Original Paper

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

Jalali Dehkordi Kh (Ph.D)*[1], Sharifi Gh (Ph.D)[1], Arshadi S (Ph.D)[2]

[1]Assistant Professor, Department of Exercise Physiology, Islamic Azad University, Khorasgan (Isfahan) Branch, Isfahan, Iran. [2]Assistant Professor, Department of Exercise Physiology, Islamic Azad University, South Tehran Branch, Tehran, Iran.

Abstract

Background and Objective: Free radical production andsubsqunt oxidative steress 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 comparsion 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

*** Corresponding Author: Jalali Dehkordi Kh (Ph.D), E-mail: khosro.jalali@yahoo.com**

Received 22 Apr 2013 **Revised** 9 Jul 2013 **Accepted** 9 Nov 2013

This paper should be cited as: Jalali Dehkordi Kh, Sharifi Gh, Arshadi S. [Effect of swimming training and *Fenugreek seed* extract on plasma glucose and antioxidant activity in heart tissue of streptozotocine – induced diabetic rats]. J Gorgan Uni Med Sci. 2014; 16(2): 29-36. [Article in Persian]