

POSTER PRESENTATION

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Acute anabolic response to β -hydroxy- β -methylbutyrate (HMB)-free acid supplementation following heavy resistance exercise

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Background

β -hydroxy- β -methylbutyrate (HMB), a metabolite of the amino acid leucine, has been shown to promote strength and lean muscle mass when supplemented in conjunction with resistance training. Recently, a new free-acid form of HMB has been shown to reach higher plasma concentrations in a shorter amount of time compared to the calcium-salt form. This higher bioavailability may rationalize acute supplementation with HMB-FA as a means to enhance the anabolic response resulting from heavy resistance training. The purpose of this study was to examine the effect of acute β -hydroxy- β -methylbutyrate-free acid (HMB-FA) on circulating concentrations of anabolic hormones following a heavy resistance exercise protocol.

Methods

Twenty resistance-trained men (22.8 ± 2.5 yrs, 177.6 ± 6.6 cm, 83.4 ± 9.8 kg) volunteered to participate in this study and were randomized into two groups [HMB-FA and placebo (PL)] and performed an acute, heavy resistance exercise protocol (four sets of up to 10 repetitions of the squat, dead lift, and split squat exercises). Supplementation included 1 g of HMB-FA or PL consumed 30min prior to exercise. Blood was sampled before (PRE), immediately post (IP), and 30 min post-exercise (30P). Circulating levels of testosterone (TEST), growth hormone (GH) and Insulin (INS) were assayed. A 2 x3 repeated measures ANOVA was used to analyze the data. Consent to publish the results was obtained from all participants.

Results

The resistance exercise protocol produced a significant time effect for an elevation in TEST ($p < 0.01$), GH ($p < 0.01$) and INS ($p = 0.05$) at IP with GH ($p < 0.01$) and INS ($p < 0.01$) remaining elevated at 30P. A group by time interaction was observed ($p = 0.05$) with plasma GH elevated in HMB-FA compared to PRE values ($p < 0.01$) at IP and 30P. There were no differences at any other time point with TEST or INS concentrations.

Conclusion

These data indicate that HMB-FA supplementation may augment and prolong the growth hormone elevation associated with heavy resistance exercise.

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