



Protein Needs During Cancer Treatment

What are proteins?

Proteins are large molecules in the body that do most of the work in our cells, and in effect, our tissue and organs. Proteins are made up of amino acids.

Why is protein important?

Protein is needed for body maintenance, growth, and repair. Protein is in most cells and has many functions, such as:

- Making and maintaining muscles, connective tissues, red blood cells, enzymes, and hormones.
- Transporting many body compounds, as well as medications.
- Keeping the fluid balanced in your body.
- Fighting infections and strengthening immunity.

Your body gets the protein it needs from your diet. But, while having surgery or treatment for cancer, your protein needs may increase. It is important to know the food sources of protein and to include these foods in your diet.

What are my protein needs?

To find out how much protein your body needs:

1. Divide your weight in pounds by 2 (example: 180 pounds \div 2 = 90).
2. The result is about how many grams of protein you need per day (90 grams of protein).

*If you are having chemotherapy, radiation, or surgery, the number of grams of protein needed each day may be higher. Talk to your provider about how much protein you should eat each day.

What are some food sources of protein?

Protein is found in both animal and plant foods.

Animal sources of protein include:

- Meat (beef, lamb, pork).
- Poultry (chicken, turkey, duck).
- Fish and seafood (crab, lobster).
- Eggs.
- Dairy products (milk, cheese, yogurt).

Plant sources of protein include:

- Nuts (almonds, pine nuts, walnuts, macadamia, peanuts).
- Seeds (sunflower, pumpkin, sesame).

- Tofu.
- Legumes (dried beans, peas, and lentils).

Grains (cereals, breads, and rice) and vegetables have a small amount of protein in them. Fruits and fats do not provide any protein. The amount of protein in milk alternative products such as soy, rice, coconut, and almond milk varies, so check the label of your product.

What are some protein supplements?

Protein supplements are powders that can be added to food to add protein. The cheapest and most convenient protein supplement is dry skim milk powder. Add dry milk powder to any creamy foods such as smoothies, yogurt, milkshakes, coffee, ice cream, mashed potatoes, casseroles, scrambled eggs, and creamed soups. You can also add it to the batter for cakes, cookies, pancakes, muffins, and puddings. Use pasteurized eggs as a substitute in shakes and recipes as a protein supplement, but, never use raw eggs due to the risk of salmonella contamination.

Products such as double strength milk, whey protein powder, pea protein isolate, soy protein, or hemp protein powders are good options to supplement your meals. A Registered Dietitian can assist with helping you choose a protein supplement.

What if I am lactose intolerant?

Low lactose milks (such as Lactaid®), cheeses, and ice cream are available. People who are mildly lactose intolerant can often tolerate yogurt and fattier dairy foods such as cheese and ice cream. Milk alternates can be used instead of milk but it is important to note that the amount of protein in these products varies and may not be the same as that of cow's milk. Lactaid® pills, which contain the enzyme that digests milk, can also be taken before eating a food with dairy in it and are available at most pharmacies.

Why is calorie and protein intake important?

For the protein you eat to help your body function, you must get the calories your body needs. If you do not eat enough calories to maintain your weight, your body will use protein for energy rather than to support essential body functions.

What are some high protein snacks?

- Cheese with crackers, vegetables, or fruit.
- Trail mix (mixture of assorted nuts and dried fruits).
- Granola, energy, protein, and breakfast bars.
- Cereal and milk.
- Yogurt.
- Cottage cheese or ricotta cheese with fruit or apple butter.
- Chicken, tuna, or egg salad on crackers.
- Deviled and hard-boiled eggs.
- Hot cocoa (if using instant cocoa replace water with milk).
- Puddings and custards.
- Regular, flavored, or malted milk.
- Nuts.
- Peanut butter on crackers.

- Hummus and pita bread.
- Pizza bagel.
- Dry roasted edamame.
- Sandwich (meat & cheese, peanut butter and jelly, grilled cheese).
- Milkshakes.
- Nutrition supplement drinks.

How can I add protein to food?

- Shredded cheese - sprinkle over vegetables, potatoes, noodles, casseroles, soups, or salads.
- Milk - use in place of water when making soups, pudding, cocoa, or cooked cereals instead of water.
- Make double-strength milk - add 1 cup of nonfat instant dry milk powder to 1 quart (4 cups) of whole milk.
- Ice cream, yogurt, and frozen yogurt - add to cereals, fruits, gelatin, pies, or milkshakes.
- Hard-cooked eggs - chop and add to salads, vegetables, or casseroles.
- Left-over meat, chicken, or fish - add to soups, salads, or omelets.
- Nuts and seeds - sprinkle over vegetables, fruits, salads, yogurt, cereal, and pasta.
- Beans - add to salads, pasta, or soups.

Foods with high protein content

Food	Serving Size	Grams of Protein
Meat: -Beef -Lamb -Pork	3 ounces	21
Poultry -Chicken -Turkey	3 ounces	21
Fish	3 ounces	21
Egg or $\frac{1}{4}$ cup liquid egg substitute	1 egg	7
Milk	1 cup	8

Yogurt	1 cup	10
Cottage or Ricotta Cheese	$\frac{1}{2}$ cup	12
Hard cheese	1 ounce	8
Dried Beans & legumes	$\frac{1}{2}$ cup	8
Tofu	$\frac{1}{2}$ cup	14
Soybeans	$\frac{1}{2}$ cup (cooked)	14.3
Textured soy protein	$\frac{1}{2}$ cup	11
Soymilk	1 cup	6.6
Edamame	$\frac{1}{2}$ cup	11
Tempeh	$\frac{1}{2}$ cup	15.7
Nuts	$\frac{1}{4}$ cup	7
Peanut butter	2 Tbsp.	7

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