

BCAAS ENHANCE RECOVERY

J Nutr. 2006 Feb;136(2):529S-532S.

Nutraceutical effects of branched-chain amino acids on skeletal muscle.

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BCAA catabolism in skeletal muscle is regulated by the branched-chain alpha-keto acid dehydrogenase (BCKDH) complex, located at the second step in the BCAA catabolic pathway. The activity of the BCKDH complex is regulated by a phosphorylation/dephosphorylation cycle. Almost all of BCKDH complex in skeletal muscle under normal and resting conditions is in an inactive/phosphorylated state, which may contribute to muscle protein synthesis and muscle growth. Exercise activates the muscle BCKDH complex, resulting in enhanced BCAA catabolism. Therefore, exercise may increase the BCAA requirement. It has been reported that BCAA supplementation before exercise attenuates the breakdown of muscle proteins during exercise in humans and that leucine strongly promotes protein synthesis in skeletal muscle in humans and rats, suggesting that a BCAA supplement may attenuate muscle damage induced by exercise and promote recovery from the damage. We have examined the effects of BCAA supplementation on delayed-onset muscle soreness (DOMS) and muscle fatigue induced by squat exercise in humans. The results obtained showed that BCAA supplementation prior to squat exercise decreased DOMS and muscle fatigue occurring for a few days after exercise. These findings suggest that BCAAs may be useful for muscle recovery following exercise.

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