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Contribution ID: **327** Type: **1 - Scientific Poster**

Evaluating Cardiorespiratory Fitness and Functional Outcomes in Women Breast Cancer Survivors: Preliminary Data

Thursday 23 July 2026 14:55 (20 minutes)

Background: Women breast cancer survivors (WBCS) frequently present long-term impairments in cardiorespiratory fitness and functional capacity, which may negatively affect health outcomes and quality of life. Cardiopulmonary exercise testing (CPET) allows an integrative assessment of cardiovascular and metabolic function, while functional tests provide clinically meaningful indicators of physical performance.
Objective: To compare CPET-derived parameters and functional performance between WBCS and women without a history of cancer.
Methods: This cross-sectional study included WBCS (≥6 months post-treatment) (n=9) and age-matched controls (n=5). Participants underwent CPET and functional assessments, including sit-to-stand, upper-limb strength (right and left), stationary march (ME), and Timed Up and Go (TUG). Between-group comparisons were performed using independent t-tests and Welch's correction. Effect sizes were calculated using Cohen's d.
Results: WBCS exhibited significantly lower relative VO_2 compared with controls (23.6 ± 2.6 vs. 29.5 ± 1.9 $mL \cdot kg^{-1} \cdot min^{-1}$; $p < 0.001$; $d = 2.45$). Circulatory power was also reduced in WBCS (3708 ± 717 vs. 4911 ± 346 $mmHg \cdot mL \cdot kg^{-1} \cdot min^{-1}$; $p = 0.005$; $d = 1.94$), suggesting impairment in cardiorespiratory function. Although not statistically significant, functional performance was consistently impaired in WBCS, as indicated by moderate-to-large effect sizes in sit-to-stand ($d = 1.21$), upper-limb strength (right: $d = 0.69$; left: $d = 0.48$), TUG ($d = 0.86$), and stationary march ($d = 0.99$).
Conclusion: WBCS demonstrate reductions in aerobic capacity and circulatory power. The magnitude of functional impairments, evidenced by large effect sizes, suggests clinically relevant limitations that may become statistically significant in larger samples. These findings underscore the importance of structured exercise-based rehabilitation in breast cancer survivorship.

Keywords

Breast neoplasm, Breast cancer survivors, Functional capacity, CPET.

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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Session Classification: Poster Session