**FLUID FACTS**

Drinking water is just as important as eating foods. Water is needed to control body temperature and if it not replenished after exercising, heat exhaustion and even death can occur in extreme conditions. Drinking plenty of water before, during, and after an event can easily prevent dehydration.

<table>
<thead>
<tr>
<th>Time period</th>
<th>Water Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hours pre-event</td>
<td>16 oz.</td>
</tr>
<tr>
<td>5-10 minutes pre-event</td>
<td>4-8 oz.</td>
</tr>
<tr>
<td>During the event</td>
<td>8 oz. every 20 minutes</td>
</tr>
<tr>
<td>After the event</td>
<td>2 cups of fluid for every pound lost or at least 24 oz.</td>
</tr>
</tbody>
</table>

Research on sports drinks shows that they are digested quickly and they raise blood sugar levels because of the carbohydrate content. As with water, the potassium and sodium in the sports drinks replace electrolytes lost in sweat.

**VITAMIN AND MINERAL NEEDS**

More is NOT better with intake of vitamin and mineral supplements. Fat-soluble vitamins (A, D, E, K) and minerals can be toxic in large amounts. Mega doses of up to 3 to 5 times the Recommended Dietary Allowance (RDA) can upset the balance of other nutrients and act as drugs. Although daily needs for vitamins and minerals may increase slightly for the athlete, these needs are easily met by a well-balanced diet.

It is important for athletes to be aware of their calcium intake. Low body-weight, intense exercise, and low calcium intake can lower bone mass, putting athletes at risk for bone fractures, breaks, and even osteoporosis. Females and males ages 9-18 should consume at least 1300 mg calcium/day.

It is also necessary for females to consume the RDA of iron, due to loss of blood during menstruation. Iron RDA’s for males and females are:

<table>
<thead>
<tr>
<th>Age 9-13</th>
<th>Age 14-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>8 mg/day</td>
</tr>
<tr>
<td>Females</td>
<td>8 mg/day</td>
</tr>
</tbody>
</table>

Athletes that feel they are not meeting the daily recommendations for vitamins and minerals due to dieting, poor diet, illness, or injury, may consider taking a simple one-a-day supplement with no more than 50-100% of the RDA for essential vitamins and minerals.

For More Information, call: (412) 687-ACHD [2243] or visit our website at www.achd.net
Nutrition for Teenage Athletes

THE INFORMATION IN THIS PAMPHLET IS INTENDED FOR COMPETITIVE ATHLETES

Genetics, training, and nutrition are all factors that affect athletic performance. Good nutrition helps:
- Train longer and harder
- Delay fatigue
- Faster recovery after workout
- Better overall performance

ENERGY NEEDS

Calories give the body energy. Carbohydrates, proteins, and fats make up the calories found in foods. Vitamins, minerals, and water do not contain calories, but are also essential for keeping the body in working order. Athletes need to eat plenty of calories so they have enough energy for training and competition. If an athlete is losing weight, they need to increase caloric intake. It is healthy for teenagers to gain weight, but if an athlete is rapidly gaining and becoming overweight, they should discuss with a doctor, sports nutritionist, or exercise physiologist, whether or not they should limit their intake of calories.

DAILY TRAINING DIET

Carbohydrates and fats are the main sources of energy for exercise. Therefore, it is important for athletes to eat a wide variety of foods that contain carbohydrates and healthy fats. A balanced diet for an athlete includes 60-70% of total calories from carbohydrates, 20-30% from fat, and 12-15% from protein.

CARBOHYDRATES

Carbohydrates break down into glucose. Glucose is the sugar that is used for energy in the bloodstream. Extra glucose is stored in the liver and muscles and is called glycogen. Glycogen is the number one energy source for muscles.

**Carbohydrates → Glucose → Glycogen**

Examples of carbohydrate-rich foods are whole wheat breads, brown rice and pasta, crackers, fruits, potatoes, cooked beans, peas and corn, juice, honey and sugar. Athletes should get between 6-10 grams (g) of carbohydrate/kg body weight* per day.

CARBOHYDRATE LOADING

If an athlete competes in a long-distance endurance sport, exercises longer than 90 minutes at a time, or plans to compete in several events in a 24-hour period, it may be helpful to load up on carbohydrates. Carbohydrate loading means eating roughly 70% (400-700g/day depending on body weight) of total calories from carbohydrates, while decreasing training, three days prior to an athletic event. This allows the muscles to become soaked with glycogen to help slow the onset of muscle fatigue. Carbohydrate loading can increase the amount of glycogen in the liver and muscles to at least twice their normal level.

A high carbohydrate meal should be eaten 15 hours prior to competition. A small carbohydrate meal, such as orange juice, toast and jelly, should be eaten 3-4 hours before competition. It is also important to replace the glycogen after strenuous workouts by eating a high carbohydrate meal.

WHAT ABOUT PROTEIN?

Protein’s role in the body is to build and repair tissue. It is not a good energy source for muscular activity. Extra protein in the diet does not help to build muscle. Only exercise strengthens muscle. Athletes need slightly more protein and amounts vary depending on type of exercise. Endurance athletes should get 1.2-1.4 g of protein/kg body weight* daily. Resistance and strength-trained athletes may need up to 1.6-1.7 g protein/kg body weight* daily. The best sources of protein are from foods such as meat, fish, eggs, nuts, milk, cheese, soy, and dried beans. Protein supplements made up of amino acids are often expensive and are not necessary with a well-balanced diet.

* Weight in kilograms (kg) = 0.454 x weight in pounds.