

Comparison of linear and daily undulating periodization with equated volume and intensity for muscular endurance in adolescent athletes.

ABSTRACT

The purpose of the present study was to determine if significant differences exist between two different models; linear periodization (LP) and daily undulating periodization (DUP), in eliciting superior gains in muscular endurance for back squat and bench press. This study may shed some light on which model could elicit more improvement in muscular endurance in adolescent athletes. Twenty adolescent hockey players underwent a 12 weeks weight training program. They were tested for lower-body muscular endurance (70% of estimated 1RM back squat) and upper-body muscular endurance (70% of estimated 1RM bench press). Following initial testing, subjects were randomly matched to one of the two training groups with ten subjects in each group. Subjects performed the programmed exercises twice a week throughout the training period, with volume and intensity equated for both groups at the end of the experimental period. The LP group linearly changed intensity and volume over each 4-week training phase, while the DUP group changed intensity and volume daily. Muscular endurance for back squat (LP=51.11%, DUP=61.60%) and bench press (LP=55.83%, DUP=48.48%) increased significantly ($p < .05$) at all time points (T1- T3). However, there were no significant differences ($p > .05$) between groups at all time points. Therefore each of the two training models proved effective in increasing back squat and bench press muscular endurance over the course of 12 weeks.

Keyword: Weight training; Plateau; Resistance training.