**What It Is**

Protein is found in foods from both plants and animals. Protein is made up of hundreds or thousands of smaller units, called amino acids, which are linked to one another in long chains. The sequence of amino acids determines each protein’s unique structure and its specific function.

There are twenty different amino acids that can be combined to make every type of protein in the body. These amino acids fall into two categories:

- **Essential amino acids** are required for normal body functioning, but they cannot be made by the body and must be obtained from food. Of the twenty amino acids, nine are considered “essential.”
- **Nonessential amino acids** can be made by the body from essential amino acids consumed in food or in the normal breakdown of body proteins. Of the twenty amino acids, eleven are considered “nonessential.”

**Where It Is Found**

Protein is found in a variety of foods, including:

- Beans and peas
- Dairy products
- Eggs
- Grains and vegetables (these generally provide less protein than is found in other sources)
- Meats and poultry
- Nuts and seeds
- Seafood (fish and shellfish)
- Soy products

**What It Does**

- Protein provides calories, or “energy,” for the body. Each gram of protein provides 4 calories.
- Protein is a component of every cell in the human body and is necessary for proper growth and development, especially during childhood, adolescence, and pregnancy.
- Protein helps your body build and repair cells and body tissue.
- Protein is a major part of your skin, hair, nails, muscle, bone, and internal organs. Protein is also found in almost all body fluids.
- Protein is important for many body processes, such as blood clotting, fluid balance, immune response, vision, and production of hormones and enzymes.
- Protein foods are also important sources of vitamins and minerals such as B vitamins (for example, niacin, riboflavin, vitamin B₁₂, and vitamin B₁₃), choline, copper, iron, phosphorus, selenium, vitamin D, vitamin E, and zinc.
Protein: A Closer Look

Dietary proteins are not all the same. They are made up of different combinations of amino acids and are characterized according to how many of the essential amino acids they provide.

- **Complete proteins** contain all of the essential amino acids in adequate amounts. Animal foods (such as dairy products, eggs, meats, poultry, and seafood,) and soy are complete protein sources.

- **Incomplete proteins** are missing, or do not have enough of, one or more of the essential amino acids, making the protein imbalanced. Most plant foods (such as beans and peas, grains, nuts and seeds, and vegetables) are incomplete protein sources.

- **Complementary proteins** are two or more incomplete protein sources that, when eaten in combination (at the same meal or during the same day), compensate for each other's lack of amino acids. For example, grains are low in the amino acid lysine, while beans and nuts (legumes) are low in the amino acid methionine. When grains and legumes are eaten together (such as rice and beans or peanut butter on whole wheat bread), they form a complete protein.

Health Facts

- Most Americans get the recommended amounts of protein to meet their needs. However, many individuals do not eat enough seafood and dairy products.

- Diets lower in meats and processed meats and processed poultry can reduce the risk of developing cardiovascular disease, type 2 diabetes, obesity, and some types of cancers.

- The *Dietary Guidelines for Americans* recommends eating a variety of *nutrient-dense protein foods* from both plant and animal sources. The guidelines also note that processed meats and poultry can be included in a healthy diet when consumed within recommended limits for calories, sodium, saturated fat, and added sugars.

*Nutrient-Dense: Defined*

Nutrient-dense foods and beverages contain vitamins, minerals, dietary fiber, and other beneficial substances that may have positive health effects. They are also naturally lean or low in saturated fat and have little or no added saturated fat, sugars, refined starches, and sodium. Examples of nutrient dense foods are: beans and peas, eggs, fat-free (skim) and low-fat (1%) dairy products, fruits, lean meats and poultry, seafood, unsalted nuts and seeds, vegetables, and whole grains.

Action Steps for Monitoring Protein in Your Diet

Use the Nutrition Facts Label as your tool for monitoring consumption of protein, while choosing protein foods that are lower in saturated fat. The Nutrition Facts Label on food and beverage packages shows the amount in grams (g) of protein in one serving of the food.

Protein generally has no Percent Daily Value (%DV), so use the amount of grams (g) as a guide. Food manufacturers may voluntarily list the %DV of protein per serving on the Nutrition Facts Label, but they are required to list the %DV of protein if a statement is made on the package labeling about the health effects or the amount of protein (for example, “high” or “low”) contained in the food.

The Daily Value for protein is 50 g per day. This is based on a 2,000 calorie diet — your Daily Value may be higher or lower depending on your calorie needs.

- Choose a variety of nutrient-dense protein foods, such as beans and peas, eggs, fat-free (skim) or low-fat (1%) dairy products, lean meats and poultry, seafood, soy products, and unsalted nuts and seeds.

- Choose seafood and plant sources of protein (such as beans and peas, soy products, and unsalted nuts and seeds) in place of some meats and poultry.

- Substitute fat-free (skim) or low-fat (1%) dairy products (such as cheese, milk, and yogurt) or fortified soy beverages for regular/full-fat (whole) dairy products.

- Select fresh meats, poultry, and seafood, rather than processed varieties.

- Trim or drain fat from meats before or after cooking and remove poultry skin before cooking or eating.

- Try baking, broiling, grilling, or steaming. These cooking methods do not add extra fat.