PHYSICAL PERFORMANCE AND CARDIOVASCULAR RESPONSES TO AN ACUTE BOUT OF HEAVY RESISTANCE CIRCUIT TRAINING VS. TRADITIONAL STRENGTH TRAINING

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Circuit training effectively reduces the time devoted to strength training while allowing an adequate training volume to be achieved. Nonetheless, circuit training has traditionally been performed using relatively low loads for a relatively high number of repetitions, which is not conducive to maximal muscle size and strength gain. This investigation compared physical performance parameters and cardiovascular load during heavy-resistance circuit (HRC) training to the responses during a traditional, passive rest strength training set (TS). Ten healthy subjects (26 ± 1.6 years and 80.2 ± 8.78 kg) with strength training experience volunteered for the study. Testing was performed once-weekly for three weeks. On day one, subjects were familiarized with the test and training exercises. On the subsequent two test days, subjects performed one of the following two strength training programs: HRC (5 sets x (bench press + leg extensions + ankle extensions); 35-s inter-set rest; 6-RM loads) or TS (5 sets x bench press; 3-min inter-set rest, 6-RM loads). The data confirm that the maximum and average bar velocity and power, and the number of repetitions performed, in the bench press in the two conditions was the same, however the average heart rate was significantly greater in the HRC compared to the TS condition (HRC = 129 ± 15.6 bpm, 71 %HRmax; TS = 113 ± 13.1 bpm, 62 %HRmax; p < 0.05). Thus, HRC sets are quantitatively similar to traditional strength training sets, but the cardiovascular load is substantially greater. HRC may be an effective training strategy for the promotion of both strength and cardiovascular adaptations.


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