



# HYDRATION IS ONLY THE BEGINNING

## DEVELOPING A COMPREHENSIVE ON-THE-RUN NUTRITION PLAN

### **STAY HYDRATED - WATER**

**The Problem:** Blood carries oxygen to the muscles. When sweating, some of the sweat's water content is taken from the blood supply. When blood volume decreases, heart rate needs to increase to pump the same amount of oxygen. Therefore, dehydration must be accompanied by a decrease in pace at a given heart rate. Studies show that there is a 3% decrease in pace for each 1% decrease in bodyweight due to dehydration. As an example, consider a 150-pound runner. It would not be unusual for him to sweat out 3-4 pounds of water per hour when running on a warm day. At this rate, he would lose 6-8 pounds during a 2 hour run, representing a 4-5% loss in bodyweight and resulting in a 12-15% pace reduction. For most runners, that would be approximately 1 extra minute per mile.

**The Solution:** When not running, ensure that you stay properly hydrated. Do not rely on your thirst. Instead, drink regularly in amounts that keep your urine clear and your body weight consistent. Caffeinated and alcoholic beverages are fine in moderation, but their diuretic effects makes them ineffective as re-hydrators. When running, drink 20 ounces (one standard water bottle) every 30-60 minutes. Drink small amounts often. To avoid "sloshing", do not exceed 6-7 ounces (1/3 of a water bottle) in any 15 minute period.

### **STAY BALANCED - ELECTROLYTES**

**The Problem:** Sodium and potassium are minerals that work together to balance the fluid and electrolyte levels in the body. Both are lost in sweat, therefore replacing lost sweat with water alone can lead to harmful imbalances. Hyponatremia is a dangerous condition where there is too little sodium in the blood. This water/sodium imbalance can lead to many of the same symptoms as dehydration and heat stroke: headache, nausea, vomiting, extreme fatigue, dizziness – and worse. A lack of potassium has been linked to muscle cramping and other performance-limiting conditions.

**The Solution:** When running, never drink plain water without supplementing with sodium and potassium. There are many different electrolyte supplements available (drinks, capsules and gels), each with different amounts of sodium and potassium. (Some also include magnesium, chloride and calcium, other electrolytes that are lost in sweat.) Experiment to find the supplement formula that works best for you.

### **STAY FUELED - CARBOHYDRATES**

**The Problem:** When running, the body burns a mixture of carbohydrate and fat. As the miles add up, your carbohydrate stores become progressively depleted and your body tries to conserve what's left by burning more fat. The problem is that fat is a less efficient energy source. Therefore, when you start running low on available carbohydrate, you are forced to slow down.

**The Solution:** Keep your carbohydrate stores "topped off" by eating a well-balanced diet and continuing to take in carbohydrates while running. A carbohydrate concentration of 6-9 percent (by weight) is recommended, since it contains the necessary energy and will be absorbed as quickly as plain water. Higher concentrations will be absorbed slower and may inhibit re-hydration. (To calculate carbohydrate concentration, divide the grams of carbohydrate by the weight of the water that will accompany it. 20 ounces of water weighs 567 grams.)

#### References:

- Road Racing for Serious Runners, Pfitzinger and Douglas
- USA Track & Field, [www.usatf.org](http://www.usatf.org)
- "Mmm, Potassium", Yishane Lee, Runner's World Magazine
- "Food Has Never Required So Much Thought", *The Washington Post*



## **PRACTICAL SOLUTIONS TO ON-THE-RUN NUTRITION**

At FLEET FEET St. Louis, we sell a wide variety of nutritional supplements designed for “on-the-run” use. (We also sell a number of bars and drink mixes that are designed to be eaten before and after your runs.) Here are some of our favorite “on-the-run” programs, each addressing the athlete’s need for water, electrolytes and fuel. Combined concentrations are calculated using the average ingestion rates of 15 ounces of fluid per hour and 1 carbohydrate gel every 45 minutes.

Solutions are presented in order of carbohydrate concentration (lowest to highest):

### **Accelerade Sports Drink** (mixed in a 20 ounce bottle)

Electrolytes: Sodium (238 mg/hour), Potassium (81 mg/hour)  
Carbohydrates: 26 grams/hour (6% concentration)  
Special Feature: Includes protein that provides benefits during multi-hour workouts

### **GU20 Sports Drink** (mixed in a 20 ounce bottle)

Electrolytes: Sodium (270 mg/hour), Potassium (45 mg/hour)  
Carbohydrates: 29 grams/hour (7% concentration)  
Special Feature: Simple formula designed to be easy on the digestive tract.

### **Ultima Replenisher Sports Drink** (mixed in a 20 ounce bottle) + **GU Energy Gel\***

Electrolytes: Sodium (173 mg/hour), Potassium (253 mg/hour)  
Carbohydrates: 35 grams/hour (8% concentration)  
Special Feature: Ultima is designed to be used in conjunction with energy gels.

### **PowerBar Endurance Sports Drink** (mixed in a 20 ounce bottle) + **GU Energy Gel\***

Electrolytes: Sodium (193 mg/hour), Potassium (61 mg/hour)  
Carbohydrates: 40 grams/hour (9% concentration)  
Special Feature: Maximum carbohydrate combination.

\*Most other energy gels have similar formulas.