



Sports Nutrition: Tips for Fueling Athletes

Your Fueling Plan

Superior athletic ability comes from genetics and training. However, without good food choices and the correct timing of meals, your training and performance will suffer. You need a fueling plan that includes the right balance of carbohydrates, protein, and fat, enough vitamins and minerals, and the correct amount of fluids.

Carbohydrates

- Carbohydrates are the best fuel for working muscles.
- Plan to include carbohydrates in all your meals and snacks.

Protein

- You need protein for muscle growth and to repair muscle damage after exercise.
- You also need protein to make red blood cells, which move oxygen to muscles, and white blood cells, which help fight infection.
- Your body uses protein to make hormones and enzymes, which help regulate metabolism.

Fat

- You need fat for energy.
- Fat also helps your body to use some vitamins as well as plant chemicals known as "phytochemicals."
- Fat helps move substances in and out of cells, and it helps keep your brain and nervous system healthy.

Vitamins and Minerals

- Vitamins and minerals do not give you more energy, but they help to unlock the energy stored in food so your body can use it as fuel.
- Your body needs calcium, magnesium, fluoride, and vitamin D to keep bones strong.

Fluid

- Water is the most important nutrient. If your body weight drops just 1% from losing fluids, your performance will suffer.
- Be sure to replace the fluids you lose through sweat when you are active.

Strategies

Here are some food and fluid strategies to help you put a fueling plan together.

Breaking Your Fast

- Eat breakfast every morning. The level of glycogen in your liver can be substantially lower in the morning, so you need to refuel your body to replace the energy it used while you slept.
- Eating breakfast will also help you to think. Student-athletes who eat breakfast perform better in the classroom than those who skip breakfast.
- It's okay to choose non-breakfast foods, like last night's pizza, leftover Chinese food with rice, or cheese and crackers.
- Here are some other, more traditional choices you can enjoy:
 - Fruit or yogurt smoothie
 - Breakfast sandwich with egg and cheese
 - Frozen waffles with fruit
 - Banana dipped in peanut butter
 - Hard-boiled eggs
 - Instant grits or a cereal bowl

Before You Workout

Three or four hours before a practice, workout, or competition:

- Choose foods with lots of carbohydrates, such as rice, pasta, potatoes, yogurt, fruit smoothies, vegetables, fruits, crackers, breads, rolls, or muffins.
- Drink plenty of water or sport drinks.

One hour before a practice/workout/game:

- Have a snack of an energy bar, a granola bar, ½ bagel, large banana, or four or five graham crackers.
- Wash the food down with at least 1½ cups (12 ounces) of sport drink. Hint: 1 swallow or gulp equals about 1 ounce.

During Breaks and After Games and Practice

- During halftime or time-outs, drink water or your favorite flavor of sport drink. Both water and sport drinks will hydrate you. A sport drink will also give you fuel and replace sodium that is lost in sweat. The sodium in sport drinks helps your body hold onto the fluid.
- After you work out, drink about 3 cups (24 ounces) of sport drink or water for every pound of body weight that you lost while you were active.
- Check the color of your urine. If it looks like apple juice, you are dehydrated and need to drink more. If it looks like lemonade, you are getting enough fluids.
- Eat something within 30 minutes of the end of your practice, workout, or game, especially if you train hard every day.

When You're Out and About

When you eat out, choose:

- Single burgers, instead of "monster burgers" with bacon and cheese.
- Sandwiches with turkey, chicken, or roast beef, instead of tuna salad, chicken salad, or salami. Pile on the veggies!
- Grilled chicken sandwiches or grilled chicken salads, instead of fried chicken.
- Grilled meat or grilled fish, instead of fried meat or fried fish.
- Pasta dishes with lots of pasta and red sauce, instead of pastas made with a lot of meat, cheese, and cream.
- Stir-fried vegetables and steamed white rice, instead of dishes with a lot of meat or fried egg rolls.
- Waffles, pancakes, grits, scrambled eggs, or grilled ham, instead of bacon, sausage, or biscuits.
- Pizza with thick crust, vegetables, and canadian bacon, instead of a pepperoni, sausage, or "meat lover's" pizza.



Fueling Ultraendurance Athletes

Fueling Your Sport

- For both training and competition in ultraendurance events, athletes need a lot of calories to stay energized. For the Ironman triathlon, an athlete may need 8,500 to 11,500 calories in training and competition. An Ironman triathlete typically spends 18 to 24 hours each week in training, and a typical week includes 7 miles of swimming, 225 miles of biking, and 48 miles of running.
- Ultraendurance athletes need to drink fluids and eat foods during events to avoid "hitting the wall."
- Ultraendurance athletes need to choose foods that will give them energy for the entire competition, including the sprints and the final push to the finish line. The right balance of carbohydrates, protein, and fat is very important.
- Ultraendurance athletes need to eat 3.2 to 4.5 grams of carbohydrate per pound of body weight per day (7-10 g/kg/day). The amount of carbohydrate needed is determined by the level of training:
 - 3.2 grams per pound of body weight (7 g/kg) for 1 hour of training per day
 - 3.6 grams per pound of body weight (8 g/kg) for 2 hours of training per day
 - 4.5 grams per pound of body weight (10 g/kg) for 3 to 4 hours of training per day
- Ultraendurance athletes need 0.55 to 0.8 grams of protein per pound of body weight per day (1.2-1.7 g/kg/day). Good sources of protein include fish, chicken, turkey, beef, low-fat milk, cheese, yogurt, eggs, nuts, and soy foods (tofu, soy nuts, and soy burgers.)
- Ultraendurance athletes need at least 0.45 grams of fat per pound of body weight per day (1 g/kg/day). Choose heart-healthy fats, such as canola oil, olive oil, and nuts.

Fluid Needs

- Good hydration allows you to train and compete at a high intensity. It also protects against cramping and heat illness.
- Two hours before exercise, drink 2 cups of fluid.
- When you work out or compete, drink enough to replace fluids lost in sweat.
- To figure out how much fluid you lose in an hour of activity, weigh yourself before and after each training session under simulated race conditions. Each pound of weight loss is equal to 2 cups of fluid. Follow a fluid plan to replace losses on an hourly basis. If you lose 2 pounds per hour, you should drink 1 cup of fluid every 15 minutes.
- After exercise, drink at about 3 cups of fluid for every pound lost.
- You lose 1 gram of sodium for every 2 pounds of sweat loss. To avoid hyponatremia (low blood sodium levels), choose sport drinks instead of water and salt your food at mealtimes.

Supplements Commonly Used by Ultraendurance Athletes

- Never use any supplement in competition unless you have tried it first in training.
- Caffeine stimulates your central nervous system and can make exercise seem easier. To get the desired effect from caffeine, try a dose of 2.3 to 2.7 milligrams per pound of body weight (5 to 6 milligrams/kg). For a 150-pound athlete, that equals 340 to 400 milligrams of caffeine. You can get this amount from a large (16-ounce) cup of coffee.

- If you don't normally consume beverages with caffeine, caffeine can make you jittery and anxious, and cause insomnia.
- Glycerol is used by some ultraendurance athletes because it holds water like a sponge. It may increase the body's ability to retain fluids, which is beneficial during long events. However, glycerol can cause nausea, bloating, and headaches.
- Branched-chain amino acids (BCAA) are included in some recovery drinks because it has been suggested that BCAA prevents muscle breakdown and delays fatigue in long-distance events.
- The suggested dose of BCAA is 5 to 20 grams per day, taken in divided portions during exercise.
- BCAA can also be found in some sport drinks. These usually include 1 to 7 grams of BCAA per quart.
- If you try BCAA, start using it in training, not during competition. And remember that eating enough carbohydrate is just as effective as using BCAA.

Top Three Nutrition Tips for Improving Performance

- 1. Eat enough calories and carbohydrates to fuel your body.** Training for an ultraendurance event is grueling. Without proper attention to what you eat, you will not be able perform at your best. A sports dietitian can help you create a food plan to help peak performance.

- 2. Stay hydrated.** Figure out how much fluid you lose when you're training or competing, and plan an hourly drinking schedule to replace losses. Drink on schedule, not just when you feel thirsty.
- 3. Limit high-fiber foods during the event.** Eating foods too high in fiber immediately before or during an event can cause bloating and cramping, and lead to frequent bathroom stops. Stick to foods that are easy to digest and that you have tested in training.

Nutrition Prescription:

_____ calories per day
 _____ grams of carbohydrate per day
 _____ grams of protein per day
 _____ grams of fat per day
 _____ cups of fluid per day

Special concerns:



Fueling Soccer Players

Fueling Your Sport

- The average distance covered in a soccer match is 5.6 miles (9 kilometers), so your need for calories is high in both training and competition.
- Your training schedule, the intensity of practice, and your age will determine your calorie needs. Adult male soccer players need 21.4 to 27.3 calories per pound of body weight per day (47 to 60 calories/kg/day). Adult female players need 20.5 to 22.7 calories per pound per day (45 to 50 calories/kg/day). A 160-pound male player needs 3,400 to 4,300 calories per day. A 140-pound female player needs 2,850 to 3,200 calories per day.
- Carbohydrate is the best fuel for soccer. Eating carbohydrates gives your muscles the energy they need. Thirty percent of all goals are scored in the last 15 minutes of the game, so choosing the right high-carbohydrate foods and fluids can make the difference between winning and losing a match.
- Soccer is muscle-fuel depleting activity. Losing this fuel, especially in the legs, contributes to fatigue as the match wears on. To get enough fuel, competitive soccer players should eat 3.6 to 4.5 grams of carbohydrate per pound of body weight per day (8 to 10 g/kg/day). Good sources of carbohydrate include whole grain breads and cereals, fruits, and vegetables.
- Drinking 2 cups of a sport drink at the rate of 30 to 60 grams of carbohydrate per hour during a 90-minute game will delay fatigue and improve performance.
- Soccer players need to eat 0.6 to 0.8 grams of protein per pound of body weight per day (1.4 to 1.7 g/kg/day). Protein helps repair muscles and boosts your immune system. Protein is also used for fuel, but it doesn't give you as much immediate energy as carbohydrate does. Good sources of protein include fish, chicken, turkey, beef, low-fat milk, cheese, yogurt, eggs, nuts, and soy foods (tofu, soy nuts, soy burgers).

- Soccer players need 0.45 grams of fat per pound of body weight per day (1 g/kg/day). Choose heart-healthy fats, such as canola oil, olive oil, and nuts.

Fluid Needs

- You can lose 2 liters of fluid in sweat during games played in moderate temperatures. In hot weather, you can lose more than 3 quarts of fluid in sweat.
- Two hours before practice or a match, drink 2 cups of fluids.
- During warm ups, drink another cup of fluid.
- At halftime, drink at least 2 cups of fluid.
- After the game, drink about 3 cups for every pound you lost while you played. Weigh yourself before and after a game. This will give you a good idea of your sweat losses. Try to regain the lost weight within 24 hours. Remember the weight loss is fluid loss, not fat loss.
- Choose sport drinks when you play in a soccer game. Sport drinks are lightly sweetened to provide carbohydrates, and they taste good. Pick a sport drink with 14 to 19 grams of carbohydrate and 110 to 165 milligrams of sodium per 8 ounces. The sodium helps encourage you to drink enough fluid.

Dietary Supplements Used by Soccer Players

- Creatine may increase your ability to train because it helps to provide a substance needed to fuel your muscles.
- Creatine does not increase muscle cramps or injury.
- Creatine should not be used by soccer players 18 years of age or younger because it is not known whether creatine is safe for people in this age group.
- Adults who use creatine should stick to the recommended dose of 3 to 5 grams per day, taken throughout the day.

Top Three Nutrition Tips to Improve Performance

- 1. Pay special attention to fluids, especially if you are a youth player.** All soccer players need to get enough fluids to stay hydrated. It's especially important for young players to drink enough. During exercise, children produce more heat than adults, have lower sweating rates, and take longer to get accustomed to hot weather. When they are playing soccer, children should drink 3 to 4 ounces (about ½ cup) of fluid every 15 to 20 minutes. Many children prefer cool fluids and grape-flavored sport drinks. Some juices are advertised as good sport drinks. However, juice contains a lot of carbohydrates so it doesn't replace fluids effectively unless it is diluted with water.
- 2. Eat well after you play.** Eating for recovery soon after practices and games helps you to stay energized for the entire season. Soccer games are often scheduled close to each other, with little time between games to refuel your muscles. Within the first 30 minutes after exercise, eat 0.7 grams of carbohydrates per pound of body weight (1.5 g/kg). (For a 150-pound soccer player, that equals 100 grams of carbohydrate.) Sport drinks, sport recovery beverages, and most energy bars and gels are good choices. Read the labels of recovery drinks to make sure they contain carbohydrate. (Some drinks that are advertised as recovery drinks contain more protein than carbohydrate.)

3. Do not try to lose weight during the season.

Soccer is a sport that demands a lot of energy, and losing weight makes you less able to perform at your best. A sports dietitian can help you lose weight during the off-season while keeping your energy level high for competition.

Nutrition Prescription:

- _____ calories per day
- _____ grams of carbohydrate per day
- _____ grams of protein per day
- _____ grams of fat per day
- _____ cups of fluid per day

Special concerns: