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The Impact of Differing Types of Physical Activity on Weight Loss, Strength, VO₂ max, and the Various Metabolic Hormones.

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Int J Exerc Sci 2(1): S14, 2009. **PURPOSE:** To investigate the impact of differing types of physical activity on weight loss, strength, VO₂ max, and the hormones Insulin, Cortisol, and Leptin. **METHODS:** The study consisted of 11 sedentary and overweight male/female subjects that were separated and randomly assigned to one of two exercise groups: aerobic training alone (A) (N = 4, 40 ± 8.7 yrs 165 ± 8.3cm, 89 ± 16 kg), or aerobic training plus resistance training (ART) (N = 7, 43 ± 10 yrs, 171 ± 8.7 cm, 91 ± 12 kg). The (A) group was instructed to exercise at 60-70% of heart rate max. for 30 minutes five times per week. The (ART) group was instructed to exercise at 60-70% of heart rate max. 3 times per week. In addition, the (ART) group was directed to engage in moderate intensity resistance training sessions twice per week. Participants underwent baseline testing during which weight, hip, and waist measurements were recorded, body composition was also determined by using bioelectrical impedance (BIA). Following these assessments, VO₂ max, upper-body strength, and lower-body strength was established using standard procedures. Additionally, participants donated approximately 20 ml of fasting blood for testing of clinical chemistry profiles, whole blood cell counts, and serum samples to be assayed for Insulin, Leptin, and Cortisol. All baseline assessments were repeated at weeks 4 and 8 of the study. Data were analyzed by a two-way ANOVA with repeated measures. Significance was set at $p < 0.05$ and adopted throughout. **RESULTS:** A significant ($p < 0.05$) increase in upper and lower body strength was noted in both A and ART groups, however there was no significant difference between groups. A significant ($p < 0.05$) group x time interaction was observed for body weight (ART: -1.5 ± 0.3 lbs; A: 3 ± 0.5 lbs). There were no significant ($p > 0.05$) effects amongst groups on the hormones insulin, leptin, or cortisol. Furthermore, neither protocol had a significant impact on body fat or VO₂ max. **CONCLUSIONS:** It can be concluded that aerobic exercise coupled with resistance training yields greater results in weight loss than aerobic training alone. No marked changes were noted on the affects of any type of exercise regiment on body composition, VO₂ max, or the hormones, Leptin, Insulin, and Cortisol.

