

## The Effect of Acute Aerobic Exercise after Consumption of Four Different Diets on Serum Levels Irisin, Insulin and Glucose in Overweight Men

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**Abstract :** The combination of exercise and diet as the most important strategy to reduce weight and control obesity-related factors, including Irisin, Insulin, and Glucose was raised. The aim of this study was to investigate the effect of aerobic exercise combined with four different diets on serum levels of Irisin, Insulin, and Glucose in overweight men. Methods: In this quasi-experimental study, 8 overweight men (BMI  $29.23 \pm 0.47$ ) with average age of ( $23 \pm 1.6$ ) voluntarily participated in 4 sessions by one-week interval. The study was done in exercise physiology lab. In each session, subjects performed a 30 minutes treadmill test with 60-70% of maximum heart rate, after consuming a high carbohydrate, high-fat, high-protein and normal diet. For biochemical measurement, three blood samples were taken in fasting state, two hours after meals and after exercise Results: Statistical analysis of data showed that the serum levels of Irisin after consumption all four diets had been reduced which this reduce as a result of high-fat diet that were significantly ( $p \leq 0/038$ ). Serum concentration of Insulin and Glucose increased after consuming four diets. However, increase in serum Insulin and Glucose was significant only after consuming high-carbohydrate diet (Respectively  $p \leq 0/001$ ,  $p \leq 0/042$ ). In addition, during exercise after consuming all four regular diet, high carbohydrate, high-protein and high-fat, Irisin significant increased significantly (Respectively  $p \leq 0/021$ ,  $p \leq 0/049$ ,  $p \leq 0/001$ ,  $P \leq 0/003$ ), Insulin decreased significantly (Respectively  $p \leq 0/002$ ,  $p \leq 0/001$ ,  $p \leq 0/001$ ,  $p \leq 0/002$ ) and Glucose were significantly reduced (Respectively  $p \leq 0/001$ ,  $p \leq 0/001$ ,  $P \leq 0/001$ ,  $p \leq 0/002$ ). After aerobic activity following the consumption of a high protein diet the highest increase in irisin levels, and after aerobic exercise following consumption of high carbohydrate diet the greatest decrease in insulin and glucose levels were observed. Conclusion: It seems that diet alone and exercises following different consumption diets can have a significant effect on Irisin, Insulin, and Glucose serum levels in overweight young men.

**Keywords :** acute aerobic exercise, diet, irisin, overweight

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