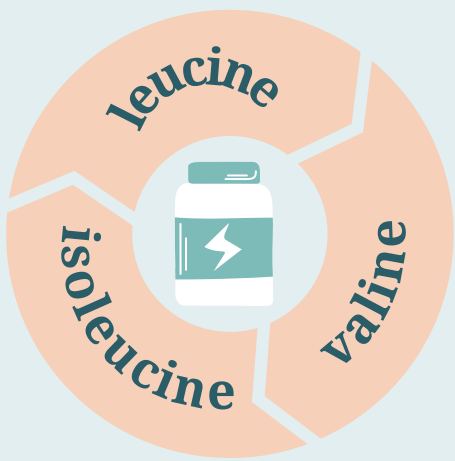


BCAA Supplements: Are They Effective?

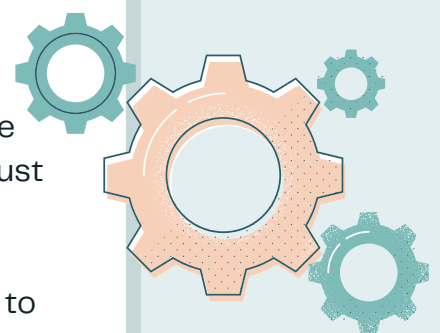


What are BCAAs?

- Branched chain amino acids (BCAAs) supplements are composed of three main essential amino acids—leucine, isoleucine, and valine.
- BCAAs are often used as a pre-workout supplement to reduce post-exercise muscle soreness, accelerate recovery, and stimulate muscle growth.

The Logic Behind BCAAs

- Amino acids are the building blocks of protein, which makes up muscle.
- There are 2 types of amino acids: nonessential and essential.
- Nonessential amino acids (NEAAs) can be made by the body while essential amino acids (EAAs) cannot be made by the body and must come from our diet.
- Because EAAs come from diet, BCAAs supplements are believed to increase availability of these 3 EAAs to reduce muscle soreness, speed up recovery, and increase muscle growth.



Do BCAAs Reduce Muscle Damage & Speed Recovery?

- Creatine kinase (CK) and lactate dehydrogenase (LDH) often increase in response to exercise, thus they're often indirect measures of muscle damage.
- Some studies show BCAAs reduce elevated creatine kinase (CK) levels that occur post-exercise, but did not affect lactate dehydrogenase (LDH) levels.
- BCAAs had the most effect with a high intake (>200 mg/kg/day) at a frequency of >2x/per day over a long period of supplementation (>10 days) prior to exercise vs. short-term, low intake.
- Chronic BCAA supplementation prior to exercise is more likely to show reduced exercise-induced muscle damage outcomes, including peak force loss, elevated CK levels and delayed onset muscle soreness. It's best for low-to-moderate muscle damage.

Do BCAAs Stimulate Muscle Growth?

- Intravenous (IV) infusion of BCAAs shows protein breakdown exceeded protein synthesis, which may have caused undesired muscle loss if sustained.
- Oral intake of BCAAs found a 22% higher rate of protein synthesis 4 h post-exercise compared to the placebo group. Yet, this increase is still 50% less than the rate of protein synthesis with intake of whey protein.
- Other supplements that contain a complete mix of amino acids (i.e. whey protein) show greater effect at increasing protein synthesis and may be a better option for muscle growth.



The Big Idea

- Chronic BCAA intake over 10 days prior to exercise is more likely to show potential effects on muscle recovery when compared to short-term intake.
- It remains unclear whether BCAAs trigger noticeable improvements in gains in protein synthesis and muscle growth. Whey protein, which includes a greater variety of amino acids, may be a better alternative to support these goals.
- Further research is needed to determine if BCAA supplements cause significant benefits to the extent that they are advertised.

