

Effect of Six Weeks of Moderate-intensity Aerobic Exercise on Lipid Peroxidation and Antioxidant Status of Women Survived of Breast Cancer

Samira Emadi ^{1*}, Akbar Azamian Jazi ¹, Simin Hemmati ²

¹ Department of Sport Physiology, Faculty of Literature and Human Sciences, University of Shahrekord, Shahrekord, Iran

² Department of Radiotherapy Oncology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

* Corresponding author: Samira Emadi, Department of Sport Physiology, Faculty of Literature and Human Sciences, University of Shahrekord, Shahrekord, Iran. E-mail: emadisamera1@gmail.com

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Abstract

Introduction: Oxidative damage is one of the known mechanisms of progression and recurrence of breast cancer during disease process, radiotherapy and chemotherapy courses, taking anti-cancer drugs and the loss of aerobic fitness. Therefore, the purpose of this study was to investigate the effect of six weeks of moderate-intensity aerobic exercise on lipid peroxidation and antioxidant status of women survived of breast cancer.

Materials and Methods: In this semi experimental study, 19 women survived of breast cancer with mean age (45.26 ± 2.87 years) and BMI (26.35 ± 2.37 kg/m²) were selected based on inclusion criteria and then were randomly divided into two control (n = 10) and experimental (n = 9) groups. Experimental group performed three sessions of aerobic training at 60-70 HRmax each week and for 6 weeks. The first week trainings, ranging from 60 to 65 HRmax, were conducted, until the end of the fifth week achieved to about 70 HRmax, and at sixth week continued with the same intensity. The control group did not participate in any exercise program during this period. Blood sampling was conducted 24 hours before the first session and 48 hours after the end of the last training session. The serum total antioxidant capacity (TAOC) and malondialdehyde (MDA) was measured by ELISA kits. Data were analyzed by the use of dependent and independent t-test.

Results: A significant reduction in serum levels of MDA and a significant increase in TAOC was observed in the experimental group ($P = 0.003$, $P = 0.001$). Aerobic fitness improved significantly also ($P = 0.001$).

Conclusions: Regular moderate-intensity aerobic exercise can prevent the recurrence of breast cancer by improving the body's antioxidant defense and aerobic fitness.