

The Effect of 6 Weeks Endurance Swimming Training on Blood Glucose and Cardiac Tissue Antioxidants in Diabetic Rats

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Abstract : Objective: Oxidative stress is produced under diabetic conditions and possibly causes various forms of tissue damage in patients with diabetes. Antioxidants defend against the harmful effect of free radicals, which are associated with heart disease, cancer, arthritis, aging and many other diseases¹). Antioxidants are very stable molecules capable of neutralizing free radicals by donating an electron to them. The aim of this study was to examine the effect of swimming training, fenugreek seed extract and glibenclamide on plasma glucose and cardiac antioxidants activity in diabetic rats. Design: For this purpose, fifty male wistar rats were divided into five groups, two groups of control rats (diabetic control [DC] and healthy control [HC]), one group of endurance swimming training (EST), one group of fenugreek seed extract high dose (F1, 1.74 g/kg b.w), one group of fenugreek seed extract middle dose (F2, 0.87 g/kg b.w), one group of glibenclamide (G, 0.5 mg/kg b.w). Materials and Methods: Diabetes induced by streptozotocine (STZ), data was analyzed using the one-way ANOVA followed by a Tukey test. Significance level was 0.05. Results: All of the groups' exception of HC showed significant decrease in body weight ($P < 0.05$), but the diabetic control and swimming training group exhibited a more decrease. All of the groups have shown a significant decrease in plasma glucose than DC group ($P < 0.05$) but this reduction was more in G group than DC no HC group. S, G and HC groups have shown significant increase in cardiac antioxidant than DC group ($P < 0.05$) but there wasn't significant difference in other groups ($P > 0.05$). Conclusion: The present results indicate that regular swimming training lead to decrease in plasma glucose and enhanced cardiac antioxidants in diabetic rats.

Keywords : swimming, glucose, cardiac, antioxidants

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