

# Carbo-loading: Tips for endurance athletes

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*Does carbo-loading mean stuffing myself with pasta?*

*Should I avoid protein the day before the marathon?*

*Will carbo-loading make me fat...?*

If you are an endurance athlete who is fearful of "hitting the wall," listen up: proper fueling before your marathon, triathlon, century bike ride or other competitive endurance events can make the difference between agony and ecstasy!

If you plan to compete for longer than 90 minutes, you want to maximize the amount of glycogen stored in your muscles because poorly fueled muscles are associated with needless fatigue. The more glycogen, the more endurance (potentially).

While the typical athlete has about 80 to 120 mmol glycogen/kg muscle, a carbo-loaded athlete can have about 200 mmol. This is enough to improve endurance by about two to three percent, to say nothing of making the event more enjoyable.

While carbo-loading sounds simple (just stuff yourself with pasta, right?) the truth is many endurance athletes make food mistakes that hurt their performance. The last thing you want after having trained for months is to ruin your performance with poor nutrition, so carbo-load correctly!

## Training tactics

The biggest change in your schedule during the week before your event should be in your training, not in your food. Don't be tempted to do any last-minute long sessions! You need to taper your training so that your muscles have adequate time to become fully fueled (and healed.) Allow at least two easy or rest days pre-event.

## Fueling tactics

You need not eat hundreds more calories this week. You simply need to exercise less. This way, the 600 to 1,000 calories you generally expend during training can be used to fuel your muscles.

All during this week, you should maintain your tried-and-true high-carbohydrate training diet. Drastic changes can easily lead to upset stomachs, diarrhea or constipation. For example, carbo-loading on an unusually high amount of fruits and juices might cause diarrhea. Too many white flour, low fiber bagels, breads and pasta might clog your system. As Marathon King Bill Rodgers once said "More marathons are won or lost in the porta-toilets than they are at the marathon..."

Fuel wisely, not like a chow hound.

Be sure that you carbo-load, not fat-load. Some athletes eat gobs of butter on a dinner roll, big dollops of sour cream on a potato and enough dressing to drown a salad. These fatty foods fill both the stomach and fat cells, but leave muscles poorly fueled. The better bet is to trade the fats for extra carbohydrates. That is: instead of devouring one roll with butter for 200 calories, have two plain rolls for 200 calories. Enjoy pasta with tomato sauce rather than oil or cheese toppings. Choose low-fat frozen yogurt, not gourmet ice cream.

### **Meal timing**

NYC Marathon Queen Grete Waitz once said she never ate a very big meal the night before a marathon, as it usually would give her trouble the next day. She preferred to eat a bigger lunch. You, too, might find that pattern works well for your intestinal tract. That is, instead of relying upon a huge pasta dinner the night before the event, you might want to enjoy a substantial carb-fest at breakfast or lunch. This earlier meal allows plenty of time for the food to move through your system.

You can also carbo-load two days before if you will be too nervous to eat much the day before the event. (The glycogen stays in your muscles until you exercise.) Then graze on crackers, chicken noodle soup, and other easily tolerated foods the day before your competition.

You'll be better off eating a little bit too much than too little the day before the event, but don't overstuff yourself. Learning the right balance takes practice. Hence, each long training session leading up to the endurance event offers the opportunity to learn which food -- and how much of it -- to eat. I repeat: During training, be sure to practice your pre-event carbo-loading meal so you'll have no surprises on the day of the event!

### **Weight gain**

Athletes who have properly carbo-loaded should gain about one to three pounds -- but don't panic! This weight gain is good; it reflects water weight and indicates you have done a good job of fueling your muscles. For every ounce of carb stored in your body, you store almost three ounces water.

### **Fluids**

Be sure to drink extra water, juices, and even soda pop, if desired. Abstain from too much wine, beer, and alcoholic beverages; they are not only poor sources of carbs, but are also dehydrating. Drink enough alcohol-free beverages to produce a significant volume of urine every two to four hours. The urine should be pale yellow, like lemonade. Don't bother to overhydrate; your body is like a sponge and can absorb just so much fluid.

### **Protein**

Many endurance athletes eat only carbs and totally avoid protein-rich foods the days before their event. Bad idea. Your body needs protein on a daily basis. Hence, you can and should eat a small serving of low-fat proteins such as poached eggs, yogurt, turkey or chicken as the

accompaniment to most meals (not the main focus), or plant proteins, such as beans and lentils (as tolerated).

### **Event day**

Carb-loading is just part of the fueling plan. What you eat on the day of the event is critically important and helps to spare your limited muscle glycogen stores. So fuel yourself wisely both before and during the event -- and hopefully you will enjoy miles of smiles!

### **Tools for carbo-loading**

When carbo-loading, you want to consume about three to five grams carbohydrates per pound of body weight. (This comes to a diet with about 60% of calories from carbohydrates.) Divide your target grams of carbohydrates into three parts of the day (breakfast+snack; lunch+snack; dinner+snack), and choose foods to hit your target! You can find carbohydrate info on food labels and [www.fitday.com](http://www.fitday.com)

*Sample 50 gram carbohydrate choices for the foundation of a meal or snack*

- Wheaties, 2 cups
- Nature Valley Granola Bar, 2 packets (4 bars)
  - Thomas' Bagel, 1 (3.5 oz)
  - Banana, 2 medium
  - Orange juice, 16 ounces
    - Apple, 2 medium
    - Raisins, 1/2 cup
- Pepperidge Farm multi-grain bread, 2.5 slices
  - Baked potato, 1 large (6.5 ounces)
  - Pasta, 1 cup cooked
  - Rice, 1 cup cooked
  - Fig Newtons, 5
- Flavored Yogurt + 3 graham cracker squares