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UTM EatWell

Protein and Muscle Building

Protein is one of the three major nutrients, along with carbohydrate and fat, that fuels the human body. Dietary protein is digested into amino acids, the building blocks our body uses to build and maintain muscles, in addition to skin, hair, connective tissue and important chemical messengers like enzymes, neurotransmitters and hormones.

How much protein an athlete needs in order to build or preserve muscle tissue is a hotly- debated topic; however most researchers and sports nutrition experts agree that "more" is not always "better".

Protein Needs for Athletes

A generally accepted recommendation for **both endurance- and strength-trained athletes is to consume 1.2 - 1.7 g of protein per kilogram of body weight (0.5 - 0.8 g/lb.) per day[1].** In other words, an athlete who weighs 175 pounds (80 kg) should consume between 96 – 136 grams of protein per day (80 kg x 1.2 = 96 grams protein/day; 80 kg x 1.7 = 136 grams protein/day).

A noted expert from McMaster university, Dr. Stuart Philips, recommends an even higher protein intake for those athletes who are who are reducing their energy/calorie intake in order to lose body fat and gain muscle mass: **1.8 - 2.7 g of protein per kilogram of body weight (0.8 – 1.23 g/lb.)** per day with a reduction of carbohydrate to ~ 40% of energy intake[2]. Protein intakes higher than this "would not offer any further benefit"[2] to athletes as the excess amino acids are burned as fuel or stored as fat.

These recommended protein intakes can often be met through diet alone, without the use of protein or amino acid supplements (see ***Which Foods Contain Protein?***). Of note for athletes is that **optimal protein intake is about 20 -25 grams of high-quality protein, such as beef, egg, dairy foods (milk/whey), and soy[4], as soon as possible after training** for best muscle protein synthesis[2,3].

How Much Protein Do You Need?

Work with a Dietitian to calculate your estimated daily protein needs:

Your weight in pounds / 2.2 x g/kg = protein needs

(*Note: 1 kilogram = 2.2 pounds)*

My Protein Needs:

Next, figure out how much protein you are currently getting from the foods you eat. Don't forget to include any supplements like protein powders or bars.

What I usually eat at Breakfast:

Lunch:

Supper:

Snacks:

After workout:

Total:

Which Foods Contain Protein?

Foods Containing Protein[5]	Average protein (in grams) content per serving
Meats & Alternatives	
150 g (5 oz) beef, cooked (ex. steak, roast)	50 g
150 g (5 oz) chicken breast, cooked/skin removed	50 g
150 g (1 c) ground beef, cooked/crumbled	44 g
150 g (5 oz) lamb, various cuts, cooked	44 g
150 g (5 oz) pork tenderloin, cooked	42 g
150 g (5 oz) salmon, baked or broiled	40 g
150 g (5 oz) sole or other white fish	36 g
120 g (4 oz) canned tuna, drained	30 g
250 mL (1 cup) lentils, cooked	20 g
140 g (1/3 of 420 g package) tofu, firm	15 g
250 mL (1 cup) black, kidney or pinto beans, cooked	14 g
250 mL (1 cup) chickpeas, cooked/canned	13 g
12 medium shrimp, boiled or steamed	12 g
70 g (2 oz) veggie/soy burger patty	11 g
60 mL (1/4 c) peanuts or pumpkin seeds	9 g
60 mL (1/4 c) almonds, pistachios or sunflower seeds	8 g
30 mL (2 T) peanut butter, all natural	7 g
150 g soft/silken/dessert tofu	7 g
1 large egg (whole) OR 2 large egg whites	6 g
60 mL (1/4 c) walnuts or pecans	4 g
65 g (1/4 of average container) hummus	4 g
Milk & Alternatives	
500 mL (2 c) milk, white or chocolate	18 g
175 g (3/4 c) Greek yogurt, plain	18 g
125 mL (1/2 c) cottage or ricotta cheese	15 g
250 mL (2 c) soy beverage	14 g
50 g (1.5 oz) mozzarella, Swiss or cheddar cheese	13 g
175 g (3/4 c) regular yogurt, plain	9 g
250 mL (1 c) kefir, plain	8 g
500 mL (2 c) almond beverage	2 g
500 mL (2 c) rice beverage	1 g
Grain Products	
55 g (1 c) Kashi® Go Lean cereal	13 g
113 g bagel (Tim Horton's)	10 g
250 mL (1 cup) pasta, quinoa, or rice, cooked	7 g
2 slices bread, white or whole-wheat	6 g
54 g (20 biscuits) Kellogg's® Mini Wheats cereal	5 g
Vegetables & Fruits – not good sources of protein (0 - 2 g/serving)	

References

[1] American Dietetic Association, Dietitians of Canada, American College of Sports Medicine: Nutrition and athletic performance. *Med Sci Sports Exerc*. 2009, 41(3): 709-31.

[2] Phillips SM, Van Loon, LJC. Dietary protein for athletes: From requirements to optimum adaptation, *Journal of Sports Sciences*. 2011; 29:sup1, S29-S38.

[3] Phillips SM, Moore DR, Tang J. A critical examination of dietary protein requirements, benefits, and excesses in athletes. *Int JSports Nutr Exer Metab*. 2007;17:S58-S76.

[4] Lowery L, Edel JF, McBride IM. Dietary protein and strength athletes. *Strength and Conditioning Journal* . 2012, 34(4): 26-32.

[5] Health Canada. Canadian Nutrient File (CNF) – Search by Food, 2012

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UTM Health & Counselling Centre

Students can make an appointment with the Health & Counselling Centre's Dietitian for a personalized assessment of protein and other nutrient needs.

Call (905) 828–5255 to make an appointment. Free for UTM students!