

PROTEINS & AMINO ACIDS

What are Proteins?

Proteins are macronutrients and are the most abundant organic substance in your body, making up at least 50% of your dry weight. Proteins are complex molecules composed of smaller subunits called amino acids.

What are Amino Acids?

Amino Acids are the building blocks for protein in our bodies.

"Role of Protein in the Body"

Structure: They make up the basic structure of bones, teeth, skin, fingernails, & hair.

Movement: They are found in skeletal and heart muscles, ligaments & tendons. **Transport of Essential Nutrients:** They help transport calcium into our bodies & glucose into our cells to use for energy.

Protection: Proteins form a barrier on our skin that protect it from the outside world, forms antibodies that fight infections, & helps form blood clots.

Fluid Balance: They regulate the distribution of fluid in the body's various compartments pH

Regulation: Proteins regulate pH in the body by taking up & releasing hydrogen ions.

Hormones: Most hormones in our body are made of proteins, which help the body communicate & coordinate complex process such as growth, metabolism & fertility.

Enzymes: Most enzymes are made of proteins, which help to speed up various crucial chemical reactions in the body.

Essential Vs. Nonessential Amino Acids

The body needs 20 different amino acids to make all of the proteins it requires to function. Amino acids are categorized as Essential or Nonessential. Branched-chain amino acids are essential nutrients that the body obtains from proteins found in food, especially meat, dairy products, and legumes. They include leucine, isoleucine, and valine. "Branched-chain" refers to the chemical structure of these amino acids. Generally BCAA are use after working out for recovery. BCAA are important in the maintenance of muscle tissue.

ESSENTIAL AMINO ACIDS

There are 9 essential amino acids, and these are unable to be made by the body & must be obtained in the diet they include the following: Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan, and Valine.

NON-ESSENTIAL AMINO ACIDS

These are the amino acids the body is able to produce on its own, and they are not required to be obtained from the diet

Protein Quality: Proteins can be complete or incomplete. Complete proteins contain all of the 9 essential amino acids, while incomplete proteins supply low amounts of one or more of the essential amino acids

Vegetarians are able to combine incomplete protein sources, such as beans & rice, via protein complementation in order to obtain all of the essential amino acids. Some foods, such as meat, poultry, fish, eggs, nuts & legumes contain more protein than fruits, veggies, & grains. Not all protein is created equally. The body is able to absorb more protein from meat than it is from vegetarian sources.

Food Sources of Protein:

Meat

Steak → 9 oz = 62 g

Poultry → 6 oz = 36 g

Salmon → 5 oz = 30 g

Vegetarian

2% Milk → 8 oz = 7 g

Egg → 1 egg = 6 g

Vegan

Almonds → 1 oz = 6 g

Black Beans → 1 c = 15 g

Quinoa → 1 c = 8 g

Protein Supplements

Whey: Whey protein comes from milk; it is the liquid that separates from the curd. It is a quickly digested source of protein that contains branched chain amino acids (BCAAs) that play a major role in muscle growth & recovery following resistance and endurance training. May reduce appetite & promote fat loss

Pea Protein: A vegan option that contains high amounts of 8 of the 9 essential amino acids. High in BCAAs. Has been shown to promote fullness & increase muscle growth as effectively as animal-based sources.

Casein: Casein is also a dairy protein, but it is digested & absorbed slowly resulting in a gradual, steady exposure of the muscles to amino acids, reducing the rate of muscle protein breakdown. Promotes muscle growth & speeds up metabolism.

Hemp Protein: Another vegan plant-based protein that is rich in omega 3 fatty acids & many essential amino acids. Improves heart health, boosts immunity, reduces sugar cravings & cleanses the colon.

Brown Rice Protein: Plant-based and packed with antioxidants & nutrients that support weight loss. Reduces the glycemic response (rise in blood sugar) & improves liver function.

(Information Not approved by the FDA, the above is not intended to diagnose, treat or cure disease, Always Consult with Your Physician.)

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