

# PROTEIN FOR ATHLETES: A PRACTICAL GUIDE

*Protein is an essential part of an athlete's diet, and as a sports health professional, chances are you're fielding questions about protein from your athletes on a daily basis. With so much new information and research emerging, making the right recommendations can be challenging.*

***Here's a Tool To Help You Provide Practical Advice to Your Athletes.***

## How Much Protein do Athletes Need?

Protein requirements do vary between athletes and sedentary individuals but not by much. Based on position statements from the American College of Sports Medicine and the American Dietetic Association, an upper limit of 1.7 g/kg/day will meet the needs of even the hardest-training athletes. Using this recommendation, a 70-kg (154lb) endurance athlete would need no more than 120 grams of protein per day.

## What Are the Differences Between Essential And Nonessential Amino Acids?

The body can make the majority of the amino acids it needs but lacks the capacity to create all of them, so it's necessary for athletes to eat foods that contain the others. The 11 amino acids produced by the body are "nonessential" because they don't have to be consumed from outside sources. There are nine "essential" amino acids that must be supplied by the diet. The body cannot store these amino acids, so they have to be eaten on a regular basis.

## What Are Good Sources of Protein?

Both plants and animals provide good sources of protein. Athletes can consume eggs, tuna fish, chicken, milk, cottage cheese, and nuts. For example:

- 3 eggs = 20 grams of protein
- 1 chicken breast = 25 grams
- 16 ounces of milk = 15 grams

Athletes who find it tough to meet their daily protein requirements because of poor or restricted diets may use protein shakes and bars or other high-protein snacks.

## Is More Protein Better?

Protein – or more accurately, amino acids – is pulled into the muscles; it can't be pushed in. In other words, muscles use as many amino acids as needed for growth, maintenance, and repair. When those needs are met, excess amino acids are stored as fat, converted to glucose, or burned for energy.

## Does Protein Play a Role in Enhancing Hydration?

Sodium is the key element for hydration because sodium increases the physiological desire to drink, as well as helps the body retain fluid in the bloodstream. Whether ingested protein plays a role in fluid balance has not been thoroughly examined. Science shows that increasing the calorie content of a beverage slows gastric emptying, regardless of the sources of the extra calories. For that reason, adding protein to a sports drink that already contains sufficient carbohydrate calories may slow gastric emptying and increase stomach upset in stop and go sports. Future research will provide a more complete understanding of these issues.

## Is There an Optimal Ratio of Carbohydrate to Protein?

No. There is no magic in a specific carbohydrate-to-protein ratio. Research shows that consuming 35 grams or more of carbohydrate along with enough protein to provide 6 to 10 grams of essential amino acids results in maximal stimulation of post-exercise muscle protein synthesis. Muscles respond to the amount of nutrients they receive, not the ratio of nutrients that are ingested.

## What's the Bottom Line in Terms of Whether Protein Consumed During Exercise Can Benefit Performance?

It's difficult to imagine how protein ingested during exercise would affect performance. Protein is not an important fuel source, and there is no accepted mechanism by which protein would affect performance, especially when carbohydrate is ingested in recommended amounts.

## Should Athletes Consume Both Carbohydrate and Protein Following Exercise?

Yes. It's important for athletes to consume both protein and carbohydrate following training, exercise, or competition. A small amount of protein (0.1 g/kg) will facilitate repair and resynthesis of muscle proteins. Sufficient carbohydrate (1.0g/kg/h) helps stimulate amino acid uptake into muscle and is essential for rapid glycogen resynthesis.

## What Can Athletes Do to Jump-Start Their Recovery?

Consuming small meals that contain carbohydrate and protein throughout the day, especially within 30 minutes after training, is an effective strategy to promote recovery and growth of lean body mass.

## Does the Amount of Protein Matter?

Small doses of essential amino acids are most effective in maximizing muscle protein synthesis after exercise. There is no evidence to suggest that consuming large amounts of amino acids (e.g., greater than 40 grams of protein) will provide a muscle-building boost. For example, 6 to 10 grams of essential amino acids (attainable by consuming 15 to 20 grams of high-quality protein) with 35 grams of carbohydrate has been shown to optimize muscle protein synthesis.