

Doctor's Corner

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FOODS AND FLUIDS BEFORE, DURING, AND AFTER RUNNING Nutrition for Optimal Running Performance

If you have concerns about how to prevent fatigue during your workouts, this article will help you enjoy enhanced stamina during your running sessions that last longer than an hour. (Standard healthy eating practices should take care of shorter sessions. That is, if you are running for 30 minutes, a simple pre-exercise snack and plenty of water should fuel you well). When you're pushing the limits, you'll want to pay proper attention to what you eat and drink during and after your runs.

Electrolytes - The major electrolytes lost in perspiration are sodium, chloride, and to a lesser extent, potassium.

Fluid Replacement (see table below)- Fluid replacement occurs in three general time frames: before, during, and after exercise.

Before Running:

Consuming at least 1 pt (16 oz.) of fluid 2 hours before activity provides the fluid needed to achieve optimal hydration and allows enough time for urination of excess fluids¹. Because rapid absorption is not critical, you can choose between water, milk, juice, carbonated or non-carbonated soft-drinks, sports drinks, etc... Avoid alcoholic beverages. I would then consume an additional 8 oz. before the run.

During Running:

The goal of fluid replacement during exercise is to move the fluid from the mouth, through the gut, and into circulation rapidly and to provide a volume that matches perspiration loss. This is achieved by providing fluids that are absorbed rapidly and that the athlete finds palatable.

Athletes should start drinking before sensing thirst and continue to drink at regular intervals. A variety of fluids can serve as effective fluids during exercise². Cool water is an ideal fluid replacement (other options include commercial sports drinks or homemade sports drinks such as diluted juice or diluted soft-drinks). You can significantly increase your stamina by consuming 100 - 200 calories (30g - 60g) of carbohydrates per hour running after the first hour^{3,4}. Your body doesn't care if you ingest solid or liquid carbohydrates. Both are equally effective⁵. Liquid vs. solid should be tested during training, not competition to determine if both can be tolerated.

After Running:

The goal after a bout of running, is to prepare and recover the body for the next run. Monitoring body weight and replacing each pound with at least 1 pt. of fluid is a helpful guideline to ensure adequate fluid intake. Drink until your urine is clear and copious.

When significant perspiration has occurred, consumption of salt in the form of beverages or foods minimizes urine output and hastens recovery of water and electrolyte balance^{6,7}.

Pre-Competition Food Consumption

The primary purpose of pre-competition meal is to provide fluid and energy for the athlete during the performance. The most common textbook recommendation is to eat 3 to 4 hours prior to the event to avoid becoming nauseated or uncomfortable during the run.

Carbohydrate Loading: Is a technique used to enhance muscle glycogen prior to long-term aerobic endurance exercise. The most effective regimen with the fewest side effects is 3 days of a high-carb diet in concert with tapering exercise the week before competition and complete rest the day before the event. The diet should provide adequate calories and approximately 600g. of carbs per day or 8 - 10 grams/kg of body weight. This regimen should increase muscle glycogen stores 20% to 40% above normal ⁸.

Post Run Food Consumption

Data suggests that high-glycemic index foods consumed after exercise replenish glycogen faster than low G.I. foods ⁹. Initial studies on glycogen repletion after complete depletion emphasized carbohydrate ingestion immediately after exercise but more recent data shows that a delay of 2 hours does not inhibit glycogenesis at 8 and 24 hours later, as long as adequate carbohydrate is consumed over the day ¹⁰ (I would recommend eating 0.5g. of your body-weight in carbs within 15 minutes of the conclusion of your long run and then eat carbohydrates regularly throughout the day as you feel its needed). Several studies have revealed that as long as adequate calories are consumed, a mixture of carbohydrates, protein and fat is just as effective as carbohydrates alone at replacing muscle glycogen after an exhaustive run ^{11, 12}.

In practical terms, consuming a balanced meal ensures that availability of all substrates for adequate recovery, including amino acids ⁹.

Glycemic Index - measures the increase in blood glucose levels after ingestion of food.

FLUID REPLACEMENT GUIDELINES

- **ENCOURAGE ATHLETES TO HYDRATE PROPERLY BEFORE PROLONGED EXERCISE IN A HOT ENVIRONMENT. INTAKE SHOULD BE APPROXIMATELY 16 FL. OZ. (0.5 L) OF A COOL BEVERAGE 2 HOURS BEFORE A WORKOUT.**
- **DURING ACTIVITY, ATHLETES SHOULD DRINK FLUID FREQUENTLY - FOR EXAMPLE, 6 - 8 FL. OZ. (177-237 ML) EVERY 15 MIN.**
- **PROVIDE COOL BEVERAGES (ABOUT 50-70 °F. OR 10-21 °C).**
- **HAVE FLUIDS READILY AVAILABLE, SINCE THE THIRST MECHANISM DOES NOT FUNCTION ADEQUATELY WHEN LARGE VOLUMES OF WATER ARE LOST. ATHLETES WILL NOT SEEK OUT WATER IF IT IS FAR AWAY. IN MANY CASES, THEY NEED TO BE REMINDED TO DRINK.**
- **AFTER A WORKOUT, ATHLETES SHOULD REPLENISH FLUIDS AT A RATE AT OR EXCEEDING 1 PT (0.5 L) FOR EVERY POUND (0.45 KG) OF BODY WEIGHT LOST. WEIGHT SHOULD BE REGAINED, INDICATING REHYDRATION HAS OCCURRED, BEFORE THE NEXT WORKOUT.**
- **WATER IS AN IDEAL FLUID REPLACEMENT, ALTHOUGH FLAVORED BEVERAGES MAY BE MORE EFFECTIVE AT PROMOTING DRINKING. THE ADDITION OF SALT, IN THE BEVERAGE OR AS FOOD, CAN PROMOTE REHYDRATION MORE EFFECTIVELY THAN PLAIN WATER WHEN SIGNIFICANT WEIGHT HAS BEEN LOST THROUGH SWEATING.**
- **THE IDEAL FLUID REPLACEMENT BEVERAGE DEPENDS ON THE DURATION AND INTENSITY OF EXERCISE, ENVIRONMENTAL TEMPERATURE, AND THE ATHLETE.**

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Next Month - Low-Back Pain

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