

Training Document:

Exercise Fueling and Hydration by Gale Bernhardt

This information sheet is too short to get into much detail on nutrition so only the basics are covered. Good nutrition is simple: eat a large variety of minimally processed foods. This means you should consume fruits, vegetables, lean meats, nuts, low-fat dairy products and whole grains. These foods are full of vitamins, minerals and phytochemicals. Highly processed foods have limited nutritional value.

If you want more information on the nutrient breakdown in foods, there are a number of good reference books. One good reference is *The NutriBase Nutrition Facts Desk Reference* by Dr. Art Ulene.

In addition to high quality fuels, hydration is important. On a daily basis, drink enough water so that your urine is a very light yellow color. Dark yellow urine is one sign of dehydration.

For long workouts (those over an hour) scheduled in any of the training plans, carry a sports drink – or water supplemented with a solid or semi-solid food. Examples of solid and semi-solid foods are bananas, home made sandwiches, pretzels, gels and sport bars. Some athletes prefer solid foods, while others prefer energy drinks. The drink and solid foods can contain some protein, but try to keep the fat content minimized.

You are fueling with calories during longer workouts because the body can store enough glycogen to get you through about 90 minutes of exercise, plus or minus. The longer the race or workout, the more critical proper fueling becomes.

Practice your fueling and hydration techniques on a regular schedule, within a workout. For example, plan to fuel and hydrate each 15 to 20 minutes during a long or intense workout. Early and steady fueling prevents the dreaded “bonk.” Practicing your fueling and hydration during workouts pays dividends on race day.

For an event that is one to three hours long, most athletes are fine consuming 30 to 60 grams of carbohydrate (120 to 240 calories) per hour. For races in the three to six hour range, 250 to 400 calories per hour may be necessary. For races lasting over six hours, 400 to 800 calories per hour may be more appropriate. This is something you have to experiment with and determine what consumption rate is right for you and the workout or race conditions. Know that larger athletes need more calories than smaller athletes and a fast pace burns more calories than a slow pace.

For instructions on how to estimate daily caloric needs in addition to exercise needs, see Chapter 3 of *Training Plans for Multisport Athletes*.

Plan ahead and calculate what fluids and fuel you need during the race. Find out what fuels are offered by the race director. If the energy drink at the aid stations upsets your stomach, you may have to carry your own sports drink.

Athletes competing in ironman distance events should have a written nutrition plan prior to race day. This nutrition plan should be rehearsed during long training sessions. Also, long-distance athletes need to consume fuels with electrolytes (sodium, magnesium and potassium.) Fueling for an ironman distance race is critical.

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It is important to know that you will need to adjust fueling and hydration rates to fit each situation. A few of the items that affect fueling and hydration rates include pace, the length of the race and the race conditions (hot, cold, humid, etc.)

What should you eat for breakfast on race day? Great question. A good rule of thumb for breakfast is to consume one to four grams of carbohydrate per kilogram of body weight (kilogram body weight is weight in pounds divided by 2.2), one to four hours prior to the race. The closer you eat prior to the race start, the fewer calories you should consume. This is particularly true for short, high intensity races.

Post-long workouts or races, you need to focus on recovery. You can speed recovery by consuming liquid or solid fuel within 20 to 30 minutes after exercise. The fuel should contain some carbohydrate, protein and minimal fat. Approximately 1.5 to 1.6 grams of carbohydrate per kilogram of body weight and 0.4 to 0.5 grams of protein per kilogram of body weight is a good start. Don't worry too much if the ratio of carbohydrate to protein isn't exact.