

Nutrition for Adults' LIFE

Nutrition for Physical Activity



PROTEIN

Protein is important to an athlete's diet for the growth and repair of body tissue, including muscle. Protein is not a good source of energy. Even though muscle is twenty percent protein, it doesn't mean that eating a lot of protein will give you more muscle mass. About twelve to twenty percent of total calories should come from protein. This means that endurance and strength training athletes should get 0.5 to 0.9 grams of protein per pound of body weight or 75 to 135 grams per day for a 150 pound athlete. Normally athletes get enough protein in their regular diet and don't need supplements. A diet too high in protein makes the kidneys work harder than they need to and won't improve athletic performance. Good sources of protein are low fat dairy foods, lean meats and fish, soy products and mixtures of grain.

OTHER IMPORTANT NUTRIENTS

Iron: Iron has an essential role in the body because it delivers oxygen to cells. This is especially important for athletes. Good sources of iron include meat and fortified breads and cereals.

Calcium: Calcium builds strong bones and helps muscles contract. Good sources of calcium are low fat dairy products, calcium-fortified orange juice and those soy milks which are fortified.

Zinc: Zinc is important both for muscle tissue growth and repair and energy production. Good sources of zinc include meat, whole grains and fortified foods.

Vitamin D: Vitamin D is needed for calcium absorption. Vitamin D is found in most dairy products and is made by the skin when exposed to sunlight.

B Vitamins: These vitamins are involved in energy production during exercise. B vitamins are found in meat, whole grains, vegetables, dairy products and fortified foods.

Vitamins A, C and E: These vitamins protect cell membranes from oxidative damage from the increase in oxygen consumption. Good sources of vitamins A, C and E include dairy products, vegetables, fruits and vegetable oils (vitamin E).

CARBOHYDRATES

Carbohydrates are the main source of fuel for working muscles. Fifty to seventy percent of calories should come from carbohydrates for athletes. This translates to 2.3 to 5 grams of carbohydrates per pound of body weight. Carbohydrates are stored in the muscles and liver as glycogen. Glycogen is converted to energy quickly without the need of oxygen. This is important for short bursts of energy required in football, baseball, volleyball and many track and field events. Good sources of carbohydrates are pasta, rice, fruit, vegetables, whole grain breads, and cereals.

FAT

Fat is the primary fuel source used during aerobic activity. Dietary fat is also important for the absorption of fat soluble vitamins A, D, E and K. A good diet for athletes consists of twenty to thirty-five percent of total calories from fat. It is important to choose healthy fats that come from vegetable oils, nuts, and fish over saturated fats found in meats, full-fat dairy products, fried foods, and solid shortenings.

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Training and Competition Tips

- Space your meals. Eat a meal at least three hours prior to an event. This allows enough time for foods to digest.
- Eat complex carbohydrates (such as pasta and rice) that are easy to digest and help steady blood sugar levels. A meal high in fat will empty slowly from your stomach and may make you feel nauseous.
- Consume moderate amounts of protein as it takes longer to digest than starches and may increase urine production that can lead to dehydration.
- Eat lightly before competition. About 45 minutes to an hour before a workout or event, eat a snack that contains thirty to forty grams of carbohydrate, about ten grams of protein and small amounts of fat. Some suggestions are: 1 cup low fat chocolate milk and 2 squares graham crackers, or 1 piece light string cheese and 2 cups grapes, or 1 cup nonfat flavored yogurt.
- Avoid caffeine-containing drinks and foods.
- Avoid bulky foods before an event such as raw fruits and vegetables, dry beans, peas, and popcorn. They may cause bowel movements.
- Drink water to be well hydrated. If you are thirsty, you are already dehydrated.
- Avoid big changes in your normal diet routine immediately prior to competition.
- For activities that last less than one hour, water is the best to drink. If the activity is longer than one hour, sports drinks containing 4-8% carbohydrates may be useful. These sport drinks also help replace electrolytes, such as sodium, and give you some energy.
- Within an hour after a hard workout or event, eat a substantial snack or meal that contains eighty to one hundred grams of carbohydrates and twenty to thirty grams of protein. This eating pattern increases glycogen stores and promotes muscle building.

KEEPING HYDRATED

DAY BEFORE	Drink fluids frequently
PRE-EVENT MEAL	2-3 cups water with meal
2 HOURS BEFORE	At least 2 cups water
DURING EVENT	1/2 cup water every 15 minutes
AFTER EVENT	2-3 cups fluid for each pound lost
NEXT DAY	Drink fluids frequently (it may take 36 hours to rehydrate completely)

CARBOHYDRATE LOADING

Carbohydrate loading is a technique used by endurance athletes, such as marathon runners and triathletes, to perform longer. Three days prior to competition increase carbohydrate calories to about 65% of energy intake and 535-550 grams of carbohydrates per day, whichever is greater. This enhances glycogen storage in the trained athlete and provides more glycogen for extended activity. Intakes greater than this amount do not significantly increase glycogen storage or increase athletic performance. This type of diet does not hold benefits for athletes who compete or train for less than ninety continuous minutes.

FURTHER INFORMATION

The President's Council on Physical Fitness and Sports
www.fitness.gov/
Go to: Be Active Your Way: A Guide for Adults (For adults aged 18-64)

National Agricultural Library and U.S. Department of Agriculture
www.nutrition.gov/
Go to search function and type "athletes".

Gatorade Sports Science Institute
www.gssiweb.com

U.S. National Library of Medicine and National Institutes of Health
MedlinePlus: Sports Fitness
www.nlm.nih.gov/medlineplus/sportsfitness.html