Short Duration of Aerobic Exercise After Resistance Training Under Hypoxic Conditions Improved Muscular Performance and Maximal Oxygen Uptake in Overweight Youths

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ABSTRACT

This study was to investigate the effects of aerobic exercise after resistance training under hypoxic conditions improved muscular performance and maximal oxygen uptake in overweight youths. Twenty-seven healthy overweight males aged 19 to 25 years, from Ubon Ratchathani Rajabhat University, were randomly divided into 3 groups: (a) hypoxic resistance training (50%1RM; HRT, n = 9), (b) hypoxic aerobic training (60% HRR; HAT, n = 10) and (c) hypoxic resistance training (50% 1RM) combined with hypoxic aerobic training (60% HRR; HRT+HAT, n = 8). All groups performed an exercise training program under hypoxia (F_IO_2 = 15.8%) for 3 d/wk over a 5-week. All variables were measured before and after the 5-week experimental period. After 5-week of training, the maximum strength (1 RM) in both the knee extension and flexion were significantly increased in the HRT+HAT when compared with the HRT (*p*-value = 0.002 and 0.028) and the HAT (*p*-value = 0.001 and 0.001), respectively. Likewise, HRT+HAT revealed a significantly increase in maximal oxygen uptake (VO_2 max) when compared to the HRT (*p*-value = 0.032). Therefore, aerobic exercise after resistance training under hypoxic conditions could be used as an alternative and therapeutic method to improve muscular strength-endurance and maximal oxygen uptake in male with overweight subjects.

Keywords: Resistance training; Aerobic exercise; Hypoxia; Muscular performance; Maximal oxygen uptake

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