

What Are Proteins?

Proteins are made up of long chains of amino acids. These amino acids serve as building materials for all our bodies' cells and tissues (including our muscles, skin, bone, heart, liver, and other organs). Amino acids also are used to make many vital compounds in the body such as enzymes (for digesting food), hormones (for regulating metabolism), and antibodies (for fighting infection). Without adequate amino acids from protein in our diet, we begin to break down our own bodies' protein (i.e. muscles and organs) to get the amino acids we need.

How Much Protein Do I Need?

The recommended dietary allowance (RDA) for protein is based on how much you weigh. The RDA is about 0.4 grams protein for every pound of body weight.

Examples:

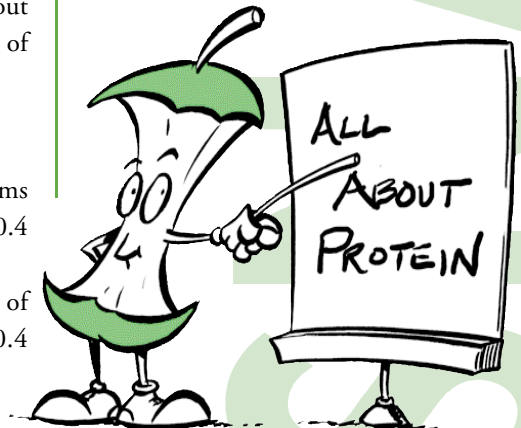
- 120 lb. woman needs 48 grams of protein per day (120 lb. x 0.4 g./lb.)
- 160 lb. man needs 64 grams of protein per day (160 lb. x 0.4 g./lb.)

Some individuals need more protein than the RDA. Growing children and teens, athletes, and dieters who are restricting their calorie intake may require up to two times the RDA. You can easily meet your protein needs by choosing a balanced diet with approximately 10-35% of your total daily calories coming from protein.

Where Is Protein in Foods?

The two food groups that are the richest sources of protein are the meat and alternatives group and the milk group. One ounce of meat, chicken, or fish and one cup of milk provides 7-8 grams of protein. One egg, 1/2 cup of beans, or 1/4 cup of nuts is equivalent in protein to one ounce of meat.

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Breads, cereals, grains, and vegetables also provide some protein (about two to three grams per one slice of bread or 1/2 cup of cooked grains or vegetables).

Do I Need to Eat Protein at Every Meal?

It's a good idea to try to include a protein-rich food with each meal. Not only will this help you meet your protein needs, but it also has other benefits:

- Protein gives satiety to meals, so that you feel full longer. Protein takes longer to digest, and so it enters and leaves your blood more slowly and steadily.
- Protein keeps you feeling more alert, so you don't feel sluggish after eating. Protein prevents excessive production of serotonin (a brain chemical that causes sleepiness). When carbohydrates are eaten alone, serotonin production and sleepiness increase.

Is It Better to Eat Animal or Plant Proteins?

Both are good sources of protein. Animal protein is considered "complete" because it contains all the essential amino acids your body needs. Most plant proteins are "incomplete" because they are missing one or more of these essential amino acids. However, by consuming a

variety of plant proteins throughout the day (e.g. beans, grains, nuts, and vegetables), it is easy to get the full complement of essential amino acids.

Will Eating More Protein Help Me Build More Muscle?

No. Heavy weight training, not protein, is the key to developing bigger muscles. If you eat more calories to fuel this type of training, you most likely will get the extra protein you need for muscle building.

Keep in mind that excess protein cannot be stored in your body for later use. Instead, it is burned inefficiently for fuel or stored in the body as fat. Also, excess protein can be detrimental to your health:

- It can overwork your kidneys.
- It can dehydrate you.
- It can cause excessive calcium loss from your bones.
- It can increase your risk for heart disease (since many high-protein animal foods are also high in saturated fat).

To learn more about proteins, please visit www.snac.ucla.edu.



Be a Protein Pro

PROTEINS - ESSENTIAL LINKS TO GOOD HEALTH

Proteins are made up of long chains of amino acids. These amino acids serve as building materials for our bodies' cells and tissues (including our muscles, skin, bone, heart, liver, and other organs). Amino acids also are used to make many vital compounds in the body such as enzymes (for digesting food), hormones (for regulating metabolism), and antibodies (for fighting infection). Without adequate amino acids from protein in our diet, we begin to break down our own bodies' protein (i.e., muscles and organs) to get the amino acids we need. This is NOT desirable.

How Much Protein Do I Need?

The recommended dietary allowance (RDA) for protein is based on how much you weigh. The RDA is about 0.4 grams of protein for every pound of body weight.

Examples: A 120 lb. woman needs 48 g. protein per day (120 lb. x 0.4 g./lb.)

A 160 lb. man needs 64 g. protein per day (160 lb. x 0.4 g./lb.)

Some individuals need more protein than the RDA. Growing children and teens, athletes, and dieters who are restricting their calorie intake may require up to two times the RDA. Use the table below to estimate your daily protein needs.

RECOMMENDED GRAMS OF PROTEIN PER DAY (Based on activity level and body weight)

	g./lb.	110 lb.	130 lb.	150 lb.	170 lb.	190 lb.	210 lb.
Sedentary Person	0.4	44	52	60	68	76	84
Endurance Athlete (runners, cyclists)	0.6	66	78	90	102	114	126
Strength Athlete (building muscle)	0.8	88	104	120	136	152	168

As you can see, active individuals--especially those trying to build muscle--do need more protein than sedentary persons. But, contrary to what many body building magazines and Internet sites suggest, protein powders and amino acid supplements are unnecessary and a waste of money. It is very easy to meet your protein needs with moderate portions of real food. In fact, the average adult consumes almost twice the RDA for protein without even trying.

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Which Foods Are Good Sources of Protein?

Proteins from animal sources are called “complete proteins” because they contain all the essential amino acids that the human body needs. Proteins from plant sources are “incomplete proteins” because they lack one or more of these essential amino acids. The one exception is protein from soybeans which is “complete.” Incomplete proteins may be combined to form “complete” proteins by eating different combinations at the same meal or throughout the day (e.g., beans and rice or peanut butter on whole wheat bread).

PROTEIN FOUND IN PROTEIN-RICH FOODS

Use the list below to find the protein content of some commonly eaten foods.

Animal Sources

- Lean Meat and Poultry, 3 oz. = 24-27 grams
- Fish and Shellfish, 3 oz. = 18-22 grams
- Milk and Yogurt, 1 cup = 8 grams
- Cheese, 1 oz. slice = 7 grams
- Cottage Cheese, 3/4 cup = 23 grams
- Eggs, 1 whole or 2 egg whites or 1/4 cup egg substitute = 7 grams

Plant Sources

- Soy Foods
 - Tempeh, 4 oz. (1/2 cup) = 24 grams
 - Firm Tofu, 4 oz. = 10 grams
 - Soy Burger, 1 patty = 11-13 grams
 - Soy Milk, 1 cup = 7-10 grams
- Lentils and Beans, 1 cup = 15 grams
- Nuts, 1 oz. (1/4 cup) = 6 grams
- Nut Butter, 2 Tbsp. = 8 grams
- Vegetables, 1/2 cup cooked = 2 grams
- Grains
 - Bread, 1 slice = 3 grams
 - Rice, Pasta, Cereal; 1/2 cup = 3 grams

Using USDA's MyPyramid as your guide, it's easy to get adequate protein to meet your daily health and fitness needs. Consider this, just two, 3 oz. servings of lean meat or poultry (each serving the size of a deck of cards), plus two cups of milk, along with grains and vegetables, delivers about 90 grams of protein.