



Resistance training and its effects on glycemic profile and irs-1 expression

Oral Presentation

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Abstract

Introduction: Some studies have shown that changes in protein levels and IRS-1 expression in the insulin signaling pathways, especially along the PI3K kinase pathway, cause defects that somehow affect insulin resistance (1,2). Considering the positive effect of exercise training on insulin resistance, the present study investigated the effect of 8 weeks of resistance training on IRS-1 expression and glycemic index in diabetic male Wistar rats.

Methods: So, 16 diabetics male Wistar rats treated with nicotine amide-streptozotocin (220 ± 20 g) were randomly divided into exercise ($n = 8$) and control ($n = 8$) groups. The training group participated in an 8-week resistance training program with 3 sessions per week, and the control group did not participate in any training program. Relative expression of IRS-1 gene Gastrocnemius muscle, fasting glucose, and serum insulin and insulin resistance were measured 48 hours after the last training session in both groups. Data analysis was performed using an independent t-test. Changes less than 5% were considered significant.

Results: The results showed that in the training group compared to the control group, resistance training caused a significant decrease in fasting glucose ($p < 0.01$), increased serum insulin ($p < 0.05$), and IRS-1 expression ($p < 0.05$) in Gastrocnemius muscle. However, changes induced 8-week resistance training program in insulin resistance, despite the decrease, were not statistically significant.

Conclusion: Despite the lack of significant changes in insulin resistance, improvement in glycemic profile in response to resistance training is probably rooted in increased serum insulin levels or increased IRS-1 expression in muscle tissue.

Keywords

type 2 diabetes; resistance training; glycemic profile; IRS-1 expression

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