Effect of swimming training and *Fenugreek seed* extract on plasma glucose and antioxidant activity in heart tissue of streptozotocine – induced diabetic rats

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Abstract

**Background and Objective:** Free radical production and subsequent oxidative stress can be due to hyperglycemia and its oxidation. This study was done to evaluate the effect of swimming training test and *Fenugreek seed* extract on plasma glucose and antioxidant activity in heart tissue of streptozotocine – induced diabetic rats.

**Methods:** In this experimental study, 50 male wistar rats were allocated into five groups; diabetic (DC, n=10), healthy control (HC, n=10), swimming training (S, n=10), swimming training + *Fenugreek seed* extract (1.74 g/kg/bw) (SF1, n=10), and swimming training + *Fenugreek seed* extract (0.87 g/kg/bw) (SF2, n=10). Streptozotocine (60 mg/kg/bw) was used for induction of diabetes in DC, S, SF1 and SF2 groups. Serum glucose and the rat heart tissue antioxidant enzymes activities of superoxide dismutase, Catalase and Glutation peroxidase were determined.

**Results:** Body weight in all groups were significantly reduced in comparison with healthy control group (P<0.05). Plasma glucose level significantly reduced in SF1 and HC groups compared to diabetic group (P<0.05). Cardiac antioxidant enzymes in swimming training, SF1 and SF2 groups significantly increased in compare to diabetic group (P<0.05).

**Conclusion:** The combination of endurance swimming training and fenugreek seed extract can reduce plasma glucose and increase cardiac antioxidant enzymes in streptozotocine – induced diabetic rats.

**Keywords:** Diabetes, Swimming training, *Fenugreek seeds*, Heart, Glucose, Antioxidants enzyme

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