Lower more than you lift—benefits for experienced resistance-trainers

May 2 2017

Two recently published studies show that greater benefits occur when lowering (i.e. eccentric) a greater load than is lifted (i.e. concentric) during resistance-training. Individuals that trained with accentuated eccentric loads gained more strength and they showed greater increases in blood hormone concentration compared to those who used the same load for both lowering and lifting phases (i.e. traditional resistance-training).

"Humans have a greater ability to produce force when lowering (eccentric) a load compared to lifting (concentric). So it seems logical to train with greater eccentric loads than those used during the concentric phase of the lift. Unfortunately, this does not happen in traditional resistance-training," says PhD Simon Walker from the University of Jyväskylä.

Resistance-trainers gained benefit to their maximum eccentric strength, as well as their strength-endurance in their legs. This was especially evident in the second half of the training period. Accompanying the divergent performance improvements, the accentuated eccentric group demonstrated large increases in hormone concentrations during the training session in week-9 while the traditional resistance-training group showed a much lower response.

Getting past the plateau

"Chronic resistance-training using the same methods will lead to a plateau in performance gains. It seems that using accentuated eccentric loads provided a greater stimulus for our trainers. The hormone results suggest that the strenuousness imposed by the training stimulus continued for a longer period of time. This likely explains why gains in strength stopped at 5 weeks in those using traditional resistance-training methods, while the accentuated eccentric group continued to improve over 10 weeks," Walker explains.

The improvements in strength were most likely due to a greater mental effort to control the lowering of the heavy loads, since both groups increased thigh muscle mass similarly but only the accentuated eccentric group improved their ability to maximally activate the leg muscles.

More information: Walker et al. 2016. Greater Strength Gains after Training with Accentuated Eccentric than Traditional Isoinertial Loads in Already Strength-Trained Men. *Frontiers in Physiology*. journal.frontiersin.org/articl … phys.2016.00149/full

Provided by University of Jyväskylä