

Depressive Symptoms and Inflammatory Indexes are Modulated by Moderate Aerobic Exercise Training in Post-menopausal Women

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ABSTRACT

Introduction: The aim of present study was to investigate the effects of moderate intensity exercise training on depressive and inflammatory markers in post-menopausal women.

Methods: Forty healthy postmenopausal women (55.1 ± 3.51 years) volunteered to participate in this study. The study design and its potential risks and benefits were fully explained before providing written informed consent, and approved by the human health committee of Urmia University, IRAN. At resting, the subjects were randomly assigned to one of the exercise (n=20) or control (n=20) groups. The exercise group performed aerobic exercise training (60%-70% MHR) 30-45 min/day, 3 times a week, for 12 weeks. Psychological symptoms were measured by the Beck Depression Inventory (BDI), the Perceived Stress Scale and the Self-reported loneliness score. Blood samples were collected before and after 12 weeks exercise training for measuring of CRP and interleukin-6 (IL-6). Blood was collected after a 12h overnight fast. To avoid circadian variations fasting blood samples were drawn between 0800h and 0900h. In the exercised subjects, blood samples were collected at least 24h after the last bout of exercise. Mean changes from baseline to 12 weeks were calculated and compared with groups by paired t-test. Differences between groups were determined by analysis of co variance (ANCOVA) for continuous variables. Association between inflammatory variables and psychological variables were examined using Pearson's correlation coefficient.

Results: There were significant differences in the Psychological symptoms of perceived stress ($p=0.001$), depression symptoms ($p=0.001$), and loneliness scores ($p=0.001$) in the exercising group. Significant declines were observed in IL-6 ($p=0.001$) and CRP ($p=0.001$) in the exercise group after 12 weeks of aerobic exercise training when compared with the control group. Cortisol did not show any significant difference over time ($p=0.84$).

Conclusion: Our results show that aerobic exercise training with moderate intensity attenuates inflammatory markers and psychological symptoms in post-menopausal women.