

EFFECTS OF REACTIV “MAXIMUM HMB” ON BODY MASS AND PERFORMANCE IN ELITE MALE RUGBY PLAYERS

Request for Clarification:

McIntosh et al. (5) recently published an article entitled: “ β -hydroxy β -methylbutyrate (HMB) supplementation effects on body mass and performance in elite male rugby union players.” In this study, participants were to consume either HMB or placebo for 11 weeks during preseason rugby training. Before and after supplementation, the researchers measured body mass and body composition; bench press, squat, clean, and weighted pull-up strength;

and aerobic fitness using the Yo-Yo intermittent recovery test (4). The participants in the HMB group gained more body mass, with no differences in body composition. No differences in strength performance were observed between groups, and the researchers reported a negative effect of HMB supplementation on aerobic performance. Based on these results, the authors concluded that there was no positive effect of HMB on strength and that HMB may be detrimental to intermittent running ability.

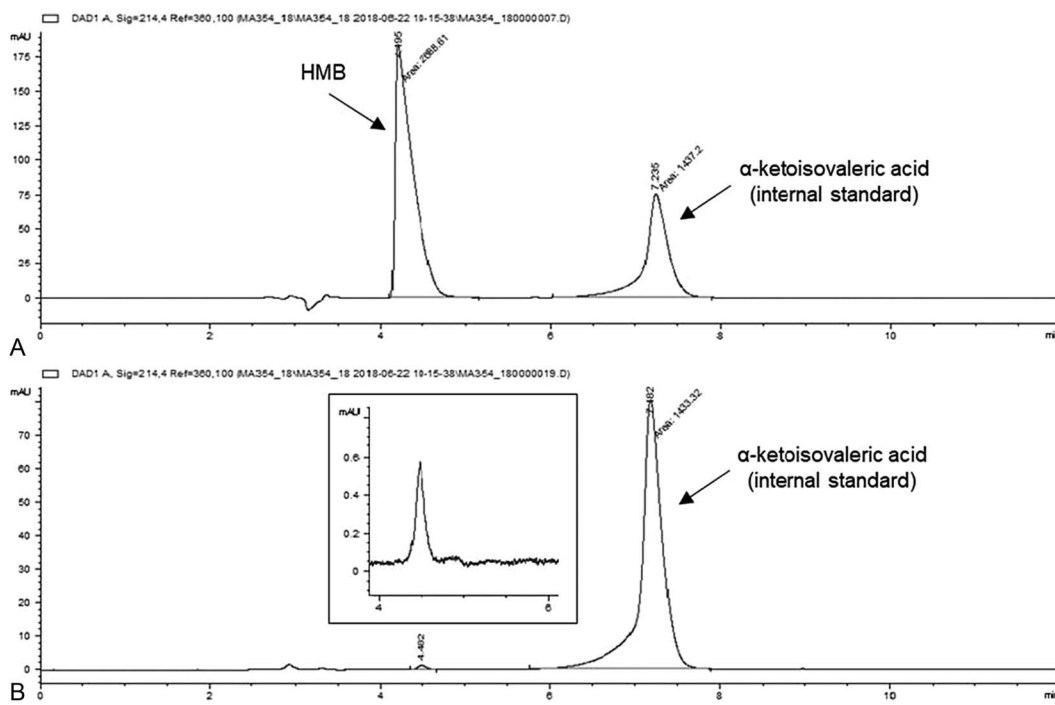


Figure 1. High-performance liquid chromatography of (A) $30 \text{ mg} \cdot \text{ml}^{-1}$ β -hydroxy- β -methylbutyric acid (HMB) and (B) $\sim 25 \text{ mg} \cdot \text{ml}^{-1}$ “Maximum HMB.” The inset in panel B provides a detailed view of the chromatogram from 4 to 6 minutes of retention time. Equivalent amounts of the internal standard, α -ketoisovaleric acid, were added to each sample.

In interpreting these findings, it should be noted that the researchers supplied HMB through “Maximum HMB” from Reactiv Supplements. The product information describes “Maximum HMB” as “pure active HMB” containing “100% Hydroxy Methyl Butyrate Calcium.” Did McIntosh et al. evaluate the quality and purity of β -hydroxy- β -methylbutyrate in the “Maximum HMB” product?

We obtained a bottle of “Maximum HMB” (lot 1101) from Reactiv Defining Nutrition, Ltd. (Auckland, New Zealand) and performed high-performance liquid chromatography (HPLC) analysis on the contents using an Agilent 1100 Series HPLC with a Perkin Elmer Spheri-5 ODS C18, 5- μ m, 220 \times 4.6-mm reverse phase column, and ultraviolet detection at 214 nm. α -Ketoisovaleric acid was used as an internal standard.

Figure 1 compares pure β -hydroxy- β -methylbutyric acid, HMB (panel A) to “Maximum HMB” (panel B). The chromatogram in Figure 1A has a peak for HMB at 4.2 minutes. The chromatogram in Figure 1B has no peak at 4.2 minutes, demonstrating the absence of β -hydroxy- β -methylbutyrate in “Maximum HMB.” Subsequent NMR analysis suggested that the “Maximum HMB” product was likely glucose or maltodextrin.

Although McIntosh et al. (5) used a previously effective dose of HMB ($3.0 \text{ g}\cdot\text{d}^{-1}$) (6), the supplied “Maximum HMB” contains no HMB. As the participants were not, in fact, supplemented with HMB, no effects of HMB in elite rugby players can be inferred from this study. HMB has previously been shown to improve body composition, strength, and/or performance in various athlete populations (1–3,7), and the absence of HMB in “Maximum HMB” may explain the lack of observed beneficial effects in this study.

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