Role of Protein in the Diet

Protein is made up of 20 amino acids, which help rebuild, repair, and help increase the size of muscle fibers during muscle protein synthesis. They help to improve protein balance in the body and decrease muscle damage done during training, which ultimately enhances the muscles repair and growth.

Protein makes up tendons, ligaments, muscles, enzymes, hormones, and antibodies along with other functions. If the body is not getting enough protein in the diet over a long period of time, it can potentially weaken the immune system lengthening recovery time.

Protein also takes longer to digest than carbohydrates therefore making the athlete feel full for longer as well as helps support adaptations of lean body mass, strength, power, and speed, which helps the athlete's performance improve.

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Protein: How Much and How Often for the High School Athlete

Protein Requirements

For adolescents, they should aim to have 10-15% of their total calories to come from protein. Their needs range from 1.2-2.0 g/kg of body weight per day depending on the athlete. Athletes' on the higher end of the range, may be due to injury to help spare lean mass from being lost. Additionally, benefits of having certain types of protein, such as dairy, is that not only are the athletes getting protein, but they are also getting other vitamins and minerals needed for their growth such as calcium and vitamin D.

Helpful Tip:

Divide the athlete's weight in pounds by 2.2 to get their weight in kilograms (kg).

As an example, for a 150-pound athlete, the calculation would look as follows:

- 150 lb / 2.2 = 68 kg
- 68 kg X 1.2 g/kg protein = 82 g
- 68 kg X 2.0 g/kg protein = 136 g
- Therefore, the athlete would need between 82 – 136 grams of protein per day.

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Protein Timing

To maximize muscle protein synthesis, it is best to spread daily protein intake throughout the day rather than having large amounts at one meal. It helps the body sustain and potentially even increase muscle mass. The athlete should aim to consume a meal or snack about every 3 hours to best optimize their protein. At each snack, they should aim to consume 0.18-0.3 g/kg protein, which usually equates to about 15-20 g protein. Depending on the athlete's size, larger athletes will need more, but they should aim to have about 30 g protein per meal. One ounce of meat is 7 g protein, and a serving size is 4 oz, which is the thickness of a deck of cards and the size of a palm.

Post-game/practice, the athlete will want to consume their protein with carbohydrates to help increase muscle protein synthesis and improve the whole body's net protein balance and therefore better recovery.

Consuming protein from casein or whey (milk or yogurt are examples) before bed may also help with muscle recovery. It is important to make sure the athlete is eating enough calories and protein throughout the day because the building and repairing of muscles can last up to 24 hours after exercising, with a particular sensitivity to protein in that timeframe for growth.

Snack: ¾ cup Greek yogurt (17 g protein)

Meal: 4 oz piece of chicken (28 g protein)

Protein Powder Supplements

Most athletes use protein powders to make a protein shake or to boost the protein content of a smoothie. You can add protein to your shakes just by adding some Greek yogurt, milk (white or chocolate milk) and/or chia seeds. However, protein powders are another way to increase the protein content, especially when making shakes or smoothies on the go. When combined with carbohydrate-rich foods and fats, like fruit and nut butters, those shakes or smoothies can be used as a quick snack or a recovery beverage after activity. Those shakes are also a way to add additional calories in the diet if the athlete's goal is to gain weight.

It is important to recognize that supplements, including protein powders, are not regulated by the FDA before being put in the public. Many supplements are sold without being checked for safety, impurities, and accurate claims/ingredient lists. This puts athletes at greater risk of consuming potentially harmful or banned substances. They are also costly.

While getting adequate protein through food sources is best, if an athlete does decide to take supplements, it is recommended to buy a brand that has been third party certified. That is an indication that the supplement underwent rigorous screening to protect against adulteration, verify label claims, identify any banned substances in finished product, verify ingredient list and are safer to use. NSF for Sport is the gold standard 3rd party testing. Informed Choice is another great option. When purchasing supplements, have the athlete look for these labels to assure they are getting something that is tested and safer for them.