

# Nutrition for Runners

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# Benefits of Proper Nutrition

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- Improves overall health
- Enhances sport performance
- Enhances endurance
- Reduces/delays fatigue
- Increases energy levels
- Reduce risk of fatigue
- Optimizes energy system function
- Weight management
- Recovery
- Increases speed, power, strength

# Key Points for Endurance Athletes

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- Energy & Nutrient Needs
  - High energy demand
  - Carbohydrates and Fat main sources of fuel for endurance exercise
  - Balance & Adequate to ensure nutrient delivery needed for optimal performance, complete recovery from training, maintain good health and injury free
- Daily fueling
- Fueling before, during and after exercise for optimal performance and recovery
  - Endurance performance nutrition plans focus: carbohydrate, fluids and sodium
- Hydration
- Trail and Error

# Total Energy Needs for Endurance Athlete

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Male:

Age 10-18 →  $(17.5 \times \text{kgBW}) + 651$

Age 18-30 →  $(15.3 \times \text{kgBW}) + 679$

Age 30-60 →  $(11.6 \times \text{kgBW}) + 879$

X Activity Factor  
1.2-2.4

Female:

Age 10-18 →  $(12.2 \times \text{kgBW}) + 749$

Age 18-30 →  $(14.7 \times \text{kgBW}) + 496$

Age 30-60 →  $(8.7 \times \text{kgBW}) + 829$

Ex: Male, 35 yrs old, 140lb runs 60-80miles a week  
(activity factor 1.6-2.4) =2587-3880 calories/day  
Rest and recovery days about 2500-2800

# Macronutrient Recommendations for Runners

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- Daily Carbohydrate
  - Light 3-5g/kg
  - Moderate (~1hr/day) 5-7g/kg
  - High (1-3hr day) 6-10g/kg
  - Extreme (>4-5hr/day) 8-12g/kg
- Daily Protein
  - 1.2-2.0g/kg
- Daily Fat
  - ~20-35% total caloric intake

It is important to meet each of your macronutrient needs from a variety of foods to meet micronutrient needs and to ensure optimal performance and health

# Carbohydrates

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- The body's preferred source of energy
- Majority should come from whole grains, fruits and vegetables
- Whole Grains
  - High in B complex vitamins → Energy metabolism
  - Fiber
  - Iron
  - Vitamins and minerals
- Fruits and vegetables
  - Phytonutrients
  - Antioxidants
  - Vitamin C
    - Can help prevent upper respiratory track infection
    - Aids in the absorption of iron

# Carbohydrates for Enhanced Performance

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- Carbohydrate loading -10-12g/kg 72 to 48 hours before race + decreased physical activity
  - Whole grains, fruits, vegetables
- Carbohydrate needs day of race
  - 1-4g/kg 1-4hr before race
  - 30-60g/kg every hour
  - 1-1.2g/kg for recovery
- Day of before the race avoid high fat and fiber!

# Sources of Carbohydrates

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- Whole grains:
  - Bread, pasta, rice, cereal, oatmeal, crackers
    - Ezekiel bread is a good option for vegetarians/vegans looking to include more protein in their diet
- Fruits
  - Fresh, canned, frozen
    - Canned in own fruit juice or water to avoid added sugar
  - Smoothies
  - Included in meals and snacks such as yogurt, cereal fruit
- Vegetables
  - Fresh, canned, frozen
  - Smoothies
  - Soups
  - Salads
  - Included with meals and snacks such as casseroles



# Race Day Sources of Carbohydrate

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## Pre/During

- Fruit
  - Beets
  - Figs
  - Dried fruit (raisins)
- Vegetable
- Sports Bar
- Sports Gel
- Sports Drink (6-8% Carb concentration)
- Pretzels
- Crackers
- Honey
- Granola bar
- Bagel
- Graham Cracker
- Applesauce

135lb athlete running at 7am  
should have ~60g of  
carbohydrate at 6am)  
Ex: 16oz skim milk + 1  
banana

Post Run Recovery  
Replenish energy stores in  
muscles with carbohydrates  
as soon as possible  
1,0-1,2g/kg

# Example Fueling

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- Breakfast
  - 1c Raisin bran cereal 1(c skim milk)
  - 1 banana
- Lunch
  - 4oz Turkey and cheese sandwich
  - 6oz low fat yogurt
  - 1/4c trail mix
  - 1 plum & 1 apple
- During run
  - 20oz sports drink
- Post run
  - 12oz chocolate milk

## Dinner

2c WG pasta (3/4c marinara) sauce  
6oz chicken breast  
2c steamed broccoli  
12oz skim milk

~3000 calories ~470g  
Carbohydrate (61% total caloric  
intake)

# Protein

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- Build and repair muscle tissue
- Lean protein
  - Vitamins and minerals
  - Skinless poultry, fish, lean cuts of beef, plant proteins (beans, nuts, seeds, legumes)
- Dairy is a great source of protein and calcium and vitamin D which are important to runners
  - Nonfat or reduced fat dairy to avoid high saturated fat
  - Non Fat dairy is a great night snack!
- .25-.3g/kg spaced throughout the day including after a workout and in 3-5 meals daily

# Vegetarian Source of Protein

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- Vegetarian and Vegan
  - Soy products are a good source of protein that are fortified with calcium, vitamin D and vitamin B12
  - Tofu, Tempeh, Edamame
    - complete source of protein and contain iron and calcium
  - Lentils, chickpeas, beans (protein, iron, zinc, magnesium, calcium)
  - Hempseed rich in complete, highly digestible proteins as well as health promoting essential fatty acids and minerals
  - Quinoa
  - Veggie Burgers

# Fat

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- Energy
- Help meet energy demands in smaller volumes of food
- Longer to digest so should avoid before to avoid GI stress
- Omega 3 Fatty Acids
  - Reduce inflammation
  - Sources: fatty fish like salmon & mackerel, flaxseeds, walnuts, soybeans, chia seeds
- 20-35% overall caloric intake

# Fluids

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- Half your body weight in fluid ounces daily in addition to exercise needs
  - **150lb = 75floz in addition to exercise needs**
- ~16-24floz 2-4hours before a workout
- ~4-6oz every 15-20min of activity
- 16-24floz for every 1lb of sweat lost during activity
- Running at a high intensity, in the heat or for longer than an hour =
  - **Sports drink (6-8% carbohydrate content)**
    - To replenish fluids, carbohydrates, and electrolytes
- Running at moderate intensity in a cool environment less than an hour=
  - **Water**

# Vitamins

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- B Complex Vitamins involved in energy metabolism
  - Thiamin
    - fortified and whole grains, legumes, wheat germ, nuts, pork
  - Riboflavin
    - milk, yogurt, bread and cereal products, mushrooms, cottage cheese and eggs
  - Niacin
    - beef, poultry, fish, legumes, liver, seafood, fortified and whole grain produces, mushrooms
- Antioxidants
  - Vitamin C and Vitamin E
    - C: Citrus fruits, berries, melon, tomatoes, green leafy, sweet potato
    - E: nuts seed wheat germ, fortified cereals, strawberries
- Bone Health
  - Vitamin D
    - Milk and fortified soy products, fatty fish

# Minerals

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- Oxygen transport to muscles
  - Iron
    - beef poultry fish soy products, dried fruit, legumes, whole grains, fortified cereals, green leafy vegetables
- Electrolytes
  - Sodium
    - table salt, condiments, canned foods, processed foods, smoked meats, salted snack foods, soup
  - Magnesium
    - Nuts, seeds, green leafy vegetables, whole grains
  - Potassium—
    - Fruit vegetables coffee tea milk meat
  - Calcium—(bone health)
  - Dairy products, fortified foods and juices