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Moderate-Intensity Aerobic Exercise Improves Cardiac Function in Overweight Breast Cancer Survivors: Results from a Randomized Controlled Trial

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Background:
Breast cancer survivors face an elevated risk of cardiovascular dysfunction due to cardiotoxic treatments, physical inactivity, and excess body weight. Overweight survivors represent a particularly vulnerable subgroup, yet remain underrepresented in exercise oncology research focused on cardiac outcomes. Identifying effective exercise interventions to improve cardiopulmonary health in this population is a clinical priority.

Objective:
To examine the effects of a 10-week moderate-intensity aerobic exercise program on cardiac function and aerobic capacity in overweight female breast cancer survivors.

Methods:
This randomized controlled trial included 25 overweight female breast cancer survivors (aged 30–55 years; stages I–II; 2–12 months post-treatment) who were allocated to an exercise group (n=14) or a usual-care control group (n=9). The intervention consisted of supervised aerobic exercise performed twice weekly for 10 weeks at 40–75% of maximal heart rate. Outcomes assessed pre- and post-intervention included anthropometric measures, body composition, hematological indices, maximal oxygen uptake (VO_2max), ejection fraction (EF), and pulmonary artery pressure (PAP). Analysis of covariance (ANCOVA) was used to evaluate between-group differences ($P<0.05$).

Results:
Following the intervention, no significant between-group differences were observed in body mass index, waist-to-hip ratio, body fat percentage, or hematological parameters. However, body weight was significantly reduced in the exercise group compared with controls ($P=0.033$). Importantly, clinically meaningful improvements in cardiopulmonary function were observed in the exercise group, including a significant increase in VO_2max ($P=0.001$), improved left ventricular ejection fraction ($P=0.001$), and a significant change in pulmonary artery pressure ($P=0.025$).

Conclusion:
A 10-week moderate-intensity aerobic exercise program significantly improves aerobic capacity and cardiac function in overweight breast cancer survivors, independent of major changes in body composition. These findings reinforce the role of structured aerobic exercise as a safe and effective strategy within exercise oncology–guided survivorship care to mitigate cardiovascular risk in this high-risk population.

Keywords:

Keywords

Breast cancer; Aerobic exercise; Cardiac function; Ejection fraction

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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