Client Name: Date:

RDN/NDTR: Email: Phone:

Fuel for Distance Runners

Distance races include the 10 kilometer (6.2 miles), half-marathon (21 kilometer or 13.1 miles), and marathon (42 kilometer or 26.2 miles). Your calorie needs depend on body weight, practice and race intensity and duration, and your training schedule.

Competitive distance running demands substantial energy. Build a sound fueling plan to cover the sport's demands and support recovery. Matching your fueling to your training helps you stay strong through long runs.

Tips

- Have 5 to 6 nutrient-rich meals each day to support performance and reach your body composition goals.
- Eat at least 5 daily servings of fruit and vegetables to supply vitamins and minerals.
- Make carbohydrate the main part of your diet. The amount needed ranges from 3 to 12 grams per kilogram of body weight, depending on your sport, position, daily training load, and overall goals. Your sports registered dietitian nutritionist (RDN) can help identify the right carbohydrate intake for you.
  - Select quality carbohydrate sources, including whole grain cereals and breads, pasta, rice, starchy vegetables, dried or whole fruit, and low-fat yogurt and milk.
  - Limit refined carbohydrates and sweets, such as cookies, pastries, cakes, candy, sugary soft drinks, fruit drinks, sweetened tea, and specialty coffee drinks.
- Protein supplies the materials to build muscle mass for healthy growth and development. Daily protein needs are about 1.2 to 2.0 grams per kilogram of body weight, based on factors such as training status, training phase, and individual circumstances. Your sports RDN can explain the protein intake suited to you.
  - Protein timing matters when building muscle. Within 1 hour after training, eat protein with carbohydrate to supply amino acids, the building blocks of protein, for muscle growth and repair.
  - Try to have protein about every 3 hours in the day, including 1 hour before bed.
  - Protein above the recommended amount will neither speed muscle growth nor increase muscle mass.
- Include healthy fats to provide enough energy for training and help your body absorb vitamins. Fat should supply 20% to 35% of total calories. As training volume rises, your need for dietary fat also grows. Very high or very low fat intakes offer no performance advantage. Your sports RDN can help you determine the fat intake that meets your needs.
  - Healthy choices include olive oil, olives, nuts and nut butters, avocado, and plant oils, including canola oil.

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Fuel for Distance Runners (2022)

Carbohydrate and Protein Portions

Using serving sizes for carbohydrate and protein foods can make it easier to choose enough fuel before, during, and after training, and at meals and snacks. Your sports RDN can guide food portions and eating times to support your best sport performance.

Carbohydrate sources	Portion (1 serving = 15 grams carbohydrate)
Bread	1 slice
Tortilla	1, 6 inches
Corn	½ cup
Mashed potatoes	½ cup
Baked or sweet potato	½, medium
Rice	1/3 cup
Popcorn	3 cups
Apple	1, small
Grapes	15
Tangerine	2
Raisins	2 tablespoons
Orange juice	½ cup
Milk or yogurt	1¼ cups

Protein sources	Portion (1 serving = 7 grams protein)
Cheese	1 ounce
2% milk	1 cup
Plain yogurt	1 cup
Cottage cheese	¼ cup
Egg	1 whole
Beef, pork, chicken, turkey, or fish	1 ounce
Tofu	¼ cup
Nuts, seeds	2 tablespoons
Peanut butter	2 tablespoons
Black beans or kidney beans	½ cup, cooked

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Hydration

Daily hydration supports your health and distance-running performance. Start sessions well hydrated and drink to thirst during training and races to prevent dehydration. Water suits most sessions and events under 1 hour. For sessions over 1 hour or hot days, a carbohydrate-electrolyte sports drink may encourage drinking and help you stay hydrated. Carry a bottle of water or sports drink.

Hydration Tips

- Before training or competition: Aim for about 2 cups (16 ounces) of water 2 to 3 hours before starting. Sodium-containing drinks and/or salty snacks encourage thirst and help retain fluid. Continue to drink according to thirst.
- During competition: Prevent excessive dehydration, which occurs when sweat-related weight loss reaches 2% or more of your starting body weight. Weighing before and after practice can show the percentage of body weight lost and whether you drink enough during training and competition. Remember that weight lost in a training session is water, not muscle or fat tissue.
  - Drink enough to keep total body fluid losses below 2% of your body weight.
  - Your sports RDN will set personal hydration goals based on sweat rate, training status, temperature, humidity, and the intensity and length of play.
- In hot, humid conditions: Prevent excessive dehydration with drinks containing electrolytes, including sports drinks.

For lengthy practices, games, or events, sports drinks are a useful option. They supply carbohydrate, sodium, and potassium in a balance that helps replace losses. Use the same drinking schedule as for water and pay attention to your body. Drink when thirsty, and watch urine frequency and color. Frequent urination throughout the day with light-straw-colored urine usually indicates adequate fluid intake.

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Meals Before, During, and After Training or Competition

These examples show how to time fuel around training or competition. Try the suggestions in training first to check that your stomach tolerates the schedule before competition day. Your sports RDN can tailor food choices and amounts to your needs.

When to Fuel	Suggested Fuel
	Fuel for Training and Competition
3-4 hours before an event **3-4 hours between events**	Eating 3-4 hours before training or competition, or in a 3-4-hour break between events, allows time to digest. Choose a low-fat meal with plenty of carbohydrate: 1 gram per kilogram of body weight multiplied by the hours before the event. Include moderate lean protein, about 30 grams. ■ 6-inch turkey sub, 1 ounce tortilla chips, 1 piece of fruit, and 1 cup 2% milk OR ■ 1 grilled shrimp wrap in a flour tortilla, 1 ounce pretzels, 1 cup berries, and 1 cup soy milk
1-2 hours before an event **1-2 hours between events**	Choose a snack high in carbohydrate, low in fat, and moderate in protein 1-2 hours before training or competition, especially if you could not eat earlier. Between events, snack as tolerated to restore muscle fuel and prepare for the next event. Larger snacks are generally easier to tolerate when you have 2 hours. ■ 1 bagel with 1 tablespoon peanut butter OR ■ 1 granola bar providing 30-40 grams carbohydrate and 8-10 grams protein OR ■ 5-10 crackers plus 1 ounce cheese OR ■ 1 cup cereal, 1 cup 2% milk or soy milk, and 1 banana OR ■ ¾ cup yogurt plus ½ cup fruit OR ■ 12-16 ounces fruit smoothie with at most 8 grams protein OR ■ 8-12 ounces 2% chocolate milk plus 1 banana OR ■ 2 hard-boiled eggs with a low-protein/high-carbohydrate granola bar
Under 1 hour before an event or with 1 hour between events	Choose carbohydrate foods or drinks that digest quickly and easily. ■ Sports drinks (drink as tolerated; no set amount is suggested) OR ■ 1 piece of fruit such as a banana or orange
	During Training or Competition
Events lasting 1-2.5 hours	During training or competition, have a snack providing 30-60 grams carbohydrate per hour from these sources: ■ Sports drinks or sports foods such as gel packets, gum packets, energy chews, or sport beans ■ Fruit, dried fruit, pretzels, or granola bars containing only carbohydrate
Events lasting over 2.5 hours	During training or competition, choose a snack providing up to 90 grams carbohydrate per hour. Use several sugar sources, such as glucose and fructose, for higher carbohydrate oxidation rates. Choose from these options: ■ Sports drinks or sports foods such as gel packets, gum packets, energy chews, or sport beans OR ■ Fruit, dried fruit, pretzels, or granola bars containing only carbohydrate
	After Training or Competition
30 minutes after event if competing again the next day **Include recovery foods at your next meal if tomorrow is a rest day.**	Have a snack rich in carbohydrate and protein. Protein supports muscle repair; carbohydrate replenishes glycogen, the carbohydrate stored in muscle, used during training or competition. Aim for about 15 to 30 grams protein and 1.0 to 1.2 grams carbohydrate per kilogram of body weight. Your sports RDN can help select the right amounts. ■ 6-inch turkey sub OR ■ 1 grilled chicken sandwich OR ■ 12-16 ounces 2% chocolate milk or soy milk OR ■ 1 cup cottage cheese plus 1 piece of fruit OR ■ 10-15 crackers with 1-2 ounces cheese

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FAQs

When should I use iron supplements?

Use iron supplements only for iron depletion or deficiency. A blood test is the only way to establish your iron status.

Runners face a higher risk of iron depletion or deficiency. Include iron-rich foods along with vitamin C-rich foods to improve absorption. Your sports RDN can offer a handout suggesting suitable foods.

How can I reduce gut problems in longer races?

Stomach upset, cramps, and diarrhea are common in distance runners. Reduced blood flow to the gut and dehydration may cause intestinal problems during intense exercise, especially running. Develop and test fueling and hydration schedules in training before race day. Stay well hydrated, choose lower-fat and lower-fiber foods the day before and day of the event, and eat small portions of familiar, well-tolerated foods.

Notes

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