

## How Much Protein Do I Need?

A sedentary person, a marathoner, and a body builder of the same weight most certainly have different protein needs. Protein requirements depend upon factors including body weight, body composition, rate of growth, physical activity level, type of physical activity, adequacy of energy and carbohydrate intake, and illness or injury. Research clearly indicates that protein needs for athletes are greater than the recommended 0.8 grams per kilogram of body weight recommended for sedentary people.

Endurance exercise alters protein metabolism and increases amino acid oxidation leading to increased protein needs. The increase in need is dependent upon the intensity and duration of the exercise, with higher intensity and longer bouts of exercise associated with increased protein needs. Research supports a range in protein needs from 1.2 to 1.4 grams of protein per kilogram body weight for endurance athletes such as marathoners.

Individuals such as body builders, who are using resistance training to increase muscle mass, require a protein intake greater than that recommended for sedentary people. The protein needs for athletes trying to increase their muscle mass range from 1.4 to 1.8 grams of protein per kilogram of body weight. This increased need for protein, however, is much less than what most of these athletes assume it to be. In addition, these increased needs are easily met through traditional food sources.

Many people -- athletes and nonathletes -- are meeting or exceeding their protein needs. Body builders' training programs typically include a maintenance phase, a muscle-mass building phase, and a tapering or cutting phase. Protein needs during these times vary. During the maintenance phase, recommended protein intake is 1.2 grams per kilogram body weight for maintenance of muscle mass. During the muscle-building phase, a protein intake of 1.4-1.8 grams per kilogram body weight is recommended. During the tapering or cutting phase, body builders significantly decrease their calorie intake. During this special phase of calorie and carbohydrate restriction, protein needs increase to 1.8-2.0 grams of protein per kilogram body weight to compensate for the use of protein for energy during this hypocaloric phase.

Adolescent athletes involved in high-intensity physical activity must meet the nutrition needs of growth combined with physical activity. Their protein needs vary from 1.8-2.0 grams per kilogram body weight. The timing of protein intake is also important. Research shows that protein consumed with carbohydrate within an hour after exercise stimulates the release of insulin and growth hormone, and therefore, growth of muscle mass.

Protein supplements consist of either whole protein, such as egg, milk or soy protein, or individual amino acids or combinations of individual amino acids. Whole protein supplements do not offer an advantage over food sources of protein, but may offer convenience. Powders tend to be more concentrated protein sources than pills. Energy bars are most convenient and can offer a significant amount of protein. Readily available instant breakfast powder mixes offer a cheaper alternative to specially marketed protein powders. Athletes should be cautioned against very concentrated whole protein supplements that may displace carbohydrate in the diet or exceed protein needs. **I recommend food sources of protein over protein supplements.**

Individual amino acid supplements of branch-chain amino acids (leucine, isoleucine and valine), as well as arginine, lysine or glutamine have been theorized to enhance exercise performance. However, studies examining their effect on performance have not consistently supported these theories. Most single or combination amino acid pills offer very small amounts of the amino acids. Consumers should be aware that the amount of amino acids is indicated on food labels as milligrams. Since protein content on food labels is indicated in grams, the amount of amino acids seems inflated.

Most athletes are meeting or exceeding their protein requirements through diet. There are, however, some athletes at risk for inadequate protein. These individuals are typically restricting caloric intake in order to achieve a low body weight and generally include wrestlers, gymnasts, dancers, and runners. Inadequate protein intake increases an athlete's risk for injury and chronic fatigue.

Research does not support protein intake in excess of 2.0 grams per kilogram body weight. Excess protein intake is associated with dehydration, and may be related to excessive urinary calcium losses and inadequate carbohydrate intake. Theoretically, an impairment of kidney function has been associated with excessive protein intake. However, this has not been empirically demonstrated in the literature. Dehydrated athletes are more likely to be affected.

Protein foods about 60 grams each:

- 20 egg whites
- 10 oz tuna fish
- 12 oz of eye of round steak
- 10 oz of turkey breast
- 10 oz of chicken or 2 breasts
- 2 cups of nonfat cottage cheese
- 10 oz of most kinds of fish