

## **Protein**



Proteins are part of every cell, tissue, and organ in our bodies. These body proteins are constantly being broken down and replaced. The protein in the foods we eat is digested into amino acids that are later used to replace these proteins in our bodies.

There are many different proteins in your body, and they perform different functions. Proteins functions include:

- Contributing to [enzyme](#) activity that promotes chemical reactions in the body
- Signaling cells what to do and when to do it
- Transporting substances around the body
- Keeping fluids and pH balanced in the body
- Serving as building blocks for hormone production
- Helping blood clot
- Promoting antibody activity that controls immune and allergy functions
- Serving as structural components that give our body parts their shapes

Protein is found in the following foods:

- meats, poultry, and fish
- legumes (dry beans and peas)
- tofu
- eggs
- nuts and seeds
- milk and milk products

- grains, some vegetables, and some fruits (provide only small amounts of protein relative to other sources)

As we mentioned, most adults in the United States get more than enough protein to meet their needs. It's rare for someone who is healthy and eating a varied diet to not get enough protein.

What are the types of protein?

Proteins are made up of amino acids. Think of amino acids as the building blocks. There are 20 different amino acids that join together to make all types of protein. Some of these amino acids can't be made by our bodies, so these are known as *essential* amino acids. It's *essential* that our diet provide these.

In the diet, protein sources are labeled according to how many of the essential amino acids they provide:

- A *complete* protein source is one that provides all of the essential amino acids. You may also hear these sources called *high quality proteins*. Animal-based foods; for example, meat, poultry, fish, milk, eggs, and cheese are considered complete protein sources.



- An *incomplete* protein source is one that is low in one or more of the essential amino acids. *Complementary* proteins are two or more incomplete protein sources that together provide adequate amounts of all the essential amino acids.



For example, rice contains low amounts of certain essential amino acids; however, these same essential amino acids are found in greater amounts in dry beans. Similarly, dry beans contain lower amounts of other essential amino acids that can be found in larger amounts in rice. Together, these two foods can provide adequate amounts of all the essential amino acids the body needs.

## Quick Q& A

### **Is it true that complementary proteins must be eaten together to count as a complete protein source?**

In the past, it was thought that these complementary proteins needed to be eaten at the same meal for your body to use them together. Now studies show that your body can combine complementary proteins that are eaten within the same day.<sup>1</sup>

How much protein do I need?

Maybe you've wondered how much protein you need each day. In general, it's recommended that 10–35% of your daily calories come from protein.

Here are examples of amounts of protein in food:

- 1 cup of milk has 8 grams of protein
- A 3-ounce piece of meat has about 21 grams of protein
- 1 cup of dry beans has about 16 grams of protein
- An 8-ounce container of yogurt has about 11 grams of protein

Added together, just these four sources would meet the protein needs of an adult male (56 grams). This doesn't count all the other foods that add smaller amounts of protein to his diet.

Rather than just focusing on your protein needs, choose an overall healthy eating plan that provides the protein you need as well as other nutrients.



To help you make lower-fat protein choices —

- Choose meats that are leaner cuts and trim away any fat you can see. For chicken and turkey, remove the skin to reduce fat.
- Substitute pinto or black beans for meat in chili and tacos.
- Choose low-fat or fat-free milk and yogurt.
- Choose low-fat or fat-free cheese.
- Choose egg whites or pasteurized egg white products.

