Glossary

**absorption**—The process that follows digestion and results in nutrients being taken from the food into the cells of the intestine.

**activity**—Movement. Activity is less strenuous than exercise.

**aerobic**—Energy process that requires oxygen.

**amino acid**—The basic unit of proteins.

**anaerobic**—Energy process that takes place in the absence of oxygen.

**branched-chain amino acid**—Three essential amino acids (leucine, isoleucine, and valine) whose structure is distinguished from other amino acids by the branched chain. They can be used for energy when muscle glycogen stores are low.

**Calorie**—A measure of energy. Abbreviated C. The term kilocalorie (abbreviated kcal) may be used interchangeably. These are the scientifically correct terms for the measurement of energy.

**calorie**—The amount of heat needed to raise one gram of water one degree Celsius. Abbreviated cal. Although not technically correct, it is also generally used to refer to the amount of energy contained in food or the amount of energy expended through exercise.

**carbohydrate loading**—An exercise and diet protocol used by athletes who compete in prolonged endurance activities and by bodybuilders preparing for a contest. This method allows athletes to attain near maximum stores of liver and muscle glycogen.

**carbohydrate supercompensation**—See carbohydrate loading.

**carbohydrates**—Compounds made up of carbon, hydrogen, and oxygen. Also known as sugars and starches.

**cardiovascular disease**—A general term for diseases of the heart and blood vessels.

**chloride**—One of the electrolytes. Carries a negative charge (Cl).

**chyme**—Partly digested food mixed with digestive enzymes found in the stomach and small intestine. It is a thick liquid.

**complementary proteins**—Two plant proteins that provide the equivalent amino acids found in animal protein.

**complete protein**—A protein that contains all of the essential amino acids in the proper quantities and proportions to support growth. All animal proteins are complete proteins and many soy products also qualify.

**complex carbohydrates**—Starches. Examples include whole-grain breads, cereals, rice, and vegetables.

**cup**—As a unit of measure, refers to eight fluid ounces or 240 ml.
**dehydration**—The process of losing body water and moving to a state of hypohydration.

**diarrhea**—Watery feces.

**dietary fats**—Fats found in food. Generally refers to triglycerides.

**dietary fiber**—Indigestible portion of carbohydrate food. Humans cannot digest fiber because they lack the necessary enzymes.

**DHA**—An omega-3 fatty acid thought to be heart healthy. Found in fish such as salmon and tuna. DHA stands for docosahexaenoic.

**digestion**—The process of mechanically and chemically breaking down food into smaller components so absorption may take place.

**duodenum**—The upper part of the small intestine. It is connected to the stomach. The duodenum is about 10 inches long.

**duration (of exercise)**—Amount of time spent exercising.

**electrolytes**—Electrically charged particles.

**endurance-trained athlete**—An athlete who engages in exercise that strengthens the cardiorespiratory system and supports sustained, prolonged exercise. Also known as *aerobic training*.

**energy**—The capacity to do work. Energy in food (measured in calories) is chemical energy. The body can convert the chemical energy in food to other kinds of energy, such as mechanical, electrical, or heat.

**enzyme**—A substance that speeds up a chemical reaction but is not used up or changed in the reaction.

**EPA**—An omega-3 fatty acid thought to be heart healthy. Found in fish such as salmon and tuna. EPA stands for eicosapentaenoic.

**essential amino acid**—An amino acid that cannot be manufactured by the body and must be consumed in food.

**essential fatty acid**—A fatty acid that cannot be manufactured by the body and must be consumed in food. Linoleic acid and linolenic acid are essential fatty acids.

**euglycemia**—“Good blood sugar.” Refers to blood glucose within the normal range, 80–120 mg/dL.

**exercise**—Structured physical activity. More strenuous than activities of daily living.

**fatigue**—Mental and/or physical tiredness.

**fat**—Generally refers to triglycerides found in food.

**fatty acid**—An acid made up of chains of carbons.

**fiber**—See *dietary fiber*.

**fructose**—A monosaccharide (one sugar unit) found in fruit. Some fructose may be added to sports beverages.

**gastric emptying**—The release of food from the stomach into the small intestine (duodenum).

**gastrointestinal upset**—Distress of the gastrointestinal tract that may result in diarrhea, bloating, or other feelings of discomfort.

**glucagon**—A hormone that helps regulate blood glucose levels. Glucagon is released in response to a low blood glucose level. It influences the breakdown of liver glycogen, causing glucose to be released from storage into the blood.

**glucose**—A monosaccharide (one sugar unit). It is a component of all disaccharides (two sugar units). *Blood sugar* and *dextrose* are interchangeable terms.

**glucose polymers**—Short chains of glucose. Some sports drinks include glucose polymers as a carbohydrate source.

**glycemic index**—How much and to what extent blood glucose rises when a food is consumed. The index is based on a scale of 100; pure glucose is given a score of 100.
glycogen—The storage form of glucose in the body. Glycogen is found in the muscles and liver.

glycogen synthase—An enzyme responsible for the synthesis of glycogen.

gram—A unit of weight. One ounce is equal to approximately 28 grams. Gram is the unit of measure for carbohydrates, proteins, and fats. Abbreviated g or gm.

high-intensity exercise—Exercise at 75\% \text{VO}_2\text{max} or higher. High-intensity activity is fueled primarily by carbohydrate.

hydrochloric acid—An acid found in the stomach that helps to break down food.

hyperglycemia—Elevated blood glucose levels.

hyperthermia—Elevated body temperature.

hyperplasia—An increase in body cells.

hypertrophy—Growth of existing cells.

hypoglycemia—Low blood glucose levels.

hypohydration—An insufficient amount of body water.

hyponatremia—Low blood sodium levels.

incomplete protein—A plant protein that is missing one or more of the essential amino acids in the proper quantities or proportions.

insulin—A hormone that regulates blood glucose levels. Insulin is released in response to elevated blood glucose levels and makes possible the uptake of glucose from the blood to the cells.

intensity (of exercise)—The degree or extent of exercise. Intensity of an activity is often measured by taking a heart rate or by determining \text{VO}_2\text{max}.

lacto-ovo vegetarian—A person who includes milk, milk products, and eggs in the diet but who excludes animal flesh.

lentils—The small, flat seeds of one type of legume.

leucine—One of the essential amino acids. It is one of three branched-chain amino acids.

linoleic acid—An essential polyunsaturated fatty acid.

linolenic acid—An essential polyunsaturated fatty acid.

liver—A major organ involved in the metabolism of nutrients.

liver glycogen—A storage form of glucose in the body. Under the influence of the hormone glucagon, liver glycogen is broken down and glucose is released from storage into the blood, where it helps raise blood glucose levels.

maltodextrin—Corn sweetener. Some sports beverages contain maltodextrin.

metabolism—All the physical and chemical changes that take place in the cells of the body. Often used to refer to the breakdown of substances that produce energy for the cells.

microgram—A unit of weight. One thousandth of a milligram. Microgram is the unit of measure for folate and vitamin D. Abbreviated \(\mu\text{g}\) or mcg.

milligram—A unit of weight. One thousandth of a gram. Milligram is the unit of measure for thiamin, niacin, riboflavin, vitamin B\(_6\), pantothenic acid, vitamin C, vitamin E, iron, calcium, and cholesterol. Abbreviated mg.

milliliter—A unit of measure. Thirty milliliters equal one fluid ounce. Abbreviated ml.

mineral—An \textit{inorganic} (does not contain carbon) element. Examples include iron, calcium, sodium, and chloride.

moderate-intensity activity—Exercise at 50–75\% \text{VO}_2\text{max}.

monosaccharide—A one-sugar unit. Glucose, fructose, and galactose are monosaccharides.

muscle glycogen—A storage form of glucose in the body. An important fuel source for athletes.
**muscle mass**—The amount of muscle fibers.

**nonessential amino acid**—An amino acid that can be manufactured by the body.

**Nutrition Facts**—The panel on a food label that lists information about the ingredients and nutrients found in packaged foods.

**obesity**—Excess body fat.

**omega-3 fatty acid**—A polyunsaturated fat that has a double bond between the third and fourth carbon (the omega carbon). Abundant in fish oils and thought to be heart healthy. Example are linolenic acid, EPA, and DHA.

**omega-6 fatty acid**—A polyunsaturated fat that has its last double bond six carbons from the end of the chain. An example is linoleic acid.

**osmolality**—The concentration of a solution determined by the number of dissolved particles in the solution.

**pancreas**—A gland that secretes important hormones such as insulin and glucagon.

**parasympathetic nervous system**—A part of the nervous system that is associated with increased gastrointestinal activity such as contraction of the muscles of the small intestine.

**potassium**—The principal positive ion in intracellular fluid.

**protein**—A compound made up of carbon, hydrogen, oxygen, and nitrogen. The basic structural unit of protein is an amino acid.

**recovery**—The hours immediately after exercise when athletes focus on restoring muscle glycogen and reversing dehydration.

**rehydration**—The process of taking in fluid to reverse dehydration.

**resistance-trained athlete**—An athlete who engages in exercise that increases muscle strength and power.

**saturated fatty acid**—A fatty acid that contains no double bonds between carbons (all carbon-carbon bonds are saturated with hydrogen). Saturated fatty acids are thought to raise blood cholesterol levels.

**sedentary**—Inactive.

**small intestine**—The organ that connects the stomach to the colon and is responsible for digestion of food and most of the absorption of nutrients. The small intestine is made up of the duodenum, the jejunum, and the ileum.

**sodium**—The principal positive ion in extracellular fluid.

**sucrose**—A disaccharide (two sugars joined together) made up of glucose and fructose. The enzyme sucrase is necessary to split the disaccharide into the two monosaccharides. Also known as white (or table) sugar.

**sugar**—Any of the monosaccharides or disaccharides. The term sugar is often used to refer to sucrose, or white sugar.

**training**—Regular exercise that leads to adaptations by the body such as increased muscular strength (resistance training) or increased aerobic capacity (endurance training).

**triglyceride**—The major class of fat in food and in the body. Triglycerides consist of three fatty acids attached to a glycerol molecule.

**ultraendurance athlete**—An athlete who engages in a sport that lasts for hours and days and covers great distances. The Tour de France bicycle race, which covers 2,500 miles in 22 days, is an example.

**unsaturated fatty acid**—A fatty acid that contains one or more double bonds between carbons (carbon-carbon bonds that are not saturated with hydrogen).

**vegan**—A person who consumes no animal products. Also known as a strict vegetarian.

**$\dot{V}O_2_{\text{max}}$**—Maximum oxygen uptake.

**water**—H$_2$O. An essential fluid.