Nutrition Basics For Half Marathon Runners

Paula Inserra, PhD, RD

Sports Backers ½ Marathon Training Team
Fluid and Electrolyte Balance

- Evaporation of sweat is the major mechanism for dissipating heat and cooling the body.
- Sweat loss varies among individuals:
  - Loss of water and electrolytes (mainly sodium)
  - Water loss from **0-2 liters per hour**
  - Sodium loss from **450 mg -3,000 mg per hour**
Factors that influence fluid loss

- Exercise intensity
- Exercise duration
- Genetic predisposition to sweating
- Sex
- Fitness level
- Acclimation to exercise in hot environments
- Relative humidity
- Clothing
Fluid and Electrolyte Balance

- Enhances exercise training capacity
- Enhances athletic performance
- Reduces the risk of heat illness and injury
- **GOAL:** Drink enough to minimize dehydration without overdrinking
- **GOAL:** Maintain adequate hydration before, during and after exercise
Fluid and Electrolyte Balance

• Dehydration
  – Negatively impairs aerobic performance, especially when it’s hot and humid
  – Impairs mental/cognitive function
  – Increases risk of injury
  – Exceeding **2% body weight loss = dehydration**

<table>
<thead>
<tr>
<th>Weight (lbs)</th>
<th>Weight loss (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>225</td>
<td>4.5</td>
</tr>
<tr>
<td>200</td>
<td>4</td>
</tr>
<tr>
<td>175</td>
<td>3.5</td>
</tr>
<tr>
<td>150</td>
<td>3</td>
</tr>
<tr>
<td>125</td>
<td>2.5</td>
</tr>
<tr>
<td>100</td>
<td>2</td>
</tr>
</tbody>
</table>
Fluid and Electrolyte Balance

• Overhydration/low sodium
  – Consuming too much water and/or losing too much sodium

• Who’s at risk?
  – Consuming aspirin, ibuprofen, alieve or other non-steroidal anti-inflammatory agents
  – Novice runners
  – Overweight runners
  – Underweight runners
  – Slow pace runners
  – Long duration (>4hrs)
  – Consuming >3 liters of fluid during a run
  – Weight gain during a run
First Step

Figure out what your losses are
<table>
<thead>
<tr>
<th>When to Drink</th>
<th>Amount (Heavy Sweater)</th>
<th>Amount (Moderate Sweater)</th>
<th>Amount (Light Sweater)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hr before run</td>
<td>~22 oz</td>
<td>~18 oz</td>
<td>~14 oz</td>
</tr>
<tr>
<td>Every 15-20 min during the run</td>
<td>~12 oz</td>
<td>~9 oz</td>
<td>~6 oz</td>
</tr>
<tr>
<td>After activity</td>
<td>24 oz of sports drink for every pound of weight loss</td>
<td>24 oz of sports drink for every pound of weight loss</td>
<td>24 oz of sports drink for every pound of weight loss</td>
</tr>
</tbody>
</table>

** A typical SAG cup holds about 5 oz **
Tips for Fluid Intake

DO NOT RELY ON THIRST
- Once you feel thirsty you are already in a 4-8oz deficit

• During the run
  - Drink to prevent dehydration
  - Small frequent sips
  - Sports drinks will meet fluid, electrolyte and carbohydrate needs
  - Carry fluids with you, especially if you have trouble tolerating them

• Carry fluids with you daily
  - Water is fine, but flavored beverages may encourage intake
  - Watch out for excessive calories, stick with low/no calorie beverages

• Replace fluids lost during activity: weigh yourself
Be VERY liberal with your daily salt and sodium intake

Training in the summer in RVA, we can lose 3g of sodium an hour!

Soups, crackers, pretzels, jerky, pickles, salted nuts…
Fluid and Electrolyte Balance

- Consume sports drinks during the run
  - Containing 6-8% carbohydrate
  - 0.5 – 0.7 g sodium per liter
- Heavy sweaters (or if you have these symptoms) should consider salt packets or electrolyte pills during the run
  - Nausea
  - Muscle cramping
  - Goosebumps/chills
  - Headaches
Optimal nutrition is the most commonly overlooked training component!

Performance Recovery
Why do we *Train* for the Marathon?

Increase Endurance and Performance

Progressive increase in miles w/ periods of rest allows the muscles to adapt:

- More efficient use of fat
- Increased glycogen stores
- Produce more energy

Optimal nutrition before, during and after a run will:

- Increased nutrient stores
- Allow muscles to repair and become stronger
- Increased and sustained energy production
Carbohydrates

- Glucose
- Main supplier of energy for endurance athletes
- Limited storage
  - Glycogen: enhanced with training, proper diet and Carb loading
Everyday Diet

- Calories
- Carbohydrate
  - Typical American Diet supplies about half this amount
- Fat
  - Regular Low-fat diet (don’t cut back too much on fat)
- Protein
  - Supplied by a Typical American Diet
- Vitamins and Mineral needs increase
  - From Fruits and Vegetables
  - Calcium and iron especially for women
<table>
<thead>
<tr>
<th>Weight (lbs)</th>
<th>Carbohydrate (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>275</td>
</tr>
<tr>
<td>120</td>
<td>325</td>
</tr>
<tr>
<td>150</td>
<td>400</td>
</tr>
<tr>
<td>180</td>
<td>500</td>
</tr>
<tr>
<td>200</td>
<td>550</td>
</tr>
<tr>
<td>220</td>
<td>600</td>
</tr>
<tr>
<td>250</td>
<td>675</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>Calories</td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>100</td>
<td>N-1600</td>
</tr>
<tr>
<td></td>
<td>I -1800</td>
</tr>
<tr>
<td>120</td>
<td>N-1900</td>
</tr>
<tr>
<td></td>
<td>I -2200</td>
</tr>
<tr>
<td>150</td>
<td>N-2400</td>
</tr>
<tr>
<td></td>
<td>I -2700</td>
</tr>
<tr>
<td>180</td>
<td>N-2900</td>
</tr>
<tr>
<td></td>
<td>I -3300</td>
</tr>
<tr>
<td>200</td>
<td>N-3200</td>
</tr>
<tr>
<td></td>
<td>I -3600</td>
</tr>
<tr>
<td>220</td>
<td>N-3500</td>
</tr>
<tr>
<td></td>
<td>I -4000</td>
</tr>
<tr>
<td>250</td>
<td>N-4000</td>
</tr>
<tr>
<td></td>
<td>I -4500</td>
</tr>
</tbody>
</table>
Carbohydrates

**Choose these more often**
- Fruits
  - Aim for at least 3 cups
  - Whole fruit more than Juice
- Vegetables
  - Aim for 2-3 cups
- Potatoes
- Whole grains
  - Rice esp. brown rice
  - Breads esp. whole-wheat
  - Bagels, oatmeal, cereals
  - Crackers, popcorn, pretzels
  - Pasta

**Choose these less often**
- Refined
  - Soda
  - Fruit punch
  - Added sugar
  - Cookies, donuts, cake
  - White flour/breads
  - Candy
  - Processed foods with corn syrup/high fructose corn syrup
**Protein**

**Choose these more often**
- Animal based
  - Skinless chicken, turkey
  - Lean beef or pork
  - Eggs
  - Low-fat or Fat-free dairy
  - Low-fat cheeses
- Fish and Seafood
- Plant Based
  - Beans and legumes
  - Tofu
  - Nuts

**Choose these less often**
- Bacon
- Whole and 2% Dairy
- Regular cheeses
- Chicken/Turkey with the skin
- Fatty cuts of beef
- Hot dogs
- Processed Meats
Fat

**Choose these more often**

- Plant based
  - Olive oil
  - Canola oil
  - Peanut oil
  - Avocados
  - Nuts and seeds

*Choose these less often*

- Butter
- Lard
- Fast Food
- Processed foods
- Ice-cream
- Trans fats
  - Processed foods
- Saturated fats
  - Fatty cuts of meat and full fat dairy products
Fiber Tips

• Fiber is good for you, but not before a run....
  – Eat high fiber foods on rest and cross training days
  – Eat high fiber foods after a run
  – Avoid fiber rich foods several hours before a run
There are no changes in the course for the SunTrust Marathon or the NTELLOS 8K. The start is at Broad and 7th streets with the finish at 10th and Cary. The course remains USA Track and Field sanctioned, and the marathon is a qualifier for Boston.

http://www.mypyramid.gov
The Night Before

Eat a regular high carbohydrate meal

Be careful when eating out

- Choose pasta dishes made with tomato based sauces, avoid white or pink sauces
- Add some lean protein and a salad to round out the meal
- Experiment with potatoes, rice, bread you might tolerate these better than pasta
- Salt up your food
Pre-Run Meal

Improves performance (this means your runs will be easier and faster)

Best to eat 3-4 hours prior to exercise

Provide energy for your run (you should not be hungry nor have undigested food in your stomach)

- Low fat
- Low fiber
- High carbohydrate
- Moderate protein
- Familiar foods
- Palatable and well tolerated
Pre-Run Meal

Pre-race and Timing of the pre-run meal

<table>
<thead>
<tr>
<th>Carbohydrate (g/Kg)</th>
<th>Hrs Prior to Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>If you have difficulty tolerating foods before a run, you should keep experimenting. Try foods lower in protein, fat and fiber and eat earlier</td>
</tr>
<tr>
<td>2.0</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>3</td>
</tr>
<tr>
<td>4.0-4.5</td>
<td>4</td>
</tr>
</tbody>
</table>

Individualize

- Experiment during training with different foods and timing of this meal
During the Run

For RACES lasting >1hr
For TRAINING RUNS lasting >1.5 hr
Consume carbohydrate to maintain Blood glucose
- 30-60g Carbs/hr = 100-200 calories = 1-2 Gu’s = 16-32oz Sports Drink

Once you start you must continue
Gu’s and blocks should be taken with water
For long runs only
- Training run: initiate at about 90 min and continue every 15-20 min for runs longer than 13 miles
- Race day: you may want to start this at the 1hr mark and continue every 15-20 min
**Post-Run Meal**

**CRUCIAL:** If you are a person who has trouble eating before and during a run

- After long runs lasting >90 min
- **IMMEDIATELY** 100 g carbs (400 calories)
- Additional 150g Carbohydrate/Kg 2 hours later (600 calories)
- Adding protein may stimulate muscle repair and enhance glycogen storage
- ~3 or 4:1 ratio of carbohydrate to protein (25 g Protein to 100 g carbohydrates 500 calories)
Post-Run Meal Ideas

- peanut butter and jelly on whole wheat + 8oz juice or low/no fat milk
- banana and chocolate milk
- 1 cup cottage cheese, 1 cup pineapple and whole wheat bagel
- 1 cup trail mix + 1 cup juice
- Turkey sandwich and 8oz juice
- Newton's + low/no fat milk or accelerade

Nutrition Bars
Recovery bars and Drinks
Carbohydrate Loading

Benefit is only for endurance activities lasting >90mins
Progressive increase in carbohydrate increase as you taper your training
Word of caution, you may gain weight, but this is water weight and will be temporary