

# Where Do You Get Your Protein?

## Everything You Need To Know To Answer This Frequently Asked Question

By Alan Goldhamer, D.C.

The role and need for protein is a much misunderstood topic in our society. In this article you will learn how to better understand the role of protein in your diet.

First, let me provide you with a rather technical definition of a protein. A protein is any one of a group of complex organic, nitrogenous compounds, which form the principal constituents of the cell protoplasm. In other words, proteins make up the "guts" of the cells that are the building blocks of our body.

Many of the structural and functional components of our cells are made up of various proteins.

In humans, proteins function in many capacities. They act as organic catalysts in the form of enzymes, as messengers such as peptide hormones, as antibodies that protect us from the effect of microorganisms, and as carrier agents in our blood to transport oxygen and other gases, as well as forming structural components of the cell.

The exact human needs for dietary protein are not known. According to The New England Journal of Medicine: "As for human protein requirements, the pendulum is still swinging because our knowledge of precise human requirements and the inter-relationships among them is far more fragmentary and tentative than generally realized."

### Amino Acids

All proteins are composed of amino acids. An amino acid is any one of a class of organic compounds containing a certain amino and carboxyl group. The amino acids are the chief

building blocks of proteins; that is, proteins are made by putting various amino acids together into specific combinations.

**Although there are dozens of naturally occurring amino acids, the proteins in our body are derived from just twenty.**

Of these twenty amino acids, our body is able to adequately synthesize twelve internally. The other eight amino acids must be derived externally; that is, we must get them in our diet. These eight amino acids that we must get in our diet are called essential amino acids.

Although our body can recycle the essential amino acids, it cannot produce them. Therefore, the diet must provide a supply of them so that the body has enough raw materials in the form of essential amino acids to replace the normal, everyday losses.

These obligatory losses involve the use of amino acids in the production of products that are not recycled, such as purine bases, creatine, and epinephrine. These are degraded to uric acid, creatinine, and epinephrine-and excreted.

Without an outside source of amino acids, the body's reserves of protein would become depleted, and this starvation process would eventually lead to death.

We get these essential amino acids by eating foods that contain them. But eating is not the only consideration.

**The proteins of plants and animals are useless to us unless our digestive system is able to break them down into their constituent amino acids and absorb them.** (Read The Importance Of Enzymes article)

Our digestive systems are not designed to absorb the very large protein molecules, only the smaller amino acids and peptides. Once absorbed, these amino acids become the raw materials from which our body can synthesize the many proteins that serve so many vital functions.

## Protein Metabolism

### Let's look at the actual metabolism of protein:

The digestion of dietary protein begins with the chewing process of live whole foods entering your mouth. This starts the digestive process within your body and the digestion continues with the food enzymes in the upper portion of the stomach for 30 to 45 minutes. When the food enters the so-called lower portion of the stomach it is exposed to the enzyme pepsin, which is secreted in the digestive juices and is activated by hydrochloric acid. Contrary to popular opinion, hydrochloric acid does not digest protein, it merely creates an appropriate media in which pepsin can work. Also food enzymes enter into a dormant state while the food is exposed to the hydrochloric acid.

This secretion of hydrochloric acid is followed by the production of other protein digestion factors or proteolytic enzymes by the pancreas and the mucosal cells of the small intestine.

**Once the large dietary protein molecules are broken down to their constituent amino acid components, absorption can take place through the mucosal cells of the small intestine.**

Amino acids from dietary digestion are not alone, because the ingestion of food-even non-nitrogenous food-stimulates the digestive tract to secrete endogenous protein, derived from the sloughing of intestinal cells and used up digestive enzymes. These recycled proteins are a rich source of essential amino acids.

Studies by Nasset show that regardless of the amino acid mix of the meal, the intestinal tract maintains a remarkably similar ratio of essential amino acids.

This mixing of endogenous and dietary protein is a key concept. Until this was discovered, it was generally believed that in order to absorb and utilize the essential amino acids in the diet, the diet must contain all the amino acids in certain proportions and presented all at the same time.

This mistaken belief dates back to 1914 when Osborn and Mendel studied the protein requirements of laboratory rats. They found that rats grew faster on animal sources of protein than on vegetable sources. This was followed up by studies by Elman in 1939 using purified and isolated amino acids in rats.

We have learned a lot since 1939. But even today many so-called nutrition experts continue to advance this ancient concept, and many of the protein combining and protein quality arguments are based on this misconception.

According to Nasset, writing in the Journal of the American Medical Association, this mixing of endogenous protein is the body's way of regulating the relative concentrations of the amino acids available for absorption.

We now know that the body is quite capable of taking incomplete proteins and making them complete by utilizing this recycling mechanism. It is now clear that more than 200 grams of endogenous protein is added to the 30 to 100 grams of daily dietary protein.

I would like to point out that the earlier research, which is still so often used to support the mistaken idea that all the essential amino acids must be present at the same time at each meal for amino acids to be absorbed, did not even deal with amino acid absorption. It falsely stated that the essential amino acids must be present at the site of protein synthesis, within the cells of the liver, kidney or muscle. Since the recycling effect of the body's amino acids was not yet understood, the assumption was made that the only source of protein was from the diet.

Not only do we get the majority of our amino acids from recycling, but in 1961 Bender showed that an animal was able to maintain slow growth with proteins completely lacking one essential amino acid.

These concepts have been confirmed by Monroe and are reported in the 1983 edition of Modern Nutrition in Health and Disease by Goodheart and Shills.

The important fact here is that the majority of amino acids absorbed from the intestinal tract are derived from recycled body protein. We are in a sense all flesh eaters, a form of self-cannibalization.

Once absorbed, this combination of endogenous and dietary protein passes by way of the portal vein to the liver. The liver monitors the absorbed amino acids and adjusts the rate of their metabolism according to bodily needs.

## How Much Protein Do We Need?

We must have a source of protein to replace the amino acids that are not recycled. The question is, "How much?"

This question has been a hotbed of scientific-and not so scientific-debate since 1830 when a Dutch scientist named Mulder coined the term protein.

In 1865 Playfair in England presented studies that led him to believe that the diet of the average healthy man should contain 119 grams of protein a day.

Later a man named Voit studied Munich brewery workers and found they consumed 190 grams of protein a day. Based on his studies of these brewery workers, Voit advocated 125 grams of protein per day. It was not until 1913 that Hindhede looked up the mortality rates of Voit's brewery workers and discovered that most of these individuals died very young.

In 1947 the University of Rochester laboratories had a project to establish the essential amino acid requirements of the adult male rat. In order to keep the intake of calories and nitrogen constant, the animals were fed a synthetic diet by means of a stomach tube. Attempts to relate extrapolations made from this type of study to humans are obviously questionable.

More recent studies of protein metabolism in man have been made using nitrogen balance data as a parameter. Nitrogen balance studies measure the total amount of nitrogen in the form of dietary protein that is consumed and compares that with

the total amount of nitrogen excreted in the urine, feces, integumental losses, sweat, hair as well as semen, menstrual fluid and even the breath. The idea is that if the amount of protein eaten is as much as that given off, the body must be getting enough to maintain balance.

### **All natural foods-from lettuce to nuts-contain varying amounts of protein.**

If a varied diet sufficient in calories is consumed, it is virtually impossible to get an inadequate protein intake.

**Most conventional nutritional thinking ignores the tremendous contribution of plant foods to our protein needs.** Most conventional diets contain only token amounts of these foods, relying instead on high fat, high protein animal products and a conglomeration of refined carbohydrates.

## Are We Built to Eat Meat?

Even a brief look at comparative anatomy illustrates quite clearly that man is not designed to be a carnivore. And just because our bodies have a vital need for a substance does not mean that twice or three times our need is even better. **In the case of protein, the concept that more is better is dead wrong.**

It is interesting to note that most of our teeth are flat for grinding grains and vegetables-and that our hands are better designed for gathering than for tearing flesh apart. Our saliva contains alpha-amylase whose sole purpose is the digestion of carbohydrates. Alpha-amylase is not found in the saliva of carnivorous animals.

Carnivores have the capacity to eliminate large amounts of cholesterol, whereas our livers can excrete only limited amounts. Like herbivores, we sweat to cool our bodies rather than pant like carnivores.

**Of all animals that include meat in their diet, man is the only animal that is unable to break down uric acid to allantoin.**

This is due to the fact that man does not possess the necessary enzyme uricase. This leads to an

increased possibility of an accumulation of uric acid in the body when animal products are eaten. (Uric acid is an intermediary product of metabolism that is associated with various pathological states, including gout.)

### **Problems with Meat**

Compared to vegetarians, meat eaters have been shown to have massively increased levels of bile acids.

#### **Animal products are a source of parasites and contamination.**

Uncooked or improperly cooked meat, fish, fowl and dairy products are the source of parasites such as Trichinosis found in pork and pork-contaminated beef, bacterial infection from Salmonellosis found in milk products and other contaminated animal products. There are multitudes of chemical agents such as carcinogenic nitrates, etc. that are added to animal products to slow down their decay, improve their color and alter their taste. Most animal products undergo significant heat treatment before consumption.

#### **The use of heat presents serious problems. For example, a one-kilogram charbroiled steak contains as much of the cancer-causing benzopyrene as from 600 cigarettes.**

Methyl choanthrene is another example of a carcinogenic substance derived from heated meat. The heating of any fat, including the fats in animal products, can cause peroxidation and the formation of free radicals.

Free radicals are extremely reactive molecules that are capable of damaging almost any cell of the body. Free radicals have been shown to cause alterations to collagen and elastin tissue leading to premature aging of the skin and connective tissue. They contribute to the accumulation of intracellular debris such as lipofuscin and creoid and are thought to be an important component in the aging process.

#### **In addition to parasites, bacterial infestation,**

#### **toxic poisons, carcinogenic agents, and free radicals, animal products all suffer from the problem of biological concentration.**

Animals consume large quantities of grain, grass, etc., which are to a greater or lesser extent contaminated with herbicides, pesticides, and other agents. In addition, animals are often fed antibiotics and treated with other drugs and toxic agents. These poisons concentrate in the fat of the animal and are present in highly concentrated amount in an animal's milk and flesh. This biological concentration of poisons poses significant threats to the health of humans who consume these concentrated sources of poisons.

As if this weren't enough, animal products are completely devoid of fiber and are extremely high in protein and in spite of what millions of dollars of meat and dairy industry advertising would have you believe it is excess, not inadequate protein, that is the threat to health.

Excess protein intake has been strongly implicated as a causal agent in many disease processes including kidney disease, various forms of cancer, osteoporosis and a host of autoimmune and hypersensitivity disease processes.

If animal products are included in the diet in significant quantities, it is virtually impossible to design a diet that is consistent with the overwhelming bulk of evidence in the scientific literature dealing with nutrition.

It is ironic that the chief argument used to promote the use of animal products-that is, the purported need for large quantities of protein-is the greatest reason for avoiding them.

A diet of sufficient caloric intake derived from fresh fruits and vegetables with the variable addition of nuts, whole grains and legumes will provide an optimum intake of protein and other nutrients, 30-70 grams per day, depending upon the particular foods eaten.

For more information visit  
[www.healthpromoting.com](http://www.healthpromoting.com)

**WARNING:**

The Information in these articles are not intended to replace medical advice or treatment. Questions about symptoms, specific dietary needs and medications, general or specific, should be discussed with your physician. The information in this article is for informational purposes only, and is not medical advice or a substitute for a physician's consultation and/or examination.

Bring freedom and choice back to medicine by supporting [Americans for Free Choice in Medicine.](http://www.afcm.org)  
[Http://www.afcm.org](http://www.afcm.org)