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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?

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