

# Race Day Nutrition and Hydration

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## The Most Important Rule:



# Nothing New on Race Day!!!

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## Nutrition Basics

- Eat a balanced and varied diet
- Most athletes need 1800-2000 calories/day minimum
  - Even when trying to lose weight
  - Low calorie diet – loss of muscle, higher risk of illness, poor performance
  - For weight loss: decrease food calories by 250, increase exercise calories burned by 250 (net 500 kcal/day deficit)

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## Nutrition

- Basic endurance athlete diet
  - 50-70% Carbs
  - 10-20% Protein
  - 20-25% Fat



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## Carbohydrates

- Fuel for muscles – glycogen
- More aerobic the exercise, more CHO is needed
- Complex versus Simple
  - Complex takes longer to break down so provide longer energy source
  - Less processed = more complex
  - Simple carbs provide energy boosts during long runs & races

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## GI Index

### ■ Absorption index (0-100)

### ■ Examples

- Low GI – (< 50) – apple, orange, sweet potato, beans, lentils, chocolate
- Moderate GI – (50-60) – raisins, brown rice, pasta, honey
- High GI – (60+) – cereals, sports drinks, energy bars

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## GI Index

### ■ GI rate affected by combinations, so you can lower GI:

- Eat carbs with protein, fat
- Add fiber
- Increase acidity

### ■ Low GI foods – slow release – eat 2-3 hrs before exercise

### ■ High GI foods – fast release – during exercise, immediately after to refuel muscles

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## Protein

- Essential for muscle repair and growth
- Provides fuel in long endurance activities
- Vegetarian Choices
  - Beans, seeds, nuts
  - Soy products – soy milk, tofu
- Atkins – BAD, BAD, BAD for the athlete

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## Fat

- Necessary – concentrated energy source
  - Transport fat soluble vitamins (A, D, K, E)
  - Provides essential fatty acids you body cannot make
- 20-25% for most athletes
  - < 15% fat diet linked to decrease in performance
- Eat primarily monounsaturated and polyunsaturated fats
  - Canola oil, olive oil
  - Nuts, seeds, salmon, tuna

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## Hydration

- Thirst is **not** a good indication of dehydration
  - Not thirsty until lost 2% of body weight
  - You typically replace only 1/3 to 2/3 sweat loss when using thirst as a guide



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## Hydration

- 2% dehydration = up to 15% decline in performance
  - Increased risk of injury
  - Reduced Hand-Eye coordination
  - Physical and Mental Fatigue
  - Headache / Light-headed

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## Hydration

- 2% to 4% Dehydration
  - Muscle Cramps
  - Irritability
- 5% to 6% Dehydration
  - Increased heart rate
  - Unable to regulate body heat
  - Heat Exhaustion, Heat Stroke



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## Hydration

- Need to begin exercise hydrated – replace fluids lost during exercise
  - 1/2 of exercisers start dehydrated (GSSI study)
  - 2-3 cups, 2 hours before workout
  - 1-2 cups, 30 minutes before workout
  - During workout, approximately 1 cup every 10-20 minutes
  - Sports drink after 30-60 minutes of exercise
    - Particularly for heavy sweaters or high intensity
  - At least 2 cups post-workout

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## Hydration

- Urine check for dehydration
  - Lemonade, not apple juice
- But some medications, food, vitamins can change urine

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## Hyponatremia

- Over-hydrating, usually seen in slower marathoners
- Take in too much water, sodium level in blood drops too low
- Risk of heat illness from dehydration is much higher than for hyponatremia
- [http://www.cararuns.org/cara\\_info/hydration.html](http://www.cararuns.org/cara_info/hydration.html)

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## Muscle Cramps

- Cause mostly by dehydration
- Plus loss of sodium, chloride, potassium, calcium, magnesium in sweat
- Rest & gently stretch muscle + sports drink to replace fluid & electrolytes

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## Muscle Cramps

- More likely to those with
  - Heavy, repeated sweating
  - And low dietary salt intake



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## Muscle Cramps

- Preventive measures:
  - Salt your food, particularly after workout (if no diagnosis/history of hypertension)
    - Though typical American diet has adequate to too-much sodium
    - Particularly with prepared foods
  - Sports drinks during exercise with electrolytes
- Include high potassium foods in everyday diet – potatoes, orange juice, tomato juice, bananas, black beans, milk

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## Heat Exhaustion & Heat Stroke

- Get acclimated – build intensity and duration over a few weeks
- Most heat illness occurs in the first 2-3 days of hot workouts
- Workout in the morning & evening, not midday
- Drink, don't pour over you



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## Heat Exhaustion

- Dizziness, light-headedness, clammy skin, chills, nausea/headaches
- Drink small amount of fluid often
- Rest in a cool, shaded area
- Lie down with legs slightly elevated
- Rest at least two hours before resuming exercise

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## Heat Stroke

- High body temperature, stop sweating, confusion, unconsciousness
- Requires immediate medical attention!
- After summoning medical attention, cool body – remove unnecessary clothing, ice bath, cold towels, spray body with water, etc.

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## Heat Exhaustion & Heat Stroke



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## Heat Illnesses

- Dehydration, Heat Exhaustion, to Heat Stroke is not a necessary progression
- Can experience Heat Stroke without other indicators

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## Heat Illness Risk Factors

- Hot, humid weather
- Dehydration
- Heavy equipment or clothing
- High intensity workout
- Obesity
- Deconditioning
- Certain medications like diuretics
- Chronic/long term diseases like diabetes
- Alcohol consumption
- Other substance abuse (Ephedra, ecstasy, cocaine)

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## Fluids Needs – Sweat Rate

- To determine your sweat rate:
  - Pre-exercise, weight yourself naked
  - Take a known amount of fluid during exercise
  - Do not urinate during exercise
  - Post-exercise, dry off, weigh again naked
- $\text{Sweat rate} = \text{weight loss during exercise (1 lb} = 16 \text{ oz)} - \text{fluid consumed during exercise (oz)}$
- $\text{Hydration needs} = \text{Weight lost during exercise (oz)} + \text{Fluid consumed during exercise}$

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## Sports Drinks

- Water alone is okay for most people exercising under 1 hour
  - Exceptions: heavy sweating, multiple sessions/day
  - Also stop-and-go sports (football, soccer, hockey)
- Look for 6% - 9% carbohydrates – best for absorption
  - Don't need to dilute
- Should offer carbs and electrolytes
  - Sodium in drink improves taste and facilitates absorption

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## Sports Drinks

- Don't want fructose as the primary carb
  - Slow absorption – may upset stomach
  - Look for sucrose, glucose, maltodextrins
  - “high fructose corn syrup” OK
- See what works best for you – try different brands
  - Taste and flavor should appeal to you – or you won't drink
- Know what the race will have
  - Take your own if questionable
  - Possible errors in mixing



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## Recovery Drinks

- Research suggests add some protein (4:1 or 3:1) improves recovery
- Take within 30 minutes – glycogen window
- Especially important for exhaustive exercise or multiple sessions per day



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## Energy Bars

- Typically high carb
- Can be used before, during and after exercise
  - 1-2 hours before exercise with water
  - Part of 120-240 cal/hour during exercise
- Always consume with 12-16 oz of water
- Look for:
  - 8-10 gm protein max
  - < 4 gm fat
  - < 5 gm fiber



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## Gels

- Concentrated carbs
- Generally around 100 cal, 25 gm CHO per packet
- Some contain electrolytes and/or protein
- Always take with water, not a sports drink!
  - Gel + Sports Drink is too concentrated CHO
  - Will not empty from stomach easily

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## Gels

- One packet per half hour after one hour of exercise
- More Palatable Alternates
  - Honey
  - Fig Newtons
  - Twizzlers
  - Gummi Gears
  - Jelly Beans (New Sport Beans)
  - Bananas



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## Fueling During Training

### ■ Swim

- Still need to hydrate because you still sweat, just don't realize it
- Sports drink in bottle, sip between laps
- Solid food might give side stitches

### ■ Bike

- Bottle carriers, packs (under seat, handlebars, bento box)
- Put finger food in plastic bags – raisins, fig bars, crackers
- Cycle jersey with pockets
- Carry \$\$ for rest stops

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## Fueling During Training

### ■ Run

- Shorts with pockets (RaceReady)
- Cycle jersey with pockets
- Fanny pack
- Stash goodies in car (loop course)
- Water bottles, camelback
- Nibble slowly, eat and drink little but often (too much liquid can be stomach jarring)
- Choose liquids and gels over solid food

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## Race Fueling



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## Race Week

- When tapering, may want to decrease total calories slightly to compensate
- Last few days of the week, start increasing percentage of carbohydrates
- Decrease protein, fat, and fiber
- 2-3 days out, hydrate, hydrate, hydrate (“like a water buffalo”)

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## Night Before

- Night before have a high carbohydrate dinner, and snack, to load liver glycogen
  - Minimize protein and fat
  - Limit fiber & “gassy” foods
- Avoid alcohol
- At least 16 oz of fluid before bed

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## Race Day

- Closer to the race start you plan to eat, the smaller the meal
- Remember – Nothing New!!



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## 1-3 Hours Before Start

- Eat low GI carbs to prolong endurance
- “Breakfast” should be 2/3 size of regular meal
- 400-800 calories
- Low to minimum protein, low fat
- Plenty of fluids!

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## 1 Hour Before Start

- Drink 16-32 oz fluid
- Eat carbs if you can tolerate it and are use to eating this close to intense workout



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## 30 Minutes Before Start

- 8-16 oz sports drink (*think*: high GI carbs)
- Avoid protein and fat which are slow to digest – may lead to cramping
- Remember there are bathroom issues drinking this close to race start
- **But: You Don't Want to Start the Race Dehydrated!**

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## During the Race

- Fluid – 5-12 oz every 15-20 minutes
  - Set watch timer to remind you to drink
  - Take big gulps – large volume empties from stomach faster
  - Cooler fluids also empty quicker
- Start drinking early – T1



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## During the Race

- More than 1 hour, 30-60 gm CHO per hour
  - High GI
  - Steady stream – 60-120 cal per 1/2 hour
  - Sports drinks may be easiest
    - Check label & determine how much you have to drink to get 30-60 gm CHO
- Replace electrolytes for long sessions, heavy sweating

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## Finish Line

- Re-hydrate – 16 oz fluid for every pound lost
- Skip the Beer Tent
- Glycogen window – 15-30 minutes after
  - High GI Carbs
  - Minimum 50 gm CHO
- Add 10-15 gm protein – recover better than CHO alone

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## Post-Race (2 hrs)

- Eat high CHO meal, at least 400 calories
- Continue to re-hydrate



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# Questions?



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