
The effect of a nonlinear, aerobic and parallel periodic resistance exercise on serum levels of interleukin-18, insulin and waist-hip ratio of overweight young women

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Abstract The purpose of this study was to investigate the effect of 12 weeks of parallel and non-linear periodic aerobic exercise on interleukin-18, insulin and waist to hip ratio in overweight young women. For this purpose, 36 inactive women with overweight with an average age of 20-30 years weight-kilogram Height-meter and body mass index kg / m^2 were randomly assigned to three nonlinear resistance training groups ($n = 8$) Periodic aerobic ($n = 9$), parallel ($n = 10$) and control group ($n = 8$). The exercise program consisted of 12 weeks of nonlinear periodic, parallel, and non-linear resistive endurance training. The periodic endurance exercise included 12 weeks of jogging on a 3-hour jogger, whose duration and severity increased each week according to the maximum aerobic exercise test. Nonlinear resistance training program was also a 12-week training session with a three-session frequency per week, its severity varying with the maximum power of each unit, and its duration or repetition varied with respect to the severity of the weights. The parallel training program included 12 training sessions Periodic endurance and nonlinear power that were intensity-intensive, such as aerobic exercises and nonlinear exercises, but in terms of half the time of aerobic training and nonlinear power, and in total, the times of all three exercises, or in other words, the duration of exercise, were the same. Blood samples were taken the venous blood before the training period and 48 hours after the exercise, and the amount of insulin IL18, HDL, LDL was measured. Also, the $\text{VO}_{2\text{max}}$, 1RM, and WHR values were measured before and after the period. Results showed Levels of IL-18, insulin, HDL decreased in three groups, but this did not decrease significantly, while LDL-values of WHR decreased significantly in three

groups (P

Keywords : Periodic aerobic exercise, Nonlinear resistance training, Parallel training (combined), Waist to hip ratio (WHR), IL18, Insulin, Young women, Overweight, Inflammation

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