ANNALS OF RESEARCH IN SPORT AND PHYSICAL ACTIVITY

Combined effects beta-hydroxy-beta-methylbutyrate (HMB) supplementation and exercise training on body composition, blood lipids and muscle damage in active men

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COMBINED EFFECTS BETA-HYDROXY-
BETA-METHYLBUTYRATE (HMB)
SUPPLEMENTATION AND EXERCISE TRAINING
ON BODY COMPOSITION, BLOOD LIPIDS
AND MUSCLE DAMAGE IN ACTIVE MEN

BACKGROUND AND PURPOSE

HMB is a metabolite of leucine aminoacid which exerts its effect via different biochemical mechanisms (1). HMB has been shown to stimulate protein synthesis via mTOR pathway, inhibit protein degradation, affect body composition change (reducing body fat gain while enhancing lean body mass gain) in animals and humans and prevent muscle damage (2, 3). However, the effect of combined HMB supplementation and exercise training on body composition, blood lipids and muscle damage in humans are still under debate (1, 2, 3). Hence, the purpose of this study is to investigate the effects of HMB supplementation with exercise on body composition, blood lipid profile and markers of muscle damage. The subjects of the study were 17 physically active male volunteers (age 26.9 ± 2.01 years, height 177.15 ± 4.43 cm, weight 78.4 ± 10.7 kg and BMI 24.9 ± 3.19 kg/m²).

METHODS

This study was performed in a double blind placebo controlled design. Subjects were divided into two groups (HMB+Exercise and Placebo+Exercise). HMB+Exercise and Placebo+Exercise groups took daily 3 gr HMB or 3 gr placebo for 14 days. Subjects in both groups participated in a training program including strength and endurance exercises, 5 times a week and each session lasted for 100-120 minutes. Food intake, body composition, blood lipid profile and muscle damage markers measured before and after the trial.

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RESULTS

After the study, total body water (%) and body fat mass decreased significantly in both groups ($p < 0.05$). Significant increase in lean body mass and decrease in waist/hip ratio were found in HMB+Exercise group. No change in blood lipid profile and muscle damage markers with HMB supplementation was observed. Further studies with different exercise intensity, volume, frequency and longer HMB supplementation are required.

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