Fueling
Trojan Athletes

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Fueling Track & Field Athletes

Track and field athletes compete in different events and require different energy (calorie) and nutrient needs. Some events are high intensity, short duration (100- and 200-meter sprints, hurdles, high jump, long jump, triple jump, pole vault, shot put, javelin, discus, and hammer throw), and some events are high intensity, short duration that require all-out maximum effort for several minutes (400-, 600-, and 800-meter runs). There is not as much research on the energy and nutrient needs of athletes competing in high-intensity sports compared with those competing in endurance events, such as distance running, but nutrition can support training adaptations to make any athlete perform at his or her peak.

Track and field athletes may compete in short-duration events, but they train several hours a day, sometimes several times a day, and can compete in more than one event in a meet. Also, athletes compete in heats and advance to final events on the same day.

Fueling Strategies

Track and field athletes require enough energy to support hard training, and energy needs vary based on age, gender, event, and hours spent in training and competition. A balanced nutrition plan is advised, although diet has less of an impact on success in these sports than genetics, training, and motivation. However, nutrition is a valuable part of helping to maximize muscle mass needed for power events.

The nutrients that provide energy are carbohydrate, protein, and fat. The amount of each nutrient you need to fuel your practice and competition is given below.

Carbohydrate

Carbohydrate should make up most of your diet. During intense training periods, eat 2.3 to 3.2 grams of carbohydrate per pound of body weight per day (5 to 7 grams per kilogram). For example, a 150-pound athlete would need 345 to 480 grams of carbohydrate a day. On less intense training days or when sidelined by injury, you only need 1.4 to 2.3 grams of carbohydrate per pound (3 to 5 grams per kilogram).

Choose high-quality carbohydrate foods such as whole grain breads and cereals, rice, pasta, starchy vegetables, whole or dried fruit, and low-fat milk and yogurt. Eat fewer refined carbohydrates and sweets such as pastries, cookies, cakes, candy, sugar-sweetened soft drinks, fruit drinks, tea, and specialty coffee drinks.

These foods have 15 grams of carbohydrate:

- 1 slice bread
- 6-inch tortilla
- ½ cup corn
- ½ cup mashed potatoes
- ½ medium baked or sweet potato
- 1/3 cup rice
- 3 cups popcorn
- 1 small apple
- 15 grapes
- 2 tangerines
- 2 tablespoons raisins
- ½ cup orange juice
- 3 cups green beans
- 1¼ cups milk or yogurt

Protein

Protein provides the building blocks for muscle mass, growth and development, and repair after hard training. You need 0.6 to 0.8 grams per pound (1.3 to 1.8 grams per kilogram). For example, a 150-pound athlete would need 90 to 120 grams of protein a day. Eating more protein than the recommended amount will not build muscle faster or add extra muscle mass.

Choose lean protein foods such as lean beef and pork, chicken, turkey, fish, eggs, and low-fat dairy foods. Nuts are a good source of protein and contain healthy fats. Eat less high-fat protein foods such as regular burgers, brisket, ribs, sausage, and full-fat cheeses and dairy foods.

These foods have 7 grams of protein:

- 1 ounce cheese
- 1 ounce beef, pork, chicken, turkey, or fish
- ¼ cup cottage cheese
- ½ cup black beans or kidney beans
- 1 whole egg
- 2 tablespoons peanut butter
- 1 cup milk or plain yogurt

Fats

There is no specific recommendation for fat for track and field athletes, but healthy fats should be a part of every athlete's diet. Healthy fats include olives and olive oil, nuts and nut butters, avocado, and vegetable oils (such as canola oil). Fat has more calories than carbohydrate or protein so healthy fats can help add calories for athletes who want to gain weight while reducing fat intake can help those who want to lose weight.

What Should Track and Field Athletes Eat Before and After a Workout?

When possible, eat 3 to 4 hours before a hard practice or competition. Aim for a low-fat meal with about 200 to 300 grams of carbohydrate and 30 grams of lean protein. This will ensure you have enough fuel on board but will leave time for your stomach to empty before you train or compete. A turkey sub sandwich with baked chips and a side of fruit or a grilled chicken wrap on a flour tortilla with pretzels and fruit juice or low-fat milk are examples of meals that will meet the energy demands of a long training session or competition.

If there is not enough time to eat 3 to 4 hours before practice or competition, eat a snack 1 to 2 hours before exercise. Good choices for snacks include a mini bagel with peanut butter, granola or cereal bars, cheese and crackers, cereal and milk with banana, or yogurt.

For practices longer than 1 hour, pack portable snacks. Try to eat 30 to 60 grams of carbohydrate every hour. Good choices for snacks include sports drinks, which provide carbohydrate, fluid, sodium, and potassium; peanut butter sandwiches; pretzels; string cheese; trail mix; dried fruit; orange slices; baked chips; smoothies; or 100% fruit juice.

After practice, recover with a carbohydrate- and protein-rich snack. Carbohydrate replaces muscle glycogen (carbohydrate stored in muscles) that was lost during a long practice or competition, and protein stimulates muscle protein repair. Good choices include a turkey or grilled chicken sandwich, a slice of vegetable-cheese pizza, low-fat chocolate milk, cottage cheese and fruit, or cheese and crackers. If you are practicing or competing the next day, start your recovery within 30 minutes after training. If the following day will be a rest day, add recovery foods to your next meal.

Vitamins and Minerals

Track and field athletes can get all the vitamins and minerals they need by making healthy food choices and eating a variety of foods. Have at least 5 servings of fruits and vegetables each day. Adding berries to breakfast cereal, dried fruit to trail mix, frozen fruit to plain or vanilla yogurt, side salads with meals, vegetables on sandwiches, and salsa on baked potatoes and snacking on fresh fruit and vegetables will help you get all the nutrients you need.

Female track and field athletes should pay extra attention to choosing iron-rich and calcium-rich foods. These nutrients are needed in larger amounts, especially during teen years. Lean beef in a stir-fry, dark-meat chicken or turkey, kidney beans and black beans, and breakfast cereals fortified with iron are good choices. For calcium, choose low-fat milk (cow's milk or soy, rice, or almond milk), low-fat cheese, yogurt, almonds, leafy green vegetables, orange juice with added calcium, or smoothies made with milk or yogurt.

Hydration Strategies: What Should Track and Field Athletes Drink?

Track and field athletes need to maintain a high power output, and hydration can contribute to power. Mild dehydration (2% of body weight) can limit performance. Track and field athletes compete indoors, where air temperature can be high, and outdoors in sunny, hot, and humid conditions. Weigh yourself before and after practice to determine how much fluid you lose to establish a hydration schedule.

Water is best for most athletes. Plan to drink about 2 cups (16 ounces) of water 2 to 3 hours before a workout or competition. Then drink 1 cup (8 ounces) of water 10 to 20 minutes before exercise. Try to drink about 1 cup of fluid every 10 to 20 minutes during your workout, when possible. During practice, keep a sports bottle filled with water on the field or track so it is easy to reach and drink when you have the opportunity.

Sports drinks are a good choice when you have long, hard workouts or have to compete many times during competition. Stick to the basic tried-and-true sports drinks such as Gatorade or PowerAde, because they provide a good balance of carbohydrate, sodium, and potassium to replace losses. Follow the same drinking schedule as for water, but also listen to your body. Drink when you are thirsty and monitor how much you urinate and the color of your urine. If you are urinating frequently throughout the day and your urine is a light-straw color, you are probably drinking enough fluids.

Frequently Asked Questions

Are supplements that claim to buffer lactic acid helpful for track and field athletes?
Very high-intensity events use the anaerobic energy system. Lactic acid (acid that forms in muscle) can build up. The body has systems to help buffer the excess acid, but supplements such as bicarbonate have been used to provide extra buffering. Research shows that bicarbonate does help some athletes buffer acid and reduce fatigue. The dose used is about 0.13 grams (3 grams per kilogram) of bicarbonate citrate per pound of body weight 1 to 2 hours before high-intensity events. However, many athletes report gastrointestinal upset. If you want to experiment with bicarbonate do so during training. Collegiate and elite athletes are drug tested for banned substances, and some dietary supplements have been contaminated with banned substances.

We practice in the morning and I need some suggestions for healthy, easy breakfasts.
A healthy breakfast for a track and field athlete has quality carbohydrate and protein. Here are some breakfast ideas:

- 2 whole grain toaster waffles topped with real maple syrup with a glass of low-fat milk
- 2 scrambled eggs with a slice of whole grain toast and 100% fruit juice
- Bowl of instant oatmeal with 2 tablespoons peanut butter stirred in and 100% fruit juice
- 6 ounces low-fat Greek plain or vanilla yogurt with ½ cup granola and 100% fruit juice
- 1½ cups whole grain cereal (such as Cheerios or Wheaties) with low-fat milk and banana
- Peanut butter and jelly sandwich on toasted whole grain bread with low-fat milk
- Toasted English muffin sandwich with 1 slice lean ham or Canadian bacon and a scrambled or fried egg with glass of milk
- Yogurt smoothie
- Whole wheat tortilla stuffed with scrambled eggs and turkey bacon with 100% fruit juice

What are some good resources for nutrition?
The best resource is a registered dietitian nutritionist, especially one who specializes in sports nutrition.

Information from the Academy of Nutrition and Dietetics Nutrition Care Manual.

Food Basics

The Basics

- Eat breakfast every day.
- Drink plenty of water.
- Eat five servings of fruits & veggies.
- Eat lean protein with meals and snacks.
- Choose foods that help you feel your best.
- Tune into your body's cues for when you're thirsty, hungry, and full. Respect your body by meeting its needs.
- Plan ahead for meals and snacks.

Parent's or Caregiver's Role

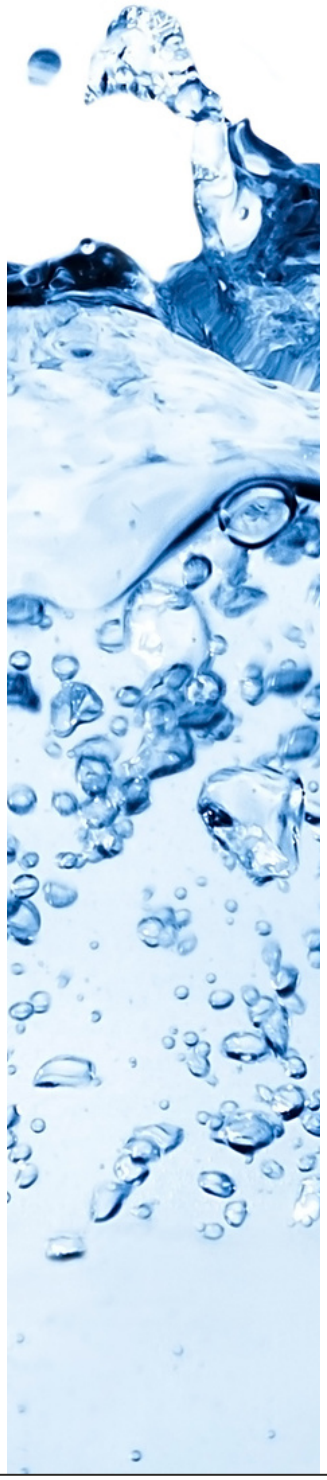
- Choose and purchase the food.
- Provide regular meals with snacks.
- Eat together as often as possible.
- Encourage cooking and preparing food together.

Athlete's Role

- Choose if they are going to eat.
- Determine how much to eat.
- Stop eating when they are full.
- Decide how fast/slow they will eat.

Hydration

Staying hydrated is a key ingredient to keeping your body healthy and safe during intense exercise. Dehydration can increase your risk of injury or cause serious heat illnesses.



WATER BASICS

- ✔ Check your urine and aim for clear to light yellow.
- ✔ If you're thirsty, you're already dehydrated.
- ✔ Aim for 80-120 ounces of fluid each day, or 1/2 to 1 ounce per pound of body weight
- ✔ Drink 8-12 ounces of water every 20 minutes during activity
- ✔ Don't over do it.

WHEN TO CONSIDER A SPORTS DRINK

- ✔ Exercise is longer than an hour
- ✔ Intense workouts
- ✔ Practicing or playing in high humidity & heat
- ✔ Excessive sweating

WARNING SIGNS OF DEHYDRATION

- Intense thirst
- Exhaustion
- Increased temperature
- Fast heart rate
- Fast breathing
- Confusion
- Fainting or feeling dizzy
- Cramping
- Headaches
- Dark urine

Calories: How much should an athlete eat?

Active teenagers need lots of fuel to get them through the day. On average …

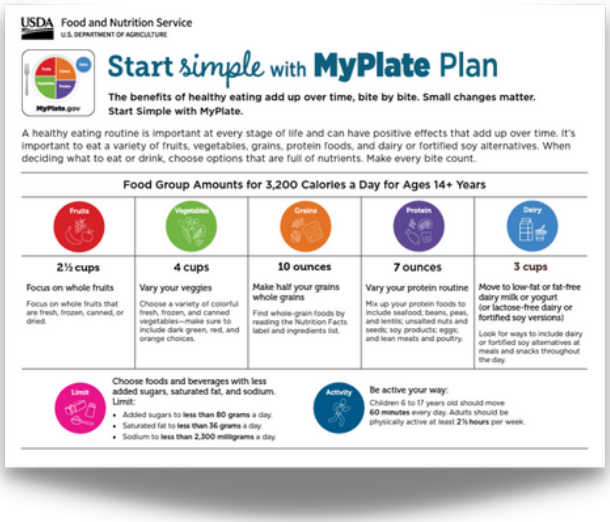
- Boys need 3,000 to 4,000 calories a day.
- Girls need 2,400 to 3,000 calories a day.

Teen athletes benefit from eating regularly (every few hours) and incorporating a mix of carbohydrates, fats, and protein every time they eat.

MyPlate Plans

For a more personalized plan, we recommend using the tools on MyPlate.gov. With their planning tool, you'll enter your age, sex, weight, height, and level of physical activity. A food plan will then be calculated that you can view online or download and print. It's important to remember that every body is different and you may need more calories on very active days, and less on other days. The MyPlate Plan is a great starting point and should be used along with your own body's needs and hunger cues.

- Start at myplate.gov/myplate-plan.
- Click on **Start**.
- Enter your age, sex, weight, height, and level of physical activity.
- Click **Calculate food plan.**
- Click on the calorie amount calculated to view and then download a MyPlate plan for that amount of daily calories.



Information adapted from Eatright.org and MyPlate.gov.

How Teen Athletes Can Build Muscles with Protein

Article from eatright.org — Academy of Nutrition and Dietetics

Eating protein doesn't equal big muscles. Instead, muscle growth is a complex process that relies on adequate consumption of protein and calories, hormones the body produces, including human growth hormone and testosterone, and a healthy dose of physical activity. Here are a few facts and tips to keep in mind before you amp up your protein in search of a new physique.

Work Builds Muscle
Although eating protein doesn't build muscle on its own, the presence of protein in an athlete's eating pattern is important. Believe it or not, when you exercise, such as lifting weights or running, some of your muscle cells break down. Protein from food helps repair this damage from exercising and builds up more muscle, making them stronger.

Strike a Balance
While protein is important for building new muscles, **eating the right amount of protein** [and at the right time] **is key**. Consuming more protein than your body needs may translate to excess calories that must be stored, usually in the form of fat. Too little protein consumption means your body has to supply it itself, which can result in muscle breakdown and loss. When you eat a balanced diet that includes enough calories and carbohydrates, your body won't use protein as a calorie source — it will spare it to build muscles and repair them when needed.

How Much Protein Is Enough?
Young athletes need slightly more protein than their peers who aren't athletes. Protein needs are based on age, sex, body weight and stage of development, with teens needing between 10 to 30% of their daily calories from protein. Although an individual's exact needs will vary, the Recommended Dietary Allowance (RDA) provides a good reference for how much of a certain nutrient a healthy individual needs in a day. The RDA for protein is 46 grams for teenage girls and 52 grams for teenage boys per day.

Most athletes are able to meet these protein requirements and then some. In fact, studies show that young athletes consume two to three times the RDA for protein! Although athletes may have higher protein needs than their peers, contrary to popular belief, consuming large amounts of protein does not build additional muscle.

One strategy that may provide an advantage, though, focuses on timing. Studies now show that it is not just the total protein intake for the day that counts for athletes. The body can best build and maintain muscles when protein is divided relatively evenly throughout the day. To do this, include a source of protein at each meal and snack. [Our Athletic Trainer recommends about 20g of protein within 30 minutes post-exercise.]

The Best Protein Sources
Many foods contain protein, but high-quality protein comes from beef, poultry, fish, eggs, milk and dairy products, soy and soy products. Including a variety of plant-based sources of protein, such as beans, nuts, and seeds throughout the day can also help to meet protein requirements.

Beware of Protein Supplements
Some athletes wonder about using a protein supplement such as protein powder or a high-protein drink. Overall, this isn't necessary and even might be dangerous. Using protein supplements may lead to excessive protein intake, taxing the kidneys and promoting dehydration. Plus, the risk for contamination with steroids, hormones or other unwanted ingredients is real, as the safety of dietary supplements is largely left to manufacturers.

The good news? You can meet your protein needs with food alone! Just be sure to eat a serving of protein, like the ones above, at each meal and snack.

Foods that Fuel

Lean Meats

- Boneless chicken breast*
- Fish (cod, salmon, tuna)*
- Lean beef (steak, burger)*
- Turkey*
- Pork*
- Eggs or egg whites*

Dairy

- Low-fat milk*
- Low-fat yogurt*
- Greek yogurt*
- Cheese*
- Low-fat cottage cheese*

Grains

- Whole wheat or whole grain bread items like bagels, tortillas, pitas, English muffins
- Oatmeal*
- Whole grain pasta
- Whole wheat crackers
- Brown rice
- Quinoa*
- Whole wheat or whole grain cereals

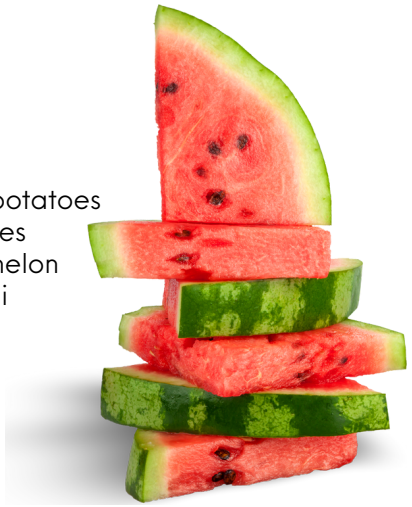
Beans, Nuts & Seeds

- Edamame*
- Black beans*
- Chickpeas*
- Lentils*
- Nuts and seeds*
- Tofu*
- Nut butters*

How much protein do I need to eat?
For very active teens who are looking to build muscle mass, aim for 1/2 to 1 gram of protein per pound of body weight.
*Foods that are good sources of protein.

Fruits & Vegetables

- Apples
- Apricots
- Avocados
- Bananas
- Berries
- Broccoli
- Brussel sprouts
- Cantaloupe
- Carrots
- Cauliflower
- Celery
- Cherries
- Corn
- Cucumbers
- Grapes
- Green beans
- Lettuce, spinach, kale
- Oranges
- Peaches
- Pears
- Peppers
- Pineapple
- Plums
- Potatoes
- Sweet potatoes
- Tomatoes
- Watermelon
- Zucchini



Smoothies: A Great On-the-Go Option

Start with a cup of liquid like water or milk…

- Add a cup of frozen fruit you like, such as:
  - Blueberries, strawberries, or blackberries
  - Banana
  - Mango
  - Peaches
- Consider adding healthy fats like avocado, peanut butter, or almond butter.
- Consider adding in a vegetable like spinach, kale, tomato, or carrot.
- Blend together, adding ice or liquid as needed.

Ideas for Items to Have on Hand

- Chicken salad
- Egg salad
- Pre-made sandwiches
- Beef or turkey sticks
- Tuna packets
- Premade salads
- Peanut butter

Snack Ideas for Busy Days

(Perfect for a backpack!)

- 100% juice boxes
- Trail mix
- Peanut butter crackers
- Granola bars
- Dried fruit
- Applesauce pouches
- Almonds
- Peanuts
- Cashews

Healthy Snacks to Refuel

The best sports recovery snack choices for youth athletes are the foods that they are familiar with and that they tolerate. Serving a combination of carbohydrate-rich foods with protein will help prevent muscle soreness and prepare your child for their next practice or competition. A meal or snack will also help youth athletes to refuel and rehydrate their body after intense activity. Healthy snack combinations include the following:

¾ cup low-fat yogurt +
½ cup granola +
¾ cup frozen peaches

Trail mix made with:
1 ounce beef jerky +
1 ounce dried pineapple +
½ cup ready-to-eat cereal

1 cup low-fat chocolate milk +
8 graham crackers

1 apple +
2 tablespoons of
peanut butter

12 whole wheat tortilla chips +
1/2 cup black bean and corn salsa

1 cup ready-to-eat cereal +
1 cup low-fat milk

1 ounce pretzels +
1 ounce raisins

6 wheat crackers +
1 ounce summer sausage +
1 ounce low-fat cheese

1 fruit and nut granola bar +
3 ounce applesauce pouch

Fruit smoothie made with
3/4 cup low-fat yogurt +
1 small banana
1/2 cup low-fat milk

12 wheat crackers +
1/4 cup avocado +
1 low-fat mozzarella string cheese

1 mini bagel +
2 tablespoons cream cheese +
1 cup low-fat milk

1/2 cup cooked oatmeal +
1 cup blueberries +
2 tablespoons nuts

1 whole wheat English muffin +
2 tablespoons peanut butter +
1 tablespoon fruit preserves

2 tablespoons hummus +
1 cup raw veggies such as carrots,
broccoli, cauliflower

1 medium orange +
1 hard-boiled egg

6 wheat crackers +
1/3 cup tuna salad

1 eight-inch tortilla +
2 ounces sliced turkey

Information from the Academy of Nutrition and Dietetics Nutrition Care Manual

Building Good Habits

In addition to good nutrition habits, athletes also need to develop good habits for recovery in between practices and competition.

Sleep

- Aim for 8 hours of sleep every night to help your body recover from practices and competition.
- Create a healthy routine each night to help yourself fall asleep.
  - Turn off electronics like phones, laptops, and TVs a half hour to hour before bed.
  - Use the time before bed for self-care like stretching, journaling, or reading.
  - Stick to a regular bedtime and wake-up time.
  - Avoid or cut back on caffeine.

Cool-Downs, Massage, & Stretching

- Don't skip the cool down at the end of a workout.
- Use a foam roller or tennis ball to massage muscles.
- Stretching — both static and dynamic — can help you reduce soreness and may help prevent injuries.
- Keep ice packs (or bags of frozen peas) on hand. When needed, apply the ice for 20 minutes at a time.
  - You can also make an ice pack by mixing one cup of rubbing alcohol with three cups of water and freezing in a plastic freezer bag.

MEAL PLANNING TIPS

- Start by checking the refrigerator, freezer, and pantry to see what you already have on hand.
- Look at the calendar and determine when and where you'll eat your meals, and make note of any special events or considerations that you'll need to plan around.
- Check out the weekly grocery ads to see what's on sale and in season.
- Review your meals and see if there is something from each of the food groups in most of your meals. This is the simplest way to make sure your meals are healthy.
- If you have extra room in your grocery budget, try to stock up on the pantry items you use regularly.

What do I already have at home?

	Monday	Tuesday	Wednesday	Thursday	Friday
Breakfast					
Snack					
Lunch					
Snack					
Dinner					
Did I include...	• Grains • Veggies • Fruits • Dairy • Protein	• Grains • Veggies • Fruits • Dairy • Protein	• Grains • Veggies • Fruits • Dairy • Protein	• Grains • Veggies • Fruits • Dairy • Protein	• Grains • Veggies • Fruits • Dairy • Protein

Adapted from Spend Smart. Eat Smart. from Iowa State University Extension and Outreach.

GROCERY LIST

FRUITS & VEGETABLES

MEAT

FISH & SEAFOOD

DAIRY

BREADS

CANNED GOODS

FROZEN GOODS

RICE & PASTA

CONDIMENTS

SNACKS

BEVERAGES

OTHER