

Fast Track Your Nutrition

Protein – the “power” food

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What is protein?

Dietary protein is one of three major nutrients (“macronutrients”) needed by the body. The other two are *carbohydrate* and *fat*. Protein is found in meat, fish, poultry, eggs and dairy products. These foods are often called animal sources of protein. Non-animal source protein is found in lentils, legumes, and tofu. Fruit, vegetables, and grain products also have protein, but in smaller amounts.

Protein is made up of building blocks called amino acids. There are 21 amino acids. The adult body can make most of these, *but there are 8 that it can not*. These are called essential amino acids (EAA). It is essential that your diet include these daily, because the body is not able to make them. The 8 EAA’s are:

| | |
|--------------|-----------------|
| Y Isoleucine | Y Phenylalanine |
| Y Leucine | Y Threonine |
| Y Lysine | Y Tryptophan |
| Y Methionine | Y Valine |

Animal source protein supplies all the EAA’s, and are therefore called “complete” proteins. Vegetarians can combine other foods such as peanut butter, tofu, lentils, legumes, nuts, grains, and seeds to form complete protein. (Each type of these foods contain some, but not all of the EAA’s). This is called protein complementarity. It is very important for people who eat little or no animal source protein to understand this concept, and to eat combinations of foods daily that will supply all of the EAA’s and in the right amounts.

Why do we need Protein?

Protein is the basic building block of all cells in the body. It has several crucial roles, including:

- Building and repairing muscles
- Producing hormones
- Boosting the immune system
- Replacing red blood cells

The body needs a certain amount of dietary protein for these functions. As protein is not stored as protein itself, we need to get enough in our diet every day. If you eat more protein than you need though, the extra is excreted through the kidneys, or can be converted to fat for you to use as energy at a later time.

Athletes often don’t get appropriate amounts of protein, whether it is more than enough, or far too little.

Too much is ... too much!

People often get far more protein in their diets than they need. In North America, 16 oz steaks, double and triple cheeseburgers, and ½ chicken dinners contribute to this! We seem to have a real love affair with meat.

Weight lifters, body builders, football players tend to get too much protein, by eating huge amounts, and using amino acid supplements and/or protein powders. We used to think athletes needed far more protein than other people, to help repair muscle damage caused by training. We now know that better training methods cause less damage, and that carbohydrates should be stressed in an athlete’s diet to provide energy for training.

Reasonable amounts of protein are enough to promote muscle growth and any needed tissue repair. In fact, if the body doesn’t get enough *carbohydrate* for energy needs, eventually muscle will be broken down to supply the needed carbohydrate anyway – and that will certainly decrease athletic performance. Excessive protein intake can also be harmful in other ways, as it can:

- be high in fat
- be very costly (especially supplements)
- replace carbohydrate, which is needed for energy and glycogen refueling
- be hard on the kidneys, as they have to break down excess protein for excretion (as waste) in the urine.

The use of amino acids supplements and protein powders has not been shown to be effective at building extra muscle or improving endurance. They are very costly, and single amino acids (usually arginine, leucine or ornithine are sold as singles) have not been proven to be effective when used on their own. All of the EAA's, along with carbohydrates, (and proper resistance training) are all required for muscle growth.

And... Too little is... too Little

On the other hand, some athletes skip on their protein intake. Runners, triathletes, gymnasts and dancers, (especially female athletes, who tend to be more weight conscious than males) often get too little protein in their diets.

People who don't eat animal source protein may also be at risk. Animal protein, especially lean red meat, in small portions, is a very important source of two minerals – Iron and Zinc.

Iron is essential for oxygen transport and red blood cell production. **Zinc** is crucial in many biochemical reactions in the body, it strengthens the immune system, is crucial for healing, and for the senses of taste and smell.

How much protein is enough?

Here's the bottom line. Your daily needs for protein are based on your body weight. For active teens, use the following method to determine your protein requirements:

First, find your BMI (Body Mass Index)

Divide your wt (kg) by your height in (metres ²)
 Example: a 64 kg athlete who is 162.5cm tall (1.625m² = 2.64); has a BMI of 24 (64 ÷ 2.64 = 24). Your BMI should be between 20 – 25 for optimal health.

Second, calculate how much protein you need each day:

If your BMI is 20-25 or less, use your actual weight in kg. If your BMI is greater than 25, then multiply your height (m²) by 25, and use that number of kg's.

Take your weight in kg's and:

Track runner?

Multiply your weight by 1.0-1.2 to determine the number of grams of protein you need every day.

Jumper or Thrower?

Multiply your weight by 1.2-1.4 to determine the number of grams of protein you need every day.

Where Does Protein Come From?

Various foods have different amounts of protein:

| Food | Serving Size | gm Prot. |
|----------------------|--------------|----------|
| Meat, fish poultry | 75g-125g* | 21-28 |
| Yogourt | 250ml | 11 |
| Cottage Cheese | 125ml | 11 |
| Tofu | 100g | 11 |
| Lentil Soup | 300ml | 11 |
| Milk | 250ml | 8 |
| Cheese | 28g | 7 |
| Beans, baked, kidney | 250ml | 6 |
| Egg | 1 large | 6 |
| Peanut Butter | 15ml | 5 |
| Almonds | 12 | 3 |

* a cooked portion of meat about the size of a deck of cards = 250-300g (some at lunch and supper) gives a good start on the daily need for protein. Use the chart above to figure out how much you need. Eat a variety of foods to meet your protein needs. Remember – you can **Fast Track your Nutrition**