

## CARBOHYDRATE LOADING: Tips for Endurance Athletes

1. For 2 to 3 days prior to a marathon or other event that will involve more than 90 minutes of hard exercise, you should *superfuel* your muscles by eating a hearty amount of carbohydrate-rich foods. The majority of your calories (3-5 grams carb/lb body weight) should come from grains (pasta, rice, cereal, bread), fruits, juices, and vegetables. Also include adequate protein to protect your muscles; eat limited amounts of fatty food.

2. **Exercise less.** Taper your training to rest your muscles and allow them the opportunity to refuel. The week prior to the event, gradually reduce your exercise, so you are training only 20 minutes two and three days prior to the event; nothing the day before. Eliminate any last minute endurance training; you will simply fatigue yourself at a time when rest is more beneficial.

3. **Eat reasonably.** To avoid "getting fat" due to the reduced amount of exercise, eat reasonably, not gluttonously. Each meal should be based on carbohydrates, with small amounts of lean protein and limited amounts of fat. If you carbo-load correctly, you will gain weight: water-weight, not body fat. For every 1 gram carbohydrate stored in your muscles, you store ~3 grams water. During exercise, the water will help delay dehydration.

4. **Drink extra fluids** (until your urine is a light color) so you start the endurance event optimally hydrated. Otherwise, lack of fluids will seriously hurt your stamina and performance. Limit beer, wine and alcohol; they can hurt performance.

5. **Eat a pre-event breakfast.** The food you eat the morning of the event helps maintain a normal blood sugar level; it fuels your brain and helps you think clearly. Eat a comfortable meal 1 to 4 hours prior, such as 400 to 800+ calories of oatmeal, cereal, yogurt, or whatever you normally eat prior to training sessions. Don't try new foods!

For fluids the morning of the event, drink at least 3 glasses (24 ozs) of water, sports drink, or juice up to 2 hours before the start. (The kidneys will process this liquid in less than 90 minutes, allowing time for you to urinate the excess.) Drink 8 to 16 ounces of water or sports drink as tolerated 5 to 10 minutes before the start.

6. **During the event, drink on a schedule:** 8 to 10 ounces every 20 minutes. Because you need both fluid and about 240 calories of carbohydrates per hour (for fuel), plan to consume sports drinks *or* water plus high-carb foods (banana, energy bar, gels) during the event. Stop drinking if the fluids are sloshing in your stomach. (Pre-marathon, learn your sweat rate: weigh yourself before and after one hour of exercise. One pound lost equates to 16 ounces you need to drink during exercise.)

7. **After the event,** enjoy a nice meal or smaller snacks. Keep in mind your muscles need carbohydrates to *refuel*. A little protein enhances the process and may reduce muscle soreness. Choose some salty foods (soup, pretzels, spaghetti sauce) to replace sodium losses. Drink plenty of non-alcoholic fluids until your urine is a clear color.

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**Be sure to choose *low fat* carbohydrates.** When selecting your diet, carefully choose high *carbohydrate* foods, not high *fat* foods. The two often come together, such as *butter* on potato and *cream* in ice cream.

**Best choices (highest in carbohydrates):**

Spaghetti and pasta meals with tomato sauce  
Rice, potato, yams, stuffing - limit butter, gravy  
Lentils, chili with beans, split pea soup  
Bread, muffins, bagels, cereal  
French toast, pancakes, oatmeal  
Jam, jelly, honey, syrup  
Fruit - bananas, pineapple, raisins, figs  
Apple crisp, date squares, fig bars  
Juices - apple, grape, cranberry, orange  
Blenderized fruit and juice smoothies  
Sherbert, sorbet, frozen yogurt

**Poorer choices (lower in carbohydrates):**

Pizza & pasta meals with lots of meat, cheese  
French fries, fried rice, buttery potato  
Meals with lots of meat or cheese  
Donuts, croissants, danish pastry  
Eggs, omelets, and breakfast meats  
Butter, margarine, cream cheese  
Cookies, chips, high-fat snacks  
Desserts made with lots of butter  
Beer, wine, alcohol  
Milk shakes, frappes  
Ice cream - especially gourmet brands