



Protein Intake for Health and Longevity

By Dr. Delia Roberts

Protein intake is a popular topic these days. It seems that everyone from celebrity personalities to health care professionals have something to say about the benefits of consuming a high protein diet. None of us want to miss out on an easy health fix, but there are also reports of negative effects from high protein diets. Add in that the cost of most high protein foods have skyrocketed, and it becomes important to think about the ‘what,’ ‘when’ and ‘why’ of how much protein you really need for good health.

What is a protein?

Protein is an important part of our dietary needs. It makes up one of the major biological macromolecules along with carbohydrates and fats. It consists of smaller parts called amino acids which are the fundamental building blocks for proteins. Our bodies can make some amino acids, but others, known as essential amino acids, need to come from our diet. Animal proteins contain all the essential amino acids, but most plant proteins have only some of them. However, by eating a variety of plant-based foods, we can get all the essential amino acids we need because different plants are rich in different ones. (Refer to Table 1).

When we eat protein, our digestive system breaks it down into amino acids, which are then used throughout the body. Muscles are the largest protein-based tissue, but proteins also help control pretty much every body process, making protein essential for good health and function. If we eat more protein than we need for building tissues, enzymes and other molecules, the extra amino acids can be used for energy, and any extra energy is stored as fat.

How much protein do we need to eat?

The Canadian recommendation for protein intake for adults is to consume 0.8/kg body weight/day. Based on data from a survey conducted in Canada in 2015, most Canadians meet this minimum standard, but there are also many people who do not get enough protein to meet their health needs. The likelihood of insufficient protein intake increases from just 3% in 19–30-year-olds to as much as 8% in women over the age of 70 years. There is also strong evidence that the basic level of protein intake is not enough, particularly for people over 40 years old. It is likely that many Canadians could improve their health by eating more protein.

Much of the interest in increasing protein intake arose because people generally lose around 1% of muscle mass and about 3% of strength, every year beyond middle age. The loss of muscle accelerates further later in life which can eventually lead to frailty, and all the complications that come along with muscle weakness and not being able to move well enough to perform daily activities. Fortunately though, many studies have shown this loss of muscle mass and function can be reduced by eating more protein.

What are the concerns about eating more protein?

While consuming more protein is beneficial for retaining muscle and strength, there are concerns that have been raised about eating more than the Recommended Dietary Allowance of 0.8 g protein/kg/day. Studies of large groups of people found that the consumption of higher levels of protein was linked to increased risk of obesity, diabetes, cardiovascular disease and some cancers. But, when researchers looked at the type of protein being eaten, it was the intake of animal proteins (especially red and processed meats) that was linked with the likelihood of developing and dying from these diseases.

Additional studies have shown that a higher level of plant protein intake can have the opposite effect and lower the risk of cardiovascular disease, diabetes and cancer. In fact, replacing just 3% of calories from either animal or dairy protein, carbs or fats with plant-based protein has been shown to reduce the chances of developing these diseases significantly. This means that for someone eating around 2000 calories per day, replacing just 60 calories a day normally eaten from animal protein, carbohydrates or fats with a plant-based protein, can lower the risk of disease by up to 50%. For example, swapping out one egg or 1/2 strips of bacon for a 1/4 cup of lentils every day could significantly improve your chances of healthy aging, better mobility, vitality and mental health, and lower the need for health services.

Table 1. Plant food combinations to provide all essential amino acids

Food 1	Food 2	Example Breakfast	Example Lunch	Example Dinner
Nuts or seeds	Any grain	Chopped nuts or hemp seed sprinkled on oatmeal	Nut butter on whole wheat bread	Sate sauce and chopped peanuts over whole wheat pasta
Lentils or beans	Any grain	Breakfast bean burrito on whole wheat wrap	Hummus on whole wheat bread	Spiced lentils or beans on rice or quinoa
Nuts or seeds	Beans or lentils	Nut butter breakfast bars (see recipe)	Lentil salad sprinkled with chopped almonds	Bean and nut loaf
Corn	Beans or lentils	Corn and bean burrito	Bean salad with corn	Corn bread with vegetarian chili

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Scientists and doctors also used to think that eating too much protein could damage the kidneys because when amino acids are broken down they release nitrogen, which is then excreted in the urine as urea. It was thought that this could damage the delicate tissues within the kidneys that clear waste from the blood. Thus, a low protein diet was recommended for people with kidney disease, and we still see comments about high protein intake leading to kidney disease in healthy people in the popular press today. However, recent studies examining protein intake and chronic kidney disease show that a higher intake of protein was linked with a lower risk of kidney disease and mortality, especially when the dietary proteins came from plants or fish and seafood.

How can you increase your protein intake?

Following the Canadian recommendations for daily protein intake, a person weighing around 70 kg (155 lb) would need to eat about 55 g of protein every day (about 9 eggs), and a person weighing around 90 kg (200 lb) would need to eat 75 g (1½ chicken breasts). The optimal level of protein consumption is now thought to be double that amount at 1.5-1.6 g/kg/day. That’s quite a bit of protein to eat! In reality, very few people have the time or inclination to measure out their meals by weight and calculate exactly how much protein they are consuming. It’s also gets tricky with timing. Most people in the western world eat most of their daily protein at dinner, but some studies have shown that it is better for your health to consume protein in smaller amounts of around 20 – 30 g spread out over the day. The latest research doesn’t support this finding. Instead, when all the data is pooled and re-examined, it seems that the timing and amount of protein consumed doesn’t seem to matter as long as enough protein is consumed. Confusing right? So it might be better to take a simpler approach of just trying to add some extra protein to each meal and snack (especially from plant-based foods or fish) to get the health boost you want.

Table 2 provides some easy suggestions for increasing protein intake. Adding a few lentils or beans to any soup, stew or casserole won’t affect the taste but can add a health boost from plant-based

protein. Pureed beans or tofu added to sauces act as a thickener and give a richness that you’d think comes from butter or cream. You can even add them to baked goods - you’ll never know they’re there! Try increasing the protein content of muffins or quick breads by adding a cup of dry milk powder and substituting out some of the oil with extra egg whites or Greek yogurt. Top your salad with a tin of tuna or salmon or mash the tinned fish with a bit of yogurt, lemon juice and some spices to make an excellent sandwich or wrap filling. Cooked beans also make a delicious sandwich spread. Hummus is a good source of protein or make your own version by blending beans with a dollop of tahini or peanut butter, roasted peppers,

oregano and smoked paprika. Replace the peppers with roasted eggplant and the spices with cumin, coriander and garlic, or be creative and come up with your own favourite flavours. The beans in these spreads eaten together with whole grain bread or a wrap can make your meal full of high-quality protein! Have you ever tried quinoa instead of rice at dinner? It adds 8 g of protein instead of 4 g. For breakfast, topping your oats with a tablespoon of hemp, chia seed or chopped nuts adds around 5 g protein, simple, easy and delicious. Fruit and Greek yogurt also make excellent cereal bowls or toppings for pancakes! It doesn’t take much to add a little extra protein to your meals, but the benefits can be significant.

Table 2. Easy dietary sources of protein.

Cooked Food	Quantity	Calories	Protein (g)	Carbs (g)	Fibre (g)	Fat (g)	Amount to equal 20 g protein (cups)
Lentils	1 cup	230	18	40	16	1	1.1
Beans (black, navy, red, garbanzo)	1 cup	230 - 280	15	41	15	1	1.3
Tofu (firm)	1 cup	205	25	3	3	13	0.8
Whole egg (boiled, chopped)	1 cup	210	17	2	0	14	1.2
Egg white	1 cup	120	27	2	0	0	0.7
Milk powder (dry)	1/2 cup	120	12	18	0	0	1.7
Chicken breast (chopped)	1 cup	230	43	0	0	5	0.5
Beef	3/4 cup	520	64	0	0	27	0.3
Salmon	1 cup	470	50	0	0	28	0.4
Tuna	1 cup	180	39	0	0	1	0.5
Cottage Cheese (1%)	1 cup	160	28	6	0	0	0.7
Plain Greek yogurt (2%)	1 cup	165	20	9	0	6	1.0

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Plant-based proteins are inexpensive and, with a bit of creativity, can bring an extra dose of good health to your meals. You don't need to supplement with expensive protein powders or worry about the exact amount and distribution of protein intake during the day. It's more likely that you'll stick with this healthy dietary change if you take a simpler approach of just adding in a protein rich food to each meal or snack. There are lots to choose from and the health benefits are huge. Give it a try!

For more information

<https://www.healthline.com/nutrition/14-ways-to-increase-protein-intake>

<https://www.medicalnewstoday.com/articles/321522#vegan-high-protein-foods>

<https://food-guide.canada.ca/en/cooking-skills/cooking-plant-based-protein-foods>

<https://www.chhs.colostate.edu/krnc/monthly-blog/plant-based-protein-a-simple-guide-to-getting-enough/>

Recipes

Protein Bar Muffins

Choose your flours: In total you'll need 3 cups of dry ingredients. Make it simple and use 1 cup of oats and 2 cups of whole wheat flour or get creative and substitute up to 1 cup of the flour with a mix of bran, cooked quinoa and nutrient dense wheat germ, ground flax seed, chia and/or hemp seeds. Seeds and whole grains will increase the protein content of your muffins.

Mix in 1 cup dry milk powder, and 1½ teaspoons each of baking soda and powder, 1 tablespoon cinnamon.

If you like raisins or walnuts in your muffins, stir in ½ cup now, coating them with the dry ingredients.

If you use granulated sugar or sugar substitute, mix in the equivalent of ¼ cup dry sweetener. This makes a muffin that is not too sweet, so if you like it sweeter use up to ½ cup. You can also substitute in maple syrup or honey, using about ¾ the amount that would for a dry sugar, but add the liquid sweetener to the wet ingredients in the next step.

For the wet ingredients:

You'll need a total of 3 cups of wet ingredients. For flavour and nutrient density, about half of this volume should be some kind of stewed fruit like applesauce, rhubarb that has been simmered down over low heat until most of the liquid has evaporated, squash, pumpkin, mashed bananas, grated carrot or zucchini or any other excess fruit/vegetable you want to use up. For protein, about ¾ cup of your wet volume should be eggs or egg whites, and the remaining ¾ cup could be Greek yogurt. If you like, substitute in about ½ cup pureed, cooked white beans, or pureed cottage cheese or tofu for some of the yogurt or fruit. Stir all your wet ingredients together. The texture should be loose so depending on the amount of moisture in your fruit/vegetable puree you may need to adjust the mixture slightly by adding a little more yogurt or an extra bit of a grain.

That's it, other than flavour and spice. Depending on your choice of fruit or vegetable puree you can add other spices like nutmeg, allspice, grated orange or lemon rind, ginger, vanilla or even a bit of pepper as you like. Pre-mix them into the dry and wet portions to get an even distribution without having to overmix the batter.

Fold the wet ingredients into the dry, mixing just enough to moisten everything. Spoon into muffin tins lined with paper or prepared by wiping them with a bit of oil.

Bake in 375F oven for 20 minutes or until tops are firm to touch and a toothpick comes out clean.

Stretched Burgers

- 1 lb lean hamburger or chicken/turkey burger
- 1 onion finely chopped
- 2 cloves garlic finely chopped
- ½ cup uncooked lentils
- ½ cup uncooked quinoa
- 1 egg lightly beaten
- 1 tablespoon each cumin, coriander, chili powder
- ½ cup quick cooking oats

Pre-cook your lentils as follows. In a medium saucepan sauté the onion and garlic in a bit of olive oil. If desired, you can add finely chopped mushrooms, cauliflower, or eggplant for flavour and added nutrients. When the onion is soft, stir in the cumin and coriander and heat until the spices are fragrant. Then add the lentils, quinoa and 2 cups of broth of your choice. Cover and simmer for 20-30 minutes until the lentils are soft and all the liquid has evaporated, it should be quite dry. Cool.

Mix all the ingredients together thoroughly so that the meat is evenly distributed. If the mixture is wet add a little more oats and let it sit for a few minutes to absorb the liquid.

Cover a baking sheet with parchment paper and use a large spoon to shape the burgers onto the sheet with a bit of space between them. Broil for about 10 minutes, then flip carefully and broil another 5-10 minutes until nicely browned.

Super Protein Soup

- 1 chopped onion
- 2 cloves of minced garlic
- 2 inches of freshly grated ginger
- 6 cups of cubed squash, yams, pumpkin or carrots
- 1 tsp each ground cumin and curry powder
- 1 tsp red chili paste or to taste
- ½ to 1 cup red lentils
- ½ to 1 cup quinoa or barley
- Salt and pepper

Add a bit of oil to a large pot and sauté the onion, garlic, curry and cumin until the onion is soft. Add the remaining ingredients and water or broth to cover. Simmer for 30 minutes until the vegetables are soft and the lentils are cooked. Puree with an immersion blender and serve with a salad and a chunk of bread for a nutritious meal 🍴