women who were part of the Energy Balance and Breast Cancer Aspect (EBBA)-II trial. All the women had undergone surgery for stage 1 or stage 2 breast cancer. Approximately 57 percent of the women were receiving adjuvant chemotherapy, 78 percent were receiving radiation, and 67 percent were receiving endocrine therapy. (Some women were receiving more than one type of treatment.)

Measurements of cardiovascular function were initially performed before any treatment, including surgery. The women were randomly assigned to either an exercise intervention group or a control group. The exercise intervention program began two to three weeks after surgery. Patients received a detailed training program based on their VO2 max (maximal oxygen uptake, a common measure of cardiovascular fitness) at baseline. The group worked out twice a week for 60 minutes each time, in small-group settings led by trained personnel, in a combination of aerobic exercise,

stretching, and weight training, Thune explained. They were also asked to do an additional 120 minutes of physical activity each week on their own, which they would report to the researchers.

At the six-month follow-up, patients in both groups experienced an average decline in VO2 max from their pre-surgery levels, which Thune said was typical in the months following surgery or any other treatment. The decline was more significant in the control group—10 percent, compared with 2.7 percent in the group receiving the exercise intervention.

At the 12-month follow-up, patients in the intervention group had improved their VO2 max by 2.3 percent compared to their VO2 max prior to surgery. Patients in the control group had a 3.8 percent decrease in VO2 max compared with their levels prior to surgery.

The researchers found that among the patients who were receiving chemotherapy, the group who was enrolled in the exercise program had returned to their pre-surgery cardiovascular strength by the 12-month follow-up, whereas the control group continued to experience reduced cardiovascular function. Final data from the study will be presented at the symposium.

Thune said the results indicate that many patients could benefit from physical activity during breast cancer treatment. Aside from the cardiovascular benefits measured in this study, exercise may also help reduce fatigue and improve quality of life, Thune said. She said future research will measure the effect of exercise on breast cancer patients' risk of recurrence, metastasis, metabolic profile, and ability to work.

"Patients should discuss their plans with their doctor, but in general, our study supports incorporation of supervised clinical exercise programs into breast cancer treatment guidelines," she said.

Thune said this study is believed to be the largest trial that has measured cardiovascular function before any breast cancer treatment. She said one limitation is that attenuation of the main effect may exist as some patients in the control arm may have increased their activity level on their own. She said a strength of the study was measurements before, during, and after treatment and a high degree of adherence; very few patients dropped out or failed to follow the exercise guidelines.

The study was sponsored by the Norwegian Research Council, Norwegian Health Authority, Oslo University Hospital, St Olavs Hospital, and Active Against Cancer – Gjensidige Foundation. Thune declares no conflicts of interest.

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