Manuscript Clarification

Changes in body composition and performance with supplemental HMB-FA+ATP

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Response from the Authors

In response

The authors are satisfied that their original responses to the prior Manuscript Clarification address the issues raised here.

Lowery et al. (6) reported, in contrast to an often-observed heterogeneity in training-induced hypertrophy, remarkably consistent between-group changes in muscle mass to find statistical significance between an HMB-FA+AP supplemented (n=8) versus a placebo (n=9) groups. The difference divergence between the supplemented and placebo groups occurred despite optimal training and optimal nutritional support. We note that HMB has been shown to result in a trivial training-induced adaptive advantage (8) and that the gain in lean body mass was in previously
resistance-trained subjects who would have had less propensity to gain lean body mass (7). For

absolute clarity, could the authors please present the absolute body weight and body composition
(lean body mass and fat mass) as opposed to % change data? We believe this would be helpful
for readers. There are data for calcium HMB showing improved muscle protein turnover (9). We
are unaware of any similar data for FA-HMB despite greater bioavailability and uptake (into
what tissue is unknown) (3). Do the authors know of any data showing that HMB-FA affects
human muscle protein turnover (9)? We note that leucine had the same anabolic effects as
calcium-HMB (9) and that dietary protein can exert a positive effect on gains in muscle mass
with resistance training (1). The placebo group, recipients of optimal protein/leucine intake, did
not appear to respond at all to the overreaching phase. Can the authors speculate why? Lowery et
al (6) supplemented with ATP, which has undetectable bioavailability (2). Wilson et al. (10),
reported that ATP (400mg/d) resulted in a positive effect on muscle mass, strength, and power
gains. The authors’ state (4) that a previously reported increase in post-exercise blood flow
induced by the ATP (5) in the supplemented group could be responsible. The magnitude of that
flow increase was only about 100-150 ml/min, was not consistently observed across weeks of
supplementation, and lasted no more than 3-6min post-exercise (5). How do the authors think a
small, inconsistent, and short-lasting increase in blood flow could affect performance? In the
response to Hyde et al (4), Lowery et al. (6) stated that they selected “…a responsive population
who possess a quantity of lean mass indicative of previous responses to resistance training…”
What was the screening process to pick the participants? The authors state their subjects had
muscle “…an order of magnitude [an order of magnitude is defined as 10 times greater, so this
cannot be the case] higher than average lean mass…” Could the authors please state the exact
criteria for inclusion as a participant? It would be useful for the authors to describe how many
participants were recruited and screened, the final number entered into the study and the number
of dropouts. Were participants randomized to treatment and placebo groups, pair matched based
on body mass, lean body mass, strength or another variable?

Reference List
1. Cermak NM, Res PT, de Groot LC, Saris WH and van Loon LJ. Protein supplementation
augments the adaptive response of skeletal muscle to resistance-type exercise training: a

2. Coolen EJ, Arts IC, Bekers O, Vervaet C, Bast A and Dagnelie PC. Oral bioavailability of


supplementation on athletic performance, skeletal muscle hypertrophy and recovery in

Baier SM, Naimo MA and Rathmacher J. The effects of 12 weeks of
beta-hydroxy-beta-methylbutyrate free acid supplementation on muscle mass, strength, and
power in resistance-trained individuals: a randomized, double-blind, placebo-controlled study.