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## Fueling Swimmers

Swimming is a great sport for recreational or competitive athletes. Swimming works all major muscle groups, so it is a good workout for the whole body. Swimming is a low-impact sport, meaning there is less force on the hip and knee joints, making it an ideal exercise for individuals of every age.

Swimmers face long practices, including training in the pool and on dry land. Most competitive swimmers start when they are young and must juggle up to 4 hours of practice a day plus school, leaving little time for healthy eating. Packing nutritious foods and fluids for before, during, and after workouts can help swimmers meet the high-calorie and nutrient demands of the sport.

USA Swimming is the national governing body for elite US swimmers ([www.usaswimming.org](http://www.usaswimming.org)). The Nutrition Center of the USA Swimming website provides additional resources on nutrition for swimmers.

## Fueling Strategies

Swimmers can practice for hours at a time and have a long competitive season that usually lasts up to 8 months. They require 2,500 to 6,000 calories a day during training, depending on age, gender, and hours spent in dry land training and in the pool. Some teenage and young adult swimmers may need even more calories.

The nutrients that provide energy (calories) are carbohydrate, protein, and fat. The amounts of each nutrient you need to fuel your practice and competition are 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 swimmer 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). Active young children need less carbohydrate than older children, so the lower end of the ranges is recommended.

Choose high-quality carbohydrate foods such as whole grain breads and cereals, rice, pasta, starchy vegetables, whole or dried fruit, and

These foods have **15 grams** of **carbohydrate**:

- 1 slice bread
- 1 6-inch tortilla
- ½ cup corn
- ½ cup mashed potatoes
- ½ medium baked or sweet potato
- ½ 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

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  
**7 grams of protein:**

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

## Protein

Protein provides the building blocks for muscle mass and for healthy growth and development. You need 0.6 to 0.8 grams per pound (1.3 to 1.8 grams per kilogram). For example, a 150-pound swimmer 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 fewer high-fat protein foods such as regular burgers, brisket, ribs, sausage, and full-fat cheeses and dairy foods.

## Fats

There is no specific recommendation for fat for swimmers, 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 swimmers who want to gain weight.

## What Should Swimmers 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 swim. 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 practice 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 you swim. Good choices include juice, fruit, milk, granola or cereal bars, a small bagel with peanut butter, crackers and cheese, a bowl of cereal, or yogurt. If there is less than 1 hour before exercise, liquids, such as a sports drink or a low-fat liquid meal replacement, may be the best choice.

For practices longer than 1 hour or for all-day swim meets, pack poolside 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**

Swimmers 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 fruits and vegetables will help you get all the nutrients you need.

Female swimmers 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 Swimmers Drink?**

Swimmers might practice and compete in the water, but that doesn't mean they don't need to drink water too. Dehydration can occur after 30 minutes of swimming. Warm water temperature and warm, humid air around the pool contribute to dehydration and can increase the need for fluids.

Water is best for most athletes. Plan to drink about 2 cups (16 ounces) of water 2 to 3 hours before a workout or swim meet. Then drink 1 cup (8 ounces) of water 10 to 20 minutes before diving into the pool. Most workouts are long and strenuous, so drink about 1 cup of fluid every 10 to 20 minutes during your workout. Keep a sports bottle filled with water poolside so it is easy to reach. If you don't like the taste of plain water, slice up lemons or limes to drop into your water bottle for a refreshing taste.

Sports drinks are a good choice when you have long, hard workouts or have to race many times during a meet. 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.

**Notes:**

## Frequently Asked Questions

### **Do swimmers have more body fat than other athletes?**

Swimmers tend to have a higher percentage of body fat than other endurance athletes, such as distance runners or soccer players, even though they can burn a lot of calories during a workout. Swimmers report they are very hungry after long workouts and may eat more than other athletes after training. There is no ideal body fat percentage for a swimmer, so fuel your body for performance, not appearance.

### **I am a teenage male swimmer and can never seem to eat enough to maintain my weight during the season. What foods should I eat to get more calories and still be healthy?**

Choose foods with healthier fats, such as peanut or almond butter, guacamole or sliced avocado (on salads and sandwiches), and nuts and seeds.

When eating out, choose roast beef sandwiches, bean-and-cheese burritos, beef or chicken fried rice, baked potatoes with cheese and chili, and wrap sandwiches. These are high-calorie choices that are also rich in nutrients.

Drink 100% fruit juice, such as apple, cranberry, or grape, with meals for added calories. Always have an evening snack such as cereal and milk, a peanut butter sandwich, or a homemade milkshake or smoothie.

### **What are some good resources for nutrition and swimming?**

The best resource is a registered dietitian nutritionist, especially one who specializes in sports nutrition.

To find a qualified sports dietitian, connect to the website of Sports, Cardiovascular, and Wellness Nutrition (SCAN) ([www.scandpg.org](http://www.scandpg.org)) and use the “Find a SCAN RD” window. SCAN also has free sports nutrition fact sheets on a wide range of topics at [www.scandpg.org/sports-nutrition/sports-nutrition-fact-sheets](http://www.scandpg.org/sports-nutrition/sports-nutrition-fact-sheets).

For online resources, check out the United States Olympic Committee’s sports nutrition resources at [www.teamusa.org/About-the-USOC/Athlete-Development/Sport-Performance/Nutrition](http://www.teamusa.org/About-the-USOC/Athlete-Development/Sport-Performance/Nutrition). You will find many resources there, including videos, recipes, and eating guidelines for athletes.