

## **Antioxidant Effects of Regular Aerobic Exercise in Postmenopausal Women with Type 2 Diabetes Mellitus**

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**Abstract :** Background: Diabetes is a metabolic disorder associated with increased free radicals and oxidative stress. The evidence indicates that physical inactivity is a modifiable behavioral risk factor for a wide range of chronic disorders such as diabetes mellitus. We investigated the effects of eight-week aerobic exercise on some antioxidant enzyme activities in postmenopausal women with type 2 diabetes mellitus (T2DM). Methods: sixteen sedentary postmenopausal women with T2DM were randomly assigned to the control (n=8; CG) and exercise group (n=8; EG). The exercise consisted of progressive aerobic training at a moderate intensity (50-70% of the maximum heart rate), for 25-60 min/day, and 3 days/week for 8 weeks. Age, sex, and body mass index were similar in the two groups. Antioxidant status was evaluated by measuring the superoxide dismutase (SOD) and catalase (CAT) activity. Also levels of malondialdehyde (MDA) as an index of lipid peroxidation and glucose in the plasma were measured before and after the intervention. Results: Following the 8 weeks of exercise training, the plasma MDA and glucose levels were significantly reduced in EG compared to CG (P=0.001 and P=0.011 respectively). However, SOD (P=0.017) and CAT (P=0.011) activities were increased in EG compared to CG. Conclusion: The present study suggests regular aerobic exercise appears can exert protective effects against oxidative stress due to its ability to increase antioxidant defense and glucose control in postmenopausal women with T2DM.

**Keywords :** aerobic exercise, antioxidant, diabetes mellitus, type 2

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