

# Nutrition for Adults' LIFE

## Nutrition for Physical Activity



### CARBOHYDRATES

Carbohydrates are normally the main source of fuel for athletes. Fifty five to fifty eight percent of calories should come from carbohydrates. Carbohydrates are stored in the muscles and liver as glycogen. Glycogen is converted to energy quickly without the need of oxygen. This kind of energy is important for activities involving sprinting or short bursts of energy such as football, baseball, volleyball and many track and field events. Good sources of carbohydrates are pasta, rice, fruit, vegetables, whole grain breads, and cereals.

### PROTEIN

Protein is important to an athlete's diet for the growth, development, maintenance, and repair of body tissue, including muscle. Protein is not a good source of energy. Even though muscle is twenty percent protein, it doesn't mean that eating a lot of protein will give you more muscle mass. For endurance and strength training athletes, 0.55 to 0.81 grams of protein per pound of body weight, or 80-122 grams per day for a 150 pound athlete, is recommended. The strength-training athlete would be at the higher end, where as the endurance athlete would be near the lower level. Normally, athletes get enough protein in their regular diet and don't need supplements. A diet too high in protein makes the kidneys work harder than they need to and won't improve athletic performance. Good sources of protein are low fat dairy foods, lean meats and fish, soy products and mixtures of grain.

### FAT

Fat is also a fuel source. Aerobic activity helps the body use fat as energy instead of carbohydrates (glycogen). Fat doesn't get used as energy as quickly as carbohydrates. Fat is also important for the absorption of fat-soluble vitamins A, D, E and K. A good diet for athletes consists of twenty to twenty five percent of total calories from fat. Eating a high fat diet can slow you down during competition because you may not have enough stored carbohydrates (glycogen). A high fat diet is also not good for your health overall.

### OTHER IMPORTANT NUTRIENTS

**Iron:** Iron has an important role in the body (especially for an athlete), of delivering oxygen to cells. Low intake of calories, lack of animal products consumption and vegetarian diets can lead to low levels of iron. Good sources of iron include meat and fortified breads and cereals.

**Calcium:** Calcium is an important mineral for the building and repair of bone tissue and the maintenance of blood calcium levels. Calcium is also needed for muscle contraction. Good sources of calcium are found in low fat dairy products, calcium-fortified orange juice and some soy milks.

**Zinc:** Zinc is important in the growth, building and repair of muscle tissue and energy production. Good sources of zinc include meat, whole grains and cereals.

**Vitamin D:** Vitamin D is required for adequate calcium absorption and promotion of bone health. Vitamin D is found in dairy products and is made by the body from small amounts of sunlight.

**B Vitamins:** These vitamins are involved in energy production during exercise, protein synthesis, and tissue repair and maintenance. B vitamins are found in meat, whole grains, vegetables and dairy products.

**Vitamins A, C and E:** These vitamins are important in protecting the cell membranes from oxidative damage from the increase in oxygen consumption. Good sources of vitamins A, C and E include dairy, vegetables, fruits and vegetable oils (vitamin E).

### *Tips to Remember:*

- Eat meals at least 3 hours before an event, giving your body enough time to digest
- Avoid meals high in fat, as fat takes longer to digest than other sources of calories, such as carbohydrates
- Take in plenty of liquid before, during and after exercise or a game
- Eat five or more fruits and vegetables each day to provide your body with nutrients needed for good performance

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#### Developed by Family and Consumer Sciences

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# Training and Competition Tips

- Eat lightly before your competition. Allow enough time for digestion by eating a meal at least 3 hours prior to an event.
- Eat complex carbohydrates (such as starches) that are easy to digest and help steady blood sugar levels. A meal high in fat will empty slowly from your stomach and may make you feel nauseous.
- Consume moderate amounts of protein as it takes longer to digest than starches and may increase urine production that can lead to dehydration.
- Limit fat since it is also slow to digest.
- Avoid drinks and foods with caffeine.
- Avoid bulky foods before an event such as raw fruits and vegetables, dry beans, peas and popcorn. They may stimulate bowel movements.
- Eat slowly and chew well.
- Drink water to be adequately hydrated. If you are thirsty, you are already dehydrated.
- Avoid drastic changes in your normal diet routine immediately prior to competition.
- For activities that last less than one hour, water is the best to drink. If the activity is longer than one hour, sports drinks containing 4-8% carbohydrates may be useful. The carbohydrates help replace electrolytes and give you some energy.

## KEEPING HYDRATED

<b>DAY BEFORE</b>	Drink fluids frequently
<b>PRE-EVENT MEAL</b>	2-3 cups water with meal
<b>2 HOURS BEFORE</b>	At least 2 cups water
<b>EVERY 15 MINUTE DURING THE EVENT</b>	1/2 cup water
<b>AFTER EVENT</b>	2-3 cups fluid for each pound lost
<b>NEXT DAY</b>	Drink fluids frequently (it may take 36 hours to rehydrate completely)

## CARBOHYDRATE LOADING

Carbohydrate loading is a technique used that may help endurance athletes like marathon runners and triathletes. Three days prior to a competition increase calorie intake from carbohydrates to about 65% of calories and 535-550 grams of carbohydrates per day, whichever is greater. This enhances glycogen storage in the body that is used for energy. Intakes greater than this amount do not significantly increase glycogen storage or increase athletic performance. This type of diet does not hold benefits for athletes that compete or train for less than ninety continuous minutes.

## FURTHER INFORMATION

**Shape Up America!**  
[www.shapeup.org](http://www.shapeup.org)

**Sports, Cardiovascular and Wellness Nutritionists**  
(American Dietetic Association Practice Group)  
[www.nutrifit.org/index.html](http://www.nutrifit.org/index.html)  
Go to: Sports Nutrition

