

Perceived weight control may mediate lean body mass gains during hypertrophy blocks in athletes

The Fuelogics system was provided to a group of 29 trained 17-18-year old male strength/power athletes over a 20-week Winter training program emphasizing hypertrophy goals. Individuals had all been exposed to a similar training program the previous year and were heterogeneous for previous work with a nutritionist. The group received a 5-minute introduction to the Fuelogics system and had the opportunity to ask a nutritionist questions throughout the duration of the program.

Ratings of perceived weight control were measured at week 0 (before exposure to the Fuelogics system) and week 10 (after exposure). Ratings of perceived weight control increased 2.5 points on a 10-point scale from a mean of 5.1 to 7.6 ($p < 0.05$, Figure 1). The magnitude change in perceived weight control (not shown) was 2.0-fold (95% CI: 1.5-2.6).

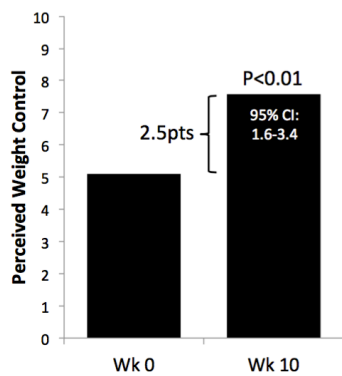


Figure 1: perceived weight control ratings before and after usage of the Fuelogics system, at week 0 and week 10 of the training program.

Mean change in lean body mass from week 0 to week 20 was 9.6lbs ($p < 0.05$, Figure 2). Since there was no control group, a quasi-control group was created by separating individuals according to increases in perceived weight control or no increases in perceived weight control, as the null group could be used as a surrogate for lack of system usage for other data purposes. When the individuals were separated, the group positive for improvements in control showed lean mass increases of 4.3lbs (or 64%) greater than the group that was negative for improvement ($p < 0.05$, Figure 2).

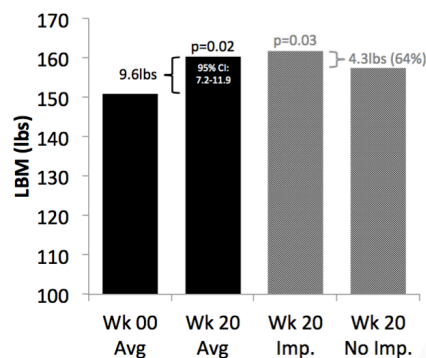


Figure 2: mean lean body mass over the 20 week training program (black) and difference at week 20 between individuals separated by improvements in perceived weight control or no improvements in perceived weight control (gray).

Perceived weight control appears to be associated with lean mass gains from training in athletes who are relatively new to sports nutrition and weight management concepts (less than four years experience). While causality has yet to be supported, this suggests that at the very least, perceived weight control is worth assessing ahead of hypertrophy training in strength/power athletes.

In a follow-up cohort with similar characteristics over another 20-week Winter training program, average change in lean mass was 6.9lbs. The upper quartile for Fuelogics system usage gained 3.2x more lean mass than the bottom quartile and 1.7x more lean mass than the middle quartiles ($p < 0.05$, Figure 3). There was no significant difference between the middle quartiles and Q4 ($p = 0.10$). Every additional seven days of usage was associated with 1.6lbs (24%) greater lean mass gain over the training period ($R^2 = 0.36$, data not shown).

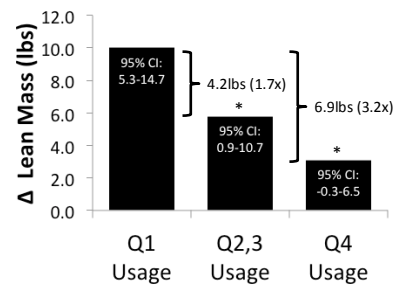


Figure 3: mean change in lean mass versus usage of the Fuelogics app. Q1 = upper quartile for usage; Q2,3,4, respectively. * = significantly different than Q1 usage ($p < 0.05$).

While perceived weight control was not assessed in this group, there was no correlation between initial lean mass and change in lean mass, change in lean mass percent, or system usage ($R^2 < 0.01$). Thus, it is unlikely that system usage or improvements in perceived weight control were merely byproducts of motivations or habits that led to lean mass gains.

It is likely that perceived weight control is important for optimizing lean mass gains from training in similar athletes. Perceived weight control may be an important mediator of these gains from training. Further research should explore this relationship. Perceived ability to control weight is likely worth assessing ahead of hypertrophy training in strength/power athletes given that an ability to sustain a caloric surplus and gain weight is important for optimizing lean mass gains in most athletes.

This data is retrospective observational data based on Fuelogics system usage provided by Fuelogics, LLC. www.fuelogics.us