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EXERCISE TRAINING LOWERS SERUM CHEMERIN CONCENTRATION IN OBESE CHILDREN

Abstract:

Background: Obesity has been associated with low-grade systemic inflammation, potentially leading to insulin resistance, type 2 diabetes, dyslipidemia, and cardiovascular diseases. Even moderate weight loss through dietary changes and physical exercise is effective in preventing and managing obesity-associated disorders. The purpose of this study was to examine the effects of 16-week exercise program on serum chemerin concentrations in obese children.

Methods: Thirty-two overweight and obese male children were randomly assigned to either a twice-per-week exercise training group (ExG = 16) or a nonexercising control group (CG = 16) for 16 wk. Body mass index (BMI), body composition, waist circumference(WC), glucose, insulin, insulin resistance index (HOMA-IR), lipids and serum chemerin were measured before and after intervention.

Results: Exercise training significantly improved BMI, body composition, WC, glucose, insulin, HOMA-IR and lipids' profile in ExG. Serum chemerin concentrations were high at baseline in both groups, but exercise training reduced its levels after 16 weeks to 168.9 ± 12.6 ng/ml ($p < 0.001$). Also, significant correlations were found between changes in chemerin serum concentration and BMI, WC, percentage of body fat, HOMA-IR (respectively; $r = 0.78$, $p = 0.03$; $r = 0.86$, $p = 0.03$; $r = 0.91$, $p = 0.05$; $r = 0.75$, $p = 0.03$).

Conclusion: In conclusion, the 16 week training program used in this study was very effective for producing significant benefits to body composition, insulin resistance and lipids' profile, as well as lowering chemerin levels in these obese children. Therefore, our data suggests that chemerin serum concentrations are associated with insulin resistance and that these correlations can mainly be attributed to obesity.

Keywords:

Obesity, Chemerin, Insulin Resistance, Adipokines

JEL Classification: I10