

SETS FOR SYNTHESIS

The effects of set volume on muscle protein synthesis

The primary reason you bend a barbell is to build strength and size for your sport. But building optimal size depends on the proper selection of the number of sets you perform per exercise. In the July issue of *JOPP* we reviewed research by our editor showing that multiple sets of weight training were associated with superior gains in muscle size compared to a single set (see [SETS FOR SIZE](#)). Our editor performed a meta-analysis by combining the results of eight weight training studies and analyzing the results as a whole. In short, he found out what the optimal number of sets is for your muscle size gains. In discussing his study, our editor suggested that doing more sets than just one might be more beneficial because it creates greater size gains by enhancing protein synthesis (the process your muscles go through of building new protein and thus more muscle size). At that time this suggestion amounted to an educated guess as no one had done any research to see if this was true. However, things have now changed...



Our publisher knows that his training must stimulate protein synthesis in order for his muscles to grow. The question is, how many sets are needed for optimal protein synthesis to occur?

Original Research

Burd, N., et al. Resistance exercise volume affects myofibrillar protein synthesis and anabolic signaling molecule phosphorylation in young men. *Journal of Physiology* 588:3119-3130, 2010.

Power Key: protein, muscle, hypertrophy, sets, volume, muscle size