



BCAA

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Why are the BCAA (i.e. the branched-chain amino acids are valine, leucine, and isoleucine) so important? For proof, pay attention for just a nanosecond. In a study done by scientists in Taiwan, the influence of branched-chain amino acid (BCAA) supplementation was studied in male university students (19-22 years old) majoring in physical education.

Based on the previous swimming time of a 600 m crawl stroke, the participants were divided into two groups: placebo (12 g of glucose/day; in capsules) and BCAA (12 g of BCAA/day; in capsules: leucine 54%, isoleucine 19%, valine 27%) groups. The participants maintained a regular dietary intake (except the prescribed breakfast on day 15) and exercise activity at a moderate or low intensity during the 15-day study. A prescribed exercise program was performed on day 15. On day 15, they did 25 min of breast stroke exercise and a 600 m crawl stroke competition; Twenty hours after the competition a significant increase in the concentrations of urinary urea nitrogen, HP, and 3MH (methyl-histidine) was found in the placebo group, but not in the BCAA group. What does this mean? It means that the muscle protein breakdown or proteolysis that is caused by swimming was prevented by BCAA supplementation.[1] On a practical level, this would mean that if you have less muscle protein breakdown, you will have less muscle damage. So recovery is quicker and you can maintain or increase workout intensity in the days that follow. But preventing muscle protein breakdown isn't all that the BCAA do.

Have you heard of the central fatigue hypothesis? This 'brain' fatigue occurs when tryptophan is taken up by your brain make you feel tired and fatigued. But the BCAA 'compete' with tryptophan for transport into the brain. Therefore, oral intake of BCAA may reduce this uptake and thus delay fatigue.[2]

Another recent study found that six weeks' dietary leucine (one of the BCAA) supplementation significantly improved endurance performance and upper body power in outrigger canoeists.[3]

Bottom line: If you do any type of long duration exercise, consuming BCAA in may offset 'brain' fatigue as well as alleviate muscle protein breakdown. Taking a dose of approximately 10-15 grams of the BCAA prior to exercise may do this. Furthermore, leucine by itself may also have an ergogenic effect.

References

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- [3] Crowe, M.J., Weatherson, J.N. and Bowden, B.F. (2005) Effects of dietary leucine supplementation on exercise performance. *Eur J Appl Physiol*, 1-9.