

# **Branched-chain amino acid supplementation attenuates a decrease in muscle function following acute strength training**

**Gee, T.I., and Deniel, S.**

**School of Sport and Exercise Science, University of Lincoln**

**Purpose:** Branched-chain amino acid (BCAA) supplementation has been shown to attenuate the decrement in performance and increase in muscle soreness, following protocols that aim to induce muscle damage through loaded dynamic eccentric muscle actions (Jackman et al., 2010; Howatson et al., 2012). However, the application of these findings to an athletic setting is limited, since such protocols are designed to overtly cause muscle damage rather than replicate the demands of strength and power training sessions practiced by athletes (Byrne *et al.*, 2004; Gee et al., 2012). This study aimed to investigate the effects of BCAA supplementation on muscle function following a resistance exercise session that featured multi-joint exercises that are typically utilised as part of a strength and conditioning regimen.

**Methods:** In a randomised single-blind crossover study, eleven resistance-trained males (Mean  $\pm$  SD, age: 24.7  $\pm$  5.9 years, stature: 1.80  $\pm$  0.07 m, body mass: 79.0  $\pm$  7.6 kg), performed baseline measures of a countermovement jump (CMJ) and seated shot putt throw (SSPT). In a counterbalanced fashion separated by a seven day washout period, participants were provided with either 20 g of BCAA or a placebo. Each dose was divided into two equal quantities and consumed 5-min before and 5-min after a strength training session (ST) consisting of various multi-joint barbell exercises. For both conditions, the CMJ and SSPT were repeated at 24 h post-ST, in addition participants attributed their perceived muscle soreness level via a 20 cm visual analogue scale (Howatson et al. 2012).

**Results:** A repeated measures ANOVA test showed that following ST there were significant decrements in CMJ and SSPT for both conditions in comparison to baseline values ( $P < 0.05$ ). However, BCAA was shown to attenuate the decrements in performance compared to placebo (CMJ; 52.8  $\pm$  5.9 cm vs. 50.6  $\pm$  7.3 cm, SSPT; 4.37  $\pm$  0.61 m vs. 4.22  $\pm$  0.64 m,  $P < 0.05$ ). Muscle soreness was significantly increased following ST for both conditions, there was a non-significant trend for lower attributed values following BCAA ingestion in comparison to placebo ( $P = 0.09$ ).

**Conclusions:** In conclusion, BCAA administered acutely before and following intensive strength training attenuates a decrease in muscle function experienced by resistance-trained males. These small but significant effects on muscle function suggest that BCAA is an effective ergogenic aid for athletes who require augmented recovery of power-producing ability following intensive strength training.

## References

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