

# Avoid Hitting the Wall

## Nutrition during workouts and races for endurance sports.

By John A. Ruibal, iRun Coach

So you have done all of your pre workout fueling, you feel like your tank is full and you are ready for your next long run or hard workout. The questions you have to ask yourself now is How long will that fuel last me? Second how much do I need to refuel during the workout to finish without bonking or crashing?

**How much fuel do I have?** A well fueled athlete will have approximately 500 grams of carbohydrate stored. 300 - 400 grams will be stored in the muscle glycogen, 90 – 110 grams stored in the liver and 25 grams circulating in our blood. So now it is time to take out your calculator. Each gram of carbohydrate is equal to 4 Kcals of energy.

**Lets do the math.** I use the lower numbers to ensure I don't overestimate how much fuel I have for my work out.

- 300 grams from Muscle glycogen =  $300 \times 4 = 1200$  calories
- 90 grams from liver glycogen =  $90 \times 4 = 360$  calories
- 25 grams of blood glucose =  $25 \times 4 = 100$  calories

If you have come to your workout or race properly fueled you should have between 1500 – 1660 calories in your tank before your low fuel light comes on.

### How much are you burning during your workout?

This will vary on how fast you are running and how much you weigh. There are plenty of energy expenditure calculators you can find online but a good rule of thumb is 100 calories per mile. Again it is time to take out our calculator. This time we want to estimate how far we could we run before our low fuel light comes on? I like to use the lower numbers of my estimated fuel reserve to build in a safety factor. Plug the numbers into your calculator: 1500 divide by 100 equals 15 miles. If you want to get a little more precise you can use the following calculation: Caloric cost =  $0.73 \text{ C/pound body weight/mile}$ . Now that we know how much fuel we are burning we can determine how much fuel we need to consume during our workout or race.

### How much do I need to consume to make it through the race or workout without hitting the wall?

The first thing to remember about fueling during the workout is: If you wait until your low fuel light comes on, it is too late. It takes time for the carbohydrates you are consuming to be broken down to glucose for your working muscles to use. When should you start fueling during your workout? Current research recommends that you consume 100 calories from carbohydrate every 45 minutes to an hour during training and racing if the total workout time is 90 minutes or longer. The good news is there are a large variety of carbohydrate gels, chews, jelly beans that are packaged around 100 calories per serving. The important thing to remember is that fluids are required to digest these sports foods. A good rule of thumb is to take your energy packets while you are hydrating and consume 4 to 6 ounces of fluid per packet.

If you do not tolerate the pre packaged carbs be sure to hydrate with sports drinks instead of water to get your calories. Drinking 8 ounces of sports drink every 45 minutes is a good substitute for a carbohydrate packet. Also ensure the sports drink you are hydrating with or the one served at your race has more than just electrolytes. Many sports drinks on the market are low calorie or calorie free and are designed to meet your electrolyte needs. Remember to train smart with your nutrition during workouts so that you know you tolerate the product. By practicing good fueling techniques during your workouts you may never be able to answer the question, What does hitting the wall feel like?