Effect of continuous training on the level of PPAR-γ and PRDM16 proteins in adipose tissue in overweight diabetes rats

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Abstract

Background: PPAR-γ and PRDM16 proteins have key role in the metabolism of adipose tissue and the conversion of white tissue to brown adipose tissue. But, the role of exercise on these two important proteins has not been studied in subcutaneous adipose tissue.

Objective: The aim of this study was to investigate the effect of continuous training on the level of PPAR-γ and PRDM16 proteins in the adipose tissue in overweight male Sprague-Dawley rats with diabetes.

Methods: In this study, 16 two-month old Sprague-Dawley rats with an average weight of 270±20 g were selected and randomly divided into two groups: control (n=8) and continuous training (n=8). The training group exercised according to the training program 4 days a week for 8 weeks while the control group did not have a training program. Independent t-test was used to analyze the data.

Findings: There was a significant increase in the expression of PPAR-γ (P=0.004) and PRDM16 (P=0.0001) proteins in the training group compared to control group.

Conclusion: Considering the increase of PPAR-γ and PRDM16 proteins in adipose tissue after continuous exercise and the important role of these two proteins in the fat metabolism, aerobic exercise can be an important mechanism for reducing this tissue in obese individuals and converting white tissue to brown.

Keywords: Adipose tissue, Rats, Exercise, PPAR gamma, PRDM16