



Glossary

Acceptable Macronutrient Distribution Range (AMDR) A range of dietary intakes for carbohydrate, fat, and protein that is associated with reduced risk of chronic disease while providing adequate nutrients.

acclimatization The ability of the body to undergo physiological adaptations so that the stress of a given environment, such as high environmental temperature, is less severe.

acetaldehyde An intermediate breakdown product of alcohol.

acetic acid A naturally occurring saturated fatty acid; a precursor for the Krebs cycle when converted into acetyl CoA.

acetyl CoA The major fuel for the oxidative processes in the body, being derived from the breakdown of glucose and fatty acids.

acid-base balance A relative balance of acid and base products in the body so that an optimal pH is maintained in the tissues, particularly the blood.

acidosis A disturbance of the normal acid-base balance in which excess acids accumulate in the body. Lactic acid production during exercise may lead to acidosis.

acrylamide A cancer-causing agent that may be produced by prolonged, high-temperature cooking.

activity-stat Center in the brain theorized to regulate daily physical activity.

acute exercise bout A single bout of exercise that will produce various physiological reactions dependent upon the nature of the exercise; a single workout.

added sugars Refined sugars added to foods during commercial food processing.

additives Substances added to food to improve flavor, color, texture, stability, or for similar purposes.

adenosine triphosphate See ATP.

Adequate Intake (AI) Recommended dietary intake comparable to the RDA, but based on less scientific evidence.

adipokines Substances released from adipose (fat) cells that function as hormones in other parts of the body.

Adonis complex A disturbed body image in which muscular individuals consider themselves too thin or not sufficiently muscular; also known as muscle dysmorphia.

adrenaline A hormone secreted by the adrenal medulla; it is a stimulant and prepares the body for “fight or flight.”

aerobic Relating to energy processes that occur in the presence of oxygen.

aerobic glycolysis Oxidative processes in the cell that liberate energy in the metabolism of the carbohydrate glycogen.

aerobic lipolysis Oxidative processes in the cell that liberate energy in the metabolism of fats.

aerobic walking Rapid walking designed to elevate the heart rate so that a training effect will occur; more strenuous than ordinary leisure walking.

Air Displacement Plethysmography A procedure to measure body composition via displacement of air in a special chamber; comparable to water displacement in underwater weighing techniques to evaluate body composition.

alanine A nonessential amino acid.

alcohol A colorless liquid with depressant effects; ethyl alcohol or ethanol is the alcohol designed for human consumption.

alcohol dehydrogenase An enzyme in the liver that initiates the breakdown of alcohol to acetaldehyde.

alcoholism A rather undefined term used to describe individuals who abuse the effect of alcohol; an addiction or habituation that may result in physical and/or psychological withdrawal effects.

aldosterone The main electrolyte-regulating hormone secreted by the adrenal cortex; primarily controls sodium and potassium balance.

allithiamine A derivative of thiamine.

alpha-ketoacid Specific acids associated with different amino acids and released upon deamination or transamination; for example, the breakdown of glutamate yields alpha-ketoglutarate.

alpha-linolenic acid An omega-3 fatty acid considered to be an essential nutrient.

alpha-tocopherol The most biologically active alcohol in vitamin E.

alpha-tocopherol equivalent The amount of other forms of tocopherol to equal the vitamin E activity of one milligram of alpha-tocopherol.

AMDR See Acceptable Macronutrient Distribution Range.

amenorrhea Absence or cessation of menstruation.

amino acids The chief structural material of protein, consisting of an amino group (NH₂) and an acid group (COOH) plus other components.

amino group The nitrogen-containing component of amino acids (NH₂).

aminostatic theory A theory suggesting that hunger is controlled by the presence or absence of amino acids in the blood acting upon a receptor in the hypothalamus.

ammonia A metabolic by-product of the oxidation of glutamine; it may be transformed into urea for excretion from the body.

amylopectin A branched-chain starch.

amylose A straight-chain starch that is more resistant to digestion compared to amylopectin.

anabolic/androgenic steroids (AAS) Drugs designed to mimic the actions of testosterone to build muscle tissue (anabolism) while minimizing the androgenic effects (masculinization).

anabolism Constructive metabolism, the process whereby simple body compounds are formed into more complex ones.

anaerobic Relating to energy processes that occur in the absence of oxygen.

anaerobic glycolysis Metabolic processes in the cell that liberate energy in the metabolism of the carbohydrate glycogen without the involvement of oxidation.

anaerobic threshold The intensity of exercise at which the individual begins to increase the proportion of energy derived from anaerobic means, principally the lactic

acid system. *Also see* steady-state threshold and OBLA.

android-type obesity Male-type obesity in which the body fat accumulates in the abdominal area and is a more significant risk factor for chronic disease than is gynoid-type obesity.

androstenedione An androgen produced in the body that is converted to testosterone; marketed as a dietary supplement.

anemia In general, subnormal levels of circulating RBCs and hemoglobin; there are many different types of anemia.

angina The pain experienced under the breastbone or in other areas of the upper body when the heart is deprived of oxygen.

anhidrotic heat exhaustion Heat exhaustion associated with diminished secretion or absence of sweat.

anion A negatively charged ion, or electrolyte.

anorexia athletica A form of anorexia nervosa observed in athletes involved in sports in which low percentages of body fat may enhance performance, such as gymnastics and ballet.

anorexia nervosa A serious nervous condition, particularly among teenage girls and young women, marked by a loss of appetite and leading to various degrees of emaciation.

anthropometry Use of body girths and diameters to evaluate body composition.

antibodies Protein substances developed in the body in reaction to the presence of a foreign substance, called an antigen; natural antibodies are also present in the blood. They are protective in nature.

antidiuretic hormone (ADH) Hormone secreted by the pituitary gland; its major action is to conserve body water by decreasing urine formation.

antinutrients Substances in foods that can adversely affect nutrient status.

antioxidant A compound that may protect other compounds from the effects of oxygen. The antioxidant itself interferes with oxidative processes.

antipromoters Compounds that block the actions of promoters, agents associated with the development of certain diseases, such as cancer.

apolipoprotein A class of special proteins associated with the formation of lipoproteins. A variety of apolipoproteins have been identified and are involved in the specific functions of the different lipoproteins.

appetite A pleasant desire for food for the purpose of enjoyment that is developed

through previous experience; believed to be controlled in humans by an appetite center, or *appetast*, in the hypothalamus.

arginine An essential amino acid.

arteriosclerosis Hardening of the arteries; *also see* atherosclerosis.

ascorbic acid Vitamin C.

aspartame An artificial sweetener made from amino acids.

aspartates Salts of aspartic acid, an amino acid.

atherosclerosis A specific form of arteriosclerosis characterized by the formation of plaque on the inner layers of the arterial wall.

athletic amenorrhea The cessation of menstruation in athletes, believed to be caused by factors associated with participation in strenuous physical activity.

ATP Adenosine triphosphate, a high-energy phosphate compound found in the body; one of the major forms of energy available for immediate use in the body.

ATPase The enzyme involved in the splitting of ATP and the release of energy.

ATP-PCr system The energy system for fast, powerful muscle contractions; uses ATP as the immediate energy source, the spent ATP being quickly regenerated by breakdown of the PCr. ATP and PCr are high-energy phosphates in the muscle cell.

baking soda A commercial form of sodium bicarbonate.

basal energy expenditure (BEE) The basal metabolic rate (BMR) total energy expenditure over 24 hours.

basal metabolic rate (BMR) The measurement of energy expenditure in the body under resting, postabsorptive conditions, indicative of the energy needed to maintain life under these basal conditions.

Basic Four Food Groups Grouping of foods into four categories that can be used as a means to educate individuals on how to obtain essential nutrients. The four groups are meat, milk, bread-cereal, and fruit-vegetable.

bee pollen A nutritional product containing minute amounts of protein and some vitamins that has been advertised to be possibly ergogenic for some athletes.

behavior modification Relative to weight-control methods, behavioral patterns, or the way one acts, may be modified to help achieve weight loss.

beriberi A deficiency disease attributed to lack of thiamin (vitamin B₁) in the diet.

beta-carotene A precursor for vitamin A found in plants.

beta glucan Gummy form of water-soluble fiber useful in reducing serum cholesterol; oats are a good source.

beta-oxidation Process in the cells whereby 2-carbon units of acetic acid are removed from long-chain fatty acids for conversion to acetyl CoA and oxidation via the Krebs cycle.

bile A fluid secreted by the liver into the intestine that aids in the breakdown process of fats.

bile salts Active salts found in bile; cholesterol is part of their structure.

binge-purge syndrome An eating behavior characterized by excessive hunger leading to gorging, followed by guilt and purging by vomiting. *Also see* bulimia nervosa.

bioavailability In relation to nutrients in food, the amount that may be absorbed into the body.

bioelectrical impedance analysis (BIA) A method to calculate percentage of body fat by measuring electrical resistance due to the water content of the body.

bioengineered foods Foods modified by genetic engineering to produce desirable traits.

biotin A component of the B complex.

bisphosphonates Drugs used to inhibit bone resorption, but not mineralization, to help prevent bone loss and increase bone mineral density; Fosamax is one brand.

blood alcohol content (BAC) The concentration of alcohol in the blood, usually expressed as milligram percent.

blood alcohol level *See* blood alcohol content.

blood glucose Blood sugar; the means by which carbohydrate is carried in the blood; normal range is 70-120 mg/ml.

blood pressure The pressure of the blood in the blood vessels; usually used to refer to arterial blood pressure. *Also see* systolic blood pressure and diastolic blood pressure.

BMI *See* Body Mass Index.

body image The image or impression the individual has of his or her body. A poor body image may lead to personality problems.

Body Mass Index (BMI) An index calculated by a ratio of height to weight, used as a measure of obesity.

body plethysmography A body composition technique using a special chamber to measure air displacement; similar to water displacement theory associated with underwater weighing.

branched-chain amino acids (BCAA) Three essential amino acids (leucine,

isoleucine, and valine) that help form muscle tissue.

bread exchange One bread exchange in the Food Exchange System contains 15 grams of carbohydrate, 3 grams of protein, and 80 Calories.

brown fat A special form of adipose tissue that is designed to produce heat; small amounts are found in humans in the area of vital organs such as the heart and lungs.

buffer boosting Term associated with use of sodium bicarbonate as an ergogenic aid to increase the acid-buffering capacity of the blood.

bulimia nervosa An eating disorder involving a loss of control over the impulse to binge; the binge-purge syndrome.

bulk-up method A method of weight training designed to increase muscle mass; uses high resistance and moderate volume with many different muscle groups.

caffeine A stimulant drug found in many food products such as coffee, tea, and cola drinks; stimulates the central nervous system.

calciferol A synthetic vitamin D.

calcitriol The hormone form of vitamin D.

calcium A silver-white metallic element essential to human nutrition.

caloric concept of weight control The concept that Calories are the basis of weight control. Excess Calories will add body weight while caloric deficiencies will contribute to weight loss.

caloric deficit A negative caloric balance whereby more Calories are expended than consumed; a weight loss will occur.

Calorie A Calorie is a measure of heat energy. A small calorie represents the amount of heat needed to raise one gram of water one degree Celsius. A large Calorie (kilocalorie, KC, or C) is 1,000 small calories.

calorimeter A device used to measure the caloric value of a given food, or heat production of animals or humans.

carbohydrates A group of compounds containing carbon, hydrogen, and oxygen. Glucose, glycogen, sugar, starches, fiber, cellulose, and the various saccharides are all carbohydrates.

carbohydrate loading A dietary method used by endurance-type athletes to help increase the carbohydrate (glycogen) levels in their muscles and liver.

carcinogenicity The potential of a substance to cause cancer.

carnitine A chemical that facilitates the transfer of fatty acids into the mitochondria for subsequent oxidation.

catabolism Destructive metabolism whereby complex chemical compounds in the body are degraded to simpler ones.

catalase An enzyme that helps neutralize free radicals.

cation A positively charged ion or electrolyte.

cellulite A name given to the lumpy fat that often appears in the thigh and hip region of women. Cellulite is simply normal fat in small compartments formed by connective tissue, but may contain other compounds that bind water.

cellulose The fibrous carbohydrate that provides the structural backbone for plants; plant fiber.

Celsius A thermometer scale that has a freezing point of 0° and a boiling point of 100°; also known as the centigrade scale.

central fatigue Fatigue caused by suboptimal functioning of neurotransmitters, most likely in the brain.

cerebrospinal fluid (CSF) The fluid found in the brain and spinal cord.

chloride A compound of chlorine present in a salt form carrying a negative charge; Cl⁻, an anion.

cholecalciferol The product of irradiation of 7-dehydrocholesterol found in the skin. *Also see* vitamin D₃.

cholesterol A fat-like pearly substance, an alcohol, found in all animal fat and oils; a main constituent of some body tissues and body compounds.

choline A substance associated with the B complex that is widely distributed in both plant and animal tissues; involved in carbohydrate, fat, and protein metabolism.

chondroitin Formed in the body from amino acids and involved in cartilage formation; marketed as a dietary supplement.

chromium A whitish metal essential to human nutrition; it is involved in carbohydrate metabolism via its role with insulin.

chronic fatigue syndrome Prolonged fatigue (over 6 months) of unknown cause characterized by mental depression and physical fatigue; may be observed in endurance athletes.

chronic-training effect Physiological changes in the body, brought on by repeated bouts of exercise, that will help make the body more efficient during exercise.

chylomicron A particle of emulsified fat found in the blood following the digestion and assimilation of fat.

circuit aerobics A combination of aerobic and weight-training exercises designed to

elicit the specific benefits of each type of exercise.

circuit training A method of training in which exercises are arranged in a circuit or sequence. May be designed with weight training to help convey an aerobic training effect.

cirrhosis A degenerative disease of the liver, one cause being excessive consumption of alcohol.

cis fatty acids The chemical structure of unsaturated fatty acids in which the hydrogen ions are on the same side of the double bond.

Ciwujia A Chinese herb theorized to be ergogenic.

clinical obesity Obesity determined by a clinical procedure.

Clostridium A bacteria commonly involved in food poisoning.

cobalamin The cobalt-containing complex common to all members of the vitamin B₁₂ group; often used to designate cyanocobalamin.

cobalt A gray, hard metal that is a component of vitamin B₁₂.

coenzyme An activator of an enzyme; many vitamins are coenzymes.

coenzyme Q10 *See* CoQ10.

colon The large intestine.

complementary proteins Combining plant foods such as rice and beans so that essential amino acids deficient in one of the foods are provided by the other in order to obtain a balanced intake of essential amino acids.

complete protein A protein that contains all nine essential amino acids in the proper proportions. Animal protein is complete protein.

complex carbohydrates A term used to describe foods high in starch, such as bread, cereals, fruits, and vegetables as contrasted to simple carbohydrates such as table sugar.

concentric method A method of weight training in which the muscle shortens.

conduction In relation to body temperature, the transfer of heat from one substance to another by direct contact.

convection In relation to body temperature, the transfer of heat by way of currents in either air or water.

copper A reddish metallic element essential to human nutrition; it functions with iron in the formation of hemoglobin and the cytochromes.

CoQ10 A coenzyme involved in the electron transport system in the mitochondria.

core temperature The temperature of the deep tissues of the body, usually measured orally or rectally; *also see* shell temperature.

Cori cycle Cycle involving muscle breakdown of glucose to lactate, lactate transport via blood to the liver for reconversion to glucose, and glucose returning to the muscle.

coronary artery disease (CAD) Atherosclerosis in the coronary arteries.

coronary heart disease (CHD) A degenerative disease of the heart caused primarily by arteriosclerosis or atherosclerosis of the coronary vessels of the heart.

coronary occlusion Closure of coronary arteries that may precipitate a heart attack; occlusion may be partial or complete closure.

coronary risk factors Behaviors (smoking) or body properties (cholesterol levels) that may predispose an individual to coronary heart disease.

coronary thrombosis Occlusion (closure) of coronary arteries, usually by a blood clot.

cortisol A hormone secreted by the adrenal cortex with gluconeogenic potential, helping to convert amino acids to glucose.

creatine A nitrogen-containing compound found in the muscles, usually complexed with phosphate to form phosphocreatine.

crossover concept The concept that as exercise intensity increases, at some point carbohydrate rather than fat becomes the predominant fuel for muscle contraction.

cruciferous vegetables Vegetables in the cabbage family, such as broccoli, cauliflower, kale, and all cabbages.

cyanocobalamin Vitamin B₁₂.

cysteine A breakdown product of cystine. It is also a sulfur-containing amino acid.

cystine A sulfur-containing amino acid.

cytochromes Any one of a class of pigment compounds that play an important role in cellular oxidative processes.

Daily Reference Values (DRVs) The DRVs are recommended daily intakes for the macronutrients (carbohydrate, fat, and protein) as well as cholesterol, sodium, and potassium. On a food label, the DRV is based on a 2,000 Calorie diet.

Daily Value (DV) A term used in food labeling; the DV is based on a daily energy intake of 2,000 Calories and for the food labeled, presents the percentage of the RDI and the DRV recommended for healthy Americans. *See* RDI and DRV.

deamination Removal of an amine group, or nitrogen, from an amino acid.

dehydration A reduction of the body water to below the normal level of hydration; water output exceeds water intake.

dehydroepiandrosterone (DHEA)

A natural steroid hormone produced endogenously by the adrenal gland. May be marketed as a nutritional sports ergogenic as derived from herbal precursors.

depressant Drugs or agents that will depress or lower the level of bodily functions, particularly central nervous system functioning.

DHAP Dihydroxyacetone and pyruvate, the combination of two by-products of glycolysis.

DHEA *See* dehydroepiandrosterone.

Diabesity Term coined to highlight the relationship between the development of diabetes following the onset of obesity.

diabetes mellitus A disorder of carbohydrate metabolism due to disturbances in production or utilization of insulin; results in high blood glucose levels and loss of sugar in the urine.

diarrhea Frequent passage of a watery fecal discharge due to a gastrointestinal disturbance.

diastolic blood pressure The blood pressure in the arteries when the heart is at rest between beats.

dietary fiber Nondigestible carbohydrates and lignin that are intrinsic and intact in plants.

Dietary Folate Equivalents (DFE) Used in estimating folate requirements, adjusting for the greater degree of absorption of folic acid (free form) compared with folate naturally found in foods. One microgram food folate equals 0.5 to 0.6 folic acid added to foods or as a supplement.

dietary-induced thermogenesis (DIT) The increase in the basal metabolic rate following the ingestion of a meal. Heat production is increased.

Dietary Reference Intakes (DRI) Standards for recommended dietary intakes, consisting of various values. *See also* AI, EAR, RDA, AMDR, and UL.

dietary supplement A food product, added to the total diet, that contains either vitamins, minerals, herbs, botanicals, amino acids, metabolites, constituents, extracts, or combinations of these ingredients.

Dietary Supplement Health and Education Act (DSHEA) Act passed by the United States Congress defining a dietary supplement (*see* dietary supplement); legislation to control advertising and marketing.

2,3-diphosphoglyceride A by-product of carbohydrate metabolism in the red blood

cell; helps the hemoglobin unload oxygen to the tissues.

disaccharides Any one of a class of sugars that yield two monosaccharides on hydrolysis; sucrose is the most common.

dispensable amino acids *See* nonessential amino acids.

diuretics A class of agents that stimulate the formation of urine; used as a means to reduce body fluids.

diverticulosis Weak spots in the wall of the large intestine that may bulge out like a weak spot in a tire inner tube. May become infected leading to diverticulitis.

DNA Deoxyribonucleic acid; a complex protein found in chromosomes that is the carrier of genetic information and the basis of heredity.

docosahexanoic acid (DHA) Docosahexanoic acid, an omega-3 fatty acid found in fatty fish.

doping Official term used by WADA and the International Olympic Committee to depict the use of drugs in sports in attempts to enhance performance.

doubly-labeled water technique A technique using labeled water to study energy metabolism.

dual energy X-ray absorptiometry (DEXA, DXA) A computerized X-ray technique at two energy levels to image body fat, lean tissues, and bone mineral content.

dumping syndrome Movement of fluid from the blood to the intestines by osmosis. May occur when a concentrated sugar solution is consumed in large quantities, causing symptoms such as weakness and gastrointestinal distress.

duration concept One of the major concepts of aerobic exercise; duration refers to the amount of time spent exercising during each session.

EAH *See* exercise-associated hyponatremia.

eating disorder A psychological disorder centering on the avoidance, excessive consumption, or purging of food, such as anorexia nervosa and bulimia nervosa.

eccentric method A weight-training method in which the muscle undergoes a lengthening contraction.

eicosanoids Derivatives of fatty acid oxidation in the body, including prostaglandins, thromboxanes, and leukotrienes.

eicosapentaenoic acid (EPA) An omega-3 fatty acid found in fatty fish.

electrolyte A substance that, when in a solution, conducts an electric current.

electrolyte solution A solution that contains ions and can conduct electricity; often the ions of salts such as sodium and chloride are called electrolytes; *also see* ions.

electron transfer system A highly structured array of chemical compounds in the cell that transport electrons and harness energy for later use.

element Relative to chemistry, a substance that cannot be subdivided into substances different from itself; many elements are essential to human life.

endocrine system The body system consisting of glands that secrete hormones, which have a wide variety of effects throughout the body.

energy The ability to do work; energy exists in various forms, notably mechanical, heat, and chemical in the human body.

English system A measurement system based upon the foot, pound, quart, and other nonmetric units; *also see* metric system.

enzyme A complex protein in the body that serves as a catalyst, facilitating reactions between various substances without being changed itself.

Ephedra Term used for the plant *Ephedra sinica*, a source of ephedrine.

ephedrine A stimulant with somewhat weaker effects than amphetamine; found in some commercial dietary supplements; also known as ephedra.

epidemiological research A study of certain populations to determine the relationship of various risk factors to epidemic diseases or health problems.

epinephrine A hormone secreted by the adrenal medulla that stimulates numerous body processes to enhance energy production, particularly during intense exercise.

epithelial cells The layer of cells that covers the outside and inside surfaces of the body, including the skin and the lining of the gastrointestinal system.

ergogenic aids Work-enhancing agents that are used in attempts to increase athletic or physical performance capacity.

ergogenic effect The physiological or psychological effect that an ergogenic substance is designed to produce.

ergolytic effect An agent or substance that may lead to decreases in work productivity or physical performance. *See also* ergogenic effect.

Escherichia A bacteria commonly involved in food poisoning.

essential amino acids Those amino acids that must be obtained in the diet and cannot

be synthesized in the body. Also known as indispensable amino acids.

essential fat Fat in the body that is an essential part of the tissues, such as cell membrane structure, nerve coverings, and the brain; *also see* storage fat.

essential fatty acid Those unsaturated fatty acids that may not be synthesized in the body and must be obtained in the diet, e.g., linoleic fatty acid.

essential nutrients Those nutrients found to be essential to human life and optimal functioning.

ester Compound formed from the combination of an organic acid and an alcohol.

Estimated Average Requirement (EAR) Nutrient intake value estimated to meet the requirements of half the healthy individuals in a group.

Estimated Energy Requirement (EER) The daily dietary intake predicted to maintain energy balance for an individual of a defined age, gender, height, weight, and level of physical activity consistent with good health.

Estimated Minimal Requirement (EMR) Part of the RDA pertaining to the minimal daily requirement for sodium, chloride, and potassium.

Estimated Safe and Adequate Daily Dietary Intakes (ESADDI) Part of the previous RDA. Daily allowances for selected nutrients that are based upon available scientific evidence to be safe and adequate to meet human needs.

ethanol Alcohol; ethyl alcohol.

ethyl alcohol Alcohol; ethanol.

evaporation The conversion of a liquid to a vapor, which consumes energy; evaporation of sweat cools the body by using body heat as the energy source.

exercise A form of structured physical activity generally designed to enhance physical fitness; exercise usually refers to strenuous physical activity.

exercise-associated hyponatrimia (EAH) Term associated with the decline in serum sodium levels during prolonged exercise with excessive fluid intake and/or sodium losses; see also water intoxication.

exercise frequency In an aerobic exercise program, the number of times per week that an individual exercises.

exercise intensity The tempo, speed, or resistance of an exercise. Intensity can be increased by working faster, doing more work in a given amount of time.

exercise metabolic rate (EMR) An increased metabolic rate due to the need for increased energy production; during exercise, the resting energy expenditure (REE) may be increased more than twenty-fold.

exercise sequence *See* principle of exercise sequence.

exercise stimulus The means whereby one elicits a physiological response; running, for example, can be the stimulus to increase the heart rate and other physiological functions.

exercisomics General term regarding the effects of exercise on genetic expression and resultant metabolic adaptations.

exertional heat stroke Heat stroke that is precipitated by exercise in a warm or hot environment.

experimental research Study that manipulates an independent variable (cause) to observe the outcome on a dependent variable (effect).

extracellular water Body water that is located outside the cells; often subdivided into the intravascular water and the intercellular, or interstitial, water.

facilitated diffusion Process whereby glucose combines with a special protein carrier molecule at the membrane surface, facilitating glucose transport into the cell; insulin promotes facilitated diffusion in some cells.

faddism Relative to nutrition, the use of dietary fads based upon theoretical principles that may or may not be valid; usually used in a negative sense, as in quackery.

fasting Starvation; abstinence from eating that may be partial or complete.

fast-twitch fibers Muscle fibers characterized by high contractile speed.

fat exchange A fat exchange in the Food Exchange System contains 5 grams of fat and 45 Calories.

fat-free mass The remaining mass of the human body following the extraction of all fat.

fatigue A generalized or specific feeling of tiredness that may have a multitude of causes; may be mental or physical.

fat loading A term to describe practices used to maximize the use of fats as an energy source during exercise, particularly a low-carbohydrate, high-fat diet.

fat patterning The deposition of fat in specific areas of the human body, such as the stomach, thighs, or hips. Genetics plays an important role in fat patterning.

fats Triglycerides; a combination, or ester, of three fatty acids and glycerol.

fat substitutes Various substances used as substitutes for fats in food products; two popular brands are Simplese and Olestra.

fatty acids Any one of a number of aliphatic acids containing only carbon, oxygen, and hydrogen; they may be saturated or unsaturated.

female athlete triad The triad of disordered eating, amenorrhea, and osteoporosis sometimes seen in female athletes involved in sports where excess body weight may be detrimental to performance.

female-type obesity *See* gynoid-type obesity.

ferritin The form in which iron is stored in the tissues.

fetal alcohol effects (FAE) Symptoms noted in children born to women who consumed alcohol during pregnancy; not as severe as fetal alcohol syndrome.

fetal alcohol syndrome (FAS) The cluster of physical and mental symptoms seen in the child of a mother who consumes excessive alcohol during pregnancy.

fiber In general, the indigestible carbohydrate in plants that forms the structural network; *also see* cellulose.

First Law of Thermodynamics The law that energy cannot be created or destroyed; energy can be converted from one form to another.

flatulence Gas or air in the gastrointestinal tract, particularly the intestines.

fluoride A salt of hydrofluoric acid; a compound of fluorine that may be helpful in the prevention of tooth decay.

folacin Collective term for various forms of folic acid.

folate Salt of folic acid; form found in foods.

folic acid A water-soluble vitamin that appears to be essential in preventing certain types of anemia.

food additives *See* additives.

food allergy An adverse immune response to an otherwise harmless food. *Also see* food hypersensitivity.

food cultism Treating a particular food as if it possesses special properties, such as prevention or treatment of disease or improvement of athletic performance, usually without scientific justification.

Food and Drug Administration (FDA) Federal agency tasked with the responsibilities to monitor safety of foods and drugs sold in the United States.

Food Exchange System The system developed by the American Dietetic

Association and other health groups that categorizes foods by content of carbohydrate, fat, protein, and Calories. Used as a basis for diet planning.

food hypersensitivity Some individuals may develop clinical symptoms, such as migraine headaches, gastrointestinal distress, or hives and itching when certain foods are eaten.

food intolerance A general term for any adverse reaction to a food or food component not involving the immune system; an example is lactose intolerance.

food poisoning Foodborne illness caused by bacteria such as Salmonella, Escherichia, Staphylococcus, and Clostridium.

foot-pound A unit of work whereby the weight of 1 pound is moved through a distance of 1 foot.

Fosamax A commercial bisphosphonate product.

free fatty acids (FFA) Acids formed by the hydrolysis of triglycerides.

free radicals An atom or compound in which there is an unpaired electron. Thought to cause cellular damage.

fructose A monosaccharide known as levulose or fruit sugar; found in all sweet fruits.

fruit exchange One fruit exchange in the Food Exchange System contains 15 grams of carbohydrate and 60 Calories.

fruitarian A type of vegetarian who subsides solely on fruits, fruit products, and nuts.

fTRP:BCAA ratio The ratio of free tryptophan to branched-chain amino acids; a high ratio is theorized to elicit fatigue in prolonged endurance events.

functional fiber Isolated, nondigestible carbohydrates that have beneficial effects in humans.

functional foods Food products containing nutrients designed to provide health benefits beyond basic nutrition.

galactose A monosaccharide formed when lactose is hydrolyzed into glucose and galactose.

gastric emptying The rate at which substances, particularly fluids, empty from the stomach; high gastric emptying rates are advisable for sports drinks.

generally recognized as safe (GRAS) A classification for food additives indicating that they most likely are not harmful for human consumption.

ghrelin Hormone released by an empty stomach to stimulate the appetite.

ginseng A general term for a variety of natural chemical plant extracts derived from the family Araliaceae; extract contains ginsenosides and other chemicals that may influence human physiology.

glucagon A hormone secreted by the pancreas; basically it exerts actions just the opposite of insulin, i.e., it responds to hypoglycemia and helps to increase blood sugar levels.

glucarate A compound found in cruciferous vegetables that is thought to block the actions of cancer-causing agents.

glucogenic amino acids Amino acids that may undergo deamination and be converted into glucose through the process of gluconeogenesis.

gluconeogenesis The formation of carbohydrates from molecules that are not themselves carbohydrate, such as amino acids and the glycerol from fat.

glucosamine Formed in the body from amino acids and involved in cartilage formation; marketed as a dietary supplement.

glucose A monosaccharide; a thick, sweet, syrupy liquid.

glucose-alanine cycle The cycle in which alanine is released from the muscle and is converted to glucose in the liver.

glucose-electrolyte solutions Solutions designed to replace sweat losses; contain varying proportions of water, glucose, sodium, potassium, chloride, and other electrolytes.

glucose polymer A combination of several glucose molecules into a more complex carbohydrate.

glucose polymer solutions Fluid replacement beverages containing primarily water and glucose polymers.

glucostatic theory The theory that hunger and satiety are controlled by the glucose level in the blood; the receptors that respond to the blood glucose level are in the hypothalamus.

GLUT-4 Receptors in cell membranes that transport glucose from the blood to the cell interior.

glutathione peroxidase An enzyme that helps neutralize free radicals.

glycemic index An index expressing the effects of various foods on the rate and amount of increase in blood glucose levels.

Glycerate A commercial product containing glycerol; marketed to athletes.

glycerin *See* glycerol.

glycerol Glycerin, a clear syrupy liquid; an alcohol that combines with fatty acids to form triglycerides.

glycogen A polysaccharide that is the chief storage form of carbohydrate in animals; it is stored primarily in the liver and muscles.

glycogen-sparing effect The theory that certain dietary techniques, such as the use of caffeine, may facilitate the oxidation of fatty acids for energy and thus spare the utilization of glycogen.

glycolysis The degradation of sugars into smaller compounds; the main quantitative anaerobic energy process in the muscle tissue.

gout The deposit of uric acid by-products in and about the joints contributing to inflammation and pain; usually occurs in the knee or foot.

gram calorie A small calorie; *see* Calorie.

gums A form of water-soluble dietary fiber found in plants.

gynoid-type obesity Female-type obesity; body fat is deposited primarily about the hips and thighs. *Also see* android-type obesity.

HDL High-density lipoprotein; a protein-lipid complex in the blood that facilitates the transport of triglycerides, cholesterol, and phospholipids. *Also see* HDL cholesterol.

HDL-cholesterol High-density lipoprotein cholesterol; one mechanism whereby cholesterol is transported in the blood. High HDL levels are somewhat protective against CHD.

health-related fitness Those components of physical fitness whose improvement have health benefits, such as cardiovascular fitness, body composition, flexibility, and muscular strength and endurance.

Healthy Eating Index (HEI) USDA computerized dietary analysis to assess personal diets to provide an overall rating as related to health.

heat-balance equation Heat balance is dependent upon the interrelationships of metabolic heat production and loss or gain of heat by radiation, convection, conduction, and evaporation.

heat cramps Painful muscular cramps or tetany following prolonged exercise in the heat without water or salt replacement.

heat exhaustion Weakness or dizziness from overexertion in a hot environment.

heat index The apparent temperature determined by combining air temperature and relative humidity.

heat stroke Elevated body temperature of 105.8° F or greater caused by exposure to excessive heat gains or production and diminished heat loss.

heat syncope Fainting caused by excessive heat exposure.

hematuria Blood or red blood cells in the urine.

heme iron The iron in the diet associated with hemoglobin in animal meats.

hemicellulose A form of dietary fiber found in plants. Differs from cellulose in that it may be hydrolyzed by dilute acids outside of the body. Not hydrolyzed in the body.

hemochromatosis Presence of excessive iron in the body resulting in an enlarged liver and bronze pigmentation of the skin.

hemoglobin The protein-iron pigment in the red blood cells that transports oxygen.

hemolysis A rupturing of red blood cells with a release of hemoglobin into the plasma.

hepatitis An inflammatory condition of the liver.

heterocyclic amines (HCA) Carcinogens formed in foods that have been charred by excess grilling or broiling.

hidden fat In foods, the fat that is not readily apparent, such as the high fat content of cheese.

high blood pressure *See* hypertension.

high-density lipoprotein *See* HDL.

high-fructose corn syrup A common high-Calorie sweetener used as a food additive; derived from the partial hydrolysis of corn starch.

histidine An essential amino acid.

HMB Beta-hydroxy-beta-methylbutyrate, a metabolic by-product of the amino acid leucine, alleged to retard the breakdown of muscle protein during strenuous exercise.

homeostasis A term used to describe a condition of normalcy in the internal body environment.

homocysteine A metabolic by-product of amino acid metabolism; elevated blood levels are associated with increased risk of vascular diseases.

hormone A chemical substance produced by specific body cells, secreted into the blood and then acting on specific target tissues.

hormone sensitive lipase (HSL) An enzyme that catalyzes triglycerides into free fatty acids and glycerol.

HR max The normal maximal heart rate of an individual during exercise.

HR reserve The mathematical difference, or reserve, between the resting HR and maximal HR. A percentage of this reserve may be added to the resting HR to determine exercise intensity.

human growth hormone (HGH) A hormone released by the pituitary gland

that regulates growth; also involved in fatty acid metabolism; rHGH is a genetically engineered form.

hunger A basic physiological desire to eat that is normally caused by a lack of food; may be accompanied by stomach contractions.

hunger center A collection of nerve cells in the hypothalamus that is involved in the control of feeding reflexes.

hydrodensitometry Another term for the underwater weighing technique.

hydrogenated fats Fats to which hydrogen has been added, usually causing them to be saturated.

hydrolysis A mechanism for splitting substances into smaller compounds by the addition of water; enzyme action.

hypercholesteremia Elevated blood cholesterol levels.

hyperglycemia Elevated blood glucose levels.

hyperhydration The practice of increasing the body-water stores by fluid consumption prior to an athletic event; a state of increased water content in the body.

hyperkalemia An increased concentration of potassium in the blood.

hyperlipidemia Elevated blood lipid levels.

hyperplasia The formation of new body cells.

hypertension A condition with various causes whereby the blood pressure is higher than normal.

hyperthermia Unusually high body temperature; fever.

hypertonic Relative to osmotic pressure, a solution that has a greater concentration of solute or salts, hence higher osmotic pressure, in comparison to another solution.

hypertriglyceridemia Elevated blood levels of triglycerides.

hypertrophy Excessive growth of a cell or organ; in pathology, an abnormal growth.

hypervitaminosis A pathological condition due to an excessive vitamin intake, particularly the fat-soluble vitamins A and D.

hypoglycemia A low blood sugar level.

hypohydration A state of decreased water content in the body caused by dehydration.

hypokalemia A decreased concentration of potassium in the blood.

hyponatremia A decreased concentration of sodium in the blood.

hypothalamus A part of the brain involved in the control of involuntary activity in the

body; contains many centers for neural control such as temperature, hunger, appetite, and thirst.

hypothermia Unusually low body temperature.

hypotonic Having an osmotic pressure lower than that of the solution to which it is compared.

IGF See insulin-like growth factor.

incomplete protein Protein food that does not possess the proper amount of essential amino acids; characteristic of plant foods in general.

Index of Nutritional Quality (INQ) A mathematical means of determining the quality of any given food relative to its content of a specific nutrient.

indicator nutrients These eight nutrients, if provided in adequate supply through a varied diet, should provide adequate amounts of the other essential nutrients. The eight are protein, vitamin A, thiamin, riboflavin, niacin, vitamin C, calcium, and iron.

indispensable amino acids See essential amino acids.

indoles Phytochemicals believed to help prevent various diseases.

infrared interactance Use of infrared technology to estimate body composition.

initial fitness level The physical fitness level of an individual prior to the onset of a physical conditioning program.

in-line skating An exercise-skating technique with specially-designed shoes for use on sidewalks and similar surfaces.

inosine A nucleoside of the purine family that serves as a base for the formation of a variety of compounds in the body; theorized to be ergogenic.

inositol A member of the B complex, although its role in human nutrition has not been established; not classified as a vitamin.

INQ See Index of Nutritional Quality.

insensible perspiration Perspiration on the skin not detectable by ordinary senses.

insoluble dietary fiber Dietary fiber that is not soluble in water, such as cellulose. *Also see* soluble dietary fiber.

insulin A hormone secreted by the pancreas involved in carbohydrate metabolism.

Insulin-like growth factor (IGF) A growth factor found in the blood which resembles insulin; produced in response to growth hormone release.

insulin response Blood insulin levels rise following the ingestion of sugar and the

resultant hyperglycemia; the insulin causes the sugar to be taken up by the muscles and fat cells, possibly creating a reactive hypoglycemia.

intercellular water Body water found between the cells; also known as interstitial water.

intermittent high-intensity exercise Short-term bouts of high-intensity exercise interspersed with short periods of recovery.

International Unit (IU) International Unit; a method of expressing the quantity of some substance, such as vitamins, which is an internationally developed and accepted standard.

International Unit System (SI) *Le Systeme International d'Unite*, or the International System of Units; a system of measurement based upon the metric system.

interstitial water See intercellular water.

interval training A method of physical training in which periods of activity are interspersed with periods of rest.

intestinal absorption The rate at which substances, particularly fluids and nutrients, are absorbed into the body; a fast rate of intestinal absorption is a desirable characteristic of sports drinks.

intracellular water Body water that is found within the cells.

intravascular water Body water found in the vascular system, or blood vessels.

involuntary dehydration Unintentional loss of body fluids during exercise under warm or hot environmental conditions.

IOC International Olympic Committee.

iodine A nonmetallic element that is necessary for the proper development and functioning of the thyroid gland.

ions Particles with an electrical charge; anions are negative and cations are positive.

iron A metallic element essential for the development of several chemical compounds in the body, notably hemoglobin.

iron-deficiency anemia Anemia caused by an inadequate intake or absorption of iron, resulting in impaired hemoglobin formation.

iron deficiency without anemia A condition in which the hemoglobin levels are normal but several indices of iron status in the body are below normal levels.

irradiation Process whereby foods are subjected to ionizing radiation to kill bacteria.

ischemia Lack of blood supply.

isoflavones Phytochemicals believed to help prevent various diseases.

isokinetic Literally meaning “same speed”; in weight training an isokinetic machine is used to control the speed of muscle contraction.

isoleucine An essential amino acid.

isometric Literally meaning “same length”; in weight training the resistance is set so that the muscle will not shorten.

isotonic Literally meaning “equal tension or pressure”; in weight training the resistance is set so there is supposed to be equal tension in the muscle through a range of motion, but this is rarely achieved owing to movement of body parts. Isotonic also means equal osmotic pressures between two solutions.

jogging A term used to designate slow running; although the distinction between running and jogging is relative to the individual involved, a common value used for jogging is a 9-minute mile or slower.

joule A measure of work in the metric system; a newton of force applied through a distance of one meter.

ketogenesis The formation of ketones in the body from other substances, such as fats and proteins.

ketogenic amino acids Amino acids that may be deaminated, converted into ketones and eventually into fat.

ketones An organic compound containing a carbonyl group; ketone acids in the body, such as acetone, are the end products of fat metabolism.

ketosis The accumulation of excess ketones in the blood; since ketones are acids, acidosis occurs.

key-nutrient concept The concept that if certain key nutrients are adequately supplied by the diet, the other essential nutrients will also be present in adequate amounts. *Also see* indicator nutrients.

kidney stones Compounds in the pelvis of the kidney formed from various salts such as carbonates, oxalates, and phosphates.

kilocalorie (KC) A large Calorie; *see* Calorie.

kilogram A unit of mass in the metric system; in ordinary terms, 1 kilogram is the equivalent of 2.2 pounds.

kilogram-meter (KGM) A measure of work in the metric system whereby 1 kilogram of weight is moved through a distance of 1 meter; however, the joule is the recommended unit to express work.

kilojoule One thousand joules; one kilojoule (kJ) is approximately 0.25 kilocalorie.

Krebs cycle The main oxidative reaction sequence in the body that generates ATP; also known as the citric acid or tricarboxylic acid cycle.

lactic acid The anaerobic end product of glycolysis; it has been implicated as a causative factor in the etiology of fatigue.

lactic acid system The energy system that produces ATP anaerobically by the breakdown of glycogen to lactic acid; used primarily in events of maximal effort for one to two minutes.

lactose A white crystalline disaccharide that yields glucose and galactose upon hydrolysis; also known as milk sugar.

lactose intolerance Gastrointestinal disturbances due to an intolerance to lactose in milk; caused by deficiency of lactase, an enzyme that digests lactose.

lactovegetarian A vegetarian who includes milk products in the diet as a form of high-quality protein.

LDL Low-density lipoprotein; a protein-lipid complex in the blood that facilitates the transport of triglycerides, cholesterol, and phospholipids. *Also see* LDL-cholesterol.

LDL-cholesterol Low-density lipoprotein cholesterol; a mechanism whereby cholesterol is transported in the blood. High blood levels are associated with increased incidence of CHD.

lean body mass The body weight minus the body fat, composed primarily of muscle, bone, and other nonfat tissue.

lecithin A fatty substance of a class known as phospholipids; said to have the therapeutic properties of phosphorous.

legume The fruit or pod of vegetables including soybeans, kidney beans, lima beans, garden peas, black-eyed peas, and lentils; high in protein.

leptin Regulatory hormone produced by fat cells; when released into the circulation, it influences the hypothalamus to control appetite.

leucine An essential amino acid.

leukotrienes Eicosanoids that possess hormone-like activity in numerous cells in the body.

levulose Fructose.

lignin A noncarbohydrate form of dietary fiber.

limiting amino acid An amino acid deficient in a specific plant food, making it an incomplete protein; methionine is a limiting amino acid in legumes while lysine is deficient in grain products.

linoleic acid An essential fatty acid.

lipase An enzyme that catabolizes fats into fatty acids and glycerol.

lipids A class of fats or fat-like substances characterized by their insolubility in water and solubility in fat solvents; triglycerides, fatty acids, phospholipids, and cholesterol are important lipids in the body.

lipic acid A coenzyme that functions in oxidative decarboxylation, or removal of carbon dioxide from a compound.

lipoprotein A combination of lipid and protein possessing the general properties of proteins. Practically all the lipids of the plasma are present in this form.

lipoprotein (a) Serum lipid factor very similar to the LDL, being in the upper LDL density range and containing apolipoprotein (a); high levels are associated with increased risk for CHD.

lipoprotein lipase An enzyme involved in the metabolism of lipoproteins.

lipostatic theory The theory that hunger and satiety are controlled by the lipid level in the blood.

liquid meals Food in a liquid form designed to provide a balanced intake of essential nutrients.

liquid-protein diets Protein in a liquid form; a common form consists of protein predigested into simple amino acids.

liver glycogen The major storage form of carbohydrate in the liver.

long-chain fatty acids (LCFA) Fatty acids containing chains with 12 or more carbons.

long-haul concept Relative to weight control, the idea that weight loss via exercise should be gradual, and one should not expect to lose large amounts of weight in a short time.

L-tryptophan One form of tryptophan. L is for levo (left), or the direction in which polarized light is rotated when various organic compounds are analyzed.

lycopene A carotenoid that serves as an antioxidant.

lysine An essential amino acid.

macrominerals Those minerals essential to human nutrition with an RDA in excess of 100 mg/day: calcium, magnesium, phosphorous, sodium, potassium, chloride.

macronutrients Dietary nutrients needed by the body in daily amounts greater than a few grams, such as carbohydrate, fat, protein, and water.

magnesium A white metallic mineral element essential in human nutrition.

magnetic resonance imaging (MRI) Magnetic-field and radio-frequency waves

used to image body tissues; useful for imaging visceral fat.

ma huang A Chinese plant extract theorized to be ergogenic; contains ephedrine, a stimulant.

major minerals *See* macrominerals.

male-type obesity *See* android-type obesity.

malnutrition Poor nutrition that may be due to inadequate amounts of essential nutrients. Too many Calories leading to obesity is also a form of malnutrition. *Also see* subclinical malnutrition.

maltodextrin A glucose polymer that exerts lesser osmotic effects compared with glucose; used in a variety of sports drinks as the source of carbohydrate.

maltose A white crystalline disaccharide that yields two molecules of glucose upon hydrolysis.

manganese A metallic element essential in human nutrition.

maximal heart rate *See* HR max.

maximal heart rate reserve The difference between the maximal HR and resting HR. A percentage of this reserve, usually 60-90 percent, is added to the resting HR to get the target HR for aerobics training programs.

maximal oxygen uptake *See* VO₂ max.

meat exchange One very lean meat exchange in the Food Exchange System contains 0-1 gram of fat, 7 grams of protein, and 35 Calories; a lean meat exchange contains 3 grams of fat, 7 grams of protein and 55 Calories; a medium-fat meat exchange has an additional 2 grams of fat and totals 75 Calories; a high-fat exchange has 5 additional grams of fat and totals 100 Calories.

Mediterranean Food Guide Pyramid

A food group approach to healthful nutrition that includes basic food groups, but also lists olive oil and wine as components of the diet.

medium-chain fatty acids (MCFA) Fatty acids containing chains with 6-12 carbons.

medium-chain triglycerides (MCTs) Triglycerides containing fatty acids with carbon chain lengths of 6-12 carbons.

megadose An excessive amount of a substance in comparison to a normal dose of RDA; usually used to refer to vitamins.

menquinone The animal form of vitamin K.

meta-analysis A statistical technique to summarize the findings of numerous studies in an attempt to provide a quantitatively based conclusion.

metabolic aftereffects of exercise The theory that the aftereffects of exercise will cause the metabolic rate to be elevated for a time, thus expending Calories and contributing to weight loss.

metabolic rate The energy expended to maintain all physical and chemical changes occurring in the body.

metabolic syndrome The syndrome of symptoms often seen with android-type obesity, particularly hyperinsulinemia, hypertriglyceridemia, and hypertension.

metabolic water The water that is a by-product of the oxidation of carbohydrate, fat, and protein in the body.

metabolism The sum total of all physical and chemical processes occurring in the body.

metalloenzyme An enzyme that needs a mineral component, such as zinc, in order to function effectively.

methionine An essential amino acid.

methylmercury An industrial waste product dumped in the seas that may accumulate in large fish; may lead to subsequent nerve damage in children or pregnant females who eat contaminated fish.

metric system A method of measurement based upon units of ten.

MET A measurement unit of energy expenditure; one MET equals approximately 3.5 ml O₂/kg body weight/minute.

microgram One millionth of a gram (μg).

micronutrients Dietary nutrients needed by the body in daily amounts less than a few grams, such as vitamins and minerals.

milk exchange One skim milk exchange in the Food Exchange System contains 12 grams of carbohydrate, 8 grams of protein, a trace of fat, and 90 Calories. A low-fat exchange contains 120 Calories whereas whole milk has 150 Calories.

milligram One thousandth of a gram.

millimole One thousandth of a mole.

mineral An inorganic element occurring in nature.

mitochondria Structures within the cells that serve as the location for the aerobic production of ATP.

mole One mole is the gram molecular weight of a compound, which is the quantity of a substance that equals its molecular weight.

molybdenum A hard, heavy, silvery-white metallic element.

monosaccharides Simple sugars (glucose, fructose, and galactose) that cannot be broken down by hydrolysis.

monounsaturated fatty acids (MUFA)

Fatty acids that have a single double bond.

morbid obesity Severe obesity in which the incidence of life-threatening diseases is increased significantly.

MPF factor Muscle protein factor; an unknown property of meat, fish, and poultry that facilitates the absorption of nonheme iron found in plant foods.

muscle dysmorphia See Adonis complex.

muscle glycogen The form in which carbohydrate is stored in the muscle.

muscle hypertrophy An increase in the size of the muscle.

myocardial infarction Death of heart tissue following cessation of blood flow; may be caused by coronary occlusion.

myoglobin An iron-containing compound, similar to hemoglobin, found in the muscle tissues; it binds oxygen in the muscle cells.

MyPyramid The graphic and program representing the healthful food guidelines presented by the United States Department of Agriculture.

narcotic Any agent that produces insensibility to pain.

National Weight Control Registry

A registry of individuals who have lost at least 30 pounds and have kept it off for a year.

Nautilus A brand of exercise equipment designed for strength-training programs; uses a principle to help provide optimal resistance throughout the full range of motion.

NCAA National Collegiate Athletic Association.

negative caloric balance A condition whereby the caloric output exceeds the caloric intake, thus contributing to a weight loss.

negative nitrogen balance A condition in which dietary protein is insufficient to meet the nitrogen needs of the body. More nitrogen is excreted than is retained in the body.

net protein utilization (NPU) A technique used to assess protein quality.

neural tube defects (NTD) Birth defects involving incomplete formation of the neural tube in the spinal column of newborn children; may lead to paralysis; may be prevented by adequate folate intake.

neuropeptide Y (NPY) Neuropeptide produced in the hypothalamus; a potent appetite stimulant.

neutron activation analysis A sophisticated, noninvasive method of analyzing body structure and function.

newton A unit of force that will accelerate 1 kilogram of mass 1 meter per second per second.

niacin Nicotinamide; nicotinic acid; part of the B complex and an important part of several coenzymes involved in aerobic energy processes in the cells.

niacin equivalent A unit of measure of niacin activity in a food related to both the amount of niacin present and that obtainable from tryptophan; about 60 mg tryptophan can be converted to 1 mg niacin.

nickel A silvery-white metallic element.

nicotinamide An amide of nicotinic acid; niacin.

nicotinic acid Niacin.

nitrogen A colorless, tasteless, odorless gas comprising about 80 percent of the atmospheric gas; an essential component of protein that is formed in plants during their developmental process.

nitrogen balance A dietary state in which the input and output of nitrogen is balanced so that the body neither gains nor loses protein tissue.

nonessential amino acids Amino acids that may be formed in the body and thus need not be obtained in the diet; also known as dispensable amino acids. See essential amino acids.

nonessential nutrient A nutrient that may be formed in the body from excess amounts of other nutrients.

nonexercise activity thermogenesis (NEAT) Thermogenesis, or heat production by the body, that accompanies physical activity other than volitional exercise.

nonheme iron Iron that is found in plant foods; see heme iron.

nonprotein nitrogen Nitrogen in the body and foods that is associated with nonprotein compounds.

normohydration The state of normal hydration, or normal body-water levels, as compared with hypohydration and hyperhydration.

nutraceutical A nutrient that may function as a pharmaceutical when taken in certain quantities.

nutrient Substances found in food that provide energy, promote growth and repair of tissues, and regulate metabolism.

nutrient density A concept related to the degree of concentration of nutrients in a given food; also see the related concept INQ.

nutrigenomics General term regarding the effects of nutrition on genetic expression and resultant metabolic adaptations.

nutrition The study of foods and nutrients and their effect on health, growth, and development of the individual.

nutritional labeling A listing of selected key nutrients and Calories on the label of commercially prepared food products.

obesity An excessive accumulation of body fat; usually reserved for those individuals who are 20-30 percent or more above the average weight for their size.

octacosanol A solid white alcohol found in wheat germ oil.

odds ratio (OR) A probability estimate; OR of 1.0 is normal.

Olestra A commercially produced substitute for dietary fat.

oligomenorrhea Intermittent periods of amenorrhea.

omega-3 fatty acids Polyunsaturated fatty acids that have a double bond between the third and fourth carbon from the terminal, or omega, carbon. EPA and DHA found in fish oils are theorized to prevent coronary heart disease.

onset of blood lactic acid (OBLA) The intensity level of exercise at which the blood lactate begins to accumulate rapidly.

oral contraceptives Birth control pills used to prevent conception.

oral rehydration therapy (ORT) Fluids balanced in nutrients that help restore normal hydration levels in the body and prevent excessive dehydration.

organic foods Foods that are stated to be grown without the use of man-made chemicals such as pesticides and artificial fertilizers.

orlistat A prescription drug for weight loss that blocks the digestion of dietary fat.

osmolality Osmotic concentration determined by the ionic concentration of the dissolved substance per unit of solvent.

osmoreceptors Receptors in the body that react to changes in the osmotic pressure of the blood.

osmotic pressure A pressure that produces a diffusion between solutions that have different concentrations.

osteomalacia A disease characterized by softening of the bones, leading to brittleness and increased deformity; caused by a deficiency of vitamin D.

osteoporosis Increased porosity or softening of the bone.

overload principle *See* principle of overload.

overtraining syndrome Symptoms associated with excessive training, such as tiredness, sleeplessness, and elevated heart rate.

overweight Body weight greater than that which is considered normal; *also see* obesity.

ovolactovegetarian A vegetarian who also consumes eggs and milk products as a source of high-quality animal protein.

ovovegetarian A vegetarian who includes eggs in the diet to help obtain adequate amounts of protein.

oxalates Salts of oxalic acid, which are found in green leafy vegetables such as spinach and beet greens.

oxidized LDL An oxidized form of low-density lipoprotein that has increased atherogenic potential.

oxygen consumption The total amount of oxygen utilized in the body for the production of energy; it is directly related to the metabolic rate.

oxygen system The energy system that produces ATP via the oxidation of various foodstuffs, primarily fats and carbohydrates.

paidotribe Individuals who served as personal trainers in ancient Greece to advise athletes on proper diet and exercise training programs.

pangamic acid A term often associated with "vitamin B₁₅," the essentiality of which has not been established; often contains calcium gluconate and dimethylglycine.

pantothenic acid A vitamin of the B complex.

para-aminobenzoic acid (PABA) Although not a vitamin, often grouped with the B complex.

partially hydrogenated fats Polyunsaturated fats that are not fully saturated with hydrogen through a hydrogenation process; *also see* trans fatty acids.

peak bone mass The concept of maximizing the amount of bone mineral content during the formative years of childhood and young adulthood.

pectin A form of soluble dietary fiber found in some fruits.

pellagra A deficiency disease caused by inadequate amounts of niacin in the diet.

pentose A simple sugar containing five carbons instead of six as in glucose.

peptides Small compounds formed by the union of two or more amino acids; known also as dipeptides, tripeptides, etc., depending upon the number of amino acids combined.

perceptual-motor activities Physical activities characterized by the perception of a given stimulus and culminating in an appropriate motor, or movement, response.

peripheral vascular disease

Atherosclerosis or blockage of the peripheral arteries.

pernicious anemia A severe progressive form of anemia that may be fatal if not treated with vitamin B₁₂. Usually caused by inability to absorb B₁₂, not a dietary deficiency of B₁₂.

pescovegetarian A vegetarian who eats fish, but not poultry.

pesticides Poisons used to destroy pests of various types, including plants and animals.

pH The abbreviation used to express the level of acidity of a solution; a low pH represents high acidity.

phenylalanine An essential amino acid.

phenylketonuria (PKU) Congenital lack of an enzyme to metabolize phenylalanine, an essential amino acid. May lead to mental retardation if not detected early in life.

phosphagens Compounds such as ATP and phosphocreatine that serve as a source of high energy in the body cells.

phosphates Salts of phosphoric acid, purported to possess ergogenic qualities.

phosphocreatine (PCr) A high-energy phosphate compound found in the body cells; part of the ATP-PCr energy system.

phospholipids Lipids containing phosphorus that in hydrolysis yield fatty acids, glycerol, and a nitrogenous compound. Lecithin is an example.

phosphorus A nonmetallic element essential to human nutrition.

phosphorus:calcium ratio The ratio of calcium to phosphorus intake in the diet; the normal ratio is 1:1.

photon absorptiometry An analytical, noninvasive technique designed to assess bone density.

phyloquinone Vitamin K; essential in the blood clotting process.

physical activity Any activity that involves human movement; in relation to health and physical fitness, physical activity is often classified as structured and unstructured.

Physical Activity Level (PAL) Increase in energy expenditure through physical activity based on energy expended through daily walking mileage or equivalent activities; National Academy of Sciences lists four PAL categories: sedentary, low active, active, and very active.

Physical Activity Pyramid A guide to weekly physical activity, including aerobic endurance, muscular strength and endurance, and flexibility.

Physical Activity Quotient (PA)

Coefficient used to calculate estimated energy requirement (EER) based on categories of physical activity levels (PAL).

physical conditioning Methods used to increase the efficiency or capacity of a given body system so as to improve physical or athletic performance.

physical fitness A set of abilities individuals possess to perform specific types of physical activity. *Also see* health-related fitness and sports-related fitness.

phytates Salts of phytic acids; produced in the body during the digestion of certain grain products; can combine with some minerals such as iron and possibly decrease their absorption.

phytochemicals Chemical substances, other than nutrients, found in plants that are theorized to possess medicinal properties to help prevent various diseases.

phytoestrogens Phytochemicals that may compete with natural endogenous estrogens; believed to help prevent certain forms of cancer associated with excess estrogen activity in the body.

picolinate A natural derivative of tryptophan; commercially it is bound to chromium as a means of enhancing chromium absorption.

plaque The material that forms in the inner layer of the artery and contributes to atherosclerosis. It contains cholesterol, lipids, and other debris.

platelet aggregability Function of platelets to promote clumping together of red blood cells.

polypeptides A combination of a number of simple amino acids; *also see* peptide.

polysaccharide A carbohydrate that upon hydrolysis will yield more than ten monosaccharides.

polyunsaturated fatty acids Fats that contain two or more double bonds and thus are open to hydrogenation.

positive caloric balance A condition whereby caloric intake exceeds caloric output; the resultant effect is a weight gain.

Positive Health Lifestyle A lifestyle characterized by health behaviors designed to promote health and longevity by helping to prevent many of the chronic diseases afflicting modern society.

postabsorptive state The period after a meal has been absorbed from the gastrointestinal tract; in BMR tests it is usually a period of approximately 12 hours.

potassium A metallic element essential in human nutrition; it is the principal cation present in the intracellular fluids.

power Work divided by time; the ability to produce work in a given period of time.

power-endurance continuum In relation to strength training, the concept that power or strength is developed by high resistance and few repetitions, whereas endurance is developed by low resistance and many repetitions.

PRE Progressive resistive exercise.

pre-event nutrition Dietary intake prior to athletic competition; may refer to a 2- to 3-day period prior to an event or the immediate pre-event meal.

premenstrual syndrome (PMS) A condition associated with a wide variety of symptoms during the time prior to menses.

principle of exercise sequence Relative to a weight-training workout, the lifting sequence is designed so that different muscle groups are utilized sequentially so as to be fresh for each exercise.

principle of overload The major concept of physical training whereby one imposes a stress greater than that normally imposed upon a particular body system.

principle of progressive resistance exercise (PRE) A training technique, primarily with weights, whereby resistance is increased as the individual develops increased strength levels.

principle of recuperation A principle of physical conditioning whereby adequate rest periods are taken for recuperation to occur so that exercise may be continued.

principle of specificity of training The principle that physical training should be designed to mimic the specific athletic event in which one competes. Specific human energy systems and neuromuscular skills should be stressed.

Pritikin program A dietary program developed by Nathan Pritikin, which severely restricts the intake of certain foods like fats and cholesterol and greatly increases the consumption of complex carbohydrates.

profile of mood states (POMS) An inventory to evaluate mood states such as anger, vigor, etc.

proline A nonessential amino acid.

promoters Substances or agents necessary to support or promote the development of a disease once it is initiated.

proof Relative to alcohol content, proof is twice the percentage of alcohol in a solution; 80-proof whiskey is 40 percent alcohol.

prostaglandins Eicosanoids that possess hormone-like activity in numerous cells in the body.

proteases Enzymes that catalyze proteins.

protein Any one of a group of complex organic compounds containing nitrogen; formed from various combinations of amino acids.

protein-Calorie insufficiency A major health problem in certain parts of the world where the population suffers from inadequate intake of protein and total Calories.

protein complementarity The practice among vegetarians of eating foods together from two or more different food groups, usually legumes, nuts, or beans with grain products, in order to ensure a balanced intake of essential amino acids.

Protein Digestibility Corrected Amino Acid Score (PDCAAS) A scientific measure used to assess the quality of protein in foods with values from 1.0 to 0.0, with 1.0 being the highest quality.

protein-sparing effect An adequate intake of energy Calories, as from carbohydrate, will decrease somewhat the rate of protein catabolism in the body and hence spare protein. This is the basis of the protein-sparing modified fast, or diet.

proteinuria The presence of proteins in the urine.

provitamin A Carotene, a substance in the diet from which the body may form vitamin A.

Prudent Healthy Diet A diet plan based upon healthful eating principles that is designed to help prevent or treat common chronic diseases in the United States, Canada, and Mexico, particularly cardiovascular disease and cancer.

psyllium A plant product that contains both water-soluble and insoluble dietary fiber.

purines The end products of nucleoprotein metabolism, which may be formed in the body; they are nonprotein nitrogen compounds that are eventually degraded to uric acid.

pyridoxal A component of the vitamin B group.

pyridoxamine A part of the vitamin B group; an analog of pyridoxine.

pyridoxine A component of the vitamin B complex, vitamin B₆.

pyruvate The end product of glycolysis. Under aerobic conditions it may be converted into acetyl CoA, whereas under anaerobic conditions it is converted into lactic acid.

PYY Peptide YY (PYY), a gut hormone fragment produced by the intestines; affects

neurons in the hypothalamus to reduce appetite and food intake.

quackery Misrepresentation of the facts to deceive the consumer.

quality Calories Calories in foods that are accompanied by substantial amounts of nutrients. Skim milk contains quality Calories as it provides considerable amounts of protein, calcium, and other nutrients, while cola drinks provide similar Calories but no nutrients.

radiation Electromagnetic waves given off by an object; the body radiates heat to a cool environment.

radura International symbol of radiation; used on labels for irradiated foods.

rating of perceived exertion (RPE)

A subjective rating, on a numerical scale, used to express the perceived difficulty of a given work task.

reactive hypoglycemia A decrease in blood glucose caused by an excessive insulin response to hyperglycemia associated with a substantial intake of high-glycemic-index foods.

Recommended Dietary Allowances (RDA) The levels of intake of essential nutrients considered to be adequate to meet the known nutritional needs of practically all healthy persons.

recommended dietary goals Dietary goals for U.S. citizens that have been established by a U.S. Senate subcommittee on nutrition; goals stress dietary reduction of fat, cholesterol, salt, and sugar, and increase of complex carbohydrates.

recuperation principle *See* principle of recuperation.

Reference Daily Intakes (RDIs) The RDI is used in food labeling as the recommended daily intake for protein and selected vitamins and minerals. It replaces the old U.S. RDA (United States Recommended Daily Allowance).

regional fat distribution Deposition of fat in different regions of the body. *See also* android- and gynoid-type obesity.

relative humidity The percentage of moisture in the air compared to the amount of moisture needed to cause saturation, which is taken as 100.

relative risk (RR) A probability estimate; RR of 1.0 is normal.

relative-weight method A method of determining obesity by comparing the weight of an individual to standardized height and weight tables.

repetition maximum (RM) In weight training, the amount of weight that can be lifted for a specific number of repetitions.

repetitions In relation to weight training or interval training, the number of times that an exercise is done.

resistin An adipokine secreted by adipose tissue that is thought to increase insulin resistance and development of type 2 diabetes.

resistin Substance secreted by adipose tissue that is reported to induce insulin resistance, linking obesity to diabetes.

resting energy expenditure (REE) The energy required to drive all physiological processes while in a state of rest.

resting metabolic rate (RMR) *Also see* BMR and REE.

retinol Vitamin A.

retinol equivalent (RE) A measure of vitamin A activity in food as measured by preformed vitamin A or carotene, provitamin A; 1 RE equals 5 IU.

rHGH *See* human growth hormone.

riboflavin Vitamin B₂, a member of the B complex.

ribose A five-carbon sugar found in several body compounds, such as riboflavin.

risk factor Associated factors that increase the risk for a given disease; for example, cigarette smoking and lung cancer.

RNA Ribonucleic acid; nuclear material involved in the formation of proteins in cells.

running Although the distinction between running and jogging is relative to the individual involved, a common value used for running is 7 mph or faster.

saccharide A series of carbohydrates ranging from simple sugars (monosaccharides) to complex carbohydrates (polysaccharides).

saccharine An artificial sweetener made from coal tar.

Salmonella A bacteria commonly involved in food poisoning.

salt-depletion heat exhaustion Weakness caused by excessive loss of electrolytes due to excessive sweating.

sarcopenia Loss of muscle mass associated with the aging process.

satiety center A group of nerve cells in the hypothalamus that responds to certain stimuli in the blood and provides a sensation of satiety.

saturated fatty acids Fats that have all chemical bonds filled.

SCAN Sports and Cardiovascular Nutritionists, a practice group of the American Dietetic Association focusing on applications of nutrition to sport and wellness.

scurvy A deficiency caused by a lack of vitamin C in the diet; symptoms include weakness, bleeding gums, and anemia.

SDA Specific dynamic action; often used to represent the increased energy cost observed during the metabolism of protein in the body. *Also see* dietary-induced thermogenesis and TEF.

Seasonal affective disorder (SAD)

Symptoms associated with various seasons of the year, e.g., depression in winter months.

secondary amenorrhea Cessation of menstruation after the onset of puberty; primary amenorrhea is the lack of menstruation prior to menarche.

Sedentary Death Syndrome (SeDS) Term associated with a sedentary lifestyle and related health problems that predispose to premature death.

selenium A nonmetallic element resembling sulfur; an essential nutrient.

semivegetarian An individual who refrains from eating red meat but includes white meat such as fish and chicken in a diet stressing vegetarian concepts.

serotonin A neurotransmitter in the brain; may induce a sense of relaxation and drowsiness, possibly associated with fatigue; may also depress the appetite.

serum lipid level The concentration of lipids in the blood serum.

set-point theory The weight-control theory that postulates that each individual has an established normal body weight. Any deviation from this set point will lead to changes in body metabolism to return the individual to the normal weight.

sets In weight training, a certain number of repetitions constitutes a set; for example, a lifter may do three sets of six repetitions per set.

settling-point theory Theory that the body weight set point may be increased or decreased through interactions of genetics and the environment; an environment rich in high-fat foods may lead to a higher set point so that the body settles in at a higher weight and fat content.

shell temperature The temperature of the skin; *also see* core temperature.

short-chain fatty acids (SCFA) Fatty acids with chains containing less than six carbons.

sibutramine A prescription drug for weight loss that suppresses the appetite by affecting brain neurotransmitters.

silicon A nonmetallic element.

simple carbohydrates Usually used to refer to table sugar, or sucrose, a

disaccharide; may refer also to other disaccharides and the monosaccharides.

Simplese A commercially produced fat substitute derived from protein.

skinfold technique A technique used to compute an individual's percentage of body fat; various skinfolds are measured and a regression formula is used to compute the body fat.

sling psychrometer A device that incorporates both a dry-bulb and wet-bulb thermometer, thus providing a heat-stress index incorporating both temperature and relative humidity.

slow-twitch fibers Red muscle fibers that have a slow contraction speed; designed for aerobic-type activity.

Smilax A commercial plant extract theorized to produce anabolic effects.

soda loading Term associated with use of baking soda (sodium bicarbonate) as an ergogenic aid.

sodium A soft metallic element; combines with chloride to form salt; the major extracellular cation in the human body.

sodium bicarbonate NaHCO_3 ; a sodium salt of carbonic acid that serves as a buffer of acids in the blood, often referred to as the alkaline reserve.

sodium citrate A white powder used as a blood buffer; *see also* sodium bicarbonate.

soluble dietary fiber Dietary fibers in plants such as gums and pectins that are soluble in water.

specific dynamic action *See* SDA.

specific heat The amount of energy or heat needed to raise the temperature of a unit of mass, such as 1 kilogram of body tissue, 1 degree Celsius.

specificity of training *See* principle of specificity of training.

sport nutrition The application of nutritional principles to sport with the intent of maximizing performance.

sports anemia A temporary condition of low hemoglobin levels often observed in athletes during the early stages of training.

sports bars Commercial food products targeted to athletes and physically active individuals containing various concentrations of carbohydrate, fat, and protein; some products contain other nutrients, such as antioxidants.

sports drinks Popular term for various glucose-electrolyte fluid replacement drinks.

sports gels Commercial food products targeted to athletes; consist primarily of carbohydrate in a gel form.

sports-related fitness Components of physical fitness that, when improved, have implications for enhanced sport performance, such as agility and power.

sports supplements Dietary supplements marketed to athletes and physically active individuals.

spot reducing The theory that exercising a specific body part, such as the thighs, will facilitate the loss of body fat from that spot.

standard error of measurement or estimate A measure of variability about the mean. Sixty-eight percent of the population is within one standard error above and below the mean, while about 95 percent is within two standard errors.

standardized exercise An exercise task that conforms to a specific standardized protocol.

Staphylococcus A bacteria commonly involved in food poisoning.

steady state A level of metabolism, usually during exercise, when the oxygen consumption satisfies the energy expenditure and the individual is performing in an aerobic state.

steady-state threshold The intensity level of exercise above which the production of energy appears to shift rapidly to anaerobic mechanisms, such as when a rapid rise in blood lactic acid exists. The oxygen system will still supply a major portion of the energy, but the lactic acid system begins to contribute an increasing share.

sterols Substances similar to fats because of their solubility characteristics; the most commonly known sterol is cholesterol.

stimulus period In exercise programs, the time period over which the stimulus is applied, such as a HR of 150 for 15 minutes.

storage fat Fat that accumulates and is stored in the adipose tissue; *also see* essential fat.

strength-endurance continuum In relation to strength training, the concept that power or strength is developed by high resistance and few repetitions and that endurance is developed by low resistance and many repetitions.

structured physical activity A planned program of physical activities usually designed to enhance physical fitness; structured physical activity is often referred to as exercise.

subclinical malnutrition A nutrient-deficiency state in which no clinical signs of the nutrient deficiency are observable, but other nonspecific symptoms such as fatigue may be present.

subcutaneous fat The body fat found immediately under the skin; evaluated by skinfold calipers.

sucrose Table sugar, a disaccharide; yields glucose and fructose upon hydrolysis.

sulfur A pale yellow nonmetallic element essential in human nutrition; component of the sulfur-containing amino acids.

sumo wrestling A form of wrestling in Japan.

superoxide dismutase An enzyme in body cells that helps neutralize free radicals.

Syndrome X *See* metabolic syndrome.

synephrine A dietary supplement marketed for fat loss; synephrine is derived from a fruit plant known as bitter orange. Used as an alternative to Ephedra, or ephedrine.

systolic blood pressure The blood pressure in the arteries when the heart is contracting and pumping blood.

target heart-rate range In an aerobic exercise program, the heart-rate level that will provide the stimulus for a beneficial training effect.

taurine A vitamin-like compound synthesized from amino acids, mainly methionine and cysteine.

testosterone The male sex hormone responsible for male secondary sex characteristics at puberty; it has anabolic and androgenic effects.

thermic effect of exercise (TEE) Increased muscular contraction produces additional heat.

thermic effect of food (TEF) The increased body heat production associated with the digestion, assimilation, and metabolism of energy nutrients in a meal just consumed.

thermogenesis The production of heat; metabolic processes in the body generate heat constantly.

thiamin Vitamin B_1 .

threonine An essential amino acid.

threshold stimulus The minimal level of exercise intensity needed to stimulate gains in physical fitness.

thromboxanes Eicosanoids that possess hormone-like activity in numerous cells in the body.

thyroxine A hormone secreted by the thyroid gland that is involved in the control of the metabolic rate.

tin A white metallic element.

tocopherol Generic name for an alcohol that has the activity of vitamin E.

Tolerable Upper Intake Levels (UL) The highest level of daily nutrient intake likely to pose no adverse health risks.

tonicity Tension or pressure as related to fluids; fluids with high osmolality exhibit

hypertonicity while fluids with low osmolality exhibit hypotonicity.

total body electrical impedance

A sophisticated method of measuring the resistance provided by water in the body as a means to predict body composition.

total body fat The sum total of the body's storage fat and essential fat stores.

total daily energy expenditure (TDEE)

The total amount of energy expended during the day, including REE, TEF, and TEE.

total fiber Sum of dietary fiber and functional fiber.

trabecular bone The spongy bone structure found inside the bone, as contrasted with the more compact bone on the outside.

trace minerals Those minerals essential to human nutrition that have an RDA less than 100 mg.

trans fatty acids Unsaturated fatty acids in which the hydrogen ions are on opposite sides of the double bond.

triglycerides One of the many fats formed by the union of glycerol and fatty acids.

triose A simple sugar having three carbon atoms.

tryptophan An essential amino acid.

Type I muscle fiber The slow-twitch red fiber that provides energy primarily by the oxygen system.

Type IIa muscle fiber The fast-twitch red fiber that provides energy by both the oxygen system and the lactic acid system.

Type IIb muscle fiber The fast-twitch white fiber that provides energy primarily by the lactic acid system.

tyrosine A nonessential amino acid.

ubiquinone See CoQ₁₀.

uncoupling protein (UPC) A protein believed to stimulate thermogenesis in fat tissues; uncouples thermogenesis with the production of ATP, so no ATP is generated in this process.

underwater weighing A technique for measuring the percentage of body fat in humans.

United States Recommended Daily Allowances See U.S. RDA.

Universal Gym A brand name for exercise equipment, particularly weights for strength development.

unsaturated fatty acids Fatty acids that contain double or triple bonds and hence can add hydrogen atoms.

unstructured physical activity Many of the normal, daily physical activities that are generally not planned as exercise, such as walking to work, climbing stairs, gardening, domestic activities, and games and other childhood pursuits.

urea The chief nitrogenous constituent of urine and the final product of the decomposition of proteins in the body.

uric acid A crystalline end product of purine metabolism; commonly involved in gout and the formation of kidney stones.

USDA United States Department of Agriculture.

USOC United States Olympic Committee.

U.S. RDA The United States Recommended Daily Allowances; the RDA figures used on labels, representing the percentage of the RDA for a given nutrient contained in a serving of the food. The U.S. RDA are now known as the Reference Daily Intake (RDI).

valine An essential amino acid.

Valsalva phenomenon A condition in which a forceful exhalation is attempted against a closed epiglottis and no air escapes; such a straining may cause the person to faint.

vanadium A light gray metallic element.

vanadyl sulfate A salt form of vanadium; marketed for its anabolic potential.

vascular water The body water contained in the blood vessels; a part of the extracellular water.

vasodilation An increase in the size of the blood vessels, usually referring to the arterial system.

vegan Vegetarian who eats no animal products.

vegetable exchange One vegetable exchange in the Food Exchange System contains 5 grams of carbohydrate, 2 grams of protein, and 25 Calories.

vegetarian One whose food is of vegetable or plant origin; *also see* lactovegetarian, ovovegetarian, ovolactovegetarian, pescovegetarian, semivegetarian, and vegan.

very-low-Calorie diet (VLCD) A diet containing less than 800 Calories per day.

very low-density lipoprotein See VLDL.

visceral fat The deep fat found in the abdominal area; needs special measuring techniques, such as MRI.

vitamin, natural Often referred to as a vitamin derived from natural sources; i.e., food in nature; contrast with vitamin, synthetic.

vitamin, synthetic An artificial vitamin commercially produced from the separate components of the vitamin.

vitamin A Retinol, an unsaturated aliphatic alcohol; fat soluble.

vitamin B₁ Thiamin; the antineuritic vitamin.

vitamin B₂ Riboflavin.

vitamin B₆ Pyridoxine and related compounds.

vitamin B₁₂ Cyanocobalamin.

vitamin B₁₅ Not a vitamin but marketed as one; usual composition is calcium gluconate and dimethylglycine (DMG).

vitamin C Ascorbic acid; the antiscorbutic vitamin.

vitamin D Any one of related sterols that have antirachitic properties; fat soluble.

vitamin D₃ The prohormone form of vitamin D, also known as cholecalciferol, formed in the skin by irradiation from the sun. Released into the blood and eventually converted by the kidney to the hormone form of vitamin D.

vitamin deficiency Subnormal body-vitamin levels due to inadequate intake or absorption; specific disorders are linked with deficiencies of specific vitamins.

vitamin E Various forms of tocotrienols and tocopherols; fat soluble.

vitamin K The antihemorrhagic, or clotting vitamin; fat soluble.

vitamins A general term for a number of substances deemed essential for the normal metabolic functioning of the body.

VLDL Very low-density lipoproteins; a protein-lipid complex in the blood that transports triglycerides, cholesterol, and phospholipids; has a very low density. *Also see* HDL-cholesterol and LDL-cholesterol.

voluntary dehydration Intentional loss of body fluids in attempts to reduce body mass for sports competition; techniques include exercise, sauna, and diuretics.

VO₂ max Maximal oxygen uptake; measured during exercise, the maximal amount of oxygen consumed reflects the body's ability to utilize oxygen as an energy source; equals the cardiac output times the arteriovenous oxygen difference.

WADA World Anti-Doping Agency.

waist circumference The circumference of the waist at its most narrow point as seen from the front; used as a measure of regional adiposity.

warm-down A phase after an exercise session during which the individual gradually

tapers the level of activity—for example, by jogging slowly after a fast run.

warm-up Low-level exercises used to increase the muscle temperature and/or stretch the muscles prior to a strenuous exercise bout.

water A tasteless, colorless, odorless fluid essential to life; composed of two parts hydrogen and one part oxygen (H₂O).

water-depletion heat exhaustion Weakness caused by excessive loss of body fluids such as through exercise-induced dehydration in a hot or warm environment.

water intoxication Consumption of excessive amounts of water leading to dilution of body electrolytes. *See also* hyponatremia.

watt A unit of power in the SI; one watt equals about 6 kilogram-meters per minute.

WBGT Index Wet-bulb globe thermometer index; a heat-stress index based upon four factors measured by the wet-bulb globe thermometer.

weight cycling Repetitive loss and regain of body weight; often called yo-yo dieting.

wet-bulb globe thermometer A device that takes into account the various factors determining heat stress: air temperature, air movement, radiation heat, and humidity.

wheat germ oil Oil extracted from the embryo of wheat, high in linoleic fatty acid, vitamin E, and octacosanol.

work Effort expended to accomplish something; in terms of physics, force times distance.

xerophthalmia Dryness of the conjunctiva and cornea of the eye, which may lead to

blindness if untreated; caused by a deficiency of vitamin A.

xylitol A sugar alcohol that may be obtained from fruits.

yohimbine A plant extract theorized to stimulate testosterone production and elicit anabolic effects.

zinc A blue-white crystalline metallic element essential to human nutrition.

zone diet A high-protein diet plan; the 40-30-30 plan consisting of 40 percent Calories from carbohydrate, and 30 percent each from protein and fat.