

## PROTEIN—THE BODY'S ARCHITECT

### How Does Your Body Use Protein?

As the body's "architect," protein plays a vital role in building and maintaining body structures, including muscles, tendons, ligaments, circulatory system, brain, immune system, skin and other organs. As these structures slough off old cells, they need a regular supply of "fresh" protein to build new cells. Without protein, the structures' tissue starts to break down.

Taking a closer look, all protein is made up of amino acids. When we eat protein-rich foods, our body breaks down the protein into its respective amino acids and rebuilds them in specific sequences to form the protein it needs. The number and type of amino acids and the shape of the sequences determine the protein's function in the body. Some proteins have active functions, like enzymes to perform chemical reactions in your body while other proteins boast structural functions like collagen and elastin to form skin and help protect vital organs.

The bottom line: If you eat the right foods, your body can make most of the amino acids it needs to function properly. However, the body cannot make nine specific amino acids (called essential amino acids), so it relies on your daily food intake for its necessary supply. That's why it's so important to choose a variety of protein-rich foods.

**FYI:** The nine essential amino acids include Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan and Valine.

### Where Can You Find Protein?

Although you can find protein in nearly all the food groups (milk, meat, starch and vegetable), not all of these sources contain the same amount or quality of protein. Basically, proteins fall into one of two categories:

#### Complete, high-quality proteins

This type of protein contains all the essential amino acids in sufficient quantities. You can find complete proteins in animal foods, such as meat, poultry, fish, dairy products and eggs. These foods can satisfy the body's daily protein requirements.

#### Incomplete proteins

Grains, cereals and vegetables contain incomplete protein which lack one or more of the essential amino acids. But, by eating a meal with two incomplete proteins containing different amino acids, you can get all the protein you need in sufficient quantities. This is known as mutual supplementation. Such complementary proteins provide the basis for planning nutritious vegetarian diets. For example, rice is very low in Lysine but high in Methionine, while beans are low in Methionine but a good source of Lysine. Served together, rice and beans complement one another to meet the body's protein needs.

### How To Make Wise Protein Choices

When choosing the best protein sources, consider what comes along for the ride in addition to protein:

#### Beef

An excellent source of protein, B-vitamins and iron, but also contains cholesterol and saturated fat.

**Best Choice:** Choose lean cuts of beef, remove visible fat and focus on healthy cooking techniques to highlight the merits of beef and downplay its vices.

## Pork

Provides the richest animal source of thiamin (a B-vitamin) and is a valuable source of zinc and iron, but includes many high-fat cuts.

**Best Choice:** Choose from low-fat or medium-fat meat food lists, such as loin or leg meat (including cuts such as pork loin, tenderloin, center cut loin chops and selected leg roast and steaks). Eat rarely from “high-fat danger zones” such as bacon and sausage.

## Poultry

Both chicken and turkey are naturally low in fat, but the skin (and unhealthy cooking methods) can “fatten” poultry up.

**Best Choice:** Stay away from the deep fryer when preparing poultry, and remove the skin before eating it. For healthy meals, bake, broil, stir fry or grill poultry. Note: White meat on the chicken breast contains half the fat of dark meat on the legs and thigh. Like chicken, turkey breast also contains less fat than dark meat.

## Fish

Most types are naturally low in fat and cholesterol, but unhealthy preparation methods can quickly turn fish into a high-fat food.

**Best Choice:** Choose fresh or frozen fish, and bake, broil or steam it for low-fat meals. Avoid pan-fried or breaded fish sticks, which often give you more breading and fat than fish. And, although shellfish, including shrimp, lobster and scallops do contain more cholesterol than their finned cousins, they’re also a very low-fat choice. Include some fish rich in heart healthy omega-3 fatty acids. Examples include salmon and tuna.

## Dairy

Products such as milk and yogurt are good sources of protein, calcium, and vitamins A & D, but they still contain some fat—mostly saturated fat.

**Best Choice:** Choose healthy varieties of milk, cheese and yogurt by skimping on the fat content while still reaping the benefits of their protein, calcium and vitamin content. Look for items labeled fat-free, part skim, reduced fat or low fat.

## Eggs

Also a very good sources of high-quality protein, but the yolk contributes a significant amount of fat and cholesterol to your diet.

**Best Choice:** Use only the egg white, which contains most of the protein, and none of the yolk. Tip: You can also use the “yolkless” egg substitutes available in grocery stores.

## Legumes

Those which come from a family of plant foods, provide protein, contain no cholesterol and are high in fiber, low in fat, and rich in complex carbohydrates, B-vitamins, iron, magnesium and zinc. But legumes are an incomplete protein because they lack the essential amino acid methionine.

**Best Choice:** Pair legumes with grains or rice, which are good sources of Methionine, to rival the protein found in a steak. Choose legumes such as soybeans, kidney beans, split peas, black eyed peas, chickpeas, navy beans, lentils and nuts. Note: A study has shown that soy protein contains added health benefits: people with high cholesterol who substituted soy protein for animal protein had lower levels of total cholesterol, LDL cholesterol and triglycerides.