SWACSM Abstract

Different Resistance Training Protocols During the Crunch Exercise Affect Muscle Thickness, Echo-Intensity, Load Lifted, and Perception of Effort in Recreationally-Trained Participants.

KEANNA J. SULLIVAN, & PAULO H. MARCHETTI

Resistance Training Laboratory; Department of Kinesiology; California State University, Northridge; Northridge, CA

Category: Masters

Advisor / Mentor: Marchetti, Paulo (paulo.marchetti@csun.edu)

ABSTRACT

The correct choice of the acute variables is another important component of a resistance training (RT) session. The combination of intensity and volume is fundamental to determine the dose-response in a RT session and can induce specific metabolic and mechanical stress in the muscle. **PURPOSE**: The primary purpose of this study was to evaluate acute dose-response of different volume x intensity RT protocols with equated total volume (40 repetitions) during the crunch exercise on muscle thickness, echo-intensity, load lifted, and rating of perceived exertion in recreationally-trained participants. **METHODS:** Fifteen resistance-trained participants (23±3years, 76.4±6.5kg, 173.3±6.5cm) performed the abdominal crunch exercise in one of two different RT protocols with equated total volume (40 repetitions) in a randomized order: RT_{4x10RM} (4 sets of 10RM/1-min rest) or RT_{1x40RM} (1 set of 40RM). Muscle thickness (MT), echo intensity (EI), total load lifted (TLL), and rating of perceived exertion (RPE) were measured pre-test and post-test (0-min and 15-min). Two-way repeated-measures ANOVAs (2x3) were used to test differences between RT protocols (RT_{4x10RM} and RT_{1x40RM}) and time (pre-test, post-0, and post-15) for MT and EI. Paired t-test was used to compare differences between RT protocols for RPE and TLL. **RESULTS:** For MT, there were significant differences for RT_{4x10RM} between pre- x post-0 (p=0.011), pre- x post-15 (p<0.001), and post-0 x post-15 (p=0.02). There were significant differences for RT_{1x40RM} between pre- x post-0 (p<0.001) and pre- x post-15 (p=0.003). For EI, there was significant difference for RT_{4x10RM} between pre- x post-0 (p=0.002). For RPE, there was no significant difference between RT protocols. For TLL, there were significant differences between RT protocols (p=0.04). **CONCLUSION**: Both RT protocols (RT_{4x10RM} and RT_{1x40RM}) induced similar increases in MT and EI. RPE and TLL were higher for the RT_{4x10RM} protocol.