

# **Effects of aerobic - Resistance training on body composition, physical fitness, blood lipid, leptin and blood glucose homeostasis girls with hypothyroidism**

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**Abstract** The purpose of this study was to examine the effect of aerobic - Resistance training on body composition, physical fitness, blood lipids, leptin and glucose homeostasis in with hypothyroidism girls. In this quasi-experimental study, 20 hypothyroidism girls were randomly divided into experimental (n=10, age:  $12.40 \pm 1.71$  years, BMI:  $26.84 \pm 2.34$  kg/m<sup>2</sup>) and control (n=10, age:  $11.80 \pm 2.20$  years, BMI:  $26.02 \pm 4.00$  kg/m<sup>2</sup>) group. Experimental group underwent an 8 weeks of aerobic-resistance training consisting of three sessions per week. Each session included 25-30 min of aerobic training (60-80% maximum heart rate) and 25-30 min of resistance training (40-50% one repetition maximum). Body composition (BMI, waist circumference, subcutaneous fat percent and fat free mass), physical fitness (aerobic power and grip strength of hand grip test), blood fat index (cholesterol, triglyceride, LDL and HDL) and leptin were measured before and after 8 weeks of training period. Statistical data were assessed using depended and independed t-test with SPSS software version 22 and the significance level was considered at  $\alpha > 0.05$ . In comparison with pre-test, strength ( $p=0.01$ ) and Insulin resistance index (HOMA) changed in training group. Nevertheless, there were no significantly difference in body compositions, aerobic power, blood Glucose and insulin ( $p>0.05$ ). In comparison with control group, treated girls significantly induced strength ( $p=0.01$ ) and reduced Insulin resistance index (HOMA) ( $p=0.02$ ). However, there were no significantly difference in body compositions, aerobic power, blood Glucose and insulin ( $p>0.05$ ). These findings indicate that may be a short term aerobic- resistance training can increase muscle strength and decrease HOMA in hypothyroidism girls.

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**Keywords : Keywords: aerobic-resistance training, hypothyroidism, physical fitness, glucose homeostasis, leptin, blood lipids**

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