TUFF™ Supps

BRANCH CHAIN AMINO ACIDS

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Branch chain amino acids (BCAA's) are one of the longest known of and **most researched** compounds in the fitness industry and have been used as a supplement since the 1980's in the body building community. Research has shown benefits include **building muscle**, **endurance**, **functional fitness** and **everyday health**.

DELICIOUS FLAVOURS

BCAA'S AND WHEY PROTEIN?

Whey protein powder is one of two protein complexes that come from milk and is a complete protein as it has all nine essential amino acids that your body needs. One of the most frequent questions then is which is better and do you need BCAA's if you are also having whey protein?

The short answer is that whey is the better choice, as it is a more complete protein and has optimal levels of BCAA's as well as other essential and non essential amino acids to facilitate muscle growth, recovery and maintenance. That being said, taking BCAA's and whey together in one meal will not cause any additional issues but may not result in additional benefits.

However, BCAA's can be an important supplement in situations where eating a meal or protein supplement is not practical or possible.

Such situations where BCAA supplementation is great is;

-When training in a fasted state, adding a BCAA supplement prior or during your workout will **assist muscle mass** from being lost and **assist recovery**.

-When **training for long durations** over 2 hours, where BCAA stores will be depleted.

-For periods during the day where eating your meal or shake is not practical, or long periods without eating. BCAA's will provide a great **boost for your muscles** to **recover** and **keep building**.

What Is the 2:1:1 Ratio of BCAA's?

A 2:1:1 ratio of BCAAs refers to the ratio of leucine, to isoleucine and valine. Therefore, supplementing with ⩾5 grams BCAAs in a 2:1:1 ratio, equates to 2.5 grams of leucine, 1.25 grams of isoleucine and 1.25 grams of valine. This is roughly the naturally occurring ratio found within a typical glass of milk. It's also roughly the same ratio found in skeletal muscle. Moreover, supplements that are derived from dairy products will also have naturally-occurring BCAAs.

STIMULATES MUSCLE PROTEIN SYNTHESIS

WHAT IS AN AMINO ACID?

Amino acids are named from their chemical structure which contains an amino group and an acidic carboxyl group.

Amino acids are small compounds that act as the building blocks of all protein. There are around 20 amino acids, of which nine are considered essential, meaning our body cannot synthesise them so they **must be consumed through foods in our diet**.

Furthermore, each amino acid has a distinct molecular structure and functions differently. Some attract water while some repel water. Some have a positive charge while others a negative charge.

WHAT ARE THE BENEFITS OF BCAA'S?

Reduced Muscle Pain or Delayed Onset Muscle Soreness (DOMS) – Research has shown that BCAA supplementation had a positive effect on reducing exercise induced muscle damage. Results were best when BCAA's were taken for at least 10 days and consumed prior to exercise.

Increase and Maintain Muscle Mass - The BCAA leucine activates a certain pathway in the body that **stimulates muscle protein synthesis**, which is the process of making muscle. Many people who go to the gym are looking to lose weight. It's common knowledge that exercise and a healthy diet are two of the main factors involved in weight loss. When shredding or losing weight, reduced calorie intake in your diet is one of the elements required to induce fat lass. In theory, your body will utilise its stored energy (i.e. fat) to fuel itself. However, it is a fine line between inducing using fat stores for fuel and where your body breaks down muscle for fuel. Supplementing with BCAAs can assist with **maintaining your lean muscle mass** and protect your sporting performance **whilst exercising in a calorific deficit**.

Reduce Fatigue – There is some evidence to suggest that BCAA supplementation can influence perceived exertion and mental performance during exercise. The basics are your muscles use BCAAs during exercise, causing levels in your blood to decrease. When blood levels of BCAAs decline, levels of the essential amino acid tryptophan in your brain increase. In your brain, tryptophan is converted to serotonin, a brain chemical that is thought to contribute to the development of fatigue during exercise.

OPTIMIM DOSAGE

Much of the research regarding BCAA supplementation and muscle growth highlights the importance of leucine. However, all three BCAAs need to be consumed together for effective absorption and utilisation within the body.

When supplementing with BCAAs, aim for a 5-10g serve to provide sufficient leucine for ensuring optimal benefits.

WHAT ARE BRANCH CHAIN AMINO ACIDS?

The term branch chain refers to three of the nine essential amino acids in particular, these being **Leucine**, **Isoleucine** and **Valine**, which make up a little more than one third of skeletal muscle. Branch chain refers to the branched side chain chemical structure of these amino acids.

Together, BCAA's have multiple functions within the human body, being;

-Making up roughly **40% of essential amino acids** in the body

-Are used as **energy sources** by the muscles during prolonged activity

-Leucine has a role in **fatty acid and lipid metabolism**

-Assisting **glucose uptake and transportation** in the body

-Involved in the process of **protein synthesis**

-As they are used by skeletal muscle during exercise they are depleted during intense training or prolonged activity

INCREASE & MAINTAIN MUSCLE MASS

NUTRITIONAL INFORMATION		
	PER 5G SERVE	PER 100G
ENERGY	85kj	1700kj
	20 Cal	406 Cal
BCAA 2:1:1 PROTEIN	5g	75g
FAT (TOTAL)	0.0g	0g
- SATURATED	0.0g	0g
CARBOHYDRATES	0.0g	0.0g
- SUGARS	0.0g	0.0g
SODIUM	5mg	100mg
LEUCINE	2.5g	50g
ISOLEUCINE	1.25g	25g
VALINE	1.25g	25g

Product Disclaimer: Formulated Supplementary Sports Food. Not suitable for children under 15 years of age or pregnant women. Should only be used under medical or dietetic supervision. This product is not a sole source of nutrition and should be consumed in conjunction with a nutritious diet and appropriate physical training or exercise program.

STRAWBERRY BLITZ | NATURAL | TROPICAL PUNCH