IS STRENGTH TRAINING EFFECTIVE TO INCREASE THE CARDIO RESPIRATORY FUNCTION AND ACUTELY THE ENERGY EXPENDITURE?

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Introduction
Strength training is an efficient strategy to increase the muscular condition and this is an important toll to enhance the sport performance. However, its seems to have a limited impact in the cardio respiratory and metabolic functions. For example, the cardio respiratory and energy expenditure responses are reduced during a strength training session. The aim of our study was to evaluate the VO2 consumption, heart rate (HR) and estimate the net energy expenditure (EE) during and immediately after a strength training session in overweight women.

Methods
Thirteen overweight females (35±8 years old; body mass index-BMI 29.27 ± 3.59 kg/m²) performed 10 strength exercises during 55 minutes, with an intensity of 20 maximal repetitions. The VO2 consumption and Excess Post-Oxygen Consumption (EPOC) relative to body weight were assessed during and immediately after the training session. An aerobic type of exercise (walking on the treadmill) was performed, in a different occasion, during 55 minutes. The intensity was maintained for 70% of the maximal HR. The net EE was estimated using a constant value of 21.1 kJ per liter of oxygen consumed (1,2). The statistical analysis included descriptive statistics and t-test for paired sample.

Results
The relationship between VO2 consumption and HR, evaluated as the mean of consecutive periods of five minutes, had a different behaviour during both training sessions, and an important discrepancy was observed between them. The VO2 consumption observed during the strength session was very low when related to the correspondent HR (27% and 60% of the maximal value, respectively). For the aerobic session, the HR was slightly higher (71%) but the VO2 increased more significantly (46%). Consequently, the net EE in response to the strength session and recovery was too lower (691.0 ± 189.1 kJ or 4.5 ± 1.1 METs) compared with the aerobic session (1312.3 ± 326.6 kJ or 8.7 ± 2.1 METs).

Discussion/Conclusion
The above results showed that during a strength training session the VO2 consumption is very low to promote increases in the cardio respiratory condition. For this reason the net EE is very modest. Together, these results seems to show that strength training, alone, is not effective to promote weight loss and to support considerable changes in body composition.

References:

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