

Third Edition

NUTRITION  
AND  
DIET THERAPY  
DICTIONARY

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Virginia S. Claudio  
Rosalinda T. Lagua

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# Nutrition and Diet Therapy Dictionary

*Third Edition*

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Dedicated  
To Our  
Husbands

# Preface

This reference dictionary presents up-to-date and complete information on terms used in nutrition. Its outstanding feature is the thorough treatment of clinical nutrition and diet in disease. Written primarily for practitioners in the fields of nutrition and dietetics, its contents are at the same time useful to physicians, nurses, professionals in other health care delivery services, educators, and students. To these varied groups we have sought to furnish as much fingertip knowledge as can be offered in a brief and compact volume.

About 3800 terms are presented alphabetically and discussed concisely to give the latest information about each word entry. In choosing the terms to be included, we used as criteria the frequency of use and importance of the terms in nutrition. For greater fullness of coverage, definitions are amplified by materials found in the appendices. There are 48 appendices, and a quick scan of the Table of Contents reveals that some topics, especially those containing international data, are unique. All the appendices are useful and handy for practitioners, educators, and students.

First printed for use in the Philippines in 1969, the second edition (1974) was redesigned for American and international use with a third author, Victoria F. Thiele. This third edition has retained the purposes and main features of the second edition but is revised and enlarged, adding about 30 pages including at least 250 new terms in nutrition and diet therapy.

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*Rosalinda T. Laguna*

## GUIDE TO THE USE OF THE DICTIONARY

**Word entry.** The word or term to be defined is set in bold-face and extends slightly to the left of the definition. All entries, including abbreviations and compounds of two or more words, have been entered in strict alphabetical order, regardless of any space or hyphens that may occur between them. If two or more variant spellings of a single word exist, the one most frequently used is entered in boldface and the variants are given in the definition. When usage is about evenly divided, both spellings are entered in boldface.

**Subentries.** Groups or classes of definitions related by a common root term appear under that term: *anemia*, *amino acid*, *dietitian*, etc. The series is slightly indented, and each subentry is set in the same boldface type as the main word entry.

**Definitions.** Innumerable definitions have been scrutinized, redefined, or expanded to conform to changing concepts of present-day knowledge. The definitions of a term are numbered when there is more than one distinct meaning or use. The most inclusive definition is present first, followed by the more restricted meanings. Definitions restricted to specialized fields are preceded by field labels such as "In nutrition," "In medicine," and so on. Advertently omitted are definitions in certain specialized fields that do not have any application in the field of nutrition. A semicolon after a definition generally means that the material that follows is not part of the definition proper but is additional information enlarging on the factual content.

**Abbreviations.** Abbreviations with nutritional significance appear in their proper alphabetical sequence in the dictionary. They are defined in full in word entries for which such abbreviations stand.

**Cross references.** The user is directed to additional or fuller information by such cross reference terms as *see* or *see under*. Cross references to related information are identified by the words *see also*. The word entry to which the user is directed is italicized; when a cross reference appears under a group entry, the user is instructed to look for the subentry under the word entry for the definition of the specific term. Cross references to the appendices are not italicized but presented in the same typeface as the definition; the user, however, is clearly directed to the appendices for additional information.

**Italics.** Some words are italicized to indicate to users that such words, in case they are not known to them, are defined elsewhere in the text. Cross-referenced words are also italicized.

**Nutrient requirements.** Unless specified otherwise, nutrient requirements stated are for adults.



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# A

**AA.** Abbreviation for 1. *adenylic acid* 2. *amino acid* 3. *Alcoholics Anonymous*.

**Abetalipoproteinemia.** A rare congenital disorder due to a lack of apoprotein B, which is needed to secrete chylomicrons or to export hepatic triglyceride. As a result, fat is not transported from the intestinal cells into the lacteals. The blood lacks the chylomicrons and has very low levels of low-density and very-low-density lipoproteins, cholesterol, triglycerides, and free fatty acids, especially linoleic and arachidonic acids. A low-fat diet is recommended; substitution of medium-chain triglycerides for long-chain fats in the diet may improve fat absorption, since the shorter-chain fats are absorbed by way of the portal vein rather than by the lymph. Supplements of the fat-soluble vitamins A and K are necessary, and pharmacologic doses of vitamin E are now thought to be important for correction of some retinal and neuromuscular abnormalities.

**Absorption.** Assimilation or taking up of fluids, gases, nutrients, or other substances by the skin, lacteals, mucous membranes, or absorbent vessels.

**Absorption, nutrients.** After food is digested, the end products (see Appendix 11) are absorbed mainly in the intestines through the *villi*. Each villus is connected to the circulatory and lymphatic systems. Almost all the water-soluble nutrients are absorbed by diffusion or osmosis (passive absorption). Glucose, galactose, and amino acids are absorbed with the help of energy supplied by the enzyme  $K^{+}$ -ATPase and a cofactor, sodium ion. The process is carried out against a concentration gradient which therefore needs ATP energy (active absorption). Fructose absorption, however, uses a carrier without expending energy. Fructose

pulls water with it upon entering the intestines. This type of absorption is called facilitative. The fourth absorption process is pinocytosis or phagocytosis, in which the absorptive cell engulfs the material. This process is used for fat absorption. Below is a summary of absorption in the gastrointestinal tract (GIT):

GIT ORGAN	NUTRIENTS AND OTHER SUBSTANCES
Stomach	Alcohol (20% of the total ingested) Some short-chain fatty acids
Intestines	
Duodenum	Vitamins A and B <sub>1</sub> , iron, calcium, glycerol and fatty acids, monoglycerides, amino acids, monosaccharides and disaccharides
Jejunum	Glucose, galactose, amino acids, glycerol and fatty acids, monoglycerides, diglycerides, dipeptides, copper, zinc, potassium, calcium, magnesium, phosphorus, iodine, iron, fat-soluble vitamins D, E, and K, most of the vitamin B complex, vitamin C, and the rest of the alcohol.
Ileum	Disaccharides, sodium, potassium, chloride, calcium, magnesium, phosphorus, iodine, vitamins D, E, K, B <sub>1</sub> , B <sub>2</sub> , B <sub>6</sub> , B <sub>12</sub> , and ascorbic acid, and most of the water.
Colon	Sodium, potassium, water, acids and gases, some short-chain fatty acids metabolized from plant fibers and undigested starch, and vitamins synthesized by bacteria (biotin and vitamin K).

Water-soluble nutrients pass directly into the circulatory system, while fat-soluble materials pass through the lymphatic system first before they are transported by the blood. Amino acids and peptides are actively absorbed by the absorptive cells of the villi; peptides are broken down into individual

amino acids which then go to the liver via the portal vein for metabolism. Fatty acids that are water-soluble (fewer than 12 carbons) and glycerol pass through the portal vein to the liver. Bile aids in the emulsification of fats to facilitate absorption. Fatty acids of longer-carbon chain (more than 14 carbons) form triglycerides in the absorptive cells and combine with cholesterol, phospholipids, and similar substances with a protein coat (the compound formed is called a chylomicron). The chylomicrons pass through the lymphatic system before entering the bloodstream. Understanding the absorption process gives background knowledge and a rationale for nutritional therapy for disorders associated with *malabsorption syndrome* and *enterostomies*.

**Accessory food factors.** Earliest name given to vitamins by Hopkins, who demonstrated in 1906 that foods contain, in addition to the nutrients then recognized (i.e., carbohydrates, proteins, fats, minerals, and water), minute traces of unknown substances essential to health and life.

**Acetulfame-K.** A nonnutritive sweetener which is a potassium salt of the 6-methyl derivative of oxathiazinone dioxides. Its relative sweetness (based on that of sucrose, which is 1.0) is 130, and it is noncaloric. Sold under the brand name Sweet One.

**Acetic acid.** An organic acid commonly formed in the metabolism of sugars and related substances. As acetylcoenzyme A, it participates in a number of important metabolic processes.

**Acetoacetic acid.** Monobasic ketone acid formed in the course of normal fatty acid catabolism and oxidized further to acetic acid, which is utilized in various metabolic reactions. It accumulates in the blood when fatty acids are incompletely oxidized. The reduction of acetoacetic acid yields beta-hydroxybutyric acid, and its decarboxylation yields acetone. See also *Ketone bodies*.

**Acetohexamide.** A sulfonylurea oral hypoglycemic agent used for the management of noninsulin-dependent diabetes mellitus; sold under the brand name Dymelor.

**Acetone.** Dimethylketone. A colorless liquid with a sweetish, ethereal odor; formed by the decarboxylation of acetoacetic acid. It is normally present in minute quantities in blood and urine but may accumulate when fatty acid degradation is excessive or incomplete. See also *Ketone bodies*.

**Acetone bodies.** See *Ketone bodies*.

**Acetonemia.** Presence of large amounts of acetone (ketone bodies) in the blood. See also *Ketosis*.

**Acetonuria.** Excretion of large amounts of acetone bodies in the urine. While normally present in trace amounts in the urine, their excretion may increase from 0.02 gm/day to as much as 6 gm/day in certain pathologic conditions.

**Acetylcholine (ACh).** Acetic acid ester of choline. It is released from nerve endings to initiate a series of reactions leading to the transmission of a nerve impulse. Its actions correspond to those of the cholinergic fibers, including a depressant effect on the blood pressure and stimulation of intestinal peristalsis.

**Acetylcoenzyme A (acetyl CoA).** Acetyl derivative of coenzyme A. An important member of the *Krebs cycle* as a precursor for the biosynthesis of fatty acids and sterols, it gives rise to acetoacetic acid and is the biologic acetylating agent in the synthesis of acetylcholine.

**Achalasia.** Neuromuscular disorder of the esophagus that causes dyspepsia, esophageal regurgitation, esophageal pain, vomiting, and eventually weight loss. It is also called esophageal dysnergia or cardiospasm. The main problem is failure of the lower esophageal sphincter to relax and open after swallowing to permit food to enter the stomach. The lowest part of the esophagus therefore becomes narrowed and blocked with food. The main treatment is the dilatation of the sphincter or a surgical procedure to cut the circular muscle of the cardiac sphincter. *Dietary management:* depending on the degree of dysphagia, foods and beverages per os have to be carefully selected for each individual; some may require tube

feeding. Avoid foods that stimulate secretion of gastrin, the hormone that controls the lower esophageal sphincter. Proteins and carbohydrates promote gastrin production. Fats, chocolate, and coffee lower esophageal pressure. For other dietary guidelines, see *Dysphagia*.

**Achlorhydria.** Absence or lack of hydrochloric acid in the gastric juice. Primarily due to a reduction of the acid-producing cells in the stomach, as in the elderly. Digestion of protein that needs the enzyme *pepsin* is lessened in achlorhydria.

**Acid.** Compound capable of yielding hydrogen ion in solution. Also defined as a substance that produces or donates protons.

**Acid-ash residue.** Inorganic radicals (chiefly chloride, sulfate, and phosphate) that form acid ions in the body. When excreted in the urine, they lower the pH or make the urine more acid.

**Acid-base balance.** Equalization of total acid and total base in body fluids at levels compatible with life. Normally, the blood is kept within a narrow pH range of 7.35 to 7.45. Adjusting mechanisms come into play to neutralize or remove excess acid or base to maintain the balance. These include the buffer systems of the blood, the excretion of carbon dioxide by the lungs, and the excretion of fixed acid or base by the kidneys.

**Acid-forming foods.** Foods in which the acidic residue exceeds the alkaline residue. These include meats, fish, poultry, eggs, and cereals. See also *Alkaline-forming foods* and *Diet, ash*.

**Acidosis.** An abnormal condition characterized by a fall in the pH of the blood or a decrease in the *alkali reserve* of the body. A reduction in blood bicarbonate (alkali reserve) indicates that an excess of fixed acids is being produced or retained in the body at a rate exceeding that of neutralization or elimination. Various acids retained in different conditions are the acidic ketone bodies (as in diabetes mellitus), phosphoric, sulfuric, and hydrochloric acids (as in renal insufficiency), lactic acid (as in anoxia, ether anesthesia, and prolonged strenuous exer-

cise), and carbonic acid (as in respiratory disease).

**Acid tide.** Temporary increase in the acidity of urine and body fluids after eating while alkali is being secreted into the duodenum.

**Acne vulgaris.** Skin condition characterized by pimples or eruptions occurring most frequently on the face, back, and chest. An acne pimple is an obstructed and infected oil gland, and the pimples are more numerous where the oil glands are most abundant. For many years, people have associated diets high in fat or carbohydrate (particularly chocolate, nuts, candies, carbonated drinks, and fried foods) with acne. There is no basis for such beliefs. Studies have shown that foods do not produce major flareups of acne. However, some cases respond to high doses of vitamin A (100,000 IU) and retinoic acid applied topically, both of which should be used only under a physician's order.

**Acquired immune deficiency syndrome (AIDS).** A devastating infectious disease that attacks the immune system of the body. The causative agent is the human immunodeficiency virus (HIV), which destroys the T cells of the defense system of the body. To date there is no known cure for AIDS, and due to its mode of transmission and the increasing mortality rate, it has become a major health problem. *Clinical signs and symptoms:* night sweating, easy fatigability, poor digestion, anorexia, fever, cachexia, and eventually protein-energy malnutrition (PEM). Lymph nodes are swollen, and there is dysphagia, diarrhea, and malabsorption. The two most common problems are *Kaposi's sarcoma*, which is a form of cancer, and pneumonitis carinii pneumonia, which develops in the latter stage of AIDS and usually leads to death. *Mode of transmission:* the Surgeon General's office has listed the ways of becoming infected with AIDS: by having sex with someone infected with the AIDS virus; by sharing needles and syringes with an infected person; by receiving infected blood; or by birth (babies of AIDS-infected mothers can acquire the dis-

ease before or during birth) or by breast milk from AIDS-infected women. However, AIDS is *not transmitted* via clothes, drinking or eating utensils, casual contact at work, being in the same room with an AIDS patient, talking to an AIDS patient, from saliva, sweat, tears, urine, or bowel excretion. Nor it is transmitted by flies and insect bites. *Dietary management:* nutritional care should be highly individualized. Determine the most appropriate nutritional support option (enteral or parenteral) for patients experiencing oral lesions, dysphagia, anorexia, and protein-energy malnutrition (PEM). If tolerated, however, encourage feeding by mouth, avoiding foods the patient finds irritating. Serve foods at moderate temperatures and give single-textured meals. Experiment with different flavors if the patient has lost taste acuity. Perk up the appetite with mild spices and favorite foods. In cases of diarrhea, modify the diet accordingly to avoid dehydration and electrolyte imbalance. There are many choices of supplementary feedings to increase nutrient density. Serve foods in small, frequent feedings. Monitor any malabsorption, and restrict raw fruits and vegetables to protect against contamination with microorganisms. Watch out for side effects of drug therapy. The multifunctional role of nutrition in the care of AIDS patients cannot be overemphasized. As with other opportunistic illnesses, longevity may be achieved with a teamwork approach by the medical, nursing, dietary, and other allied health services.

**Acromegaly.** Chronic condition resulting from the hypersecretion of the growth hormone during adulthood. The characteristic features are overgrowth of the bones of the face and extremities, protrusion of the chin, enlargement of the hands, feet, and fingers, thickening of the scalp, bowing of the spine, glycosuria, and suppression of sexual function. Treatment is by radiation or surgery, usually by partial resection of the pituitary gland. *Dietary management* is directed to surgical care. Maintain an adequate diet and a desirable body weight. If the patient

develops diabetes, which has been observed in 20 to 25% of cases, use nutritional therapy to control diabetes mellitus.

**ACTH.** Abbreviation for *adrenocorticotrophic hormone*.

**Activator.** A substance that renders another substance active, either by being part of the reaction system or by combining with the inactive substance. An enzyme activator is called a *cofactor*.

**Active transport.** Also called biologic "pump."

The process in which a substance is moved across a cell membrane from a lower to a higher electrochemical potential. It involves an expenditure of metabolic energy derived from the breakdown of adenosine triphosphate (ATP). Active transport is mediated by a carrier molecule that combines with the substance to be transported. See *Absorption, nutrients* for examples.

**Acute.** Having a sudden beginning or onset, short course, or severe symptoms. Examples are *acute renal failure* and acute complications of *diabetes mellitus*.

**Acute renal failure (ARF).** Sudden deterioration of renal function with retention of nitrogenous wastes which may lead to uremia. The condition is life-threatening and needs immediate, aggressive therapy using a teamwork approach. Possible causative factors are severe trauma like extensive burns and multiple injuries; widespread infections like peritonitis and sepsis; nephrotoxic agents; cardiac transplantation; and shock. Clinical signs are oliguria with proteinuria and/or hematuria; increased blood urea nitrogen (BUN), creatinine, serum potassium, phosphate, and sulfate; decreased sodium, calcium, and bicarbonate ions; anorexia, nausea, and vomiting; hypertension and lethargy. There are two distinct phases of ARF: the *oliguric* phase, which lasts for a few days, and the *diuretic* phase, which is a recovery period. Generally, it takes a year or so before renal function is restored, depending on the rate of renal cell regeneration. In both phases, dialysis is the major remedy. *Dietary management:* during the oliguric phase, monitor closely

fluid and electrolyte balance. Fluids are restricted to a basic amount of 400 ml/day, and losses from diarrhea, vomiting, and perspiration should be replaced. Daily records of fluid intake and output, body weight, and food intake are essential in this phase. Serum potassium and creatinine are the most critical; nitrogen, potassium, sulfate, and phosphate restriction is accomplished by providing a protein-free diet for the first few days. Calories are supplied by carbohydrates (about 150 gm/day) and fat sources as oral supplementary feedings. Intravenous glucose is administered as necessary. Later on, supplementation with essential amino acids (30 gm/day) is given using special formulas. Total parenteral nutrition is beneficial to some patients. During the diuretic phase after the initial management and as the patient recovers, food and fluid intake are gradually increased, still maintaining a controlled protein intake of about 0.5 to 0.6 gm/kg/day. Continue to monitor BUN, serum creatinine, and serum electrolytes, especially sodium. If hypernatremia develops, restrict sodium intake to 1 to 2 gm/day. In a controlled protein intake (40 to 50 gm/day), adequate calories (35–40 kcal/kg/day) can be provided by the use of commercial formulas or by careful meal planning using the food exchange lists.

**Acute respiratory failure.** Sudden failure of the pulmonary gas exchange function. Prolonged pulmonary illness may lead to this disorder, which usually requires mechanical ventilation. Common causes are asthma, myasthenia gravis, muscular dystrophy, pulmonary embolism, and Guillain-Barré syndrome. *Dietary management:* start with tube feedings (low osmolality is recommended) to wean patients from the mechanical ventilator. To avoid overproduction of carbon dioxide, balance 30 to 50% carbohydrate calories with the same amount of lipid calories. Provide protein, allowing 1 to 1.5 gm/kg/day or close to 20% of total calories. For total energy intake, maintain 30 to 40 kcal/kg/day. Reduce sodium if pulmonary edema develops. Choose foods

which are easy to eat and are nonirritating to the patient. Vitamins A and C, with phosphorus supplements, may be given.

**ADA.** Abbreviation for 1. American Dietetic Association 2. American Diabetes Association 3. American Dental Association.

**Addison's disease.** Metabolic disorder due to adrenal insufficiency. It is characterized by rapid loss of weight, emaciation, weakness, poor appetite, anemia, deep bronzing of the skin, low blood pressure, hypoglycemia, electrolyte imbalance with excessive loss of NaCl in the urine, and retention of potassium. It is a life-threatening disease because of the loss of adrenal cortex functions, which are vital life processes (see *Adrenal glands*). There is failure of the regulation of the autoimmune processes and hemorrhaging of the gland. The main treatment is continued administration of corticoid drugs. *Dietary management:* maintain adequate fluids and a regular diet to meet the nutritional needs of the patient. Monitor blood glucose, sodium, and potassium levels. If the patient has infection or trauma and is underweight, increase the protein and calorie intake to about 1.3 times the recommended daily allowances.

**Adenine.** One of the major purine bases of nucleic acids. As *adenosine phosphate*, it provides energy for muscular movement.

**Adenohypophysis.** Anterior lobe of the *hypophysis* or pituitary gland. It secretes vital hormones that regulate other endocrine glands. These are the growth, thyrotropic, adrenocorticotrophic, lactogenic, and gonadotrophic hormones.

**Adenosine phosphates.** Adenosine monophosphate (AMP), adenosine diphosphate (ADP), and adenosine triphosphate (ATP) are present in practically all tissues, especially the muscles and liver. Cyclic adenosine monophosphate, also called adenylic acid, is important in the activation of phosphorylase, whereas the di- and triphosphates are important sources of high-energy phosphate for cellular activity.

**Adenyl cobamide.** One of the coenzyme forms of vitamin B<sub>12</sub>. See *Cobamide*.



**Adenylic acid (AA).** See under *Adenosine phosphates*.

**ADH.** Abbreviation for *antidiuretic hormone*.

**Adipose tissue.** Fatty tissue that acts as depot fat for storage of energy and serves as insulation against heat loss and padding for protection and support of organs. It is found largely in subcutaneous tissues and around visceral organs. Like other body constituents, it is not inert but is in a *dynamic state*. Fat is constantly being formed and hydrolyzed in adipose tissue. Adiposity is another term for *obesity*.

**ADP.** Abbreviation for adenosine diphosphate. See *Adenosine phosphates*.

**Adrenal glands.** Also called suprarenal glands; these two small endocrine glands are located at the upper end of each kidney. Each gland consists of two parts: the *cortex*, which elaborates estrogen, androgen, progesterone, and the adrenocortical hormones, and the *medulla*, which elaborates epinephrine and norepinephrine. The two groups of adrenocortical hormones that maintain nutrient homeostasis in the body are glucocorticoids and mineralocorticoids. Glucocorticoids promote the release of amino acids from muscles and lipolysis as needed and increase glyconeogenesis. Mineralocorticoids maintain electrolyte balance by increasing urinary potassium excretion and retaining sodium by promoting kidney reabsorption of sodium back to the plasma.

**Adrenocortical insufficiency.** See *Addison's disease*.

**Adrenocorticotrophic hormone (ACTH).** A hormone secreted by the anterior pituitary gland which stimulates the adrenal cortex to produce *corticosteriod*. The ACTH level increases when a person is under stress, during surgery, and in acute hypoglycemia. See also *Hypophysis*.

**Adrenoleukodystrophy (ALD).** An inherited metabolic defect characterized by an unusual accumulation of very-long-chain fatty acids (VLFA), especially C26:0, a hexacosanate. These are normally present in small amounts in the diet and are also synthesized within the body. Accumulation of the VLFA result

in demyelination of the central nervous system (CNS), which leads to loss of voluntary movements and death. While this disorder usually occurs in young children, there is an adult form designated *adrenomyeloneuropathy* (AMN), indicating adrenal insufficiency, one of the clinical signs of ALD. *Dietary management:* restrict intake of very-long-chain fatty acids to less than 3 mg/day and increase intake of monounsaturated fatty acids, especially oleic acid (C18:1). A commercial preparation of oleic acid is available as glyceryl trioleate (GTO). Other nutrient sources are provided by nonfat milk, simple sugars or syrups, and vitamin-mineral supplements. Depending on the individual's progress, give a regular diet adequate for his or her nutrient needs but continue to alter dietary fat, restricting VLFA.

**Adsorption.** 1. The ability of a substance to attract and concentrate on its surface a thin layer of gas, liquid, or solid by adhesion. 2. Attachment of one substance to the surface of another.

**Advance.** Registered name of a milk formula used as a transition between infant formula and cow's milk; combines soy protein isolates and cow's milk to help reduce the risk of cow milk-induced enteric blood loss. Available in ready-to-use concentrated liquid. See Appendix 37.

**A/E ratio.** Number of milligrams of each essential amino acid per gram of total essential amino acids. This ratio is a method of evaluating protein quality.

**Aerobic exercise.** Physical exercise requiring increased breathing and extra effort by the heart to meet the oxygen needs of the skeletal muscles. Examples of aerobic exercises are vigorous walking, cycling, running, swimming, and jogging. Helpful for weight reduction, glucose control, and physical therapy or rehabilitation in some ailments. See also *Nutrition*, *exercise*, and *Nutrition, physical health*.

**Aging.** Theoretically, aging is a continuous process from conception until death. But in the young and growing organism the



building-up processes exceed the breaking-down processes, so that the net result is a picture of growth and development. Once the body reaches adulthood, the process is reversed. Aging proceeds at different rates in different individuals. Environmental factors—chemical, physical, and biologic—influence the aging process. Certain physiologic functions show a gradual decrement with age. These include basal metabolic rate, cardiac output, renal blood flow, and lung capacity. However, other physiologic functions remain quite stable over the entire life span unless the individual is subjected to stress factors. For example, fasting blood glucose levels do not change significantly with age, and blood volume and red cell content remain relatively constant. See also *Nutrition, aging process*.

**A/G ratio.** See *Albumin/globulin ratio*.

**AIDS.** Abbreviation for *acquired immune deficiency syndrome*.

**AIN.** Abbreviation for *American Institute of Nutrition*.

**Al.** Chemical symbol for aluminum.

**Alanine (Ala).** Alpha-aminopropionic acid, a nonessential amino acid readily formed from carbohydrates by its reversible conversion to pyruvic acid. Beta-alanine is the only naturally occurring beta-amino acid. It is found in pantothenic acid, carnosine, and anserine.

**Albinism.** Inborn error of metabolism characterized by lack of pigmentation of the hair, skin, and eyes due to inability to form the pigment melanin. The condition is caused by lack of the enzyme tyrosinase, which catalyzes the hydroxylation of tyrosine to dihydroxyphenylalanine (dopa) to form melanin.

**Albumen.** 1. White of eggs, consisting chiefly of albumin. 2. *Oxford Dictionary* spelling of albumin.

**Albumin.** A simple protein soluble in water and dilute salt solutions and coagulable by heat. Examples are lactalbumin in milk and ovalbumin in egg. See also *Serum albumin*.

**Albumin/globulin ratio (A/G).** Ratio of albumin to globulin concentration in the serum.

The normal value ranges from 1.8 to 2.5. See *Serum albumin*.

**Albuminoid.** Also called scleroprotein; simple protein characteristic of skeletal structures and protective tissues such as skin and hair. It is of three distinct types: *elastin* in tendons and ligaments, *collagen* in tendons and bones, and *keratin* in hair, nails, and hooves.

**Albuminuria.** Presence of albumin in the urine. It occurs in kidney disease, toxemia of pregnancy, and certain conditions in which circulation to the kidney is inadequate. Normally, the kidneys reabsorb plasma albumin, which filters out from the glomerulus into the Bowman's capsule.

**Albuterol.** A synthetic sympathomimetic amine; used as a bronchodilator in the symptomatic relief of bronchospasm in obstructive airway diseases. It has an unusual taste and may cause nausea and vomiting; it may also cause hyperglycemia and may aggravate preexisting diabetes mellitus in large doses. The trade names are Proventil and Ventolin.

**Alcohol.** 1. Aliphatic hydrocarbon derivative containing a hydroxyl (—OH) group. 2. Groups of organic compounds derived from carbohydrate fermentation. 3. Unqualified, it refers to ethyl alcohol (ethanol) in wines and liquors. Except for calories, alcoholic beverages supply few or no nutrients. One gram (or milliliter) of alcohol yields 7 calories. Alcohol is a depressant, affecting the central nervous system and other vital organs. Excessive intake is a prominent contributor to three of the ten leading causes of death in the United States, namely, cirrhosis of the liver, motor vehicle and other accidents, and suicide. Women are generally less able to tolerate alcohol than men because they tend to be smaller and appear to absorb more of the ethanol than men. Individuals who consume alcoholic beverages are advised to drink in moderation. "Moderate" drinking is defined for normal healthy women as no more than one drink per day and for normal healthy men as no more than two drinks per day. Count as a