

FOODS AND FLUIDS FOR ENDURANCE SPORTS



Successfully competing in endurance sports such as running, cycling, cross-country skiing, and swimming requires close attention to fueling the athlete's body with fluids and foods consistently. Steady, but not necessarily slow, wins the race.

Fluids: Staying Properly Hydrated

Endurance athletes, especially those who train in hot and humid weather conditions, constantly risk dehydration. The risk becomes greater the longer an athlete is working, or when athletes train or compete more than once in a day.

- If exercisers lose too much fluid in sweat without replacing what they've lost in both fluids and electrolytes (like sodium and potassium), they risk becoming dehydrated. Endurance athletes can use sports drinks, like Gatorade®, to help ward off dehydration and muscle cramps by replacing fluid or electrolytes.
- Dehydration can diminish energy and impair performance. Even a 2-percent loss of body weight through sweat (i.e., 3 pounds for a 150-pound runner)^{1,2} can put athletes at a disadvantage. When the difference between top finishers in an endurance event is only a few seconds or less, athletes can't afford to lose time due to dehydration.

The Right Way to Hydrate

Because endurance events last longer than most sports, endurance athletes also run a higher risk of overhydrating, so hydration plans for these athletes should be considered carefully.

- **Remember fluids throughout the day.** It's important for endurance athletes to come to workouts and competitions hydrated. To do this, athletes can start out the day by grabbing a sports drink, then using fountains, coolers, and other beverages as triggers for drinking throughout the day.
- **Hydrate 2 to 3 hours before training and competitions.** Aim for at least 16 ounces (2 cups) of fluid at this time and an additional 8 ounces (1 cup) 10 to 20 minutes prior to getting on the field.
- **Drink to replace sweat; don't overdrink.** Endurance athletes, especially inexperienced marathoners who tend to run slowly and stop for more fluid breaks, risk overhydrating, which can lead to a dangerous condition called "hyponatremia". Hyponatremia occurs when an athlete takes in too much fluid and the sodium level in blood drops too low. All endurance athletes should know how much fluid their body requires and use their sweat rate as a guide (see sweat rate chart below).

Know your sweat rate and how to replace it. To determine how much to drink, it's important for athletes to know their sweat rates. It can vary based on the individual, weather, and intensity of exercise, so athletes should measure:

How much weight they lose during exercise (in fluid ounces)
+
How much fluid they consume during exercise (in fluid ounces)
=
The amount they SHOULD drink to replace sweat losses

Foods: Before, During, and After Fuel

For energy to get through a workout or event, athletes should fuel their bodies 2 to 3 hours before training and competition. If solid food before an endurance event doesn't sit well in an athlete's stomach, they can try eating a small meal, 4 to 5 hours before the event. Then, drink a small liquid snack or meal a couple hours before the competition for an extra boost.



Pre-workout fueling tips:

- Consume a pre-competition team meal, with high-energy foods like breads, cereals, pasta, rice, fruits and vegetables – as well as lean sources of protein. Athletes should fill 2/3 of their plates with high-carbohydrate options.
- Endurance athletes should also pay close attention to the meal the night before the event and eat what works for them. This is a good time to load up on easy-to-digest carbohydrate sources like pasta, rice, bread, potatoes, fruits, and juices with the meal.
- Athletes should make sure to replace the sodium lost in sweat – especially if they're heavy crampers. Athletes can do this by regularly salting their food and eating some salty snacks like pretzels, crackers and soups. In general, endurance athletes should not adhere to a low-sodium diet.
- Experiment with what works for fueling during competitions (bars, gels, goo, etc.).
- Boost energy and glycogen stores by consuming high-carbohydrate foods and fluids in the "30 minute window" after exercise.

¹ Gisolfi, C.V. and D.R. Lamb. *Perspectives in Exercise Science and Sports Medicine: Fluid Homeostasis During Exercise*, Chapt 1 pp. 1-38, 1990.

² Gopinathan, P.M. et al. *Arch Environ Health*, 43:15-17, 1998.

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Carbohydrates and Endurance

Carbohydrate is the body's "energy powerhouse" that fuels muscles for training and competitions and is essential to building glycogen stores and providing the long-haul energy that is so important in endurance events.

| Food or Beverage | Carbohydrate amount (grams) |
|--------------------------------|-----------------------------|
| 1 cup skim milk | 12 |
| 1 cup Gatorade® | 14 |
| 1 medium apple | 20 |
| 1 medium banana | 25 |
| 1 cup orange juice | 25 |
| 1 cup cooked oatmeal | 26 |
| 2 slices bread | 30 |
| 1 2-oz. Snickers®* candy bar | 34 |
| 1 cup fruit punch | 37 |
| 12 oz. regular cola | 38 |
| 1 cup cooked spaghetti | 40 |
| 1 cup cooked white rice | 42 |
| 1 cup raisin bran | 47 |
| 1 4-inch cinnamon raisin bagel | 49 |
| 1 baked potato | 50 |
| 1 cup fruit yogurt | 50 |
| 1/2 cup raisins | 57 |
| 1 cup regular granola | 64 |
| 16 oz. chocolate milkshake | 68 |

Sample high-carbohydrate training diet:

| Time | Sample Menu |
|--------------------|--|
| Breakfast: | Oatmeal with lowfat milk Banana Orange juice |
| Endurance workout: | 8 ounces of Gatorade® for every 10 -20 minutes during the workout |
| Post-workout: | Bagel with peanut butter Fruit yogurt Grape juice |
| Lunch: | Chicken salad sandwich on whole grain bread Carrot and pepper sticks Corn chips Apple Lowfat/nonfat milk |
| Snack: | Dry cereal mixed with raisins and peanuts Peach |
| Dinner: | Pasta with meat sauce Italian bread Salad with veggies/lowfat dressing Steamed broccoli and cauliflower Frozen yogurt/strawberries |