

Sports Nutrition

Sports Medicine Systems, Inc.

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CARBOHYDRATE LOADING: Tips for Endurance Athletes

For 2-3 days prior to a marathon, triathlon or other endurance event that lasts for more than 90 minutes of strenuous exercise, you should super-fuel your muscles by eating a hearty amount of carbohydrate-rich foods. About 60-70% of your calories (3-5 grams carb/lb body weight) should come from grain foods (pasta, rice, cereal), fruits, juices and vegetables. Include small amounts of protein to protect your muscles, but limit fatty foods.

- **Be sure to choose low fat carbohydrates.** When selecting your diet, be careful to 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 carbs):

Poorer choices (lower in carbs):

Spaghetti and pasta meals with tomato sauce Pizza and pasta meals with lots of meat and cheese

Rice, potato, yams, stuffing - without butter, gravy

French fries, fried rice, buttery potato

Lentils, chili with beans, split pea soup

Meals with lots of meat or cheese

Bread, muffins, bagels - plain or with jam

Donuts, croissants, danish pastry

French toast, pancakes, cereal

Eggs, omelets and breakfast meats

Jam, jelly, honey, syrup

Butter, margarine, cream cheese

Fruit - bananas, pineapple, raisins, figs

Cookies, chips, high-fat snacks

Apple crisp, date squares, fig newtons

Desserts made with lots of butter

Juices - apple, grape, apricot, orange

Beer, wine, alcohol (dehydrating effect)

Blenderized fruit and juice drinks

Milk shakes, frappes

Sherbert, ice milk, frozen yogurt

Ice cream - especially gourmet brands

- **Exercise less.** In addition to eating a high carbohydrate diet, you should exercise less to rest your muscles and allow them the opportunity to stock-up on carbs. The week prior to the event, gradually taper off your exercise, so that 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 would be more beneficial.

- **Eat reasonably.** To avoid "getting fat" due to the reduced amount of exercise, eat reasonably, not gluttonously. Focus on carbohydrates, with small amounts of lean protein (to protect your muscles) and minimal amounts of fat. If you have carbo-loaded correctly, you will gain weight -- water-weight (not fat-weight). For every one gram of carbohydrate that you store in your muscles as glycogen, you also store three grams of water. This water becomes available to you during exercise and helps to prevent dehydration.

- **Drink extra fluids.** Lack of fluids can seriously hurt your health and performance. *Prevent* dehydration by drinking extra water and juice when you carbo-load; limit alcohol (which has a dehydrating effect). You should be urinating frequently; the urine should be very light colored, not dark and concentrated.

- **Eat a pre-event breakfast.** The food you eat the days before the event will fuel your muscles. The food you eat the morning of the event helps maintain a normal blood sugar level to fuel your brain and help you think clearly. Eat a comfortable meal 4 hours prior, such as 100-400 calories of toast, cereal or whatever you normally eat prior to your training sessions. Don't try unfamiliar foods that might upset your stomach or digest poorly.

For fluids the morning of the event, drink at least three glasses of water, sports drink or juice up to two hours before the start. (The kidneys will process this liquid in about 90 minutes, allowing time to empty the bladder pre-event.) Drink one to two glasses of water or sports drink 5 to 10 minutes before the start.

- **During the event, drink on a schedule.** Plan to drink about 8 ounces every 20 minutes. Because you need both fluid (to prevent dehydration) and about 60 grams (240 calories) carbohydrate/hour (to enhance stamina), sports drinks or water + solid carbohydrates (banana, sports bars, hard candy) are good choices during the event.

- **After the event, refuel with carbohydrates.** Enjoy the victory dinner, keeping in mind that your muscles need carbohydrates to refuel, as well as sodium, potassium and other electrolytes. Feed them wholesome foods - oranges, bananas, juices, yogurt, fig newtons, potatoes, pasta, pretzels - just as you did prior to the event. Add salt, if you crave it. Drink plenty of non-alcoholic fluids until your urine is a clear-color.