

# Effects of intra-set rest on morphological variables, maximal strength and jump performance in university students

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## Abstract

The appropriate dosage of resistance training could promote physical and physiological adaptations and decrease injuries. The aim of the study was to analyze the effects of the different intra-set rest after eight weeks of resistance training on morphological variables, maximal strength, and jump performance in physically active university students. Twenty-five students (15 men and 10 women) were randomized by sex and distributed in Control Group (CG) (n=8) with rest only at the end of the series; Experimental Group 1 (EG1) (n=9) with an intra-set rest of 30 s, and Experimental Group 2 (EG2) (n=8) with four intra-set rest of 10 s. Morphological variables [body weight, bipedal height, body mass index (BMI), fat mass and muscle mass], maximum upper body strength (bench press and military press), lower body strength [parallel squat (45°) and deadlift], as well as countermovement jump (CMJ) were measured. All three groups obtained a significant increase ( $p < 0.01$ ) in body weight and BMI, as well as an essential reduction ( $p < 0.01$ ) of fat mass. Muscle mass increased significantly ( $p < 0.01$ ) for both CG and EG1. Maximum upper- and lower-body strength increased considerably ( $p < 0.05$ ) across all three groups and for all exercises, while the CMJ notably increased for CG and EG1. There are no significant changes between the different intra-set rest, when using the same volume, intensity, and total recovery time during the exercise series ( $p > 0.05$ ); thereby, there is an equivalent increase in muscle mass, maximal strength, jump performance, and a fat mass reduction.

## Author keywords

Anthropometry  
Muscle strength  
Physical exercise  
Strength training