β-hydroxy-β-methylbutyrate Supplementation and Resistance Exercise Significantly Reduce Abdominal Adiposity in Healthy Elderly Men (66-78 years)

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Excessive abdominal fat has been associated with the development of cardiovascular disease and frailty in older adults. Exercise and/or nutritional interventions may be used to reduce abdominal adiposity in this population. **PURPOSE:** To determine the effects of β-hydroxy-β-methylbutyrate (HMB), with or without resistance training (RT), on abdominal adiposity in elderly men. **METHODS:** Forty-eight men (mean ± SD; age: 72.1 ± 5.7 yrs, ht: 175.4 ± 6.1 cm, wt: 82.0 ± 10.1 kg) were randomly assigned in a double-blind fashion to consume a placebo (200 mg Calcium + 4 g carbohydrate) or treatment powder (1.5g CaHMB+ 4 g carbohydrate) twice daily, *ad libitum*, for the 12 week intervention. Participants were further separated into no-training placebo (NT), treatment only (NT-HMB), RT only, or treatment plus RT (RT -HMB) groups. Progressive RT sessions were performed three times per week for 12 weeks. Dual-energy X-ray absorptiometry (DXA) was used to estimate abdominal fat mass (AFM) by placing the region of interest over the L1-L4 region of the spine. Outcomes were assessed by ANCOVA with posttest means adjusted for pretest differences among the groups. When appropriate, Bonferroni post hoc pairwise comparisons were used to examine the differences among the groups. The partial eta squared (η^2) statistic was calculated and the effect size was interpreted as small (0.01), medium (0.06), or large (0.14). **RESULTS:** The ANCOVA indicated a significant difference ($p = 0.013$, $\eta^2 = 0.22$) among the group means for the adjusted posttest AFM values (Mean (kg) ± SE: NT=2.59 ± 0.06; NT-HMB = 2.58 ± 0.61; RT=2.59 ± 0.62; RT-HMB=2.34 ± 0.61). The strength of the association (i.e., effect size, η^2) indicated that the treatment groups (NT, NT-HMB, RT, RT-HMB) accounted for 22% of the variance of the post-test AFM values. The pairwise comparisons indicated that AFM following the intervention period in the RT-HMB group was significantly less than NT ($p=0.050$), NT-HMB ($p=0.044$), and RT ($p=0.039$). Additionally, no difference was found between the NT, NT-HMB, and RT groups. **CONCLUSION:** These data suggest that HMB in combination with 12 weeks of resistance exercise decreased AFM in elderly men, while interventions consisting of only HMB supplementation or progressive RT were ineffective at reducing this potential health indicator. *Funded by Abbott Nutrition*