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Effects of Aerobic, Resistance, and Concurrent Training on Secretion of Growth Hormone and Insulin-Like Growth Factor-1 in Elderly Women

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Abstract : Background: The purpose of this study was to investigate the effects of 8 weeks of aerobic, resistance, and concurrent training on secretion of growth hormone (GH) and insulin-like growth factor-1 (IGF-1) in elderly women. Methods: A total number of 60 elderly women were randomly allocated to four groups of aerobic training (n = 15), resistance training (n = 15), concurrent training (n = 15), and control (n = 15). Blood samples were taken before and 4 weeks after the initiation of exercise training and also at the end of the 8-week course of training. Maximal oxygen consumption (VO2Peak) was measured after 48 hours using Rockport walk test. Inferential analysis of the collected data was performed by repeated measures analysis of variance (ANOVA). Significant differences were further evaluated by the least significant difference (LSD) test. The relation between VO2Peak and secretion of GH and IGF-1 was assessed by Pearson's correlation coefficient. The significance level was considered as $P \leq 0.05$ in all tests. Findings: The results showed that 8 weeks of regular exercise significantly increased levels of GH and IGF-1. A significant increase was also observed in VO2Peak values after 8 weeks of regular exercise ($P < 0.05$). VO2Peak was directly correlated with GH and IGF ($P < 0.001$, $r = 0.72$). Conclusion: In conclusion, regular exercise significantly increased levels of anabolic hormones. Moreover, the combined-exercise training better enhanced GH and IGF-1. VO2Peak increased with increases in GH and IGF-1 levels.

Keywords : women, training, GH, IGF-1
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