The Protein Myth

PHYSICIANS COMMITTEE FOR RESPONSIBLE MEDICINE

5100 WISCONSIN AVE., N.W., SUITE 400 • WASHINGTON, DC 20016
PHONE (202) 686-2210 • FAX (202) 686-2216 • PCRM@PCRM.ORG • WWW.PCRM.ORG

The Building Blocks of Life

Protein is an important nutrient required for the building, maintenance, and repair of tissues in the body. Amino acids, the building blocks of protein, can be synthesized by the body or ingested from food. There are 20 different amino acids in the food we eat, but our body can only make 11 of them. The 9 essential amino acids, which cannot be produced by the body, must be obtained from the diet. A variety of grains, legumes, and vegetables can provide all of the essential amino acids our bodies require. It was once thought that various plant foods had to be eaten together to get their full protein value, otherwise known as protein combining or protein complementing. We now know that intentional combining is not necessary to obtain all of the essential amino acids.[1] As long as the diet contains a variety of grains, legumes, and vegetables, protein needs are easily met.

Protein Requirements

With the traditional Western diet, the average American consumes about double the protein her or his body needs. Additionally, the main sources of protein consumed tend to be animal products, which are also high in fat and saturated fat. Most individuals are surprised to learn that protein needs are actually much less than what they have been consuming. The Recommended Dietary Allowance (RDA) for protein for the average, sedentary adult is only 0.8 grams per kilogram of body weight.[2] To find out your average individual need, simply perform the following calculation:

Body weight (in pounds) x 0.36 = recommended protein intake

However, even this value has a large margin of safety, and the body's true need is even lower for most people. Protein needs are increased for women who are pregnant or breastfeeding. In addition, needs are also higher for very active persons. As these groups require additional calories, increased protein needs can easily be met through larger intake of food consumed daily. Extra serving of legumes, tofu, meat substitutes, or other high protein sources can help meet needs that go beyond the current RDA.

The Problems with High-Protein Diets

High-protein diets for weight loss, disease prevention, and enhanced athletic performance have been greatly publicized over recent years. However, these diets are supported by little scientific research. Studies show that the healthiest diet is one that is high in carbohydrate, low in fat, and moderate in protein. Increased intake of whole grains, fruits, and vegetables is recommended for weight control and preventing diseases such as cancer[3] and heart disease.[4] High-carbohydrate, low-fat, moderate-protein diets are also recommended for optimal athletic performance.[5] Contrary to the information on fad diets currently promoted by some popular books, a diet that is high in protein can actually contribute to disease and other health problems.

- **Osteoporosis.** High protein intake is known to encourage urinary calcium losses and has been shown to increase risk of fracture in research studies.[6, 7] Plant-based diets, which provide adequate protein, can help protect against osteoporosis. Calcium-rich plant foods include leafy green vegetables, beans, and some nuts and seeds, as well as fortified fruit juices, cereals, and non-dairy milks.

- **Cancer.** Although fat is the dietary substance most often singled out for increasing one's risk for cancer, animal protein also plays a role. Specifically, certain proteins present in meat, fish, and poultry, cooked at high temperatures, especially grilling and frying, have been found to produce compounds called heterocyclic amines. These substances have been linked to various cancers including those of the colon and breast.[8-10]

  Long-term high intake of meat, particularly red meat, is associated with significantly increased risk of colorectal cancer. The 1997 report of the World Cancer Research Fund and American Institute for Cancer Research, Food, Nutrition, and the Prevention of Cancer reported that, based on available evidence, diets high in red meat were considered probable contributors to colorectal cancer risk. In addition, high-protein diets are typically low in dietary fiber. Fiber appears to be protective against cancer.[3] A diet rich in whole grains, fruits, and vegetables is important in decreasing cancer risk,[3] not to mention adding more healthful sources of protein in the diet.

- **Impaired Kidney Function.** When people eat too much protein, it releases nitrogen into the blood or is digested and metabolized. This places a strain on the kidneys, which must expel the waste through the urine. High-protein diets are associated with reduced kidney function. Over time, individuals who consume very large amounts of protein,

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particularly animal protein, risk permanent loss of kidney function. Harvard researchers reported recently that high-protein diets were associated with a significant decline in kidney function, based on observations in 1,624 women participating in the Nurses' Health Study. The good news is that the damage was found only in those who already had reduced kidney function at the study's outset. The bad news is that as many as one in four adults in the United States may already have reduced kidney function, suggesting that most people who have renal problems are unaware of that fact and do not realize that high-protein diets may put them at risk for further deterioration. The kidney-damaging effect was seen only with animal protein. Plant protein had no harmful effect.[11]

The American Academy of Family Physicians notes that high animal protein intake is largely responsible for the high prevalence of kidney stones in the United States and other developed countries and recommends protein restriction for the prevention of recurrent kidney stones.[12]

- Heart Disease. Typical high-protein diets are extremely high in dietary cholesterol and saturated fat. The effect of such diets on blood cholesterol levels is a matter of ongoing research. However, such diets pose additional risks to the heart, including increased risk for heart problems immediately following a meal. Evidence indicates that meals high in saturated fat adversely affect the compliance of arteries, increasing the risk of heart attacks.[13] Adequate protein can be consumed through a variety of plant products that are cholesterol-free and contain only small amounts of fat.

- Weight Loss Sabotage. Many individuals see almost immediate weight loss as a result of following a high-protein diet. In fact, the weight loss is not a result of consuming more protein, but by simply consuming fewer calories. Over the long run, consumption of this type of diet is not practical as it can result in the aforementioned health problems. As with any temporary diet, weight gain is often seen when previous eating habits are resumed. To achieve permanent weight loss while promoting optimal health, the best strategy involves lifestyle changes including a low-fat diet of grains, legumes, fruits, and vegetables combined with regular physical activity.

Protein Checklist

High-protein diets are unhealthy. However, adequate but not excess amounts of protein to maintain body tissues, including muscle, are still important and can be easily achieved on a vegetarian diet. If you are uncertain about the adequacy of protein in your diet, take inventory. Although all protein needs are individual, the following guidelines can help you to meet, but not exceed, your needs.

- **Aim for 5 or more servings of grains each day.** This may include ½ cup of hot cereal, 1 oz. of dry cereal, or 1 slice of bread. Each serving contains roughly 3 grams of protein.
- **Aim for 3 or more servings of vegetables each day.** This may include 1 cup of raw vegetables, ½ cup of cooked vegetables, or ½ cup of vegetable juice. Each serving contains about 2 grams of protein.
- **Aim for 2 to 3 servings of legumes each day.** This may include ½ cup of cooked beans, 4 oz. of tofu or tempeh, 8 oz. of soymilk, and 1 oz. of nuts. Protein content can vary significantly, particularly with soy and rice milks, so be sure to check labels. Each serving may contain about 4 grams to 10 grams of protein. Meat analogues and substitutes are also great sources of protein that can be added to your daily diet.

Healthy Protein Sources (in grams)

Black beans, boiled (1 cup)	15.2
Broccoli (1 cup)	4.6
Bulgur, cooked (1 cup)	5.6
Chickpeas, boiled (1 cup)	14.5
Lentils, boiled (1 cup)	17.9
Peanut butter (2 tbsp)	8.0
Quinoa, cooked (1 cup)	11.0
Seitan* (4 oz)	24.0
Spinach, boiled (1 cup)	5.4
Tempeh (1/2 cup)	15.7
Tofu, firm (1/2 cup)	19.9
Whole wheat bread (1 slice)	2.7

**A vegetarian product made from wheat gluten; protein value from manufacturer's information*

Source: J.A.T. Pennington, Bowes and Church's Food Values of Portions Commonly Used, *17th ed. (Philadelphia: J.B. Lippincott, 1998).*

Protein-Rich Recipes

Split Pea Barley Soup

Makes about 3 quarts

Barley adds great texture to this simple one-pot soup.

2	cups split peas
1/2	cup hulled or pearled barley
8	cups water or vegetable broth
1	medium onion, chopped
2	celery stalks, sliced
1	teaspoon ground cumin
1	teaspoon basil
1	teaspoon thyme
1/4	teaspoon black pepper
1-1/2	teaspoons salt

In a large pot, combine peas, barley, water, onion, celery, cumin, basil, thyme, and black pepper. Cover loosely and simmer, stirring occasionally, until peas are tender, about 1 hour.

Transfer 4 cups to a blender and process until smooth. You may have to do this in a couple of batches. Fill blender no more than half full and hold lid on firmly. Return to pot, add salt, and serve.