

Poster presentation

Consuming a supplement containing branched-chain amino acids during a resistance-training program increases lean mass, muscle strength and fat loss

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Background

A randomized, double-blind study was performed to evaluate the efficacy of consuming a supplement containing branched-chain amino acids (BCAAs) during an eight-week resistance-training program.

Methods

Thirty-six strength-trained males with a minimum of two years resistance-training experience (25.5 yrs, 177.7 cm, 85.2 kg and 9.3% body fat) were randomly assigned to receive either 14 grams of BCAAs (n = 12), 28 grams of whey protein (n = 12), or 28 grams of carbohydrates from a sports drink (n = 12) while performing an eight-week resistance-training program. Participants followed a periodized, whole-body training program that involved training all major muscle groups once per week using a four-day training split. Subjects body weight, body composition, and 10-rep max on the bench press and squat were determined before and after the eight-week training program. Subjects followed a standardized diet while following the program.

Results

All groups had a 100% compliance with the study protocol. The BCAA group experienced a significantly greater gain in body weight than the whey group (2 ± 1 kg vs. 1 ± 1 kg; $p < 0.02$) and the carbohydrate group (2 ± 1 kg vs. 1

± 1 kg; $p < 0.01$). For lean mass, the BCAA group gained significantly greater lean mass than the whey group (4 ± 1 kg vs. 2 ± 1 kg; $p < 0.01$) and the carbohydrate group (4 ± 1 kg vs. 1 ± 1 kg; $p < 0.01$). The whey group also gained significantly more lean mass than the carbohydrate group (2 ± 1 kg vs. 1 ± 1 kg; $p < 0.02$). BCAA group decreased their percent body fat significantly more than the whey group ($2 \pm 1\%$ vs. $1 \pm 1\%$; $p = 0.039$) and the carbohydrate group ($2 \pm 1\%$ vs. $1 \pm 1\%$; $p < 0.01$). Muscular strength was significantly greater in the BCAA group on the 10-RM bench press than the whey group (6 ± 3 kg vs. 3 ± 2 kg; $p < 0.01$) and the carbohydrate group (6 ± 3 kg vs. 2 ± 2 kg; $p < 0.01$). For the squat, the BCAA group gained significantly more strength on their 10-RM than the whey group (11 ± 5 kg vs. 5 ± 3 kg; $p < 0.01$) and the carbohydrate group (11 ± 5 kg vs. 3 ± 2 kg; $p < 0.01$).

Conclusion

Ingestion of a supplement containing BCAAs while following an 8-week resistance training program resulted in a greater decrease in percent body fat, an increase in lean mass, and 10-RM strength gains on the bench press and squat vs. ingestion of a whey supplement or a sports drink. In addition, the ingestion of a whey protein supplement resulted in greater lean mass gains than ingestion of a sports drink.

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