

# The Athlete and Nutrition

## Nutritional Considerations

-Eating a well-balanced diet can positively contribute to the development of strength, flexibility, and cardio respiratory endurance.

-There are 6 classes of nutrients:

1. Carbohydrates
2. Fats
3. Proteins
4. Vitamins
5. Minerals
6. Water

-Nutrients are necessary for 3 major roles: growth, repair, and maintenance of all tissues; regulation of body processes; and providing energy.

-Nutrient dense foods are those that supply adequate amounts of vitamins and minerals in relation to their caloric value. "Junk foods" provide excessive amounts of calories from fat and sugar in relation to vitamins and minerals and therefore are not nutrient dense.

-Carbohydrates are the body's most efficient source of energy and should be relied on to fill that need. For athletes, carbohydrates should account for 55%-60% or more of total caloric intake.

-Carbohydrates are classified into 2 forms: simple (sugars) and complex (starch and most forms of fiber). Sugar eaten should account for less than 15% of the total caloric intake. Complex carbohydrates include starches such as rice, potatoes, and breads. Fiber is not digested by humans and aids in normal elimination by reducing the amount of time required for wastes to move through the digestive tract. This is believed to reduce the risk of colon cancer and coronary heart disease.

-Fat is used by the body as the primary source of energy. Saturated fats are derived mainly from animal sources and unsaturated fats are from plants.

-Proteins are needed for growth, maintenance, and repair of all body tissues. Proteins also are needed to make enzymes, many hormones, and antibodies that help fight infection. Protein intake should be around 12%-15% of total calories consumed in one day. There is no advantage to consuming more protein via supplements because more protein supplied than used will be converted to fat for storage. This can cause excess water to be removed from cells, leading to dehydration and possible damage to the kidneys or liver. Osteoporosis has been linked to a diet that contains too much protein.

-Vitamins perform essential roles primarily as regulators of body processes. There are 13 vitamins with specific roles in the body.

-More than 20 mineral elements have an essential role in the body and therefore must be supplied in the diet. Most minerals are stored in the body, especially in the liver and bones. Calcium is the most abundant mineral in the body. If calcium intake is too low to meet needs, the body can remove calcium from the bones. Over periods of time, the bones become weakened leading possibly to osteoporosis.

-Iron deficiency is also common, especially for young females. This can lead to iron-deficiency anemia. In this condition, the oxygen-carrying ability of the red blood cells is reduced so that muscles cannot obtain enough oxygen to generate energy. This will cause tiredness and weakness.

-Water is the most essential of all nutrients. Water makes up approximately 60% of the body weight. It is needed for all the chemical processes that occur in the body, and an adequate supply of water is necessary for energy production and normal digestion of other nutrients. Water is also needed for temperature control and for elimination of waste products of nutrients and body metabolism. The average adult requires a minimum of 2.5 liters of water per day. Symptoms of dehydration include fatigue, vomiting, nausea, exhaustion, fainting, and possibly death.

-Electrolytes include sodium, chloride, potassium, magnesium, and calcium. Electrolyte losses are primarily responsible for muscle cramping and intolerance to heat. Sweating, results not only in body water loss, but in some electrolyte loss as well.

-Large amounts of caffeine cause nervousness, irritability, increased heart rate, and headaches.

-Alcohol causes decreased physical coordination, slowed reaction times, and decreased mental alertness. It increases the production of urine, resulting in body water losses and dehydration.

-The pre-game meal should be eaten 3-4 hours before competition and should be high in carbohydrates, low in fat and fiber. Drink plenty of water and avoid milk, tea and coffee.

-The average college-age female has a fat percentage between 20% and 25%. The average college-age male has a fat percentage between 12% and 15%. It is recommended that body fat percentage not go below 3% in males and 12% in females because below these percentages, the internal organs tend to lose their protective padding subjecting them to injury.

-Healthy weight gain/loss should not exceed 1 lb. to 2 lbs. per week.

-Eating disorders are a problem from inordinate concerns with being overweight. Out of this obsession have emerged the eating disorders of bulimia and anorexia nervosa.

-The bulimic person is commonly female, ranging in age from adolescence to middle age. This person typically gorges herself with thousands of calories after a period of starvation and then purges herself through induced vomiting, further fasting, laxatives, diuretics, excessive exercise, etc. This binge-purge pattern can cause stomach rupture, disruption of heart rhythm, and liver damage. Stomach acids brought up by vomiting causes tooth decay and chronically inflame the mucous lining of the mouth and throat.

- Signs/Symptoms to look for:
- -disappearance of a large amount of food in short period of time
- -frequent trips to the bathroom after meals
- -calluses on the back of hand/fingers
- -brittle hair or nails
- -preoccupied with body weight, weight loss, dieting
- -depression and mood swings

-Anorexia nervosa is characterized by a distorted body image and a major concern about weight gain. This is also mostly found in females beginning in adolescence. As many as 15% to 21% of individuals diagnosed with anorexia ultimately die from this disorder.

- Signs/Symptoms to look for:
- -significant weight loss
- -denying hunger
- -over-exercising
- -insomnia
- -headaches
- -excessive body hair growth
- -lethargic

-Early intervention is essential with eating disorders. Please inform your coach, nurse, or athletic trainer if you are concerned about a teammate or proper school administration of fellow students.