

The effect of acute aerobic-resistance training in the morning and evening on the levels of cortisol, testosterone and insulin hormones in bodybuilding men and women

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Background and Aim: The aim of this study was to investigate the effect of acute aerobic and resistance exercise in the morning and evening on hormonal factors such as levels of cortisol, testosterone and insulin among male and female bodybuilders. **Methodology:** The population consisted of 15 male bodybuilders (age: 27.6 ± 8.3 , height 179.5 ± 6 , weight: 80.42 ± 6.2) and 15 female bodybuilders (age: 26.5 ± 4.2 , height: 160.3 ± 8.1 , weight: 58.22 ± 5.5) who were voluntarily ed a fitness club. Blood samples were taken to measure levels of some hormones including cortisol, testosterone and serum insulin by a laboratory expert before and after each training session. Aerobic and resistance exercise was performed for one session at 8am and then, after three days these training was done for one session at 5pm. First, 30 minutes of resistance training consisted of upper-body and lower-body exercises for 80% maximal repetition and range of motion of 6 and 10 repetitions and each movement 3 times with a 60-second rest. Aerobic exercise was performed after 3 minutes rest after resistance training, including running on the treadmill for 20 minutes at 75% of maximal heart rate. In order to compare the results of before and after in each group, repeated measure ANOVA was used. **Findings:** The results of the current study indicated that there was a significant change in the cortisol ($p = 0.000$) and testosterone ($p = 0.001$) in the male group after a training session and also these changes in testosterone were also significant in the evening ($p = 0.000$). However, insulin in male did not change significantly in any of the shifts (p

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