



**μ** (mū, moo) [*mu*, the twelfth letter of the Greek alphabet] Symbol for micro-, a prefix indicating one-millionth ( $10^{-6}$ ) of the quantity (e.g.,  $\mu\text{g}$  or 0.000001 g).

**μμ** Symbol for micromicro-; micromicron.

**μCi** *microcurie*.

**μg** *microgram*.

**μm** Symbol for micrometer.

**μs** Symbol for microsecond.

**μV** Symbol for microvolt.

**M** *master* or *medicine* in professional titles; *mille*, a thousand; *misce*, mix; *molar*.

**m** *meter* and *minim*; in chemistry, for *meta*-.

**mμ** Symbol for millimicron.

**M0** Minimally differentiated acute myeloblastic leukemia, a relatively rare form of acute myeloid leukemia with large myeloblasts found in the bone marrow and the peripheral blood.

**M1** *acute myeloblastic leukemia without maturation*.

**M2** *acute myeloblastic leukemia with maturation*.

**M3** *acute promyelocytic leukemia*.

**M4** ABBR: AMMoL. *Acute myelomonocytic leukemia*.

**M5** ABBR: AMoL. *acute monoblastic leukemia*.

**M6** ABBR: AEL. *acute erythroleukemia*.

**M7** ABBR: AMegaL. *acute megakaryoblastic leukemia*.

**MA** *mental age*.

**ma** *milliampere*.

**-mab** (māb) A combining form for *monoclonal antibody*.

**MAC** *maximum allowable concentration; Mycobacterium avium complex*.

**MACE** An abbreviation for "major adverse cardiac events." In trials of experimental therapies for heart diseases, researchers monitor patients for MACE to see if the treatments are hazardous. MACE includes but is not limited to unstable chest pain, heart attack, cardiac dysrhythmias, congestive heart failure, and death.

**Mace** (mās) A proprietary substance derived from the spice *myristica fragrans*. Its name is an acronym for methylchloroform chloro-acetophenone, a chemical compound used at one time in riot control because of its ability to irritate the eyes. Now it is considered too toxic for that purpose because it has occasionally caused death when used in poorly ventilated areas. SEE: *IDU*.

**TREATMENT:** Treatment includes a 0.1% aqueous solution of idoxuridine (*IDU*) instilled into the affected eye. Water is used to dilute the toxin and

flush the eyes or skin. Contact lenses must be removed immediately.

**macerate** (mās'ēr-āt) To soften by steeping or soaking in water; usually pertains to the skin.

**maceration** (mās-ēr-ā'shūn) [*L. macerare*, to make soft] **1.** The process of softening a solid by steeping in a fluid. **2.** The dissolution of the skin of a dead fetus retained in utero.

**Machado-Joseph disease** (mă-chă'dō-jō'zéf) ABBR: MJD. An autosomal-dominant form of spinocerebellar ataxia, first identified in inhabitants of the Azores Islands. It is caused by an abnormal repetition of nucleotides (cytosine-adenine-guanine) on chromosome 14. Affected people may have difficulty speaking, swallowing, or moving their eyes and may exhibit other neurological symptoms.

**machine** Any mechanical device or apparatus.

**macies** (mā'shē-ēz) [*L.*, wasting] Atrophy.

**Mackenrodt's ligament** (măk'ën-rōts) [*A. K. Mackenrodt*, Ger. gynecologist, 1859–1925] The uterine suspensory ligaments attached to the sides of the pelvic wall, the fornix of the vagina, and the cervix. They support both the uterus and the upper vagina. SEE: *prolapse of uterus*.

**macr-** SEE: *macro-*.

**macrencephaly, macrencephaly** (măk-rën'sē-fă'lē-ă, -sēf'ă-lē) [*Gr. makros*, large, + *enkephalos*, brain] Abnormally large size of the brain.

**macro-** [*Gr. makros*, large] Combining forms meaning *large* or *long*.

**macroadenoma** (măk'rō-ăd'in-ō'mă) A tumor of the pituitary gland that is a centimeter or greater in diameter. Some macroadenomata secrete excessive quantities of hormones (e.g., adrenocorticotrophic hormone, prolactin, or growth hormone). Growth of the tumor may also cause damage to the sella turcica or impinge on the optic chiasm or cranial nerves. Symptoms of macroadenomata vary but include headaches, visual field deficits, galactorrhoea, acromegaly, or Cushing's disease. The tumors may be treated medically or surgically. SEE: *transphenoidal surgery*.

**macroamylase** (măk'rō-ăm'ī-lās) A form of amylase with a molecular weight much greater than ordinary amylase. The macroamylase molecule is too large to be excreted by the glomerulus of the kidney. It is clinically important because its presence in the bloodstream

may falsely suggest the diagnosis of pancreatitis. In patients with macroamylasemia, the urinary amylase would be within normal limits, which would not be true if the elevation of blood amylase were due to an increase in pancreatic amylase.

**macroamylasemia** (mäk"rō-äm"tī-ä-sē'mē-ä) Macroamylase in the serum. The presence of increased amounts of macroamylase in the blood has not been correlated with disease.

**macrobiosis** (mäk"rō-bī-ō'sīs) [Gr. *makros*, large, + *biosis*, life] Longevity.

**macroblepharia** (mäk"rō-blē-fā'rē-ä) [Gr. *makros*, large, + *blepharon*, eyelid] Abnormal largeness of the eyelid.

**macrobrachia** (mäk"rō-brä'kē-ä) [" + *brachion*, arm] Abnormal size or length of the arm.

**macrocephalia, macrocephaly** (mäk"rō-sē-fā'lē-ä, -sēf'ä-lē) [" + *kephale*, head] Abnormally large size of the head. It is found in acromegaly, hydrocephalus, rickets, Paget's disease, leontiasis ossea, myxedema, leprosy, and pituitary disturbances. **macrocephalic, macrocephalous** (-sēf'ä-lūs), *adj.*

**macrocheilia** (mäk"rō-kī'lē-ä) [" + *cheilos*, lip] Abnormal size of a lip characterized by swelling of the glands of the lip. It is a congenital condition. SEE: *macrolabia*.

**macrocheiria** (mäk-rō-kī'rē-ä) [" + *cheir*, hand] Excessive size of the hands.

**macroconidium** (mäk"rō-kō-nīd'ē-üm) A large conidium or exospore.

**macrocornea** (mäk-rō-kor'nē-ä) [" + L. *cornu*, horn] Abnormal size of the cornea. SYN: *megalocornea*.

**macrocyt** (mäk"rō-sīst) [" + *kystis*, bladder] A large cyst.

**macrocyte** (mäk"rō-sīt) [" + *kytos*, cell] Abnormally large erythrocyte exceeding 10 microns in diameter.

**macrocythemia, macrocytosis** (mäk"rō-sī-thē'mē-ä, mäk"rō-sī-tō'sīs) [" + " + *haima*, blood] Condition in which erythrocytes are larger than normal, (e.g., in folate or vitamin B<sub>12</sub> deficiencies).

**macroactylia** (mäk"rō-däk-tīl'ē-ä) [" + *daktylos*, finger] Excessive size of one or more digits.

**macrodonia** (mäk"rō-dōn'shē-ä) [" + *odous*, tooth] Abnormal increase in size of the teeth. SYN: *megadontia*.

**macrodrrip** (mäk"rō-drīp") [" + "] A spike that allows large volumes of fluid to flow from a bag into a collecting chamber and then into a patient, who requires rapid fluid resuscitation.

**macrodrop** (mäk"rō-drōp") **1.** A large drop of fluid. **2.** One tenth of a milliliter (ml).

**macroesthesia** (mäk"rō-ēs-thē'zē-ä) [Gr. *makros*, large, + *aisthesis*, sensation] State in which objects seen or felt ap-

pear to be greatly magnified. SYN: *macroptasia*.

**macrogamete** (mäk"rō-gām'ēt) [" + *gamete*, wife] A large immobile reproductive cell formed in certain protozoa and simple plants. It corresponds to the ovum in higher forms.

**macrogametocyte** (mäk"rō-gä-mē'tō-sīt) A large nonmotile reproductive cell developing from the merozoite of certain protozoans and fungi. Macrogametocytes are found in red blood cells infected with malaria. SEE: *Plasmodium*.

**macrogenitosomia praecox** (mäk"rō-jēn'ī-tō-sō'mē-ä prē'kōks) [" + L. *genitalis*, genital, + Gr. *soma*, body, + L. *praecox*, early] Abnormal size of genitalia in the developing fetus due to excess androgens (male hormones) from the fetal adrenal. In the female, this causes pseudohermaphroditism, and in the male, enlarged external genitalia.

**macrogingivae** (mäk"rō-jīn-jī'vē) [" + L. *gingiva*, gum] Hypertrophy of the gums.

**macroglia** (mäk-rōg'lē-ä) [" + *glia*, glue] Astrocyte.

**macroglobulin** (mäk"rō-glōb'ū-līn) A globulin of high molecular weight over about 400,000. Macroglobulin is normally present in the blood but is increased in disease states such as multiple myeloma, connective tissue disease, cirrhosis of the liver, and amyloidosis.

**alpha-2 m.** Plasma glycoprotein made principally by the liver that inhibits serine proteases, leukocyte elastase, and proteinase 3, but not matrix metalloproteinases.

**macroglobulinemia** (mäk-rō-glōb'ū-līn-ē'mē-ä) Presence of globulins of high molecular weight in serum.

**Waldenström's m.** A disease of plasma cells in which there is macroglobulinemia marked by excess production of immunoglobulin M (IgM). Peak incidence is in the sixth and seventh decades. The disease is more common in men. Findings include anemia due to infiltration of the bone marrow with lymphocytes and plasma cells, weight loss, neurological disturbances, blurred vision, bleeding disorders, cold sensitivity, generalized lymphadenopathy, and hyperviscosity of the blood.

**TREATMENT:** Plasma exchange therapy decreases the viscosity of the blood by removing excess IgM. The procedure may need to be performed every 4 to 6 weeks in some patients. Other specific treatments include the use of chemotherapeutic drugs to decrease the production of IgM by abnormal clones of B lymphocytes.

**macroglossia** (mäk"rō-glōs'ē-ä) [Gr. *makros*, large, + *glossa*, tongue] Hypertrophy of the tongue.

**macrognathia** (māk-rō-nā'thē-ā) [" + *gnathos*, jaw] Abnormal size of the jaw.

**macrography** (māk-rōg'rá-fē) [" + *graphein*, to write] Writing with large letters.

**macrogyria** (māk'rō-jē'rē-ā) [" + *gyros*, circle] Excessively large size of convolutions (*gyri*) of the cerebral hemispheres.

**macrolabia** (māk-rō-lā'bē-ā) [" + *L. labium*, lip] Abnormal size of a lip. SEE: *macrocheilia*.

**macrolide** (māk'rō-līd) A class of antibiotics that inhibits protein synthesis by bacteria at the 50S ribosome. They are usually used for respiratory tract, skin, and genitourinary infections. Examples of macrolides are erythromycin, clarithromycin, and azithromycin.

**macromastia** (māk-rō-mās'tē-ā) [" + *mastos*, breast] Abnormally large breasts.

**macromelia** (māk'rō-mē'lē-ā) [" + *melos*, limb] Abnormally large size of the limbs.

**macromelus** (māk-rōm'ē-lūs) [" + *melos*, limb] An individual with abnormally large extremities.

**macromere** (māk'rō-mēr) [" + *meros*, a part] A blastomere of large size.

**macromethod** (māk'rō-mēth'ōd) Chemical examinations or analyses wherein ordinary quantities of the material being studied are used.

**macromolecule** (māk'rō-mōl'ē-kūl) A large molecule such as a protein, polymer, or polysaccharide.

**macronucleus** (māk'rō-nū'klē-ūs) The larger of the two nuclei of ciliated protozoa.

**macronutrient** (māk'rō-nū'trē-ēnt) Any essential nutrient required in large amounts in a balanced diet. There are six categories of macronutrients: carbohydrates, fats, minerals, proteins, vitamins, and water. SEE: *micronutrient*; *trace element*.

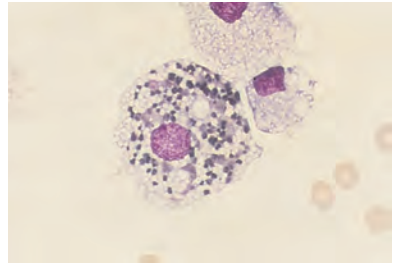
**macroonychchia** (māk'rō-nīk'ē-ā) [" + *onyx*, nail] Abnormal length or thickness of the fingernails or toenails.

**macropathology** (māk'rō-pā-thōl'ō-jē) Pathological changes in gross anatomical structures.

**macrophage**, **macrophagocyte** (māk'rō-fāj, māk-rōf'ā-gūs) [" + *phagein*, to eat] A monocyte that has left the circulation and settled and matured in a tissue. Macrophages are found in large quantities in the spleen, lymph nodes, alveoli, and tonsils. About 50% of all macrophages are found in the liver as Kupffer cells. They are also present in the brain as microglia, in the skin as Langerhans cells, in bone as osteoclasts, as well as in serous cavities and breast and placental tissue. Along with neutrophils, macrophages are the major phagocytic cells of the immune system. They have the ability to recognize and

ingest foreign antigens through receptors on the surface of their cell membranes; these antigens are then destroyed by lysosomes. Their placement in the peripheral lymphoid tissues enables macrophages to serve as the major scavengers of the blood, clearing it of abnormal or old cells and cellular debris as well as pathogenic organisms.

Macrophages also serve a vital role by processing antigens and presenting them to T cells, activating the specific immune response. They also release many substances that participate in inflammation, including chemokines and cytokines, lytic enzymes, oxygen radicals, coagulation factors, and growth factors. SEE: *illus.*; *chemokine*; *cytokine*; *inflammation*; *oxygen radical*.



#### MACROPHAGE

With hemosiderin granules (Orig. mag. ×1000)

***m. activating factor*** ABBR: MAF. A lymphokine that stimulates macrophages to become more effective killers of certain microbial cells. Macrophages stimulated by MAF can kill tumor cells.

***m. chemotactic factor*** ABBR: MCF. A lymphokine released by T and B cell lymphocytes in response to an antigen. It attracts macrophages to the site of the invading antigen.

***m. colony stimulating factor*** ABBR: M-CSF. A hematopoietic growth factor that stimulates monocytes to form colonies.

***m. inhibitory factor*** A cytokine that blocks the movement and activity of macrophages during inflammation. SEE: *cytokine*.

***m. migration inhibiting factor*** ABBR: MIF. A lymphokine that blocks the migration of macrophages in culture.

***m. processing*** The mechanism by which foreign antigens are taken into the macrophage by phagocytosis and broken up. Part of the antigen is then displayed on the surface of the macrophage next to a histocompatibility or "self" antigen activating T lymphocytes and the specific immune response. T lymphocytes are unable to recognize or

respond to most antigens without macrophage assistance.

**macrophallus** (mäk"rō-fäl'üs) [Gr. *makros*, large, + *phallos*, penis] Abnormally large penis.

**macrophthalmia** (mäk"rōf-thäl'mē-ä) [" + *ophthalmos*, eye] Abnormally large eyeball.

**macroplasia** (mäk"rō-plä'zē-ä) [" + *plasis*, forming] Abnormally large size of a part or specific tissue.

**macropodia** (mäk-rō-pō'dē-ä) [" + *pous*, foot] Abnormally large feet.

**macroprosopia** (mäk"rō-prō-sō'pē-ä) [" + *prosopon*, face] Large facial features.

**macropsia** (mäk-röp'sē-ä) [" + *opsis*, vision] Macroesthesia.

**macrorhinia** (mäk-rō-rīn'ē-ä) [" + *rhis*, nose] Excessive size of the nose, either congenital or pathological.

**macroscelia** (mäk-rō-sē'lē-ä) [" + *skelos*, leg] Abnormally large legs.

**macroscopic** (mäk-rō-sköp'ik) [" + *skopein*, to examine] Large enough to be seen by the naked eye. Opposite of microscopic.

**macroscopy** (mäk-rös'kō-pē) Examination of an object with the naked eye.

**macrosgmoid** (mäk"rō-sīg'moyd) Abnormally large sigmoid colon.

**macrosmatic** (mäk"rōs-mät'ik) [" + *osmasthanai*, to smell] Having an abnormally keen sense of smell.

**macrosomatia, macrosomia** (mäk"rō-sō-mā'shē-ä, mäk-rō-sō'mē-ä) [Gr. *makros*, large, + *soma*, body] Abnormally large body.

**fetal m.** In a newborn, birth weight above the 90th percentile on the intrauterine growth curve. SEE: *large for gestational age*.

**macrospore** (mäk"rō-spor) The larger spore type in certain fungi and protozoa with two spores.

**macrostereognosis** (mäk"rō-stē'rē-ō-nō'sīs) [" + *stereos*, solid, + *gnosis*, knowledge] A misperception that objects appear to be larger than they are.

**macrostomia** (mäk-rō-stō'mē-ä) [" + *stoma*, mouth] Excessively large mouth.

**macrostructure** (mäk"rō-strük'tūr) The overall or gross structure of an entity.

**macrothrombocyte** (mäk"rō-thrōm'bō-sīt) [" + *thrombos*, clot, + *kytos*, cell] A large platelet seen in some leukemias and rare disorders of platelets.

**macrothrombocytopenia** (mäk"rō-thrōm'bō-sīt-ō-pē'nē-ä) [" + " + " + *penia*, lack] Deficiency of macrothrombocytes. SEE: *Alport's syndrome*.

**macrotia** (mäk-rō'shē-ä) [" + *ous*, ear] Abnormally large ears.

**macrotooth** (mäk"rō-tooth) An abnormally enlarged tooth.

**macula** (mäk'ū-lä) *pl. maculae* [L., spot] 1. A small spot or colored area. SEE: *roseola*. 2. Macule. 3. The specialized cen-

tral region of the retina that surrounds the fovea and contains a high concentration of cone photoreceptors. It is responsible for central vision, fine visual detail, and color vision. It is located anatomically between the superior and inferior temporal vessels of the retina. SYN: *m. lutea retinae*; *yellow spot*. **macular** (-lär), *adj.*

**m. acusticae** The site of the hair cells (receptors) in the wall of the sacculle and utricle of the inner ear. These receptors respond to changes in the pull of gravity (position of the head) and generate impulses carried by the vestibular branch of the acoustic nerve. They include the macula sacculi and macula utriculi.

**m. albida** A white mark found on the visceral layer of the peritoneum or epicardium in some contagious diseases.

**m. atrophica** A glistening white spot on the skin due to atrophy.

**m. caerulea** A steel-gray or blue stain of epidermis without elevation. It does not disappear on pressure and occurs esp. with pediculosis pubis or flea bites.

**cerebral m.** A reddened line that becomes deeper and persists for some time when the fingernail is drawn across the skin, esp. in tuberculous meningitis. SYN: *tache cérébrale*.

**m. corneae** An opaque spot in the cornea.

**m. cribrosa** One of several tiny foramina in the wall of the vestibule of the bony labyrinth of the ear through which pass filaments of the acoustic nerve.

**m. densa** A group of cells in the wall of the distal renal tubule, next to the juxtaglomerular cells, that are sensitive to changes in the salt concentration of the filtrate in the tubule.

**m. flava laryngis** A small yellow spot at the ventral end of each vocal cord formed by a small mass of elastic tissue or, sometimes, cartilage.

**m. folliculi** The point on the ovarian follicle where it ruptures.

**m. gonorrhoeica** A red spot at the orifice of Bartholin's gland; seen in gonococcal vulvitis.

**m. lutea retinae** Macula(3).

**m. of retina** An oval, light pink area in the center of the retina (and to the temporal side of the optic disk) containing the fovea, the place of highest visual acuity. SYN: *macular area*.

**m. sacculi** The site of the hair cells in the sacculle; receptors stimulated by the pull of gravity. These cells generate impulses carried by the vestibular branch of the acoustic nerve.

**m. utriculi** The site of the hair cells in the utricle; receptors stimulated by the pull of gravity. These cells generate impulses carried by the vestibular branch of the acoustic nerve.

**macular area** (măk'ū-lēr ār'ē-ă) Macula of retina.

**macular hole** A tear or discontinuity in the central portion of the retina, resulting in central visual loss.

**macular pucker** A wrinkling and eventual scarring of the retina in the macular area, resulting in visual distortion. SYN: *premacular fibrosis*; *cellophane maculopathy*.

**macular rotation surgery** Macular translocation.

**macular translocation** Surgery involving movement of a flap of retina containing the fovea to an area of healthy retinal pigment. It is performed experimentally to treat age-related macular degeneration. SYN: *macular rotation surgery*.

**maculate(d)** (măk'ū-lăt, -lăt-éd) Spotted, as with macules.

**maculation** (măk'ū-lă'shün) [L. *macula*, spot] Process of becoming maculate; development of macules.

**macule** (măk'ūl) [L. *macula*, spot] A flat spot on the skin whose color may be lighter or darker than the surrounding skin. Some common examples are freckles, petechiae, and vitiligo. SYN: *macula* (2).

**café au lait m.** Pale brown areas of increased melanin in the skin. The sites are usually 0.8 to 8 in. (2 to 20 cm) in diameter with irregular borders. They appear in infancy and tend to disappear with age. These macules are occasionally markers for systemic disease including neurofibromatosis.

**maculopapular** (măk'ū-lō-păp'ū-lăr) A rash that has both flat stained regions (macules) and small elevated bumps or pimples (papules).

**maculopathy** (măk'ū-lōp'ă-thē) [Gr. *pathos*, disease] Retinal pathology involving the macula of the eye.

**bull's-eye m.** Any form of macular dystrophy in which retinal examination reveals a degenerating round or oval region with pigment loss around the macula. Central, noncorrectable visual loss is a characteristic finding.

**cellophane m.** Macular pucker.

**solar m.** Eclipse blindness.

**mad** 1. Not rational. 2. Angry. 3. Rash, foolish, frantic. 4. Suffering from infection with rabies.

**madarosis** (măd-ă-rō'sīs) [Gr. *madaros*, bald] Loss of eyelashes or eyebrows.

**mad cow disease** Bovine spongiform encephalopathy.

**madder** (măd'ēr) Root of the plant *Rubia tinctorum*, a source of the red dye alizarin.

**Madelung's deformity** (mă'dē-lūngs) [Otto W. Madelung, Fr. surgeon, 1846–1926] Displacement of the hand to the radial side due to relative overgrowth of the ulna.

**Madelung's disease** Generalized symmetrical deposits of fatty tissue (lipo-

mas) on the upper back, shoulders, and neck. SYN: *Madelung's neck*.

**made with organic ingredients** A designation for food that specifies that 70% of its components are organic.

**Madura foot** (mă-dūr'ă) [from Madur district in India where disease was first described in 1842] A local painless lesion—called a mycetoma—of an exposed area, such as bare feet. It consists of swollen infected tissues with sinus tracts and a purulent, grainy discharge. Mycetomas may occur in any body part. They are usually found in adult males who work outside and have poor footwear or inadequate wound care. SEE: *maduromycosis*.

**ETIOLOGY:** Various fungi including eumycetoma and actinomycetes. In the U.S., the most frequent cause is *Pseudallescheria boydii*.

**TREATMENT:** The antibiotic given depends on the specific organism involved. Clindamycin is used for actinomycetoma. Ketoconazole or itraconazole have been used in eumycetomas. Surgery should not be necessary, but drug treatment often takes several months.

**maduromycosis** (măd-ūrō-mī-kō'sīs) A type of chronic mycetoma of the foot or hand characterized by marked swelling and development of nodules, vesicles, abscesses, and sinuses.

**Magendie, law of** Bell's law.

**magenta** (mă-jěn'tă) The dye basic fuchsin.

**maggot** (măg'güt) Larva of an insect, esp. the softbodied footless larva of flies (order Diptera). Many are parasitic, giving rise to myiasis.

**maggot treatment** A method of treating septic wounds. In the 1930s, scientific studies indicated that neglected and infected compound fractures were aided in healing when blackbottle fly, bluebottle fly, and blowfly maggots accidentally infested the wounds. The maggots removed necrotic tissue and left healthy granulating tissue. Modern therapy, including antibiotics, has made this method of treating wounds and osteomyelitis obsolete. Nevertheless, it is possible to culture sterile blowfly maggots for this use. In severe skin infections when all other forms of therapy have failed, this method has been used.

**magical thinking** The belief that one's thoughts or actions have the ability to cause actions or effects that defy the normal laws of cause and effect.

**magic syndrome** A variant of Behçet's syndrome, in which patients have mouth and genital ulcerations and inflammation of cartilage.

**Magill forceps** (mă-gil') Angulated forceps used during direct laryngoscopy to remove a foreign body from an obstructed airway.

**magistry** (măj'is-tēr'ē) [L. *magister*,

master] 1. Specially compounded remedy. 2. A precipitate.

**magma** (măg'mă) [Gr.] 1. Mass left after extraction of principal. 2. Salve or paste. 3. A suspension of finely divided material in a small amount of water.

**magnesium** (măg-nē'zē-ŭm, -zhē, -shē) [NL. fm. *magnesia*] SYMB: Mg. A white mineral element found in soft tissue, muscles, bones, and to some extent in the body fluids. It is the second most common cation in intracellular fluid. It has an atomic mass of 24.312, an atomic number of 12, and a specific gravity of 1.738. It is a naturally occurring element, being extracted from well and sea water. The human body contains approx. 25 mg of magnesium, most of which is in the bones. Muscles contain less of it than they do of calcium. Concentration of magnesium in the serum is between 1.5 and 2.5 mmol/L.

Magnesium is widely distributed in foods; therefore, deficiency rarely occurs. It is obtained in sufficient quantities in fish, whole grains, fruits, and green vegetables. A typical diet contains 200 to 400 mg, but about one-third of this is absorbed through the small intestine. The rest is excreted in the stool. Its major function is enhancement of neuromuscular integration, but it also stimulates parathyroid hormone secretion, thus regulating intracellular fluid calcium levels.

**FUNCTION:** Magnesium is needed for DNA repair. It moderates cellular differentiation and proliferation and improves tissue sensitivity to circulating insulin. It is a component of enzymes required for the synthesis of adenosine triphosphate (ATP) and the release of energy from ATP. It is also a component of enzymes involved in muscle contraction and protein synthesis. Deficiency may be present in patients with chronic diarrhea or diseases that interfere with absorption, or result in excessive loss (e.g., in chronic alcohol abuse).

**DEFICIENCY:** Tetany quite similar to that produced by hypocalcemia. Chvostek's sign, hyperirritability, confusion, delusions and arrhythmias occur in hypomagnesemia. Magnesium may be prescribed for the treatment of asthma, constipation, and torsades de pointes (a cardiac arrhythmia).

**EXCESS:** An excess is usually caused by overuse of magnesium-containing antacids, use of magnesium laxatives, intravenous magnesium replacement, severe dehydration with oliguria, or decreased renal excretion due to renal disease. Bradycardia, hypotension, decreased level of consciousness, and muscle weakness or flaccid paralysis are common symptoms. In severe hypomagnesemia, cardiac arrest may occur. Treatment includes withholding

magnesium and administering diuretics.

**TREATMENT:** Magnesium may be given to patients orally or parenterally, but excessive oral intake causes diarrhea. Treatment for hypermagnesemia includes withholding magnesium, increasing fluid intake, and administering loop diuretics; calcium gluconate 10% for temporary symptom relief in emergency (or magnesium intoxication). Peritoneal dialysis or hemodialysis may be needed if renal function fails or excess magnesium cannot be eliminated.



During treatment of magnesium disorders, careful monitoring of serum electrolyte and fluid balance, vital signs, level of consciousness, flaccidity, clonus, and cardiac rhythm are needed. Magnesium should be given slowly and calcium gluconate kept readily available to reverse overcorrection. The risk of overcorrection of magnesium deficits is highest in patients with renal insufficiency.

**magnesium sulfate** A soluble salt of magnesium, used parenterally in clinical medicine to treat, e.g., hypomagnesemia and torsade de pointes.



The abbreviation MSO<sub>4</sub>, which is used for magnesium sulfate, is considered a dangerous abbreviation by the Joint Commission on the Accreditation of Hospitals because the abbreviation is also used for morphine sulfate.

**magnet** (măg'nět) [Gr. *magnes*, magnet] Any body that has the property of attracting iron. This may be a natural iron oxide or a mass of iron or steel that has this property given to it artificially. A piece of iron may be magnetized by passage of an electric current through an insulated wire wound around it. **magnetic** (măg-nět'ik), *adj.*

**magnetic activated cell sorting** ABBR: MACS. Technology used to separate unique populations of cells from an undifferentiated specimen of blood, bone marrow, or other tissue. It relies on the use of antibodies to specific cell types. A multicomponent specimen that contains some desirable cells is bathed in a solution of magnetically tagged antibodies. The cells of interest are attracted into a magnetic field and then collected for identification, experimentation, or therapeutic manipulation.

**magnetic cortical stimulation** The induction of painless electrical current within the brain to detect abnormalities in cortical motor neuron function.

**magnetic field** The space permeated by the magnetic lines of force surrounding

a permanent magnet or coil of wire carrying electric current.

**magnetic field homogeneity** The uniformity of the main magnetic field in a magnetic resonance imaging device.

**magnetic field therapy** Magnetotherapy.

**magnetic lines of force** The lines indicating the direction of the magnetic force in the space surrounding a magnet or constituting a magnetic field.

**magnetic resonance angiography** ABBR: MRA. Noninvasive imaging of blood vessels using magnetic resonance imaging. The technique does not expose patients to ionizing radiation and avoids catheterization of the vessels. It has been used to study aneurysms, blockages, and other diseases of the carotid, coronary, femoral, iliac, and renal arteries, among others. Studies may be done with or without contrast agents.

**magnetic resonance cholangiopancreatography** ABBR: MRCP. Visualization of the pancreatic and biliary ducts with magnetic resonance imaging. MRCP provides a noninvasive alternative to endoscopic retrograde cholangiopancreatography, esp. if biopsies are not needed and direct visualization of the ampulla of Vater is not required.

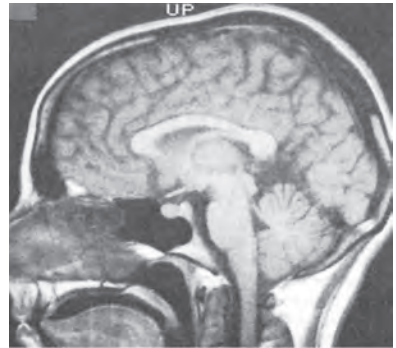
**magnetic resonance imaging** ABBR: MRI. A type of medical imaging that uses the characteristic behavior of protons when placed in powerful magnetic fields to make images of tissues and organs. Certain atomic nuclei with an odd number of neutrons, protons, or both are subjected to a radiofrequency pulse, causing them to absorb and release energy. The resulting current passes through a radiofrequency receiver and is then transformed into an image. This technique is valuable in providing soft-tissue images of the central nervous and musculoskeletal systems. Imaging techniques allow visualization of the vascular system without the use of contrast agents. Agents such as gadolinium are available for contrast enhancement but must be used with caution in patients with renal insufficiency.



Magnetic resonance imaging is contraindicated in patients with cardiac pacemakers or ferromagnetic aneurysmal clips in place. Metal may become damaged during testing; therefore, health care providers must establish whether the patient has magnetizable metal anywhere on or in the body. Patients should not wear metal objects, e.g., jewelry, hair ornaments, or watches. Patients who have had surgical procedures after which magnetizable metal clips, pins, or other hardware remain in the body should not have this imaging. Some patients with tattoos or

permanent cosmetics should also avoid MRI because of the risk of burns.

**PATIENT CARE:** During imaging, the patient lies on a flat surface that is moved inside a tube encompassing a magnet. The patient must lie as still as possible. No discomfort occurs as a result of the MRI. Sounds heard during the imaging come from the pulsing of the magnetic field as it scans the body. Confinement during the 30 to 90 min required for scanning may frighten the patient, but the patient can talk to staff by microphone. Relaxation techniques may help claustrophobic patients endure MRI. Comfort measures and analgesics (as necessary and prescribed) should be provided before beginning the scan to offset the discomfort related to prolonged positioning in the scanner. Claustrophobic patients may require a mild sedative, or be better managed in an open MRI scanner which is less confining, however open MRI devices, which use weaker magnetic fields than closed systems may take longer to obtain images and may reveal less detail. A nurse or radiology technician should maintain verbal contact with the patient throughout the procedure. An IV line with no metal components should be in place if the patient's condition is unstable. **SEE: illus.; brain for illus.; positron emission tomography.**



#### MAGNETIC RESONANCE IMAGING

Midsagittal section of brain of normal young patient

**functional m.r.i.** ABBR: fMRI. The identification, or mapping, of metabolic activities during MRI studies of the brain. During an fMRI, magnetic resonance images of the brain are made while the subject performs specific tasks (e.g. using certain fingers or saying particular words). The study helps identify changes in blood flow during these activities, as well as changes in brain chemistry or the movement of water

molecules in neural tissues. It is used, for example, to study brain injuries caused by cancer, multiple sclerosis, strokes, and trauma.

**magnetism** (mäg'ně-tizm) [Gr. *magnes*, magnet, + *-ismos*, condition] The property of repulsion and attraction of certain substances that have magnetic properties. SEE: *magnet*.

**magnetolectricity** (mäg-ně"tō-ē'lēk-tris'ī-tē) [" + *elektron*, amber] Electricity generated by use of magnets.

**magnetoencephalography** (mäg-ně"tō-ēn-sēf'ä-lög'rä-fē) ABBR: MEG. The detection of the small amount of magnetic activity that results from electrical discharges within the brain. MEG may be used, e.g., prior to neurological surgery to provide a map of the part of the brain that needs to be removed.

**magnetometer** (mäg'ně-töm'ē-tēr) [" + *metron*, measure] Device for measuring magnetic fields.

**magneton** (mäg'ně-tön) The unit of nuclear magnetic force.

**magnetotherapy** (mäg-ně"tō-thēr'ä-pē) [" + *therapeia*, treatment] Application of magnets or magnetism in treating diseases. SYN: *magnetic field therapy*.

**magnet program** A health care organization that demonstrates its leadership in nursing recruitment, retention, and excellence, as certified by the American Nurses Credentialing Center (ANCC).

**magnetropism** (mäg-nět'rō-pizm) [" + *trope*, a turn] The change in direction of growth of a plant or organism in response to the action of a magnetic field.

**magnet therapy** The application of permanent magnets to painful regions of the human body in an attempt to alleviate chronic diseases or chronic pain.

**magnification** (mäg-nī-fi-kä'shün) [L. *magnus*, great, + *facere*, to make] Process of increasing apparent size of an object, esp. under a microscope.

**magnification endoscopy** The combined use of digital and optical magnification to enhance the visualization of small lesions within an organ during endoscopy. It is used to identify changes in the esophagus suggestive of Barrett's esophagus, and it may be combined with other imaging techniques, such as the spraying of the lining of the examined organ with acetic acid or methylene blue, or the illumination of the organ with fluorescent chemicals.

**magnitude** Size, extent, or dimensions.

**magnocellular** (mäg'nō-sēl'ū-līr) [L. *magnus*, great, large + "'] Having a large body; said of cells, esp. those in the hypothalamus and lateral geniculate nucleus of the thalamus.

**ma huang** (mä wōng) Ephedra.

**Maillard reaction** A chemical reaction between sugars and proteins that results

in cellular damage or aging; the making of advanced glycosylation end products; the chemical deterioration of proteins during food processing or storage. Also known in nutritional science as the "browning reaction."

**maim** (mām) [ME. *maymen*, to cripple]

**1.** To injure seriously; to disable. **2.** To deprive of the use of a part, such as an arm or leg.

**main** (mäñ) [Fr.] Hand.

*m. en griffe* Clawhand.

**mainlining** (mäñ'līn'īng) A colloquial term for injecting an illicit drug directly into a vein.

**mainstreaming** The practice of educating disabled children in the general classroom instead of in specialized institutions, so as not to deprive them of normal social experiences.

**maintain** (mäñ-tän') [L. *manu tenere*, to hold in the hand] **1.** To hold, support, or preserve. **2.** To continue, e.g., a healthy behavior.

**maintainer** Something that supports or keeps another thing in existence or continuity.

*space m.* SEE: *space maintainer*.

**maintenance** (mäñ'tē-nānts) [L. *manu tenere*, to hold in the hand] **1.** The preservation of a desired condition. **2.** The prevention of recurrence or progression of an illness.

**maintenance of wakefulness test** An assessment of excessive daytime sleepiness in which the subject is asked to remain awake while resting comfortably in a quiet, dark room.

**maitake** (mī'tä-kä) [Japanese, "dancing mushroom"] An edible mushroom, *Grifola frondosa*, also known as *hen of the woods*, used in traditional Asian medicine as an immune booster. Its effectiveness as a therapy has not been proved in human studies.

**Majocchi's disease** (mä-yök'ēz) [Domenico Majocchi, It. physician, 1849–1929] Ring-shaped purple eruption of lower limbs. SYN: *Majocchi's granuloma*; *purpura annularis telangiectodes*.

**Majocchi's granuloma** Majocchi's disease.

**major histocompatibility complex**

ABBR: MHC. A group of genes on chromosome 6 that code for the antigens that determine tissue and blood compatibility. In humans, histocompatibility antigens are called human leukocyte antigens (HLA) because they were originally discovered in large numbers on lymphocytes. There are thousands of combinations of HLA antigens. Class I MHC antigens (HLA-A, HLA-B, and HLA-C) are found on all nucleated cells and platelets. Class II antigens (HLA-DR, HLA-DQ, and HLA-DP) are found on lymphocytes and antigen processing cells and are important in the specific immune response. In tissue and organ



transplantation, the extent to which the HLA or "tissue type" of the donor and recipient match is a major determinant of the success of the transplant. SEE: *histocompatibility locus antigen*.

**majority, age of** The age—usually 18 or 21 years—at which a person achieves full legal rights to make one's own decisions, enter into contracts, and be held personally accountable for the consequences of one's actions.

**mal** (mäl) [Fr., from L. *malum*, an evil] A sickness or disorder.  
*m. de mer* Seasickness.

**mal-** Prefix meaning *bad, poor, or abnormal*.

**mala** (mä'lä) [L. *mala*, cheek] **1.** The cheek. **2.** The cheekbone. **malar** (mä'lär), *adj.*

**malabsorption syndrome** (mä'l'äb-sörb'shün) Disordered or inadequate absorption of nutrients from the intestinal tract, esp. the small intestine. The syndrome may be associated with or due to a number of diseases, including those affecting the intestinal mucosa, such as infections, tropical sprue, celiac disease, pancreatic insufficiency, or lactase deficiency. It may also be due to surgery such as gastric resection and ileal bypass or to antibiotic therapy such as neomycin.

**malacia** (mä-lä'shē-ä) [Gr. *malakia*, softening] Abnormal softening of tissues of an organ or of tissues themselves.

**-malacia** A suffix used to designate softening.

**malacoplakia** (mä'l'ä-kō-plä'kē-ä) [Gr. *malakos*, soft, + *plax*, plaque] Existence of soft patches in mucous membrane of a hollow organ.  
*m. vesicae* Soft, fungus-like patches on mucosa of the bladder and ureters.

**malacotomy** (mä'l'ä-köt'ō-mē) [Gr. *malakos*, soft, + *tome*, incision] Incision of soft areas of the body, esp. of the abdominal wall.

**maladie de Roger** (mä'l'ä-dē') [Henry L. Roger, Fr. physician, 1809–1891] Congenital interventricular septal defect.

**maladjusted** Poorly adjusted; unhappy or unsuccessful because of inability or failure to adjust to life's stresses. Marked by depression, anxiety, and irritability.

**malady** (mä'l'ä-dē) [Fr. *maladie*, illness, from L. *malum*, an evil] A disease or disorder. SYN: *disease*.

**malaise** (mä-läz') [Fr.] A subjective sense of discomfort, weakness, fatigue, or feeling rundown that may occur alone or accompany other symptoms and illnesses.

**malalignment** (mä'l'ä-lin'mënt) Improper alignment of structures such as teeth or the portions of a fractured bone. SEE: *malocclusion*.

**malaria** (mä-lä'rē-ä) [It. *malaria*, bad

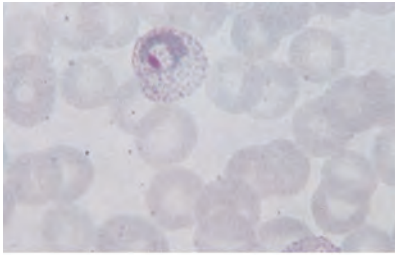
air] A febrile hemolytic disease caused by infection with protozoa of the genus *Plasmodium*. Worldwide malaria is responsible for about 3 million deaths a year. There are four species of malaria: the "benign" malarials: *P. vivax*, *P. ovale*, and *P. malariae*; and the potentially "malignant" malaria, *P. falciparum*. Each has its own geographic distribution, incubation period, symptoms, and treatment. **malarial, malarious** (-äl, -üs), *adj.*

Although malaria has been virtually eliminated from temperate climates, it is widespread throughout the tropics and subtropics; it is most prevalent in Asia, Africa and Latin America. As many as half a billion people may be infected with the disease worldwide; 300 to 500 million new infections occur annually in the U.S., fewer than 1500 cases are diagnosed each year, usually in those who have just come from tropical or subtropical regions. The malaria parasite is transmitted by the bite of an infected female *Anopheles* mosquito or, rarely, by transfusions or the sharing of needles during illicit drug use.

The life cycle of the parasite is complex. Once the parasitic sporozoite enters the bloodstream, it quickly invades organs such as the liver (the "tissue phase" of the infection). There, the organism matures as a schizont. After an incubation period ranging from about 10 to 30 days, multiple malarial merozoites are released into the blood, where they invade red blood cells (the "erythrocytic phase"). Some dormant forms, called hypnozoites, remain in the liver in *P. vivax* and *P. ovale* malaria, where they may serve as a reservoir for relapse. In the red blood cells, the organisms mature into ring forms and feeding forms (trophozoites). When the parasites break out of red cells to infect other cells in the circulation, they cause hemolysis and periodic symptoms (see below).

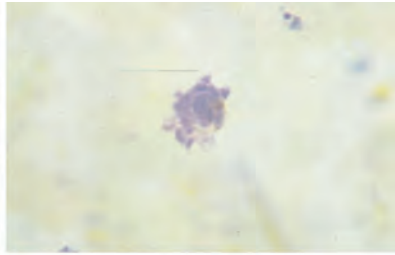
After several reproductive cycles, microgametocytes and macrogametocytes develop. Mosquitoes consume these when the parasites take their blood meal from infected humans. Further developmental stages occur within the mosquitoes, resulting in the production of the infectious sporozoites that are injected into human hosts when the mosquitoes feed again. SEE: *illius*.

**SYMPTOMS:** Initially, the symptoms are nonspecific and resemble those of a minor febrile illness with malaise, headache, fatigue, abdominal discomfort, and muscle aches, followed by fever and chills. The three stages of the malarial paroxysm are the defining characteristics of the illness. In the first (or chill) stage, patients complain of feeling cold and experience shaking chills that last



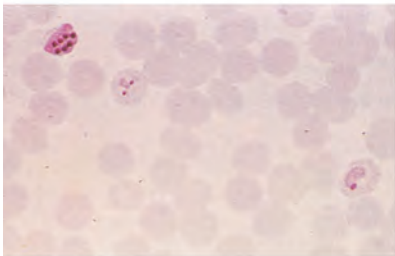
10µm

PLASMODIUM VIVAX SPOOROZOITE



10µm

PLASMODIUM VIVAX SCHIZONT FORMING MEROZOITES



10µm

PLASMODIUM MALARIAE MEROZOITES



10µm

PLASMODIUM FALCIPARUM GAMETOCYTE

### MALARIA-CAUSING ORGANISMS

from a few minutes to several hours. During the second (or hot) stage, minimal sweating occurs, although temperature rises to as high as 106°F; this stage lasts for several hours, and patients are at risk for febrile convulsions and hyperthermic brain damage. The patient also may exhibit tachycardia, hypotension, cough, headache, backache, nausea, abdominal pain, vomiting, diarrhea, and altered consciousness. The third (sweating) stage begins within 2 to 6 hr. In this period, the sweating is marked as the fever subsides, and is followed by profound fatigue and by sleep. If untreated, malarial paroxysms caused by *P. ovale* or *P. vivax* will occur cyclically every 48 hr. If due to *P. malariae*, paroxysms will occur every 72 hr. Infections with *P. falciparum* may have a 48-hr cycle of paroxysms, but continuous fever is more characteristic. A severe form of falciparum malaria (cerebral malaria) is characterized by coma and, in spite of treatment, is associated with a 20% mortality rate in adults and 15% in children. About 10% of children who survive cerebral malaria have persistent neurological deficits. Residual deficits in adults who survive this form of malaria are unusual. Progressive, possibly severe ane-

mia and enlargement of the spleen and liver are characteristic of all forms of malaria.

A rare but serious hematological complication of malaria is acute intravascular hemolytic anemia, associated with infection with *P. falciparum*. This condition is called blackwater fever because of the accompanying hemoglobinuria.

**DIAGNOSIS:** Malaria should be suspected in any febrile person who has returned in the last several months from an area where malaria is endemic. Giemsa-stained thick and thin blood films are examined to confirm the diagnosis (parasites may be seen in red blood cells).

**PREVENTION:** In areas where malaria is endemic, pools of standing or stagnant water, in which mosquitoes breed, should be eliminated. People traveling to the tropics should wear protective clothing to which insect repellent has been applied. Protective screen netting should cover beds. People should apply DEET or other effective insect repellents to exposed skin (but not hands or face) or to children's clothing, esp. between dusk and dawn, when mosquitoes feed most actively.

**PROPHYLAXIS:** Chemoprophylaxis is begun 1 week before arriving in an area

where malaria is endemic and is continued throughout the stay and for 4 weeks after leaving the area. Chemoprophylaxis is never entirely effective; thus, malaria should always be considered when treating patients who have a febrile illness and who have traveled to an area where malaria is endemic, even if they have taken prophylactic antimalarial drugs. The drug(s) advised for prophylaxis depend on the sensitivity of local parasites and whether infection is likely. Because of the changing sensitivity of the malaria parasites to drugs, it is not possible to be certain that a particular drug will be effective in all areas where malaria is endemic. The prophylactic drugs used for *P. falciparum* are usually effective in preventing infections with *P. ovale* and *P. vivax*. For nonimmune people traveling in areas where malaria is due to chloroquine-resistant *P. falciparum* and *P. vivax*, mefloquine, doxycycline, or atovaquone plus proguanil hydrochloride may be recommended. In areas where *P. falciparum* is chloroquine-sensitive, chloroquine is the drug of choice. Chloroquine may be used prophylactically during pregnancy.

**TREATMENT:** The parasites that cause malaria constantly evolve, making drug treatment difficult. Patients and health care professionals are advised to contact the Centers for Disease Control in Atlanta to obtain current recommendations (Phone: 800-311-3435; Web address: <http://www.cdc.gov>). Effective nonantibiotic therapy for malaria sometimes includes exchange transfusion and iron chelation.

**PATIENT CARE:** Health care providers in areas where malaria is endemic need to work toward prompt detection and effective treatment of malaria. People traveling in areas where malaria is endemic and military personnel assigned to such areas need to be made aware that missing even one dose of the prophylactic regimen increases the risk of contracting malaria. When an outbreak occurs among the military, it usually is found that only a small percentage of personnel have been taking the drug as prescribed in dosages sufficient to provide protection. Standard precautions are used in patient care; gloves are worn when handling blood or body fluids. Fluid balance should be closely monitored (hourly urine output) and urine checked for hematuria. The patient is also observed for signs of internal bleeding or electrolyte imbalance.

**cerebral m.** Falciparum malaria in which the brain is affected. This fulminant disease often produces coma, shock, or sudden death.

**cryptic m.** A case of malaria for

which the source of exposure cannot be found.

**double quartan m.** Malaria in which two concurrent cycles result in fever occurring on two successive days.

**falciparum m.** Malaria caused by *Plasmodium falciparum*. It is more prevalent in the tropics. Symptoms are more severe than in other types but it runs a shorter course without relapses.

**quartan m.** Malaria with short and less severe paroxysms. Sporulation occurs each 72 hr, causing seizures every 4 days. It is caused by *Plasmodium malariae*.

**quotidian m.** Malaria in which paroxysms occur with daily periodicity due to 24-hr sporulation of two groups of *P. vivax*. Temperature rises and falls abruptly.

**tertian m.** Malaria in which sporulation occurs each 48 hr. Symptoms are more common during the day. Paroxysms are divided into chill, fever, and sweating stages. Cold stage is usually 10 to 15 min but may last an hour or more. Febrile stage varies from 4 to 6 hr. Benign tertian malaria is caused by *Plasmodium vivax*, malignant tertian malaria by *Plasmodium falciparum*.

**triple quartan m.** Malaria in which three concurrent cycles result in fever occurring every day.

**vivax m.** Malaria caused by *Plasmodium vivax*. It is the most common form of malaria, marked by frequent recurrence.

**malariaicidal** (mă-lă'rē-ă-sī'däl) [It. *malaria*, bad air, + L. *caedere*, to kill] Having the property of killing malaria parasites.

**malariaology** (mă-lăr-ē-ōl'ō-jē) The scientific study of malaria.

**Malassezia** (mäl'ă-sē'zē-ă) [Louis Charles Malassez, Fr. physiologist, 1842–1909] A genus of fungi that is a common cause of superficial skin infections. The organisms are lipophilic. In hospitals, malassezian infections tend to occur in patients receiving lipid infusions. Malassezian infections of the bloodstream result in sepsis.

**M. pachydermatis** A species that has been transferred from the pet dogs of health care workers to the infants in a neonatal unit.

**malassimilation** (mäl'ă-sīm-ī-lă'shūn) [L. *malus*, ill, + *assimilatio*, making like] Defective, incomplete, or faulty assimilation, esp. of nutritive material. SEE: *malabsorption syndrome*.

**malate** (mă'lăt) A salt or ester of malic acid.

**malathion** (mäl'ă-thī'ōn) An effective pesticide; an organophosphate that inhibits the enzyme cholinesterase.

**mal de débarquement syndrome** (mäl dě dě-bärk-mōn') [Fr., lit. "disembarking sickness"] A persistent sensation of

rocking, vertigo, or imbalance that occurs as an aftereffect of travel, esp. aboard a ship. This form of motion sickness occurs more often in women than in men.

**mal de ojo** (möl' dā ō'hō) [Sp., evil eye] In many Hispanic cultures early childhood diarrhea, vomiting, colic, and dehydration. Many cultures, other than Hispanic cultures, include a concept of the "evil eye." These include, but are not limited to, certain sects of Arabic, gypsy, and Jewish cultures, and many widely dispersed native tribes. SYN: *evil eye*.

**maldigestion** (mäl'di-jēs'chün) Disordered digestion.

**male** [O.Fr.] **1.** Masculine. **2.** The sex that has organs for producing sperm for fertilization of ova.

**male erectile disorder** The persistent or recurrent inability to attain, or to maintain until completion of the sexual activity, an adequate erection. The disturbance causes marked distress or interpersonal difficulty. The difficulty cannot be attributed to a medical condition, substance abuse, or medications. SEE: *erectile dysfunction; female sexual arousal disorder*.

**male factor** Any explanation for a couple's difficulty in conceiving a child that results from diseases of the male reproductive organs, such as a low sperm count or inadequate sperm motility.

**maleficence** (mä-léf'i-séns) [L. *maleficentia*, evildoing] Acting in a deliberately harmful manner toward others.

**malemission** (mäl'ē-mish'ün) [L. *malus*, evil, + *e*, out, + *mittere*, to send] Failure of semen to be ejaculated from the urinary meatus during coitus.

**maleruption** (mäl-ē-rüp'shün) Incorrect eruption of teeth.

**malformation** (mäl-for-mā'shün) [*m* + *formatio*, a shaping] Deformity; abnormal shape or structure, esp. congenital. **arteriovenous m.** Angiodysplasia.

**tooth m.** Abnormalities of size and shape that usually occur during the morphodifferentiation stage of tooth formation. Incomplete matrix formation or mineralization will also result in defective teeth that may or may not be abnormal in shape initially.

**malfunction** (mäl-fünk'shün) Defective function.

**malic** (mä'lik, mäl'ik) [L. *malum*, apple] Pert. to apples.

**malice** (mä'is) [L. *malus*, bad] Desire or intent to harm someone or to see others suffer.

**malign** (mä-lin') [ME. *maligne*] Tending to injure or harm; malignant.

**malignancy** (mä-lig'nän-sē) [L. *malignus*, of bad kind] **1.** State of being malignant. **2.** A neoplasm or tumor that is cancerous as opposed to benign. SYN: *virulence*.

**malignant** (mä-lig'nánt) Growing worse;

resisting treatment, said of cancerous growths. Tending or threatening to produce death; harmful. SYN: *virulent*.

**malignant angioendotheliomatosis** Intravascular large cell lymphoma that is typically found in the blood vessels of the skin and central nervous system and is often rapidly fatal.

**TREATMENT:** Current treatment is based on polychemotherapy.

**malignant atrophic papulosis** Degos' disease.

**malignant disease** **1.** Cancer. **2.** A disease, including but not limited to cancer, in which the progress is extremely rapid and generally threatening or resulting in death within a short time.

**malingering** (mä-ling'ēr) [Fr. *malingre*, weak, sickly] To feign illness, usually to arouse sympathy, to escape work, or to continue to receive compensation. SEE: *factitious disorder; Munchausen syndrome*.

**malingeringer** (mä-ling'ēr-ēr) **1.** One who pretends to be ill or suffering from a nonexistent disorder to arouse sympathy. **2.** One who pretends slow recuperation from a disease once suffered in order to continue to receive benefits of medical insurance and work absence.

**Mallampati classification** A four-point scale used to assess the relative ease of oral (endotracheal) intubation of a patient based on the size and position of the tongue relative to the size of the pharyngeal opening. The patient should be assessed in the sitting position, with the neck in neutral position, the mouth maximally opened, and the tongue protruded as far as possible. The four classifications of the scale are:

**1.** full visibility of the soft palate, uvula, tonsillar pillars, and fauces;

**2.** visibility of the soft palate and part of the pendant uvula;

**3.** visibility of the soft palate and only the base of the uvula; and

**4.** visibility of only the hard palate.

**malleable** (mä'l-ē-ä-bl) [L. *mallere*, to hammer] Having the property of being shaped by pressure.

**malleation** (mä-lē-ä'shün) Spasmodic action of the hands in which they seem drawn to strike any near object, as spasmodic rapping against thighs or furniture. SEE: *tic*.

**malleolus** (mä-lē'ō-lūs) *pl.* **malleoli** [L. *malleolus*, little hammer] The protuberance on both sides of the ankle joint; the lower extremity of the fibula is the lateral malleolus and lower end of the tibia is the medial malleolus. **malleolar** (-ō-lär), *adj.*

**external m.** Lateral malleolus.

**lateral m.** Process on outer edge of fibula at lower end. SYN: *external malleolus*.

**medial m.** Round process on inner edge of tibia at lower end.

## Physical Signs of Malnutrition

Infants and Children	Adolescents and Adults
Lack of subcutaneous fat	Red swollen lingual papillae
Wrinkling of skin on light stroking	Glossitis
Poor muscle tone	Papillary atrophy of tongue
Pallor	Stomatitis
Rough skin (toad skin)	Spongy, bleeding gums
Hemorrhage of newborn, vitamin K deficiency	Muscle tenderness in extremities
Bad posture	Poor muscle tone
Nasal area is red and greasy	Loss of vibratory sensation
Sores at angles of mouth, cheilosis	Increase or decrease of tendon reflexes
Rapid heartbeat	Hyperesthesia of skin
Red tongue	Purpura
Square head, wrists enlarged, rib beading	Dermatitis: facial butterfly, perineal, scrotal, vulval
Vincent's angina, thrush	Thickening and pigmentation of skin over bony prominences
Serious dental abnormalities	Nonspecific vaginitis
Corneal and conjunctival changes	Follicular hyperkeratosis of extensor surfaces of extremities
<b>Adolescents and Adults</b>	Rachitic chest deformity
Nasolabial sebaceous plugs	Anemia not responding to iron
Sores at angles of mouth, cheilosis	Fatigue of visual accommodation
Vincent's angina	Vascularization of cornea
Minimal changes in tongue color or texture	Conjunctival changes

SOURCE: Committee on Medical Nutrition, National Research Council, with permission.

**malleotomy** (mäl'ē-ōt'ō-mē) [m + Gr. *tome*, incision] **1.** Division of the malleus of the inner ear. **2.** Severing the ligaments attached to the malleoli of the ankle.

**mallet** **1.** In dentistry, a hammer-like tool to condense direct filling gold. **2.** A colloquial term for the malleus. SEE: *malleus*.

**mallet toe** SEE: *hammertoe*.

**malleus** (mäl'ē-ūs) *pl.* **mallei** [L., hammer] The largest of the three auditory ossicles in the middle ear. It is attached to the eardrum and articulates with the incus. It is commonly known as the hammer or mallet" SEE: *ear*.

**Mallophaga** (mäl-ōf'ā-gā) [G. *mallos*, wool, + *phagein*, to eat] An order of insects that includes biting lice.

**Mallory body** (mäl'ā-rē) [G. Kenneth Mallory, U.S. pathologist, 1900–1986] An inclusion body found in liver cells, especially in diseases caused by the excessive consumption of alcohol. Mallory bodies are composed of collections of intermediate filaments.

**Mallory-Weiss syndrome** (mäl'lör-ē-wīs') [G. Kenneth Mallory, U.S. pathologist, 1900–1986; Soma Weiss, U.S. internist, 1898–1942] Hemorrhage from the upper gastrointestinal tract due to a tear in the mucosa of the esophagus or gastroesophageal junction. Violent retching usually precedes the bleeding. SEE: *Nursing Diagnoses Appendix*.

**malnutrition** (mäl'nū-trī'shūn) Any dis-

ease-promoting condition resulting from either an inadequate or excessive exposure to nutrients (i.e., undernutrition or overnutrition, respectively). Common causes of malnutrition are inadequate calorie consumption; inadequate intake of essential vitamins, minerals, or other micronutrients; improper absorption and distribution of foods within the body; overeating; and intoxication by nutrient excesses. SEE: *table*; and names of specific nutritional disorders (e.g., obesity, pellegra, scurvy).

Worldwide, malnutrition is a disease that results typically from inadequate consumption of foods, esp. proteins, iron, and vitamins (e.g., vitamin A). In industrialized nations, overnutrition is more common than undernutrition. In the U.S., for example, 50% of the population is considered to be overweight, and 22% have a body mass index greater than 30 kg/m<sup>2</sup> and are frankly obese. Undernutrition in Western nations typically results from poverty, alcoholism, chronic illnesses, or extreme dieting.

**protein-energy m.** ABBR: PEM. Malnutrition due to inadequate intake of calories or protein, or both. It usually is seen in children under age 5 yr or in patients undergoing the stress of a major illness. In the critically ill patient, hypoalbuminemia results from the depletion of stored protein and/or hepatic dysfunction. It may increase a patient's vulnerability to the toxicities of drugs,

skin breakdown, infections, gastrointestinal ulcerations, and other illnesses. SYN: *protein-calorie malnutrition*. SEE: *kwashiorkor*.

**SYMPTOMS:** Symptoms of PEM include generalized muscle wasting and weakness. In the elderly, these symptoms are sometimes incorrectly attributed to advanced age. As a result, PEM is underdiagnosed in older individuals.

**malocclusion** (mäl"ō-kloo'shūn) Malposition of teeth and/or an imperfect relationship between the mandibular and maxillary teeth and/or dental arches. Malocclusion is classified as

1. dental,
2. skeletal, or
3. dento-skeletal in origin.

**classification of m.** The designation by Edward H. Angle of the types of malocclusion based on the relative positions of the first molar in the two arches when in occlusion: *Class I*—normal antero-posterior relationship but with crowding and rotated teeth. *Class II*—the lower arch is distal to the upper arch on one or both sides; the lower first molar is distal to the upper first molar. *Class III*—the lower arch is anterior to the upper arch on one or both sides; the lower first molar is anterior to the upper first molar. SYN: *Angle's classification*.

**malpighian layer** Germinative layer.

**malposition** (mäl-pō-zí'shūn) [L. *malus*, evil, + *positio*, placement] 1. Faulty or abnormal position or placement, esp. of the body or one of its parts. 2. Abnormal position of the fetal presenting part in relation to the maternal pelvis. SEE: *occiput posterior, persistent*.

**malpractice** [" + Gr. *praxis*, an action] An action taken by a health care professional that injures a patient, and fails to meet reasonable standards of professional care.

**malpresentation** (mäl"prēz-ēn-tā'shūn) [" + *praesentatio*, a presenting] Abnormal position of the fetal presenting part, making natural delivery difficult or impossible. Labor is longer, and fetal descent may be impaired. SEE: *presentation* for illus.

**cephalic m.** A head presentation in which the presenting part is the face, brow, or chin.

**malreduction** (mäl-rē-dūk'shūn) Imperfect replacement of a dislocated or fractured bone.

**malrotation** (mäl"rō-tā'shūn) Failure during embryogenesis of normal rotation of all or a portion of an organ or system, esp. the viscera.

**MALT** *mucosa-associated lymphoid tissue*.

**malt** [AS. *mealt*] Germinated grain, usually barley, used in manufacture of ale and beer. Contains carbohydrates (dextrin, maltose), a diastase, and proteins. Used as a food, esp. in wasting diseases.

**Malta fever** (mol'tā) Brucellosis.

**maltase** (mawl'tās) [AS. *mealt*, grain] An enzyme of the small intestine that digests maltose, converting it by hydrolysis to glucose. SEE: *digestion; enzyme*.

**maltose** (mawl'tōs) A disaccharide, C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>, that is present in malt, malt products, and sprouting seeds. It is formed by the hydrolysis of starch and is converted into glucose by the enzyme maltase. SYN: *malt sugar*. SEE: *carbohydrate*.

**maltosuria** (mawl'tō-sūr'ē-ă) [" + Gr. *ouron*, urine] Presence of maltose in urine.

**maltreatment** (mäl-trēt'ment) [" + "] Neglect or abuse of people or things.

**malt sugar** Maltose.

**malturnd** (mäl-tērnd') Abnormally turned, said of a tooth having turned on its central axis.

**malunion** (mäl-ün'yūn) [L. *malus*, evil, + *unio*, oneness] The joining of the fragments of a fractured bone in a faulty position, forming an imperfect alignment, shortening, deformity, or rotation.

**mamelon** (mäm'ē-lōn) [Fr., nipple] One of three rounded protuberances present on the cutting edge of an incisor tooth when it erupts. These are worn away by use.

**mamm-** (mäm) SEE: *masto-*.

**mamma** (mäm'ă) *pl. mammae* [L., breast] A glandular structure beneath the skin in the female that secretes milk. In the human female, there are normally two, situated over the antero-lateral area between the third and sixth ribs. The nipple of each breast extends from the glandular tissue through the surface of the skin. SYN: *breast*. SEE: *mammary glands*.

**mammal** (mäm'äl) An animal of the class Mammalia, marked by having hair and by having mammary glands that produce milk to nourish the newborn.

**mammalgia** (mäm-äl'jē-ă) [L. *mamma*, breast, + Gr. *algos*, pain] Pain in the breast. SEE: *mastalgia; mastodynia*.

**mammaplasty, mammaplasty** (mäm'ä-pläs'tē) [" + Gr. *plassein*, to form] Plastic reconstructive surgery of the breast.

**augmentation m.** Surgical breast enlargement, either to increase breast size or to make an artificial breast to replace one surgically removed; performed by inserting autogenous tissue with mobilization of myocutaneous flap or a prosthesis filled with gel or saline.



The long-term health risks of some implant materials are unknown.

**reduction m.** Plastic surgery of the breast to decrease and reshape the breast(s).

**mammary** (mām'ă-rē) [L. *mamma*, breast] Pert. to the breast.

**mammary glands** Compound glands of the female breast that can secrete milk. They are made up of lobes and lobules bound together by areolar tissue. The main ducts number 15 to 20 and are known as lactiferous ducts, each one discharging through a separate orifice upon the surface of the nipple. The dilations of the ducts form reservoirs for the milk during lactation. The pink, or dark-colored, skin around the nipple is called the areola.

**mamnectomy** (mā-mēk'tō-mē) SEE: *mastectomy*.

**mammillary body** (mām'ī-lēr'ē) A rounded body of gray matter found in the diencephalon. It forms a rounded eminence projecting into the anterior portion of the interpeduncular fossa, and its nucleus constitutes an important relay station for olfactory impulses.

**mammillated** (mām'mil-lā-tēd) Having protuberances like a nipple.

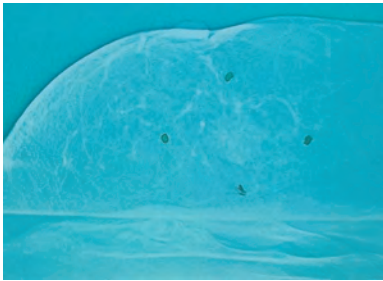
**mammoplasty** (mām-mil'ī-plās'tē) [" + Gr. *plassein*, to form] Plastic operation on a nipple. SYN: *theleplasty*.

**mammillitis** (mām'mil-ī'tis) [" + Gr. *itis*, inflammation] Inflammation of a nipple. SYN: *acromastitis*; *thelitis*.

**mammitis** (mā-mī'tis) SEE: *mastitis*.

**mammo-** (mām'ō) SEE: *masto-*.

**mammogram** (mām'ō-grām) [" + Gr. *gramma*, something written] Radiography of the breast. SEE: *illus.*; *mammography*.



MAMMOGRAM

**mammographic breast density** A radiological appearance of the mammary glands during mammography in which the epithelial and stromal elements of the breasts are more prominent than the fatty components. Breast density increases the likelihood that a mammogram will be difficult to interpret and that a patient will subsequently develop breast cancer.

**mammography** (mām-ōg'ră-fē) [" + Gr. *graphein*, to write] Radiographic imaging of the breast to screen for (and

detect) breast cancer. Mammography detects about 85% to 90% of existing breast cancers and, along with breast self-examination and regular professional check-ups, increases the rate of early breast cancer detection. Mammography detects more cancers when more than one radiologist interprets each image, a technique called "double reading." The American Cancer Society and expert panels convened by the federal government publish guidelines for the frequency of mammographic evaluation in the U.S. Although these guidelines change occasionally, evidence shows that mammographic screening can reduce the risk of dying from breast cancer in women aged 40 to 69 years. SEE: *illus.*

Palpable abnormalities of the breast that appear mammographically benign should nonetheless be further evaluated (e.g., with ultrasonography, fine-needle or core biopsy, or close follow-up examinations by skilled professionals).

**Mammomonogamus** (mām'ō-mō nōg-ă-mūs) [L. *mamma*, breast, *teat* + Gr. *monogamos*, marrying only once] The preferred name for a genus of nematodes that parasitize the respiratory tracts of humans. It was formerly known as *Syngamus*, which is now limited to describe those related nematodes that parasitize the respiratory tracts of birds.

**M. laryngeus** A species normally parasitic in ruminants but sometimes infesting humans.

**mammoplasty** (mām'ō-plās-tē) SEE: *mammoplasty*.

**mammose** (mām'ōs) [L. *mammosus*] 1. Having unusually large breasts. 2. Shaped like a breast.

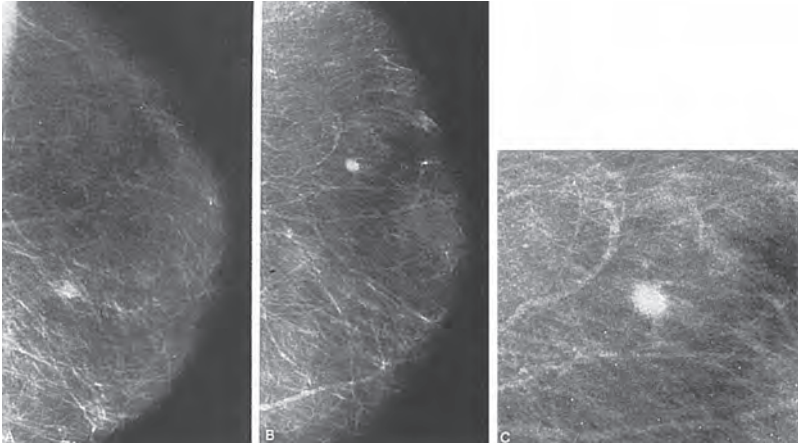
**Mammotome** (mām'ō-tōm) A minimally invasive vacuum core biopsy instrument used to collect breast tissue for pathological analysis. It consists of a probe with an opening in the tip that connects to a vacuum source, a thumb-wheel that controls the direction of the opening, a hollow, high-speed rotating cutter, and a tissue collection chamber. SEE: *percutaneous breast biopsy*.

**mammotomy** (mā-mōt'-ō-mē) Mastotomy.

**mammotrophic** (mām'ō-trōf'ik) [" + Gr. *trophe*, nourishment] To have the effect of stimulating size or function of the breast.

**man** [AS. *mann*] 1. Member of the human species, *Homo sapiens*. 2. Male member of the species as distinguished from female. 3. The human race, collectively; mankind.

**managed care** A variety of methods of financing and organizing the delivery of health care in which costs are contained by controlling the provision of benefits and services. Physicians, hospitals, and



MAMMOGRAPHY SHOWING BREAST CANCER

other health care agencies contract with the system to accept a predetermined monthly payment for providing services to patients enrolled in a managed care plan. Enrollee access to care may be limited to the physicians and other health care providers who are affiliated with the plan. In general, managed care attempts to control costs by overseeing and altering the behavior of their providers. Clinical decision making is influenced by a variety of administrative incentives and constraints. Incentives affect the health care provider's financial return for professional services. Constraints include specific rules, regulations, practice guidelines, diagnostic and treatment protocols, or algorithms. Care is overseen by quality assurance procedures and utilization reviews. SEE: *cost awareness*; *cost-effectiveness*; *gatekeeper*; *Health Maintenance Organization*; *managed competition*; *resource-based relative value scale*.

**managed competition** In health care practice, the requirement that health care organizations compete with each other in terms of price and quality of delivered services. SEE: *managed care*; *resource-based relative value scale*.

**manchette** (măn-chět') [Fr., a cuff] A circular band consisting of microtubules around the caudal pole of developing sperm.

**manchineel** (măn'kī-nēl') [Sp. *manzanilla*, small apple] A tree, *Hippomane mancinella*, native to tropical America that contains a milky, poisonous sap. Contact with the sap causes blistering of the skin. The fruit is also poisonous.

**mancinism** (măn'sīn-izm) [L. *mancus*, crippled] State of being left-handed.

**mandala** (măn'dă-lă) [Sanskrit *mandala*, circle] An ancient Hindu and Buddhist representation of the uni-

verse, used as a focal point for meditation.

**mandate** (măn'dăt) **1.** A legal, ethical, or political requirement to execute actions or orders. **2.** An order from a higher authority to an officer of a lower court. **mandatory**, *adj.*

**mandatory periodic payment** A means of apportioning damage awards to successful plaintiffs in a lawsuit, in which the money owed the plaintiff is paid as an annuity rather than as a lump sum. This form of payment is occasionally used as a means of restitution to plaintiffs in malpractice suits.

**mandatory reporting** (măn'dă-tör'ē) [LL. *mandatorius*, commissioned, obligatory] Legally required notification to a state, federal, or police agency of a criminal act, e.g., domestic violence, or of a disease that poses a menace to public health.

**mandible** (măn'dī-bl) [L. *mandibula*, lower jawbone] The horseshoe-shaped bone forming the lower jaw. SYN: *mandibula*. SEE: *illus.* **mandibular** (măndīb'ū-lăr), *adj.*

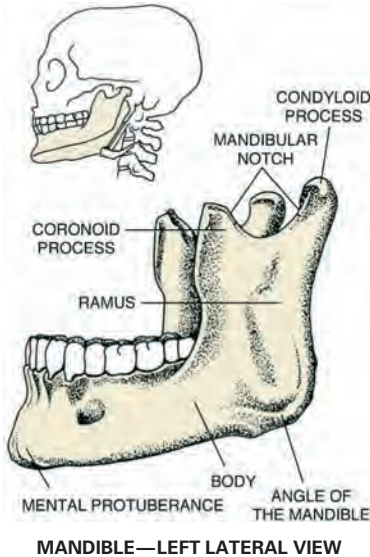
**mandibular advancement splint** A device to maintain an open airway in patients who suffer partial upper airway collapse during sleep. The splint is placed in the mouth at bedtime.

**mandrel, mandril** (măn'drēl) Handle that holds a dental tool so that it may be easily positioned by the operator. A spindle or shaft designed to fit a dental handpiece for the purpose of using a variety of tools for grinding, polishing, or buffing.

**mandrin** (măn'drīn) [Fr.] A guide or stylet for a flexible catheter in order to give it shape and firmness, especially for use in the urinary meatus.

**maneuver** [Fr. *manoeuvre*, from L. *manu operari*, to work by hand] **1.** Any dex-





**MANDIBLE—LEFT LATERAL VIEW**

terous or skillful procedure. **2.** In obstetrics, manipulation of the fetus to aid in delivery. SEE: *labor*. Particular maneuvers are listed under the first word. SEE: e.g., *canalith repositioning maneuver*; *Heimlich maneuver*; *vagal maneuver*.

**manganese** (mān'gā-nēz) [L. *manganesium*] SYMB: Mn. A metallic element found in many foods, some plants, and in the tissues of the higher animals. It has an atomic weight of 54.938, an atomic number of 25, and a specific gravity of 7.21. It is an essential element needed for normal bone metabolism and many enzyme reactions. Deficiency in humans has not been demonstrated.

SOURCES: Bananas, bran, beans, beets, blueberries, chard, chocolate, peas, leafy vegetables, and whole grains.

**mange** (mānj) A cutaneous communicable disease of domestic animals, including dogs and cats. A number of mites, such as *Chorioptes*, *Demodex*, *Psoroptes*, and *Sarcoptes* are causative agents. In humans, this condition is known as scabies.

**mangled** (māng'gūld) Torn, shredded, or blasted apart; said for example of the limbs of severely traumatized patients.

**mangosteen** A tropical fruit that grows on an evergreen tree *Garcinia mangostana* Linn., found in Indonesia and Indochina. Its hull has been used as a traditional medicine in Thailand. Extracts from the hull have antioxidant, antihistaminic, and anti-inflammatory effects in laboratory experiments.

**mania** (mā'nē-ā) [Gr., madness] **1.** A

mental disorder characterized by excessive excitement, elation, delusions of grandeur, distractibility, impulsivity, irritability, restlessness, speech and/or poor judgment. SEE: *bipolar disorder*; *bipolar I mood disorder*; *bipolar II mood disorder*.

**histrionic m.** Dramatic gestures, expressions, and speech in certain psychiatric states.

**religious m.** Mania resulting from excessive religious fervor.

**transitory m.** Attacks of severe frenzy, of short duration.

**-mania** Suffix meaning *frenzy* or *madness*.

**manic** (mān'ik) Mood state characterized by excessive energy, poor impulse control, psychosis, agitation, flight of ideas, frenzied movement, and decreased sleep.

**manic-depressive psychosis** Bipolar disorder.

**manifest** To reveal in an obvious manner.

**manifestation** The demonstration of the presence of a sign, symptom, or alteration, esp. one that is associated with a disease process.

**manikin** (mān'ī-kīn) [D. *manneken*, little man] A model of the human body or its parts, used esp. in teaching anatomy and emergency medical and nursing procedures.

**man-in-a-barrel syndrome** A stroke involving watershed regions of the brain, in which movements of the face, legs, and feet are preserved, but those of the arms and hips are lost.

**manipulation** (mā-nīp'yā-lā'shūn) [L. *manipulare*, to handle] **1.** Conscious or unconscious process by which one person attempts to influence another person in order to obtain his or her own needs or desires. **2.** A joint mobilization technique, sometimes involving a rapid thrust or the stretching of a joint, with or without anesthesia. SEE: *joint manipulation*. **3.** A method of realigning a fractured long bone with manual pressure, traction, or angulation.

**joint m.** Passive therapeutic techniques used to stretch restricted joints or reposition a subluxation. The techniques are sometimes applied with rapid thrust movements and may be applied with the patient under anesthesia to ensure maximum relaxation. SEE: *mobilization*, *joint*.

**spinal m.** In chiropractic, a thrusting of the spine to reduce subluxation. It is a standard, effective treatment of uncomplicated acute low back pain.

**manna** (mān'ā) [L.] **1.** The sweet juice obtained from the flowering ash, *Fraxinus ornus*. **2.** General term applied to sweetish juices obtained from a variety of plants.

**mannans** (mān'ānz) Any of several polysaccharides of mannose.

**mannequin** (män'ī-kīn) [Fr. fr. D. *manneken*, little man] SEE: *manikin*.

**mannerism** A peculiar modification or exaggeration of style or habit of dress, speech, or action.

**mannitol** (män'ī-tōl) An osmotic diuretic used primarily to treat oliguric renal failure and to reduce intracranial pressures (e.g., in patients with threatened herniation of the brain through the foramen magnum).

**mannitol sugar a.** ABBR: MSA. A selective laboratory medium used to grow and isolate specimens of *Staphylococcus aureus*. Those colonies that ferment mannitol are selected for further study with other growth media.

**Mannkopf's sign** (män'kōfs) [Emil W. Mannkopf, Ger. physician, 1836–1918] Pulse acceleration exhibited on pressing a painful point. The sign is not present in simulated pain. It is rarely sought in contemporary physical examination.

**mannose** (män'ōs) A simple sugar, molecular weight 180.16 kD, present in certain plants, such as legumes. It is an aldohexose.

**mannoside** (män'ō-sīd) A glycoside of mannose.

**mannosidosis** (män'ōs-ī-dō'sīs) One of several congenital lysosomal storage diseases in which the deficiency of  $\alpha$ -mannosidase is associated with mental retardation, kyphosis, and accumulation of mannose in tissues. The disease, which is lethal, can be treated with bone marrow transplantation.

**manometer** (män-ōm'ēt-ēr) [Gr. *manos*, thin, + *metron*, measure] Device for determining liquid or gaseous pressure. The measurement is expressed in millimeters of either mercury or water.

**saline m.** Manometer that uses a special hollow tube shaped like the letter U and open at both ends. The tube is partially filled with saline. Pressure is determined by connecting one end of the U tube to the system in which pressure is to be measured. The pressure, in millimeters of saline, is the measured distance between the fluid level in one side of the U tube and that in the other side.

**strain gauge m.** A device attached to an intra-arterial catheter, which is used to measure blood pressures within arteries.

**manometry** (män-ōm'ē-trē) The measurement of the pressures exerted by muscles in the gastrointestinal tract, e.g., in the anus, rectum, or esophagus.

**esophageal m.** A test that measures the strength of the contractions of the muscles of the esophagus and the resistance of the lower esophageal sphincter to reflux. The test is performed invasively, by inserting a tube directly into the esophagus.

**manslaughter** (män'slāw-tēr) A form of

homicide in which the killing of another person is not the result of malice. On occasion, health care professionals who have withheld certain forms of treatment have been charged and convicted of manslaughter. Patients also may be charged with manslaughter (e.g., if failure to follow medical advice not to drive an automobile results in a fatal crash).

**Mansonella** (män'sō-nēl'ā) A genus of filarial nematodes.

**M. ozzardi** A species found in humans in Central and South America and the Caribbean. It is transmitted by blackflies and midges. The parasites are unshathed and most patients are asymptomatic.

**M. perstans** A species of tiny parasitic worms transmitted to humans via insect bite, usually found in tropical regions.

SYMPTOMS: Angioedema, urticaria, high blood eosinophil levels, and other findings.

**mansonelliasis** (män'sō-nēl-ī'ā-sīs) [*Mansonella* + Gr. *-iasis*, condition] Infection in humans with *Mansonella ozzardi*.

**Mansonia** (män-sō'nē-ā) A genus of mosquitoes found in tropical countries that transmit microfilariae to humans.

**mantle** (män'tīl) [AS. *mentel*, a garment] A covering structure or layer.

**dentin m.** The narrow zone of dentin that is first formed in the crown and root of a tooth.

**Mantoux test** (män-tū') [Charles Mantoux, Fr. physician, 1877–1947] An intradermal (intracutaneous) injection of 0.1 ml of intermediate strength purified protein derivative (PPD). The needle is removed after a brief delay in order to minimize leakage of the PPD at the puncture site. Within 48 to 72 hr, hardening (induration) of the injected area, whose diameter is greater than 10 mm Hg, provides unequivocal evidence of current or previous infection with tuberculosis. In persons infected with the human immunodeficiency virus (HIV), an indurated area whose diameter is 5 mm or more should be considered evidence of a positive test result. HIV-infected patients who do not react to PPD or to control antigens (i.e., persons who are anergic) should be considered positive as well, esp. if they come from demographic groups known to have high rates of infection with tuberculosis (e.g., homeless people, Asian-born individuals, among many others). SEE: *tuberculosis; tuberculin skin test*.

**mantra** (män-trā) A word, phrase, or sound repeated to oneself to focus the mind or reduce stray thoughts during meditation.

**manual** (män'ū-āl) [L. *manus*, hand] **1.** Pert. to the hands. **2.** Performed by or with the hands.

**manual muscle test** A technique for estimating the relative strength of specific muscles. Rating categories and values include normal (5), good (4), fair (3), poor (2), trace (1), and absent (0). A grade of fair is based on the ability of the muscle to move the part through its full range of motion against gravity; a grade of poor is based on the ability to move through the range with gravity eliminated.

**manual therapy** A collection of techniques in which hand movements are skillfully applied to mobilize joints and soft tissues. These techniques may be used to alleviate pain, improve extension and motion, induce relaxation, reduce edema, and improve pulmonary and musculoskeletal function. SEE: *manipulation; joint mobilization; soft-tissue mobilization*.

**manodynamometer** (măn'ū-dī'nă-môm'é-tēr) [L. *manus*, hand, + Gr. *dynamis*, force, + *metron*, measure] A device for measuring the force of a thrust.

**manus** (mă'nūs) *pl.* **manus** [L.] The hand.

**MAO** *monoamine oxidase*.

**MAP** *mean airway pressure*.

**map** A graphic presentation in two dimensions of the location of all or part of an area.

*care m.* Clinical pathway.

*genetic m.* SEE: *gene mapping*.

*linkage m.* Gene mapping.

**maple bark disease** A hypersensitivity pneumonitis caused by inhalation of spores from the mold *Cryptostroma corticale*, which is present under the bark of logs cut from maple trees.

**maple syrup urine disease** An autosomal recessive metabolic disease involving defective metabolism of branched chain amino acids. The disease is so named because of the characteristic odor of the urine and sweat. The amino acids involved are leucine, isoleucine, valine, and alloisoleucine. Clinically there is rapid deterioration of the nervous system in the first few months of life and then death at an early age.

**TREATMENT:** Treatment includes controlling the dietary intake of the involved amino acids, exchange transfusion, peritoneal dialysis, and occasionally, liver transplantation. SYN: *leucinosis*.

**mapping** 1. The location of genes on a chromosome. 2. The locating of organs or tissues in health or in disease.

*lymphatic m.* In the staging of cancers, injection of a tracer material near a tumor to determine the regional lymph nodes into which metastatic disease may first spread.

**MAR** *medication administration record*.

**marasmus** (măr-ăz'mūs) Emaciation, generalized wasting, and absence of

subcutaneous fat caused by malnutrition. The condition results from caloric deficiency secondary to acute diseases, esp. diarrheal diseases of infancy, deficiency in nutritional composition, inadequate food intake, malabsorption, child abuse, failure-to-thrive syndrome, deficiency of vitamin D, or scurvy. SYN: *pedatrophny; wasting*. SEE: *kwashiorkor; malnutrition, protein-energy*. **marantic, marasmic** (mă-răn'tik, mă-răz'mik), *adj.*

**SYMPTOMS:** Signs include loss of muscle mass and other soft tissues and a wizened, sunken face, resembling that of an elderly person, from loss of temporal and buccal fat pads. Failure to gain weight is followed by a loss of weight. Brain and skeletal growth continues, resulting in a long body and a head too large in proportion to weight. Subcutaneous fat is minimal, the eyes are sunken, and tissue turgor is lost. The skin appears loose and sags. The infant is not active, muscles are flabby and relaxed, and the cry is weak and shrill. The absence of pitting edema of the hands and feet and of a protuberant abdomen differentiate this condition from kwashiorkor, but in marasmic kwashiorkor, features of both conditions are combined.

**TREATMENT:** Initial feedings should be small and low in calories because digestive capacity is poor and a "refeeding" syndrome can occur, marked by hypophosphatemia, congestive heart failure, respiratory distress, convulsions, coma, and death. Diluted formula or breast milk is best. The amount of calories and protein, carbohydrates, and fat should be increased gradually. The goal for protein intake is 5 g/kg of body weight per day. If diarrhea due to disaccharidase deficiency is present, a low-lactose diet is beneficial. Parenteral fluid therapy is indicated if shock or fluid and electrolyte imbalance exists.

**PROGNOSIS:** Death occurs in 40% of affected children.

**marble bone disease** Osteopetrosis.

**Marburg virus disease** (măr'bërg) [Marburg, Germany] A frequently fatal disease caused by a virus classed as a member of the family Filoviridae. Clinically this disease is identical to that caused by the Ebola virus. SEE: *Ebola virus hemorrhagic fever*.

**marc** (mărk) [Fr.] The residue remaining after a drug has been percolated. SEE: *percolation*.

**Marchiafava-Bignami syndrome** (măr'kē-ă-fă'vā-bē-nyă'mē) [E. Marchiafava, It. pathologist, 1847-1935; A. Bignami, It. physician, 1862-1929] Damage to the white matter of the brain, with dementia, resulting from chronic alcoholism, esp. excessive wine consumption.

**Marchiafava-Micheli syndrome** (măr'kē-ä-fä'vä-mē-kä'lē) [Ettore Marchiafava, It. pathologist, 1847–1935; F. Micheli, It. clinician, 1872–1937] A rare hemolytic anemia associated with paroxysmal nocturnal hemoglobinuria.

**Marcus Gunn pupil** (măr'kūs-gün') [Robert Marcus Gunn, Brit. ophthalmologist, 1850–1909] Diminished pupillary reaction to direct light; secondary to optic nerve disease. SEE: *swinging flashlight test*.

**Marcus Gunn syndrome** [Robert Marcus Gunn] A congenital condition in which a ptotic eyelid retracts briefly when the mouth is opened or the jaw moved to one side. The person appears to wink each time the jaw is opened. SEE: *jaw winking*.

**Marey's law** (mä-rāz') [Etienne-Jules Marey, Fr. physiologist, 1830–1904] A law stating that the heart rate varies inversely with arterial blood pressure (i.e., a rise or fall in arterial blood pressure brings about, respectively, a slowing or speeding up of heart rate).

**Marfan's syndrome, Marfan syndrome** (măr'fänz) [Bernard-Jean Antonin Marfan, Fr. physician, 1858–1942] A hereditary degenerative disorder of connective tissue, bones, muscles, and ligaments. It affects about one person in 5000 to 7500.

**SYMPTOMS:** Distinguishing features include tall, lean body type with long extremities including fingers and toes, pectus carinatum or excavatum, dilation of the ascending aorta or aortic dissection, abnormal joint flexibility, flat feet, scoliosis, lumbosacral dural ectasia, a high arched palate, and dislocation of the optic lens and other ocular problems.

**DIAGNOSIS:** Because some of these features may be present in many individuals, the diagnosis is established after careful review of major and minor criteria and consultation with specialists in orthopedics, ophthalmology, cardiology, and medical genetics.

**ETIOLOGY:** Marfan's syndrome is an autosomal dominant disease, which means that half of all children of an affected parent will be born with the syndrome. It is caused by a mutation on chromosome 15, which alters the manufacture of fibrillin molecules in the extracellular matrix, resulting in elastin and collagen abnormalities.

**PATIENT CARE:** Treatment for Marfan's syndrome is mainly symptomatic rather than curative. Ocular deformities, aortic aneurysms, or prolapsed heart valves can be repaired, but the connective tissue defect responsible for them cannot. Beta blocking drugs (e.g., atenolol or metoprolol) may decrease blood pressure and heart rate and protect the aorta in patients with early dil-

atation. Patients with dural ectasia, who often suffer with low back pain, may benefit from analgesic medications. Individuals diagnosed with Marfan's syndrome should avoid sports like football, in which interpersonal collisions are common. Patients and their families benefit from referral to the National Marfan Foundation for support and information ([www.marfan.org](http://www.marfan.org)).

**margarine** Butter substitute made from refined vegetable oils or a combination of vegetable oils and fats. Coloring material and vitamins A and D are added. It contains 9 kcal/g.

**margin** [L. *marginalis*, border] **1.** A border or boundary such as the edge of a structure, or of a pathological specimen removed from the body surgically. SEE: *margo*. **2.** In dentistry, the apical extent or boundary of enamel adjacent to the cementum of the tooth root; the junction of a restoration with the cavosurface angle of a prepared cavity in enamel.

**costal margin** The lower (abdominal) border of the front of the rib cage formed by the costal cartilages of ribs 7 to 10.

**gingival m.** Gingival line.

**marginal** (măr'jin-äl) Concerning a margin or border. SYN: *limbic*.

**margination** (măr'ji-nä'shün) Adhesion of leukocytes to the walls of inflammation vessels in the first stages of inflammation.

**marginoplasty** (mar-jin'ō-pläs'tē) [L. *marginalis*, border, + Gr. *plassein*, to mold] Plastic surgery of a border, as of an eyelid.

**Marie's ataxia** (mä-rēz') [Pierre Marie, Fr. neurologist, 1853–1940] Hereditary cerebellar ataxia caused by bilateral cortical atrophy of the cerebellum.

**Marie's disease** Acromegaly.

**Marie's sign** Hand tremor seen in exophthalmic goiter.

**marijuana, marihuana** (măr'i-wä'nä) The dried flowering tops of *Cannabis sativa*, the hemp plant. SYN: *Cannabis sativa*. SEE: *hashish*.

Its active ingredient, delta-9-tetrahydrocannabinol (THC), may produce euphoria, alterations in mood and judgment, and changes in sensory perception, cognition, and coordination. Driving and machine-operating skills may be impaired. Users of marijuana have impaired short-term memory; memory deficits are transient, however, and return to normal within about a week of abstinence. Depending on the dose of the drug and the underlying psychological conditions of the user, marijuana may cause transient episodes of confusion, anxiety, or delirium. Its use may exacerbate pre-existing mental illness, esp. schizophrenia. Long-term, relatively heavy use may be associated with behavioral disorders and a kind of ennui called the amotivational syndrome, but it is not known whether use

of the drug is a cause or a result of this condition. Transient symptoms occur on withdrawal, indicating that the drug can lead to physical dependence. There has been considerable interest in the effects of marijuana on pregnancy and fetal growth but because substance abusers often abuse more than a single substance, it is difficult to evaluate the effects of individual substances on the outcome of pregnancy or fetal development.

There is no definitive evidence that prolonged heavy smoking of marijuana leads to impaired pulmonary function. The possibility that chronic marijuana use is associated with an increased risk of developing head and neck cancer exists, but it has not been proven.

Delta-9-tetrahydrocannabinol, also known as dronabinol, is approved for use in treating nausea and vomiting associated with cancer chemotherapy in patients who have failed to respond adequately to conventional antiemetic treatment, and treatment of anorexia associated with weight loss in patients with acquired immunodeficiency syndrome. Marijuana has also been approved for other medical uses in some states, although such use violates federal Drug Enforcement Administration standards.



Dronabinol is a controlled substance. Prescriptions are limited to the amount necessary for a single cycle of chemotherapy.

**marital counseling** Services provided to married couples (and their families) about how to manage addictions, differences of opinion, finances, genetic illnesses, schedules, sexuality, and other topics.

**Marjolin ulcer** (măr'jă-lin, măr-zhō-lën') [John Nicholas Marjolin, Fr. physician, 1780–1850] A carcinoma that grows at the site of a chronic wound (e.g., a non-healing scar or burn). The tumor is most often a squamous cell carcinoma and often metastasizes.

**mark** [AS. *mearc*] Any nevus, bruise, cut, or spot on the surface of a body.

**birth-m.** SEE: *birthmark*; *nevus*.

**port-wine m.** Nevus flammeus.

**marker** 1. A device or substance used to indicate or mark something. 2. An identifying characteristic or trait that allows apparently similar materials or disease conditions to be differentiated.

**fecal m.** A substance, such as carmine, ingested to mark the beginning and end of fecal collection periods.

**genetic m.** SEE: *genetic marker*.

**process m.** A measurable component of the health care given to patients with a specific disease or condition, used as

an indicator of the overall quality of care given to patients with other conditions.

**surrogate m.** An indirect indicator of a disease state or of its response to therapy. Such markers often include laboratory tests thought to represent clinical progress accurately. For example, in diabetes mellitus, the glycosylated hemoglobin level is used as a marker of glycemic control; in AIDS the level of HIV RNA is used as a marker of disease progression.

**marker-only relapse** An asymptomatic relapse of an illness, that is, one that is only evident on laboratory testing.

**Marlex mesh** (măr'lēks) A monofilament, biologically inert mesh used in surgical procedures to help cover or strengthen areas, as in hernia repair.

**Maroteaux-Lamy syndrome** Mucopolysaccharidosis VI.

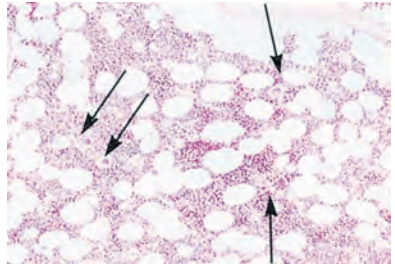
**Marrara syndrome** (măr-ă'ră) [The name of a Sudanese meal] An allergic cause of nasopharyngitis, occurring in those who have eaten incompletely cooked animal organs, e.g., goat lung or liver, infested with nymphs of the parasite *Linguatula serrata*.

**marrow** (măr'rō) [AS. *meahrh*] Bone marrow.

**gelatinous m.** Yellow marrow of old or emaciated persons, almost devoid of fat and having a gelatinous consistency.

**red m.** Marrow found in spongy bone that produces all the types of blood cells.

SEE: *illus.*



**NORMAL RED BONE MARROW**

Arrows indicate megakaryocytes (Orig. mag.  $\times 200$ )

**spinal m.** An obsolete term for the spinal cord.

**yellow m.** Marrow found in the medullary canal of long bones. Consists principally of fat cells and connective tissue. It does not participate in hematopoiesis.

**marrow aspiration** Bone marrow aspiration and biopsy.

**Marshall-Marchetti-Krantz procedure** (măr'sähl-măr-kēt'ë-krants) A surgical procedure used to treat urinary stress incontinence in women. The incontinence is caused by a weakness in the support of the bladder neck and proxi-

mal urethra. Sutures are placed periurethraly in the vaginal wall and anchored to the perichondrium of the pubic symphysis, offering a better cystourethral angle and firm support.

**PATIENT CARE:** Vital signs are checked and the drain managed. Intake and output are monitored, and fluids encouraged.

**marsupialization** (mār-sū'pē-āl-ī-zā'shūn) [L. *marsupium*, pouch] The process of raising the borders of an evacuated tumor, cyst, or abscess to the edges of the surgical wound and stitching them there to form a pouch. The interior of the sac suppurates and gradually closes by granulation.

**marsupium** (mār-sū'pē-ūm) [L., pouch] 1. Scrotum. 2. A sac or pouch that serves to hold the young of a marsupial.

**Martha Mitchell effect** [Martha Mitchell, 1918–1976. Wife of U.S. Attorney General John Mitchell, she complained that illegal activities were going on in the Nixon White House during Watergate but was ignored because she was thought to suffer from psychiatric illness.] The mistaken diagnosis by a medical professional that a patient has a delusional disorder.

**Martin's bandage** A roller bandage of rubber used for exerting pressure on an extremity, as for varicose veins and for exsanguination, as with an Esmarch bandage.

**MAS, mAs** *milliamperere second.*

**masculation** (mās-kū-lā'shūn) [L. *masculus*, a male] Development of male secondary sexual characteristics.

**masculine** (mās'kū-līn) 1. Pert. to the male sex. 2. Having male characteristics. SYN: *virile*.

**masculinization** (mās'cū-līn'ī-zā-shūn) 1. The normal development of secondary male sex characteristics that occur at puberty. 2. The abnormal development of masculine characteristics in the female. This may be caused by certain testosterone-producing tumors, medication that contains testosterone, or anabolic steroids. SEE: *virilization*.

**maser** (mā'zēr) Acronym for microwave amplification by stimulation emission of radiation. It is a device that produces a small, nondiverging radiation beam. SEE: *laser*.

**masked** Concealed, esp. as in masked infection. For example, women exposed to rubella during the first trimester of pregnancy may be given immune globulin. This may prevent clinical symptoms of rubella in the mother, yet the fetus may be adversely affected and born with congenital defects.

**Maslach Burnout Inventory** (māz'lāk) ABBR: MBI. A series of three surveys of workers' interest in their fields. It consists of:

1. a general survey,

2. an educator's survey,
3. a human services survey.

Each assesses psychological factors such as emotional exhaustion, dehumanization, and sense of personal accomplishment.

**Maslow, Abraham H.** (māz'lō) [U.S. psychologist, 1908–1970] Articulator of a theory of human motivation based on a synthesis of holistic and dynamic principles. A contemporary of Carl Rogers, Maslow is considered one of the major theorists of humanistic psychology.

**M.'s theory of human motivation** A theory stating that human existence is based on needs that arise in hierarchical order: physiological needs such as hunger; safety needs; love, affection, and belonging needs; self-respect and self-esteem needs; and self-actualization. Although the term *self-actualization* was coined by Kurt Goldstein in 1939, Maslow believed that the ultimate destiny of mankind was self-actualization or a tendency to become everything that one is capable of becoming. Humans' realization of themselves occurs not only by thinking but also by the realization of all instinctive and emotional capacities as they move toward optimal physical, emotional, and spiritual health, which he called transcendence.

**masochism** (mās'ō-kīzm) [Leopold von Sacher-Masoch, Austrian novelist, 1835–1895] A general orientation to life based on the belief that suffering relieves guilt and leads to a reward. Opposite of sadism. SEE: *algolagnia*; *flagellation*.

**sexual m.** Sexual excitement produced in an individual by being humiliated or hurt by another.

**masochist** (mās'ō-kīst) A person who derives pleasure from masochism.

**mass** [L. *massa*] 1. A quantity of material, such as cells, that unite or adhere to each other. 2. Soft solid preparation for internal use and of such consistency that it may be molded into pills. 3. A fundamental scalar property of an object that describes the amount of acceleration an object will have when a given force is applied to it. The metric unit of mass is the kilogram. One kilogram equals 2.205 pounds. SEE: *weight*.

4. Large, extensive, or encompassing an entire organ or population group (e.g., a mass vaccination).

**cell m.** SEE: under *cell mass*.

**fat m.** The total body fat. It can be measured with dual energy absorptiometry or bioelectrical impedance techniques.

**fat-free m.** The lean body mass plus the skeletal mass.

**inner cell m.** In embryology, the group of cells within the blastocyst from which the embryo, yolk sac, and amnion develop. SEE: *blastocyst*.

**lateral m. of the atlas** The parts of the first cervical vertebra that articulate with the occipital bone superiorly and the axis inferiorly.

**molecular m.** Molecular weight.

**massage** [Gr. *massein*, to knead] 1. Manipulation, methodical pressure, friction, and kneading of the body.



Vigorous massage should be avoided by patients taking anticoagulant drugs or patients with low platelet counts—in these patients, massage may cause bleeding or bruising. Massage should also be avoided over known tumors, blood clots, or prosthetic body parts.

2. The therapeutic application of touch by a licensed massage practitioner. Massage may aid in the treatment of anxiety, arthritis, attention deficit/hyperactivity disorder, depression, fibromyalgia, musculoskeletal pain, premenstrual syndrome, sports injuries, and stress. One variation, Swedish massage, uses effleurage, pétrissage, friction, tapotement, and vibration.

**auditory m.** Massage of the eardrum.

**cardiac m.** Manual compression of the heart to restore heartbeat after the heart has stopped. This is accomplished by applying pressure over the sternum between the nipples (closed chest massage) or through an incision in the chest wall (open chest massage), forcing blood out of the heart and, when pressure is removed, allowing the heart to fill as if it were beating. SEE: *cardiopulmonary resuscitation* for illus.

**carotid sinus m.** ABBR: CSM. Applying pressure to and rubbing the carotid artery in an attempt to slow a supraventricular tachycardia (SVT). This is one of the maneuvers sometimes used prior to using drug therapy for SVT.



CSM should not be performed on patients with known atherosclerosis of the carotid arteries, on patients who are elderly or of advanced middle age, or on patients with carotid bruits. Stroke may result from the procedure, esp. if small emboli break off from the carotid artery during the massage.

**PATIENT CARE:** A patient with narrow complex tachycardia (QRS duration of less than 0.12 sec) is placed in a supine position and given supplementary oxygen, an intravenous catheter is inserted, and an automated blood pressure cuff applied. Electrodes are placed on the chest to monitor heart rate and rhythm, and an oximeter is positioned on a finger or ear lobe. The carotid arteries are examined for bruits. If any are present, the procedure should not be

performed. The carotid sinus is located approximately 2 cm above the thyroid cartilage on the nondominant artery (usually the right carotid artery), and firm pressure is applied to the artery in a back and forth motion for about 5 seconds. The heart rate and rhythm are carefully observed during the procedure.

**electrovibratory m.** Massage by means of an electric vibrator.

**fundal m.** Manual stimulation of a boggy postpartum uterus to generate effective contractions, express clots, and limit postpartum hemorrhage. To relax the patient's abdominal muscles, the birth attendant places the patient in the lithotomy position. Cupping the dominant hand around the fundus and placing the other hand just above the pubic symphysis to support the lower uterine segment, the attendant gently massages the uterine fundus. When the fundus is firm, gentle downward pressure expresses any clots that have accumulated in the uterine cavity. SEE: *postpartum hemorrhage*; *uterine inversion*.



Exerting downward pressure on an uncontracted fundus may cause uterine inversion and massive hemorrhage.

**general m.** Centripetal stroking in connection with some muscular kneading from the toes upward. It is used in connection with baths lasting 30 to 40 min. As soon as a part is massaged, it should be given a few passive rotary movements and afterwards covered up.

**introductory m.** Massage consisting of centripetal strokings around an affected part when it is impossible to apply treatment directly to the part.

**local m.** Massage confined to particular body parts.

**ocular m.** Manipulation of the eye to alter intraocular pressure or ocular blood flow.

**Swedish m.** Massage combined with active and passive exercise. These techniques were developed in Sweden by Per Henrik Ling (1776–1839).

**vapor m.** Treatment of a cavity by a medicated and nebulized vapor under interrupted pressure.

**vibratory m.** Massage by rapidly repeated tapping of the affected surface by means of a vibrating hammer or sound.

**mass effect** Evidence on a radiological study of the brain that midline structures of the central nervous system have shifted. This finding suggests that pressures within the cranium are abnormally high, that vital anatomical structures may be compressed, and that herniation of the brain and subsequent death may be imminent.

**masseter** (mäs-sē'tēr) [Gr. *maseter*, chewer] The muscle that closes the mouth and is the principal muscle in mastication.

**masseur** (mä-soor') [Fr.] 1. A man who gives massages. 2. An instrument for massaging.

**masseuse** (mä-sooz') [Fr.] A woman who gives massages.

**mass fraction** The ratio of the mass of a component to the mass of the system of which the component is a part.

**massive** (mäs'siv) [Fr. *massif*] Bulky; consisting of a large mass; huge.

**massive collapse of the lung** Deflation or compression of lung tissues caused either by obstruction of a main bronchus by a mucus plug, tumor, or foreign body; major trauma; or a tension pneumothorax. SEE: *lung*; *pneumothorax*.

**SYMPTOMS:** This condition is marked by dyspnea, cyanosis, shock, and chest pain.

**TREATMENT:** If caused by mucus or foreign body, therapy consists of bronchoscopy, pulmonary toilet, antibiotics, and oxygen.

**massotherapist** (mä's"ä-thēr'ä-pist) A person trained in the art and science of massage.

**massotherapy** (mä's"ä-thēr'ä-pē) Massage therapy; the therapeutic massage of skin, underlying soft tissues, ligaments, muscles, and tendons.

**mass psychogenic illness** Mass sociogenic illness.

**mass sociogenic illness** ABBR: MSI. An unexplained, self-limiting illness characterized by nonspecific symptoms in persons in a social setting such as a school, workplace, church, or military group. The onset is usually rapid and may occur after an unusual or peculiar odor is detected. Symptoms may include dizziness, weakness, headache, abdominal pain, rash, itching, blurred vision, nausea and vomiting, and fainting. There are no laboratory studies to confirm an etiologic agent. Resolution of the mass illness may occur when those affected are reassured that it is not due to a toxic substance or disease. SYN: *mass psychogenic illness*.

**MAST** *medical antishock trousers*; *military antishock trousers*. SEE: *anti-G suit*.

**mast-** (mäst) SEE: *masto-*.

**mastadenitis** (mäst-äd-ē-ni'tis) [Gr. *mastos*, breast, + *aden*, gland, + *itis*, inflammation] A mammary gland inflammation.

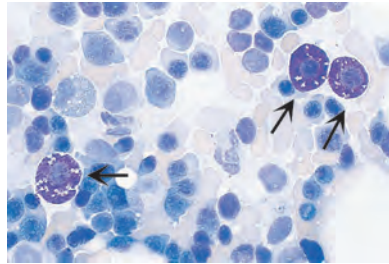
**mastadenoma** (mäst"ä-dē-nō'mä) [" + " + *oma*, tumor] A tumor of the breast.

**mastalgia** (mäst-äl'jē-ä) [" + *algos*, pain] Pain in the breast. SYN: *mammalgia*; *mastodynia*.

**mastatrophia, mastatrophny** (mäst-ät-rō'fē-ä, mäst-ät'rō-fē) [" + *atrophia*,

want of nourishment] Atrophy of the mammary gland.

**mast cell** [Gr. *masten*, to feed] A large tissue cell resembling a basophil, which is essential for inflammatory reactions mediated by immunoglobulin E (IgE) but does not circulate in the blood. Mast cells are present throughout the body in connective tissue, but are concentrated beneath the skin and the mucous membranes of the respiratory and digestive tracts. Mast cells are covered with IgE molecules, which bind with foreign antigens and stimulate degranulation, releasing such mediators as histamine, prostaglandins, leukotrienes, and proteinases from densely packed granules within the cytoplasm. These mediators produce type I (immediate) hypersensitivity reactions (e.g., urticaria, allergic rhinitis, asthma, angioedema, and systemic anaphylaxis). SEE: *illust.*



**MAST CELLS IN BONE MARROW**

(Orig. mag.  $\times 640$ )

**mastectomy** (mäst-täk'tō-mē) [Gr. *mastos*, breast, + *ektome*, excision] Surgical removal of the breast. The procedure usually is performed as treatment for or prophylaxis against breast cancer; it can be curative in more than 90% of cases in which the disease is histologically noninvasive and grossly confined to the breast. In patients with more extensive disease, it is one part of a treatment strategy for breast cancer that also may include chemotherapy, radiation therapy, and/or hormone therapy. Radical mastectomy (no longer performed) involved the removal of the breast tissue as well as the pectoralis major muscle, pectoral fascia, axillary contents, nipple, and areola. In modified radical mastectomy, the pectoral fascia is removed but the pectoralis major muscle is left intact. The rest of the operation mimics radical mastectomy. In simple mastectomy, only breast tissue, pectoral fascia, nipple, areola, and axillary fat pad are removed. In tissue-saving mastectomy (modified-radical or simple) tissue is removed through a nipple and alveolar area circular incision, to limit muscle and nerve incisions and prepare the patient for immediate or de-



layed saline or silicone implant(s) or flap reconstruction. In the management of breast cancer, because none of these techniques has been proven superior to lumpectomy followed by radiation treatment, patient and practitioner preferences often determine which therapy is used. Mastectomy still is preferred in some breast cancer patients (e.g., pregnant women) who should not receive radiation therapy. SEE: *breast cancer; lumpectomy; Nursing Diagnoses Appendix*.

**PATIENT CARE:** *Preoperative:* The patient is encouraged to discuss treatment options with her surgeon and her partner, as well as with other women who have had the various treatment options. Preoperatively, the patient may be scheduled for bone, lung, and liver studies (scans, etc.) to determine the presence of metastatic disease and assist in determining staging and the needed treatment regimen. A chest x-ray, ECG, blood work, urinalysis, and anesthesia consult are carried out. Postoperative care measures are discussed, and sensation messages provided (drains, dressings, analgesia, pulmonary and thromboembolytic concerns, etc). Surgery may be in a same-day center with discharge to home or in an overnight hospital facility. In either case, a home health nurse will be needed postdischarge to assist in patient care.

Intravenous access for fluids, sedation, and/or anesthesia is established, and cardiac monitor leads applied. Graduated compression hose or intermittent pneumatic dressings usually are applied for the surgical period. Before any sedation is given, the surgeon and patient together identify and mark the breast requiring surgery in the presence of a nurse, and this information is documented. An informed consent is obtained. Vital signs, cardiac rhythm, and the quantity and character of wound drainage are monitored throughout the surgery. Sentinel lymph node biopsy is done and sent to the pathologist to assess for cancer cells. If this node is negative, axillary nodes can be spared; if positive, axillary node dissection is carried out.

*Postoperative:* Postoperatively, vital signs are monitored until stable, and the patient is positioned with the arm on the affected side elevated on a pillow above heart level. Suction drain(s) will be in place, and drainage should be monitored for character and volume. Drains are removed when volume decreases to a minimal amount daily. Dressings also are inspected (anteriorly and posteriorly) for drainage. Intake and output should be monitored for 48 hr, if general anesthesia was employed. Active and passive exercise of the arm is encouraged to prevent joint contrac-

ture and muscle shortening. Prescribed analgesics are provided as ordered.

Turning, ambulating, deep breathing (incentive spirometry), and coughing are encouraged, and the patient is reminded that all will be more easily accomplished if analgesic drugs are used to prevent pain from escalating, rather than waiting until it is severe. The patient is taught not to allow any blood draws, intravenous devices, injections, or BP measurements to be done on the affected arm, and advised to carry/wear identifying information concerning this need. In the acute care setting, a bright pink bracelet provides this warning to health care providers. The incision is inspected for healing by the nurse/home-health nurse, and the patient and her partner are encouraged to view the incision as soon as they feel able to do so.

The patient and partner should both be made aware that breast surgery does not interfere with sexual function, although sensation may be absent in the surgical area; thus sexual activity and esp. foreplay touching, stroking, and other loving gestures may be resumed as soon as the patient desires. Sometimes tingling or pins-and-needles sensations (phantom breast syndrome) occur, so the patient should be prepared for this possibility. Emotional and psychological support is provided to help the patient and family to cope with the diagnosis and subsequent grief response and/or depression, and to adjust to changes in body image and self-concept. The patient is taught protective measures for lymphedema and is offered information about breast prostheses and reconstructive surgery.

The patient is prepared for adjuvant therapies that may be required, depending upon staging, estrogen receptor and Her2 status. Referrals are provided to local support groups as available, and to the American Cancer Society's Reach for Recovery group, which provides counseling, instruction, caring and sharing, and sometimes prosthetics and wigs or other head coverings for chemotherapy patients. (ACS: 800-ACS-2345; [www.cancer.org](http://www.cancer.org)).

**preventive m.** Prophylactic mastectomy.

**prophylactic m.** The removal of one or both breasts in an attempt to prevent the development of breast cancer. Surgical removal of the breasts to prevent breast cancer is sometimes used by women with a BRCA gene or a strong history of breast cancer in first-degree relatives. SYN: *preventive m.*

**radical m.** Treatment of breast cancer in which the breast, involved skin, pectoral muscles, axillary lymph nodes, and subcutaneous fat are removed. SEE: *lumpectomy*.

**simple m.** Treatment of breast cancer in which the breast, nipple, areola, and the involved overlying skin is removed. SEE: *lumpectomy*.

**Master two-step test** [Arthur Matthew Master, U.S. physician, 1895–1973] A standardized exercise test formerly used to assess cardiopulmonary function. It has been replaced by exercise treadmill testing, pharmacological stress testing, and other tests of fitness and cardiovascular reserve. SEE: *exercise tolerance test*.

**mastic** (mās'tik) A resin obtained from the tree *Pistacia lentiscus*. It has been used in industry and in coating tablets.

**mastication** (mās-tī-kā'shūn) [L. *masticare*, to chew] Chewing. Coordination of the large temporal, masseter, pterygoid muscles, and other smaller muscles of the mandible and tongue is required, under the influence of the mandibular division of cranial nerve V. **masticatory** (mās'tik-ā-tō'rē), *adj.*

**masticatory apparatus** (mās'tī-kā-tōr'ē āp'ā-rāt'is, -rā'tis) The teeth, jaws, muscles of mastication, and the temporomandibular joints; used for chewing.

**Mastigophora** (mās'tī-gōf'ō-rā) Formerly a division of protozoa characterized by one or more flagella. Now called Zoomastigophora, a phylum of the kingdom Protista.

**mastigote** (mās'tī-gōt) A member of the protozoan group formerly called Mastigophora.

**mastitis** (mās-tī'tis) [Gr. *mastos*, breast, + *itis*, inflammation] Inflammation or infection of the breast.

**cystic m.** Mastitis resulting in formation of cysts that give the breast a nodular feeling upon palpation.

**granulomatous m.** A rare inflammatory disease of the breast, often presenting as a tender breast mass. Even with mammography or ultrasonography, it may be difficult to distinguish from breast cancer without biopsy. Once the diagnosis is definitively established, the disease is treated with corticosteroids or by surgically removing the mass.

**interstitial m.** Inflammation of connective tissue of the breast.

**lactation m.** Mastitis (parenchymatous inflammation of the mammary glands) that occurs during breastfeeding, typically in the second or third postpartum week; however, it may occur at any age. It occurs in about 1% of postpartum women, primarily in breast-feeding primiparas, but can occur in nonlactating females and (rarely) in males. SEE: *Nursing Diagnoses Appendix*.

**ETIOLOGY:** Infection may be due to entry of disease-producing germs through cracks in the nipple. Most commonly, the offending microorganism is

*Staphylococcus aureus*. Other predisposing factors include blocked milk ducts (from a tight bra or prolonged intervals between breastfeedings) and an incomplete let-down reflex (possibly related to emotional trauma). Infection begins in one lobe but may extend to other areas.

**SYMPTOMS:** The woman complains of breast swelling and tenderness and shooting pains during and between feedings, in addition to fever, headache, and malaise. A triangular flush underneath the affected breast is an early sign. Abnormal vital signs include fever and tachycardia.

**TREATMENT:** Heat should be applied locally; appropriate antibiotics, such as beta-lactamase-stable penicillins, are prescribed; and analgesics are given for discomfort. Although symptoms usually are relieved after 2 to 3 days of antibiotic therapy, treatment should be continued for 10 days. Frank abscesses require incision and drainage; pumping the breasts may be recommended to avoid engorgement and maintain lactation.

**PATIENT CARE:** Health care professionals should encourage mothers to get adequate rest and hydration. Patient teaching emphasizes personal hygiene, breast care, wearing a supportive bra, and feeding the infant frequently to empty the breast. The mother is taught to recognize early signs of potential infection such as nipple redness and cracking. The patient and infant should be isolated from other nursing mothers and other infants to prevent spreading the infection, and the mother taught always to wash her hands before touching her breast and after feeding. The mother should be reassured that breastfeeding during mastitis will not harm her infant. The affected breast should be offered first to promote complete emptying and prevent clogged ducts. If an open abscess necessitates not feeding from this breast, it should be pumped until the abscess heals, while the mother continues feeding from the unaffected breast. The application of warm, wet towels to the affected breast or taking a warm shower should be suggested. Adequate fluid intake and rest should be encouraged. SEE: *breastfeeding*.

**parenchymatous m.** Inflammation of the secreting tissue of the breast.

**puerperal m.** Mastitis, often accompanied by suppuration, occurring in the later portion of the puerperium. The breast may become indurated due to retention of milk.

**stagnation m.** Painful distention of the breast occurring during early lactation. SEE: *caked breast*.

**masto-, mast-, mammo-, mamm-**

(mäs'tō) [Gr. *masto*, breast] Combining forms meaning *breast*.

**mastocyte** (mäs'tō-sīt) [Gr. *masten*, to feed, + *kytos*, cell] Mast cell.

**mastocytoma** (mäs'tō-sī-tō'mă) [" + " + *oma*, tumor] An accumulation of mast cells that resembles a neoplasm.

**mastocytosis** (mäs'tō-sī-tō'sīs) [" + " + *osis*, condition] A general term for a variety of rare disorders in which there is proliferation of excessive numbers of normal mast cells systemically or in the skin. Lesions present on the skin are termed urticaria pigmentosa. Firm stroking of the skin lesion will cause the area to become raised and pruritic with surrounding erythema; this is Darier's sign.

Systemic mastocytosis is marked by infiltration of mast cells into the bone marrow, abdominal organs, and lymph nodes. Many of the signs and symptoms of this illness are due to the mast cells releasing granules containing histamine, prostaglandins, and arachidonic metabolites. SEE: *Darier's sign* for illus.

**mastodynia** (mäs-tō-dīn'ē-ä) [Gr. *mastos*, breast, + *odyne*, pain] Pain in the breast. SYN: *mammalgia*; *mastalgia*.

**mastoid** (mäs'toyd) [" + *eidōs*, form, shape] **1.** Shaped like a breast. **2.** The mastoid process of temporal bone. **3.** Pert. to mastoid process. **mastoidal** (mäs-toy'däl), *adj.*

**mastoidalgia** (mäs-toyd-äl'jē-ä) [Gr. *mastos*, breast, + *eidōs*, form, shape, + *algos*, pain] Pain in the mastoid.

**mastoid antrum** SEE: under *antrum*.

**mastoidectomy** (mäs'tōy-d-ēk'tō-mē) [" + " + *ektome*, excision] Surgical excision of the mastoid sinuses used to treat mastoiditis when it has not responded to antibiotic therapy. Recurrent or persistent infections (e.g., cholesteatoma) or signs of intracranial complications (meningitis) are reasons for surgical treatment. The operation may be simple, involving complete removal of the mastoid sinuses, or radical, involving the middle ear, often with surgical reconstruction of the eardrum. SEE: *Nursing Diagnoses Appendix*.

**PATIENT CARE:** The patient is prepared physically and psychologically for the surgery, and postoperative care procedures are explained. An informed consent is obtained. Wound dressing is inspected daily and changed as necessary. Aseptic technique is used during dressing changes. Drains usually are removed in 72 hr. The patient is observed postoperatively for bleeding, fever, neck stiffness, vomiting, dizziness, disorientation, headache, or facial paralysis. The patient should be assessed for hearing loss after simple mastoidectomy; hearing loss usually precedes the need for radical surgery. After radical surgery, the wound is either drained with

a tube, or packed with petroleum gauze or antibiotic-treated gauze, and the patient should have analgesia administered prior to its removal on postoperative day 4 or 5. Antibiotic therapy is continued for several weeks postsurgery. Analgesics are administered as needed and prescribed. Nausea and vertigo are common for several days postoperatively, so side rails should be in place, the patient assisted to ambulate, and antiemetics administered as needed. Other potential complications include damage to the facial nerve with facial muscle paralysis or difficulty swallowing. The patient and family are taught how to change and care for dressings prior to discharge, and advised of the importance of completing the prescribed antibiotic regimen.

**mastoideocentesis** (mäs-toyd'ē-ō-sēntē'sīs) [" + " + *kentesis*, puncture] Surgical puncture of the mastoid process and subsequent paracentesis of mastoid cells.

**mastoiditis** (mäs-toyd-ī'tīs) [" + " + *itis*, inflammation] Inflammation of the mastoid sinuses, usually as a result of the spread of infection from acute otitis media (OM). The disease is relatively rare, now that effective antibiotics for otitis media are generally available. The causative organisms usually are the same as those that cause OM: streptococcal species, *Haemophilus influenzae*, and *Staphylococcus aureus*, although on some occasions mycobacteria or fungi may cause the disease.

**SYMPTOMS:** The patient complains of pain behind the ear, and sometimes of fever and systemic symptoms, such as malaise and chills. Physical examination may reveal redness and tenderness behind the affected ear, with swelling of the external auditory canal.

**TREATMENT:** Early in the course of the infection, patients may be treated with several days of intravenous antibiotics followed by outpatient medications and close follow-up. Mastoidectomy or other neurosurgical procedures may be needed if the infection has spread to beneath the periosteum, or if intracranial infection or thrombosis of neighboring veins develops. All these complications may be detected with imaging (e.g., computerized tomographic scanning of the head).

**Bezold's m.** Abscess underneath insertion of the sternocleidomastoid muscle due to pus breaking through the mastoid tip.

**m. externa** Inflammation of the periosteum of the mastoid process.

**sclerosing m.** Mastoiditis in which there is thickening and hardening of trabeculae between mastoid cells.

**mastoid portion of temporal bone** Portion of the temporal bone lying behind

the external opening of the ear and below the temporal line and containing mastoid sinuses and antrum. Its inner surface bears a deep, curved, sigmoid groove that contains a part of the transverse sinus in which the opening of the mastoid foramen is visible.

**mastoid process** Horn-shaped process of mastoid portion of temporal bone extending downward and forward behind the external auditory meatus. It serves for attachment of the sternocleidomastoid, splenius capitis, and longissimus capitis muscles.

**mastology** (mäs-töl'ō-jē) [*"* + *logos*, word, reason] The branch of medicine concerned with study of the breast.

**mastopathy** (mäs-töp'ä-thē) [Gr. *mas-tos*, breast, + *pathos*, disease] Any disease of the mammary glands.

**mastopexy** (mäs'tō-pēks-ē) [*"* + *pexis*, fixation] Correction of a pendulous breast by surgical fixation and plastic surgery.

**mastoplasia** (mäs-tō-plā'zē-ä) [*"* + *plassein*, to form] Enlargement of mammary gland tissue.

**mastoplasty** (mäs'tō-pläs'tē) [*"* + *plassein*, to form] Plastic surgery of the breast. SEE: *mammoplasty*.

**mastoptosis** (mäs'tō-tō'sis) [*"* + *ptosis*, a dropping] Pendulous breasts.

**mastorrhagia** (mäs-tor-ä'jē-ä) [*"* + *rhegnynai*, to burst forth] Hemorrhage from the breast.

**mastoscirrhus** (mäs-tō-skīr'ūs) [*"* + *skirros*, hardness] Hardening of the breast.

**mastosquamous** (mäs-tō-skwā'mūs) Relating to the mastoid process and the squamous portion of the temporal bone.

**mastostomy** (mäs-tōs'tō-mē) [*"* + *stoma*, mouth] Incision into the breast in order to drain a cyst or obtain tissue for microscopic study.

**mastotomy** (mäs-tōt'ō-mē) Surgical incision of a breast. SYN: *mammotomy*.

**masturbate** (mäs'tēr-bät) [L. *masturbare*, fr. *manus*, hand, + *stuprare*, to defile] To practice masturbation.

**masturbation** (mäs'tēr-bä'shūn) Stimulation of genitals or other erogenous areas, usually to orgasm, by some means other than sexual intercourse.

At one time practicing masturbation was believed to cause a great variety of mental and physical disorders. There is no scientific basis for such beliefs.

**matched unrelated donor, human leukocyte antigen matched unrelated donor** ABBR: MUD. An individual who donates an organ or tissue (such as bone marrow stem cells) to another person with human leukocyte antigens that are identical to those of the organ recipient.

**matching** 1. Comparison in order to select objects or persons with similar characteristics. 2. Being identical, equal, or exactly alike.

**m. of controls** In medical research, ensuring that the group of actively treated subjects has as many relevant similarities as possible to a group of untreated or placebo-treated persons. Matching subjects with controls increases the likelihood that the findings demonstrated by the study are the result of the treatment itself and not another variable.

**cross-m. of blood** Technique and procedure for determining the immunologic and genetic characteristics of the patient's blood so that appropriate blood may be used for transfusion.

**human leukocyte antigen m.** ABBR: HLA matching. In organ transplantation, determining the compatibility of the antigens present on donor organs with those of the patient who will receive the organ. In general, the more closely the donor and recipient match, the greater the likelihood of a successful graft. Mismatching of organ and recipient increases the chances of organ rejection. SYN: *histocompatibility locus antigen*.

**residency m.** The assignment of medical students to postgraduate medical residency training programs.

**treatment m.** Using patient profiles and preferences to individualize and optimize therapeutic regimens for patients (e.g., in the management of psychiatric or substance abuse disorders).

**maté** (mä-tā') [Sp., vessel for preparing leaves] Tea made from the leaves of *Ilex paraguayensis*. It contains caffeine and tannin.

USES: Diaphoretic and diuretic when taken in large quantities.

**mater** (mä'tür) [L., mother] The tissue coverings of the brain and spinal cord. SEE: *meninges*.

**dura m.** A fibrous connective tissue membrane, the outermost of the meninges covering the spinal cord (dura mater spinalis) and brain (dura mater cerebri or dura mater encephali). SEE: *pia mater*; *tentorium cerebelli*.

**pia m.** A thin vascular membrane closely investing the brain and spinal cord and proximal portions of the nerves. It is the innermost of the three meninges. The other portions of the covering are the dura mater and the arachnoid. SEE: *meninges*.

**materia alba** (mä-tē'rē-ä ä'l'bä) [L., white matter] Yellow or grayish white, soft, sticky deposit that collects along the junction between the teeth and gingiva. Materia alba consists of microorganisms, desquamated epithelial cells, leukocytes, and a mix of salivary proteins and lipids, with few or no food particles. Materia alba lacks the regular structure of plaque and is clearly visible without the use of disclosing agents.

**material** The substance from which

something may be made, constructed, or created.

**denture base m.** The chemical resin (typically polymethylmethacrylate) from which a denture is made.

**impression m.** Any of a variety of deformable materials used to make a negative reproduction of oral structures. Some common impression materials are waxes, polymers, elastomers, reversible hydrocolloids, and irreversible hydrocolloids.

**spent m.** Any material that has been used in medical care (or other industries) which cannot be reused without reprocessing, reclamation, or decontamination.

**material safety data sheet** ABBR: MSDS. Descriptive sheet required by U.S. federal law, and by laws of other countries and states, that accompanies a chemical or a chemical mixture. The sheet provides identity of the material, physical hazards (e.g., flammability), and acute and chronic health hazards associated with contact with or exposure to the compound. It is estimated that there are almost 600,000 hazardous chemical products in American workplaces. SEE: *right-to-know law*.

**materia medica** (mä-tē'rē-ä mēd'ī-kä) [L., medical matter] **1.** Pharmacology. **2.** A substance used to treat disease.

**maternal** [L. *maternus*] **1.** Relating to the mother. **2.** From a mother.

**maternal deprivation syndrome** Emotional, physical, and nutritional neglect of an infant or young child as a result of the premature loss or absence of the mother. Children suffering from this syndrome are emotionally disturbed, withdrawn, apathetic, and retarded in growth and development.

**maternal mortality rate** SEE: under *rate*.  
**maternal phenylketonuria syndrome** ABBR: M-PKU, or maternal PKU. Teratogenesis due to uncontrolled phenylalanine levels in a pregnant woman with phenylketonuria. The fetus typically develops with a small head, mental retardation, congenital heart disease, and growth retardation.

**maternal serum alpha-fetoprotein** Alpha-fetoprotein present in the blood of a pregnant woman. SEE: *alpha-fetoprotein*.

**maternal serum screen** A blood test taken from a pregnant woman to see if she has circulating proteins that may indicate the presence of congenital disease in her developing fetus.

**maternity** (mä-tēr'ni-tē) **1.** Motherhood. **2.** The obstetrical department of a hospital.

**mating** [ME. *mate*, companion] Pairing of male and female that occurs by chance, that is, with no external influence or control.

**assortative m.** Pairing of male and

female that is controlled in some manner.

**random m.** Pairing of male to female when each individual has the same chance of mating with those of other genetic makeup.

**matricide** (mä'trī-sīd) [L. *mater*, mother, + *caedere*, to kill] Killing one's mother.

**matrilineal** (mä'trī-līn'ē-äl) [L. *mater*, mother, + *linea*, line] Pert. to or affecting inheritance from the mothers in a family, but not the fathers.

**matrilysin** A member of the matrix metalloproteinase enzyme family that is expressed by many tumor cells and plays a part in tissue invasion and metastasis.

**matrix** (mä'trīks) *pl.* **matrices** [L.] **1.** The basic substance from which a thing is made or develops. **2.** The intercellular material of a tissue. **3.** Mold for casting amalgams in dental restoration.

**bone m.** The acellular part of bone.

**extracellular m.** ABBR: ECM. The solid or liquid material that is produced by and surrounds the cells of connective tissues.

**territorial m.** That component of cartilage immediately surrounding clusters of chondrocytes. It has a rich concentration of glycosaminoglycans, and stains darkly (it is basophilic).

**m. unguis** Nailbed.

**matrix stem cells** Stem cells derived from the matrix ("Wharton's jelly") of the umbilical cord.

**matted** (mä'tīd) [LL. *matta*, mat of rushes] Tangled or connected; said of diseased lymph nodes that have grown into one another, creating a clump or mass of tissue.

**matter** **1.** Tissue, especially nerve tissue. **2.** Pus. **3.** In physics, anything that has mass and occupies space.

**gray m.** Nerve tissue composed mainly of the cell bodies of neurons rather than their myelinated processes. The term is generally applied to the gray portions of the central nervous system, which include the cerebral cortex, basal ganglia, and nuclei of the brain, and the gray columns of the spinal cord, which form an H-shaped region surrounded by white matter. Sympathetic ganglia and nerves may also be gray. SYN: *substantia grisea*.

**white m.** Nerve tissue of the spinal cord and brain, composed mainly of myelinated nerve fibers. SYN: *substantia alba*.

**matureate** (mä'tū-rät) [L. *maturus*, ripe] **1.** To ripen; to mature. **2.** To suppurate.

**maturation** (mä'tū-rä'shūn) **1.** Maturing; ripening, as a graafian follicle. **2.** Suppuration. **3.** The process in the development of germ cells (spermatozoa and ova) occurring in spermatogenesis or oogenesis in which the number of

chromosomes is reduced from the diploid number to the haploid number (one half of diploid). This process includes two cell divisions. SEE: *oogenesis*; *spermatogenesis*. **4.** The completion of the mineralization pattern or crystalline structure of calcified tissues.

**affinity m.** The mechanism during an immune response that produces antibodies with a strong ability to bind to a foreign antigen over time. Affinity maturation is produced by changes in the genes that encode immunoglobulin G (IgG) and by increased survival of those B lymphocytes that produce antibodies with the greatest ability to destroy a particular antigen. Increased affinity occurs only when B-cell activation is stimulated by helper T cells.

**enamel m.** The process of changing from about 30% inorganic mineral in enamel matrix of the teeth to the 96% inorganic content in mature enamel. The maturation is accomplished by the ameloblast cells over a long period, with a decrease in water and organic content, and an increase in mineral content and size or density of hydroxyapatite crystals. The final stages of enamel maturation occur after the tooth has erupted into the oral cavity.

**in vitro m.** ABBR: IVM. An assisted reproduction technique in which an immature oocyte is nurtured in the laboratory until fertilized.

**mature** (mä-tür') **1.** Fully developed or ripened. **2.** To become fully developed.

**mature minor** Any teenager who can demonstrate competence to consent to or refuse treatment. In the common law, a teenager who demonstrates adequate maturity may choose or reject some forms of care, including contraceptive and pregnancy care, mental health and chemical dependency consultations, and treatments for sexually transmitted diseases. In these instances the consent of the parent or guardian is not necessarily needed.



Although the concept of the mature minor recognizes the autonomy of the teen, before care is provided without parental consent health care professionals must be able to obtain evidence of and clearly document both the teen's maturity and his or her understanding of any proposed treatment.

**mature minor rule** Regulations in some states that allow the practitioner to treat minors without parental consent if the minor is deemed to be capable of understanding the nature and consequences of the treatment and if the treatment is of benefit to the minor.

**maturity** **1.** State of completed growth or development. **2.** Stage of growth at

which an individual becomes capable of reproducing.

**fetal lung m.** The ability of the developing lung to oxygenate and ventilate effectively outside the womb. The readiness of the fetal lung can be assessed with several invasive (e.g., amniocentesis) and noninvasive (e.g., ultrasound) tests, all of which have some shortcomings. Some tests on amniotic fluid include: measurements of surfactant; phosphatidylglycerol; the lecithin/sphingomyelin ratio; and the number of lamellar bodies.

**PATIENT CARE:** Premature infants born with immature lungs have a high likelihood of developing infantile respiratory distress syndrome. Antenatal treatment with glucocorticoids improves most amniotic fluid indices of fetal lung maturity. Infants born with immature lungs are also often treated with continuous positive airway pressure, other forms of mechanical ventilation, and surfactant.

**matutinal** (mä-tü'ti-näl) [*L. matutinalis, morning*] Pert. to morning or occurring early in the day, such as morning sickness.

**Maurer's dots** (mow'ërz) [*Georg Maurer, Ger. physician in Sumatra, b. 1909*] Coarse stippling of the red cells seen in malaria, caused by *Plasmodium falciparum*.

**Mauriceau-Smellie maneuver** [*François Mauriceau, Fr. obstetrician, 1637-1709; William Smellie, Brit. obstetrician, 1697-1763*] A technique of delivering the aftercoming head in a breech presentation in which traction is applied to the baby's maxilla and shoulders until the occiput appears under the symphysis pubis. The child's body is then raised to the mother's abdomen while the mouth, nose, brow, and occiput are successively brought over the perineum. The maneuver is used rarely, because most breech presentations are delivered by cesarean surgery.

**maxilla** (mäk-sil'ä) [*L., jawbone*] A paired bone with several processes that forms most of the upper face, roof of the mouth, sides of the nasal cavity, and floor of the orbit. The alveolar process of the maxilla supports the teeth, which is the basis for calling the maxilla the upper jaw. SEE: *skull* for *illus*; *skeleton*.

**maxillary** (mäk'si-lër'ë) **1.** Pert. to the upper jaw. **2.** Pert. to the maxilla.

**maxillitis** (mäks'il-ī'tis) [*L. maxilla, jawbone, + Gr. itis, inflammation*] Inflammation of the maxilla.

**maxillotomy** (mäk'si-löt'ō-më) [*" + Gr. tome, incision*] Surgical incision of the maxilla.

**maximal laryngeal height** (mäk'si-mil) [*L. maximus, greatest*] The measured distance at the end of expiration between the upper border of the supra-

sternal notch and the top of the thyroid cartilage. A maximal laryngeal height of less than 4 cm is a physical finding present in patients with chronic obstructive lung disease.

**maximum** (mäks'i-müm)*pl. maxima* [L. *maximus*, greatest] **1.** The greatest quantity or effect. **2.** Height of a disease.

**maximal** (-mä), *adj.*

**maximum allowable concentration** ABBR: MAC. The upper limit of concentration of certain atmospheric contaminants allowed in the workplace.

**maximum breathing capacity** ABBR: MBC. The greatest amount of air that can be breathed in a specified period, usually 15 sec. It is expressed in liters of air per minute.

**Maxzide** (mäk(s)'zīd) SEE: *triamterene*.

**Mayer wave** (mī'ēr) A low-frequency oscillation in arterial blood pressure observed in humans and other animals. This type of wave reflects the physiological variations corresponding to baroreflex feedback. It appears to diminish in elderly people. SEE: *autonomic nervous system*; *baroreflexes*.

**May Hegglin anomaly** (mä'hēg'līn) An autosomal-dominant inherited blood disorder marked by the presence of Dohle bodies in granulocyte leukocytes. Platelets vary in size and may be decreased in number. Purpura and excessive bleeding may occur, although some affected persons are asymptomatic.

**mayhem** (mä'hēm) **1.** Interpersonal violence or disfigurement. **2.** Chaos (e.g., in the organization of the workplace, in the administration of clinical, managerial, or research activities). **3.** Physiological disruption (e.g., by a virulent infection or a severe metabolic illness).

**Mayo-Robson's point** (mä'yō-rōb'sūnz) [Arthur Mayo-Robson, Brit. surgeon, 1853–1933] A point just above and to the right of the umbilicus where pressure causes tenderness in pancreatic disease.

**maze** A labyrinth of communicating paths.

**Mazzoni's corpuscle** (mä-zō'nēz) A nerve ending resembling a Krause corpuscle.

**m.b.** Prescription sign meaning L. *misce bene*, mix well.

**MBC** *maximum breathing capacity*.

**MBD** *minimal brain dysfunction*; *minimal brain damage*.


**MC** *Medical Corps*; *microscopic colitis*.

**mc** Former abbreviation for *millicurie*.

**McArdle's disease** (mik-är'dīlz) [Brian McArdle, Brit. pediatrician, 1911–2002] One of the glycogen storage diseases (type V) in which there is an abnormal accumulation of glycogen in muscle tissue due to deficiency of myophosphorylase B. Symptoms include pain, fatigability, and muscle stiffness after

prolonged exertion. SYN: *muscle phosphorylase deficiency*.

**McBurney's incision** (mīk-būr'nēz) [Charles McBurney, U.S. surgeon, 1845–1913] Abdominal incision employed in appendectomy. The incision is made parallel to the path of the external oblique muscle, 1 to 2 in (2.5 to 5.1 cm) away from the anterosuperior spine of the right ilium, through the external oblique to the internal oblique and transversalis, separating their fibers.

**McBurney's point**  Point 1 to 2 in (2.5 to 5.1 cm) above the anterosuperior spine of the ilium, on a line between the ilium and umbilicus, where pressure produces tenderness in acute appendicitis.

**McBurney's sign** Tenderness and rigidity at McBurney's point, probably indicative of appendicitis.

**McCarthy's reflex** (mī-kär'thēz) [Daniel J. McCarthy, U.S. neurologist, 1874–1958] Contraction of orbicularis palpebrarum with closure of lids resulting from percussion above the supraorbital nerve.

**McConnell test for chondromalacia patellae** (mik-ōn'īl) [Jenny McConnell, Australian physiotherapist] A clinical test used to identify softening of the articular cartilage of the patella (chondromalacia patellae). With the patient seated, the femur externally rotated, and the knee flexed to 120°, the patient performs a 10-second isometric contraction. If the patient experiences pain during the contraction, the knee is passively extended and supported by the clinician, who then manually glides the patella medially. The knee is returned to the position that produced pain, and the patient again performs an isometric contraction while the medial position of the patella is maintained. If the amount of pain experienced is decreased, chondromalacia patellae is suspected. The test is then repeated at 90°, 60°, 30°, and 0° of knee flexion.

**McCormac's reflex** (mī-kör'mäks) Adduction of one leg resulting from percussion of the patellar tendon of the opposite leg.

**McCune-Albright syndrome** (mī-kūn'al'brīt) [Fuller Albright, U.S. physician, 1900–1969] Polyostotic fibrous dysplasia accompanied by café au lait macules and endocrine disorders, esp. precocious puberty in girls. Affected persons are fracture prone, and deformity and shortening of bones may develop. SYN: *Albright's disease*.

**mcg** *microgram*.

**McGill Pain Questionnaire** (mä-gīl') [McGill University, Montreal, Canada, where the questionnaire was developed] ABBR: MPQ. An instrument used to quantify the perceived location, type, and magnitude of pain. A typical McGill Pain Questionnaire consists of three

parts: location of the source of pain as depicted by marking one or more X's on a diagram; the intensity of pain as indicated by a visual analog scale; and the magnitude of pain by selecting words from a pain rating index.

**MCH** 1. *mean corpuscular hemoglobin*.  
2. *maternal-child health*.

**mch** *millicurie hour*.

**MCHC** *mean corpuscular hemoglobin concentration*.

**MCi** *megacurie*.

**mCi** *millicurie*.

**McIndoe operation** (māk'-īn-dō) Abbe-Wharton-McIndoe operation.

**McMurray's sign** (mik-mūr'rēz) McMurray test.

**McMurray test** (māk-mūr'ē) [Thomas P. McMurray, Brit. orthopedic surgeon, 1887-1949] A test for a torn meniscus of the knee. The examiner flexes the patient's knee completely, rotates the tibia outward, and applies a valgus force against the knee while slowly extending it. A painful click indicates a torn medial meniscus. If a click is felt when the tibia is rotated inward and a varus force is applied against the knee during extension, the lateral meniscus is torn. SYN: *McMurray's sign*.

**McMurtry's index** (māk-mūr'tēz) A radiographic technique to measure ulnar translocation. McMurry's index is calculated by dividing the distance between the center of the proximal capitate head and the central axis of the ulna by the length of the third metacarpal.

**MCP** *metacarpophalangeal joint*.

**MCS** *multiple chemical sensitivity*.

**MCT** *microwave coagulation therapy*.

**MCV** *mean corpuscular volume*.

**MCV4** *meningococcal (groups A, C, Y, and W-135) conjugate vaccine*.

**Md** Symbol for the element mendelevium.

**MDC** An abbreviation for the *congenital muscular dystrophies*, a group of autosomal recessive diseases characterized by significant muscular weakness and often cognitive disorders. All of the congenital muscular dystrophies first become evident in infancy. Examples include MDCs 1A-1D and Fukuyama disease.

**MDI** *metered-dose inhaler*.

**MDR** *multiple drug resistance*.

**meadowsweet** (mēd'ō-swēt") Any of three perennial herbs, *Filipendula ulmaria*, *Spiraea alba*, or *S. latifolia*, that grow in moist biomes. Meadowsweet is a source of aspirin-like chemicals used to treat chronic pain and is promoted as a digestive aid.

**meal** (mēl) [AS. *mael*, measure, meal]  
1. Portion of food eaten at a particular time to satisfy the appetite. 2. The edible portion of any cereal grain that has been coarsely ground, as in corn meal.

**Meals on Wheels** Programs that provide to the elderly and infirmed home-delivered meals that meet federally mandated criteria.

**mean** In statistics, the average of a set of values. SEE: *arithmetic mean*; *median*.

**arithmetic m.** The result obtained by adding all of the values given and dividing by the number of items that were added. SYN: *average*. SEE: *median*.

**means testing** The determination of a person's financial eligibility for subsidized health care services.

**measles** (mē'zls) [Dutch *maselen*] A highly communicable disease caused by the rubeola virus and marked by fever, general malaise, sneezing, nasal congestion, brassy cough, conjunctivitis, spots on the buccal mucosa (Koplik's spots), and a maculopapular eruption over the entire body. The occurrence of measles before age 6 months is relatively uncommon because of passively acquired maternal antibodies from the immune mother. SYN: *rubeola*.

An attack of measles almost invariably confers permanent immunity. Active immunization can be produced by administration of measles vaccine, preferably that containing the live attenuated virus although measles vaccine containing the inactivated virus is available for those in whom the live attenuated type is contraindicated. Vaccination has reduced the occurrence of measles during childhood, making it more prevalent during adolescence and adulthood. Measles remains a major cause of death in children in underdeveloped countries, where vaccination is less frequently employed. Passive immunization is afforded by administration of gamma globulin. SEE: *Nursing Diagnoses Appendix*.

**SYMPTOMS:** Measles is spread by inhalation of contaminated air. The incubation period is from 8 to 14 days. Greatest communicability occurs during the prodromal period, which occurs approximately 11 days after exposure to the virus. The onset of symptoms is gradual and includes coryza, rhinitis, drowsiness, loss of appetite, and gradually increasing temperature for the first 2 days up to 101° to 103°F (38.3° to 39.4°C). Koplik's spots appear on the buccal mucosa opposite the molars on the second or third day. The fever peaks about the fourth day, at times as high as 104° to 106°F (40° to 41.1°C). Photophobia and cough soon develop; when this happens, the temperature may fall somewhat.

At this time, the rash appears, first on the face as small red maculopapular lesions that grow rapidly and coalesce in places, often causing a swollen, mottled appearance. The somewhat pruritic rash extends outward to the rest of the



body and extremities and in some areas may resemble the rash of scarlet fever.

Ordinarily, the rash lasts 4 to 5 days; as it subsides, the temperature declines. Consequently, 5 days after the appearance of the rash, the temperature should be normal or about normal in uncomplicated cases. Early in the disease, leukopenia may be present. More severe symptoms and complications occur in the very young, in adolescents and adults, and in anyone who is immunocompromised or vitamin A deficient.

**COMPLICATIONS:** Encephalitis is a grave complication; among patients who develop this, about one in eight will die, about half will have permanent central nervous system injury, and the remainder will recover completely. Bronchopneumonia is a serious complication. Otitis media, followed by mastoiditis, brain abscess, or even meningitis, is not rare, and unilateral or bilateral nerve deafness may be a permanent consequence. Cervical adenitis, with marked cellulitis, sometimes proves fatal. Tracheitis and laryngeal stenosis, due to edema of the glottis, are sometimes seen in the course of measles. A marked conjunctivitis usually occurs.

**DIFFERENTIAL DIAGNOSIS:** Signs and symptoms of scarlet fever and German measles may mimic those of measles. Koplik's spots are pathognomonic for measles, however, and if seen, virtually rule out other diagnoses.

**PROGNOSIS:** The prognosis is favorable in the healthy child, but the seriousness of the possible complications of measles should not be minimized. An attack of measles confers lifelong immunity.

**PREVENTION:** All children who have not had measles or who have been vaccinated before age 12 months should be immunized with live attenuated measles vaccine at 12 to 15 months of age. A second dose is recommended at the start of school (5 to 6 yr) or at junior high school age (11 to 12 yr). Measles vaccine is often given in conjunction with mumps and/or rubella virus vaccines. **SEE:** *vaccine*.

Live attenuated vaccine is contraindicated in pregnant women or in those who have leukemia, lymphomas, and other generalized neoplasms; in those taking agents such as steroids and antimetabolites; in persons with active, untreated tuberculosis, HIV, or other severe illness; in those who are sensitive to neomycin or duck or chicken eggs; and after blood transfusion or injection of immune serum globulin. In the latter situation, a 12-week waiting period is necessary before administering the vaccine.

Measles is endemic in many developing countries. In 2000, in nations where

measles vaccination was unavailable, more than three quarters of a million children died of the disease.

Measles immune serum globulin is used for passive protection in unimmunized, high-risk patients (e.g., those who have cancer or are taking antimetabolic drugs); if given later than the third day of the incubation period, however, it may only extend the incubation period instead of preventing the disease.

**PATIENT CARE:** The importance of immunization of children to prevent measles should be emphasized to parents and family caregivers. Patients who contract the disease remain isolated (droplet isolation) from diagnosis until 4 days after the rash appears. Bedrest and a quiet, calm environment are provided. A dimly lit room can help to counteract the effects of photophobia should it occur. Eye secretions are removed with warm saline or water. The child should avoid rubbing his eyes. Supportive care includes adequate fluid intake, antipyretics as necessary, a cool mist vaporizer to relieve cough and coryza, and antipruritic medication to prevent itching. Parents also should be made aware that cough preparations and antibiotics are usually ineffective. The parents are taught about the importance of hand hygiene and care of contaminated articles. Assessments are made for complications of otitis media, pneumonia, mastoiditis, bronchiolitis, laryngotracheitis with obstructive edema, and encephalitis, all of which require early management. The severity of the illness in adults may be reduced by IV ribavirin administration, but this medication is not approved for use by the Food and Drug Administration. Because of vaccination programs, measles is rare in the U.S. In 2004, about 35 cases of measles were reported. Before vaccination, approx. 450,000 cases were reported in the U.S. annually.

**black m.** A colloquial term used to denote hemorrhagic measles, i.e., measles in which there is bleeding into the rash.

**German m.** Rubella.

**measly** (mē'zlē) Description of pork that is infected with the cysticerci of *Taenia solium* or *saginata*.

**measurand** (mēzh'ēr-änd") Any quantity subject to measurement.

**measure** (mē'zhūr) [*L. mensura*, a measuring] **1.** The dimensions, capacity, or quantity of anything that can be so evaluated. Length, area, volume, and mass are basic properties of matter and materials that can be measured. **2.** To determine the extent of length, area, mass, or volume of a substance or object. **SEE:** *mensuration*. **3.** A device used in measuring, for example, a marked tape

or a graduated beaker. SEE: *Weights and Measures Appendix*.

**meat** [AS. *mete*, food] The flesh of animals, including that of cows, pigs, poultry, and others. Meat is a concentrated source of proteins, fats, cholesterol, calories, and many vitamins and micronutrients. It contains significant amounts of B complex vitamins (thiamine, riboflavin, niacin), iron, and other minerals. It has limited amounts of calcium and fiber. Its metabolic byproducts include organic acids.

Western diets contain far more meat than is needed for growth and development. Excessive consumption of meats and of other calorically dense, high-fat foods contributes to obesity and atherosclerotic heart disease. SEE: *Food Guide Pyramid*.

**meatometer** (mē-ā-tōm'ēt-ēr) [L. *meatus*, passage, + Gr. *metron*, measure] Device for measuring the size of a passage or opening.

**meatoplasty** (mē-āt'ō-plās-tē) Surgical construction of an external auditory canal.

**meatorrhaphy** (mē"ā-tor'āf-ē) [ʹ + Gr. *rhaphe*, seam, ridge] Suture of the severed end of the urethra to the glans penis following surgical procedure to enlarge the meatus.

**meatoscope** (mē-āt'ō-skōp) [ʹ + Gr. *skopein*, to examine] A speculum for examining a meatus.

**meatotomy** (mē-ā-tōs'kō-pē) [ʹ + Gr. *skopein*, to examine] Instrumental examination of a meatus, esp. the meatus of the urethra.

**meatotome** (mē-āt'ō-tōm) [ʹ + Gr. *tome*, incision] Knife with probe or guarded point for enlarging a meatus by direct incision.

**meatotomy** (mē"ā-tōt'ō-mē) Incision of urinary meatus to enlarge the opening.

**meatus** (mē-ā'tūs) *pl.* **meatus** [L.] A passage or opening. **meatal** (mē-ā'tāl), *adj.*

**acoustic m.** The opening to the external or internal auditory canal.

**m. acoustic externus** External auditory canal from the eardrum to the external ear.

**m. acoustic internus** Canal in the petrous portion of temporal bone, through which pass the cochlear and vestibular nerves.

**external auditory m.** The lateral, outer opening of the external auditory canal, or the canal itself.

**internal auditory m.** The most medial opening of the internal auditory canal, located on the posterior surface of the petrous portion of the temporal bone, or the canal itself.

**m. nasi inferior** Space beneath inferior turbinate or concha of the nose.

**m. nasi medius** Space beneath middle turbinate or concha of the nose.

**m. nasi superior** Space beneath superior turbinate or concha of the nose.

**m. urinarius** External opening of the urethra.

**mechanical piston cardiopulmonary resuscitation** The administration of chest compressions to a victim of cardiac arrest with a plunger that alternately compresses the chest and allows it to return to its original position.

**mechanics** [Gr. *mechane*, machine] The science of force and matter.

**body m.** Application of biomechanics to use of the body in daily life activities and to the prevention and correction of problems related to posture and lifting.

**dynamic m.** The continuous automated analysis of simultaneous measurements of lung variables affecting mechanical ventilation.

**mechanism** **1.** Involuntary and consistent response to a stimulus. **2.** A habit or response pattern formed to achieve a result. **3.** A machine or machine-like structure.

**countercurrent m.** Mechanism used by the kidneys, making it possible to excrete excess solutes in the urine with little loss of water from the body.

**cycling m.** The component of a ventilator that ends or begins the inspiratory phase of mechanical ventilation of the lungs.

**defense m.** Defense.

**m. of injury** ABBR: MOI. The manner in which a traumatic event occurred (e.g., fall from a height, ground-level fall, high- or low-speed motor vehicle accident, ejection from a vehicle, vehicle rollover). The MOI is used to estimate the forces involved in trauma and, thus, the potential severity for wounding, fractures, and internal organ damage that a patient may suffer as a result of his or her injury.

**mechanism of action** The means by which a drug exerts its effects on cells or tissues. It may have specific binding sites, receptor activation, enzymatic activity, or solubility.

**mechanoreceptor** (mēk'ā-nō-rē-sēp'tor) A receptor that receives mechanical stimuli such as pressure from sound or touch.

**mechanotherapy** (mēk'ān-ō-thēr'ā-pē) [Gr. *mechane*, machine, + *therapeia*, treatment] Use of various types of mechanical apparatus to perform passive movements and to exercise various parts of the body.

**Meckel, Johann Friedrich (the younger)** (mēk'ēl) German anatomist, 1781–1833, grandson of J. F. Meckel, the elder.

**M.'s cartilage** A cartilaginous bar about which the mandible develops.

**M.'s diverticulum** A congenital sac or blind pouch found in the lower portion of the ileum. It represents the per-

sistent proximal end of the yolk stalk. Sometimes it is continued to the umbilicus as a cord or as a tube forming a fistulous opening at the umbilicus. The diverticulum may become a focal point for intestinal obstruction progressing to strangulation; become inflamed with symptoms mimicking acute appendicitis; and as a result of the variable presence of gastric mucosa, may develop peptic ulcer symptoms, including hemorrhage. Surgery is necessary for any of these clinical presentations. SEE: *diverticulitis*.

**M. plane** A plane through the auricular and alveolar points.

**M. scan** A radionuclide scan to demonstrate the presence of a Meckel's diverticulum. The diverticulum may be difficult to visualize with plain films, barium studies, colonoscopy, or CT imaging.

**meconium** (mĕ-kō'nĕ-ŭm) [Gr. *mekonion*, poppy juice] **1.** Opium; poppy juice. **2.** First feces of a newborn infant, made up of salts, amniotic fluid, mucus, bile, and epithelial cells. This substance is greenish black, almost odorless, and tarry. The first meconium stool should appear during the first 24 hr. Meconium should persist for about 3 days.

**meconium aspiration syndrome** ABBR:

**MAS.** Fetal inhalation of meconium in utero during episodes of severe fetal hypoxia or with the first few breaths after birth. Symptoms and signs, which occur to varying degrees, include respiratory distress, tachypnea, rales, and wheezes throughout the lung fields. Chest x-ray examination may show areas of increased density from the aspirated meconium, evidence of chemical pneumonitis, as well as areas of atelectasis caused by bronchiolar obstruction and collapse of alveoli distally. A pneumothorax also may occur from the ball-valve effect of meconium obstruction in the small bronchioles. These complications can produce hypoxia, acidosis, respiratory failure, persistent fetal circulation, and persistent pulmonary hypertension of the newborn (PPHN). SEE: *meconium*.

**ETIOLOGY:** Pre-eclampsia, pregnancy-induced hypertension, postmaturity (with oligohydramnios), intrauterine hypoxia and asphyxia, or other forms of stress on the fetus may be contributory factors. Fetal stress may produce increased intestinal peristalsis, anal sphincter relaxation, and expulsion of meconium into the amniotic fluid. When the fetus gasps in utero, or with the first few breaths of air after delivery, the fluid enters the respiratory tree.

**PREVENTION:** Preventive measures include gentle suctioning of the baby's nose and mouth by the obstetrician

while the baby's head is still on the mother's perineum, followed by immediate tracheal suctioning via endotracheal intubation to remove as much airway meconium as possible before the baby's first breath.

**TREATMENT:** Oxygen, endotracheal intubation, surfactant replacement therapy, and assisted ventilation may be required. For severe cases, extracorporeal membrane oxygenation (ECMO) may be used to rest and heal the lung tissue.

**meconium ileus** SEE: under *ileus*.

**meconium staining, meconium show**

Fetal defecation while in utero at time of labor that occurs with fetal distress. It is composed of thick, mucous-pasty material that must be suctioned before the newborn takes a first breath or the material may be aspirated.

**med-** [L. *medius*, middle] SEE: *medio-*.

**MED** *minimal effective dose; minimal erythema dose.*

**Medevac** The evacuation of injured persons from the scene of an emergency by air ambulance, usually a helicopter. Air transport of trauma patients is esp. useful in rural locations, to provide definitive care as quickly as possible. SEE: *golden hour*.

**medi-** SEE: *medio-*.

**media** (mĕ'dĕ-ă) [L.] **1.** Pl. of medium. **2.** The middle or muscular layer of an artery or vein. SYN: *tunica media*.

**mediad** (mĕ'dĕ-ăd) [L. *medium*, middle, + *ad*, toward] Toward the median line or plane of the body.

**medial** (mĕ'dĕ-ăl) [L. *medialis*] **1.** Pert. to middle. **2.** Nearer the medial plane.

**medial geniculate body** One of two bodies lying in the posterior part of the dorsal thalamus. Each receives fibers from the acoustic tract of the pons and the inferior colliculus through the brachium.

**medialis** (mĕ'dĕ-ă'lis) [L.] Term indicating something that is closer to the midline of the body.

**medial plica syndrome** Patellar pain, and a feeling of instability, clicking, or locking of the knee as a result of inflammation of the medial synovial fold of the knee joint.

**medial tibial syndrome** Shin splints.

**median** (mĕ'dĕ-ăn) [L. *medianus*, in the middle] In statistics, a number obtained by arranging a given series in order of magnitude and selecting that number that has an equal number of values above and below it. Thus, in the series 5, 7, 100, 101, 102, the median is 100. SEE: *mean; mesial*.

**mediastinal** (mĕ'dĕ-ăs-tĭ'năl) [L. *mediastinalis*] Relating to the mediastinum.

**mediastinal crunch** A rasping sound, similar to the noise made when leather rubs against leather, that is heard on

listening to the heart of a patient with air in the mediastinum. The sound usually is detected during cardiac systole but also may vary in intensity with breathing.

**mediastinitis** (mē'dē-ās'tī-nī'tis) [*"* + Gr. *itis*, inflammation] Inflammation or infection of the mediastinum, such as may occur after injury to the neck, perforation of the esophagus, or after surgical procedures on the heart or lungs.

**mediastinography** (mē'dē-ās'tī-nōg'rā-fē) [*"* + Gr. *graphein*, to write] X-raying of the mediastinum.

**mediastinopericarditis** (mē'dē-ās'tī-nō-pēr'ī-kār-dī'tis) [*"* + Gr. *peri*, around, + *kardia*, heart, + *itis*, inflammation] Inflammatory condition of the mediastinum and pericardium.

**mediastinoscopy** (mē'dē-ās'tī-nōs'kō-pē) [*"* + *skopein*, to examine] Endoscopic examination of the mediastinum.

**mediastinotomy** (mē'dē-ās'tī-nōt'ō-mē) [*"* + *tome*, incision] Surgical incision of the mediastinum.

**mediastinum** (mē'dē-ās'tī'nūm) *pl. mediastina* [L., in the middle] **1.** A septum or cavity between two principal portions of an organ. **2.** The mass of organs and tissues separating the lungs. It contains the heart and its large vessels, trachea, esophagus, thymus, lymph nodes, and connective tissue.

**mediate** (mē'dē-āt) **1.** Accomplished by indirect means. **2.** Between two parts or sides.

**mediation** (mē'dē-ā'shūn) The action of a mediating agent.

**mediator** (mē'dē-ā'tōr) **1.** Any substance or anatomical structure that transmits information between two reagents, cells, tissues, or organs. **2.** Neutral third party who facilitates agreements by helping disputing parties to identify their needs and work toward mutually agreeable solutions.

**medic** (mēd'ik) **1.** Medical corpsman. SEE: *corpsman*. **2.** Slang for paramedic.

**medicable** (mēd'ī-kā-bl) [L. *medicari*, to heal] Possibly responsive to therapy; curable.

**Medicaid** (mēd'ī-kād) A federally aided, but state operated and administered, program for providing medical care for certain low-income individuals.

**medical** (mēd'ī-kāl) **1.** Pert. to medicine or the study of the art and science of caring for those who are ill. **2.** Requiring therapy with medicines as distinct from surgical treatment.

**medical access** The right or ability of an individual to obtain medical and health care services.

**medical anthropology** The study of the impact of biology, culture, ecology, economics, environment, language, politics, and society on healing, health, health care, illness, and treatment.

**medical assistance** In the U.S., a state-

administered program designed to pay for health care provided to medically indigent patients. SEE: *Medicaid*.

**medical assistant** An individual who assists a qualified physician in an office or other clinical setting, performing administrative tasks (such as those of secretary, receptionist, or bookkeeper) and technical duties (vital signs, height, weight, laboratory tests) as delegated and in accordance with state laws governing medical practice.

**medical audit** A systematic approach to reviewing, analyzing, and evaluating medical care in order to identify discrepancies in the quality of care and to provide a mechanism for improving that quality. SEE: *medical outcomes study*.

**medical control** The person or agency responsible for making final decisions about emergency medical care provided by first responders and emergency medical technicians.

**medical corpsman** Corpsman.

**medical direction** Physician input to and overseeing of policies, protocols, medical procedures, training, and quality assurance for an emergency medical service system.

**Medic Alert** A nonprofit foundation that provides a bracelet or pendant with an emblem on which is contained crucial information about a patient's medical history and a warning in case of emergency. The company also keeps a file of the medical information and provides an emergency phone number that medical personnel can call collect. The goal is to prevent a serious or fatal mistake in rendering aid or medical care to an injured or unconscious person who may have an additional condition or allergy (e.g., diabetes, penicillin allergy). Applications may be obtained from Medic Alert, 2323 Colorado Ave, Turlock, CA 95382. Telephone: 1-800-IDALERT. Website: www.medicalert.org. Persons wishing to donate organs may also acquire an emblem from the Medic Alert company stating that fact. SEE: *illust.*



MEDIC ALERT SYMBOL

**medical examiner** A physician who is

trained and qualified for the task of investigating the cause of death and the circumstances surrounding it. Training usually includes study of pathology and forensic medicine. The examiner is empowered by governmental agencies to represent them, and is expected to make a comprehensive report of findings to judicial or police authorities. The skill of a medical examiner is esp. important in investigating deaths wherein malpractice, homicide, suicide, or other criminal actions are suspected of being a contributing factor. SEE: *coroner; death investigation; medicine, forensic.*

**medical geography** The study of disease patterns as influenced by regional or global climate, microbiology, pollution, or other environmental factors; the relationship between the health of populations and the places in which they live.

**medical grand rounds** Grand rounds. SEE: *under rounds.*

**medical impostor** (măd'ī-kīl ĩm-pōs'tēr) One who has not graduated from an accredited medical school and practices medicine without a license.

**medical informatics** The application of information technology and processing to all aspects of medical knowledge, practice, and management, including medical education and research. This process is facilitated by computer technology.

**medical intuitive** An individual who claims to be able to make diagnoses or treat illnesses on the basis of his or her feelings and intuition rather than grounded in specialized education, training, or scientifically evaluated experience.

**medical jurisprudence** SEE: *jurisprudence, medical.*

**medical laboratory technician** ABBR: MLT. A technician who performs biological and chemical tests requiring limited independent judgment or correlation competency under the supervision of a medical technologist, pathologist, or physician.

**medically attended** Cared for by a health care professional.

**medical monitoring** The legal or ethical mandate that a manufacturer of a potentially hazardous product pay for diagnostic tests to determine whether individuals exposed to the product may be developing early signs of injury or disease before they demonstrate any clinical evidence of disease.

**medical nutrition therapy** ABBR: MNT. Nutritional counseling and drug prescriptions provided to patients with type 2 diabetes by dietitians or other nutritional specialists. The goal of MNT is to maintain blood glucose and lipid levels and blood pressure readings within normal limits. Unlike more restrictive

diet plans, MNT allows the patient to eat a regular diet, including sugar, enhancing compliance, as long as carbohydrate intake is consistent each day. Consistent carbohydrate intake helps the provider and patient to regulate insulin doses.

**medical outcomes study** ABBR: MOS. Studies designed to provide valid comparisons between medical care processes and outcomes as they are affected by system of care and clinician's specialty, as well as by patients' diagnoses and the levels of severity of illness. Thus, MOS provides a model for monitoring the results of medical care. SEE: *medical audit.*

**Medical Outcomes Study 36-Item Short-Form Health Survey** ABBR: SF-36. A study used to provide perceived health status in eight domains. These domains include:

1. limitation of physical activity resulting from health problems;
2. limitation of social activity caused by physical or emotional problems;
3. physical health problems limiting usual activities;
4. bodily pain;
5. general mental health (psychological distress or well-being);
6. limitation of usual activities due to emotional problems;
7. vitality (energy and fatigue); and
8. general health perceptions.

The SF-36 is designed for use in those over the age of 14 and is useful in comparing the impact of disease and the efficacy of treatments, and identifying those at risk.

**Medical Practice Acts** Any laws that govern the practice of medicine.

**medical preparations** Preparation (3).

**medical problems of musicians** SEE: *musicians, medical problems of.*

**medical record** A written transcript of information obtained from a patient, guardian, or medical professionals concerning a patient's health history, diagnostic tests, diagnoses, treatment, and prognosis.

**medical record, problem-oriented** SEE: *problem-oriented medical record.*

**medical record technician** A technician who assists the medical record administrator by coding, analyzing, and preserving patients' medical records and compiling reports, disease indices, and statistics in health care institutions.

**medical technologist** A technologist who works in conjunction with pathologists, physicians, and scientists in all general areas of the clinical laboratory. Independent and correlational judgments are made in a wide range of complex procedures. A medical technologist may teach and supervise laboratory personnel.

**medical tourism** Travelling abroad to un-

dergo expensive invasive procedures in countries where high-quality, low-cost care is available, e.g., India. The funds saved on the care received are used to sponsor recuperation and vacation in the host country. Medical tourism is a form of outsourcing of health care and is typically used for highly technical, costly surgical procedures such as coronary artery bypass graft surgery.

**medical transcriptionist** A person who makes a typed record from the data and information available from the physician's dictated material concerning the patient's medical records. An individual who has met the requirements of the American Association of Medical Transcription is certified by that body as a Certified Medical Transcriptionist.

**medical urgency status** An estimate of the health of a patient awaiting organ transplantation. Patients judged to have graver medical conditions are considered to have a more pressing need for donor organs than less gravely ill patients.

**medical waste** Infectious or physically dangerous medical or biological waste. Included are discarded blood and blood products; waste from the pathology department, including body parts, tissues, or fluids discarded during surgery or at autopsy; contaminated animal carcasses; animal body parts and bedding; sharps; discarded preparations made from genetically altered living organisms and their products. SEE: *sharps*; *Standard Precautions Appendix*.

**medicament** (mĕ-dĭk'ă-mĕnt) [L. *medicamentum*] A medicine or remedy.

**medicamentousus** (mĕ-dĭk'ă-mĕn-tō'sĭs) Concerning drugs.

**Medicare** (mĕd'ĭ-kār) In the U.S., a federally sponsored health insurance program for people over age 65, some younger disabled persons, and persons with end-stage renal disease. American Medicare consists of four parts. Medicare Part A provides hospital insurance. Part B (an option some participants choose to purchase) provides general medical insurance. Part C provides health plan choices to beneficiaries who choose to pay for this option. Part D provides a drug benefit. In the U.S., Medicare also administers its own managed care plan. In Canada, Medicare is administered by the provinces.

**Medicare Part C** A component of Medicare that gives beneficiaries the option of receiving health care from privately managed health plans.

**Medicare Part D** The prescription drug benefit plan offered by Medicare beginning in January 2006. Detailed information about the plan can be obtained at Medicare's website: [www.medicare.gov](http://www.medicare.gov)

**medicate** (mĕd'ĭ-kăt) [L. *medicatus*]

1. To treat a disease with drugs. 2. To permeate with medicinal substances.

**medication** (mĕd-ĭ-kă'shŭn) 1. Medicinal substance; a drug. 2. Treatment with remedies. 3. Impregnation with medicine.

**forced m.** Psychotropic medication administered to treat the mental illness or incompetence of an individual deemed too violent, oppositional, paranoid, or disorganized to agree to be treated. It is sometimes used in helping prepare mentally ill individuals for trial.

**hypodermic m.** Treatment by injection of medicine into the body through the skin, using a syringe and needle.

**intravenous m.** The injection of a sterile solution of a drug or an infusion into a vein.

**ionic m.** Introduction of ions of drugs into body tissues through the skin by means of electricity. SEE: *cataphoresis*; *iontophoresis* (2).

**sublingual m.** Treatment with an agent, usually in tablet form, placed under the tongue.

**medication errors** Administering the wrong medicine, administering an incorrect dose of a medicine, failing to administer a prescribed medicine, or administering the medicine either at the incorrect time or via the incorrect route. Every effort should be made to prevent errors in medication, many of which are detailed in the table. If an error occurs, it should be reported immediately (following agency protocols). Appropriate patient protection procedures should be implemented. SEE: table; *drug handling*.

**medication misadventure** A drug experience that results in an undesired or unintended response to drug therapy. The term includes both adverse drug reactions and medication errors. An undesired or unintended response to the intended choice and dosage of a drug is called an adverse drug reaction. An error or mistake in the administration of a drug is called a medication error. SEE: *adverse drug reaction*; *medication errors*.

**medication pass** The administering of prescribed drugs by nurses or aides to a group of patients or residents, in accordance with state and federal standards.

**medication possession ratio** ABBR: MPR. The number of dispensed medication doses divided by the number of days in a unit of time (e.g., 1 year). The MPR can be used to estimate the degree to which patients with chronic medical conditions comply with prescribed drug therapies.

**medication reconciliation** Any process that ensures that the medications given to and taken by the patient are the same as those prescribed by the health care

## Common Medication Errors

Error	Explanation
Expired medication given	The correct medication and dose are given, but the medication is no longer potent
Incorrect dose	The correct medication is given to the correct patient, but the dose (e.g., 75 mg instead of 75 mcg) is improperly identified and administered
Incorrect labeling	The medication is given with improper identification, inadequate warnings about side effects or interactions, or with the wrong patient's name
Inadequate monitoring for side effects	The medication is given properly, but prudent assessment of vital signs or heart rhythms (e.g., antiarrhythmic drugs) is not performed
Incorrect quantity	The patient receives medications in the correct dosage, but the wrong number of pills of that dosage are administered
Mixing error	The correct medication is given, but it is given in the wrong diluent or with an incompatible intravenous fluid
Patient allergy not recognized	The patient is given an agent (a drug or vaccine, for example) to which he or she has reacted adversely in the past
Self-administration of drugs	A patient takes a medication without supervision, and then receives additional or conflicting medications under provider supervision
Stocking errors	Medications are dispensed to satellite dispensaries or pharmacies in a facility and given to patients without oversight from a coordinating center, where important patient-centered information is stored
Timing error	A medication is given too often or not often enough
Wrong patient	A medication is given to one patient in a room, when another should have been treated; a medication is mistakenly given to a patient whose name resembles the name of the intended patient
Wrong route of administration	A medication intended for oral use is given intravenously, or by another inappropriate or potentially hazardous route.

provider. Medication errors occur frequently when patients suffer new illnesses or when they are admitted to or discharged from health care facilities. Some of these errors may be limited by making certain that patients are educated about new drugs they may need to take and that they understand which of their old drugs must be eliminated from their regimen. The crucial times to reconcile prescribed medications occur at hospital admission, during transfer to and from special care units such as intensive care units, and at hospital discharge.

**medication route** The way that a drug is introduced into the body. The route of administration is chosen according to the speed of absorption desired and the site of action of the medication. Some medications are formulated for a specific route only and must be given in that manner. It is important that medicines be administered as directed by the manufacturer. Various routes of administration used are as follows:

*Oral* and *enteral* administration require that the medication not be de-

stroyed by the environment of the stomach and digestive enzymes. It is too slow if rapid absorption is required, and cannot be used if the patient is vomiting. Rectal administration in the form of liquids or suppositories circumvents this problem in enteral administration.

*Mucosal* routes of administration other than the above include absorption through the nasal mucosa, the buccal mucosa, sublingually, or the bronchioles, the latter usually achieved through inhalation of an aerosol. Vaginal and rectal administration are also mucosal routes of medication.

*Percutaneous* administration is used for iontophoresis or by direct absorption through the skin.

*Parenteral* administration is used when a drug cannot be given by mouth. The speed of absorption varies greatly with the specific route used, which may be subcutaneous, intravenous, intramuscular, intra-arterial, intraperitoneal, intrathecal, intracardiac, or intrasternal.

**medicinal** (mě-dí'sín-äl) [L. *medicina*, medicine] Pert. to medicine.

**medicine** **1.** A drug or remedy. **2.** The act of maintenance of health, and prevention and treatment of disease and illness. **3.** Treatment of disease by medical, as distinguished from surgical, treatment.

**aerospace m.** Branch of medicine concerned with the selection of individuals for duty as pilots or crew members for flight and space missions. Includes study of the pathology and physiology of persons and animals who travel in airplanes and spacecraft in the earth's atmosphere and in outer space. SYN: *aviation m.*

**alternative m.** Complementary and alternative m.

**arts m.** The study and practice of medical problems of performing artists, including musicians, vocalists, and dancers.

**aviation m.** Aerospace medicine.

**Ayurvedic m.** An ancient Hindu medical system, promoted as a means of restoring balance and health by harmonizing mind and body. Ayurvedic medicine, also known as Ayurveda, uses herbal remedies, massage therapy, yoga, and pulse diagnosis. It bases its beliefs on five elements (fire, air, earth, water, and ether), which combine to influence a classification of body types that must be harmonized with nature to maintain well-being. SYN: *vedic medicine.*

**bioenergetic m.** A branch of complementary and alternative medicine (CAM) that relies on the detection, measurement, and adjustment of electromagnetic energy within the body. SEE: *bioenergetics.*

**biofield m.** A discipline within the field of complementary and alternative medicine that proposes to study subtle energy fields in and around the body for therapeutic purposes.

**clinical m.** Observation and treatment at the bedside; the practice of medicine in the clinical setting as distinguished from laboratory science.

**community m.** Medical care designed to provide preventive and clinical services to anyone in need, rather than only to those who are insured or are able to pay for such services.

**complementary and alternative m.** ABBR: CAM. Any of the therapies designed and promoted to improve health and well-being that are usually considered to be outside the scope of Western, allopathic, medical practice. The National Institute Health's National Center for Complementary and Alternative Medicine for research and scholarly purposes has defined five broad categories of CAM: 1) Biological therapies, e.g., herbs, dietary supplements, special nutritional programs; 2) Mind-Body therapies, e.g., relaxation therapies,

meditation, biofeedback, hypnosis; 3) Manual therapies, e.g., massage, chiropractic, and other body-based manipulative therapies like Rolfing; 4) Bioenergetic therapies, e.g., magnets, healing touch, therapeutic touch, qi gong; 5) Alternative systems of care., e.g., ayurveda, traditional Chinese medicine, naturopathy, homeopathy. SEE: Integrative Therapies: Complementary and Alternative Medicine appendix. SYN: *alternative m.* SEE: *integrative m.*

**cookbook m.** The use of algorithms (in place of individualized care) in medicine; the reliance by practitioners on protocol and rules rather than on a comprehensive, individual approach to the medical needs of a patient.

**correctional m.** Health care provided to inmates of prisons and jails.

**defensive m.** Any health care practice used primarily to fend off malpractice litigation or to reduce a perceived risk of liability, rather than to advance patient care. It may include: ordering excessive blood tests or radiological studies; requesting unneeded consultations; or declining to participate in certain forms of care. In some cases, defensive medicine results in the early retirement of the practitioner. It is most commonly used by health care providers in specialties known to be at high-risk for litigation: emergency physicians; general surgeons; neurosurgeons; obstetricians; and orthopedic surgeons.

**dental m.** Branch of medicine concerned with the preservation and treatment of the teeth and other orofacial tissues. It includes preventive measures such as oral hygiene, as well as restorative procedures or prostheses and surgery. The results are widespread, including better nutrition and digestion from restored and balanced occlusion, and improved mental health from the control of oral and dental infections that often are overlooked but jeopardize the success of other medical treatments.

**desmoteric m.** Desmotology.

**disaster m.** Large-scale application of emergency medical services in a community, following a natural or man-made catastrophe. The aim is to save lives and restore every survivor to maximum health as promptly as possible. Its success depends on prompt sorting of patients according to their immediate needs and prognosis. SEE: *triage.*

**emergency m.** Branch of medicine specializing in emergency care of the acutely ill and injured. Board-certified physicians who successfully complete a residency and qualifying examination and who meet other requirements of the American College of Emergency Physicians may use the abbreviation FACEP (Fellow of the American College of Emergency Physicians). SEE: *nurse,*



*certified emergency*; *Emergency Nurses Association*; *FACEP*.

**environmental m.** Branch of medicine concerned with the effects of the environment (temperature, rainfall, population size, pollution, radiation) on humans.

**evidence-based m.** Evidence-based health care.

**experimental m.** The scientific study of disease or pathological conditions through experimentation on laboratory animals or through clinical research.

**family m.** Area of medical specialization concerned with providing or supervising the medical care of all members of the family.

**folk m.** Use of home remedies for treatment of diseases.

**forensic m.** Medicine in relation to the law; as in autopsy proceedings, or the determination of time or cause of death, or in the determination of sanity. Also, the legal aspects of medical ethics and standards. SYN: *legal m.*

**frontier m.** Any field within complementary and alternative medicine that lacks basic scientific credibility, i.e., lacks a reasonable explanation. According to the National Center for Complementary and Alternative Medicine, reiki and therapeutic touch are examples of frontier medicine.

**gender-specific m.** Health care that pertains only to men or to women but not to individuals of both genders, for example, diseases and conditions produced by sex hormones.

**group m.** 1. Practice of medicine by a group of physicians, usually consisting of specialists in various fields who pool their services and share laboratory and x-ray facilities. Such a group is commonly called a clinic. 2. Securing of medical services by a group of individuals who, on paying definite sums of money, are entitled to certain medical services or hospitalization in accordance with prearranged rules and regulations.

**high-tech m.** Engineered advances in medical knowledge and technique that have resulted in improved diagnostic, therapeutic, and rehabilitative procedures.

**holistic m.** A patient-centered approach to healing that strives to meet the cognitive, emotional, physical, social, and spiritual needs of patients. SEE: *holism*.

**industrial m.** Occupational and environmental medicine.

**integrative m.** A branch of medicine that uses evidenced-based approaches to combine conventional medical practices with therapies from complementary and alternative medicine. SEE: *complementary and alternative m.*

**internal m.** The medical specialty concerned with the overall health and

well-being of adults. The internist uses the tools of history taking, physical examination, and diagnostic testing to diagnose and prevent disease. Patient education, lifestyle modification, psychological counseling, use of medications, inpatient medical care, and referral to other specialists are responsibilities of the internist.

**legal m.** Forensic medicine.

**mind-body m.** An approach to medicine that recognizes the effect of thought, feeling, and belief on health, as well as the impact of health and illness on attitude and thought. Common therapies used in this field are biofeedback, hypnosis, imagery, meditation, psychoeducation, and relaxation therapies. SYN: *psychosomatic m.*

**Native American m.** Traditional, culturally specific beliefs and practices of Native Americans regarding health that emphasize awareness of self and spirit, rest, connection with nature, herbal medicine, social support, and ceremonial or ritualistic healing.

**naturopathic m.** The philosophy and practice of healing that relies primarily on the use of nutrition, herbal remedies, homeopathy, massage, and counseling to promote wellness and healthy lifestyles. Other modalities used include such disciplines as aromatherapy, color therapy, traditional Chinese medicine, and iridology.

The underlying principle of naturopathy is that the power of nature is the ultimate healer. Seminal figures in the founding of naturopathic medicine include Benedict Lust and Sebastian Kneipp. There are several naturopathic medical schools in the U.S. leading to an ND (naturopathic doctor) degree. Fourteen states in the U.S. currently license naturopathic practice.

**nuclear m.** Branch of medicine involved with the use of radioactive substances for diagnosis, therapy, and research.

**occupational and environmental m.** ABBR: OEM. The branch of medicine concerned with work-related diseases, hazards, and injuries; working conditions; employee rehabilitation; and the regulations that pertain to these issues. SYN: *industrial m.*

**patent m.** A drug or medical preparation that is protected by patent and sold without a physician's prescription. The law requires that it be labeled with names of active ingredients, the quantity or proportion of the contents, and directions for its use, and that it not have misleading statements as to curative effects on the label. SEE: *nonproprietary name*; *prescription*; *proprietary medicine*.

**physical m.** Treatment of disease by physical agents such as heat, cold, light,

electricity, manipulation, or the use of mechanical devices.

**preclinical m.** 1. Preventive medicine. 2. Medical education that takes place in classes, laboratories, and symposia, preceding the training that occurs through the direct care of patients.

**preventive m.** The anticipation and thwarting of disease in individuals and populations. SEE: *prevention*.

**proprietary m.** SEE: under *proprietary medicine*.

**psychosomatic m.** Mind-body medicine.

**regenerative m.** The use of stem cells to treat diseases caused by the loss or degeneration of cells in vital organs such as the brain, heart, or kidneys.

**socialized m.** A health care delivery system in which the provision of services is controlled by the government.

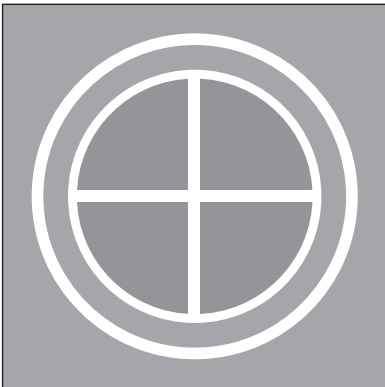
**sports m.** The branch of medicine concerned with the physiology, psychology, and pathology of athletes. Important aspects of sports medicine are the prevention of injuries, and their diagnosis, treatment, and rehabilitation.

**traditional Chinese m.** ABBR: TCM. Medical practice as it developed in early Chinese civilization and philosophy and widely used today by both Asians and non-Asians. It is an alternative system of medicine which uses acupuncture, diet, exercise therapies (e.g., tai chi and qi gong), herbal remedies, and massage. SEE: *acupuncture*; *tai chi*.

**tropical m.** Branch of medical science that deals principally with diseases common in tropical or subtropical regions, esp. diseases of parasitic origin.

**veterinary m.** Branch of medical science that deals with diagnosis and treatment of diseases of animals.

**medicine wheel** A symbol used by Native Americans to represent wholeness and balance. The medicine wheel consists of a circle with four quadrants representing spiritual, mental, physical, and emotional planes of existence. SEE: *illus.*



MEDICINE WHEEL

**medicochirurgical** (mĕd'ī-kō-kī-rūr'jī-kāl) [L. *medicus*, medical, + Gr. *cheir*, hand, + *ergon*, work] Concerning both medicine and surgery.

**medicolegal** (mĕd'ī-kō-lĕ'gāl) [" + *legalis*, legal] Relating to medical jurisprudence or forensic medicine.

**medicomechanical** (mĕd'ī-kō-mĕ-kān'ī-kāl) Concerning both medical and mechanical aspects of treating patients.

**medicopsychology** (mĕd'ī-kō-sī-kōl'ō-jĕ) The relationship of medicine to the mind or to mental illness.

**Medigap** (mĕd'ī-găp") One of several optional, supplemental insurance programs that augment a Medicare beneficiary's health care coverage. The costs and benefit structures of these programs vary. Some provide comprehensive health care services for relatively high prices; others provide more limited benefits for lower costs.

**Medina worm** (mĕ-dĕn'ă) *Dracunculus medinensis*.

**medio-, medi-, med-** [L. *medius*, middle] Prefixes meaning *middle*.

**mediolateral** (mĕ'dĕ-ō-lăt'ĕr-ăl) Concerning the middle and side of a structure.

**medionecrosis** (mĕ'dĕ-ō-nĕ-krō'sīs) [" + *nekrosis*, state of death] Necrosis of the tunica media of a blood vessel.

**medisect** (mĕ'dī-sĕkt) [" + *secare*, to cut] To cut on the median line of the body or structure.

**meditation** The art of contemplative thinking. It is used to control stress and improve relaxation, focus attention, and lower heart rate and blood pressure.

**mindfulness m.** A form of meditation or induced relaxation that focuses awareness on breathing and encourages positive attitudes to achieve a healthy, balanced mental state. Mindful meditation is advocated for reducing reactions to stress by inducing the relaxation response, lowering the heart rate, reducing anxiety, and encouraging positive thought patterns and attitudes. Practitioners of mindfulness meditation aim to cultivate self-awareness, and a nonjudgmental, loving, kind, and compassionate feeling toward themselves and others. SEE: *relaxation response*.

**transcendental m.** ABBR: TM. A type of meditation based on ancient Hindu practices in which a person tries to relax by sitting quietly for regular periods while repeating a mantra. The value of TM in treating various conditions is under investigation. It was first popularized in the West by Maharishi Mahesh Yogi. SEE: *relaxation response*.

**Mediterranean disease** *Thalassemia*.

**Mediterranean fever** *Brucellosis*.

**Mediterranean spotted fever** An infectious, occasionally fatal illness transmitted to humans by ticks infected with *Rickettsia conorii*. The disease is clini-

cally similar to Rocky Mountain spotted fever. SYN: *boutonneuse fever*.

**medium** (mēd'ē-ūm) *pl.* **media** **1.** An agent through which an effect is obtained. **2.** Substance used for the cultivation of microorganisms or cellular tissue. SEE: *culture m.* **3.** Substance through which impulses are transmitted.

**clearing m.** A substance that renders histological specimens transparent.

**culture m.** A substance on which microorganisms may grow. Those most commonly used are broths, gelatin, and agar, which contain the same basic ingredients.

**defined m.** In bacteriology, a medium in which the composition is accurately defined and carefully controlled. One use of this culture medium is to investigate the influence of altering ingredients on bacterial cell growth characteristics.

**dispersion m.** A liquid in which a colloid is dispersed.

**nutrient m.** A fortified culture medium with added nutrient materials.

**radiolucent m.** A substance injected into an anatomical structure to decrease the density, producing a dark area on the radiograph.

**radiopaque m.** A substance injected into a cavity or region or passed through the gastrointestinal tract to increase the density, producing an image with enhanced contrast between solid and hollow structures.

**refracting m.** The fluids and transparent tissues of the eye that refract light rays passing through them toward the retina: the cornea, aqueous humor, lens, and vitreous humor.

**separating m.** In dentistry, a substance applied to the surface of an impression or mold to prevent interaction of the materials and to facilitate their separation after casting.

**transport m.** A nutrient solution used to maintain the freshness or viability of patient specimens as they are being carried to the laboratory for culture.

**medium-chain triglycerides** SEE: *triglycerides, medium-chain*.

**medius** (mē'dē-ūs) [L.] Middle. Indicating the middle one of three similar structures.

**MEDLARS** (mēd'lahrz') [*Medical Literature Analysis and Retrieval System*] A computerized system of databases and data banks available from the National Library of Medicine. A person may search the computer files to produce a list of publications (bibliographic citations) or retrieve factual information on a specific question. MEDLARS databases cover medicine, nursing, dentistry, veterinary medicine, and the pre-clinical sciences. They are used by uni-

versities, medical schools, hospitals, government agencies, commercial and nonprofit organizations, and private individuals. In 2008, MEDLARS databases included about 18 million references.

**MEDLINE** [*MEDLARS on line*] The computer-accessible bibliographic database of the National Library of Medicine. It is the system that links telephone lines to the MEDLARS databases. It includes references that appear in more than 3800 research, medical, dental, veterinary, and nursing journals. SEE: *MEDLARS*.

**medroxyprogesterone acetate** (mēd-rōk'sē-prō-jēs'tēr-ōn) A progestational agent used to treat secondary amenorrhea, abnormal uterine bleeding related to hormone imbalance, and advanced endometrial and renal malignancies. It also is used with estrogens in hormone replacement therapy and administered intramuscularly as a long-term contraceptive (it is effective for up to 90 days).

**medulla** (mē-dūl'lā) *pl.* **medullae** [L. *medulla*, marrow, pith] **1.** Marrow. **2.** Inner or central portion of an organ in contrast to the outer portion or cortex. **medullary** (mēd'ī-lēr'ē,mēj'), *adj.*

**adrenal m.** The central tissue of the adrenal (suprarenal) gland. It is filled with chromaffin cells (pheochromocytes), which are derived from the neural crest and are very much like post-synaptic sympathetic ganglion cells. In response to stimulation by presynaptic sympathetic axons, chromaffin cells secrete epinephrine and norepinephrine into the bloodstream. SEE: *adrenal gland*.

**m. of hair** Central axis of a hair.

**m. of kidneys** SEE: *pyramid, renal*.

**m. oblongata** The lowest part of the brainstem, continuous with the spinal cord above the level of the foramen magnum of the occipital bone. It regulates heart rate, breathing, blood pressure, and other reflexes, such as coughing, sneezing, swallowing, and vomiting.

**m. of ovary** Central portion of the ovary composed of loose connective tissue, blood vessels, lymphatics, and nerves.

**medullectomy** (mēd'ū-lēk'tō-mē) [L. *medulla*, marrow, + Gr. *ektome*, excision] Surgical excision of a part of the medulla of the brain.

**medullitis** (mēd-ū-lī'tis) [' + Gr. *itis*, inflammation] Inflammation of marrow. SYN: *myelitis*.

**medullization** (mēd'ū-lī-zā'shūn) Abnormal conversion of bone to marrow.

**medulloblast** (mē-dūl'ō-blāst) [' + Gr. *blastos*, germ] An immature cell of the neural tube that may develop into either a nerve or neuroglial cell.

**medulloblastoma** (mē-dūl'ō-blās-tō'mā) [' + Gr. *blastos*, germ, + *oma*, tu-

mor] A malignant tumor of the roof of the fourth ventricle and cerebellum. The tumor is the most common malignant brain tumor in childhood. SYN: *primitive neuroectodermal tumor*.

**medulloepithelioma** (mê-dûl"ô-êp"i-thêl-ê-ô'mă) [" + Gr. *epi*, upon, + *thelê*, nipple, + *oma*, tumor] Tumor composed of retina epithelium and of neuroepithelium. SYN: *glioma*; *neuroepithelioma*.

**MedWatch** (mêd'wătch) A voluntary and confidential program of the Food and Drug Administration (FDA) for monitoring the safety of drugs, biologicals, medical devices, and nutritional products such as dietary supplements, medical foods, and infant formulas. The FDA provides forms for reporting adverse events associated with any of these products. Health professionals may obtain the form by calling 1-800-332-1088. Information may be faxed to the FDA by calling 1-800-332-0178.

**Mees lines** (mêz) [R. A. Mees, 20th century Dutch scientist] Transverse white lines that appear above the lunula of the fingernails about 5 weeks after exposure to arsenic.

**mefipristone** An oral agent used to induce abortions. It is typically administered for this purpose with misoprostol or methotrexate. The drug was formerly known as RU-486.

**mega-** [Gr. *megas*, large] **1.** SEE: *megalo-*. **2.** Indicates 1 million (10<sup>6</sup>) when used in combination with terms indicating units of measure; thus a megaton is 1 million tons.

**megabladder** (mêg"â-blăd'êr) [" + AS. *blaedre*, bladder] Permanent abnormal enlargement of the urinary bladder. SEE: *megalocystis*.

**megacardia** (mêg"â-kăr'dê-ă) Cardio-megaly.

**megacephalic** (mêg"â-sê-făl'ik) Megalocephalic.

**megacolon** (mêg"â-kô'lôn) [" + *kolon*, colon] Massive dilation of the colon, which, if left untreated, may result in perforation and peritonitis.

**aganglionic m.** Hirschsprung's disease.

**toxic m.** Marked enlargement of the colon, esp. the transverse colon. Clinically, tachycardia, fever, and leukocytosis occur. There may be abdominal tenderness, a palpable abdominal mass, confusion, cramping, and change in number of bowel movements per day. SYN: *toxic dilatation of colon*.

**ETIOLOGY:** The most common causes of toxic megacolon in adults are ulcerative colitis, pseudomembranous colitis, Crohn's disease, drugs that slow intestinal motility (such as narcotics), and severe electrolyte disturbances. Megacolon in children may result from Hirschsprung's disease.

**TREATMENT:** Patients with toxic megacolon are treated by withholding oral intake, providing nasogastric suction, giving broad-spectrum antibiotics (and corticosteroids, in inflammatory bowel disease), and carefully resuscitating fluids and electrolytes. Surgery is required if the patient fails to improve or deteriorates.

**megacurie** (mêg"â-kû'rê) [" + *curie*] ABBR: MCi. A unit of radioactivity equal to 10<sup>6</sup> curies.

**megadontia** (mêg"â-dôn'shê-ă) [" + *odous*, *odont-*, tooth] Macrodontia.

**megadose** (mê'gă-dôs") A dose of a nutrient, such as a vitamin supplement, that is 10 times greater than the recommended daily allowance for that nutrient.

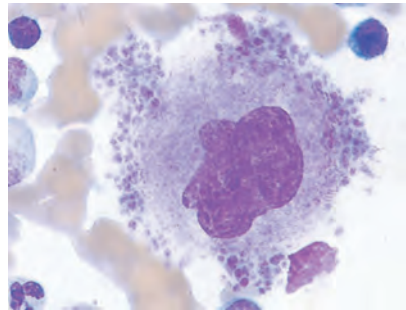
**megadyne** (mêg"â-dîn) A unit equal to 1 million dynes. SEE: *dyne*.

**meaesophagus** (mêg"â-ê-sôf"â-gûs) [" + *oisophagos*, esophagus] A grossly dilated esophagus usually associated with achalasia. SYN: *megaloesophagus*.

**megahertz** (mêg"â-hêrtz) ABBR: MHz. One million cycles per second, or 10<sup>6</sup> hertz.

**megakaryoblast** (mêg"â-kăr'ê-ô-blăst) An immature megakaryocyte.

**megakaryocyte** (mêg"â-kăr'ê-ô-sīt") [" + *karyon*, nucleus, + *kytos*, cell] Large bone marrow cell with large or multiple nuclei from which platelets are derived. SEE: *platelet*; *illus.*



**MEGAKARYOCYTE**

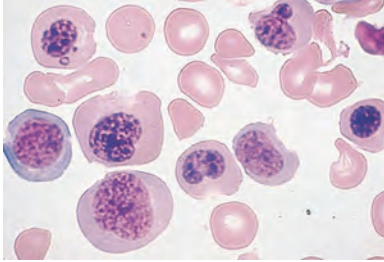
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**megakaryocytosis** (mêg"â-kăr'ê-ô-sī-tô'sis) [" + " + " + *osis*, condition] An increased number of megakaryocytes in the bone marrow; presence of megakaryocytes in the blood.

**megalencephaly** (mêg"âl-ên-sêf"â-lê) [" + *enkephalos*, brain] Abnormally large size of the brain, usually accompanied by mental deficiency.

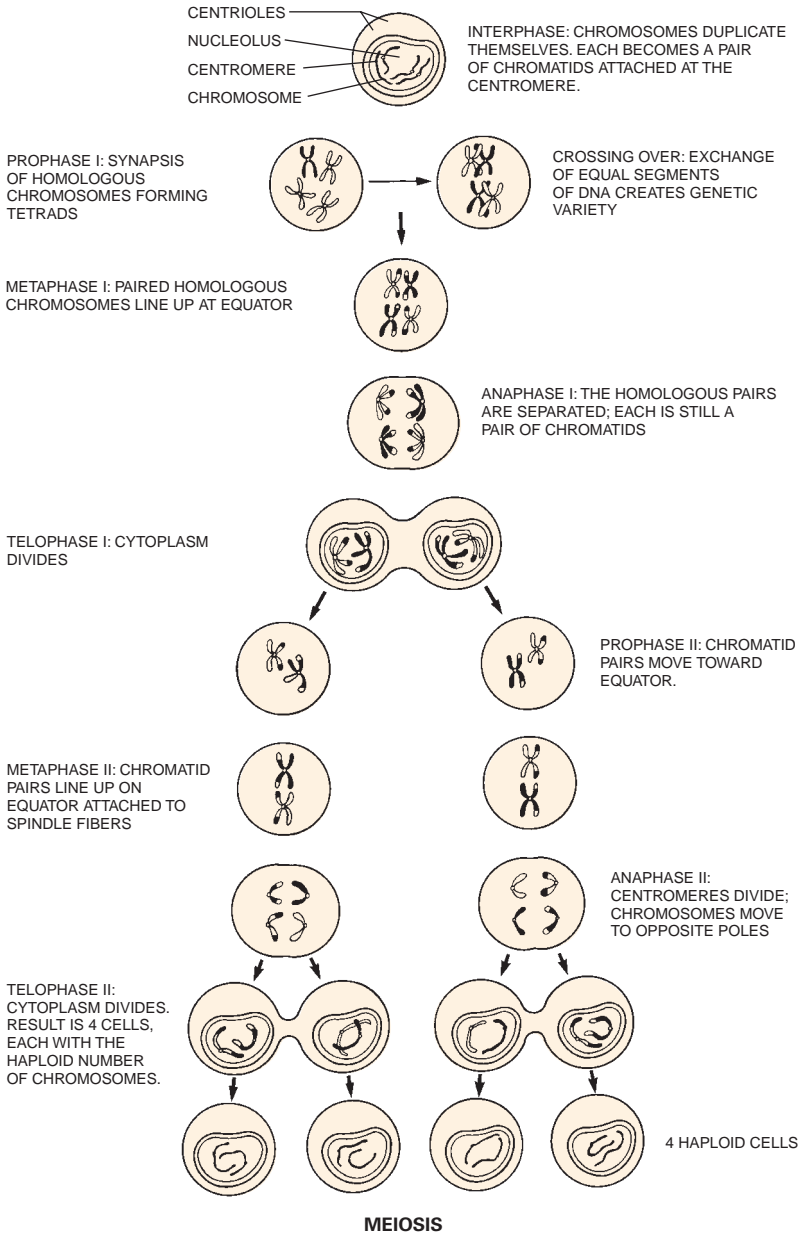
**megalo-, mega-** [Gr. *megas*, large] Combining form meaning *large* or *huge*.

**megaloblast** (mĕg'ă-lō-blăst) [ʹ + *blas-tos*, germ] A large, nucleated, abnormal red blood cell, from 11 to 20  $\mu\text{m}$  in diameter, oval and slightly irregular. It is found in the blood in cases of pernicious anemia. **SEE: illus.**



MEGALOBLASTS

- megalocephalic** (mĕg'ă-lō-sĕf-ăl'ik) [ʹ + *kephale*, head] Having an abnormally large head. **SEE: macrocephalia; megacephalic.**
- megalocephaly** (mĕg'ă-lō-sĕf'ă-lĕ) [ʹ + *kephale*, head] **1.** Abnormal size of the head. **SEE: macrocephalia.** **2.** A rare disease characterized by hyperostosis of bones of the skull. **SYN: leontiasis ossea.**
- megalochairia** (mĕg'ă-lō-kī'rĕ-ă) [ʹ + *chir*, hand] Abnormally large hands.
- megalocornea** (mĕg'ă-lō-kor'nĕ-ă) [ʹ + L. *cornu*, horn] Abnormally enlarged cornea due to a developmental anomaly. **SEE: macrocornea.**
- megalocystis** **SEE: megabladder.**
- megalocyte** (mĕg'ă-lō-sīt) [ʹ + *kytos*, cell] A larger than average red blood corpuscle.
- megalodactyly** (mĕg'ă-lō-dăk'ti-lĕ) [ʹ + *daktylos*, finger] Having very large fingers or toes.
- megalodontia** (mĕg'ă-lō-dŏn'shĕ-ă) [ʹ + *odous*, tooth] Macrodontia.
- megaloesophagus** (mĕg'ă-lō-ĕ-sŏf'ă-gŭs) Megaesophagus.
- megalomania** (mĕg'ă-lō-mă-nĕ-ă) [ʹ + *mania*, madness] A psychosis characterized by ideas of personal exaltation and delusions of grandeur.
- megalophthalmos** (mĕg'ă-lŏf-thăl'mŭs) [ʹ + *ophthalmos*, eye] Abnormally large eyes.
- megalopodia** (mĕg'ă-lŏ-pŏ'dĕ-ă) [ʹ + *pous*, foot] Abnormally large feet.
- megalosyndactyly** (mĕg'ă-lŏ-sin-dăk'til-ĕ) [ʹ + *syn*, with, + *daktylos*, finger] A condition in which the fingers or toes are of large size and webbed.
- megaloureter** (mĕg'ă-lŏ-ŭ-rĕ'tĕr, -ŭr'ĕ-tĕr) [ʹ + *oureter*, ureter] Increase in diameter of the ureter.
- megaly** [Gr. *me-gas*, large] Combining form indicating an enlargement of a specified body part.
- megaprosopia** (mĕg'ă-prŏs'ŏ'pĕ-ă) [ʹ + *prosopon*, face] Possessing a large face.
- megarectum** (mĕg-ă-rĕk'tŭm) [ʹ + L. *rectum*, straight] Excessive dilatation of the rectum.
- megaseme** (mĕg'ă-sĕm) [ʹ + *sema*, sign] Having an orbital aperture with an index exceeding 89, said of a skull.
- megavitamin** (mĕg'ă-vī'tă-mĭn) A dose of one or more vitamins that is much in excess of the normal daily requirements (up to 10 times the recommended daily intake).
- megavolt** (mĕg'ă-vŏlt) One million,  $10^6$ , volts.
- meglitinide** (mĕg-līt'in-ĭd) A class of oral hypoglycemic agents that lower blood glucose by stimulating the pancreas to secrete insulin. As serum glucose levels drop, the effects of the medication weaken, lessening the risk of hypoglycemia relative to other insulin secretagogues.
- meglumine** (mĕg'lŭ-mĕn) A radiopaque compound used in x-ray studies.
- megohm** (mĕg'ŏm) One million,  $10^6$ , ohms.
- meibomian cyst** (mī-bŏ'mĕ-ăn) [Heinrich Meibom, Ger. anatomist, 1638–1700] Chalazion.
- meibomitis, meibomiantis** (mī-bŏ'mī'tis) Inflammation of the meibomian glands. **SYN: adenophthalmia.**
- Meige syndrome** (mĕg, mĕzh) [Henri Meige, French physician, 1866–1940] A dystonic movement disorder that can involve dry eyes and excessive eye blinking, with involuntary movements of the jaw muscles, neck, lips, and tongue.
- Meigs syndrome** (mĕgz) [Joe V. Meigs, U.S. gynecologist, 1892–1963] Benign tumor of the ovary associated with ascites and pleural effusion.
- meio-** [Gr. *meioun*, diminution] **SEE: mio-**
- meiosis** (mī-ŏ'sis) [Gr. diminution] A process of two successive cell divisions, producing cells, egg or sperm, that contain half the number of chromosomes (haploid) in somatic cells. When fertilization occurs, the nuclei of the sperm and ovum fuse and produce a zygote with the full chromosome complement (diploid). **SEE: illus.; chromosome; mitosis; oogenesis.**
- Meissner's corpuscle** (mīs'nĕrz) [Georg Meissner, Ger. histologist, 1829–1905] A sensory end-organ in which the bare tips of 1–4 sensory axons spiral inside a sphere of ordered epithelial cells. The corpuscle is covered with a capsule that is continuous with the sheaths of the innervating axons. Meissner's corpuscles are found inside the papillary ridges (which underlie the epidermal ridges of fingerprints) of the skin of the volar surfaces. They are also found on other hairless skin (e.g., lips, eyelids, and the tip of the tongue). The corpuscles are receptors for tactile discrimination.



**Meissner's plexus** An autonomic plexus in the submucosa of the alimentary tube that regulates secretions of the mucosa.

**melagra** (mĕl-ă'gră) [Gr. *melos*, limb, + *agra*, seizure] Pain of muscular origin in the limbs.

**Melaleuca alternifolia** (mĕl'ă-look'ă ältĕr'nĭ-fō'lĕ-ă) [NL, lit. "alternate-leaved white-black" (referring to the

trunk and branches, respectively)] The Australian tea tree. An evergreen from which an essential oil is made for cosmetics, fragrances, and some alternative and conventional medicines.

**melalgia** (mĕl-ăl'jĕ-ă) [" + *algos*, pain] Pain of neural origin in the limbs.

**melancholia** (mĕl-ăn-kō'lĕ-ă) [Gr. *melankhōlia*, sadness] A term used occa-

sionally for depression, esp. for depression complicated by frequent crying, anhedonia, and fearfulness. There may be agitation or retardation. Weight loss, anorexia, insomnia, and worsening of symptoms may occur in the early morning.

**affective m.** Melancholia observed in depressed phase of manic-depressive psychoses. SEE: *bipolar disorder*.

**climacteric m.** Depression occurring at the time of menopause.

**panphobic m.** Melancholia accompanied by extraordinary fearfulness.

**suicidal m.** Impulse to commit suicide combined with melancholia.

**melaniferous** (mĕl'ăn-ĭf'ĕr-ŭs) [ʹ + L. *ferre*, to carry] Containing melanin or some other black pigment.

**melanin** (mĕl'ă-nĭn) [Gr. *melas*, black] The pigment produced by melanocytes that gives color to hair, skin, the substantia nigra of the brain, and the choroid of the eye. Exposure to sunlight stimulates melanin production; melanin protects skin cells from ultraviolet radiation. **melanoid** (mĕl'ă-noyd), *adj.*

**melano-** [Gr. *melas*, black] Prefix meaning *black, black color, or darkness*.

**melanoameloblastoma** (mĕl'ă-nō-ă-mĕl'ō-blăs-tō'mă) [ʹ + O.Fr. *amel*, enamel, + Gr. *blastos*, germ, + *oma*, tumor] Melanotic neuroectodermal tumor.

**melanoblast** (mĕl'ăn-ō-blăst', mĕl'ăn'ō-blăst) [ʹ + *blastos*, germ] A cell originating from the neural crest that differentiates into a melanocyte.

**melanoblastoma** (mĕl'ă-nō-blăs-tō'mă) [ʹ + " + *oma*, tumor] A tumor containing melanin.

**melanocyte** (mĕl'ăn-ō-sĭt, mĕl'ăn'ō-sĭt) [ʹ + *kytos*, cell] A melanin-forming cell. Those of the skin are found in the lower epidermis.

**melanocytoma** (mĕl'ă-nō-sĭ-tō'mă) [ʹ + *kytos*, cell, + *oma*, tumor] A rare pigmented benign tumor of the optic disk.

**melanoderma** (mĕl'ăn-ō-dĕr'mă) A patchy or generalized skin discoloration caused by either an increase in the production of melanin by the normal number of melanocytes or an increase in the number of melanocytes. SYN: *melanopathy*.

**melanodermatitis** (mĕl'ă-nō-dĕr'mă-tĭ'tis) [ʹ + " + *itis*, inflammation] Dermatitis in which an excess of melanin is deposited in the involved area.

**melanoepithelioma** (mĕl'ăn-ō-ĕp'i-thĕ-lĕ-ō'mă) [ʹ + *epi*, upon, + *thelē*, nipple, + *oma*, tumor] A malignant epithelioma containing melanin.

**melanogen** (mĕ-lăn'ō-jĕn) [ʹ + *genan*, to produce] A colorless substance that can be converted into melanin.

**melanogenesis** (mĕl'ăn-ō-jĕn'ĕ-sĭs) [ʹ + *genesis*, generation, birth] Formation of melanin.

**melanoglossia** (mĕl'ăn-ō-glōs'ĕ-ă) [ʹ + *glossa*, tongue] Black tongue.

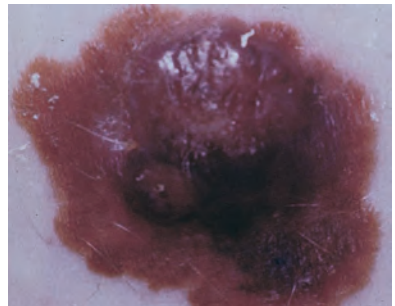
**melanoleukoderma** (mĕl'ăn-ō-lŭ'kō-dĕr'mă) [ʹ + *leukos*, white, + *derma*, skin] Mottled skin.

**m. colli** Mottled skin of the neck sometimes seen in syphilis. SYN: *collar of Venus*; *syphilitic leukoderma*; *venereal collar*.

**melanoma** (mĕl'ă-nō'mă) [ʹ + *oma*, tumor] A malignant tumor of darkly pigmented cells (melanocytes) that often arises in a brown or black mole. The tumor can spread aggressively throughout the body (e.g., to the brain and other internal organs). The incidence of the disease is rising rapidly in the U.S., esp. among people older than 60 years. In 2008, the American Cancer Society estimated that 62,480 Americans would be diagnosed with melanoma and that more than 8,400 would die from the disease. More than 90% of melanomas develop on the skin; about 5% occur in the eye, and 2.5% occur on mucous membranes. SEE: *illus.*

The likelihood of long-term survival depends on the depth of the lesion (thicker lesions are more hazardous), whether it is ulcerated (thicker lesions are more hazardous), the histological type (nodular and acral lentiginous melanomas are more dangerous than superficial spreading or lentigo malignant melanomas), the patient's age (older patients do more poorly), and gender (men tend to have a worse prognosis than women). SEE: *ABCD*; *skin cancer*.

**ETIOLOGY:** Excessive exposure to ultraviolet light, esp. sunlight, contributes to the development of melanoma, as does a family history of the disease. It is more common in fair-skinned than dark-skinned people and more common in people who have many moles on the skin than in those who do not. Total body skin examinations should be performed periodically on high-risk patients. On average, consistent screening identifies melanomas at an earlier stage (when they are thinner, or localized,



MELANOMA

rather than after they have spread) than those found on routine examination.

**PREVENTION:** People spending considerable time outside should wear protective clothing to shield against ultraviolet radiation and use sunscreens (at least SPF15) on exposed skin.

Common melanoma sites are the back, shoulders, head and neck (men), the legs (women), and the backs of those exposed to excessive sunlight. A skin biopsy and histologic examination can distinguish malignant melanoma from a benign nevus, seborrheic keratosis, or pigmented basal cell epithelioma; it also determines tumor thickness and tumor stage. Staging is based on the TNM system, and Clark's levels system, which classifies tumor progression according to skin layer penetration. Once diagnosed, patients need physical, psychological, and social assessment and care. Treatment options should be explained.

**TREATMENT:** Melanomas are treated with surgery, to remove the primary cancer, and adjuvant therapies (chemotherapy and biotherapy) to reduce the risk of metastasis. Closure of a wide resection around an excised tumor may require skin grafting. Vaccines have been developed against melanoma; they appear to improve prognosis in affected patients.

**PATIENT CARE:** After surgery, dressings are inspected for drainage and signs of infection, and the patient is taught about prevention and signs to report. The patient should be taught that close follow-up care will be needed to detect recurrences at an early stage, and that this must continue for years (13% of recurrences develop more than 5 yrs after the primary lesion). When therapy fails, the patient and family will need referrals for palliative (hospice) care, and may also require social services and spiritual care.

**desmoplastic m.** A rare type of malignant melanoma in which the typical melanotic pigmentation may be absent. It often occurs on the head or neck. Microscopically, the tumor cells are spindle-shaped. Local recurrences after surgical excision are common, as are metastases, esp. to the lungs.

**in situ m.** A superficial melanoma that has not yet invaded deep layers of the skin or spread to local or distant tissues.

**TREATMENT:** The lesion should be removed by an experienced surgeon.

**PATIENT CARE:** Patients diagnosed with melanoma in situ need careful follow-up examinations in case the tumor recurs, spreads, or is associated with other skin cancers.

**small diameter m.** A melanoma measuring less than 6 mm in diameter.

**melanomatosis** (mĕl'ă-nō'mă-tō'sis) [" + " + *osis*, condition] Formation of numerous melanomas on or beneath the skin.

**melanonychia** (mĕl'ă-nō-nīk'ē-ă) [" + *onyx*, nail] Black pigmentation of the nails.

**melanopathy** (mĕl'ă-nōp'ă-thē) Melanoderma.

**melanophage** (mĕl'ă-nō-fāj") [" + *phagein*, to eat] A phagocytic cell that contains ingested melanin.

**melanophore** (mĕl'ăn-ō-for) [" + *phoros*, bearing] Cell containing dark pigment.

**melanoplakia** (mĕl'ăn-ō-plă'kē-ă) [" + *plax*, a flat plain] Condition marked by pigmented patches on the tongue and buccal mucosa.

**melanosarcoma** (mĕl'ă-nō-săr-kō'mă) [" + *sarx*, flesh, + *oma*, tumor] Sarcoma containing melanin.

**melanosis** (mĕl-ăn-ō'sis) [" + *osis*, condition] A disorder of pigment metabolism characterized by excessive deposits of melanin (a brown, black, or blue pigment) in the skin or other tissues.

**m. coli** A benign brown or black discoloration of the colon that results from the use of laxatives, such as senna derivatives.

**friction m.** Abnormal deposits of brown, black, or blue pigment in areas of skin exposed to constant use or vigorous rubbing.

**m. lenticularis** Xeroderma pigmentosum.

**neurocutaneous m.** A rare disorder marked by the presence of multiple or large pigmented nevi on the skin and in the leptomeninges of the central nervous system.

**melanosome** (mĕl'ă-nō-sōm") [" + *soma*, body] The pigment granule produced by melanocytes.

**melanotic** (mĕl'ă-nōt'īk) 1. Black. 2. Pert. to melanosis.

**melanotic macule** A small, brown to black lesion of the oral mucosa that is usually less than 1 cm in diameter, solitary, and asymptomatic. In most instances, this type of macule is benign and requires no therapy. It can, however, be due to melanoma, which will require vigorous therapy without delay. When it is benign, it may be due to Peutz-Jeghers syndrome, physiologic pigmentation, Addison's disease, or healing of traumatic lesions, or may be secondary to a variety of medications.

**melanotroph** (mĕl'ă-nō-trōf") [" + *trophe*, nutrition] A cell of the pituitary that produces melanocyte-stimulating hormone.

**melanuria** (mĕl-ăn-ū-rē-ă) [" + *ouron*, urine] Dark pigment in urine.

**melasma** (mĕl-ăz'mă) [Gr., a black spot] Chloasma.

**melatonin** (mĕl'ă-tō'nīn) A peptide hor-



mone produced by the pineal gland that influences sleep-wake cycles and other circadian rhythms. It is available in supplement form. It has a sedative effect and has been used to treat sleep disorders and jet lag, even though its impact on these conditions remains unclear.

**melena** (mĕl'ĕ-nă, mĕl-ĕ'nă) [Gr. *melaina*, black] Black tarry feces caused by the digestion of blood in the gastrointestinal tract. It is common in the newborn and in adult patients with gastrointestinal bleeding from the esophagus, stomach, or proximal small intestine. **melenic**, **melenotic** (mĕl'ĕ-nŏt'ĭk), *adj.*

**m. neonatorum** Melena in the newborn.

**Meleney's ulcer** An infection of an operative site that typically appears 1 to 2 weeks after surgery, and festers as a result of the combined action of multiple different microorganisms. It is characterized by areas of reddened and inflamed skin surrounding necrotic centers, with communicating tracts or tunnels that ulcerate through the outer layer of skin at neighboring locations. Early institution of appropriate antimicrobial therapy, surgery, and supportive measures are necessary in this potentially life-threatening condition.

**melicera, meliceris** (mĕl-ĭ-sĕr'ă, -ĭs) [Gr. *meli*, honey, + *keros*, wax] **1.** Cyst containing matter of honey-like consistency. **2.** Viscid, syrupy.

**meliodosis** (mĕ'lĕ-oy-dŏ'sĭs) [Gr. *melis*, a distemper of asses, + *eidōs*, form, shape, + *osis*, condition] An acute or chronic disease caused by *Burkholderia pseudomallei*, formerly in the genus *Pseudomonas*. The acute form causes pneumonia, multiple abscesses, and sepsis and may be fatal.

**melitis** (mĕl-ĭ'tĭs) [Gr. *melon*, cheek, + *itis*, inflammation] Inflammation of the cheek.

**melittum** (mĕ-lĭ'tŭm) [L.] A pharmaceutical preparation with honey as the vehicle or excipient.

**melo-, mel-** [Gr. *melos*, limb] Combining form meaning *extremity*.

**melo-, mel-** [Gr. *meli*, honey] Combining forms meaning *honey*.

**melo-, mel-** [Gr. *melon*, cheek] Combining form meaning *cheek*.

**melonoplasty** (mĕl'ŏn-ŏ-plăs'tē) [ʹ + *plassein*, to form] Plastic surgery of the cheek.

**meloplasty** (mĕl'ŏ-plăs-tē) [ʹ + *plassein*, to form] Plastic surgery of the face.

**melorheostosis** (mĕl'ŏ-rĕ'ŏs-tŏ'sĭs) [Gr. *melos*, limb, + *rhein*, to flow, + *osteon*, bone, + *osis*, condition] A rare sclerotic tumor of long bones in which new bone formation resembles a candle with wax dripping down the sides.

**meloschisis** (mĕ-lŏs'kĭ-sĭs) [Gr. *melon*, cheek, + *schistos*, divided] A congenitally cleft cheek.

**melotia** (mĕ-lŏ'shĕ-ă) [ʹ + *ous*, ear] Congenital displacement of the ear on the cheek.

**melting point** Temperature at which conversion of a solid to a liquid begins.

**member** [L. *membrum*] **1.** An organ or part of the body, esp. a limb. **2.** In managed care, a person who contracts with a prepaid health care program to receive medical services.

**membrane** (mĕm'brăn) [L. *membrana*] **1.** A thin, pliable layer of tissue that lines a tube or cavity, covers an organ or structure, or separates one part from another. **2.** A very thin sheet of polymer, ceramics, glass, or metal.

**alveolocapillary m.** The structures and substances through which gases must pass as they diffuse from air to blood (oxygen) or blood to air (carbon dioxide), including the alveolar fluid and surfactant, cell of the alveolar wall, interstitial space (tissue fluid), and cell of the capillary wall. SYN: *respiratory m.*

SEE: *illus.*

**alveolodental m.** SEE: *periodontium*.

**arachnoid m.** The thin, delicate, intermediate membrane of the meninges that encloses the brain and spinal cord. It is separated from the pia mater, the inner membrane, by the subarachnoid space and from the dura mater, the outer membrane, by the subdural space. SEE: *arachnoid*.

**atlanto-occipital m.** A single midline ligamentous structure that extends from the arch of the atlas to the borders of the foramen magnum.

**basement m.** A delicate, noncellular membrane underlying a layer of epithelial cells and providing their support and attachment. SYN: *basement lamina*.

**basilar m.** The membrane extending from the tympanic lip of the osseous spiral lamina to the crest of the spiral ligament in the cochlea of the ear. It separates the tympanic canal from the cochlear duct and supports the organ of Corti. SEE: *illus.* under *organ of Corti*.

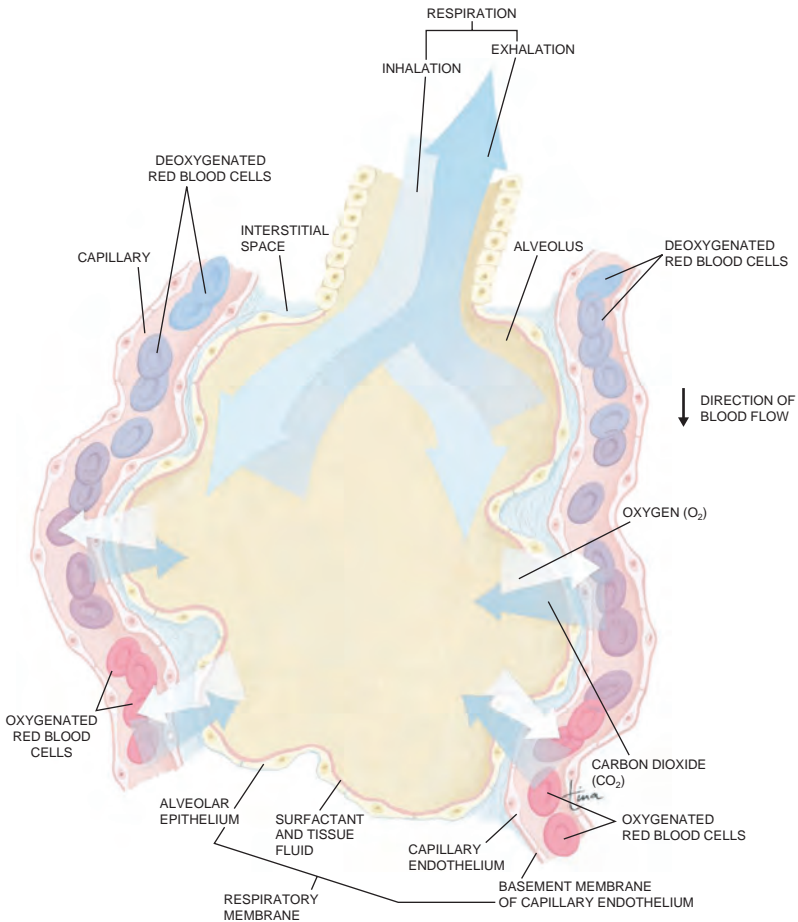
**Bowman's m.** SEE: *Bowman's membrane*.

**Bruch's m.** SEE: *Bruch's membrane*. **buccopharyngeal m.** In the embryo, the membrane that separates the oral cavity from the foregut until the fourth week of development. SYN: *pharyngeal m.*

**cell m.** The membrane that forms the outer boundary of a cell; it is made of phospholipids, protein, and cholesterol, with carbohydrates on the outer surface. SYN: *plasma m.* SEE: *illus.*

**choroid m.** SEE: *choroid*.

**costocoracoid m.** The dense fascia



### ALVEolocAPILLARY MEMBRANE

between the pectoralis minor and subclavius muscles.

**cricothyroid m.** The membrane connecting the thyroid and cricoid cartilages of the larynx.

**croupous m.** False membrane.

**decidual m.** One of the membranes formed in the endometrium of a pregnant uterus. SEE: *decidua*.

**Descemet's m.** SEE: *Descemet's membrane*.

**diphtheritic m.** The fibrinous false membrane on the mucous surfaces in diphtheria.

**egg m.** One of the protective membranes or envelopes enclosing an ovum. It may be primary (formed by egg itself, as in vitelline membrane), secondary (formed by follicle cells, as in zona pellicula), or tertiary (formed by oviduct or uterus, as in albumin and shell of hen's egg).

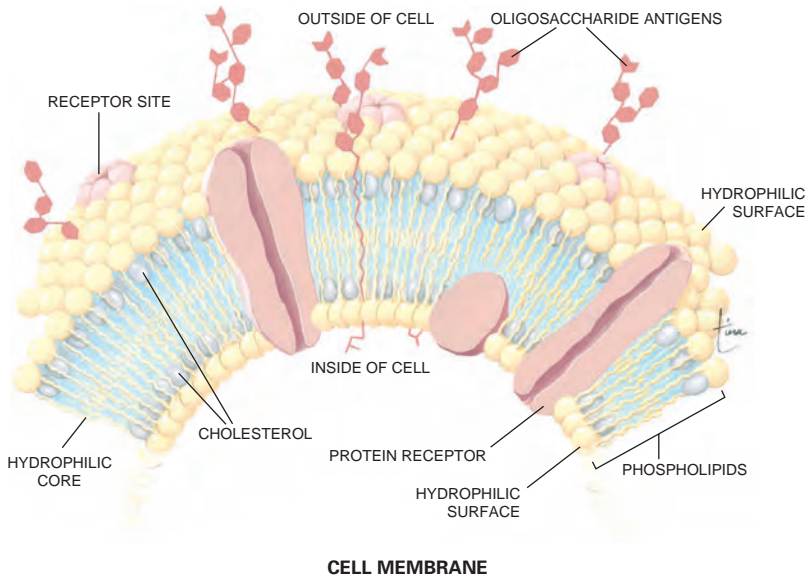
**elastic m.** One of several membranes formed of elastic connective tissue fibers.

**enamel m.** 1. Cuticula dentis. 2. The thin internal layer of cells of the enamel organ.

**epiretinal m.** An excessive proliferation of retinal pigment epithelial cells and extracellular proteins on the retinal surface. This condition, which can distort vision, is typically found in people older than 50. Marked visual blurring caused by epiretinal membranes occurs in macular pucker. SEE: *macular pucker*.

**external limiting m.** 1. The outer layer of cells of the embryonic neural tube. 2. The membrane in the retina of the eye through which the receptor portions of the rods and cones protrude.

**false m.** Fibrinous exudate on a mu-



CELL MEMBRANE

cous surface of a membrane, as in croup or diphtheria. SYN: *croupous m.*

**fenestrated m.** A layer of elastic connective tissue possessing minute round or oval openings. Found in the tunica intima and tunica media of medium-sized and large arteries.

**fetal m.** One of the membranous structures that protect and support the embryo and provide its nutrition, respiration, and excretion. The structures are yolk sac, allantois, amnion, chorion, decidua, and placenta.

**fibrous m.** A membrane composed entirely of fibrous connective tissue. Examples include the fasciae, aponeuroses, perichondrium, periosteum, dura mater, and the capsules of some organs.

**glassy m.** 1. The transparent capsule that separates membrana granulosa from the theca of the graafian follicle. 2. The internal layer of a hair follicle separating the epithelial and connective tissues.

**glial cell m.** An extremely delicate membrane, formed of foot plates of astrocytes, that surrounds all the blood vessels in the brain, spinal cord, and the lining of the pia mater, separating these vessels from the nervous tissue proper. This membrane is thought to be one of the components of the blood-brain barrier.

**Huxley's m.** Huxley's layer.

**hyaline m.** 1. Basement lamina. 2. The membrane between the outer root sheath of a hair follicle and the inner fibrous layer.

**hyaloid m.** The membrane that envelops the vitreous humor.

**hyoglossal m.** A transverse fibrous membrane uniting tongue to hyoid bone.

**internal limiting m.** 1. The inner layer of ependymal cells lining the embryonic neural tube. 2. The glial membrane forming the innermost layer of the retina and the iris.

**interosseous m.** 1. A fibrous membrane in the arm connecting ulna to radius. 2. A fibrous membrane in the leg connecting tibia to fibula.

**masticatory mucous m.** The mucosa of the mouth involved in the masticatory process. It is characterized by a keratinized surface epithelium, and includes the hard palate, gingiva, and dorsum of the tongue.

**mucous m.** SEE: *mucous membrane.*

**nasal mucous m.** The mucosa lining the nasal cavity and characterized by pseudostratified ciliated columnar epithelium with goblet cells.

**Nasmyth's m.** SEE: *Nasmyth's membrane.*

**nuclear m.** The two-layered membrane surrounding the chromosomes of a cell. The membrane has pores and its outer layer is continuous with the endoplasmic reticulum of the cell. SEE: *envelope, nuclear.*

**obturator m.** A fibrous membrane closing the obturator foramen.

**olfactory m.** The membrane in the upper part of the nasal cavity that contains olfactory receptors.

**otolithic m.** A layer of gelatinous substance containing otoconia or otoliths, found on the surface of maculae in the inner ear.

**palatal mucous m.** The lining of the mouth on the hard and soft palates. The hard palate has heavily keratinized epithelium and copious mucous glands or fat in the submucosa. The mobile soft palate contains muscle in addition to mucous glands, and is much less keratinized on the surface.

**peridental m.** An old term used to describe the periodontal ligament.

**periodontal m.** Periodontium.

**permeable m.** A membrane that permits passage of water and certain substances in solution. SEE: *osmosis*; *selectively permeable m.*; *semipermeable m.*

**pharyngeal m.** Buccopharyngeal membrane.

**pharyngeal mucous m.** The lining of the pharynx. The mucosa of the nasopharynx is pseudostratified ciliated epithelium; the mucosa of the oropharynx and laryngopharynx is stratified squamous epithelium.

**placental m.** The membrane of the placenta that separates the maternal blood from fetal blood.

**plasma m.** Cell membrane.

**pseudoserous m.** A membrane resembling a serous membrane but differing in structure as the endothelium.

**pupillary m.** The transparent membrane closing the fetal pupil. If it persists after birth, it is known as persistent pupillary membrane.

**pyogenic m.** The granular lining of an abscess or fistula.

**pyophylactic m.** The lining membrane of an abscess cavity separating it from healthy tissue.

**quadrangular m.** The upper portion of the elastic membrane of the larynx extending from the aryepiglottic folds to the level of the ventricular folds below.

**Reissner's m.** SEE: *Reissner's membrane*.

**respiratory m.** Alveolocapillary membrane.

**reticular m.** The membrane formed by the cuticular plates of the distal ends of supporting cells in the organ of Corti.

**Ruysch's m.** Lamina choriocapillaris

**selectively permeable m.** A membrane that allows one substance, such as water, to pass through more readily than another, such as salt or sugar.

**semipermeable m.** A membrane that allows passage of water but not substances in solution. SEE: *osmosis*.

**serous m.** A membrane consisting of mesothelium lying on a thin layer of connective tissue that lines the closed cavities (peritoneal, pleural, and pericardial) of the body and is reflected over the organs in the cavity. Serous fluid,

similar to lymph, decreases friction between the two layers.

**Shrapnell's m.** SEE: *Shrapnell's membrane*.

**submucous m.** Submucosa.

**synovial m.** The membrane lining the capsule of a joint and secreting synovial fluid. The synovial membrane is pink, smooth, and shiny and is made of an intima lining a stronger, vascular fibrous membrane. The intima contains synoviocytes (fibroblast- and macrophage-like cells), which remove debris from the synovial fluid and synthesize some of the mucin (specifically, hyaluronic acid) of the synovial fluid. Most of the synovial fluid is filtered from the blood vessels of the outer fibrous layer of the synovial membrane. SYN: *synovium*.

**tectorial m.** The thin, jelly-like membrane projecting from the vestibular lip of the osseous spiral lamina and overlying the spiral organ of Corti of the ear.

**thyrohyoid m.** The membrane joining the hyoid bone and the thyroid cartilage.

**tympenic m.** The membrane at the inner end of the external auditory canal, forming the lateral boundary of the middle ear cavity. SYN: *eardrum*. SEE: *ear thermometry*; *tympanium*.

**unit m.** The phospholipid bilayer first described as the typical cell membrane, then as the membrane of intracellular structures.

**vapor-permeable m.** A membrane, usually transparent, that is permeable to oxygen and water vapor. It may be prepared with an adhesive backing that will stick only to dry skin. This type of membrane has been used in covering wounds. The membrane must be applied properly without wrinkles and changed as often as necessary to prevent excess accumulation of fluid and bacteria under it.

**vestibular m.** The membrane in the cochlea of the inner ear that separates the cochlear duct from the vestibular canal.

**virginal m.** An outdated term for the hymen.

**vitelline m.** The membrane that forms the surface layer of an ovum. SYN: *yolk m.*; *zona pellucida*.

**vitreous m.** 1. The inner membrane of the choroid. 2. The innermost layer of the connective tissue sheath surrounding a hair follicle.

**yolk m.** Vitelline membrane.

**membranectomy** (mēm'brăn-nĕk'tō-mē) [L. *membrana*, membrane, + Gr. *ektome*, excision] Surgical removal of a membrane.

**membranelle** (mēm'bră-nĕl') A thin membrane composed of fused cilia and present in the buccal area of some ciliated protozoa.

**membrane potential** SEE: *potential, membrane*.

**membranocartilaginous** (mēm'brā-nō-kār-tī-lāj'ī-nūs) **1.** Pert. to both membrane and cartilage. **2.** Derived from both membrane and cartilage.

**membranous** (mēm'brā-nūs) Membranoid.

**memory** [L. *memoria*] **1.** The mental registration, retention, and recollection of past experiences, sensations, or thoughts. This group of functions relies on the coordinated activities of the association regions of the cerebral cortex, specific sensory areas of the brain, subcortical centers, the hypothalamus, the midbrain, and a wide array of neurochemicals and neurotransmitters. Injury or damage to any of these regions of the brain (e.g., as a result of intoxication, stroke, atrophy, or infection) impairs the ability to incorporate new memories or recall and use earlier ones. **2.** The capacity of the immune system to respond to antigens to which it has previously been exposed. Immunological memory depends on the activities of T and B lymphocytes, macrophages, major histocompatibility molecules, adhesion molecules, chemokines, and many other biochemicals.

**anterograde m.** Ability to remember events occurring in the remote past but not those occurring recently. SYN: *anterograde amnesia*.

**declarative m.** The conscious recollection of learned information. It is a memory function that is improved by the association of learning with highly charged emotional experiences. SYN: *explicit m.*

**episodic m.** The ability to recall discrete events (e.g., in one's personal history).

**explicit m.** Declarative memory.

**false m.** An inaccurate or incomplete remembrance of a past event. Memory accuracy, validity, and reliability are affected by the following factors:

1. age;
2. serious illness, injury, or psychological trauma;
3. prolonged medication therapy or use of a substance of abuse;
4. mental retardation;
5. mental illness;
6. anxiety;
7. preoccupation;
8. fatigue;
9. guilt and fear of penalty;
10. coercion; or
11. incentive to testify falsely.

These factors must be considered in the evaluation of the reliability of patient-reported memories.

**immediate m.** Memory for events or information in the immediate past. Brain damage that limits one's ability to store new information may impair im-

mediate memory but have no effect on memories of the distant past. SYN: *short-term m.* SEE: *digit span test*.

**impaired m.** The state in which a person experiences the inability to remember or recall bits of information or behavioral skills. Impaired memory may be attributed to pathophysiological or situational causes that are either temporary or permanent. SEE: *Nursing Diagnoses Appendix*.

**implicit m.** Recall that is preserved when the patient is given a cue to help retrieve information but deficient without such cues. SYN: *nondeclarative m.*

**incidental m.** The mental storage of information that occurs passively (i.e., without conscious effort).

**long-term m.** Recall of experiences or of information acquired in the distant past.

**nondeclarative m.** Implicit memory.

**procedural m.** The ability to recall how to perform activities or functions. This type of memory is usually preserved when other memory functions are lost. SEE: *declarative m.*

**recovered m.** A memory recalled after having been forgotten. Recall may be the result of psychotherapy or suggestion. Not all instances of recovered memory are accurate (some are the result of suggestion). SEE: *false m.*

**remote m.** Recollection of information that was stored in the distant past.

**retrograde m.** Ability to recall events of recent occurrence but not the ability to recall knowledge that was previously retained. SYN: *retrograde amnesia*.

**selective m.** The recollection only of particular aspects of an event or experience; limited recall.

**short-term m.** Immediate memory.

**spatial m.** The ability to recall three-dimensional objects or places (e.g., the location of an object in space, the position of one object in relation to another, or the correct path through a maze).

**MEN** *multiple endocrine neoplasia*.

**menacme** (mān-āk'mē) [Gr. *men*, month, + *akme*, top] **1.** The time between menarche and menopause. **2.** The height of the menstrual activity of a woman.

**Menactra** (mēn-āk'trā) Meningococcal vaccine.

**menarche** (mēn-ār'kē) [Gr. *men*, month, + *arche*, beginning] The initial menstrual period, normally occurring between the 9th and 17th year. SEE: *adrenarche*; *puberty*. **menarchal, menarcheal, menarchial, adj.**

**mendelevium** (mēn-dē-lē'vē-ūm) SYMB: Md. A transuranium element; atomic weight 256, atomic number 101.

**mendelism** (mēn'dēl'izm) The principles of heredity expressed in Mendel's laws.

**Mendel's laws** (mĕn'dĕlz) [Gregor Johann Mendel, Austrian monk, 1822–1884] The laws governing the genetic transmission of dominant and recessive traits. By carefully studying the heredity characteristics of garden peas, Mendel was able to explain the transmission of certain traits from one generation to the next.

Many inherited characteristics are controlled by the interaction of two genes, one from each parent. During meiosis, parent cells divide and contribute half their chromosome complement to the egg or sperm. After fertilization, the zygote contains a pair of each chromosome; each pair has genes for the same traits at corresponding locations. Alternate forms of the gene for a specific trait are called *alleles*, which may be dominant or recessive. SEE: *allele*; *chromosome*; *gamete*; *gene*; *meiosis*.

*Mendel's law of segregation* states that as the gametes are formed, the gene pairs separate and do not influence each other.

*Mendel's law of dominance* resulted from his observation that crossing a tall strain of peas with a short strain resulted in the expression of the dominant trait, in this case tallness. Thus, a dominant trait will appear in the individual even if only one allele for it is present in the genome.

*Mendel's law of independent assortment* states that traits controlled by different gene pairs (such as height and

color) pass to the offspring independently of each other.

**Mendel's reflex** [Kurt Mendel, Ger. neurologist, 1874–1946] Dorsal flexion of the second to fifth toes upon percussion of the dorsum of the foot.

**Ménétrier's disease** (măn'ĕ-trĕ-ărz') [Pierre Ménétrier, Fr. physician, 1859–1935] Giant hypertrophic gastritis.

**menhidrosis, menidrosis** (mĕn-hĭ-drō'sĭs, mĕn'ĭ-drō'sĭs) [Gr. *men*, month, + *hidros*, sweat] Vicarious menstruation through the sweat glands.

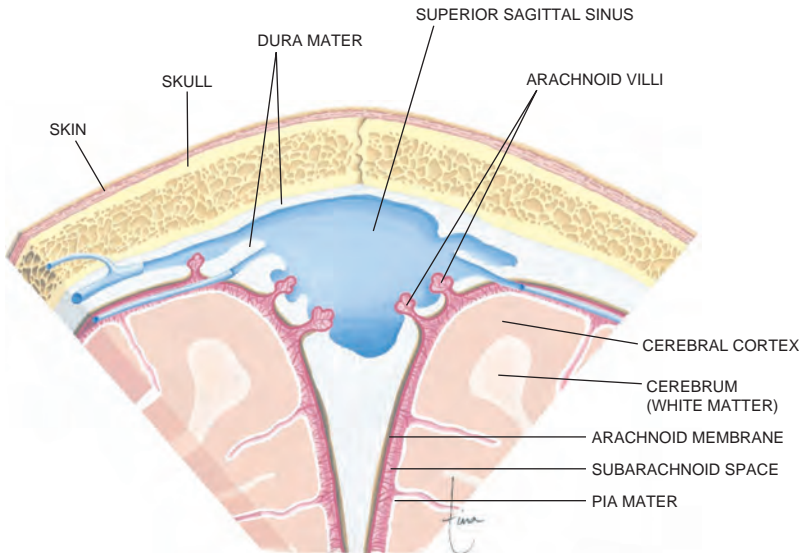
**Ménière's disease** (măn'ĕ-ărz') [Prosper Ménière, Fr. physician, 1799–1862] A syndrome characterized by recurring episodes of hearing loss, tinnitus, vertigo, and aural fullness, often resulting in gradually progressive deafness. Exacerbations (e.g., of vertigo) may occur suddenly and last for as long as 24 hr. When one ear is affected, the other ear will become involved in approx. 50% of the cases.

**ETIOLOGY:** The etiology is unknown, but edema of the membranous labyrinth has been found in autopsy studies.

**TREATMENT:** In acute attacks, bed-rest is the most effective treatment. Also effective are antihistamines, sedatives, discontinuation of smoking, and, rarely, surgical treatment. A low-salt diet (less than 2 g/day) and diuretics may be of benefit.

**mening-** SEE: *meningo-*.

**meninges** (mĕn-in'jĕz) *sing.*, **meninx** [Gr.] 1. Membranes. 2. The three mem-



### MENINGES

Frontal section of top of skull

branes covering the spinal cord and brain: dura mater (external), arachnoid (middle), and pia mater (internal). **SEE: illus. meningeal** (mèn-in'jē-äl), *adj.*

**meningioma** (mèn-in'jē-ō-mä) [Gr. *meninx*, membrane, + *oma*, tumor] A slow-growing tumor that originates in the meninges.

**meningiomatosis** (mè-nin'jē-ō-mä-tō'sis) [" + " + *osis*, condition] Multiple meningiomas.

**meningism** (mèn-in'jizm) [" + *-ismos*, condition] Irritation of the brain and spinal cord with symptoms simulating meningitis, but without actual inflammation. **SYN:** *meningismus*.

**meningismus** (mèn'in-jiz'müs) Meningism.

**meningitis** (mèn-in-jī'tis) *pl. meningitides* [Gr. *meninx*, membrane, + *itis*, inflammation] Inflammation of the membranes of the spinal cord or brain, usually but not always caused by an infectious illness. Bacterial meningitis is a medical emergency that must be treated and diagnosed quickly to obtain the best outcome. It is fatal in 10% to 40% of cases, even with optimal therapy, and may result in persistent neurological injury in about 10% of patients who survive the initial infection. In the U.S., bacterial meningitis formerly affected infants and children more than adults; the demographics of the disease changed in the 1990s, after vaccines against *Haemophilus influenzae* were introduced into pediatric care. Infectious meningitis now is largely a disease of adults and usually is caused by *Streptococcus pneumoniae* or *Neisseria meningitidis*, although many other microbes may be responsible. Intravenous steroids (e.g., dexamethasone) given at the beginning of therapy decreases the risk of death and disability. **SEE: illus.; Standard Precautions Appendix. meningitic** (mèn-in-jit'ik), *adj.*

**ETIOLOGY:** Meningitis may result from infection with bacteria (as noted above) or viruses, mycobacteria, fungi, amebas, or noninfectious sources, such

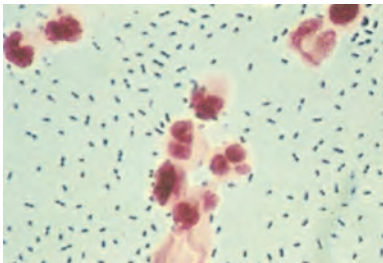
as chemical irritation to the meninges. Occasionally, infectious meningitis follows head trauma or sinus or ear infection. It also may result from the spread of blood-borne infection to the meninges.

**SYMPTOMS:** The symptoms of meningitis include fever, chills, headache, stiff neck, altered mental status, vomiting, and photophobia. Many patients with meningitis present with only two or three of these clinical indicators. Acute bacterial meningitis and meningitis caused by some fungi and amebas also may cause rapid deterioration in mental status, seizures, shock, and death.

**DIAGNOSIS:** Cerebrospinal fluid (CSF) must be examined. A cell count to assess the level of inflammation, a Gram stain to look for infectious organisms, measurement of spinal fluid pressure, and levels of bacterial antigens, glucose, lactate, and protein are typically obtained. CSF may appear milky-white due to the large numbers of white blood cells present.

**PREVENTION:** All children in the U.S. are now given vaccinations against *H. influenzae* type b (Hib) and pneumococcus (Pnevnar) as primary prevention against the disease. Meningococcal polysaccharide vaccines are highly effective in preventing the disease during epidemic outbreaks with this organism. Close family contacts of patients with meningococcal meningitis, day care center contacts of infected children, or any persons (including health care workers) with direct contact with the saliva of infected patients are treated with antibiotics to prevent disease transmission.

**TREATMENT:** Definitive treatment depends on identification of the underlying causes, but empirical therapies for infectious meningitis must be given immediately, hours before the causative agent is identified. Dexamethasone is administered intravenously prior to starting antibiotic therapy for best response, and to reduce the incidence of deafness in children (a common complication) and to help prevent death in adults with pneumococcal meningitis. The evolution of penicillin-resistant strains of pneumococci has altered traditional empirical treatments. Third-generation cephalosporins, ampicillin and gentamicin, chloramphenicol, or vancomycin plus rifampin have been given, depending on the patient's age, level of immune function, or clinical presentation. Antibiotic therapy is usually administered intravenously for 2 weeks, then orally for a prescribed period for bacterial infections. Viral meningitis treatment is supportive; however, recovery usually is complete (within 7 to



**MENINGITIS**

*Streptococcus pneumoniae* in cerebrospinal fluid (Orig. mag. ×400)

10 days). Antipyretic analgesics relieve headache and fever.

**PATIENT CARE:** Specific measures for coexisting conditions and for shock and other complications, such as disseminated intravascular coagulation, metabolic acidosis, or seizures, should be initiated when indicated. Supportive therapies include bed rest, a dimly lit room, and reduced sensory stimulation. Standard precautions apply, and airborne/droplet precautions are initiated if nasal cultures are positive. Neurologic function is closely monitored, assessing for changes in level of consciousness, signs of increasing ICP, and indications of cranial nerve involvement. Fluid and electrolyte balance is monitored, and fluids provided in quantities to prevent or treat dehydration while avoiding fluid overload and resultant cerebral edema. The patient is assessed for adverse effects of antibiotic therapy with peak and trough blood levels assessed to ensure therapeutic levels and avoid toxic overdose. The patient is repositioned carefully and assisted with range-of-motion exercises to prevent skin, muscle, and joint complications. Frequent mouth care is provided and adequate nutrition and elimination are maintained. Small frequent meals, nasogastric or parenteral feedings are provided as required. Constipation is prevented using stool softeners or mild laxatives to prevent straining, which could increase ICP. Basic explanations, realistic reassurance, and support are provided, with reorientation used if delirium or confusion is present. Questions from the patient and family should be answered honestly, with reassurance that behavioral changes usually resolve.

The patient with infectious meningitis may need monitoring in an intensive care unit. Patients who experience neurologic deficits which appear to be continuing should be referred to a rehabilitation program once the acute phase of illness has ended. To help in prevention of meningitis, patients with chronic sinusitis or other chronic infectious or inflammatory illnesses should be taught the importance of proper hand hygiene and of following through with prescribed treatments. Sterile techniques should be strictly enforced when treating patients with head wounds, skull fractures, or lumbar puncture, ventricular shunting, or other invasive therapies.

**acute aseptic m.** A nonpurulent form of meningitis often due to viral infection. It usually runs a short, benign course (marked by fever and headache) ending with recovery.

**aseptic m.** Inflammation of the me-

ninges without obvious evidence of bacterial infection. It typically results from a viral infection (e.g., coxsackievirus or other enteroviruses), although frequently no causative organism is identified.

**SYMPTOMS:** Patients report fever, headache, stiff neck, malaise, and sometimes altered mental status or photophobia.

**PATIENT CARE:** Treatment is supportive, with antipyretics and pain-relieving medications administered as prescribed. The virus can be spread by direct contact with saliva, sputum, mucus, or stools of an infected person. Standard precautions apply, with droplet precautions if nasal cultures are positive, and contaminated articles are disposed of by double bagging. Neurological status is monitored for changes in level of consciousness and for increases in intracranial pressure. Personal hygiene is provided, and measures to prevent complications due to immobility are implemented. Gentle position changes are performed to reduce excessive stimulation. Artificial airway, suction, and oxygen are readily available. A quiet, dark atmosphere is provided, and siderails are padded to reduce the risk of injury. Prescribed analgesics are administered, and cool compresses are applied to the forehead to relieve headache. Intravenous fluids or tube feedings are administered as ordered, and intake and output are monitored. Assessments are made for complications such as shock, respiratory distress, and disseminated intravascular coagulation.

Since mosquitoes can spread some viruses that cause meningitis, avoiding mosquito bites during the warm months of the year by wearing insecticides (DEET) and barrier protection, and eliminating standing pools of water, where mosquitoes breed, may help prevent the disease. The public should be made aware of meningitis symptoms (fever, headache, stiff neck, altered levels of consciousness) and the importance of prompt attention for any patient suspected of meningitis.

**bacterial m.** Infection of the meninges with disease-causing and potentially life-threatening organisms, esp. *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis*, and *Listeria monocytogenes*, among others.

**basal m.** Inflammation of the meninges at the base of the brain, usually due to tuberculosis.

**carcinomatous m.** Infiltration of the meninges by metastatic tumor cells. It may produce symptoms such as headache, backache, confusion, nerve pal-



sies, or seizures and should be suspected when these symptoms arise in patients with known cancers. The diagnosis is confirmed by lumbar puncture with analysis of the cerebrospinal fluid for tumor cells.

**cerebral m.** Acute or chronic inflammation of the meninges of the brain.

**cerebrospinal m.** Inflammation of the meninges of the brain and spinal cord.

**chronic m.** Inflammation of the meninges, marked by persistent fever, headache, and stiff neck (associated, on lumbar puncture, with cerebrospinal fluid pleocytosis and elevated spinal fluid pressure). The underlying cause of this cluster of findings may be initially difficult to determine. Syphilis, cryptococcosis, human immunodeficiency virus infection, or invasion of the meninges by cancer cells may be responsible. Occasionally, repeated lumbar punctures reveal a vasculitis of the central nervous system or a partially treated bacterial meningitis.

**cryptococcal m.** Fungal meningitis due to *Cryptococcus neoformans*. A rare cause of disease in healthy hosts, cryptococcal meningitis is an opportunistic infection usually seen in patients with advanced AIDS or patients taking high-dose steroids. It usually presents with gradually progressive headache and fever. The serum cryptococcal antigen test is a useful screening test. The diagnosis is established by the results of analysis and culture of cerebral spinal fluid.

**TREATMENT:** Treatment options include amphotericin B, often with flucytosine. Fluconazole and/or related antifungals are sometimes used for maintenance therapy.

**meningococcal m.** Meningitis caused by various serogroups of *Neisseria meningitidis*, a gram-negative diplococcus. SEE: *Nursing Diagnoses Appendix*.

**Mollaret's m.** SEE: *Mollaret's meningitis*.

**pneumococcal m.** Meningitis due to *Streptococcus pneumoniae*, a disease predominantly found in adults. In the U.S., about 20% of affected patients die. Because of the worldwide emergence of streptococcal resistance to penicillins, chloramphenicol, and cephalosporins, vancomycin, rifampin, and other antibacterial agents are used to treat this infection. Intravenous steroids (e.g., dexamethasone) given at the beginning of therapy decrease the risk of death and disability caused by this infection.

**m. serosa circumscripta** Meningitis accompanied by the formation of cystic accumulations of fluid that simulate tumors.

**serous m.** Meningitis with serous exudation into the cerebral ventricles.

**spinal m.** Inflammation of the spinal cord membranes.

**traumatic m.** Meningitis resulting from trauma to the meninges.

**tuberculous m.** Meningitis resulting from the spread of *Mycobacterium tuberculosis* to the central nervous system, usually from a primary focus of infection in the lungs.

**viral m.** Inflammation of the meninges as a result of infection with adenovirus, coxsackievirus, echovirus, human immunodeficiency virus, mumps virus, lymphocytic choriomeningitis virus, polio viruses, and others. Patients report fever, headache, and stiff neck, and the lumbar puncture reveals an excessive number of lymphocytes, typically without a decrease in cerebrospinal fluid glucose levels. Viral meningitis is a subset of "aseptic" (nonbacterial) meningitis.

**meningitophobia** (mĕn'ĭn-jīt'ō-fō'bē-ă) [Gr. *meninx*, membrane, + *phobos*, fear] A condition simulating meningitis, caused by the fear of contracting meningitis.

**meningo-, mening-** (mĕn-ĭn'gō) [Gr. *meninx*, membrane] Combining form denoting relationship to the meninges (membranes covering the spinal cord or brain).

**meningoarteritis** (mĕn-ĭn'gō-ăr'tēr-ĭt'ĭs) [m + *arteria*, artery, + *itis*, inflammation] Inflammation of the meningeal arteries.

**meningocèle** (mĕn-ĭn'gō-sĕl) [m + *kele*, tumor, swelling] Congenital hernia in which the meninges protrude through a defect in the skull or spinal column.

**meningococcal** (mĕn-ĭn-jō-kōk'ŭl) Pert. to meningococcus.

**meningococcal vaccine** (mĕ-nĭn'jō-kōk'ăl) SEE: under *vaccine*.

**meningococcemia** (mĕn-ĭn'gō-kōk-sĕ'mĕ-ă) [m + *kokkos*, berry, + *haima*, blood] Meningococci in the blood, a serious illness that may cause a disseminated rash, altered mental status, shock, and death. SEE: *illius*.

**meningococcidal** (mĕ-nĭng'gō-kōk-sĭ'däl) [m + " + L. *caedere*, to kill] Lethal to meningococci.

**meningococcus** (mĕn-ĭn'gō-kōk'ŭs) *pl.* **meningococci** A microorganism of the species *Neisseria meningitidis*, one of the causative agents of meningitis.

**meningocyte** (mĕ-nĭng'gō-sĭt) [m + *kytos*, cell] A macrophage of the meninges of the brain.

**meningoencephalitis** (mĕn-ĭn'gō-ĕn-sĕf'ă-lĭ'tĭs) [m + *enkephalos*, brain, + *itis*, inflammation] Inflammation of the brain and its meninges. SEE: *encephalitis; meningitis*.

**primary amebic m.** Inflammation of

**MENINGOCOCCEMIA**

Typical rash

brain and meninges caused by free-living amoebae ordinarily found in water, soil, and decaying vegetation. Organisms that can cause primary amoebic meningoencephalitis include *Naegleria fowleri*, *Acanthamoeba culbertsoni*, and other species of *Acanthamoeba*. The amoebae are acquired by swimming in freshwater lakes and sniffing water into the nasal cavities.

**SYMPTOMS:** Similar to those of acute meningococcal meningitis.

**TREATMENT:** For *Naegleria* infections, amphotericin B, miconazole, and rifampin are effective if given early in the disease, but diagnosis of this rare disease is often delayed and few patients survive. *Acanthamoeba* species are sensitive to pentamidine, propamidine, ketoconazole, miconazole, neomycin, and flucytosine.

**meningoencephalocele** (mĕn-ĭn'gō-ĕn-sĕf'äl-ō-sĕl) [n + " + *kele*, tumor, swelling] Hernial protrusion of brain and meninges through a defect in the skull.

**meningoencephalomyelitis** (mĕn-ĭn'gō-ĕn-sĕf'äl-ō-mĭ-ĕl-ĭ-tĭs) [n + " + *myelos*, marrow, + *itis*, inflammation] Inflammation of the brain and spinal cord, and their meninges.

**meningoencephalopathy** (mĕ-nĭng'gō-ĕn-sĕf'äl-lōp'ă-thĕ) [n + " + *pathos*, disease] Disease of the meninges and brain.

**meningomalacia** (mĕn-ĭn'gō-mă-lă'shĕ-ă) [n + *malakia*, softening] Softening of any membrane.

**meningomyelitis** (mĕn-ĭn'gō-mĭ-ĕl-ĭ-tĭs) [n + *myelos*, marrow, + *itis*, inflammation] Inflammation of the spinal cord and its enveloping membranes.

**meningomyelocele** (mĕ-nĭng'gō-mĭ'ĕ-lō-sĕl') [n + " + *kele*, tumor, swelling] Myelomeningocele.

**meningomyeloradiculitis** (mĕ-nĭng'gō-mĭ'ĕ-lō-ră-dĭk'ū-lĭ-tĭs) [n + " + *L. radícula*, radicle, + *Gr. itis*, inflammation] Inflammation of the meninges

and the roots of spinal or cranial nerves.

**meningo-osteophlebitis** (mĕ-nĭng'gō-ōs'tĕ-ō-flĕ-bĭ-tĭs) [n + *osteon*, bone, + *phleps*, vein, + *itis*, inflammation] Parosteitis and inflammation of the veins of the bone.

**meningopathy** (mĕn-ĭn-gōp'ă-thĕ) [n + *pathos*, disease, suffering] Any pathological condition of the meninges.

**meningoradicular** (mĕ-nĭng'gō-ră-dĭk'ū-lăr) [n + *L. radícula*, radicle] Concerning the meninges and spinal and cerebral nerve roots.

**meningoradiculitis** (mĕ-nĭng'gō-ră-dĭk'ū-lĭ-tĭs) [n + " + *Gr. itis*, inflammation] Inflammation of the meninges and roots of the spinal nerves.

**meningorrhagia** (mĕn-ĭn'gō-ră'jĕ-ă) [n + *rhēgynai*, to burst forth] Hemorrhage of the cerebral or spinal membrane.

**meningorrhea** (mĕn-ĭn'gō-rĕ-ă) [n + *rhoia*, flow] Effusion of blood on or between the meninges.

**meningotyphoid** (mĕn-ĭn'gō-tĭ'fōyd) Typhoid fever with symptoms of meningitis.

**meninx** (mĕ'nĭnks) *pl. meninges* [Gr., membrane] 1. Membrane. 2. Any of the three membranes investing the spinal cord and brain: dura mater (external), arachnoid (middle), and pia mater (internal).

**meniscectomy** (mĕn'ĭ-sĕk'tō-mĕ) [n + *ektome*, excision] Removal of a torn meniscus from the knee, typically done because of pain, loss of function, or arthritic changes. It may be performed via open surgery, but is often done arthroscopically in a same-day surgical setting. SEE: *Nursing Diagnoses Appendix*.

**PATIENT CARE:** The patient's dressing, peripheral pulses, and sensory and motor status of the affected area are evaluated every 2 hr after surgery. Knee immobility is maintained for a specified period. Use of crutches or walker with partial weight bearing may often begin in 1 to 2 days. The affected leg is kept elevated to prevent or reduce swelling, and ice is applied to control swelling. Analgesics are prescribed. On discharge, the patient is advised to continue to perform appropriate exercises at home and after a week or so of reduced activities, to begin a gradual return to normal weight-bearing on the limb. Physical therapy to help restore muscle strength and range of motion is also indicated.

**meniscitis** (mĕn'ĭ-sĭ-tĭs) [Gr. *meniskos*, crescent, + *itis*, inflammation] Inflammation of an interarticular cartilage, esp. the medial and lateral menisci of the knee joint.

**meniscocyte** (mĕn-ĭs'kō-sĭt) [n + *kytos*, cell] A crescent-shaped red blood cell. SYN: *sickle cell*.

**meniscus** (mĕn-ĭs'kŭs) *pl.* **menisci** [Gr. *meniskos*, crescent] **1.** Convexoconcave lens. **2.** Interarticular fibrocartilage of crescent shape, found in certain joints, esp. the lateral and medial menisci (semilunar cartilages) of the knee joint. **3.** The curved upper surface of a liquid in a container.

**lateral m.** A circular, somewhat moveable plate of fibrocartilage lying horizontally in the articular surface of the lateral condyle of the tibia inside the knee joint. The meniscus cushions and deepens the articular face of the tibia. SEE: *knee* for ill.

**tactile m.** Merkel's disk.

**Menkes disease** (mĕn'kăz) Metabolic defect resulting from a mutation on the X chromosome that alters the transport of copper within the human body, resulting in neurological degeneration, connective tissue disorders, and premature death. SEE: *kinky hair disease*.

**meno-** Pert. to menses or menstruation.

**menometrorrhagia** (mĕn'ō-mĕt-rō-ră'jĕ-ă) [Gr. *men*, month, + *metra*, womb, + *rhegnynai*, to burst forth] Excessive bleeding during and between menstrual periods. SEE: *menorrhagia*.

**menopause** (mĕn'ō-pawz) [' + *pausis*, cessation] The period that marks the permanent cessation of menstrual activity, normally occurring in the U.S. between the ages of 40 and 58. Menopause is said to have occurred once the woman has experienced 12 full months without any menstrual bleeding. The mean age of menopause in the U.S. is 51. The menses may stop suddenly, but this phenomenon is relatively rare. For most women there is first a *menopausal transition* often lasting a few years, during which ovulation becomes infrequent, menstrual cycles become irregular, brief periods of amenorrhea, polymenorrhea, or hypermenorrhea occur, and follicle-stimulating hormone levels rise. Natural menopause will occur in 25% of women by age 47, 50% by age 50, 75% by age 52, and 95% by age 55. Pathologic or premature menopause due to surgical removal of the ovaries, chemotherapy, radiation therapy, or to disorders such as malnutrition, debilitation, or extreme emotional stress can occur at any age. Women with short menstrual cycles, lower body weight, a history of smoking, nulliparity, and lower socioeconomic status may reach menopause earlier than the rest of the population. Obesity and overweight may contribute to a delayed onset of menopause. SYN: *change of life*. SEE: *climacteric*; *osteoporosis*; *perimenopause*.

**SYMPTOMS:** The symptoms associated with menopause begin soon after the functional decline of the ovaries results in decreased estrogen levels, or af-

ter medical, radiation, or surgical treatments destroy the reproductive glands. Symptoms, which may last from a few months to years, vary from hardly noticeable to severe. Included are vasomotor instability (hot flashes and night sweats), insomnia, atrophy of vulvo-vaginal tissues, vaginal dryness, and dyspareunia. Vaginal pH becomes more alkaline, increasing the chance for infections. Atrophic cystitis due to the effects of decreased estrogen levels on bladder mucosa and associated structures can occur. Breast size may decrease, skin turgor and elasticity decrease, and pubic and axillary hair may be reduced. A panel of the National Institutes of Health in 2005 found limited, if any, evidence that anxiety, fatigue, apathy, depression, poor concentration, lapses in memory, palpitations, headache, numbness, tingling, myalgia, or urinary disturbances (e.g., frequency and incontinence) had any provable relation to menopause. The long-term effects of lower estrogen levels include incremental bone loss (osteopenia or osteoporosis).

**TREATMENT:** Menopausal hormone replacement therapy (HRT) may be used cautiously for relief of symptoms. This therapy consists of estrogen alone (in women who have had a hysterectomy) and estrogen combined with progesterone (in patients with an intact uterus). HRT is contraindicated in women who smoke or in women with a history of an estrogen-dependent breast cancer, endometrial cancer, thromboembolic disease, acute liver disease, and vaginal bleeding of unknown cause. Many women with a strong family history of breast cancer should also avoid hormone therapy. Decisions regarding use of hormone therapy are based on the relative benefits and risks of treatment for the individual woman. Important benefits may include reducing the risk of bone loss and decreasing symptomatic hot flashes. Significant adverse effects may include increased potential for developing estrogen-related malignancies, heart attacks, strokes, blood clots, and postmenopausal bleeding. The Women's Health Initiative has led to a revision in recommendations for HRT because health risks appear to outweigh benefits. The advantages and disadvantages of hormonal therapies should be openly discussed with patients so that they may make informed choices about treatment. Because of the known risks, HRT should be used at the lowest effective dose for the shortest amount of time until treatment goals are met. Some antidepressants (e.g., fluoxetine, paroxetine, or venlafaxine) and some anticonvulsant medications,

such as gabapentin, may be prescribed for hot flashes and other menopausal symptoms. Although researchers have not proved the effectiveness of herbal compounds and soy products, some women take them for relief of menopausal symptoms. Relaxation techniques, yoga, tai chi, or meditation also help. SEE: *estrogen replacement therapy*; *hormone replacement therapy*.

**PATIENT CARE:** Because women may experience a variety of symptoms during this period of their lives, their nature, severity, and personal impact need to be sensitively addressed by health care professionals. Menopause is a normal phase in the reproductive cycle. The postmenopausal woman should be encouraged to maintain a diet high in calcium, vitamins, and minerals to maintain strong bones. Any vaginal bleeding or spotting that occurs after menopause should be promptly reported and investigated. If a woman is in a sexual relationship, remaining sexually active will help to preserve vaginal elasticity, and lubricants can be used before intercourse to reduce dryness. Performing Kegel exercises strengthens vaginal and pelvic musculature.

**artificial m.** Menopause following surgical removal of ovaries, radiation therapy, or chemotherapy. SYN: *surgical m.*

**male m.** Climacteric

**premature m.** Natural or artificial menopause occurring before age 35.

**surgical m.** Artificial menopause.

**menorrhagia** (mĕn"ō-rā'jĕ-ă) [" + *rhegynai*, to burst forth] Excessive menstrual bleeding or menstrual bleeding that lasts longer than seven days. SYN: *hypermenorrhea*. SEE: *uterine hemorrhage*.

**ETIOLOGY:** Common causes of excessive menstrual blood loss include: spontaneous abortion or ectopic pregnancy; pituitary, hypothalamic, thyroid, ovarian, or other endocrine disorders; bleeding disorders, such as von Willebrand disease; anticoagulant use; use of contraceptive hormones and devices; endometrial cancers and fibroids; among many other diseases and conditions.

**menorrhagia** (mĕn"ō-rāl'jĕ-ă) [" + *rhoia*, flow, + *algia*, pain] Painful menstruation or pelvic pain accompanying menstruation, sometimes a symptom of endometriosis. SYN: *dysmenorrhea*.

**menostasis** (mĕn"ōs'tă-sīs) [" + *stasis*, standing still] Suppression of the menses.

**menostaxis** (mĕn"ō-stăk'sīs) [" + *staxis*, dripping] Prolonged menstruation.

**menotropins** (mĕn"ō-trō'pĭns) A combination of follicle-stimulating hormone (FSH) and luteinizing hormone (LH)

used to treat infertility by promoting growth and maturation of the follicle of the ovary. Menotropins is obtained from the urine of postmenopausal women. A standard extract is used with human chorionic gonadotropin to induce ovulation.

**menoxenia** (mĕn"ōk-sĕ'nĕ-ă) [" + *xenos*, strange] Abnormal menstruation.

**menses** (mĕn'sĕz) [L., month] The monthly flow of bloody fluid from the endometrium.

**mens rea** (măns rā'ă, mĕnz rĕ'ă) [L. "guilty mind"] Criminal intent. In legal matters an unlawful act is considered to be a criminal act only when the person who commits it acts with criminal intent. From a psychological perspective, this means that minors, the mentally ill, and those affected by organic brain disease may commit unlawful acts but not be culpable of them in a court of law because they may not understand the nature and consequences of such acts.

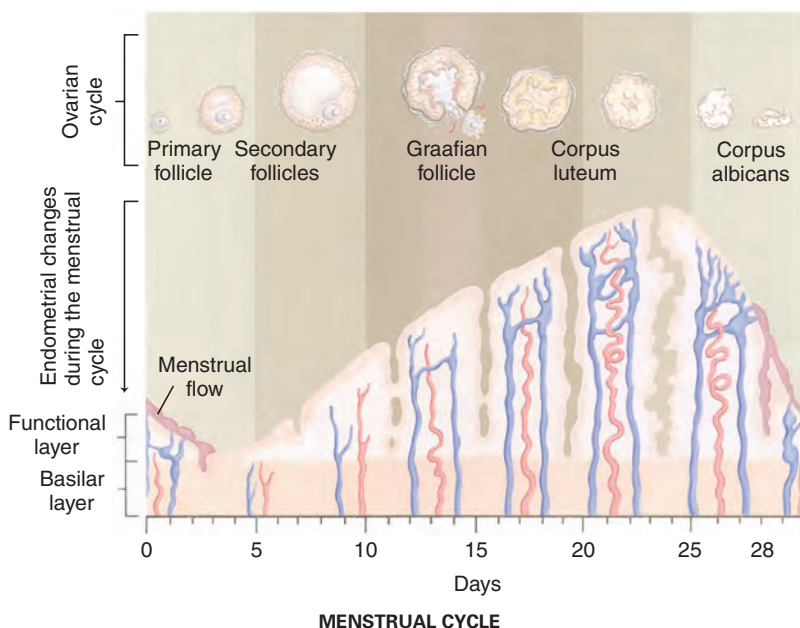
**menstrual cramps** (mĕn'stroo-ăl) SEE: *cramps, menstrual*; *dysmenorrhea*.

**menstrual cycle** The periodically recurring series of changes occurring in the uterus and associated sex organs (ovaries, cervix, and vagina) associated with menstruation and the intermenstrual period. The human cycle averages 28 days in length, measured from the beginning of menstruation. The menstrual cycle is, however, quite variable in length, even in the same person from month to month. Variations in the length of the cycle are due principally to variation in the length of the proliferative phase. SEE: *illus.*

The menstrual cycle is divided into four phases characterized by histological changes that take place in the uterine endometrium. They are:

**Proliferative Phase:** Following blood loss from the endometrium, the uterine epithelium is restored to normal; the endometrium becomes thicker and more vascular; the glands elongate. During this period, the ovarian follicle is maturing and secreting estrogens; with the estrogen stimulation, the endometrium hypertrophies, thickening and becoming more vascular, and the glands elongate. The phase is terminated by the rupture of the follicle and the liberation of the ovum at about 14 days before the next menstrual period begins. Fertilization of the ovum is most likely to occur in the days immediately following ovulation.

**Luteal or Secretory Phase:** After releasing the ovum, the corpus luteum secretes progesterone. With the progesterone stimulation, the endometrium becomes even thicker; the glands become more tortuous and produce an abundant secretion containing glyco-



MENSTRUAL CYCLE

gen. The coiled arteries make their appearance; the endometrium becomes edematous; the stroma becomes compact. During this period, the corpus luteum in an ovary is developing and secreting progesterone. This phase lasts 10 to 14 days.

**Premenstrual or Ischemic Phase:** If pregnancy has not occurred, the coiled arteries constrict and the endometrium becomes anemic and shrinks a day or two before menstruation. The corpus luteum of the ovary begins involution. This phase lasts about 2 days and is terminated by the opening up of constricted arteries, the breaking off of small patches of endometrium, and the beginning of menstruation with the flow of menstrual fluid.

**Menstruation:** The functional layer of the endometrium is shed.

The menstrual cycle is altered by pregnancy, the use of contraception, intercurrent illnesses, diet, and exercise.

**menstrual epilepsy** Seizures that occur preferentially during particular portions of the menstrual cycle, e.g., during ovulation or menses.

**menstrual extraction** Vacuum or suction curettage of the uterus done just prior to the date of the next menstrual period. The procedure, performed using carefully controlled suction and a soft flexible catheter, is used to be certain the menstrual period is induced, even though the uterus may contain a fertilized ovum.

**menstrual period** Menstruation.

**menstrual regulation** Vacuum or suction curettage of the uterus done within the first two weeks following the expected date of the onset of menstruation. If the amenorrhea was due to pregnancy, the procedure is classed as a form of fertility control.

**menstrual suppression** The use of reproductive hormones to lengthen the time between menstrual cycles. This application can lessen the frequency of diseases or conditions that occur perimenstrually.

**menstrual synchrony** The simultaneous occurrence of ovulatory cycles and menstrual bleeding among women who live or work together or socialize closely with one another.

**menstruant** (mĕn'stroo-ănt) [L. *menstruare*, to discharge the menses] **1.** In the condition of menstruating. **2.** One who menstruates.

**menstruate** (mĕn'stroo-ăt) To discharge menses.

**menstruation** (mĕn-stroo-ă'shün) [L. *menstruare*, to discharge the menses] The cyclic, hormonally generated sloughing of the uterine endometrium, which occurs between puberty and menopause and is accompanied by bloody vaginal discharge. The onset of menstruation (menarche) usually occurs during puberty (9 to 17 years of age). When a woman's ovum is not fertilized, the corpus luteum undergoes involution, which causes progesterone levels to drop, which in turn triggers menses. SYN: *catamenia*. SEE: *ovary for illius; lactation amen-*

*orrhoea method; menstrual cycle. menstrual* (mĕn'stroo-äl), *adj.*

The average menstrual period displays the following characteristics: an intermenstrual interval that varies between 18 and 40 days, with an average of 27 to 30 days; and a menstrual flow that lasts between 3 and 7 days, 4 to 5 days average. Menstrual blood contains normal, hemolyzed, and sometimes agglutinated red blood cells; disintegrated endometrial and stromal cells; and glandular secretions. In general, menstrual blood does not coagulate, but passage of occasional clots is not unusual.

Blood loss varies widely among women; however, it usually is consistent from month to month in the same individual. Average monthly blood loss ranges from 44 to 80 ml but may be lessened by the use of oral contraceptives and increased by the presence of an intrauterine device. Menstrual blood loss is the most common single cause of female iron-deficiency anemia. Estimating a patient's blood loss from interviewing is difficult because many women are poor judges of the volume of their flow. A rough estimate of blood loss may be made by querying the number, type, and amount of saturation of tampons or sanitary pads used each day of the period. When noting the number of pads or tampons used daily, the historian should determine the reason for changes; some women may change for reasons other than pad saturation.

Indications of excessive or abnormal menstrual flow include a need to change saturated tampons or pads hourly; passage of clots, esp. when larger than 2 cm in diameter or occurring on other than the first full day of menses; and duration of flow exceeding 7 days in one or more cycles. Menstruation normally ceases during pregnancy, may or may not occur during lactation, and permanently ceases with menopause. SEE: *sanitary napkin; tampon, menstrual.*

*Menstrual irregularities:* Failure to menstruate may be caused by congenital abnormalities; physical disorders (e.g., obesity, malnutrition, or disease); excessive exercise; emotional and hormonal disturbances affecting the ovaries, pituitary, thyroid, or adrenal glands. An absence of flow when normally expected is called *amenorrhoea*; scanty flow is known as *oligomenorrhoea*; painful menstruation is *dysmenorrhoea*. Excessive loss of blood is termed *menorrhagia*; loss of blood during intermenstrual periods is known as spotting or *metrorrhagia*.

**anovulatory m.** Menstruation occurring without discharge of an ovum from the ovary, i.e., without ovulation.

**retrograde m.** Backflow of menstrual

fluid through the fallopian tubes into the peritoneal cavity.

**suppressed m.** Failure of menstruation to occur when normally expected.

**vicarious m.** Menstruation from a site other than the uterus when the menstrual flow is expected.

**menstruum** (mĕn'stroo-üm) [L. *menstruus*, menstrual fluid] A solvent; a medium. It was once believed that menstrual fluid had solvent qualities. SEE: *vehicle.*

**mensual** (mĕn'sü-äl) [L. *mensis*, month] Monthly.

**mensuration** (mĕn-sü-rä'shün) [L. *mensuratio*] The process of measuring.

**mental** [L. *mens*, mind] Relating to the mind.

**mental** [L. *mentum*, chin] Relating to the chin.

**mental fog** Clouding of consciousness, usually with some loss of memory.

**mentality** Mental power or activity.

**mentally ill** Affected by any condition that affects mood or behavior, such as depression, dysphoria, personality disorders, phobias, schizophrenia, or substance abuse, among others.

**Mental Measurements Yearbook** A widely used index of commercially published, standardized tests.

**mental retardation** Below average intelligence evident before the age of 18 associated with impaired learning or communication; poor social, community, or interpersonal adjustment; and inability to function independently (e.g., to support oneself, to live safely and healthfully).

**ETIOLOGY:** In many persons, the cause is not identified. Injuries that occur during fetal or embryonic development (e.g., exposure to infections or toxins in utero); genetic syndromes (e.g., Tay-Sachs disease or Down syndrome); childhood exposure to toxins (e.g., lead); or social and emotional deprivation during infancy or childhood all may contribute to impairments in intellectual development.

**DIAGNOSIS:** Tests of intelligence ("intelligence quotient" or IQ tests) are used to diagnose mental retardation, esp. when poor scores on these tests correlate with observed difficulties in adaptation to the environment.

**mentation** (mĕn-tä'shün) Mental activity.

**mentha piperita** (mĕn'tä pĭ-pĕ-rĕ'tä, rĭ') [NL, lit. "peppermint"] Peppermint.

**menthol** (mĕn'thöl) C<sub>10</sub>H<sub>20</sub>O; an alcohol obtained from oil of peppermint or other mint oils. Menthol may be prepared synthetically. It occurs in crystalline form. When applied to the skin in a 0.25% to 2% solution, it is an antipruritic.

**menton** (mĕn'tön) [L. *mentum*, chin] A craniometric landmark, being the low-

est point of the mandibular symphysis seen in a lateral radiograph. It is similar to, but not necessarily the same as, gnathion, which is the lowest point of the mandible in the midline as palpated in the living.

**mentoplasty** (mĕn'tō-plās-tē) Cosmetic surgery designed to enhance the appearance of the chin.

**mentor** (mĕn'tawr) [Fr. *Mentor*, Odysseus' adviser and Telemachus' guardian in Homer's *Odyssey*] A trusted advisor, educator, guide, guardian, and tutor.

**M4Eo** acute myelomonocytic leukemia with abnormal eosinophils.

**MEOS** microsomal ethanol oxidizing system.

**mephitic** (mĕ-fit'ik) [L. *mephiticus*, *mephitis*, foul exhalation] Noxious, foul, as a poisonous odor.

**mEq** Symbol for milliequivalent.

**meralgia** (mĕr-āl'jē-ă) [Gr. *meros*, thigh, + *algos*, pain] Pain in the thigh.

**m. paresthetica** Pain and hyperesthesia on the outer femoral surface from lesion or disease of the lateral cutaneous nerve of the thigh. SYN: Bernhardt-Roth syndrome.

**mercaptan** (mĕr-kăp'tân) Any organic chemical that contains the —SH radical. It is formed when the oxygen of an alcohol is replaced by sulfur.

**Merchant view** An x-ray study of the knee while it is in 30° of flexion, with the patellofemoral joint viewed tangentially. This radiographical view of the knee shows the position of the dorsal surface of the patella as it sits in the trochlear groove between the femoral condyles.

**mercurial** (mĕr-kū'rĕ-ăl) [L. *mercurialis*] **1.** Pert. to mercury. **2.** A substance containing mercury.

**mercurialism** (mĕr-kū'rĕ-ăl-izm) [L. *mercurius*, mercury, + Gr. *-ismos*, condition] Chronic poisoning by mercury. It is seen as a result of continuous administration of mercury or occurs in persons who work with the metal or inhale its vapors.

**SYMPTOMS:** Chronic mercury poisoning causes soreness of gums and loosening of teeth; increased salivation; tremor; and behavioral mood disorders.

**mercurialized** (mĕr-kū'rĕ-ăl-izd) **1.** Impregnated with mercury. **2.** Influenced by or treated with mercury.

**mercuric** (mĕr-kū'rik) Relating to bivalent mercury.

**mercuric chloride poisoning** SEE: under poisoning.

**mercurous** (mĕr-kū'rūs, mĕr'kū-rūs) Relating to monovalent mercury.

**mercurous chloride poisoning** SEE: under poisoning.

**mercury** (mĕr'kū-rĕ) [L. *mercurius*] SYMB: Hg. A metallic element with an atomic weight of 201 and an atomic number of 80. It is insoluble in ordinary

solvents but soluble in hydrochloric acid on boiling. (NOTE: This process would result in the release of highly toxic and irritating fumes into the atmosphere.) It is a silvery liquid at room temperature. Mercury forms two series of salts: mercurous, in which it has a valence of one (univalent), and mercuric, in which it has a valence of two (bivalent). SEE: *dental amalgam*.

**m. bichloride** Mercury (II) chloride.

**mercury poisoning** SEE: under poisoning.

**mercy** (mĕr'sē) [L. *merces*, reward] In medicine, the compassionate provision of relief or mitigation of physical pain, mental suffering, or psychological distress.

**meridian** (mĕ-rĭd'ĕ-ăn) **1.** An imaginary line encircling a globular body at right angles to its equator and passing through the poles, or half of such a line. **2.** In complementary medicine, traditional Chinese medicine, and acupuncture, one of several pathways that is believed to conduct energy between the surface of the body and the internal organs. Blockage along these pathways is believed to disrupt energy flow (chi or qi) and to cause imbalances that are reflected in symptoms or disease. Using Western scientific methods, meridians and the energy flows they are thought to direct have eluded identification. SEE: *illus. 3*. In visual field testing, a line that denotes an equal level of visual registration. **meridional**, *adj.*

**m. of eye** A circle passing through anterior and posterior poles of the eyeball.

**merispor** (mĕr'ĭ-spor) [Gr. *meros*, a part, + *sporos*, seed] A secondary spore resulting from the division of another spore.

**meroacrania** (mĕr'ō-ă-kra'ĭ-nĕ-ă) [Gr. *meros*, a part, + *a-*, not, + *kranion*, skull] Congenital absence of a part of the cranium.

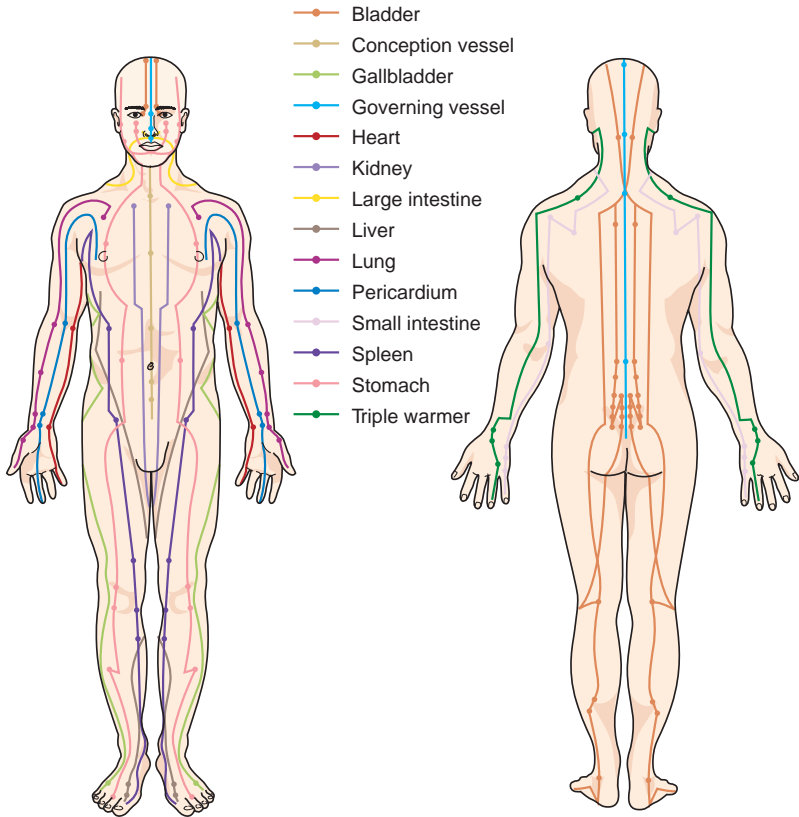
**meroblastic** (mĕr-ō-blăst'ik) [*meroblastos*, germ] Pert. to a type of ovum containing considerable yolk or a type of cleavage in which cleavage divisions are restricted to the protoplasmic region of the animal pole.

**meroceles** (mĕr'ō-sĕl) [*merocela*, tumor, swelling] Femoral hernia.

**merocrine** (mĕr'ō-krĭn) [*merocrene*, to separate] Denoting a type of secretion in which the glandular cell remains intact during the process of elaborating and discharging its product. SEE: *apocrine*; *eccrine*; *holocrine*.

**merodiastolic** (mĕr'ō-dĭ-ă-stōl'ik) Concerning a part of the diastole of the cardiac cycle.

**merogenesis** (mĕr'ō-jĕn'ĕ-sĭs) [Gr. *meros*, a part, + *genesis*, generation, birth] Multiplication or reproduction by segmentation.



### QI MERIDANS

Qi meridians are used in the Chinese medicine techniques of acupressure and acupuncture.

**merogony** (mĕ-rŏg'ō-nĕ) [ʹ + *gonos*, procreation] Incomplete development of fragments of an ovum.

**meromelia** (mĕr'ō-mĕ'lĕ-ă) [ʹ + *melos*, limb] Partial absence of a limb.

**meromicrosomia** (mĕr'ō-mī'krŏ-sŏ'mĕ-ă) [ʹ + *mikros*, small, + *soma*, body] Abnormal smallness of some part or structure of the body.

**meromyosin** (mĕr'ō-mī'ŏ-sĭn) Either of the subunits produced by tryptic digestion of myosin.

**meropia** (mĕr'ŏ'pĕ-ă) [ʹ + *ops*, vision] Partial blindness.

**merorhachischisis** (mĕ'rŏ-ră-kĭs'kĭ-sĭs) [ʹ + *rhachis*, spine, + *schisis*, a splitting] Fissure of a portion of the spinal cord. SYN: *mesorhachischisis*.

**merosin** A glycoprotein normally found in the basement membrane of muscles; it helps muscle cells adhere to and interact with each other and the extracellular matrix. Deficiencies of merosin produce several rare autosomal recessive forms of muscular dystrophy.

**merosmia** (mĕr-ŏs'mĕ-ă) [ʹ + *osme*, odor] Inability to detect certain odors.

**merostolic** (mĕr'ŏ-sĭs-tŏl'ĭk) [ʹ + *systole*, a contraction] Concerning a portion of the systole of the cardiac cycle.

**merotomy** (mĕr-ŏt'ŏ-mĕ) [ʹ + *tome*, incision] Division into sections or segments.

**merozoite** (mĕr'ŏ-zŏ'ĭt) [ʹ + *zoon*, animal] A body formed by segmentation or breaking up of a schizont in asexual reproduction of certain sporozoans, such as *Plasmodium*. When formed, merozoites are liberated and invade other corpuscles, where they repeat the process of schizogony or develop into gametocytes.

**merozygote** (mĕr'ŏ-zĭ'gŏt) [ʹ + *zygotos*, yoked together] A bacterial mechanism of gene transfer in which part of the genome, or chromosome complement, is transferred into an intact recipient cell.

**mesangium** (mĕs-ăn'jĕ-ŭm) The sus-



pensory structure of the renal glomerulus. **mesangial**, *adj.*

**mesaortitis** (mēs'ā-or-tī'tis) [" + *aorte*, aorta, + *itis*, inflammation] Inflammation of the middle aortic layer.

**mesarteritis** (mēs-ār-tēr-ī'tis) Inflammation of the tunica media or middle layer of an artery.

**mesaticephalic** (mēs-āt'ī-sēf-āl'ik) [Gr. *mesatos*, medium, + *kephale*, brain] Having a skull with a cephalic index of 75 to 79.9.

**mesatipellic**, **mesatipelvic** (mēs-āt'ī-pēl'lik, -pēl'vik) [" + *pella*, bowl] Having a pelvis of medium size with an index between 90 and 95.

**mesaxon** (mēz-āks'ōn, mēs-āks'ōn) The area of contact of the Schwann cell membrane and the membrane of the axon it encircles.

**mescaline** (mēs'kā-lēn) A poisonous alkaloid, the active ingredient of the mesal buttons of the cactus plant *Lophophora williamsii*. It produces its euphoric effects through its impact on serotonergic neurons in the brain and causes hallucinations, esp. of color and sound.

**mescalism** (mēs'kā-līzm) Intoxication produced by ingesting mescal.

**mesectoderm** (mēs-ēk'tō-derm) Migratory cells derived from ectoderm, esp. from the neural crest of the cephalic area in young embryos, that become pigment cells.

**mesencephalitis** (mēs'ēn-sēf'ā-lī'tis) [" + *enkephalos*, brain, + *itis*, inflammation] Inflammation of the mesencephalon.

**mesencephalon** (mēs-ēn-sēf'ā-lōn) [" + *enkephalos*, brain] The midbrain; one of three primitive cerebral vesicles from which develop the corpora quadrigemina, the crura cerebri, and the aqueduct of Sylvius. **mesencephalic**, *adj.*

**mesencephalotomy** (mēs'ēn-sēf'ā-lōt'ō-mē) [" + " + *tome*, incision] Surgical incision of the midbrain, usually done to relieve intractable pain.

**mesenchyme** (mēs'ēn-kīm) [" + *enchyma*, infusion] A diffuse network of cells forming the embryonic mesoderm and giving rise to connective tissues, blood and blood vessels, the lymphatic system, and cells of the mononuclear phagocyte system.

**axial m.** The prechordal mesenchyme and the chordamesoderm, the two midline populations of early embryonic mesenchymal cells, which give rise to the extraocular muscles, the notochord, and the ventral floor plate of the neural tube. **mesenchymal**, **mesenchymatous**, *adj.*

**mesenchymoma** (mēs'ēn-kī-mō'mā) A neoplasm containing a mixture of mesenchymal and fibrous tissue.

**mesenterectomy** (mēs'ēn-tēr'ēk'tō-mē) [" + *enteron*, intestine, + *ektome*, ex-

cision] Surgical removal of the mesentery.

**mesenteriopexy** (mēs'ēn-tēr'ē-ō-pēk'sē) [" + *enteron*, intestine, + *pexis*, fixation] Surgical attachment of a torn mesentery.

**mesenteriorrhaphy** (mēs'ēn-tēr'ē-or'ā-fē) [" + " + *rhaphe*, seam, ridge] Suturing of the mesentery. SYN: *mesorrhaphy*.

**mesenteriplication** (mēs'ēn-tēr'ī-plī-kā'shūn) [" + " + L. *plicare*, to fold] Shortening the mesentery by taking tucks in it surgically.

**mesenteritis** (mēs'ēn-tēr-ī'tis) [" + " + *itis*, inflammation] Inflammation of the mesentery.

**mesentery** (mēs'ēn-tēr'ē) [" + *enteron*, intestine] Commonly, the peritoneal fold that encircles the small intestine and connects it to the posterior abdominal wall. Other abdominal organs, however, also have a mesentery. **mesenteric** (mēs'ēn-tēr'ik), *adj.*

**MESH** *Medical Subject Headings*. A list of the medical words used in storing and retrieving medical references by the U.S. National Library of Medicine. SEE: **MEDLARS**.

**mesh** A prosthetic patch or fabric used to repair or reinforce hernias, burns, and other defects. A split-thickness skin graft may be formed into a mesh which may be applied to a burn or other cutaneous defects requiring extensive covering. SEE: *mesh graft*.

**mesiad**, **mesad** (mē'zē-ād, mē'sād) [Gr. *mesos*, middle, + L. *ad*, toward] Toward the median plane of a body or part.

**mesial**, **mesal** (mē'zē-āl, mē'sāl) **1.** Toward the middle point or midline plane. **2.** In dentistry, ventral or nearer to the center of the dental arch.

**mesial drift** The natural tendency for teeth to move in a mesial direction within the dental arch to maintain tight interproximal contacts between adjacent teeth. Also called physiological tooth movement. SEE: *tooth migration, pathological; tooth migration, physiological; tooth movement*.

**mesio-** [Gr. *mesos*, middle] **1.** A combining form meaning *toward the middle*. **2.** In dentistry, a combining form pert. to the ventral surface of teeth or ventrally toward the center of the dental arch.

**mesiocervical** (mē'zē-ō-sēr'vī-kāl) Concerning the mesial surface of the neck of a tooth.

**mesioclusion** (mē'zē-ō-kloo'zhūn) Malocclusion of the lower teeth. They are located in front of their normal position with respect to the upper teeth.

**mesiodens** (mē'zē-ō-dēnz) A supernumerary tooth, often paired, which typically appears between the maxillary central incisors.

**TREATMENT:** Surgical removal of the mesiodens is usually indicated.

**mesiodistal** (mē'zē-ō-dīs'tāl) In dentistry, pert. to the plane defined by the mesial and distal surfaces of a tooth.

**mesioingival** (mē'zē-ō-jin'jī-vāl) Concerning the mesial and gingival walls of a tooth cavity.

**mesiolabial** (mē'zē-ō-lā'bē-āl) Concerning the mesial and labial surfaces of a tooth or cavity.

**mesiolingual** (mē'zē-ō-līng'gwāl) Concerning the mesial and lingual surfaces of a tooth or cavity.

**mesiolinguo-occlusal** (mē'zē-ō-līng'gwō-ō-kloo'zāl) In dentistry, pert. to the angle formed by the meeting of the mesial, lingual, and occlusal surfaces of a tooth.

**mesiolinguopulpal** (mē'zē-ō-līng'gwō-pūl'pāl) Concerning the mesial, lingual, and pulpal sides of a tooth cavity.

**mesiopulpal** (mē'zē-ō-pūl'pāl) In dentistry, pert. to the mesial and pulpal surfaces of a cavity preparation in a tooth.

**mesioversion** (mē'zē-ō-vēr'zhūn) In dentistry, displacement of a tooth anteriorly in the dental arch.

**mesmerism** (mēs'mēr-izm) [Franz Anton Mesmer, Austrian physician, 1734–1815] Originally Mesmer's theory of animal magnetism, mesmerism now means therapeutics employing hypnotism or hypnotic suggestion. **mesmeric** (mēs-mēr'ik), *adj.*

**mesna** (mēz'nā) A detoxifying agent used to inhibit the hemorrhagic cystitis induced by ifosfamide. SEE: *ifosfamide*.

**meso-** [Gr. *mesos*, middle] **1.** Combining form meaning *middle*. **2.** In anatomy, combining form pert. to a mesentery. **3.** In medicine, combining form meaning *secondary* or *partial*.

**mesoappendicitis** (mēz'ō-ā-pēn't-dī-sī'tis) Inflammation of the mesoappendix.

**mesoappendix** (mēs'ō-ā-pēn'dīks) [Gr. *mesos*, middle, + L. *appendix*, an appendage] Mesentery of the vermiform appendix.

**mesoblast** (mēs'ō-blāst) [" + *blastos*, germ] Mesoderm.

**mesobronchitis** (mēs'ō-brōng-kī'tis) Inflammation of the middle layer of the bronchi.

**mesocardia** (mēs'ō-kār'dē-ā) [" + *kardia*, heart] Location of the heart in the midline of the thorax. This position is normal in the fetal stage, but a malposition after birth.

**mesocardium** (mēs-ō-kār'dē-ūm) An embryonic mesentery supporting the heart. The dorsal mesocardium connects the heart to the foregut, and the ventral mesocardium connects the heart to the central body wall.

**mesocecum** (mēs'ō-sē'kūm) [" + L. *caecum*, blindness] Part of the mesen-

tery that connects the cecum to the right iliac fossa.

**mesocephalic** (mēs'ō-sē-fāl'ik) [" + *kephale*, head] **1.** Pert. to the midbrain. **2.** Having a medium-sized head, with a cranial index of 76.0 to 80.9.

**mesocolon** (mēs'ō-kō'lōn) [" + *kolon*, colon] Mesentery of the colon. **mesocolic** (mēs'ō-kōl'ik), *adj.*

**mesocolopexy** (mēs'ō-kō'lō-pēk'sē) [" + " + *pexis*, fixation] The suturing of tucks in the mesocolon to shorten it in order to correct unneeded mobility and ptosis.

**mesocoloplication** (mēs'ō-kō'lō-plī-kā'shūn) [" + " + L. *plicare*, to fold] Plication of the mesocolon for stabilization.

**mesocord** (mēz'ō-kord) A portion of umbilical cord attached to the placenta by means of an amniotic fold.

**mesocuneiform** (mēs'ō-kū'nē-ī-form) The intermediate cuneiform bone of the ankle.

**mesoderm** (mēs'ō-dērm) [" + *derma*, skin] A primary germ layer of the embryo lying between ectoderm and endoderm. From it arise all connective tissues; muscular, skeletal, circulatory, lymphatic, and urogenital systems; and the linings of the body cavities. SEE: *ectoderm*; *endoderm*. **mesodermic**, **mesodermal**, *adj.*

**axial m.** Portion of the mesoderm that gives rise to the notochord and prechordal plate.

**extraembryonic m.** Mesoderm lying outside the embryo proper and involved in the formation of amnion, chorion, yolk sac, and body stalk.

**intermediate m.** Mesoderm lying between somite and lateral mesoderm, and giving rise to embryonic and definitive kidneys and their ducts.

**lateral m.** Unsegmented mesoderm lying lateral to the intermediate mesoderm. In it develops a cavity (coelom), separating it into layers (somatic and splanchnic mesoderm). SYN: *hypomere*.

**paraxial m.** Mesoderm lying immediately lateral to the neural tube and notochord.

**somatic m.** The outer layer of the lateral mesoderm. It becomes intimately associated with the ectoderm, forming the somatopleure, from which the ventral and lateral walls of the embryo develop.

**splanchnic m.** The inner layer of the lateral mesoderm. It becomes intimately associated with the endoderm, forming the splanchnopleure, from which the gut and the lungs and their coverings arise.

**mesodiastolic** (mēs'ō-dī'ā-stōl'ik) Mid-diastole of the heartbeat sequence.

**mesodont** (mēs'ō-dōnt) Having teeth of medium size; a dental index of 42 to 43.9.

**mesoduodenum** (mēs'ō-dū'ō-dē'nūm) Mesentery connecting the duodenum to the abdominal wall.

**mesogastrium** (mēs'ō-gās'trē-ūm) [*"* + *gaster*, belly] **1.** The umbilical region. **2.** The part of the mesentery of the embryo attached to the primitive stomach.

**mesogastric** (-trīk), *adj.*

**mesognathion** (mēs-ōg-nā'thē-ōn) A point in the lateral portion of the intermaxillary bone or premaxilla.

**mesognathous** (mē-sōg'nā-thūs) Having a facial profile that protrudes slightly from the vertical line between nasion and gnathion. SEE: *prognathous*.

**mesohyloma** (mēs'ō-hī-lō'mā) [*"* + *hyle*, matter, + *oma*, tumor] Tumor derived from the mesothelium.

**mesoileum** (mēs'ō-il'ē-ūm) The mesentery of the ileum.

**mesojejunum** (mēs'ō-jē-jū'nūm) The mesentery of the jejunum.

**mesolymphocyte** (mēs'ō-līm'fō-sīt) A medium-sized lymphocyte.

**mesomelic dwarfism** An autosomal dominant form of dwarfism in which short stature is accompanied by shortening of the lower legs and the forearms.

**mesometritis** (mēs-ō-mē-trī'tīs) [*"* + *metra*, uterus, + *itis*, inflammation] Myometritis.

**mesometrium** (mēs'ō-mē'trē-ūm) **1.** The uterine musculature. **2.** The broad ligament below the mesovarium.

**mesometric, mesometrial**, *adj.*

**mesomorph** (mēs'ō-morf) A body build characterized by predominance of tissues derived from the mesoderm (i.e., muscle, bone, and connective tissues); a well-proportioned individual. SEE: *ectomorph*; *endomorph*; *somatotype*.

**mesomycetozoa** (mēs'ō-mī-sēt'ō-zō'ā) [*"* + *"* + *"*] A clade of aquatic fish parasites, some of which, like *Rhinosporidium seeberi*, can cause infections in humans after exposure to contaminated water.

**mesonephroma** (mēs'ō-nē-frō'mā) [*"* + *nephros*, kidney, + *oma*, tumor] A relatively rare tumor derived from mesonephric cells developing in reproductive organs, esp. the ovary, or the genital tract.

**mesonephros** (mēs'ō-nē'f'rōs) *pl.* **mesonephroi** A type of kidney that develops in all vertebrate embryos of classes above the Cyclostomes. It is the permanent kidney of fishes and amphibians but is replaced by the metanephros in reptiles and mammals. SYN: *wolffian body*. **mesonephric** (mēs'ō-nē'f'rīk), *adj.*

**mesoneuritis** (mēs-ō-nū-rī'tīs) [*"* + *neuron*, nerve, + *itis*, inflammation] Inflammation of a nerve or of its lymphatics.

**meso-ontomorph** (mēs'ō-ōn'tō-morf) A broad, husky body type.

**mesophile** (mēs'ō-fīl) [*"* + *philein*, to

love] Organisms preferring moderate temperatures, as some bacteria, which develop best at temperatures between 15° and 43°C. **mesophilic** (mēs-ō-fīl'īk), *adj.*

**mesophlebitis** (mēs'ō-flē-bī'tīs) Inflammation of the medial layer of the wall of a vein.

**mesophragma** (mēs'ō-frāg'mā) [*"* + *phragmos*, a fencing in] A band in the center of the A band in the myofibrils of a striated muscle.

**mesophryon** (mēs-ōf'rē-ōn) [*"* + *ophrys*, eyebrow] The smooth surface of the frontal bone lying between the superciliary arches; the portion directly above the root of the nose. SYN: *glabella*; *metopion*.

**mesopia** (mēs-ōp'ē-ā) Ability to see at low levels of light (e.g., at twilight). **mesopic** (mēs-ōp'īk), *adj.*

**mesoporphyrin** (mēs'zō-pōr'fīr-īn) C<sub>34</sub>H<sub>38</sub>O<sub>4</sub>N<sub>4</sub>; an iron-free derivative of hemin.

**mesoprosopic** (mēs'ō-prō-sōp'īk) [*"* + *prosopon*, face] Having a face of moderate width with a facial index of 90.

**mesorchium** (mēs-or'kē-ūm) [*"* + *orchis*, testicle] Peritoneal fold that holds the fetal testes in place.

**mesorectum** (mēs'ō-rēk'tūm) Mesentery of the rectum.

**mesorhachischisis** (mēs'ō-rā-kīs'kī-sīs) [*"* + *rhachis*, spine, + *schisis*, a splitting] Merorhachischisis.

**mesorrhaphy** (mēs-or'ā-fē) [*"* + *rhaphe*, seam, ridge] Surgical repair of the mesentery. SEE: *mesentriorrhaphy*.

**mesorrhine** (mēs'ō-rīn) [*"* + *rhis*, nose] Having a nasal index variously quoted to range between 48 and 53.

**mesosalpinx** (mēs'ō-sāl'pīnks) [*"* + *salpinx*, tube] The free margin of the upper division of the broad ligament within which lies the oviduct.

**mesoseme** (mēs'ō-sēm) [*"* + *sema*, sign] Possessing an orbital index between 83 and 89.

**mesosigmoid** (mēs-ō-sīg'moyd) Mesentery of the sigmoid colon.

**mesosigmoiditis** (mēs'ō-sīg'moy-dī'tīs) Inflammation of the sigmoid colon.

**mesosigmoidopexy** (mēs'ō-sīg-moy'dō-pēk'sē) Surgical fixation of the mesosigmoid to treat prolapse of the rectum.

**mesosome** (mēs'ō-sōm) [*"* + *soma*, body] In bacteria, one or more invaginations of the cell membrane, believed to contain the enzymes for cellular respiration.

**mesosternum** (mēs'ō-stēr'nūm) [*"* + *sternon*, chest] The middle (second) section of the sternum.

**mesotendineum** (mēs'ō-tēn-dīn'ē-ūm) The part of the synovial sheath of a tendon that connects the lining of the tendon sheath to the fibrous sheath covering the tendon. SYN: *mesotendon*.

**mesotendon** (mész"ō-těn'dōn) Mesotendineum.

**mesothelioma** (mész"ō-thē-lē-ō' mā) A malignant tumor derived from the mesothelial cells of the pleura, peritoneum, or pericardium. It is found most often in smokers or persons with a history of exposure to asbestos.

**mesothelium** (mész"ō-thē'lē-ūm) [" + " + "] Epithelium derived from embryonic mesenchymal cells. Mesothelium forms the serous epithelia throughout the inside of the body. **mesothelial** (mész"ō-thē'lē-āl), *adj.*

**mesouranic** (mész"ō-ū-rān'ík) Having a palatal index between 110 and 114.9.

**mesovarium** (mész"ō-vā'rē-ūm) The portion of the peritoneal fold that connects the anterior border of the ovary to the posterior layer of the broad ligament.

**MET** *metabolic equivalent.*

**meta-** [Gr. *meta*, after, among, beyond, over, with] **1.** Prefix meaning *after, along with, among, behind, beyond.* **2.** In chemistry, denoting the 1,3 position of benzene derivatives. **3.** In chemistry, isomeric with or closely related to.

**meta-analysis** (mēt'ā-ā-nāl'ī-sis) The combination of data from several different research studies to gain a better overview of a topic than what was available in any single investigation. Data obtained from combined studies must be comparable and compatible for a meta-analysis to reach logical conclusions.

**metabiosis** (mēt'ā-bī-ō'sis) [" + *biosis*, way of life] Dependence of an organism for its existence on another. SYN: *commensalism*. SEE: *symbiosis*.

**metabolic** (mēt'ā-bōl'ík) Pert. to metabolism.

**metabolic body size** Body weight in kilograms to the three-fourths power ( $\text{kg}^{0.75}$ ), representative of the active tissue mass or metabolic mass of an individual.

**metabolic disease** A disease due to abnormal biochemistry, usually as a result of an absent or deficient enzyme. Metabolic diseases also are known as inborn errors of metabolism.


**metabolic gradient** A gradient in metabolic activity that exists in certain structures, such as the small intestine from duodenum to ileum or in embryos from animal to vegetal poles, in which metabolic activity is highest in one region and becomes progressively lower away from this region.

**metabolic rate** The rate of utilization of energy. This is usually measured at a time when the subject is completely at rest and in a fasting state. Energy used is calculated from the amount of oxygen used during the test. SEE: *basal metabolic rate; metabolism, basal.*

**metabolic syndrome** The presence of three or more of the following interre-

lated atherosclerotic risk factors: insulin resistance, elevated fasting blood sugar; hypertension, elevated triglyceride level, reduced high-density lipoprotein cholesterol, and abdominal obesity. Also called syndrome X, metabolic syndrome affects an estimated 40 percent of all Americans, and places patients at high risk for type 2 diabetes, cardiovascular disease, and stroke.

**metabolism** (mē-tāb'ō-līzm) [Gr. *metaballein*, to change, + *-ismos*, state of]

 All energy and material transformations that occur within living cells; the sum of all physical and chemical changes that take place within an organism. It includes material changes (i.e., changes undergone by substances during all periods of life, such as growth, maturity, and senescence) and energy changes (i.e., all transformations of chemical energy of foodstuffs to mechanical energy or heat). Metabolism involves two fundamental processes: anabolism (assimilation or building-up processes) and catabolism (disintegration or tearing-down processes). Anabolism is the conversion of food molecules into living cells and tissue; catabolism is the breakdown of complex chemicals into simpler ones, often producing waste products to be excreted. Catabolism also includes cell respiration for the formation of adenosine triphosphate (ATP) and release of heat energy. **metabolic** (mēt'ā-bōl'ík), *adj.*

**basal m.** Lowest level of energy expenditure. It is determined when the body is at complete rest. For an average person, basal metabolism is measured in various ways. In terms of large calories (Cal), measurement is about 1500 to 1800 per day; in terms of body weight, measurement is 1 Cal/kg per hour; in terms of body surface, measurement is 40 Cal/m<sup>2</sup>/hr.

**carbohydrate m.** The sum of the physical and chemical changes involved in the breakdown and synthesis of carbohydrates in the body. Carbohydrates are digested to hexose monosaccharides which are absorbed by the small intestine; the liver converts fructose and galactose to glucose. In the liver and muscles, glucose may be converted to glycogen. In all cells, glucose is oxidized to carbon dioxide and water, with energy released in the forms of ATP and heat. Lactic acid, a product of the anaerobic breakdown of glucose, causes muscle fatigue.

**constructive m.** The building-up processes by which complex substances are synthesized from simple carbohydrates, amino acids, fats, and other nutrients. SYN: *anabolism; assimilation.*

**destructive m.** The breakdown or decomposition of substances into their simple constituents. SYN: *catabolism.*

**fat m.** The sum of the physical and chemical changes involved in the breakdown and synthesis of fats in the body. Dietary fats are digested to fatty acids and glycerol in the small intestine, absorbed, and reformed into triglycerides that are transported in the form of chylomicrons. Fats may be stored in adipose tissue as potential energy or may be broken down to provide immediate energy. The liver has enzymes for the beta-oxidation of fatty acids and their use in the Krebs cycle. Fats may be formed from excess dietary carbohydrate or amino acids. Synthetic reactions produce phospholipids and steroids.

**first pass m.** The metabolism of a substance that occurs immediately as it enters the body, and before it can exert any effect, or before it can be measured at its target organ.

**intermediary m.** The series of intermediate compounds formed during digestion before the final excretion or oxidation products are formed or eliminated from the body.

**muscle m.** SEE: *muscle metabolism*.

**protein m.** The sum of the physical and chemical changes involved in the breakdown and synthesis of proteins in the body. Dietary proteins are digested to amino acids, which are absorbed by the small intestine and used to synthesize enzymes and the structural proteins that are essential for growth and repair of tissue. Amino acids in excess of protein synthesis requirements are deaminated; the  $\text{NH}_2$  group is removed and converted to urea, which is excreted by the kidneys. The remaining carbon chain may be converted to a simple carbohydrate and oxidized to produce energy.

**purine m.** Metabolism involving nucleic acids, present in nuclei of cells, in which they are combined with proteins to form nucleoproteins. In the breakdown of nucleic acid, uric acid, a nitrogenous waste product, is formed.

**metabolite** (mĕ-tăb'ō-līt) Any product of metabolism.

**metabolize** (mĕ-tăb'ō-līz) [Gr. *metaballein*, to change] **1.** To alter the character of a food biochemically. **2.** To break down a compound to its constituents by biological mechanisms.

**metabolomics** (mĕ-tăb'ā-lōm'īks) [*metabolome*, the collective metabolites in an organism + 'y'] **1.** The study of all the metabolic processes of cells and their impact on health and disease. **2.** The study of the metabolic profile of an organism, including the identification, categorization, and quantification of its metabolites.

**metabotropic** (mĕ-tăb'ō-trōp'īk) [*metabolism* + 'y'] Linked to G proteins; said of specific cell surface receptors.

**metacarp-** SEE: *metacarp-*.

**metacarpal** (mĕt'ā-kăr'pāl) [Gr. *meta*, after, beyond, over, + *karpos*, wrist] **1.** Pert. to the bones of the metacarpus. **2.** Any of the bones of the metacarpus. SEE: *hand*.

**metacarpectomy** (mĕt'ā-kăr'pĕk'tō-mĕ) [" + " + *ektome*, excision] Surgical excision or resection of one or more metacarpal bones.

**metacarp-**, **metacarp-** (mĕt-ă-căr'pō) [Gr. *meta*, after, beyond, over + Gr. *karpos*, wrist] Combining forms meaning *metacarpus* (bones of the hand).

**metacarpophalangeal** (mĕt'ā-kăr'pō-făl'n'jĕ-ăl) Concerning the metacarpus and the phalanges.

**metacarpus** (mĕt'ā-kăr'pūs) [" + *karpos*, wrist] The five metacarpal bones of the palm of the hand. SEE: *carpo-metacarpal*.

**metacentric** (mĕt'ā-sĕn'trīk) Term indicating a chromosome with the centromere in the median position, making the arms of the chromosome equal in length.

**metacercaria** (mĕt'ā-sĕr-kā'rĕ-ă) The encysted stage in the life of a trematode. This stage occurs in an intermediate host prior to transfer to the definitive host.

**metachromasia**, **metachromatism** (mĕt'ā-krō-mă zĕ-ă, -krōm'ă-tīzm) [Gr. *meta*, change, + *chroma*, color] Histological staining in which one stain may produce a variety of colors in the tissues. The colors are different from that of the dye used. **metachromatic** (mĕt'ā-krō-măt'īk), *adj.*

**metachromatic granules** (mĕt'ā-krō-măt'īk) SEE: *granule*, *metachromatic*.

**metachromatic leukodystrophy** SEE: *leukodystrophy*, *metachromatic*.

**metachromophil** (mĕt-ă-krōm'ō-fīl) [" + *chroma*, color, + *philein*, to love] Not reacting normally to staining.

**metachronous** (mĕ-tăk'ră-nūs) [" + Gr. *chronos*, time] Occurring at a different time than another similar event. The term is the antonym of *synchrouous*. It is often used to describe two or more tumors of similar pathological type detected at different times within the body.

**metachrosis** (mĕt-ă-krō'sīs) The ability to change color in some animals, as in the chameleon.

**metacognition** (mĕt-ă-kōg-nīsh'ūn) *pl.* **metacognitions** Awareness of the knowledge one possesses and one's ability to apply that knowledge. SEE: *insight*.

**metacone** (mĕt'ă-kōn) [Gr. *meta*, after, beyond, over, + *konos*, cone] The distobuccal cusp of an upper molar tooth.

**metaconid** (mĕt-ă-kōn'id) The mesiolingual cusp of a lower molar tooth.

**metaconule** (mĕt-ă-kōn'ūl) The distal intermediate cusp of an upper molar tooth.

**metagenesis** (mĕt'ă-jĕn'ĕ-sīs) [ʹ + *genesis*, generation, birth] Alternation of generations, esp. involving regular alternation of sexual with asexual reproduction, as seen in some fungi.

**Metagonimus** (mĕt'ă-gŏn'ĭ-mŭs) [ʹ + *gonimos*, productive] A genus of flukes belonging to the family Heterophyidae.

**M. yokogawai** A species of intestinal flukes common in the Middle and Far East that normally infests the intestines of dogs, cats, and other animals, but is also commonly found in humans. Intermediate hosts are snails and fish, esp. a species of trout, *Plecoglossus altivelis*.

**metainfective** (mĕt'ă-ĭn-fĕk'tĭv) Occurring subsequent to an infection.

**metaiodobenzylguanidine** (mĕt'ă-ĭ-ŏ-dŏ-bĕn'zĭl-gwah'nĭ-dĕn'') ABBR: MIBG. A precursor of a neurotransmitter that is used for a variety of nuclear medicine studies, including the detection of neuroectodermal tumors (e.g., neuroblastoma or pheochromocytoma) and myocardial perfusion imaging.

**metakinesis** (mĕt'ă-kĭ-nĕ'sīs) Moving apart, esp. the moving of the two chromatids of each chromosome away from each other as they move to opposite poles in the anaphase of mitosis.

**metal** (mĕt'ĭl) [L. fr. Gr. *metallon*, mine, quarry, metal] Any of a class of elementary substances (e.g., gold, silver, nickel, and copper) and their alloys (e.g., brass and bronze), all of which are crystalline when solid and many of which are opaque, shiny, capable of conducting electrons, and can be shaped by heat and pressure.

**base m.** A metal that corrodes or oxidizes relatively easily. Examples include aluminum, brass, nickel, and steel.

**noble m.** A metal that resists corrosion or oxidation. Examples are gold, platinum, and silver.

**metalbumin** (mĕt-ăl-bŭ'mĭn) The mucin present in ovarian cysts. SYN: *pseudomucin*.

**metal fume fever** A syndrome resembling influenza, produced by inhalation of excessive concentrations of metallic oxide fumes such as zinc oxide or antimony, arsenic, brass, cadmium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, or tin. It occurs in those whose occupations lead to exposure to these metals. This disorder is also called brass founder's fever (brass chills) and spelter's fever (zinc chills). SEE: *polymer fume fever*.

**SYMPTOMS:** The onset of symptoms is usually delayed. There are chills, weakness, lassitude, and profound thirst, followed some hours later by sweating and anorexia. Occasionally, there is mild inflammation of the eyes and respiratory tract. The symptoms

are more acute at the beginning of the work week than at the end. This is felt to be due to the individual's adapting to the fumes as exposure continues.

**FIRST AID:** Therapy includes analgesics, antipyretics, and rest.

**metallesthesia** (mĕt'ăl-ĕs-thĕ'sĕ-ă) [Gr. *metallon*, metal, + *aisthesis*, sensation] Recognition of metals by touching them.

**metallic** 1. Pert. to metal. 2. Composed of or resembling a metal.

**metallic tinkling** A peculiar ringing or bell-like auscultatory sound in pneumothorax over large pulmonary cavities.

**metalloenzyme** (mĕ-tăl'ŏ-ĕn'zĭm) An enzyme that contains a metal ion in its structure.

**metalloid** (mĕt'ă-loyd) [Gr. *metallon*, metal, + *idos*, resemblance] Any element with physical and chemical characteristics intermediate between those of metals and nonmetals. The metalloids include antimony, arsenic, boron, germanium, polonium, silicon, and tellurium. Unlike metals, which conduct electricity, they are semiconductors.

**metallophilia** (mĕ-tăl'ŏ-fĭl'ĕ-ă) [ʹ + *philein*, to love] The property of some tissues of binding certain metal salts.

**metalloporphyrin** (mĕ-tăl'ŏ-pŏr'fĭ-rĭn) Porphyrin combined with a metal, such as iron to form hemoglobin, or with magnesium to form chlorophyll.

**metalloprotein** (mĕ-tăl'ŏ-prŏ'tĕ-ĭn) A protein bound to metal ions.

**metallurgy** (mĕt'ăl-ŭr'jĕ) [ʹ + *ergon*, work] Science of obtaining metals from their ores, refining them, and making them into various shapes and forms.

**metamer** (mĕt'ă-mĕr) Something similar to but different from something else (e.g., isomers of chemical compounds).

**metamere** (mĕt'ă-mĕr) [Gr. *meta*, after, beyond, over, + *meros*, part] One of a series of similar segments arranged in a linear series and making up the body of an animal such as an earthworm.

**metamerism** (mĕ-tăm'ĕr-ĭzm) 1. Isomerism. 2. Isomerism consisting of segments or metameres. **metameric** (mĕt-ă-mĕr'ĭk), *adj.*

**metamorphopsia** (mĕt'ă-mŏr-fŏp'sĕ-ă) [Gr. *meta*, after, beyond, over, + *morphe*, form, + *opsis*, vision] Distortion of vision, esp. of the central visual field.

**metamyelocyte** (mĕt'ă-mĭ-ĕl'ŏ-sĭt) A transitional cell intermediate in development between a myelocyte and a mature granular leukocyte. SYN: *juvenile cell*.

**metanephrine** (mĕt'ă-nĕf'rĭn) An inactive metabolite of epinephrine.

**metanephros** (mĕt'ă-nĕf'rŏs) pl. **metanephroi** [ʹ + *nephros*, kidney] The permanent kidney of amniotes (reptiles, birds, and mammals). Part of the metanephros develops from the caudal por-

tion of the intermediate cell mass or ne-  
protome; the remaining portion is  
derived from a bud of the mesonephric  
duct.

**metaneutrophil** (mēt-ă-nū-trō-fil) [ʹ +  
L. *neuter*, neither, + Gr. *philein*, to  
love] Not staining normally with neu-  
tral dyes.

**metaparadigm** (mēt-ă-păr-ă-dim') The  
concepts that identify the phenomena of  
central interest to a discipline; the pro-  
positions that describe those concepts  
and their relationships to each other.

**metaphase** (mēt-ă-fāz) [ʹ + *phasis*, an  
appearance] The second stage of mitosis  
in which the pairs of chromatids line up  
on the equator of the cell. Each pair  
is connected at the centromere, which is  
attached to a spindle fiber. Metaphase  
follows prophase and precedes ana-  
phase, in which the chromatids become  
chromosomes and are pulled to opposite  
poles of the cell. SEE: *cell division* for  
illus; *mitosis*.

**metaphrenia** (mēt-ă-frē-nē-ă) [ʹ +  
*phren*, mind] The mental state of turn-  
ing away from family interests toward  
personal goals such as business.

**metaphysis** (mē-tăf-ī-sis) *pl.* **metaphy-  
ses** [Gr. *meta*, after, beyond, over, +  
*phyein*, to grow] The portion of a devel-  
oping long bone between the diaphysis,  
or shaft, and the epiphysis; the growing  
portion of a bone. **metaphyseal**, *adj.*

**metaphysitis** (mēt-ă-fis-ī-tis) [ʹ + " +  
*itis*, inflammation] Inflammation of the  
metaphysis of a bone.

**metaplasia** (mēt-ă-plā-zē-ă) [ʹ + *plas-  
sein*, to form] Conversion of one kind of  
tissue into a form that is not normal for  
that tissue. **metaplastic** (mēt-ă-  
plās'tik), *adj.*

**myeloid m.** Development of marrow  
tissue at sites in which it would not nor-  
mally occur.

**metaprotein** (mēt-ă-prō'tēn) Derived  
protein resulting from the action of acid  
or alkali, in which the molecule is  
changed to form a protein that is insol-  
uble in neutral solvents but is soluble in  
alkali or weak acid. SEE: *protein*.

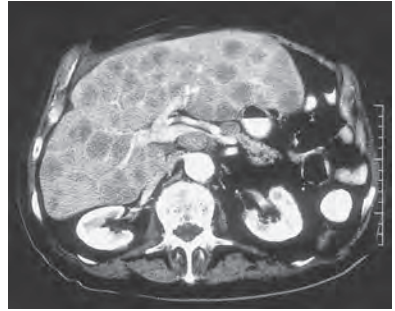
**metarteriole** (mēt-ă-r-tē-rē-ōl) A small  
vessel connecting an arteriole to a ven-  
ule from which true capillaries are given  
off. SYN: *precapillary*.

**metarubricyte** (mēt-ă-roo'brī-sīt) A nor-  
moblast, the last nucleated stage in the  
development of an erythrocyte. SEE:  
*erythrocyte* for illus.

**metastasectomy** (mē-tās'tă-sĕk'tă-mē)  
[ʹ + " ] Surgical removal of cancerous  
growths that have spread from the orig-  
inal tumor to other locations around the  
body.

**metastasis** (mē-tās'tă-sis) *pl.* **metasta-  
ses** [ʹ + *stasis*, stand] **1.** Movement  
of bacteria or body cells (esp. cancer  
cells) from one part of the body to an-  
other. **2.** Change in location of a disease

or of its manifestations or transfer from  
one organ or part to another not directly  
connected. SEE: *illus*.



### METASTASES

CT scan of liver (upper left) with round  
metastatic tumors (Courtesy of Harvey  
Hatch, MD, Curry General Hospital)

The usual application is to the mani-  
festation of a malignancy as a secondary  
growth arising from the primary growth  
in a new location. The malignant cells  
may spread through the lymphatic cir-  
culation, the bloodstream, or avenues  
such as the cerebrospinal fluid. **meta-  
static** (mēt-ă-stăt'ik), *adj.*

**metastasize** (mē-tās'tă-siz) To invade  
distant structures of the body. To dis-  
seminate widely.

**metastatic survey** (mēt-ă-stăt'ik) Pro-  
cedure in which various structures of  
the body are investigated, esp. by x-ray  
or imaging, to demonstrate any spread  
of cancer.

**metasynthesis** A technique used to gain  
insights from two or more thematic or  
categorical analyses of the same phe-  
nomenon by listing common elements in  
a standardized format so that patterns  
in them can be collected.

**metatarsal** (mēt-ă-tăr'săl) ABBR: MT.  
**1.** Concerning the metatarsal arch of  
the foot. **2.** Any of the bones of the met-  
atarsus.

**metatarsalgia** (mēt-ă-tăr-săl'jĕ-ă) [ʹ +  
*tarsos*, a broad flat surface, + *algos*,  
pain] Pain that emanates from the  
heads of the metatarsal bones and wors-  
ens with weight bearing or palpation.

**metatarsectomy** (mēt-ă-tăr-sĕk'tō-mē)  
[ʹ + " + *ektome*, excision] Removal  
of the metatarsus or a metatarsal bone.

**metatarsophalangeal** (mēt-ă-tăr-sō-fă-  
lăn'jĕ-ăl) [ʹ + " + *phalanx*, closely  
knit row] ABBR: MTP. Concerning the  
metatarsus and phalanges of the toes.

**metatarsus** (mēt-ă-tăr'sūs) [ʹ + *tarsos*,  
a broad flat surface] The region of the  
foot between the tarsus and phalanges  
that includes the five metatarsal bones.  
SEE: *foot*.

**metatarsus primus varus** Inturning of  
the first metatarsal bone of the foot.

**metatarsus varus** A congenital deformity of the foot involving adduction of the forefoot. When the child walks, the foot toes in. **SEE:** *illus.*

**metatheory** (mĕt'ā-thĕ'ā-rĕ, -thĕr'ĕ)

1. Knowledge about a discipline. For nursing theory, it is the most global (abstract) type of nursing theory. It focuses on broad issues that address the profession's most important concepts: the relationships among human beings, health, the environment, and nursing itself. **SEE:** *metaparadigm.*

2. A theory about the knowledge of a discipline, such as the nature and structure of nursing knowledge.

**metathesis** (mĕ-tāth'ĕ-sĭs) [" + *thesis*, placement]

1. A changing of places.  
2. Forcible transference of a disease process from one part to another, where it will be more accessible for treatment or where it causes less inconvenience.

3. Double decomposition of two chemical compounds.

**metatrophia** (mĕt-ă-trō'fĕ-ă) [" + *trophe*, nourishment]

1. A wasting due to malnutrition.  
2. A change in diet.

**metatropic dwarfism** A form of short-limbed dwarfism in which affected persons are born with a normal or long thorax but eventually develop kyphoscoliosis with a short trunk.

**metatypical** (mĕt'ā-tĭp'i-kāl) Tissue elements similar to those of other tissues at the same site, but having components that are disorganized.

**metazoa** (mĕt'ā-zō'ă) [" + *zoon*, animal] A term used for the multicellular animals, in contrast to unicellular forms called protozoa.

**Metchnikoff's theory** (mĕch'nĭ-kōfs)

[Elie Metchnikoff, Russian biologist and zoologist in France, 1845–1916] The theory, developed in 1883, that the body

is protected against infection by cells, such as leukocytes and phagocytes, that attack and destroy invading microorganisms. **SEE:** *phagocytosis.*

**metencephalon** (mĕt'ĕn-sĕf'ă-lŏn) [Gr.

*meta*, after, beyond, over, + *enkephalos*, brain] The anterior portion of the embryonic rhombencephalon, from which the cerebellum and pons arise. **SEE:** *hindbrain.*

**meteorism** (mĕ'tĕ-or-ĭzm) [Gr. *meteori-*

*zein*, to raise up] Distention of the abdomen or intestines due to the presence of gas. **SYN:** *typanites.*

**meteorotropism** (mĕ'tĕ-ŏ-rŏt'ŏ-pĭzm)

The influence of meteorological events on biological conditions and events, such as death rate, disease incidence, and birth rate. **meteorotropic** (mĕ'tĕ-ŏ-rŏ-trŏp'ĭk), *adj.*

**meter** (mĕ'tĕr) [Gr. *metron*, measure]

**ABBR:** M. A linear standard of measurement in the *Système International d'Unités* (SI system) that is equal to about 39.37 inches. Also spelled *metre* in certain European countries.

**metestrus** (mĕ-tĕs'trŭs) [" + L. *oistros*,

mad desire] Period following estrus and preceding diestrus. **SEE:** *estrus.*

**metformin** An oral antidiabetic agent used to treat elevated blood sugar levels in patients with type 2 (adult-onset) diabetes mellitus. It normalizes blood sugar levels by reducing the production of glucose by the liver and by increasing sensitivity of peripheral tissues to the effects of insulin.



This agent should not be used in patients with renal failure, because of the risk of metabolic acidosis.

**methacholine challenge test** (mĕth'ă-



TARSAL AREA FLEXED

FOOT AND ANKLE  
TURNED TOWARD MIDLINE

LEFT FOOT

**METATARSUS VARUS**



kō'lin) A test for airway hyperresponsiveness, e.g., asthma or occupational asthma, in which a person is given various dilutions of the drug methacholine hydrochloride to inhale, after which spirometric measurements are taken. Decreases in the forced expiratory volume in the first second of expiration of 20% or more or decreases in specific conductance of 35% or more are indicative of airway hyper-responsiveness.

**methacholine chloride** (mèth'ā-kō'lēn)

A parasympathomimetic bronchoconstrictor similar to acetylcholine, used as an aerosol in different strengths in airway challenge tests.



This substance should be used only for diagnostic purposes under the supervision of a physician trained in and thoroughly familiar with all aspects of the technique. Emergency resuscitation devices and medication should be available to treat respiratory distress.

**methadone hydrochloride** (mèth'ā-dōn)

A synthetic opioid analgesic with a long duration of action, used primarily to treat pain and to detoxify or maintain patients who are addicted to narcotic pain relievers. Methadone is habit-forming and subject to abuse; its use should be carefully supervised. In well-run treatment programs, its use has been associated with reductions in illegal drug use, transmission of human immunodeficiency virus, and criminal behaviors.

**methamphetamine hydrochloride**

(mèth'ām-fèt'ā-mēn) A sympathomimetic drug used as a stimulant or weight-loss promoter. It is a controlled substance that causes euphoria and has a high potential for abuse.

**methane** (mèth'ān) CH<sub>4</sub>; a colorless, odorless, inflammable gas. It is produced as a result of putrefaction and fermentation of organic matter. It is a major component of natural gas. SYN: *marsh gas*.

**methanol** (mèth'ā-nōl) Alcohol, methyl.

**methaqualone hydrochloride** (mèth'ā'kwā-lōn) A hypnotic and sedative that has become a drug of abuse. Because of the potential for abuse of this drug, it is no longer distributed in the U.S.

**methemalbumin** (mèt'hēm-āl-bū'mīn)

The abnormal combination of heme with albumin instead of globulin. It is present in blackwater fever (malaria complicated by massive hemolysis) and paroxysmal nocturnal hemoglobinuria.

**methemoglobin** (mèt'hē'mō-glō'bīn)

[Gr. *meta*, across, + *haima*, blood, + L. *globus*, globe] SYMB: metHb. A form of hemoglobin in which the ferrous iron has been oxidized to ferric iron.

Methemoglobin cannot transport oxygen. The presence of metHb in the blood may be due to toxic substances such as aniline dyes, potassium chlorate, or nitrate-contaminated water and to atypical responses to benzocaine-like analgesics, among other causes. Methemoglobin also is present in patients with a hereditary deficiency of methemoglobin reductase.

**m. reductase** An enzyme found in significant amounts in erythrocytes that catalyzes the reduction of methemoglobin in conjunction with the coenzyme nicotinic adenine dinucleotide phosphate and other enzymes.

**methemoglobinemia** (mèt'hē-mō-glōb'ī-nē'mē-ā) [ " + " + " + *haima*, blood] The clinical condition in which more than 1% of hemoglobin in blood has been oxidized to the ferric (Fe<sup>3+</sup>) form. The most common sign is cyanosis, because the oxidized hemoglobin does not transport oxygen. Very high concentrations of methemoglobin in the blood (i.e., greater than 30%) may produce dizziness, drowsiness, headache, or more severe neurological symptoms. Coma, seizures, and cardiac arrhythmias may occur with levels greater than 55%. Methylene blue is used as an antidote.

**congenital m.** Elevated levels of methemoglobin in the blood, resulting from one of several hereditary deficiencies of methemoglobin reductase. Affected persons may appear mildly cyanotic but are rarely symptomatic.

**methemoglobin fraction** The fraction of the hemoglobin in the blood in which ferrous iron has been oxidized to ferric iron.

**methemoglobinuria** (mèt'hē-mō-glōb'ī-nū'rē-ā) [ " + " + " + *ouron*, urine] Presence of methemoglobin in the urine.

**methene** (mèth'ēn) Methylene.

**methicillin-resistant Staphylococcus aureus** (mèth'ī-sīl'in) ABBR: MRSA. SEE: *under Staphylococcus*.

**methicillin sodium** (mèth'ī-sīl'in) A semisynthetic penicillinase-resistant penicillin.

**methiodal sodium** (mèth-ī'ō-dāl) A radiopaque compound used in x-ray examination of the urinary tract.

**methionine** (mèth-ī'ō-nīn) A sulfur-containing essential amino acid.

**methionine malabsorption syndrome**

An autosomal recessive disease, which is associated with mental retardation, diarrhea, convulsions, phenylketonuria, and a characteristic odor of the urine. The odor is due to the absorption from the intestinal tract of fermentation products of methionine. SYN: *oasthouse urine disease*; *Smith-Strang disease*.

**method** [Gr. *methodos*] The systematic manner, procedure, or technique in performing details of an operation, tests,

treatment, or any act. SEE: *algorithm*; *maneuver*; *stain*; *test*; *treatment*.

**Feldenkrais m.** SEE: *Feldenkrais method*.

**methodology** (mĕth"ō-dōl'ō-jē) [*" + logos*, word, reason] The system of principles and procedures used in scientific endeavors.

**methotrexate** (mĕth"ō-trĕk'sāt) An inhibitor of dihydrofolate reductase used to treat rheumatoid arthritis, Crohn's disease, psoriasis, and several cancers. It also has been used with misoprostol to induce abortion. Side effects from this drug include suppression of bone marrow production of blood cells and hepatitis.

**methyl** (mĕth'īl) [Gr. *methy*, wine, + *hyle*, wood] In organic chemistry, the radical CH<sub>3</sub><sup>-</sup>, seen, for instance, in the formula for methyl alcohol, CH<sub>3</sub>OH.

**m. alcohol** SEE: *alcohol*, *methyl*.

**m. mercury** An organic mercury compound produced by marine and soil bacteria. The level of methyl mercury increases in fish as it increases in polluted water. It is toxic to humans, esp. children.

**m. orange** A dye used as a pH indicator.

**m. purine** An oxidation product of purine. Includes caffeine, theophylline, and theobromine. SEE: *aminopurine*; *oxypurine*.

**m. violet** Stain employed in histology and bacteriology.

**methylate** (mĕth'ī-lāt) **1.** A compound of methyl alcohol and a base. **2.** To introduce the methyl group, CH<sub>3</sub>, into a chemical compound. **3.** To mix with methyl alcohol.

**methylation** (mĕth'ī-lā'shŭn) The addition of methyl groups to a compound.

**methylcellulose** (mĕth'īl-sĕl'ū-lōs) A tasteless powder that becomes swollen and gummy when wet. Methylcellulose is used as a bulk substance in foods and laxatives and as an adhesive or emulsifier.

**methylcytosine** (mĕth'īl-sī'tō-sīn) A derivative of pyrimidine present in some nucleic acids.

**methylene** (mĕth'ī-lĕn) The chemical radical =CH<sub>2</sub><sup>-</sup>.

**methylene blue** (mĕth'ī-lĕn) A dark green dye available as a crystalline powder. It produces a distinct blue stain. It is used for treatment of severe methemoglobinemia.

**methylglyoxal** (mĕth'īl-glī-ōk'sīl, -awl) An aldehyde formed from the metabolic degradation of glucose. Methylglyoxal can bind to proteins and DNA, causing metabolic damage to tissues (e.g., in diabetes mellitus), mutations, or cell death.

**methylmalonic acidemia** (mĕth'īl-mālōn'īk) An inherited metabolic disease caused by inability to convert methyl-

malonic acid to succinic acid. Clinically, signs are failure to grow, mental retardation, and severe metabolic acidosis. One form of the disease will respond to vitamin B<sub>12</sub> given either in utero or to the mother prior to delivery.

**methylmercury** (mĕ-thīl-mĕr'kū-rē) An esp. toxic form of mercury that is readily taken into the body through the skin or the respiratory tract. SEE: *mercury poisoning*.

**methyl methacrylate** (mĕth'īl-mĕth-āk'crĕ-layt) A polymer, made from methacrylic acid, used as a bone cement, bonding agent, drug-delivery vehicle, and tissue adhesive. Its operative use is sometimes associated with hypotension, fat or air embolism, or other complications.

**methylparaben** (mĕth'īl-pār'ā-bĕn) An antifungal agent used as a preservative in pharmaceuticals.

**methyltransferase** (mĕth'īl-trāns'fĕr-ās) An enzyme that catalyzes the transfer of a methyl group from one compound to another.

**methylxanthine** (mĕth'īl-zān'thĕn) A group of naturally occurring agents present in caffeine, theophylline, and theobromine. They act on the central nervous system, stimulate the myocardium, relax smooth muscle, and promote diuresis. A commonly prescribed methylxanthine is theophylline, which is used primarily to treat asthma and chronic obstructive pulmonary disease.

**metmyoglobin** (mĕt-mī'ō-glō'bīn) Myoglobin with the ferrous ion in the heme oxidized to the ferric ion.

**metol** (mĕ'tōl) Monomethyl-*p*-aminophenol sulfate, one of two developing agents used in radiographic developing solutions. Its primary function is to act quickly to bring out the shades of gray in a radiographic image.

**metonymy** (mĕ-tōn'ī-mĕ) [Gr. *meta*, after, beyond, over, + *onyma*, name]

**1.** In rhetoric, a figure of speech in which one word is used for another, related one (e.g., "crown" for "king," "queen," "monarch," or "sovereign"). **2.** In psychiatry, mental confusion exhibited in some schizophrenic disorders in which an imprecise but loosely related term is used for the correct one (e.g., "rifle" for "war," or "apple" for "ball").

**metopagus** (mĕ-tōp'ā-gūs) [Gr. *metopon*, forehead, + *pagos*, thing fixed] Conjoined twins united at the forehead.

**metopic** (mĕ-tōp'īk) [Gr. *metopon*, forehead] Relating to the forehead.

**metopion** (mĕ-tō'pĕ-ōn) Craniometric point in the forehead midway between frontal eminences. SYN: *glabella*.

**metopism** (mĕt'ō-pīzm) Persistence of the metopic suture in an adult.

**metoprolol tartrate** (mĕ-tōp'rā-lōl', -lōl') A beta-1 selective beta blocker that low-

- ers blood pressure, slows the heart rate, and reduces the heart's contractility but is less likely than nonselective beta blockers to cause wheezing. Trade names include Toprol and Toprol XL.
- metoxenous** (mē-tōk'-sī-nūs) [Gr. *meta*, change, + *xenos*, host] Denoting a parasite living on different hosts at different stages of development. SYN: *heterocious*.
- metoxeny** (mēt-ōk'sē-nē) Condition of being metoxenous.
- metr-** (mē'tr) [Gr.] SEE: *metro-*.
- metra-** [Gr. *metra*, uterus] SEE: *metro-*.
- metralgia** (mē-trāl'jē-ā) [Gr. *metra*, uterus, + *algos*, pain] Uterine pain. SYN: *hysteralgia*; *hysterodynia*; *uteralgia*.
- metratonia** (mē'trā-tō'nē-ā) Uterine atony occurring after childbirth.
- metreurynter** (mē-troo-rīn'tēr) [" + *eu-rynein*, to stretch] An inflatable bag that is inserted in the os uteri and distended to dilate the cervix.
- metria** (mē'trē-ā) Inflammation of the uterus during the puerperium.
- metric system** A system of weights and measures based on the meter (about 39.37 in) as the unit of distance, the kilogram as the unit of mass, and the cubic meter as the unit of volume. SEE: *Weights and Measures Appendix*.
- metrioccephalic** (mēt'rē-ō-sē-fāl'ik) [Gr. *metrios*, moderate, + *kephale*, head] A skull with a vertical index of 72 to 76.9.
- metritis** (mē-trī'tis) [Gr. *metra*, uterus, + *itis*, inflammation] Inflammation of the uterus. Metritis is designated endometritis if the endometrium is involved and myometritis if the musculature (myometrium) is involved. **chronic m.** Metritis with an increase in fibrous tissue and infiltration of lymphocytes.
- metrizamide** (mē-trī'zā-mīd) A water-soluble radiographic contrast medium used to outline structures in the spinal canal during myelography. It occasionally may cause the patient to have seizures after the procedure.
- metro-, metr-, metra-** [Gr. *metra*, uterus] Combining forms meaning *uterus*.
- metrocele** (mē'trō-sēl) [" + *kele*, tumor, swelling] Uterine hernia.
- metrocolpocele** (mē'trō-kōl'pō-sēl) [" + *kolpos*, vagina, + *kele*, tumor, swelling] Protrusion of the uterus into the vagina, which pushes the vaginal wall downward. SEE: *procidencia*.
- metrocystosis** (mē'trō-sīs-tō'sis) [" + *kystis*, cyst, + *osis*, intensive] Formation of uterine cysts.
- metrofibroma** (mē-trō-fī-brō'mā) [" + *L. fibra*, fiber, + *oma*, tumor] Uterine fibroma.
- metrology** The science and technology of measurement (e.g., of body parts or chemical reagents).
- metromalacia** (mē'trō-māl-ā'shē-ā) [" + *malakia*, softness] Softening of the uterus.
- metronidazole** (mēt'rō-nī'dā-zōl) An antibiotic used to treat infections caused by *Trichomonas vaginalis*, *Giardia lamblia*, amebic dysentery, anaerobic bacterial infections, and colitis caused by *Clostridium difficile*.
- 
-  This drug may depress the white blood cell count. Drinking alcohol while taking it may cause abdominal pain, nausea, or vomiting, as well as central nervous system symptoms such as vertigo, dizziness, and ataxia.
- 
- metronoscope** (mē-trōn'ō-skōp) A device for exposing written material to the eye at timed intervals in order to facilitate development of reading skills and speed.
- metroptosis** (mē-trō-tō'sis) [" + *ptosis*, a drooping] Downward displacement or prolapse of the uterus.
- metrorrhagia** (mē'trō-rā'jā, jē-ā) Inter-menstrual bleeding. Bleeding between regular menses may be associated with either benign or malignant conditions and warrants investigation.
- metrorrhea** (mē'trō-rē-ā) [" + *rhoia*, flow] Abnormal uterine discharge.
- metrorrhexis** (mē'trō-rēk'sis) [" + *rhexis*, rupture] Rupture of the uterus.
- metrosalpingitis** (mē'trō-sāl'pīn-jī'tis) [" + *salpinx*, tube, + *itis*, inflammation] Inflammation of the uterus and oviducts.
- metrosalpingography** (mē'trō-sāl'pīng-gōg'rā-fē) [" + " + *graphein*, to write] Hysterosalpingography.
- metrostenosis** (mē'trō-stēn'ō'sis) [" + *stenosis*, contraction] Contraction or narrowing of the uterine cavity.
- metrotomy** (mē-trōt'ō-mē) Incision of the uterus. SYN: *hysterotomy*.
- metry** [Gr. *metrein*, to measure] Suffix meaning *to measure*.
- metyrapone** (mē-tēr'ā-pōn) A drug that inhibits adrenocortical secretion from the adrenal gland. It is used to treat excessive adrenocortical hormone secretion and to test the function of the adrenal gland.
- metyrapone test** One of several diagnostic tests to assess the integrity of the pituitary-adrenal axis, esp. used in the diagnosis of adrenocorticotrophic hormone (ACTH) deficiencies and Cushing's disease. The drug metyrapone, which inhibits the secretion of cortisol by the adrenal glands, may be given at timed intervals during the day, or as a single nighttime dose. Depending on the method of administration, plasma levels of cortisol, 11-deoxycortisol, or ACTH, or

urinary levels of 17-hydroxysteroid, are evaluated to assess the patient's response.

**Mev, mev** *million electron volts.*

**mevalonic acid** (mēv"ā-lōn'īk) An intermediate compound in the metabolic processes that make cholesterol. Its synthesis is blocked by statins, medications used to lower serum lipid levels.

**Meynert's commissure** (mī'nērts) [Theodor H. Meynert, Austrian neurologist, 1833–1892] Fibrous tract extending from the subthalamic body to the base of the third ventricle.

**MFD** *minimum fatal dose.*

**Mg** Symbol for the element magnesium.

**mg** *milligram.*

**mgh** *milligram hour.* Dosage of radiation obtained by application of 1.0 mg radium for 1 hr.

**MGUS** Monoclonal gammopathy of unclear significance.

**MHC** *major histocompatibility complex.*

**mho** (mō) [ohm spelled backward] Siemens.

**MHz** *megahertz.*

**MI** *myocardial infarction.*

**miasm** (mī'āz-īm) [Gr. *miasma*, pollution, stain] In homeopathy, a toxic or noxious influence on the body, producing illness.

**MIC** *minimal inhibitory concentration.*

**mica** (mī'kā) [L.] 1. A crumb. 2. A mineral composed of various silicates of metals. It occurs in thin, laminated scales.

**micella, micelle** (mī-sēl'ā, mī-sēl') A sphere of bile salt molecules, essential for the absorption of fatty acids in the small intestine, composed of a water-soluble exterior and a lipid-rich core.

**Michigan alcoholism screening test** ABBR: MAST. A questionnaire composed of 25 questions designed to determine the likelihood of a person's dependency on alcohol.

**micr-** SEE: *micro-*

**micra** Pl. of micron.

**micrencephalon** (mī'krēn-sēf'ā-lōn) [Gr. *mikros*, small, + *enkephalos*, brain] 1. Cerebellum. 2. Smallness of the brain. SEE: *cretinism*.

**micrencephaly** (mī'krēn-sēf'ā-lē) Abnormal smallness of the brain. **micrencephalous** (mī'krēn-sēf'ā-lūs), *adj.*

**micro-, micr-** [Gr. *mikros*, small] SYMB:  $\mu$ . Combining forms meaning small.

**microabrasion** (mī'krō-ā-brā'zhūn) [" + "] The slow grinding down, polishing, or wearing away of a surface, esp. of dental enamel or rough skin.

**microabscess** (mī'krō-āb'sēs) [" + L. *abscessus*, a going away] A very small abscess.

**microaerophilic** (mī'krō-ā'ēr-ō-fīl'īk) [" + *aer*, air, + *philein*, to love] Growing at low amounts of oxygen; said of certain bacteria.

**microaerosol** (mī'krō-ēr'ō-sōl) A fine

aerosol whose particles are of uniform size, usually less than 1  $\mu$ m in diameter.

**microaggregate** (mī'krō-āg'rī-gīt, -gāt')

A very small amount of detectable solid material that precipitates from a saturated solution. Microaggregates found in intravenous infusions are usually caused by the incompatibility of the infused components, or by the presence of cellular fragments (e.g., in transfusion).

**microalbuminuria** (mī'krō-āl'bīn-ūr'ē-ā)

The excretion of very small amounts of albumin in the urine, (too small to be detected by simple dipstick testing). The loss of 30 to 300 mg of albumin in a 24-hr urinary specimen defines microalbuminuria. In a spot urine test, microalbuminuria is defined by an albumin-to-creatinine ratio of 30 to 300.

**TREATMENT:** Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers (and other blood pressure reducing drugs) limit urinary albumin losses.

**PATIENT CARE:** Patients with diabetes mellitus, in whom microalbuminuria is an indicator of progressive renal disease, should strive for optimal blood pressure and glucose control. Microalbuminuria is also a recognized risk factor for strokes, heart attacks, and death from cardiovascular diseases.

**microanalysis** (mī'krō-ā-nāl'ī-sīs) An analytical examination of minute amounts of material.

**microanatomy** (mī'krō-ānāt'ō-mē) Histology.

**microaneurysm** (mī'krō-ān'ū-rīzm) [" + *aneurysma*, a widening] A microscopic aneurysm.

**microangiitis** (mī'krō-ān'jē-ī'tīs) An inflammation of very small blood vessels.

**microangiopathy** (mī'krō-ān'jē-ōp'ā-thē) [" + *angeion*, vessel, + *pathos*, disease, suffering] Pathology of small blood vessels.

**thrombotic m.** The formation of blood clots in small blood vessels, such as occurs in thrombotic thrombocytopenic purpura and hemolytic uremic syndrome.

**microangiopathy** (mī'krō-ān'jē-ōs'kō-pē) [" + " + *skopein*, to examine] The use of microscopy to diagnose pathological changes in capillaries.

**microarray** (mī'krō-ār-rā") A biological semiconductor that uses DNA to make biochemical calculations, esp. those involving genes and the expression of mRNA by cells. Also known as DNA microarray, gene chip.

**microatelectasis** (mī'krō-āt'ē-lēk'tā-sīs) Microscopic collapse of alveoli that does not involve the airways and may not appear on radiographic examination.

**microbalance** (mī'krō-bāl'āns) A scale or balance for measuring very small weight changes.

**microbe** (mī'krōb) [" + *bios*, life] A unicellular or small multicellular organism including bacteria, protozoa, some algae and fungi, viruses, and some worms, esp. those that are injurious to other organisms. **microbial**, **microbic** (mī-krō'bē-āl, mī-krōb'ik), *adj.*

**microbicide** (mī-krō'bī-sīd) [" + *bios*, life, + *L. cidus*, kill] An agent that kills microscopic organisms (bacteria, fungi, and viruses). **microbicidal** (mī-krō'bī-sī'dāl), *adj.*

**Microbilharzia variglandis** (mī'krō-bil-hār'zē-ā vā-rī-glān'dīs) [NL, genus name fr. Theodor Bilhartz, Ger. physician, 1825–1862] The species of schistosome whose larvae cause swimmer's itch (cercarial dermatitis) in humans.

**microbiological antagonism** (mī'krō-bī-ō-lōj'i-kāl) SEE: *antagonism*, *microbial*.

**microbiology** (mī'krō-bī-ōl'ō-jē) [" + *bios*, life, + *logos*, word, reason] The scientific study of microorganisms, that is, of bacteria, fungi, intracellular parasites, protozoans, viruses, and some worms.

**microbiota** (mī'krō-bī-ō'tā) Microscopic organisms within a defined area, organism, or physiological environment. SEE: *macrobiota*. **microbiotic** (mī'krō-bī-ōt'ik), *adj.*

**microblepharism**, **microblephary** (mī'krō-blēf'ār-izm, -ār-ē) [" + *blepharon*, eyelid] Condition of having abnormally small eyelids.

**microbrachia** (mī'krō-brā'kē-ā) [" + *brachion*, arm] Abnormally small arms.

**microbrachius** (mī'krō-brā'kē-ūs) [" + *brachion*, arm] A fetus with abnormally small arms.

**microcalcification** (mī'krō-kāl-sī-fī-kā'shūn) A minute deposit of calcium in breast tissue that can be detected with a mammogram but not felt on physical examination. A grouping of microcalcifications suggests that cancer may be present in the organ.

**microcardia** (mī'krō-kār'dē-ā) [Gr. *mikros*, small, + *kardia*, heart] Unusual smallness of the heart.

**microcentrum** (mī'krō-sēn'trūm) [" + *kentron*, center] The cytoplasm that contains the centrioles.

**microcephalia** (mī'krō-sēf-ā'lē-ā) [" + *kephale*, head] Microcephaly.

**microcephalus** (mī'krō-sēf-ā-lūs) Individual with an exceptionally small head.

**microcephaly** (mī'krō-sēf-ā-lē) Abnormal smallness of head (below 1350 cc capacity) often seen in mental retardation. **microcephalic**, **microcephalous** (mī'krō-sēf-āl'ik, mī'krō-sēf-ā-lūs), *adj.*

**microcheilia** (mī'krō-kī'lē-ā) [Gr. *mikros*, small, + *cheilos*, lip] Abnormal smallness of the lips.

**microcheiria**, **microchiria** (mī'krō-kī'rē-

ā) [" + *cheir*, hand] Abnormal smallness of the hands.

**microchemistry** (mī'krō-kēm'is-trē) [" + *chemeia*, chemistry] Branch of chemistry analyzing specimens of minute quantity.

**microchimerism** (mī'krō-kī-mīr'ī-zīm, kī'mī-riz'im) [" + "] The presence in a tissue of some cells of alien origin, e.g., of fetal cells in a pregnant woman's bloodstream.

**microcinematography** (mī'krō-sīn'ē-mā-tōg'rā-fē) [" + *kinema*, motion, + *graphein*, to write] Motion pictures of microscopic objects.

**microcirculation** (mī'krō-sīr'kū-lā'shūn) Blood flow in the very small vessels (arterioles, capillaries, and venules). **microcirculatory**, *adj.*

**Micrococcaceae** (mī'krō-kōk-ā'sē-ē) A family of gram-positive cocci that includes the genera *Micrococcus*, *Sarcina*, and *Staphylococcus*.

**Micrococcus** (mī'krō-kōk'ūs) [Gr. *mikros*, small, + *kokkos*, berry] A genus of gram-positive cocci; species are saprophytes found throughout the environment.

**micrococcus** (mī'krō-kōk'ūs) *pl. micrococci* An organism of the genus *Micrococcus*.

**microcolon** (mī'krō-kō'lōn) Abnormally small colon.

**microcoria** (mī'krō-kō'rē-ā) [" + *kore*, pupil] Smallness of the pupil of the eye.

**microcornea** (mī'krō-kōr'nē-ā) Abnormally small cornea.

**microcoulomb** (mī'krō-koo'lōm) A microunit of current electricity; one-millionth part (10<sup>-6</sup>) of a coulomb.

**microcrystalline** (mī'krō-kris'tāl-in, -ēn) Composed of microscopic crystals.

**microcurie** ABBR:  $\mu\text{Ci}$ . One millionth of a curie.

**microcurie-hour** (mī'krō-kūr'ē) The radiation produced by radioactive decay at the rate of  $3.7 \times 10^4$  atoms per second.

**microcyst** (mī'krō-sīst) A very small cyst.

**microcyte** (mī'krō-sīt') A small erythrocyte (red blood cell) less than 5  $\mu\text{m}$  in diameter.

**microdactylia**, **microdactyly** (mī'krō-dāk-tīl'ē-ā, -dāk'tī-lē) [" + *daktylos*, digit] Abnormal smallness of the fingers or toes.

**microdebrider** (mī'krō-dē-brēd'ēr) An electromechanical cutting instrument used in endoscopic surgeries to remove tissues with a series of rotating blades and a suction device. This tool is often used in sinus and endobronchial procedures and other applications in which healthy tissues need to be spared while navigating inflamed or cancerous lesions.

**microdeletion** The loss or removal of a small amount of genetic information (a

small number of nucleotides) from a chromosome.

**microdialysis** The sampling of extracellular fluid (e.g., in the brain) either to assess the concentration of local chemical components or to perfuse drugs directly into small clusters of cells.

**microdissection** (mī'krō-dī-sēk'shūn) [" + L. *dissectio*, a cutting apart] Dissection with the aid of a microscope, esp. by utilization of a micromanipulator.

**laser capture m.** The collection of selected cell groups from tissue sections for analysis, e.g., of morphological or genetic characteristics.

**microdont** (mī'krō-dōnt) [" + *odous*, tooth] Possessing very small teeth.

**microdontia** (mī'krō-dōn'shē-ā) [" + *odous*, tooth] Having abnormally small teeth or a single small tooth.

**microdontism** (mī'krō-dōn'tizm) [" + " + *-ismos*, condition] Microdontia.

**microdrip infusion set, microdrop infusion set** (mī'krō-drīp") Tubing used to carry fluids at a slow, controlled rate from a reservoir to a patient and containing a buret that divides each milliliter (ml) of fluid into 60 drops.

**microdrop** (mī'krō-drōp") **1.** A tiny drop of fluid. **2.** One sixtieth of a milliliter (ml).

**microelectrophoresis** (mī'krō-ē-lēk'trō-fō-rē'sis) Electrophoresis of minute quantities of a solution.

**microembolus** (mī'krō-ēm'bō-lūs) *pl.* **microemboli** [" + *embolos*, plug] A tiny embolus, made up of small clumps of platelets, fat, tumor cells, or intravascular debris.

**microencapsulation** (mī'krō-ēn-kāp'sū-lā'shūn) Insertion of a drug or other active substance within a coating to improve the delivery of the active agent to a particular organ or tissue.

**microencephaly** (mī'krō-ēn-sēf'ā-lē) [" + *enkephalos*, brain] Microencephaly.

**microenvironment** (mī'krō-ēn-vī'rōn-mēnt) The environment at the microscopic or cellular level.

**microerythrocyte** (mī'krō-ē-rīth'rō-sīt) [" + *erythros*, red, + *kytos*, cell] Microcyte.

**microfarad** (mī-krō-fār'ād) A microunit of electrical capacity; one millionth of a farad.

**microfauna** (mī'krō-faw'nā) In a specific location, the animal life that is microscopic in size.

**microfibril** (mī'krō-fi'brīl) A very small fibril.

**microfiche** (mī'krō-fēsh") [Gr. *mikros*, small, + Fr. *fiche*, index card] A sheet of microfilm that enables a large number of library data and medical records to be stored in a small space.

**microfilament** (mī'krō-fil'ā-mēnt) Fibrils of the protein actin that form the cytoskeleton, which provides support and contributes to cellular movement.

**microfilaremia** (mī'krō-fil'ā-rē'mē-ā) Presence of microfilariae in the blood.

**microfilaria** (mī'krō-fi-lā-rē-ā) The embryos of filarial worms. Microfilariae are present in the blood and tissues of one infested with filariasis and are of importance in the diagnosis of filarial infections.

**microfilm** (mī'krō-film") A film containing a greatly reduced photoimage of printed or graphic matter.

**microflora** (mī'krō-flō'rā) In a specific area, the plant life that is microscopic in size.

**microform** (mī'krō-fōrm") [" + "] An incomplete or minor expression of a trait or illness.

**microform cleft lip** A small defect in the formation of the orbicularis oris muscle without a corresponding cleft in the palate.

**microfracture surgery** A method of repairing joint cartilage in which small holes are drilled into the bones surrounding the joint to stimulate the growth of replacement cartilage. Recovery and rehabilitation from the surgery are protracted.

**microgamete** (mī-krō-gām'ēt) [" + *gametes*, spouse] Male reproductive cell in conjugation of protozoa.

**microgamy** (mī-krōg'ā-mē) Union of male and female cells in certain lower forms.

**microgastria** (mī'krō-gās'trē-ā) [" + *gaster*, stomach] Unusual smallness of the stomach.

**microgenia** (mī'krō-jēn'ē-ā) [" + *geneion*, chin] Abnormal smallness of the chin.

**microgenitalism** (mī'krō-jēn'i-tāl-izm) [" + L. *genitalia*, genitals, + Gr. *-ismos*, condition] Abnormal smallness of the external genitalia.

**microglia** (mī-krōg'lē-ā) [" + *glia*, glue] Cells of the central nervous system (CNS) present between neurons or next to capillaries. These cells may function as macrophages when they migrate to damaged CNS tissue. SEE: *gitter cell*.

**microgliocyte** (mī'krōg'lē-ā-sīt) [" + " + *kytos*, cell] An embryonic cell of the microglia.

**microglioma** (mī'krō-gli-ō'mā) [" + " + *oma*, tumor] A tumor composed of microglial cells.

**microglossia** (mī-krō-glōs'ē-ā) [" + *glossa*, tongue] Abnormally small tongue.

**micrognathia** (mī-krō-nā'thē-ā) [" + *gnathos*, jaw] Abnormal smallness of jaws, esp. the lower jaw.

**microgonioscope** (mī'krō-gō'nē-ō-skōp) [" + *gonia*, angle, + *skopein*, to examine] Device for measuring the angles of the anterior chamber of the eye. It is used in studying glaucoma.

**microgram** (mī'krō-grām) ABBR:  $\mu$ g or

- mcg. One-millionth part of a gram; one-thousandth part of a milligram.
- micrograph** (mī'krō-grāf) [Gr. *mikros*, small, + *graphein*, to write] 1. Apparatus for magnifying and recording minute movements. 2. Photograph of an object seen through a microscope. SYN: *photomicrograph*.
- micrography** (mī-krōg' rā-fē) 1. Study of the physical appearance and characteristics of microscopic objects. 2. Study of an object by use of a microscope.
- microgyria** (mī-krō-jīr' ē-ā) [" + *gyros*, circle] Abnormal smallness of cerebral convolutions.
- microgyrus** (mī'krō-jī'rūs) [" + *gyros*, circle] A small, malformed gyrus of the brain.
- microhematuria** (mī'krō-hē-mā-tūr' ē-ā) Microscopic hematuria.
- microhepatia** (mī'krō-hē-pāt' ē-ā) [" + *hepar*, liver] Abnormally small size of the liver.
- microhm** (mī'krōm) A microunit of electrical resistance; one-millionth of an ohm.
- microhyphema** Microscopic bleeding into the anterior chamber of the eye, visible during slit lamp examination.
- microincineration** (mī'krō-in-sīn-ēr-ā'shūn) Determination of the presence and distribution of inorganic matter in tissues by subjecting a microscopic section of tissue to high temperatures, which destroys organic matter and leaves mineral matter as ash.
- microinjection** (mī'krō-in-jēk'shūn) Injection of substances into cells or minute vessels by means of a micropipette.
- microintroducer** (mī'krō-in'trō-doo's'ēr, -dūs') The needle and sheath through which a guidewire and peripherally inserted central catheter are placed. Use of this instrument decreases the risk of vessel puncture and allows the person doing the procedure to use a smaller needle to access the vein and then enlarge the opening with a dilator.
- microinvasion** (mī'krō-in-vā'zhūn) Invasion of the tissue adjacent to a carcinoma in situ. **microinvasive**, *adj.*
- microkeratome** (mī'krō-kēr' ā-tōm) A tool used in ophthalmology to remove a precisely measured depth of cornea.
- microleakage** (mī'krō-lē'kāj) The microscopic seepage of oral fluids between the interface of the tooth and a dental restoration. Microleakage may lead to sensitivity or discoloration of the tooth. Caused by discrepancies between the coefficient of thermal expansion of the tooth structure and the restorative material, microleakage is an inherent weakness of many restorative materials, although it is minimal with glass ionomer and polycarboxylate cements.
- microlentia** (mī'krō-lēn'shē-ā) Microphakia.
- microlesion** (mī'krō-lē'zhūn) A very small lesion.
- microliter** (mī'krō-lē'tēr) ABBR:  $\mu$ l. One-millionth part of a liter; i.e.,  $10^{-6}$  L.
- microlith** (mī'krō-līth) [" + *lithos*, stone] A very tiny stone.
- microlithiasis** (mī'krō-lī-thī' ā-sīs) [" + " + *-iasis*, process] The development of minute stones (tiny calcium deposits resembling grit or gravel) within tissues. Microlithiasis is found in the gallbladder in some patients with otherwise unexplained pancreatitis.
- pulmonary alveolar m.** Deposition of microscopic concretions throughout the lungs.
- testicular m.** The presence of tiny calcium deposits within the testicles. Although rarely identified during ultrasound examinations of the testes, this condition is clinically important, because it is often associated with testicular cancer.
- micromanipulation** (mī'krō-mā-nīp' ū-lā'shūn) The use of minute instruments and magnification aids to perform surgical or other procedures on tissues. SEE: *gene splicing*; *micromanipulator*; *microsurgery*.
- micromanipulator** (mī'krō-mā-nīp' ū-lā-tōr) An apparatus by which extremely minute pipettes or needles can be manipulated under a microscope for microdissection, microinjection, or microsurgery.
- micromazia** (mī-krō-mā'zē-ā) [Gr. *mikros*, small, + *mastos*, breast] Abnormally small size of the breasts.
- micromechanical system** (mī'krō-mē-kān' i-kil) ABBR: MEMS. Any miniature electromechanical device implanted into a prosthesis used to determine if the implanted body part is functioning optimally, e.g., tolerating body temperature, load, or pressure or other forms of biological stress. Micromechanical systems are biological sensors that transmit data obtained from within body parts via radio waves to a receiver located outside the body. They have been used as adjuncts to surgery, to identify subtle bleeding from aneurysms or endografts, or to indicate when orthopedic implants are failing or likely to fail.
- micromelia** (mī'krō-mē'lē-ā) [" + *meros*, limb] Abnormally small or short limbs.
- micromelus** (mī-krōm' ē-lūs) [" + *meros*, limb] One who has abnormally small or short limbs.
- micromere** (mī'krō-mēr) [" + *meros*, part] A small blastomere.
- micrometastases** (mī'krō-mē-tās'tā-sīs) [" + "] Any of the foci of tumor cells that are invisible to the naked eye or by routine imaging techniques but may be seen using microscopy with special stains or antibodies, or by other laboratory techniques.

**micrometer** (mī'krō-mē-ter) ABBR:  $\mu\text{m}$ . One millionth of a meter ( $10^{-6}$ ); one thousandth of a millimeter (0.001 mm). SYN: *micron*.

**micrometer** (mī-krōm'ē-tēr) Device used for measuring small distances.

**micromethod** (mī'krō-mēth'ōd) Any chemical or physical procedure involving small amounts of material or tissue.

**micrometry** (mī-krōm'ē-trē) [*"* + *metron*, measure] Use of device, esp. a micrometer, to measure small objects or thickness.

**micromicro-** ( $\mu\mu$ ) Prefix formerly used to indicate one trillionth ( $10^{-12}$ ). The term currently used is *pico*.

**micromicron** (mī'krō-mī'krōn) ABBR:  $\mu\mu$ . Obsolete term for picometer or  $10^{-12}$  meter.

**micromillimeter** (mī-krō-mīl'ī-mē-tēr) ABBR:  $\mu\text{mm}$ . One millionth of a millimeter. SYN: *millimicron*.

**micromole** (mī'krō-mōl) One millionth,  $10^{-6}$ , of a mole. SEE: *mole* (1).

**micromolecular** (mī'krō-mō-lēk'ū-lār) Composed of small molecules.

**Micromonospora** (mī'krō-mōn-ā-spawr'ā) A genus of gram-positive, branching bacteria that produce antibiotics.

**micromyeloma** (mī'krō-mī-ē-lē-ā) [*"* + *myelos*, marrow] Abnormally small-sized or short spinal cord.

**micromyeloblast** (mī-krō-mī'ēl-ō-blāst) [*"* + *myelos*, marrow, + *blastos*, germ] A small, immature myelocyte, often the predominating cell in myeloblastic leukemia.

**microneedle** (mī'krō-nē'dl) Extremely minute needle used in a micromanipulator for microdissection.

**micronize** (mī'krō-nīz) To pulverize a substance into particles only a few micra in size.

**micronodular** (mī'krō-nōd'ū-lār) Having small nodules.

**micronucleus** (mī-krō-nū'klē-ūs) *pl.* **micronuclei** [*"* + *L. nucleus*, kernel] **1.** A small nucleus. **2.** The smaller of the two nuclei of ciliated protozoa; it contains the chromosomes.

**micronutrient** (mī'krō-nū'trē-ēnt) A vitamin or mineral required by the body in very small amounts (micrograms or milligrams daily), such as beta carotene, biotin, chromium, copper, folate, manganese, selenium, and others.

**micronychia** (mī'krō-nīk'ē-ā) [*"* + *onyx*, nail] Possessing abnormally small nails.

**microorganism** (mī-krō-or'gān-izm) [*"* + *organon*, organ, + *-ismos*, condition] A living organism too small to be perceived with the naked eye, esp. a virus, bacterium, fungus, protozoan, or intracellular parasite, and some helminths. SYN: *germ*; *microbe*.

**pathogenic m.** Any microorganism capable of injuring its host, e.g., by com-

peting with it for metabolic resources, destroying its cells or tissues, or secreting toxins. The injurious microorganisms include viruses, bacteria, mycobacteria, fungi, protozoa, and some helminths. Pathogenic microorganisms may be carried from one host to another as follows: *Animal sources:* Some organisms are pathogenic for animals as well as humans and may be communicated to humans through direct or indirect contact. *Airborne:* Pathogenic microorganisms such as rhinoviruses, mycobacteria, or varicella may be discharged into the air, from which infectious droplets may be inhaled by exposed persons. *Bloodborne:* Infections such as cytomegalovirus, hepatitis B or C, HIV/AIDS, malaria, or West Nile virus may be spread from person-to-person by injection drug use, organ transplantation, or transfusion. *Contact infections:* Direct transmission of microorganisms can occur by skin-to-skin or intimate body contact, as in many sexually transmitted diseases. *Foodborne:* Food and water may contain pathogenic organisms acquired from the handling of the food by infected persons or through fecal or insect contamination. *Fomites:* Inanimate objects such as linens, books, cooking utensils, or clothing that can harbor microorganisms and could serve to transport them from one location to another. *Human carriers:* Asymptomatic individuals (e.g., "typhoid Mary") may harbor microorganisms without injury but transmit disease to others. *Arthropod vectors:* Insects, ticks, fleas, mosquitoes, and mites may transmit diseases by biting their hosts and depositing microorganisms into the blood. *Soilborne:* Spore-forming organisms (such as tetanus) in the soil may enter the body through a cut or wound. Vegetables and fruits, esp. root crops, may transmit microorganisms to the gastrointestinal tract.

**PATIENT CARE:** In health care settings such as clinics, hospitals, nursing homes and care facilities, hand hygiene prior to and after patient contact can do more than any other intervention to limit the spread of pathogenic microorganisms to patients. Hand hygiene is also the most effective preventive measure in the home and should be taught when handling food, after using the toilet, after handling nasal secretions or sputum, and before or after providing care to children, sick relatives, or other close contacts who have transmissible illnesses or risk factors (such as immune-suppressing illnesses) that predispose them to infection. Vaccination is another potent tool against the spread of pathogenic microorganisms, as is quarantine or "social distancing."

**micropannus** (mī'krō-pān'ūs) Patholog-



ical condition in which abnormal vessels and fibrous tissue infiltrate the cornea. SEE: *pannus*.

**microparasite** (mī'krō-pār'ā-sīt) A parasitic microorganism.

**micropathology** (mī'krō-pāth-ōl'ō-jē) [Gr. *mikros*, small, + *pathos*, disease, + *logos*, word, reason] The study of disease caused by microorganisms.

**micropenis** (mī'krō-pē'nīs) An abnormally small penis. SYN: *microphallus*.

**microphage, microphagus** (mī'krō-fāj, mī-krōf'ā-gūs) [ + *phagein*, to eat] A small phagocyte.

**microphakia** (mī'krō-fā'kē-ā) [ + *phakos*, lens] Abnormally small crystalline lens. SYN: *microlentia*.

**microphallus** (mī-krō-fāl'ūs) [ + *phallos*, penis] Micropenis.

**microphobia** (mī-krō-fō'bē-ā) [ + *phobos*, fear] Abnormal fear of small objects.

**microphone** (mī'krō-fōn) [ + *phone*, voice] Device for detecting and converting sound energy into an electronic signal, which is then transmitted.

**microphonia** (mī-krō-fō'nē-ā) Weakness of the voice.

**microphonoscope** (mī'krō-fō'nō-skōp) [Gr. *mikros*, small, + *phone*, voice, + *skopein*, to examine] Form of binaural stethoscope for magnifying sound.

**microphotograph** (mī'krō-fō'tō-grāf) [ + *phos*, light, + *graphein*, to write]

1. A photograph of extremely small size.

2. A photograph on microfilm. 3. Photomicrograph.

**microphthalmia, microphthalmus** (mī-krōf-thāl'mē-ā, -mūs) [ + *ophthalmos*, eye] Abnormally small size of one or both eyes.

**micropipette, micropipet** (mī'krō-pī-pēt) An extremely small pipette used for measuring small amounts of fluid substances.

**microplasia** (mī'krō-plā'zē-ā) [ + *plassein*, to form] Failure to attain full size, as in dwarfism.

**micropodia** (mī-krō-pō'dē-ā) [ + *pous*, feet] Unusually small size of the feet.

**micropolitan area** A small city, i.e., one with a population of 10,000 to 49,999 people.

**micropreemie** (mī'krō-prē'mē) [ + *preemie* (also *premie*), from *prem(ature)*] A newborn whose birth weight is less than 1000 g (2.2 pounds). SEE: *extremely low birth weight*.

**microprobe** (mī'krō-prōb) A very small probe, suitable for use in microsurgery.

**microprojection** (mī'krō-prō-jēk'shūn) Projection of images of microscopic objects upon a screen.

**microprosopia** (mī'krō-prō-sō'pē-ā) [ + *proson*, face] Abnormal smallness of the face.

**micropsia** (mī-krōp'sē-ā) [ + *opsis*, vision] Visual disorder in which objects seem smaller than they actually are. It

is seen in paralysis of accommodation, retinitis, and choroiditis.

**micropuncture** (mī'krō-pūnk'chūr) A very small incision or puncture of a structure such as a single cell.

**micropus** (mī-krō'pūs) [ + *pous*, feet] One with unusually small feet.

**micropyle** (mī'krō-pīl) [ + *pyle*, gate] The opening in the ovum for entrance of the spermatozoon. It is seen in the ova of some animals.

**microradiography** (mī'krō-rā'dē-ōg'rā-fē) Technique of x-raying microscopic objects. The pictures are usually enlarged.

**microrefractometer** (mī'krō-rē'frāktōm'ē-tēr) Refractometer used to study cells, esp. red blood cells.

**microrespirometer** (mī'krō-rēs'pī-rōm'ē-tēr) Device for measuring oxygen consumption of minute amounts of tissue.

**microrhinia** (mī'krō-rīn'ē-ā) [ + *rhis*, nose] Abnormal smallness of the nose.

**microRNA** (mī'krō-ār'ēn'ā) [ + + ] ABBR: miRNA. Oligonucleotides that prevent a variety of messenger RNAs from being transcribed from DNA or translated into proteins. They typically consist of 21 to 25 linked nucleotides.

**microscope** (mī'krō-skōp) [ + *skopein*, to examine] Optical instrument that greatly magnifies minute objects.

**microscopic, microscopical** (mī-krō-skōp'īk, -ī-kāl), *adj.*

**binocular m.** A microscope possessing two eyepieces or oculars.

**compound m.** A microscope with two or more objective lenses with different magnifications.

**dark-field m.** A microscope by which objects invisible through an ordinary microscope may be seen by means of powerful side illumination. SEE: *illumination, dark-field*.

**electron m.** A microscope that uses streams of electrons deflected from their course by an electrostatic or electromagnetic field for the magnification of objects. The final image is viewed on a fluorescent screen or recorded on a photographic plate. Because of greater resolution, images may be magnified up to 400,000 diameters. SEE: *scanning electron m.*

**light m.** A microscope that uses visible light to allow viewing of the object.

**operating m.** A microscope designed for use during surgery involving small tissue such as nerves, vessels, the inner ear, eye, or fallopian tubes. SEE: *microsurgery*.

**phase m.** A compound microscope to which a diffraction or phase plate and a specialized condenser diaphragm have been added. These make it possible to view details of objects characterized by differences in refractive index and thus delineate a change of phase, such as brightness or color. This microscope is

particularly useful for viewing living cells and observing cytoplasmic organelles.

**polarization m.** A microscope for examining specimens that polarize light or have double refraction.

**scanning electron m.** ABBR: SEM. An electron microscope that scans the image point by point and displays the image on a photographic film or television screen. The SEM, unlike other types of microscopes, allows a three-dimensional view of the tissue, and tissues do not need to be extensively handled and prepared in order to be visualized. The magnification ranges from 20 to 100,000 times.

**simple m.** A microscope with a single magnifying lens.

**slit-lamp m.** A microscope with slit illumination for examining the eye, esp. the cornea.

**stereoscopic m.** A binocular microscope with an objective lens for each eyepiece, permitting objects to be viewed stereoscopically.

**ultraviolet m.** A microscope using ultraviolet radiations as a light source and having an optical system for transmitting them. Used in observing specimens that fluoresce, such as tissues stained with a fluorescent dye.

**x-ray m.** A microscope using x-rays to reveal the structure of objects through which light cannot pass. The image is usually reproduced on film.

**microscopic colitis** ABBR: MC. Either of two forms of colitis (collagenous and lymphocytic), in which people have chronic, watery diarrhea despite having normal-appearing bowels during endoscopy or radiologic study.

**microscopy** (mī-krōs'kōp-ē) Inspection with a microscope.

**confocal m.** Type of microscopy that permits high-resolution analysis of serial optical sections (microscopic tomograms) into the depths of tissues or cells.

**multiphoton m.** ABBR: MPM. A means of imaging tissues that are deep within the body using infrared fluorescence. The technique relies on the absorption of two photons directed into tissues by a pulsed infrared laser. It can be applied to the visualization of tissues beneath the body surface and to optical biopsy.

**microsecond** (mī'krō-sēk'ūnd) One-millionth ( $10^{-6}$ ) of a second.

**microsome** (mī'krō-sēm) [Gr. *mikros*, small, + *sema*, sign] Possessing an orbital index of less than 83.

**microsmatic** (mī'krōs-māt'ik) [" + *os-masthai*, to smell] Having a poorly developed sense of smell.

**microsomal ethanol oxidizing system** (mī'krō-sōm'āl) ABBR: MEOS. A hepatic enzyme system that catabolizes

drugs and other potentially toxic substances. Ethanol ingested in relatively small amounts is catabolized by the hepatic enzyme alcohol dehydrogenase. Whenever ingested amounts of ethanol are large enough to overcome or deplete the alcohol dehydrogenase system, the MEOS becomes the major route for ethanol catabolism. Ethanol breakdown by the MEOS is not thought to produce as much energy as alcohol dehydrogenase breakdown, resulting in less weight gain than would be expected from the ethanol calories consumed.

**microsome** (mī'krō-sōm) Ribosome.

**microspectrophotometry** (mī'krō-spēk'trō-fō-tōm'ē-trē) Method for the histochemical study of substances present in cells, such as nucleic acid, based on absorption in the ultraviolet spectrum. This method permits quantitative and qualitative studies of certain cellular components.

**microspectroscope** (mī'krō-spēk'trō-skōp) [" + L. *spectrum*, image, + Gr. *skopein*, to examine] A combined spectroscope and microscope.

**microsphere** (mī'krō-sfēr) Minute container suitable for implantation or injection into the body or circulatory system. Microspheres may be used for delivering medicines to certain sites or, if radioactive, to study the blood flow to an area. If microspheres are used as a drug-delivery system, the container is designed to be dissolved in body fluids.

**magnetic m.** Microscopic magnetic particles that are used experimentally in autologous bone marrow transplant. The particles are coated with or coupled to antibodies and exposed to certain types of malignant cells in order to bind to them. The microspheres so bound can be removed by passing the cells through a magnetic field.

**microspherocyte** (mī'krō-sfē'rō-sīt) [" + *sphaira*, globe, + *kytos*, cell] Small, sphere-shaped red blood cells seen in certain kinds of anemia.

**microspherocytosis** (mī'krō-sfē'rō-sī-tō'sis) [" + " + *osis*, condition] Spherocytosis; marked by an excessive number of microspherocytes.

**microsplanchic** (mī'krō-splānk'nik) Having a relatively small abdominal cavity in comparison with the rest of the body.

**microsplenia** (mī-krō-splē'nē-ā) [" + *splen*, spleen] Abnormal smallness of the spleen.

**microsporid** (mī-krōs'pō-rīd) A skin eruption distant from the site of infection with *Microsporium* and due to hypersensitivity to the organism.

**microsporidiosis** (mī'krō-spō-rīd'ē-ō'sis) Intracellular spore-forming protozoa that infect many animals and are known to cause human disease, esp. in

- those with AIDS. The genera of microsporidia implicated are *Encephalitozoon*, *Pleistophora*, *Septata*, *Nosema*, and *Enterocytozoon*. They cause a variety of pathological conditions, including diarrhea, wasting, keratoconjunctivitis, peritonitis, myositis, and hepatitis.
- microsporosis** (mī'krō-spō-rō'sīs) Ringworm infection due to fungi of the genus *Microsporium*.
- Microsporium** (mī'krōs'por-ūm) A genus of fungi that causes disease of the skin, hair, and nails.
- M. audouinii** The causative agent of tinea capitis (ringworm of scalp).
- M. canis** The causative agent of ringworm in cats and dogs. It may be easily transmitted to children.
- microstomia** (mī-krō-stō'mē-ā) [ʹ + stoma, mouth] Abnormal smallness of the mouth.
- microstrabismus** (mī'krō-strā-bīs'mūs) [ʹ + strabismus, a squinting] Movement of the eyes in divergent directions or at different speeds. These movements are too small and too quick to be seen, but they have been detected through analysis of high-speed motion pictures.
- microstreaming** (mī'krō-strēm'ing) The pulsation of tissue particles associated with the application of therapeutic ultrasound. In physical medicine, microstreaming can promote soft-tissue healing. In dentistry, it is used in the removal of plaque and scale. SEE: *cavitation*.
- microsurgery** (mī'krō-sūr'jē-rē) Surgery in which various types of magnification, specialized instrumentation, fine sutures, and meticulous techniques are used to repair, anastomose, or restore delicate tissues.
- microthelia** (mī'krō-thē'lē-ā) [ʹ + thele, nipple] Abnormal smallness of nipples.
- microthrombus** (mī'krō-thrōm'būs) [ʹ + ʹ] A microscopic clump of fibrin, platelets, and red blood cells.
- microtia** (mī-krō'shē-ā) [ʹ + ous, ear] Unusually small size of the auricle or external ear.
- microtome** (mī'krō-tōm) [ʹ + tome, incision] Instrument for preparing thin sections of tissue for microscopic study.
- freezing m.** Microtome equipped to cut frozen tissues.
- sliding m.** Microtome in which the tissue being sectioned slides along a track.
- microtomy** (mī-krōt'ō-mē) The process of incising thin sections of tissues.
- microtrauma** (mī'krō-traw'mā) A very small injury.
- microtropia** (mī'krō-trō'pē-ā) [ʹ + trope, a turning] Strabismus with very small deviation, usually less than 4°.
- microtubule** (mī'krō-tū'būl) An elongated (200 to 300 Å), hollow or tubular structure present in the cell. Microtubules are important in helping certain cells maintain their rigidity, in converting chemical energy into work, and in providing a means of transporting substances in different directions within a cell. They increase in number during mitosis.
- microtut** (mī-krō'tūs) [ʹ + ous, ear] A person with abnormally small ears.
- microvasculature** (mī'krō-vās'kū-lā-chur) The smallest arterioles and venules, and the capillary networks of the body.
- microvascular** (mī'krō-vās'kū-lār), *adj.*
- microvillus** (mī'krō-vīl'ūs) *pl.* **microvilli** [L., tuft of hair] A microscopic fold of the free surface of a cell membrane. Microvilli greatly increase the exposed surface area of the cell. SEE: *border*, *brush*.
- microvolt** (mī'krō-vōlt) One millionth of a volt.
- microwave** (mī'krō-wāv) That portion of the radio wave spectrum between a wavelength of 1 mm and 30 cm.
- m. oven** An oven that uses microwave energy for cooking food. This method of food preparation may not kill microorganisms, esp. when used to reheat.
- microwave (tissue) ablation** Microwave coagulation therapy.
- microwave coagulation therapy** ABBR: MCT. The use of locally applied microwave energy to coagulate and destroy diseased tissues (e.g., in the cardiac conduction system, the endometrium, the liver, or prostate). SYN: *microwave (tissue) ablation*.
- Micruris fulvius** (mī-kroo'rīs fool'vī-ūs) The scientific name for the eastern coral snake, a venomous snake of the Elapidae family.
- miction** (mīk'shūn) Urination.
- micturate** (mīk'tū-rāt) [L. *micturare*] To pass urine from the bladder. SYN: *urinate*.
- micturition** (mīk-tū-rī'shūn) Urination.
- micturition syncope** SEE: *syncope*, *micturition*.
- MICU** *medical intensive care unit*.
- MID** *minimum infective dose*.
- midbody** (mīd'bōd-ē) Microtubules that appear as a granule between daughter cells during telophase of mitosis.
- midbrain** (mīd'brān) [AS. *mid*, middle, + *braegen*, brain] The corpora quadrigemina, the crura cerebri, and aqueduct of Sylvius, which connect the pons and cerebellum with the hemispheres of the cerebrum. It contains reflex centers for eye and head movements in response to visual and auditory stimuli. SYN: *mesencephalon*.
- midcarpal** (mīd-kār'pāl) Between the two rows of carpal bones.
- midclavicular** (mīd'klā-vīk'ū-lēr) [mīd + ʹ] In the middle of the clavicle.

**middle lobe syndrome** Atelectasis, bronchiectasis, or chronic pneumonitis of the middle lobe of the right lung, possibly due to calcified lymph nodes compressing the right middle lobe bronchus.

**midfoot** The area of the foot surrounding the cuboid, cuneiform, and navicular bones that lies between the forefoot and hindfoot.

**midge** (mīj) [ME. *migge*] Small, gnat-like flies including those from the families Chironomidae and Ceratopogonidae. Some cause painful bites.

**midget** (mīj'it) A nontechnical term for a very small person; an adult who is perfectly formed but has not attained and will not attain normal size.

**midgut** (mid-gūt') [AS. *mid*, middle, + *gut*, intestine] The midportion of the embryonic gut that opens ventrally into the yolk stalk.

**midlife** (mid'lif) Denoting (approximately) the ages from 35 to 55 years.

**midline** (mid'lin) Any line that bisects a structure that is bilaterally symmetrical.

**midnight census** An accounting of the number of residents living in a care facility at night. This number is the one used in the U.S. by the Centers for Medicare Services to determine how much reimbursement the facility will receive for the care of its residents. It may differ from the daytime census in that during the day residents may travel to or occupy more than one facility so that they can receive specialized care services.

**midpain** (mid'pān) Intermenstrual pain. SEE: *mittelschmerz*.

**midplane** (mid'plān) **1.** The plane bisecting a symmetrical structure; the median plane. **2.** In obstetrics, the plane of least dimensions in the pelvic outlet.

**midriff** (mid'rif) [" + *hrif*, belly] The diaphragm; the middle region of the torso.

**midsection** (mid-sĕk'shūn) [" + L. *secare*, to cut] A section through the middle of a structure.

**midtarsal** (mid-tār'sāl) Between the two rows of bones that make up the tarsus of the foot.

**midwife** (mīd'wif) [" + *wif*, wife] Nurse midwife.

**midwifery** (mid-wif'ēr-ē) The practice of assisting at childbirth. SEE: *obstetrics*.

**MIF** *maximum inspiratory force*.

**mifepristone** (mīf'ĕ-prīs'tōn) An abortifacient drug that blocks the action of progesterone. It is not used more than 47 days after the last menstrual period. A prostaglandin is administered by injection or as a suppository as an adjunct.

**migraine** (mī'grān) [Fr. from Gr. *hemicrania*, (headache in) half (of) the skull] A familial disorder marked by periodic, usually unilateral, pulsatile headaches that begin in childhood or early adult life and tend to recur with diminishing

frequency in later life. There are two closely related syndromes comprising what is known as migraine. They are classic migraine (migraine with aura) and common migraine (migraine without aura). The classic type may begin with aura, which consists of episodes of well-defined, transient focal neurologic dysfunction that develops over the course of minutes and may last an hour. Visual symptoms include seeing stripes, spots, or lines and scotomata. In most people, the aura precedes the headache; however, occasionally the aura will appear or recur at the height of the headache. Before the onset of symptoms, some people experience mood changes, fatigue, difficulty thinking, depression, sleepiness, hunger, thirst, urinary frequency, or altered libido. Others report a feeling of well-being, increased energy, clarity of thought, and increased appetite, esp. for sweets. The headache follows. Pain is usually confined on one side but is occasionally bilateral. Nausea and vomiting may be present and may last a few hours or a day or two. Common migraine has a similar onset with or without nausea. Light and noise sensitivity are present in both types. In the general population, migraine is present in three times as many females than males. It is a common problem that affects about 30 million Americans. During their reproductive years, women experience a much higher rate of migraine, and their headaches tend to occur during periods of premenstrual tension and fluid retention. Many patients link their attacks to ingesting certain foods, exposure to glare, or to sudden changes in barometric pressure. SYN: *migraine headache*.

**ETIOLOGY:** A family history of migraine will be found in over 70% of patients. Migraine may be precipitated by allergic hypersensitivity or emotional disturbances.

**TREATMENT:** Many medications help migraine sufferers. For most mild-to-moderate headaches, nonsteroidal anti-inflammatory drugs (e.g., ibuprofen or naproxen) alleviate pain and restore the ability to function normally within a few hours. These agents work best when combined with antiemetic drugs such as metoclopramide or promethazine, as well as rest or relaxation. Triptan drugs (such as sumatriptan or naratriptan), ergotamine derivatives (e.g., dihydroergotamine or ergotamine with caffeine), prednisone, and many other agents are also helpful although each has its own side effect profile and precautions for use. Patients who experience many migraine headaches each month may benefit from preventive medications such as beta-blocking drugs (e.g., propranolol), calcium chan-

nel blocking drugs (e.g., verapamil), or tricyclic antidepressants taken on a regular basis. Narcotics (morphine, fentanyl, and others) are given to abort some severe migraine attacks; however, habitual use of narcotics may result in tolerance to their effects and drug dependence.

**PATIENT CARE:** The nurse monitors the nature and character of the patient's pain, helps the patient relax by creating a dark and quiet environment, helps the patient recognize and avoid exacerbating factors (based on history), and teaches the patient methods for coping with discomfort (e.g., imagery, relaxation techniques). The patient is taught to take prescribed medications at the first signs of headache and to increase fluid intake to prevent dehydration once nausea is controlled. Prescribed medications are administered and evaluated for desired effects and adverse reactions. To enhance the effects of medications and pain relief, noninvasive pain relief measures should be instituted before pain becomes severe. Many headache experts recommend that patients with migraines learn to keep detailed diaries of their illness. Analysis of the diary may help headache sufferers to recognize factors such as lack of sleep; irregular meals; and particular foods, odors, or stresses that are likely to trigger a migraine (and therefore should be avoided). Headache diaries are also used to help distinguish migraine headaches from other types of head pain.

**migraine variant** Any of several intermittent disorders, usually in patients with a family history of migraine headaches, characterized by attacks of head, neck, or abdominal pain; transient confusion or paralysis; or visual disturbances. Typical migraine headaches often develop in children and young adults who suffer from migraine variants.

**migration** (mī-grā'shūn) [L. *migrare*, to move from place to place] **1.** Movement from one location to another. **2.** Unwanted movement of an implanted device from its original therapeutic location to another part of the body, where it may cause injury. **migratory**, *adj.*

**clot m.** The movement of a venous thrombosis from a distal location to one that is closer to the right side of the heart or pulmonary artery. This may increase the chances of pulmonary embolism, and typically requires renewed anticoagulation.

**internal m. of ovum** Passage of the ovum from the ovary through the fallopian tube to the uterus.

**m. of leukocytes** Passage of white blood cells through walls of capillaries. SYN: *diapedesis*.

**m. of teeth** The movement of teeth during eruption or out of their normal

position in the dental arch due to periodontal disease or missing adjacent teeth.

**m. of testicle** Descent of testicle into the scrotum. SYN: *descensus testis*.

**Mikulicz's drain** (mīk'ū-lich'ēs) [Johann von Mikulicz-Radecki, Polish surgeon, 1850–1905] A large-scale capillary drain that also serves as a tampon to arrest bleeding. It consists of a tubular piece of iodoform gauze of requisite size, placed in a cavity and filled with narrow strips of plain gauze until the necessary degree of compression is secured. This is used if there is parenchymatous oozing. SYN: *Mikulicz's tampon*.

**Mikulicz's mask** Gauze-covered frame worn over nose and mouth during performance of an operation.

**Mikulicz's pad** Folded gauze pad for packing of the viscera in abdominal operations and used as a sponge in general.

**Mikulicz's syndrome** Chronic infiltration with lymphocytes and painless enlargement of lacrimal and salivary glands.

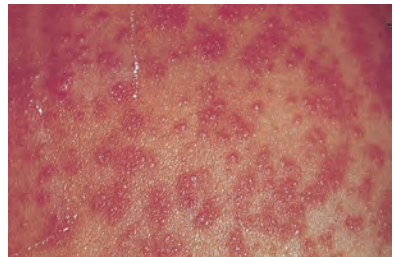
**mild cognitive impairment** ABBR: MCI. A subjectively sensed, and objectively verifiable, loss of memory that may result in difficulties with word finding, naming, or complex skill execution; it does not generally impair a person's ability to carry out normal activities of daily living. It is also known as "cognitive impairment, not dementia" (CIND), and "age-associated memory impairment" (AAMI). SYN: *age-associated memory impairment*.

**mildew** [AS. *mildeaw*] Lay term for a discoloration or superficial coating on various materials caused by the growth of fungi. It occurs in damp conditions.

**milia** (mīl'ē-ā) Pl. of milium.

**miliaria** (mīl-ē-ā'rē-ā) [L. *milium*, millet]

An inflamed papular or vesicular rash that results from obstruction of the flow of sweat from sweat glands, esp. by occlusive clothing in warm and humid conditions. *Miliaria rubra* (heat rash or prickly heat) often affects athletes and military troops. **SEE: illus.**



**MILIARIA**

**TREATMENT:** The rash often improves after the patient returns to a

cooler climate or the affected area is cooled and dried.

**apocrine m.** Fordyce-Fox disease.

**m. crystallina** Sudamen.

**m. profunda** Form of miliaria seen almost exclusively in the tropics, frequently following attacks of miliaria rubra. The affected area is covered with pale, firm, painless papules 1 to 3 mm across. These papules do not cause itching. **miliary** (mil'ē-ā-rē), *adj.*

**miliary tubercle** SEE: *tubercle, miliary.*

**miliary tuberculosis** SEE: *tuberculosis, miliary.*

**milieu** (mē-lyū') [Fr.] Environment.

**milieu therapy** A method of psychotherapy that controls the environment of the patient to provide interpersonal contacts that will develop trust, assurance, and personal autonomy.

**military antishock trousers** ABBR: MAST. Antishock garment.

**milium** (mil'ē-ūm) *pl. milia* [L., millet seed] White pinhead-size, keratin-filled cyst. Treatment consists of the use of mechanical keratolytics (pumice stone, soap), salicylic acid and sulfur ointment, or incision and expression of contents. In the newborn, milia occur on the face and, less frequently, on the trunk, and usually disappear without treatment within several weeks.

**colloid m.** Tiny papule formed beneath the epidermis due to colloid degeneration.

**milk** [AS, *meolc*] A secretion of the mammary glands for the nourishment of the young.

**COMPOSITION:** Milk from cows consists of water, organic substances, and mineral salts. **Organic substances:** Proteins: The principal proteins are caseinogen, lactoalbumin, and lactoglobulin; in the presence of calcium ions, soluble caseinogen is converted into insoluble casein by the action of acids, rennet, or pepsin. This brings about the curdling of milk. Lactoglobulin is identical with serum globulin of the blood and hence contains maternal antibodies. Carbohydrates: Lactose (milk sugar) is the principal sugar, although small quantities of other sugars are present. Fats: The principal fats are glycerides of oleic, palmitic, and myristic acids. Smaller quantities of stearic acid and short-chain fatty acids with carbon chains of C<sub>4</sub> to C<sub>24</sub> are present. Sterols and phosphatides (lecithin and cephalin) are also present. Churning causes the fat globules to unite into a solid mass and separate from the whey to form butter. **Mineral salts:** The principal cations are calcium, potassium, and sodium; the principal anions are phosphate and chloride. Citrates and lactates are present in small quantities. Milk is low in iron and magnesium.

**Vitamins:** Vitamin A and those of the

B complex (thiamine, riboflavin, and pantothenic acid) are present in adequate quantities to meet the needs of a growing child. Milk is low in vitamins C and D.

Milk contains antibodies that are present in the mother's blood and a number of enzymes (catalase, oxidase, reductase, phosphatase).

**acidophilus m.** Milk inoculated with *Lactobacillus acidophilus*, a bacterium that grows best in an acid medium. Acidophilus milk is used to modify the bacterial flora of the digestive tract in persons with gastrointestinal disorders.

**breast m.** Milk obtained from the mammary glands of the human breast. It is the ideal source of nutrition for most infants, since it contains maternal antibodies that protect the child from infection, and other substances that promote development of the brain and the gastrointestinal tract, among other organs. Human breast milk that is collected and refrigerated immediately may be used for up to 5 days. If it is collected, frozen, and stored at -17.7°C (0°F), it is safe for 6 months.



Breastfeeding by mothers with human immunodeficiency virus (HIV) is not recommended, because of the risk of transmission of HIV to the child.

**butter m.** SEE: *buttermilk.*

**casein m.** Milk prepared with a large quantity of casein and fat but little sugar and salt.

**condensed m.** Milk from which water has been removed and sugar has been added to make it thick and sweet. It is used in preparing desserts.

**cow's m.** Milk obtained from cows.

**evaporated m.** Cow's milk that has been concentrated by evaporating some of the water. It can be canned after pasteurization and stored for long periods of time. SEE: *lactic acid evaporated m.*

**fermented m.** Kousmiss.

**fore m.** Milk released at the beginning of each breastfeeding that contains a high percentage of water, protein, and vitamins but a lower percentage of fat than the hind milk that is released later.

**goat's m.** Milk obtained from goats, which, like cow's milk, should be pasteurized before use. Goat's milk differs from cow's milk in that it has a higher fat content, and is deficient in folacin and vitamin B<sub>12</sub>.

**hind m.** Milk released late in breastfeeding, distinguished by its high fat content.

**homogenized m.** Milk that has been processed in such a manner that fats are combined with the body of the milk and the cream does not separate.

**instant dry nonfat m.** Dried skimmed milk that may be stored at room temperature until needed and then reconstituted by adding water to the granules.

**lactic acid evaporated m.** Evaporated milk to which sugar and lactic acid have been added. To prepare this milk, add 17 oz (503 ml) of water to 13 oz (384 ml) of evaporated milk, 2 level tbsp (1 oz or 28 g) of granulated sugar, and 3 tbsp (45 ml) of vinegar.

**low-fat m. 1%** Cow's milk with 1% fat, which represents 22% of the calories.

**low-fat m. 2%** Cow's milk with 2% fat, which represents 35% of the calories.

**mature m.** Milk released once lactation has become fully established. SEE: *fore m.*; *hind m.*

**modified m.** Milk altered so that its composition more closely approximates that of human milk.

**mother's m.** Breast milk.

**nonfat m.** Skim milk.

**pasteurized m.** Milk heated to a specified temperature for a precise length of time and then cooled rapidly. This process kills pathogenic bacteria without appreciably altering the taste of the milk. SEE: *pasteurization*.

**protein m.** Milk modified to be high in protein and low in carbohydrate and fat content.

**red m.** Milk contaminated by blood, chromogenic bacteria, or plant pigments.

**ropy m.** Milk that has become viscid as a result of the presence of exopolysaccharides produced by bacterial contamination.

**skim m.** Cow's milk from which the fat has been removed.

**sour m.** Milk with lactic acid caused either by lactic acid-producing bacteria or by the addition of vinegar. It is most commonly used in baked goods.

**soy m.** Milk product derived from soybeans. It can take the place of cow's milk in people who have lactose intolerance and those who are allergic to milk proteins.

**sterilized m.** Milk that has been boiled to kill bacteria.

**transitional m.** The first breast milk produced as colostrum production fades. It has more triglyceride and medium-chain fatty acid content than colostrum. Its other components include lactose, water-soluble vitamins, and immunoglobulins.

**vegetable m. 1.** The latex of plants.  
**2.** A synthetic milk prepared from juices of various plants, such as soybean.

**vitamin D m.** Milk in which vitamin D content has been increased by addition of concentrates, ultraviolet irradi-

ation, or feeding of irradiated yeast to milk-producing animals.

**whole m.** Milk whose fat content is unaltered. It is homogenized, pasteurized, and often fortified with vitamins A and D. It may in some instances be treated with lactase-destroying enzymes. SEE: *pasteurization*.

**witch's m. 1.** Milk secreted by the newly born infant's breast, stimulated by the lactating hormone circulating in the mother. **2.** A rarely used synonym for galactorrhea.

**milk-alkali syndrome** Elevated blood calcium without an increase in calcium or phosphate in the urine, renal insufficiency, and alkalosis due to prolonged intake of excessive amounts of milk and soluble alkali. This condition is usually found as an undesired side effect of treating a peptic ulcer with calcium-containing antacids. SYN: *Burnett's syndrome*.

**milk fever** A colloquial term for an elevation in body temperature that occurs after childbirth. It may be caused by genitourinary infection, noninfectious inflammation of the lactating breasts, or infectious mastitis. SEE: *caked breast*; *mastitis*.

**milking** Removal of the contents of a tubular structure, such as the urethra, by compressing the tube with the fingers and moving them along the course of the tube and away from the origin of the urethra. This maneuver forces material out of the tube that might not otherwise be seen or available for study. SEE: *strip*.

**milk leg** Phlegmasia alba dolens.

**milk letdown, letdown** The ejection of a mother's milk from the alveoli of the breast into the mammary ducts and to the nipple.

**Milkman's syndrome** (milk'mänz) [Louis A. Milkman, U.S. roentgenologist, 1895–1951] Failure of reabsorption of phosphate by the renal tubules. This failure causes osteomalacia that produces a transverse striped area of multiple pseudofractures in bone x-rays.

**milk thistle** (milk this'til) An annual or biennial herb (*Silybum marianum*) promoted as a treatment for liver disorders. SYN: *Silybum marianum*; *silymarin*.

**Miller-Abbott tube** (mil'ér-áb'öt) [Thomas Grier Miller, U.S. physician, 1886–1981; William Osler Abbott, U.S. physician, 1902–1943] A double-channel intestinal tube used to relieve intestinal obstruction. Inserted through a nostril, the tube is passed through the stomach into the small intestine.

**Miller Analogies Test** (mil'ér) ABBR: MAT. A test to assess a person's ability to see the connections between words or concepts. The test consists of 100 core items designed in the following format:

X is to Y as ? is to B, where ? denotes a blank that must be filled in with one of several choices. The test may be administered to children to measure their language ability, knowledge, and ability to reason, and to others as part of a battery of neuropsychiatric tests.

**Miller Assessment for Preschoolers** [Lucy Jane Miller, Ph.D., contemporary occupational therapist] ABBR: MAP. A widely used standardized developmental screening test for youngsters from 2 to 5 years of age. It contains sensory, motor, and cognitive performance items.

**Miller-Fisher syndrome** (mīl'ēr-fish'ēr) An acute polyneuropathy thought to represent a variant of Guillain-Barré syndrome. Its characteristic features include: difficulty walking, loss of reflexes, and extraocular paralysis. The disease often follows infections with and may be caused by an abnormal immune response to certain pathogens, esp. *Campylobacter jejuni* and certain viruses. It is treated with plasmapheresis. Recovery is usually complete within a few months.

**milli-** [L. *milli*, thousand] Prefix used in the metric system to denote one-thousandth ( $10^{-3}$ ).

**milliammeter** (mīl'ē-ām'ē-tēr) Ammeter registering in milliamperes. SEE: *ammeter*.

**milliampere** (mīl'ē-ām'pēr) ABBR: ma. One-thousandth of an ampere.

**milliampere minute** An electrical unit of quantity, equivalent to that delivered by 1 milliampere in 1 min.

**milliampere second** ABBR: mAs. A unit used in radiographic imaging that is equal to the product of the current used in milliamperes and the time in seconds. It is the primary unit for determining the density or brightness of an ionizing radiation image.

**millibar** (mīl'ī-bār) One thousandth of a bar, which is 100 newtons/sq m. The normal atmospheric pressure of 14.7 lb/sq in is equal to 1013 millibars.

**millicoulomb** (mīl'ī-koo'lōm) ABBR: mC. A unit of electric current, one thousandth ( $10^{-3}$ ) of a coulomb.

**millicurie** (mīl'ī-kū'rē) ABBR: mCi. One thousandth of a curie. A practical unit of dosage for a radioactive source: 1 mCi of a radioactive substance applied for 1 hr.

**millicurie-hour** ABBR: mCi-hr. A practical unit of dosage for radon: 1 mCi of radon applied for 1 hr. The biological effect depends on time, filtration, and distance.

**milliequivalent** (mī'l-ē-ē-kwīv'ā-lēnt) ABBR: mEq. One thousandth of a chemical equivalent. The concentration of electrolytes in a certain volume of solution is usually expressed as milliequivalent per liter (mEq/L). It is calculated

by multiplying the milligrams per liter by the valence of the chemical and dividing by the molecular weight of the substance.

**milligram** (mīl'ī-grām) ABBR: mg. One thousandth of a gram.

**millilambert** (mīl'ī-lām'bērt) One thousandth of a lambert, a unit of light intensity. About one foot-candle, but more accurately, it is 0.929 lumens per square foot.

**milliliter** (mīl'ī-lē'tēr) ABBR: ml. One thousandth of a liter. For practical purposes, a milliliter is equivalent to  $1\text{ cm}^3$ . The term milliliter (mL) is used when referring to *liquid* volume; cubic centimeter (cc) is used when referring to the volume of a gas.

**millimeter** (mīl'ī-mē'tēr) ABBR: mm. One thousandth of a meter.

**millimicro-** (mīl'ī-mī'krō-kū'rē) Prefix formerly used to indicate one billionth ( $10^{-9}$ ). The term currently used is *nano*.

**millimicrocurie** (mīl'ī-mī'krō-kū'rē) A nanocurie, or  $10^{-9}$  curie.

**millimicrogram** (mīl'ī-mī'krō-grām) A nanogram, or  $10^{-9}$  g.

**millimicron** (mīl'ī-mī'krōn) ABBR: mμ. An obsolete term for distance in the metric system, usually applied to light wavelength. SEE: *nanometer*.

**millimole** (mīl'ī-mōl) ABBR: mM or mmol. One thousandth of a mole.

**milliosmole** (mīl'ē-ōs'mōl) One thousandth of an osmole; the osmotic pressure equal to one thousandth of the molecular weight of a substance divided by the number of ions that the substance forms in a liter of solution.

**millipede** (mīl'ī-pēd) A wormlike arthropod with two pairs of legs on each body segment. Some produce an irritating venom.

**millirem** (mīl'ē-rēm) ABBR: mrem. One thousandth of a rem.

**milliroentgen** (mīl'ē-rēnt'gēn) ABBR: mR. One thousandth of a roentgen.

**millisecond** (mīl'ī-sēk'ōnd) One thousandth of a second.

**millivolt** (mīl'ī-vōlt) One thousandth of a volt.

**milphosis** (mīl-fō'sīs) [Gr.] Loss of eyelashes.

**Milroy's disease** (mīl'roy's) [William Forsyth Milroy, U.S. physician, 1855–1942] Chronic hereditary lymphedema of the legs.

**Milwaukee brace** (mīl-waw'kē) A brace made of strong, lightweight materials. It extends from a chin cup with neck pad to the pelvis, and is used to correct minimal-curve scoliosis.

**mimesis** (mī-mē'sīs) [Gr.] Imitation, mimicry. The term is applied to a disease that exhibits symptoms of another disease or to conditions in functional illnesses that simulate organic disease. **mimetic, mimic** (mī-mēt'ik, mīm'ik), *adj.*



**mimic** (mīm'ik) [L., from Gr. *mimikos*, pertaining to a mime or buffoon, imitative] To copy, resemble, or simulate; imitate.

**mimivirus** (mī'mī-vī'rūs) [Fr. *mimi(c)* + ""] A massive double-stranded DNA virus, first identified in an amoeba in 2003, so large that it appears to be a bacterium when seen under light microscopy. It has been identified in some patients with pneumonia.

**mimimaton** (mī-mā'shūn) A form of stuttering in which the "m" sound is inappropriately used.

**mimotope, mimetope** (mīm'ō-tōp") [From *mim(ic)* + (*epi*)*tope*] A small peptide that elicits a stronger antibody response than the polysaccharide or nucleic acid antigen that it is designed to mimic. Polysaccharide and nucleic acid antigens are often weakly immunogenic.

**min** *minim; minimum; minute.*

**Minamata disease** (mīn'ā-maw'tā) [Minamata Bay, Japan] A degenerative neurological disease due to ingestion of alkyl mercury, an organic mercury used industrially. Peripheral nerve injury, ataxia, and dysarthria are common consequences. SYN: *yushi*.

**mind** [AS. *gemynd*] Psyche; integration and organization of functions of the brain resulting in the ability to perceive surroundings, to have emotions, imagination, memory, and will, and to process information in an intelligent manner. The quality and quantity of the functions of the mind vary with experience and development.

**mindfulness** (mīnd'fool-nēs") [ME.] Attentiveness; self-awareness.

**mindfulness-based stress reduction** The use of meditation and self-awareness to enhance one's ability to cope with challenging circumstances and psychological tensions.

**mind map** A method of learning or organizing data in which a person starts with a central concept and then arranges related concepts, facts, and ideas around it in a way that helps the cartographer make sense of the material.

**mineral** [L. *mineralis*] **1.** An inorganic element or compound occurring in nature, esp. one that is solid.

FUNCTION: Minerals are essential constituents of all cells; they form the greater portion of the hard parts of the body (bone, teeth, nails); they are essential components of respiratory pigments, enzymes, and enzyme systems; they regulate the permeability of cell membranes and capillaries; they regulate the excitability of muscular and nervous tissue; they are essential for regulation of osmotic pressure equilibria; they are necessary for maintenance of proper acid-base balance; they are essential constituents of secretions of

glands; they play an important role in water metabolism and regulation of blood volume.

DAILY REQUIREMENTS: Because mineral salts and water are excreted daily from the body, they must be replaced through food intake. Daily values for principal minerals for a healthy adult are as follows: calcium, 800 to 1200 mg; copper, 2 mg; iodine, 150 μg (micrograms); magnesium, 400 mg; phosphorus, 1000 g; selenium, 55 to 70 mcg; zinc, 15 mg. Daily intake of sodium chloride should be limited to 6 g (2.4 g of sodium) or less each day. SEE: *Recommended Daily Dietary Allowances Appendix*.

**2.** Inorganic; not of animal or plant origin. **3.** Impregnated with minerals, as mineral water. **4.** Pert. to minerals.

**mineral acid** Inorganic acid.

**mineralization** (mīn'ēr-āl-i-zā'shūn)

**1.** Normal or abnormal deposition of minerals in tissues. **2.** In the food chain, the degradation by bacteria and fungi of complex organic molecules to simpler organics and inorganics.

**mineralocorticoid** (mīn'ēr-āl-ō-kor'ti-

koyd) A steroid hormone (e.g., aldosterone) that regulates the retention and excretion of fluids and electrolytes by the kidneys. SEE: *aldosterone*.

**mineral oil** SEE: *petrolatum, liquid*.

**mineral spring** A natural water source which contains dissolved mineral salts, including calcium, fluoride, magnesium, potassium, and sodium (among others). SEE: *spa*.

**mineral water** Water that contains sufficient inorganic salts to cause it to have therapeutic properties.

**mini-cog** (mīn'ē-kōg") A screening test used to detect cognitive deficits present in patients with dementia. Patients are asked to draw a clock face and to remember three objects. The test is easier to administer than the 30-component Mini-Mental State Examination, another screening test for cognitive impairment.

**minification** (mīn'ī-fī-kā'shūn) In radiography, the reduction in the size of a fluoroscopic image to intensify the brightness of that image.

**minilaparotomy** An incision of the abdominal wall into the peritoneum that is less than 5 cm long.

**minim** (mīn'im) [L. *minimum*, least] ABBR: m; min. One sixtieth of a fluidram, or 0.06 ml.

**minimal** (mīn'ī-māl) Least; the smallest possible.

**minimal brain dysfunction** ABBR: MBD. Learning disability. SEE: *attention-deficit hyperactivity disorder*.

**minimal cerebral dysfunction** Learning disability. SEE: *attention-deficit hyperactivity disorder*.

**minimal change disease** The form of nephrotic syndrome most often found in

children, in which renal biopsies reveal little if any pathological change under the light microscope. With electron microscopy, effacement of the foot processes of the glomerulus becomes evident. SEE: *nephrotic syndrome*.

**minimally conscious state** ABBR: MCS. A severe alteration in consciousness that does not meet the diagnostic criteria for either coma or a persistent vegetative state, in which patients respond to some sounds and unpleasant stimuli and have a sleep-wake cycle but do not attend to their environment consistently.

**Mini-Mental State Examination** ABBR: MMSE. A commonly used assessment tool to quantify a person's cognitive ability. It assesses orientation, registration, attention, calculation, and language. Scoring is from 0 to 30, with 30 indicating intact cognition.

**Mini-Mental Status Examination** SEE: *Mini-Mental State Examination*.

**minimum** (mīn'ī-mūm) *pl.* **minima** Least quantity or lowest limit. SEE: *threshold*.

**minimum daily requirements** ABBR: MDR. The quantity of vitamins and minerals needed in the diet to prevent symptoms of deficiency. SEE: *Recommended Daily Dietary Allowances Appendix*.

**Minimum Data Set** ABBR: MDS. A comprehensive computer-compatible form for assessment of nursing home residents covering 13 key clinical areas. It was developed as a result of the Omnibus Reconciliation Act of 1987 and mandated for use in nursing homes in the U.S. Resident assessment protocols are used to identify multiple "triggers" for the assessment of various conditions. Under the current prospective payment system, the form must be completed and sent electronically to the federal government within 7 days of admission to a nursing home and at frequent intervals thereafter. SEE: *Nursing Minimum Data Set*.

**mining** (mī'nīng) [ME] 1. The extraction of useful information from a database. SYN: *data m.* 2. The extraction from the earth of materials with industrial value, such as coal, silver, or gold. Miners are exposed to various occupational disorders, including respiratory diseases (e.g., pneumoconiosis), allergies, and traumatic injuries.

*data m.* Mining (1).

**minipill** (mīn'ē-pīl") A colloquial term for an oral contraceptive consisting of only progestins. The minipill works by thickening cervical mucus. Some formulations are somewhat less effective contraceptives than birth control pills that contain both estrogens and progestins. However, the absence of estrogens reduces the risk of blood clots.

**minipool** (mī'nē-pool") A small sample of blood or blood products derived from a

large group of blood donors. Minipools taken from 14 to 48 blood donors are screened in clinical medicine for the presence of dangerous infections, such as hepatitis B, hepatitis C, or HIV. Minipool testing is more efficient and more cost effective than the more expensive method of testing each individually donated specimen. If a minipool is negative for infection, all of its components are cleared for use. If a minipool tests positive, the individual components in the pool are tested to determine which of the donors has given a specimen that needs to be discarded.

**Minnesota Multiphasic Personality Inventory** ABBR: MMPI. SEE: *personality test*.

**Minnesota Rate of Manipulation Test** ABBR: MRMT. A measure of fine motor (hand) coordination and dexterity. It uses turning and placing of objects to assess unilateral and bilateral manual dexterity and eye-hand coordination. Both accuracy and speed are assessed. It is useful as a measure of how visual deficits affect manual performance. SEE: *fine motor skill*.

**minor** A person not of legal age and thus requiring consent for medical, surgical, or dental care. The legal age in the U.S. varies from state to state.

**emancipated m.** A person not of legal age who is in the armed services, married, the mother of a child whether married or not, or has left home and is self-sufficient. Some state legislatures do not require such an individual to have parental consent to receive medical or surgical care, or advice on contraception or abortion.

**minor cognitive and motor disorder** ABBR: MCMD. A mild form of AIDS-dementia complex in which patients have subtle impairments of movement or thinking. It is typically found in patients receiving active, effective therapy for HIV/AIDS.

**Minot-Murphy diet** (mī'nōt) [George R. Minot, U.S. physician, 1885–1950; William P. Murphy, U.S. physician, 1892–1987] An early diet for pernicious anemia containing large quantities of liver. When the diet was initially devised, liver was consumed raw. Subsequently a liver extract was developed and used.

**mio-, meio-** (mī'ō) [Gr. *meion*, less] Combining forms meaning *less* or *fewer*.

**miodidymus** (mī'ō-dīd'ī-mūs) [" + *didymos*, twin] A fetus with two heads joined at the occiput.

**miolecithal** (mī'ō-lēs'ī-thāl) [" + *lekitos*, egg yolk] Pert. to an egg with a small amount of yolk.

**miopus** (mī'ō-pūs) [" + *ops*, face] Conjoined twins with one having a rudimentary face.

**miosi** (mī-ō'sis) [Gr. *meiosis*, a lessening] Abnormal contraction of the pu-

pils, possibly due to irritation of the oculomotor system or paralysis of dilators. Pupillary contraction may occur after a stroke that affects the brainstem or after administration of drugs such as opiates or eyedrops that inactivate acetylcholinesterase.

**miotic** (mī-ō'tik) **1.** An agent that causes the pupil to contract, such as eserine or pilocarpine. **2.** Pert. to or causing contraction of the pupil. **3.** Diminishing.

**MIP** *maximum inspiratory pressure.*

**miracidium** (mī'rā-sīd'ē-ūm) *pl.* **miracidia** [Gr. *meirakidion*, lad] The ciliated free-swimming larva of a digenetic fluke. On emerging from an ovum, it penetrates a snail of a particular species and metamorphoses into a sporocyst. SEE: *flake*.

**miracle, medical** The unexplained spontaneous remission or cure of a medical condition thought to be invariably fatal or incurable or both.

**mire** (mēr) [L. *mirari*, to look at] A test object on the ophthalmometer, the images of which denote the amount of astigmatism.

**Mirizzi syndrome** (mī-rī'zē, mē-rī't'sē) [P.L. Merizzi, 20th-cent. Ital. surgeon] Impaction of a gallstone in the infundibulum of the gallbladder or the cystic duct resulting in obstruction of the common hepatic duct, occasionally associated with fistula formation. The syndrome is a rare but surgically important cause of jaundice.

**miRNA** MicroRNA: short nucleotide sequences that regulate DNA expression but are not themselves transcribed.

**mirror** [Fr. *miroir*] A polished surface that reflects light and thus reproduces visible images of objects in front of it.

**dental m.** An instrument commonly used for viewing occlusal and distal surfaces of teeth.

**mirror writing** Writing in which letters and/or words are reversed by the writer—a characteristic of some persons with dyslexia and some who have suffered a left hemispheric stroke.

**miryachit** (mīr-ē'ā-chīt) [Russian] A neurological disorder described first in Siberia, in which patients have an exaggerated startle response after being stimulated. It has some relationship to the Jumping Frenchmen of Maine and hyperekplexia. SYN: *saltatory spasm*.

**misanthropy** (mīs'ān'thrō-pē) [L' + Gr. *anthropos*, man] Hatred of mankind.

**misarticulation** (mīs'ār-tīk'ū-lā'shūn) Inaccurately produced speech.

**misbranding** (mīs-brānd'īng) Ambiguous, deceptive, false, incomplete, incorrect, or misleading labeling of a drug or medical device.

**misconception** (mīs'kār-āj) [L' + L. *carrus*, cart] Lay term for termination of pregnancy at any time before the fetus has

attained the potential for extrauterine viability.

**recurrent m.** Three consecutive pregnancy losses without a single pregnancy that goes to term. SYN: *abortion, spontaneous*.

**miscegenation** (mīs'ē-jē-nā'shūn) [L. *miscere*, to mix, + *genus*, race] Sexual relations or marriage between those of different races.

**miscible** (mīs'ī-bl) Capable of being mixed.

**misconduct, sexual** (mīs-kōn'dūkt) Inappropriate sexual contact, speech, or behavior between health care providers and/or their patients.

**misdeemeanor** A lesser crime than a felony, usually punishable by fines, imprisonment, penalty, or forfeiture.

**misery** Extreme mental or emotional unhappiness.

**misfeasance** The performance of a legal act in an improper or unlawful manner.

**misidentification syndrome** (mīs'tī-dēn'tī-fī-kā'shūn) The delusion that a person, an object, or an environment has been duplicated and placed in a new location distant from the location of the original.

**misinformation** Data or information concerning a patient that may be erroneously assumed to be accurate (e.g., inaccurate laboratory data, unreliable historical data from the patient or the family, and transcription errors in recording data).

**mismatch** V-Q mismatch.

**mismatched related donor, HLA-mismatched related donor** ABBR: MMRD. An organ or tissue donor who is a family member of the organ recipient, but whose human leukocyte antigens are not identical to those of the recipient. In general in organ transplantation, organ and recipient survival are highest when the donor and the recipient share the same HLA antigens.

**misogamy** (mī-sōg'ā-mē) [L' + *gamos*, marriage] Aversion to marriage.

**misogynist** (mīs-ōj'ī-nīst) [L' + *gyne*, woman] One who hates women.

**misogyny** (mīs-ōj'īn-ē) [Gr. *miseio*, to hate + *gyne*, woman] Aversion to or hatred of females. SEE: *misandry*.

**misopedia** (mī-sō-pē'dē-ā) [L' + Gr. *pais*, child] Abnormal dislike of children or the young.

**misrepresentation** An incorrect, dishonest, or false representation of facts.

**missed period** Menstruation not occurring at the time it was expected or regularly occurs monthly.

**mist** Aerosolized particles (e.g., for inhalation).

**Mister** In England and other parts of the British Commonwealth, the title of address of a surgeon.

**misting** **1.** The therapeutic use of mists,

e.g., as a means of administering a drug for inhalation. **2.** The use of aerosols to coat objects, e.g., to protect the skin with insect repellent.

**Mitchell's disease** (mich'ēlz) [Silas Weir Mitchell, U.S. neurologist, 1829–1914] Erythromelalgia.

**mite** (mit) [AS.] A minute arachnid, a member of the order Acarina. Some mites are parasitic and cause conditions such as asthma, mange, and scabies; others are vectors of disease organisms and are intermediate hosts for certain Cestodes.

**dust m.** A type of mite, *Dermatophagoides pteronyssinum* or *D. farinae*, that ingests shed human skin cells. The mite is a common cause of allergic reactions.

**follicle m.** A mite that lives in hair follicles and sebaceous glands. SYN: *Demodex folliculorum*.

**harvest m.** A mite, similar in appearance to scabies, that lives in grain stems, grasses, and bushes. It is common in the southern U.S. The larvae attach to the skin and inject a secretion that causes itching. SYN: *chiggers*.

**itch m.** *Sarcoptes scabiei*. SEE: *scabies*.

**mange m.** A mite belonging to the families Sarcoptidae and Psoroptidae, which causes mange in many species of animals. SEE: *mange*; *scabies*.

**red m.** Redbug or chigger; a member of the family Thrombiculidae. SEE: *chiggers*.

**miticide** (mī'tī-sīd) [AS. *mite*, mite, + L. *caedere*, to kill] A substance that kills mites.

**mitigated** (mit'ī-gāt-ēd) [L. *mitigare*, to soften] Diminished in severity. SYN: *allayed*; *moderated*.

**mitis** (mī'tis) [L.] Mild.

**mitochondrial disease** (mī'tō-kōn'drē-āl) Any of hundreds of congenital illnesses that result from mutations in the DNA of mitochondria. Mitochondrial diseases are transmitted from mother to child.

**mitochondrion** (mī'tō-kōn'drē-ōn) *pl.* **mitochondria** [Gr. *mitos*, thread, + *chondros*, cartilage] A cell organelle of rod or oval shape 0.5 μm in diameter. Mitochondria can be seen by using phase-contrast or electron microscopy. They contain the enzymes for the aerobic stages of cell respiration and thus are the sites of most ATP synthesis. SEE: *cell*; *organelle* for *ITP*.

**mitogen** (mī'tō-jēn) A plant-derived protein used in the laboratory to stimulate cell division (mitosis). It is frequently used in vitro to study the proliferation of lymphocytes from blood drawn during a research study. The most commonly used mitogens are phytohemagglutinin and concanavalin A. SEE: *concanavalin A*; *lectin*; *phytohemagglutinin*.

**pokeweed m.** ABBR: PWM. A mitogen isolated from the pokeweed plant,

*Phytolacca americana*. In the presence of T lymphocytes, it has the capacity to induce primed B lymphocytes to proliferate and differentiate into plasma cells.

**mitogenesis** (mī'tō-jēn'ē-sīs) [" + *osis*, condition, + *genesis*, generation, birth] The production of cell mitosis.

**mitoma, mitome** (mī-tō'mā, mī'tōm) [Gr. *mitos*, thread] The network of microtubules in the cytoplasm of a cell.

**mitoplasm** (mī'tō-plāzm) [" + *plasma*, to form] The chromatin of a cell nucleus.

**mitosis** (mī-tō'sīs) *pl.* **mitoses** [" + *osis*, condition] Type of cell division of somatic cells in which each daughter cell contains the same number of chromosomes as the parent cell. Mitosis is the process by which the body grows and dead somatic cells are replaced. Mitosis is a continuous process divided into four phases: prophase, metaphase, anaphase, and telophase. SEE: *illus.*; *meiosis*.

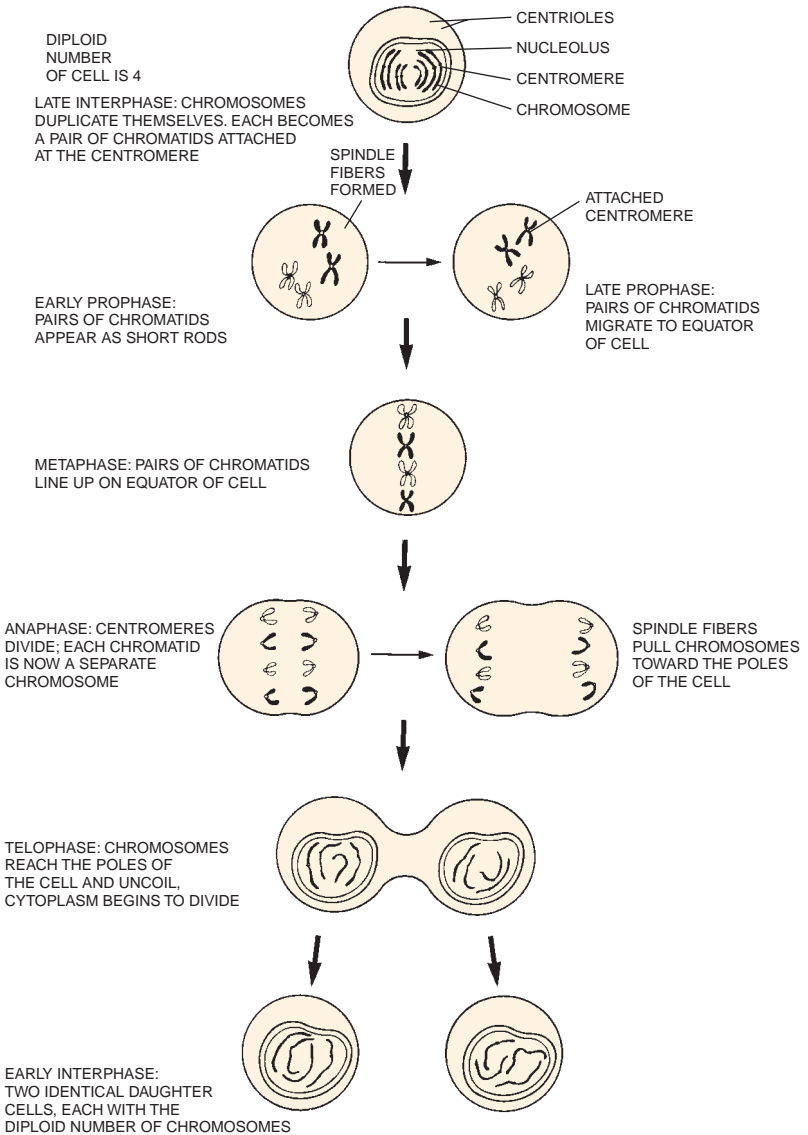
**Prophase:** The chromatin granules of the nucleus stain more densely and become organized into chromosomes. These first appear as long filaments, each consisting of two identical chromatids, the result of DNA replication. Each pair of chromatids is joined at a region called the centromere, which may be central or toward one end. As prophase progresses, the chromosomes become shorter and more compact and stain densely. The nuclear membrane and the nucleoli disappear. At the same time, the centriole divides and the two daughter centrioles, each surrounded by a centrosphere, move to opposite poles of the cell. They are connected by fine protoplasmic fibrils, which form an achromatic spindle.

**Metaphase:** The chromosomes (paired chromatids) arrange themselves in an equatorial plane midway between the two centrioles.

**Anaphase:** The chromatids (now called daughter chromosomes) diverge and move toward their respective centrioles. The end of their migration marks the beginning of the next phase.

**Telophase:** The chromosomes at each pole of the spindle undergo changes that are the reverse of those in the prophase, each becoming a long, loosely spiraled thread. The nuclear membrane re-forms and nucleoli reappear. Outlines of chromosomes disappear, and chromatin appears as granules scattered throughout the nucleus and connected by a lightly staining net. The cytoplasm divides (cytokinesis), resulting in two complete cells. This is accomplished in animal cells by constriction in the equatorial region; in plant cells, a cell plate develops in the same region and becomes the new cell wall. The period between two successive divisions is called interphase.

Mitosis is of particular significance in



## MITOSIS

that genes are distributed equally to each daughter cell, and the diploid number of chromosomes is maintained in all somatic cells of an organism.

**heterotypic m.** The first or reduction division in the maturation of germ cells.

**homeotypic m.** The second or equational division in the maturation of germ cells. **mitotic** (mī-tōt'ik), *adj.*

**mitosome** (mī'tō-sōm) [Gr. *mitos*, thread, + *soma*, body] A stainable portion of the spindle fibers following mitosis.

**mitotic index** (mī-tōt'ik) The number of mitoses seen in a biopsy specimen per square millimeter of tissue examined. Mitoses in tissue are indicative of malignancy (cancer). The higher the mitotic index, the more rapidly a tumor is dividing, and the worse the prognosis.

**mitral** (mī'trāl) 1. Shaped like a miter (the official headdress of a bishop). 2. Pert. to the bicuspid or mitral valve.

**mitral area** Area of the chest wall over the apex of the heart where mitral valve

sounds are heard best (usually between intercostal spaces 5–6 to the left of the midclavicular line).

**mitral commissurotomy** A surgical procedure for treating stenosis of the mitral valve of the heart, in which the stenosed valve leaflets are separated from each other. Patients may undergo an open or a closed procedure.

**PATIENT CARE:** Prior to mitral valve surgery, cardiac catheterization is performed to evaluate coronary artery anatomy, the severity of the mitral stenosis, and the presence of other cardiac pathologies. Specially trained cardiac surgery nurses provide general care for the patient undergoing open heart surgery including support of oxygenation, ventilation, fluid status, blood pressure, and pain relief. The types of access lines and endotracheal and drainage tubes in place after surgery, as well as the reasons for their use, are explained. The type of postoperative pain to be expected is also explained, and the patient is encouraged to report pain before it becomes severe to maintain a comfortable state necessary for healing. General patient care concerns apply throughout the patient's hospitalization. The caregivers support the patient and family throughout recovery. Anticoagulant therapy may be prescribed for patients with artificial valves postoperatively. Antibiotic prophylaxis is required prior to dental procedures to prevent endocarditis. After discharge, the patient begins a gradual return to activity. Regular medical follow-up to assess valve function, and to detect heart failure, heart blocks, or dysrhythmias such as atrial fibrillation are a necessary part of care. Participation in a cardiac rehabilitation program, if recommended by the physician, should be encouraged.

**mitralization** (mī'trāl-i-zā'shūn) Straightening of the left border of the heart due to mitral valve disease, as seen in the antero-posterior projection of the heart..

**mitral stenosis** ABBR: MS. Narrowing of the mitral valve orifice with obstruction of blood flow from the left atrium to the left ventricle. In most adults, previous bouts of rheumatic carditis are responsible for the lesion. Less often, MS may be present at birth (Lutembacher's disease) or it may develop as the mitral valve calcifies during aging.

The abnormality of the valve may predispose patients to infective endocarditis; to left atrial enlargement and atrial arrhythmias; or to left ventricular failure. SEE: *Nursing Diagnoses Appendix*.

**mitral valve** The valve that closes the orifice between the left cardiac atrium and the left ventricle during ventricular systole. SYN: *bicuspid valve; left atrioventricular valve*.

**mitral valve prolapse** ABBR: MVP. A

relatively rare condition in which the cusp or cusps of the mitral valve billow into the left atrium during systole. The abnormality has many causes, but the most common and clinically significant cause is leaflet thickening and redundancy (myxomatous degeneration of the valve). Mitral valve prolapse affects about 3% of U.S. population, and is the primary cause of severe nonischemic mitral regurgitation. It is found equally in men and women, but men have a higher risk of cardiovascular (CV) complications; age over 50 increases that risk. Other risk factors for CV complications include mild to moderate mitral regurgitation, atrial fibrillation, and atrial enlargement. Physical examination and two-dimensional echocardiography diagnose the problem.

In patients without evidence of mitral regurgitation, there are usually no symptoms, but in some patients, non-anginal chest pain, palpitations, dyspnea, and fatigue may be present. On auscultation, there may be a murmur at the apex that is present during all of systole (holosystolic). Sometimes only a midsystolic click and late systolic murmur are heard.

**TREATMENT:** Simple prolapse requires no therapy, and most MVP patients have an excellent prognosis and live a normal life. However, if mitral regurgitation is present on physical examination or echocardiogram, antibiotic prophylaxis is indicated during surgical and dental procedures. If heart failure caused by severe mitral regurgitation develops, surgical repair of the valve is helpful.

**mittelschmerz** (mīt'əl-shmārts) [Ger.] Abdominal pain midway between menstrual periods, occurring at time of ovulation and from the ovulation site. SYN: *midpain*.

**Mittendorf's dot** (mīt'ən-dōrfs) [20th century U.S. physician] A gray dot on the posterior lens capsule. It is the remnant of the fetal hyaloid artery of the eye.

**mix** (mīks) [L. *mixtus*, to mix] **1.** To put things, substances, or people together in solution, a collection, or an assembly, respectively. **2.** The act of mixing. **3.** A mixture of materials, as a cement mix, available in various proportions of ingredients.

**mixed** [L. *mixtus*] Consisting of two or more intermingling substances.

**mixed connective tissue disease** ABBR: MCTD. A rare disease that combines the signs and symptoms of several connective tissue diseases, including systemic lupus erythematosus, scleroderma, rheumatoid arthritis, and/or polymyositis. The cause is unknown.

**mixed dementia** Dementia in which ele-



ments of both Alzheimer's disease and vascular dementia are found.

**mixed lymphocyte culture reaction** A laboratory test in which lymphocytes from different individuals are mixed to identify the presence of particular HLA class II antigens. The T cells from the "responder" will synthesize DNA and proliferate only if they do not have the same histocompatibility antigens as the "donor cells," homozygous cells with known HLA types. The donor cells are irradiated to prevent their proliferation during the test.

**mixture** (miks'chër) A combination of two or more substances with or without chemical union. SYN: *mistura*.

**eutectic m. of local anesthetics** ABBR: EMLA. A cream preparation of lidocaine and prilocaine. A thick layer is applied to the skin to be anesthetized before skin biopsies, minor surgeries, or needle penetration, esp. in pediatric patients.

**Miyoshi myopathy** (mī-yō'shē) An autosomal recessive form of muscular dystrophy in which mutations in the skeletal muscle gene that codes for dysferlin results in weakness of distal muscles, esp. the muscles that control plantar flexion of the feet. The disease first becomes clinically obvious in early adulthood.

**MKS, mks** *meter-kilogram-second*. It indicates a measurement system using meter for length, kilogram for weight, and second for time.

**ml** *milliliter*.

**MLA** *Medical Library Association*.

**MLD, MLD** *minimum lethal dose*.

**MLF** *medial longitudinal fasciculus*.

**MLS agents** Antibiotics from three distinct classes: the macrolides, lincosamides, and streptogramins, all of which share a common vulnerability to methylation by bacterial ribosomal RNA.

**mM** Symbol for millimole.

**mm** *millimeter*.

**mm Hg** *millimeters of mercury*.

**M-mode** Ultrasound, M-mode.

**M-mode ultrasound** Ultrasound, M-mode.

**MMPI** *Minnesota Multiphasic Personality Inventory*.

**MMPR** *medical malpractice payment report*.

**MMR** *measles, mumps, rubella* (vaccine).

**MMRD** *mismatched related donor*.

**MMV** *mandatory minute ventilation*.

**MMWR** *Morbidity and Mortality Weekly Report*.

**Mn** Symbol for the element manganese.

**mnemic** (nē'mik) Relating to memory.

**mnemonic** (nē-mōn'ik) *pl. mnemonics* [Gr. *mnemonikos*, pert. to memory] Anything intended to aid memory.

**MNL** *mononuclear leukocyte* (e.g., monocytes and macrophages).

**Mo** Symbol for the element molybdenum.

**mo** *month*.

**MO** *Medical Officer*.

**mobile** [L. *mobilis*] Movable.

**mobile arm support** ABBR: MAS. A device for support of the forearm, usually mounted on a wheelchair, that assists weak shoulder and elbow muscles in positioning the hand, as in eating. SYN: *balanced forearm orthosis*; *ball bearing feeder*.

**mobile radiology** An imaging device, and its supporting software and staff, housed within a truck, camper, tractor/trailer, oceangoing craft, or airplane, used to bring imaging technology to remote places.

**mobile spasm** Athetosis.

**mobility** [L. *mobilitas*] State or quality of being mobile; facility of movement. In rehabilitation, mobility refers to an individual's ability to move within a living environment, including the community.

**abnormal tooth m.** Excessive tooth movement within the bony socket due to degenerative changes in the supporting alveolar bone and periodontal ligament as a result of poor oral hygiene, hormone balance changes, or trauma. SEE: *tooth movement*.

**functional m.** The ability to move from one place to another to complete an activity or task.

**impaired bed m.** Limitation of independent movement from one bed position to another. SEE: *Nursing Diagnoses Appendix*.

**impaired wheelchair m.** Limitation of independent operation of wheelchair within one's environment. SEE: *Nursing Diagnoses Appendix*.

**normal tooth m.** Tooth migration, physiological.

**powered m.** Assistive devices—such as adapted vehicles, electrically powered wheelchairs, and scooters—that enhance or improve the movement of functionally impaired persons.

**mobility device** Any assistive technology that aids the movement of people with physical impairments. Examples include lift chairs, scooters, or wheelchairs.

**mobility training** Techniques and equipment provided to persons with functional deficits to assist them in moving safely from one location to another. For people with blindness or low vision, the term orientation and mobility (OM) training is used. Orientation involves knowing where in space one is located. Mobility involves enacting a plan to get to a desired location. For blindness and vision deficits, OM training involves developing sensory awareness and using devices such as long canes, guide dogs, or electronic sensing aids.

**mobilization** (mō'bīl-ī-zā'shūn) The process of making a fixed part movable or releasing stored substances, as in re-

storing motion to a joint, freeing an organ, or making available substances held in reserve in the body as glycogen or fat.

**early controlled m.** A method of rehabilitating flexor and extensor injuries, using splinting and active exercises, beginning the first week after injury or surgical repair.

**joint m.** The movement of previously injured, frozen, or limited joints to improve ranges of motion and function. Joint mobilization is not synonymous with joint manipulation. Both are techniques used in manual therapy of diseased joints and limbs but joint manipulation involves high velocity thrusting, while joint mobilization does not. SEE: *joint manipulation*.

**soft-tissue m.** The therapeutic manipulation of connective tissue, including muscle, fascia, tendons, and ligaments, for mechanical and physiological effects on blood flow, temperature, metabolism, and autonomic reflex activity. It includes techniques such as myofascial release, muscle energy, Roling, and traditional massage.

**stapes m.** Surgical procedure performed to restore mobility to the stapes. Used in treatment of deafness.

**stem cell m.** The stimulation of bone marrow (with intensive cancer chemotherapies or blood-forming growth factors) to release stem cells into the bloodstream (also known as the "peripheral blood"). The cells that appear in the blood can be harvested for use in autologous bone marrow transplantation. Mobilized cells (identified by the cell surface marker called "CD34") are returned to the patient after chemotherapy or radiation therapy so that the treated patient can ultimately resume making healthy blood cells on his own.

**mobilize** (mō'bil-iz) **1.** To incite to physiological action. **2.** To render movable; to put in movement.

**modal** (mōd'l) [L. *modus*, mode] **1.** Pert. to, or characteristic of, a mode. **2.** In statistics, pert. to the most frequent, common, or typical measure of the variables being investigated.

**modality** (mō-dāl'it-ē) **1.** A method of application or the employment of any therapeutic agent; limited usually to physical agents and devices. **2.** Any specific sensory stimulus such as taste, touch, vision, pressure, or hearing.

**physical agent m.** A form of therapy used in rehabilitation that produces a change in soft tissue through light, water, temperature, sound, or electricity. It includes transcutaneous electrical nerve stimulation units, ultrasound, whirlpool, hot and cold packs, and other medical devices.

**modal personality** The personality traits

or characteristics typical of the society in which a person lives.

**mode** (mōd) [L. *modus*, measure, mode]

**1.** In statistics, the value or item of the class occurring most frequently in a series of variables. **2.** In respiratory therapy, any of several approaches to continuous mechanical ventilation including volume- and pressure-targeted application with full or partial ventilatory support.

**assist-control m.** A type of mechanical ventilation with a minimum frequency of respirations determined by ventilator settings. It also permits the patient to initiate ventilation.

**control m.** Continuous mandatory ventilation using a preset pattern that does not require patient intervention.

**model 1.** A pattern or form used to make a replica, as a cast or impression of teeth in dentistry. **2.** A person or thing worthy of emulation or imitation. **3.** A diagram representing an idea, phenomenon, or statistical relationship among variables. **4.** A framework or system for organizing ideas and representing hypotheses or theories. SEE: *Nursing Theory Appendix*.

**animal m.** The study of anatomy, physiology, or pathology in laboratory animals in order to apply the results to human function and disease.

**conceptual m.** A set of abstract and general concepts and statements about those concepts. Also called *conceptual framework*, *conceptual system*, and *paradigm*.

**conceptual m. of nursing** SEE: *conceptual models of nursing*.

**fluid mosaic m.** A representation of the structure of the cell membrane, in which protein molecules are dispersed in a phospholipid bilayer.

**m. of human occupation** A conceptual framework for viewing occupational therapy practice, aimed at improving the patient's organization of time, overall function, and adaptation as reflected in the performance of occupations. Within this framework, intervention includes strategies for fostering skill development and habit changes through role acquisition, improved self-image, and environmental changes.

**Nagi disablement m.** SEE: *Nagi disablement model*.

**nursing m.** SEE: *nursing model*.

**study m.** A diagnostic cast of an impression of the dental arches or a part thereof, trimmed with the arches articulated and the edges perpendicular to the occlusal plane. The study model serves as the basis for construction of dental appliances, dentures, or orthodontic treatment.

**modeling** A form of behavior therapy involving the patient's acquisition of social behavior and mental response by



following the example of associates, esp. parents and siblings.

**moderated** Mitigated.

**moderation** (mōd-ēr-ā'shūn) [L. *moderatio*] The limited use of a substance; the avoidance of excessive or hazardous exposure to a potentially harmful agent.

**modification** (mōd'ī-fi-kā'shūn) The act or result of changing something, such as the shape or character of an object or structure.

**posttranslational m.** The alteration of a protein, e.g., by phosphorylation or by the addition of carbohydrates to its structure. This process changes both the structure of proteins and their functions in biochemical reactions.

**modified Ottawa ankle rules** ABBR: MOAR. A 1998 modification of the 1992 Ottawa ankle rules that extended the palpation zone from the lateral malleolus to the midportion of the malleolus. This change significantly increased the specificity of the examination for ankle fracture.

**modifier** In medicine, esp. in therapeutics and clinical medicine, use of or addition of something that alters that to which it is added.

**biological response m.** ABBR: BRM.

**1.** An agent that intensifies normal immune responses. Examples include interferon, interleukin-2, and monoclonal antibodies. **2.** A nutrient with hormonal or anti-inflammatory effects. Examples include botanical enzymes and hormones. Usually, these agents are used as adjuncts to other pharmacological agents and therapies in the management of selected malignancies, immunodeficiency and autoimmune disorders, and certain viral infections such as hepatitis C. SEE: *biotherapy*.

**modiolus** (mō-dī'ō-lūs) [L., hub] Central pillar or axial part of cochlea extending from the base to the apex.

**modulation** (mōd'ū-lā'shūn) **1.** The alteration in function or status of something in response to a stimulus or altered chemical or physical environment. **2.** In electronics, the manner in which a signal is used to vary either the amplitude, frequency, or phase of a normally constant carrier signal; a method of coding information onto a carrier.

**module** (mōj'ool) [L. *modulus*, a small unit of measure] **1.** In education, a unit of study. **2.** In engineering, a structural element used in the design or architecture of a device.

**modulus** (mōj'ū-lūs) [L., a small measure] In physics, a constant or coefficient that indicates to what extent a substance possesses some property.

**modus operandi** (mō'dūs ɔp'ē-rān'dē) Method of performing an act.

**Moebius' (Möbius') disease** (mē'bē-ūs) [Paul J. Moebius, Ger. neurologist,

1853–1907] Migraine accompanied by paralysis of the oculomotor nerves.

**Moebius' sign** A symptom of Graves' disease in which one eye converges and the other diverges when one looks at the tip of one's nose.

**Moebius syndrome** Congenital paralysis of the facial nerve, occurring in the absence of other neurological deficits. It may be unilateral or bilateral.

**mogilalia** (mōj-i-lā'lē-ā) [Gr. *mogis*, with difficulty, + *lalia*, chatter] Any speech defect, such as stuttering.

**mogiphonia** (mōj-i-fō'nē-ā) [" + *phone*, voice] Difficulty in emitting vocal sounds.

**Mohs' chemosurgery technique** (mōz) [Frederic Edward Mohs, U.S. surgeon, 1910–1979] A method of excising tumors of the skin. The tumor tissue is fixed in place and a layer is removed. That portion is then examined microscopically. This procedure is repeated until the entire tumor is removed. Use of this technique ensures complete removal. It is esp. useful in treating basal cell epitheliomas.

**MOI** *mechanism of injury*.

**moiety** (moy'ē-tē) [Fr. *moitié*, fr. L. *medietas*, middle] **1.** One of two equal parts. **2.** A portion of something that has been divided.

**moist** (moyst) Damp, wet.

**moisture vapor transmission rate** ABBR: MVTR. The rate at which a barrier permits moisture to penetrate or escape. In pharmaceutical packaging the moisture vapor transmission rate is one element that determines the shelf life and expiration of a medication.

**mol** Mole.

**molal** (mō'lāl) One mole of solute per kilogram of solvent. SEE: *mole*.

**molality** (mō-lāl'ī-tē) The number of moles of a solute per kilogram of solvent.

**molar** (mō'lār) [L. *moles*, a mass] **1.** Pert. to a mole. **2.** Gram-molecule. SYN: *mole* (1).

**molar** (mō'lār) [L. *molaris*, grinding] A grinding or back tooth, one of three on each side of each jaw. The first permanent molar erupts between 6 and 7 years; the second between the 13th and 16th years. The third molars (wisdom teeth) are extremely variable, usually erupting between the 18th and 25th years; however, they may erupt later or not at all. SEE: *dentition* for table; *teeth*.

**impacted m.** A tooth that is unable to erupt into its place in normal occlusion, typically because there is not enough space in the dental arch to accept it. This condition is commonly related to the third molar (wisdom tooth).

**mulberry m.** A malformed first molar with dwarfed cusps and aggregations of enamel globules around the surface so that the crown has the appearance of a

berry. This condition is seen in congenital syphilis and other diseases.

**molar concentration** The number of moles of a substance in a specified volume of solution.

**molariform** (mōl-är'ī-form) Resembling a molar tooth.

**molarity** (mō-lär'ī-tē) The number of gram molecular mass (moles) of a substance per liter of solution. Thus 1/M (also expressed as 1 M) means 1 mole of a substance per liter, and 0.1/M indicates 0.1 mole/L.

**molar solution** SEE: *solution, molar*.

**mold** **1.** A fuzzy coating due to growth of a fungus on the surface of decaying vegetable matter or on nonorganic objects. **2.** One of the parasitic or saprophytic fungi that grow in a mycelium pattern; genera include *Aspergillus* and *Penicillium*. SYN: *filamentous fungus*. **3.** To shape a mass or the container in which the mass is shaped.

**molding** **1.** Shaping of the fetal head to adapt itself to the dimensions of the birth canal during its descent through the pelvis. **2.** A protective border used in plastic surgery. **3.** The casting of a reproduction.

**border m.** In dentistry, the shaping of impression material at the edges by the oral tissues.

**mole** [AS. *mael*] A birthmark or nevus. SEE: *illus.*



MOLES



Moles should be examined and, if necessary, be removed by experienced professionals.

**PATIENT CARE:** The patient is encouraged to regularly inspect areas of the skin that have moles and consult a health care professional about any mole that changes color or shows signs of growth or changes in appearance, as such changes may indicate neoplasm.

**pigmented m.** Nevus pigmentosus.  
**vascular m.** Hemangioma.

**mole** (mōl) [Ger. *Mol*, abbr. for *Molekulargewicht*, molecular weight] In the Système International d'Unités (SI system), 1 mole of a substance contains as many atoms as exist in 0.012 kg of carbon 12.

**mole** [L. *moles*, a shapeless mass] A uterine mass arising from a poorly developed or degenerating ovum.

**blood m.** A mass made up of blood clots, membranes, and placenta, retained following fetal death.

**Breus m.** [Karl Breus, Austrian physician, 1852–1914] Malformation of the ovum; a decidual tuberosus subchorionic hematoma.

**carneous m.** Blood mole that assumes a fleshlike appearance when retained in the uterus for some time. SYN: *fleshy m.*

**false m.** Mole formed from a uterine tumor or polypus.

**fleshy m.** Carneous mole.

**hydatid m.** A polycystic mass in which the chorionic villi have undergone cystic degeneration, resulting in rapid growth of the uterus with hemorrhage. It is thought to be caused by abnormal postfertilization replication of spermatozoal chromosomes. Complete and partial moles differ in karyotype. Complete moles show an absence of maternal chromosomes and a duplication of spermatozoal chromosomes. Partial moles exhibit either karyotype 69 XXY or karyotype 69 XYY due to the presence of the maternal X chromosome. SEE: *gestational trophoblastic disease*.

**stone m.** A fleshy mole that has undergone calcific degeneration in the uterus.

**true m.** A mole representing the degenerated embryo or fetus.

**vesicular m.** Hydatid mole.

**molecular** (mō-lēk'ū-lär) Pert. to molecules.

**molecular diagnostics** The development and use of biomarkers to diagnose diseases, such as hematologic and solid cancers.

**molecular disease** Disease due to a defect in a single molecule. An example is sickle cell anemia, in which a single amino acid substitution in the hemoglobin molecule causes the abnormally shaped red cells characteristic of this disease.

**molecular histology** The study of the functional molecules within tissues, using techniques such as immunocytochemistry or in situ hybridization.

**molecular layer (of the cerebral cortex)** The most superficial layer of the cortex of the brain, consisting of outer stellate cells and granule cells.

**molecular mimicry** (mīm'ik-rē) Antigenic similarity between molecules found on some disease-causing microorganisms and on specific previously

healthy body cells or tissues. Molecular mimicry is one explanation for autoimmune diseases. After infection with a microorganism whose surface contains antigens similar to those found in the body, the immune system may respond inappropriately by trying to damage these cells with similar surface antigens in otherwise healthy joints, blood vessels, or other organs.

**molecule** (mōl'ē-kūl) [L. *molecula*, little mass] Any electrically neutral aggregate of atoms held together strongly enough to be considered as a unit. The individual atoms in the molecule may be of the same type or different. Combinations of dissimilar atoms form chemical compounds. The positive and negative electrical charges balance exactly. Excess or deficiency of either positive or negative charge by the loss or acquisition of electrons results in the formation of an ion.

A molecule is designated by the number of atoms it contains, as monatomic (one atom); diatomic (two); triatomic (three); tetratomic (four); pentatomic (five); or hexatomic (six). **molecular** (mō-lēk'ū-lār), *adj.*

**molimen** (mō-lī'mēn) *pl. molimina* [L., effort] Effort to establish any normal function, esp. that necessary to establish the menstrual flow.

**Mollaret's meningitis** (mō-lā-rāz') [Pierre Mollaret, Fr. physician, 1898–1987] A form of meningitis characterized by recurring bouts of headache with fever, cerebrospinal fluid leukocytosis, and signs of meningeal irritation. The cause is unknown although some cases may be caused by herpesviruses.

**Mollicutes** (mōl'ī-kū-tēz) [NL fr L. *molilis*, soft + *cutis*, skin] A class of very small bacteria, some of which have cell walls and others of which have no cell walls but are surrounded instead by a cell membrane. It includes several genera that cause human diseases, including *Erysipelothrix* (a gram-positive rod shaped bacterium that has a cell wall), *Mycoplasma*, and *Ureaplasma*.

**Mollusca** (mōl-lūs'kā) A phylum of animals that includes the bivalves (mussels, oysters, clams), slugs, and snails. Snails are intermediate hosts for many parasitic flukes. Oysters, clams, and mussels, esp. if inadequately cooked, may transmit the hepatitis A virus or bacterial pathogens.

**molluscum** (mō-lūs'kūm) [L., soft] A mildly infective skin disease marked by tumor formations on the skin. **molluscous** (mō-lūs'kūs), *adj.*

**m. contagiosum** A rash composed of small dome-shaped papules with a central crater that is said to be “umbilicated” (dimpled or belly button-shaped). Cheesy (caseous) material fills the dimple's core. A pox virus causes the

rash, which is commonly spread by person-to-person contact among children and young adults. Widespread lesions are sometimes identified on the skin of immunosuppressed patients (e.g., patients with AIDS). Lesions in the groin, on the genitals, or on the upper thighs usually are sexually transmitted. **SEE: illus.**



#### MOLLUSCUM CONTAGIOSUM

**TREATMENT:** Some lesions may heal spontaneously and require no therapy. Persistent papules can be removed with curettage or frozen with liquid nitrogen.

**mollusk, mollusc** (mōl'usk) Any member of the phylum Mollusca.

**molt** (mōlt) To shed a covering such as feathers or skin that is replaced by new growth.

**mōl. wt.** *molecular weight.*

**molybdenum** (mō-lib'dē-nūm) **SYMB:** Mo. A hard, heavy, metallic element; atomic weight 95.94, atomic number 42. It is a trace element crucial to plant nutrition and is found in certain enzymes, including xanthine oxidase.

**momentum** (mō-mēn'tūm) [L.] **1.** In physics, the description of a quantity obtained by multiplying the mass of a body by its linear velocity. **2.** Force of motion acquired by a moving object as a result of continuance of its motion; impetus.

**mometasone** (mō-mēt'ā-sōn) A corticosteroid, administered as a nasal spray to treat seasonal allergic rhinitis and other chronic nasal inflammatory conditions, including nasal polyps. Its therapeutic classes are corticosteroids and allergy, cold, and cough remedies.

**momism** (mōm'izm) [Coined by Phillip Wylie in his book *A Generation of Vipers*] In American culture, undue dependence on one's mother, esp. in very early life. This was alleged to cause the individual to be immature.

**monacolin** (mōn'ū-kōl'in) One of a class of chemicals that reduce high cholesterol levels. Monacolin K is marketed as an alternative medicine called “red yeast rice extract” and as the proprietary medication lovastatin.

**monad** (mō-nād) [Gr. *monas*, a unit] **1.** A univalent element. **2.** A unicellular organism. **3.** One of the four components of a tetrad.

**monamide** (mön-äm'íd) Monoamide.  
**monamine** (mön-äm'in) Monoamine.  
**monarticular** (mön-är-tík'ü-lär) Concerning or affecting one joint. SYN: *monarthric*.  
**Monascus purpureus** (mön-äs'küš pür-pür'ë-üs) [NL fm. Gr. "purple single-bag"] Red yeast, a traditional Chinese medicine used as a food preservative in the past and as a contemporary alternative medication to lower serum cholesterol levels.  
**monaster** (mön-äs'tër) [" + *aster*, star] Single starlike figure formed in mitosis.  
**monathetosis** (mön"äth-ë-tö'sis) [" + *athetos*, not fixed, + *osis*, condition] Athetosis affecting a single limb.  
**monatomic** (mön"ä-töm'ík) [" + *atomos*, indivisible] **1.** Concerning a single atom. **2.** Univalent.  
**monaural** (mön-aw'räl) Concerning or affecting one ear.  
**Mondonesi's reflex** (mön-dö-nä'zëz) [Filippo Mondonesi, It. physician] In coma, contraction of facial muscles following pressure on the eyeball. SYN: *bulbomimic reflex*; *facial reflex*.  
**Mondor's disease** (mön'dorz) [Henri Mondor, Fr. physician, 1885–1962] Thrombosis and sclerosis of a subcutaneous vein or veins in the breast or chest wall sometimes extending from the axilla to the epigastrium. The condition may occur after trauma or appear without apparent cause. Although a benign, self-limiting disease, its appearance may be confused with breast cancer.  
**moneme** The smallest unit of intelligible or meaningful speech, e.g., a word composed of a single syllable.  
**Monera** (mō-ně'rä) Prokaryotae.  
**monesthetic** (mön"ës-thët'ík) [Gr. *monos*, single, + *aisthesis*, sensation] Affecting only one of the senses.  
**monestrous** (mön-ës'truis) Having a single estrous cycle in a single sexual season.  
**Monge's disease** (mön'jëz) [Carlos Monge, Peruvian physician, 1884–1970] Mountain sickness, chronic  
**mongolism** (mön'göl-izm) An inaccurate and inappropriate term for Down syndrome.  
**mongoloid** (mön'gö-loyd) **1.** Concerning Mongols. **2.** Characterized by mongolism (i.e., Down syndrome).  
**monilethrix** (mön-íl'ë-thrîks) [L. *monile*, necklace, + Gr. *thrix*, hair] A genetic defect of the hair shaft in which the hair becomes beaded and brittle. The defect usually appears by the second month of life. There is no effective treatment.  
**Monilia** (mä-níl'ë-ä) [L. *monile*, necklace] Former name for the genus of fungi now called *Candida*. **monilial** (mön-níl'ë-äl), *adj.*  
**moniliasis** (mön"ní-lí'ä-sis) Candidiasis.  
**moniliform** (mön-íl'í-form) [" + *forma*,

shape] Resembling a necklace or string of beads.

**moniliid** (mō-níl'ë-íd) A skin eruption due to hypersensitivity to a *Candida* infection in another part of the body.

**monitor** (mön'í-tor) [L., one who warns]  
**1.** One who observes a condition, procedure, or apparatus, esp. one responsible for detecting and preventing malfunction. **2.** A device that provides a warning if that which is being observed fails or malfunctions. **3.** To check by using an electronic device.

**apnea m.** SEE: *apnea monitoring*.

**Beck airway airflow m.** ABBR: BAAM. SEE: *Beck airway airflow monitor*.

**blood pressure m.** A device that automatically obtains and usually records the blood pressure at certain intervals, using the direct or indirect method of determining pressure. In some models, an alarm or light signal is activated if the pressure rises or falls to an abnormal level.

**cardiac m.** A visual and/or audible recording of each electrical impulse or physical contraction of the heart.

**continuous ambulatory electrocardiographic m.** Holter monitor

**fetal m.** **1.** A monitor that detects and displays fetal heartbeat. **2.** Assessment of fetus in utero with respect to its heart rate by use of electrocardiogram or by chemical analysis of the amniotic fluid or fetal blood. SEE: *fetal heart rate monitoring*; *fetal monitoring in utero*.

**Holter m.** SEE: *Holter monitor*.

**impedance m.** A device used to detect variations in respiratory rate and volume. It measures changes in the electrical impedance of the chest as the patient breathes. It may be used in intensive care units to monitor critically ill patients or in private residences to detect apnea, esp. in sleeping infants.

**peak flow m.** A hand-held device used to assess the maximum expiratory flow (in liters/minute) in patients with asthma and chronic obstructive lung disease. SEE: *ilus*.



PEAK FLOW MONITORING

**personal radiation m.** A small device worn or carried by a person to measure the accumulated radiation dosage over a period of time. SEE: *dosimeter*.

**respiratory m.** Respiratory function monitoring

**temperature m.** A monitor for measuring and recording temperature of the body or some particular portion of the body.

**unit m.** In radiation therapy, a calibrated unit of dose that determines the length of the treatment.

**uterine activity m.** An electronic sensor applied to or worn around the abdomen to note and record uterine contractions and fetal heart tones.

**PATIENT CARE:** Such sensors are sometimes used by patients at home, particularly if they have a history of preterm delivery. If home monitoring is used, patients are taught to apply the monitor daily and transmit the data by telephone to a health care professional for analysis. After analyzing the data, a telephone assessment for symptoms and signs of preterm labor is conducted, with necessary advice given to the patient.

**monitrice** (môn'î-trîs) [Fr. *female*, instructor] In the Lamaze technique of childbearing, a labor coach or doula.

**monkeypox** (mûn'kê-pôks) A poxviral illness clinically similar to smallpox. The CDC recommends that persons exposed to monkeypox be vaccinated against smallpox to prevent the disease.

**mono** Infectious mononucleosis.

**mono-, mon-** [Gr. *monos*, single] Prefixes meaning *one, single*.

**monoacidic** (môn'ô-â-sîd'îk) Having one replaceable hydroxyl (OH) group.

**monoamide** (môn'ô-âm'id) An amide with only one amide group.

**monoamine** (môn'ô-âm'en) An amine with only one amine group.

**monoamine oxidase inhibitor** ABBR: MAOI. One member of a group of drugs that can be used to treat depression and Parkinson's disease. Nonselective versions of these medications produced hypertensive crises and other severe side effects when they were taken with tyramine-containing foods (some cheeses) and several other drugs. Newer members of this class of drugs do not have these effects, but should be used with caution, esp. in persons who take selective serotonin reuptake inhibitors. SEE: *tyramine*.

**monoarthritis** (môn'ô-âr-thrî'tîs) [" + " + *itis*, inflammation] Arthritis affecting a single joint.

**monobacillary** (môn'ô-bâs'î-lâ'rê) Concerning a single species of bacilli.

**monobactam** (môn'ô-bâk-tâm) A beta-lactam antibiotic, similar in structure to penicillins and cephalosporins, except with respect to its nucleus: monobac-

tams have a single cyclical nucleus, while penicillins and cephalosporins have two linked cyclical nuclei.

**monobacterial** (môn'ô-bâk-tê'rê-âl)

Concerning a single species of bacteria.

**monobasic** (môn'ô-bâ'sîk) [" + *basis*, a base] Having only one hydrogen atom replaceable by a metal or positive radical.

**monoblast** (môn'ô-blâst) [" + *blastos*, germ] A cell that gives rise to a monocyte.

**monoblastoma** (môn'ô-blâs-tô'mă) [" + " + *oma*, tumor] A neoplasm that contains both monoblasts and monocytes.

**monoblepsia** (môn'ô-blêp'sê-â) [" + *blepsis*, sight] **1.** Condition in which vision is more distinct when only one eye is used, hence tendency to close one eye to see clearly. **2.** A type of color blindness in which only one color can be seen.

**monobranchius** (môn'ô-brâ'kê-ûs) [" + *brachion*, arm] **1.** State of having only one arm. **2.** Fetus with only one arm.

**monobromated** (môn'ô-brô'mât-êd) Pert. to chemical compound with only one atom of bromine in each molecule.

**monocalcic** (môn'ô-kâl'sîk) Pert. to a chemical compound containing only one atom of calcium in the molecule.

**monocardian** (môn'ô-kâr'dê-ân) [" + *kardia*, heart] An animal possessing a heart with only one atrium and one ventricle.

**monocelled** (môn'ô-sêld) Composed of a single cell.

**monocephalus** (môn'ô-sêf'â-lûs) [" + *kephale*, head] A congenitally deformed fetus with duplicated parts except for the head.

**monochord** (môn'ô-kord) [" + *chorde*, cord] A single-string instrument used for testing upper tone audition.

**monochorea** (môn'ô-kô-rê-â) [" + *chor-eia*, dance] Chorea affecting a single part.

**monochorionic** (môn'ô-kor'ê-ôn'îk) Possessing a single chorion, as in the case of identical twins.

**monochromasy** (môn'ô-krô-mâ'sê) Monochromatism.

**monochromatic** (môn'ô-krô-mât'îk) [" + *chroma*, color] **1.** Having one color. **2.** A color-blind person to whom all colors appear to be of one hue. **3.** In radiology and physics, having a single wavelength and energy.

**monochromatism** (môn'ô-krô-mâ-tîzm) [Gr. *monos*, single, + *chroma*, color, + *-ismos*, condition] Complete color blindness in which all colors are perceived as shades of gray. SYN: *monochromasy*.

**monochromatophil** (môn'ô-krô-mât'ô-fîl) [" + " + *philein*, to love] A cell or tissue that accepts only one stain.

**monochromator** (môn'ô-krô-mâ-tor) A spectroscope modified for selective

transmission of a narrow band of the spectrum.

**monoclinic** (mŏn"ō-klin'ik) [*"* + *klinēin*, to incline] Pert. to crystals in which the vertical axis is inclined to one lateral axis but at right angles to the other.

**monoclonal** (mŏn"ō-klŏn'āl) Arising from a single cell.

**monoclonal antibody** A type of antibody, specific to a certain antigen, created in the laboratory from hybridoma cells. Because they are derived from a single cell line and raised against a single antigen, monoclonal antibodies are highly specific. Diagnostically, they are used to identify microorganisms, white blood cells, hormones, and tumor antigens. In patient care, they are used to treat transplant rejection, certain cancers, and autoimmune diseases.

Hybridoma cells, the living factories that are used to produce monoclonal antibodies, are formed by the fusion of a spleen cell from a mouse immunized with an antigen and a multiple myeloma cell (a cancerous plasma B cell). The fused cells are screened to identify those that secrete antibodies against a specific antigen. A continuous supply of these antigen-specific monoclonal antibody secreting cells can then be grown in cultures. SEE: *antibody*; *B cell*; *hybridoma*.

**radionuclide-linked m.a.** A monoclonal antibody to which a radioisotope has been attached. The antibody attaches to receptors on the surface of undesired cells (e.g., cancer cells) and delivers a dose of radiation directly to those cells, leaving healthy cells and tissues relatively unaffected.

**toxin-linked m.a.** A monoclonal antibody to which a cell-killing drug has been attached. The antibody combines preferentially with receptors on undesired cells (e.g., cancer cells) and delivers its lethal drug to those cells but not to healthy cells and tissues. To increase their effectiveness and decrease immune responses to these cells, genes for antigen binding sites from human antibodies have been added, creating "humanized" monoclonal antibodies.

**monoclonal antibody therapy** The use of monoclonal antibodies to suppress immune function, kill target cells, or treat specific inflammatory diseases. Because of their high level of specificity, they bind to precise cellular or molecular targets. A potential problem associated with the use of monoclonal antibodies is an allergic reaction to the foreign antigens in the antibody, since they are created from mouse cells. Monoclonal antibodies have numerous uses in health care. SEE: *table*; *hybridoma*; *monoclonal antibody*.

## Some Monoclonal Antibodies and Their Uses

Name of Antibody	Condition Treated or Prevented
Adalimumab	Rheumatoid arthritis; psoriasis
Bevacizumab	Solid tumors
Edrecolomab	Solid tumors
Efalizumab	Psoriasis
Enlimomab	Organ transplant rejection
Ibritumomab	Follicular lymphoma
Infliximab	Crohn's disease; rheumatoid arthritis
Natalizumab	Relapsing forms of multiple sclerosis
Omalizumab	Allergic rhinitis
OKT3	Organ transplant rejection
Palivizumab	Respiratory syncytial virus
Rituximab	Leukemias and lymphomas
RhuMab/VEGF	Solid tumors
Tositumomab	B cell lymphoma
Transtuzumab	Metastatic breast cancer

**monoclonal B-cell lymphocytosis** The presence of excessive numbers of B lymphocytes in the bloodstream, all derived from a single parent cell. This condition sometimes precedes chronic lymphocytic leukemia, although it is often found in patients who never develop the disease.

**monocontaminated** (mŏn"ō-kŏn-tām'ī-nāt'ēd) Infected with a single species of organism.

**monocrotic** (mŏn"ō-krŏt'ik) [*"* + *krotos*, beat] Indicating a single pulse wave with no notches in it.

**monocular** (mŏn-ŏk'ū-lar) [*"* + L. *oculus*, eye] **1.** Concerning or affecting one eye. **2.** Possessing a single eyepiece, as in a monocular microscope.

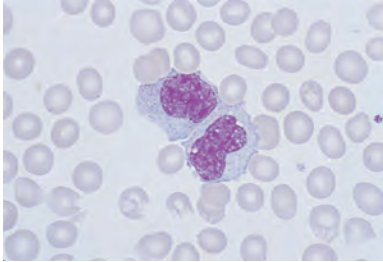
**monoculus** (mŏn-ŏk'ū-lūs) **1.** A bandage for shielding one eye. **2.** A fetus with only one eye. SYN: *cyclops*.

**monocyclic** (mŏn"ō-sī'klik) Concerning one cycle.

**monocyesis** (mŏn"ō-sī-ē'sīs) [*"* + *kyesis*, pregnancy] Pregnancy with a single fetus.

**monocyte** (mŏn"ō-sīt) [*"* + *kytos*, cell] A mononuclear phagocytic white blood cell derived from myeloid stem cells. Monocytes circulate in the bloodstream for about 24 hr and then move into tissues, at which point they mature into macrophages, which are long lived. Monocytes and macrophages are one of the first lines of defense in the inflammatory process. This network of fixed

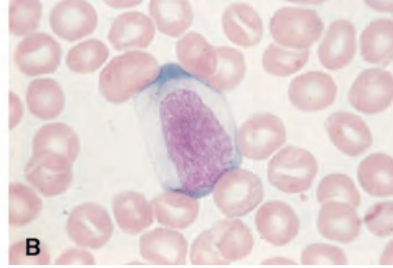
and mobile phagocytes that engulf foreign antigens and cell debris previously was called the reticuloendothelial system and is now referred to as the mononuclear phagocyte system (MPS). **SEE: illus.;** *blood for illus.;* *macrophage.* **monocytic** (mõn-õ-sit'ik), *adj.*



### MONOCYTES

(Orig. mag. ×640)

- monocytopenia** (mõn"õ-si"tõ-pe'në-ä) [" + *kytos*, cell, + *penia*, lack] Diminished number of monocytes in the blood.
- monocytosis** (mõn"õ-si-tõ'sis) [" + " + *osis*, condition] Excessive number of monocytes in the blood.
- monodactylism** (mõn-õ-däk'til-izm) [" + *daktylos*, digit] Condition, usually congenital, of having only one digit on a hand or foot. Also called monodactyly or monodactylia.
- monodal** (mõn-õ-däl) [" + *hodos*, road] Connected with one terminal of a resonator so that the patient acts as a capacitor for entrance and exit of high-frequency currents.
- monodermoma** (mõn"õ-dër-mõ'mä) [" + *derma*, skin, + *oma*, tumor] A neoplasm originating in one germinal layer.
- monodiplopia** (mõn"õ-di-plõ'pë-ä) [" + *diploos*, double, + *ops*, eye] Double vision in one eye only.
- monoecious** (mõn-ë'shüs) [" + *oikos*, house] Pert. to the presence of functioning male and female sex organs in the same individual.
- monofilament** (mõn"õ-fil'ä-mënt) [" + *filum*, thread] A strand of nylon used to assess sensation in peripheral nerves, especially in the feet of patients with diabetes mellitus and other neuropathic conditions. The inability to feel the prodding of a strand of monofilament on the foot in one or more locations is diagnostic of diabetic peripheral neuropathy.
- monofixation syndrome** (mõn"õ-fik-sä'shîn) [" + "] An inability of the eyes to bifixate.
- monogamy** (mõ-nõg'ä-më) [" + *gamos*, marriage] A long-term exclusive sexual affiliation.
- monogenesis** (mõn"õ-jën'ë-sis) [Gr. *monos*, single, + *genesis*, generation, birth] **1.** Production of offspring of only one sex. **2.** The theory that all organisms arise from a single cell. **3.** Asexual reproduction.
- monogenic** (mõn"ä-jën'ik) Caused by, relating to, or affecting a single gene.
- monogerminal** (mõn"õ-jër'mi-näl) Produced from a single ovum.
- monogony** (mõ-nõg'õ-në) [" + *gone*, seed] Asexual reproduction.
- monograph** (mõn"õ-gräf) [" + *graph-ein*, to write] A treatise dealing with a single subject.
- drug m.** A publication that specifies for a drug (or class of related drugs) the kinds and amounts of ingredients it may contain, the conditions and limitations for which it may be offered, directions for use, warnings, and other information that its labeling must contain. The monograph may contain important information concerning interactions with other drugs.
- monogyny** (mõ-nõj'ä-në) [" + *gyne*, woman] Practice whereby a male has only one female mate.
- monohybrid** (mõn"õ-hi'brid) [" + *L. hybrida*, mongrel] Offspring of a cross between parents differing in a single genetic characteristic.
- monohydrated** (mõn-õ-hi'drät-ëd) [" + *hydor*, water] United with only one molecule of water.
- monohydric** (mõn"õ-hi'drik) Having a single replaceable hydrogen atom.
- monoidaism, monoidaism** (mõn"õ-i-dë'ä-izm, -dë'izm) [" + *idea*, idea] Preoccupation with only one idea; a slight degree of monomania.
- monoinfection** (mõn"õ-in-fëk'shün) Infection with a single species of organism.
- moniodotyrosine** (mõn"õ-i-õ'dõ-ti'rõ-sën) An amino acid intermediate in the synthesis of thyroxine and triiodothyronine.
- monokine** (mõn"õ-kin) A chemical mediator released by monocytes and macrophages during the immune response. Monokines affect the growth and activity of other white blood cells. Interleukin-1 is an important monokine. **SEE: cytokine;** *inflammation;* *interleukin-1;* *lymphokine;* *paracrine.*
- monolayer** (mõn"õ-lä'ër) A single layer, esp. of cells growing in culture.
- monolingual** (mõn"õ-ling'gwil) Being able to speak only one language in a semantically correct and fluent manner.
- monolocular** (mõn"õ-lök'ü-lar) [" + *L. loculus*, a small chamber] Having only one cell or cavity. **SYN: unilocular.**
- monomania** (mõn-õ-mä'në-ä) [" + *mania*, madness] Mental illness characterized by distortion of thought processes concerning a single subject or idea.
- monomaniac** (mõn"õ-mä'në-äk) One afflicted with monomania.
- monomastigote** (mõn-õ-mäs'ti-gõt) ["



**MONONUCLEOSIS**  
Atypical lymphocytes

+ *mastix*, whip] A protozoan possessing only one flagellum.

**monomelic** (môn-ô-mêl'ik) [ " + *melos*, limb] Affecting a single limb.

**monomelic amyotrophy** (môn"ô-mêl'ik ä-mi-ôt'rô-fê) [+ amyotrophy] ABBR: MMA. A pure movement disorder characterized by degeneration and death of motor neurons, resulting in atrophy of a limb, typically one arm. SYN: *Hirayama's syndrome*.

**monomer** (môn"ô-mêr) Any molecule that can be bound to similar molecules to form a polymer.

**monomeric** (môn-ô-mêr'ik) [ " + *meros*, part] Consisting of, or affecting, a single piece or segment of a body.

**monometallic** (môn"ô-mê-täl'ik) Containing a single atom of a metal per molecule.

**monomicrobic** (môn"ô-mi-krô'bik) Concerning organisms of a single species.

**monomolecular** (môn"ô-mô-lêk'ü-lär) Concerning one molecule.

**monomorphic** (môn-ô-mor'fik) [ " + *morphe*, form] Unchangeable in form; keeping the same form throughout every stage of development.

**monomyoplegia** (môn"ô-mi"ô-plê'jê-ä) [ " + *mys*, muscle, + *plege*, stroke] Paralysis of only one muscle.

**monomyositis** (môn"ô-mi-ô-si'tis) [ " + " + *itis*, inflammation] Inflammation of only one muscle.

**mononeural** (môn-ô-nü'räl) [ " + *neuron*, nerve] Supplied by or concerning a single nerve.

**mononeuritis** (môn"ô-nü-ri'tis) [ " + " + *itis*, inflammation] Peripheral nerve damage affecting several distinct nerves in different regions of the body. Mononeuritis multiplex is found in vasculitis and in some patients with diabetes mellitus, among other diseases and conditions.

**m. multiplex** Inflammation of nerves in separate body areas. SYN: *multiple mononeuropathy*.

**mononeuropathy** (môn"ô-nü-rôp'ä-thê) [ " + " + *pathos*, disease, suffering] Disease of a single nerve.

**hypertrophic m.** A rare peripheral

nerve disorder in which a single nerve enlarges (forming a mass) and malfunctions. On biopsy the cells surrounding the damaged nerve are arranged in a diagnostic "onion-bulb" shape.

**multiple m.** Mononeuritis multiplex.

**mononuclear** (môn-ô-nü'klê-är) [ " + L. *nucleus*, kernel] Having one nucleus, particularly a blood cell such as a monocyte or lymphocyte. SYN: *uninuclear*.

**mononuclear phagocyte system** ABBR: MPS. The system of fixed macrophages and circulating monocytes that serve as phagocytes, engulfing foreign substances in a wide variety of immune responses. This system formerly was called the reticuloendothelial system.

**mononucleosis** (môn-ô-nü'klê-ô'sis) [ " + *nucleus*, kernel, + *osis*, condition] Presence of an abnormally high number of mononuclear leukocytes in the blood. SEE: *illius*.

**infectious m.** An acute infectious disease caused by the Epstein-Barr virus (EBV), a member of the herpesvirus group. It is most common in the U.S. in people between 15 and 25 years of age (i.e., in high school- and college-age adolescents and young adults); beyond that age, most people are immune to EBV. The disease is sometimes referred to colloquially as the "kissing disease" because of its mode of transmission from person to person. SEE: *Epstein-Barr virus*; *Nursing Diagnoses Appendix*.

**ETIOLOGY:** The virus is transmitted in saliva and infects the epithelial cells of the oropharynx, nasopharynx, and salivary glands before spreading to lymphoid tissue (e.g., lymph nodes, spleen, liver) via infected B lymphocytes. The incubation period is 30 to 45 days.

**SYMPTOMS:** Typically, infectious mononucleosis causes a sudden or gradual onset (7 to 14 days) of flulike symptoms. Findings include enlarged tender cervical lymph nodes (lymphadenopathy), exudative tonsillitis, possible splenic enlargement and tenderness, and an enlarged spleen. Leukocytosis with atypical lymphocytes is present on



blood smears. A maculopapular rash may be present early on. The infection usually lasts 2 to 4 weeks.

Rarely, infectious mononucleosis is complicated by hemolytic anemia, enlargement of the liver, jaundice, meningoencephalitis, or pneumonitis. In Africa, latent EBV infection may be associated with the development of Burkitt's lymphoma.

**DIAGNOSIS:** The diagnosis of infectious mononucleosis is based on assessment of signs and symptoms, the presence of atypical lymphocytes and IgM antibodies in the blood, and a positive heterophil reaction with sheep red blood cells (Monospot test). Differential diagnoses include bacterial meningitis, cytomegalovirus infection, cat scratch disease, allergic reactions to drugs (e.g., sulfa or phenytoin), German measles, strep throat, *Toxoplasma gondii* infection, and the acute onset of infection with HIV/AIDS.

**TREATMENT:** There is no specific therapy for infectious mononucleosis; NSAIDs are used to treat fever, headache, sore throat, and myalgias. Corticosteroids may be used for complications. Full recovery is usual, after a period of convalescence lasting weeks or months.

**PATIENT CARE:** During the acute phase, the patient is encouraged to refrain from activity and to maintain adequate rest to reduce fatigue. Gargling with saline mouthwash, drinking non-citrus fruit juices, milk shakes, and broth, and eating cool, bland foods help to relieve sore throat. Generally, patients may resume activity that does not involve heavy exertion after 1 to 2 weeks and their normal activity level in 4 to 6 weeks. Students generally are advised to carry out routine school assignments but delay arduous projects until recovery is complete. If the spleen is enlarged, patients should avoid contact sports and not lift more than 10 lb until cleared by their health care provider to prevent traumatizing or rupturing the spleen.



To decrease the risk of inducing splenic rupture, health care providers should avoid deep palpation of the abdomen of patients with infectious mononucleosis.

**mononucleotide** (mŏn"ō-nū'klē-ō-tīd") A product resulting from hydrolysis of nucleic acid, containing phosphoric acid combined with a glucoside or pentoside. SYN: *nucleotide*.

**monoparesis** (mŏn-ō-pär-ē'sis) [Gr. *monos*, single, + *paresis*, weakness] Paralysis of a single part of the body.

**monoparesthesia** (mŏn"ō-pär-ēs-thē'sē-ă) [" + *para*, beside, + *aisthesis*,

sensation] Paresthesia of only one region or limb.

**monophagia** (mŏn-ō-fā'jē-ă) [" + *phagein*, to eat] 1. Appetite for only one kind of food; said esp. of insects. 2. The habit of eating only one meal a day.

**monophasia** (mŏn-ō-fā'zē-ă) [" + *phasis*, speech] Inability to utter anything but one word or phrase repeatedly.

**monophobia** (mŏn-ō-fō'bē-ă) [" + *phobos*, fear] Abnormal fear of being alone.

**monophyletic** (mŏn"ō-fil-ēt'ik) [" + *phyle*, tribe] Originating from a single source; opposite of polyphyletic.

**monophyletism** (mŏn"ō-fil-ē-tizm) The hypothesis that all blood cells are derived from a single stem cell.

**monophodont** (mŏn"ō-fī'ō-dŏnt) [" + *phyein*, to grow, + *odous*, tooth] Having a single, permanent set of teeth.

**monoplasmatic** (mŏn"ō-plāz-măt'ik) [" + LL. *plasma*, form, mold] Made up of a single substance or tissue.

**monoplast** (mŏn"ō-pläst) [" + *plastos*, formed] A unicellular organism.

**monoplegia** (mŏn-ō-plē'jē-ă) [" + *plege*, stroke] Paralysis of a single limb or a single group of muscles. **monoplegic**, *adj.*

**monopodia** (mŏn"ō-pō'dē-ă) [" + *pous*, foot] Condition of having only one foot; usually the two feet are fused.

**monopolar** (mŏn-ō-pŏl'är) [" + L. *polus*, pole] 1. Having one pole. SYN: *unipolar*. 2. In therapeutic electrical stimulation, the application of a current using large dispersive electrodes and smaller active electrodes under which the treatment effects occur.

**monopsychosis** (mŏn"ō-sī-kŏ'sis) [Gr. *monos*, single, + *psyche*, mind, + *osis*, condition] Monomania.

**monorchia** (mŏn-or'kē-ă) Monorchidism.

**monorchid** (mŏn-or'kīd) [" + *orchis*, testicle] Person having only one testicle.

**monorchidism, monorchism** (mŏn-or'kīd-izm, mŏn-or'kīzm) Condition in which there is only one descended testicle.

**monorhinc** (mŏn"ō-rīn'ik) [" + *rhis*, nose] 1. Having a single nose, as in conjoined twins. 2. Having a single fused nasal cavity.

**monosaccharide** (mŏn-ō-sāk'ă-rīd) [" + Sanskrit *sarkara*, sugar] A simple sugar that cannot be decomposed by hydrolysis, such as fructose, galactose, or glucose.

**monosodium glutamate** (mŏn"ō-sŏ'dē-ŭm) ABBB: MSG. C<sub>5</sub>H<sub>9</sub>NNaO<sub>4</sub>·H<sub>2</sub>O; sodium salt of glutamic acid; a white crystalline substance used to flavor foods, esp. meats. When ingested in large amounts, it may cause chest pain, a sensation of facial pressure, headaches, burning sensation, and excessive

sweating. Allergy to MSG is common, and those persons who are allergic should avoid eating foods containing this ingredient. The use of MSG to enhance the flavor of foods prepared for infants is controversial. MSG is sold under various trade names, such as Ajinomoto, Accent, Vetsin.

**monosome** (môn'ô-sôm) [*l'* + *soma*, body] An unpaired sex chromosome, X or Y, sometimes called an accessory chromosome.

**monosomy** (môn'ô-sô'mē) Condition of having only one of a pair of chromosomes, as in Turner's syndrome, in which there is one X chromosome rather than the normal pair.

**monospasm** (môn'ô-spáz'm) [*l'* + *spasmos*, convulsion] Spasm of a single limb or part.

**monospermy** (môn'ô-spēr'mē) [*l'* + *sperma*, seed] Fertilization by a single spermatozoon entering an ovum.

**monostotic** (môn'ôs-tôt'ík) [*l'* + *osteon*, bone] Concerning a single bone.

**monosubstituted** (môn'ô-súb'stí-tút'éd) Having only a single molecule replaced.

**monosymptomatic** (môn'ô-simp-tō-măt'ík) [*l'* + *symptomatikos*, pert. to symptom] Having only one dominant symptom.

**monosynaptic** (môn'ô-sí-năp'tík) Transmitted through only a single synapse.

**monothematic delusion** An isolated delusion, i.e., a single mistaken but firmly held idea that has no basis in reality.

**monotherapy** (môn'ô-thēr-ă-pē) Treatment with a single drug, for example, a single antihypertensive agent.

**monotocous** (mō-nôt'ô-kūs) [Gr. *monos*, single, + *tokos*, birth] Producing a single offspring per birth.

**monotrichous** (môn-ôt'ri-kūs) Pert. to or having a single flagellum.

**monovalent** (môn-ô-vă'lént) [*l'* + L. *valere*, to have power] Having a single electron available in the outermost orbital for chemical bonding. SYN: *univalent* (1).

**monovision** (môn'ô-vîzh'un) [Gr. *monos*, single, + L. *visio*, fr. *vidēre*, to see] A treatment for presbyopia in which the dominant eye is corrected to improve distance vision and the other eye is corrected for near and intermediate tasks. Standard lenses, contact lenses, or refractive surgery may be used for the corrections.

**monoxenous** (mō-nōks'ên-ūs) [*l'* + *xenos*, stranger] Said of a parasite that requires only one species as a host.

**monoxide** (môn-ôk'sid) An oxide having only one atom of oxygen.

**monozygotic** (môn'ô-zî-gôt'ík) [*l'* + *zygotos*, yoked] Originating from a single fertilized ovum, said of identical twins.

**Monteggia's dislocation** (môn-těj'áz) [-

Giovanni Monteggia, Ital. physician and surgeon, 1762-1815] A dislocation of the hip joint in which the head of the femur is near the anterosuperior spine of the ilium.

**Monteggia's fracture** (môn-těj'áz) [Giovanni B. Monteggia, It. surgeon, 1762-1815] Fracture of the upper portion of the ulna with dislocation of the radial head.

**montelukast** (môn-tē-lūk'ăst) An oral leukotriene inhibitor used to treat asthma.

**Montgomery, William F.** (mônt-güm'ě-rē) Irish obstetrician, 1797-1859.

**Montgomery straps** Paired adhesive straps applied to either side of a wound (usually abdominal), the central sections of which are folded back on themselves with several perforations at the leading edges. This provides a method of securing a bandage and subsequently changing it without having to replace the tape each time. SEE: *ilus*.

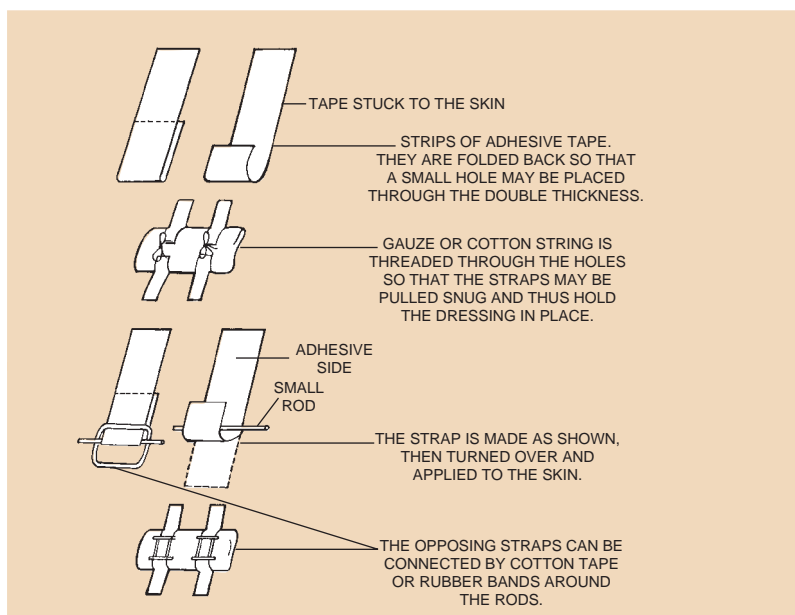
**month, lunar** Four calendar weeks (28 days), a measurement of time used in obstetrics. Pregnancy is calculated in terms of 10 lunar months.

**monthly period** The time of menstrual flow.

**mood** [AS. *mod*, mind, feeling] A pervasive and sustained emotion that may have a major influence on a person's perception of the world. Examples of mood include depression, joy, elation, anger, and anxiety. SEE: *affect*.

**mood disorder** Any mental disorder that has a disturbance of mood as the predominant feature. In DSM-IV, these have been divided into mood episodes, mood disorders, and specifications describing either the most recent mood episode or the course of recurrent episodes. Mood disorders, including dysthymic disorder, are divided into the depressive disorders (unipolar depression), the bipolar disorders, and two disorders based on cause (i.e., due to a general medical condition or substance-induced mood disorder). Depressive disorders are distinguished from the bipolar disorders by the absence of a history of a manic, mixed, or hypomanic episode. Bipolar I disorder and bipolar II disorder involve the presence of or history of manic episodes, mixed episodes, or hypomanic episodes, usually with a history or presence of major depressive episodes. SEE: *Nursing Diagnoses Appendix*.

**bipolar I m.d.** A mood disorder characterized by the presence of only one manic episode and no past major depressive episodes, and not better accounted for by a psychotic disorder. The classes or specifiers of bipolar I disorder include mild, moderate, severe without psychotic features, severe with psychotic features, in partial remission, in



#### MONTGOMERY STRAPS

full remission, with catatonic features, and with postpartum onset.

**bipolar II m.d.** A mood disorder characterized by the occurrence of one or more major depressive episodes accompanied by at least one hypomanic episode. If manic or mixed episode mood disorders are present, the diagnosis of bipolar I cannot be supported. Episodes of substance-induced mood disorder or a mood disorder due to drugs or exposure to toxins preclude the diagnosis of bipolar II mood disorder. In addition, the symptoms must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. The specifiers “hypomanic” or “depressed” indicate the current or most recent episode.

**cyclothymic m.d.** A diagnosis of exclusion in which for at least 2 years there have been many periods of hypomanic symptoms and numerous periods with depressive symptoms that do not meet the criteria for major depressive episode. During the 2-year period, the person must show the symptoms mentioned for more than 2 months at a time. In addition, no major depressive episode, manic episode, or mixed episode can be present during the first 2 years of the disturbance. The symptoms cannot be accounted for by a psychosis and are not due to drugs or a general medical condition. The symptoms cause clinically significant distress or impairment

in social, occupational, or other important areas of functioning.

**m.d. due to a general medical disorder** A prominent and persistent disturbance in mood characterized by either or both of the following: markedly diminished interest or pleasure in all, or almost all, activities; and elevated, expansive, or irritable mood. The clinical and laboratory findings are consistent with attributing the cause to a direct physiological consequence of the general medical condition. The condition is not better accounted for by another mental disorder. The disturbance does not occur exclusively during the course of a delirium. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

**dysthymic m.d.** Dysthymic disorder.  
**hypomanic episode m.d.** A mood disorder characterized by a period of persistently elevated, expansive, or irritable mood lasting for at least 4 days. Three or more of the following must be present:

1. inflated self-esteem,
2. decreased need for sleep,
3. talking more than usual,
4. flight of ideas or feeling that thoughts are racing,
5. distractibility,
6. increase in goal-directed activities, and
7. excessive involvement in pleasurable

able activities with a high potential for painful consequences.

The episode is not severe enough to cause marked impairment in social or occupational functioning or to necessitate hospitalization, and there are no psychotic features. These changes are not due to drugs or to a general medical condition.

**luteal dysphoric m.d.** Premenstrual dysphoric disorder.

**major depressive episode m.d.** Major depression.

**manic episode m.d.** A distinct period of an abnormally and persistently elevated, expansive, or irritable mood that lasts at least 1 week. Three additional symptoms from the following list are required to establish the diagnosis:

1. inflated self-esteem or grandiosity,
2. decreased need for sleep,
3. changing pressure of speech (speech that is loud, rapid, or difficult to interrupt; nonstop talking),
4. flight of ideas,
5. distractibility,
6. increased involvement in goal-directed activities or psychomotor agitation, and
7. excessive involvement in pleasurable activities with a high potential for painful consequences.

The mood disturbance is sufficiently severe to impair occupational functioning, usual social activities, or relationships with others, or to require hospitalization to prevent harm to self or others; there are psychotic features. These changes are not due to drugs or to a general medical condition.

**mixed episode m.d.** A mood disorder characterized by a period lasting for at least 1 week in which the diagnosis of manic episode and major depressive episode are met nearly each day. SEE: *major depression; manic episode m.d.*

**substance-induced m.d.** A prominent and persistent disturbance in mood characterized by either or both of the following: depressed mood or markedly diminished interest or pleasure in all, or almost all, activities; and elevated, expansive, or irritable mood. The clinical and laboratory findings must support that either the symptoms developed during, or within a month of, substance intoxication or withdrawal, or that the medication (i.e., substance) is causally related to the disturbance. The condition cannot be better accounted for by a mood disorder that is not substance induced. The disturbance does not occur exclusively during the course of a delirium. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

**mood stabilizer** Any agent or therapy that prevents or relieves wide fluctua-

tions in affective range, e.g., as occur in bipolar disorder. Examples of mood stabilizing drugs are carbamazepine and lithium carbonate.

**mood swings** Periods of variation in how one feels, changing from a sense of well-being to one of depression. This occurs normally, but may become abnormally intense in persons with manic-depressive states.

**moon face** SEE: *face, moon.*

**Moore's lightning streaks** (moorz) [Robert F. Moore, Brit. ophthalmologist, 1878–1963] The perception of zigzag flashes of light in the peripheral field of vision that occurs in the dark, esp. in older persons. These flashes are due to vitreous tags on the retina. The condition is benign. SEE: *coruscation.*

**Mooren's ulcer** (moor'ën) [Albert Mooren, Ger. ophthalmologist, 1828–1899] A rare, inflammatory lesion of the peripheral cornea that causes significant eye pain and blindness if untreated. This condition is found in some patients with hepatitis C, other infectious diseases, or prior eye trauma or eye surgery. It may be an example of autoimmune molecular mimicry. Treatments include the use of immunosuppressant drugs, keratoplasty, or both. SEE: *molecular mimicry.*

**moral isolationism** A philosophical view based on the premise that one can understand only the ethics and values of one's own family, clan, culture, or society and not those of others.

**moral reasoning** Ethical reasoning.

**Moraxella** (mor-äk-ël'ä) A genus of gram-negative coccobacilli in the family Neisseriaceae; most are nonpathogenic inhabitants of mammalian mucous membranes.

**M. catarrhalis** A species that is a frequent cause of upper and lower respiratory tract infections, including otitis media in children and bronchitis and pneumonia in the elderly. It is resistant to beta-lactam antibiotics such as most penicillins, but can be treated with many cephalosporins, macrolides, and sulfa drugs.

**M. lacunata** A species that is a cause of conjunctivitis in humans.

**morbid** (mor'bíd) [L. *morbidus*, sick]

1. Diseased. 2. Pert. to disease. 3. Preoccupied with unwholesome ideas and circumstances.

**morbidity** (mör-bíd'y-tē) [L. *morbidus*, sick] 1. State of being diseased. 2. The number of sick persons or cases of disease in relationship to a specific population. SEE: *incidence.*

**compression of m.** Shortening of the period or proportion of long-term disability by elimination of a chronic disease.

**expansion of m.** Increase in the number of years and proportion of dis-

ability by the elimination of a fatal disorder, such as cancer or heart disease.

**Morbidity and Mortality Weekly Report** ABBR: MMWR. The weekly report of illness and death rates for a variety of diseases and conditions, published by the Centers for Disease Control and Prevention, Atlanta, Georgia. Prominent in the material are statistics on communicable diseases in each state, territory, and 121 major cities in the U.S. Articles concerning outbreaks of disease or accidents appear in the MMWR, sometimes including reports of importance to public health as a result of an international event.

**morbidity rate** SEE: *under rate*.

**morbific** (mor-bif'ik) [*"* + *facere*, to make] Causing or producing disease.

**morbilli** (mor-bil'i) [L. *morbillus*, little disease] Measles. **morbillous** (mor-bil'üs), *adj.*

**morbilloform** (mör-bil'i-förm) [*"* + *forma*, shape] Resembling measles or its rash.

**morcellation, morcellement** (mor-sël-ä'shün, -ä-mön') [Fr. *morceller*, to subdivide] Method of removing a fetus, tumor, or organ by pieces.

**mordant** (mor'dänt) [L. *mordere*, to bite] A substance that fixes a stain or dye, as alum and phenol.

**mores** (mō'rāz) [L.] Habits and customs of society; usually those that come to be regarded as being essential to the survival and well-being of the society.

**Morgagni, Giovanni B** (mör-gäg'nē, -gän'yē) Italian pathological anatomist, 1682–1771. **morgagnian** (mör-gän'ē-än), *adj.*

**M.'s cataract** Cataract that is hypermature with a softened cortex and a hard nucleus.

**M.'s cyst** A cystlike remnant of the müllerian duct that is attached to the fallopian tube.

**M.'s hydatid** Cystlike remains of müllerian duct attached to testicle or oviduct.

**M.'s hyperostosis** Hyperostosis of the frontal bones of the head, possibly associated with obesity, headache, amenorrhea, diabetes, multiple endocrine abnormalities, and various neuropsychiatric disturbances. SYN: *frontal internal hyperostosis*.

**Morgagni-Stewart-Morel syndrome** (stü'ört-mör'el) A syndrome in which thickening of the skull (hyperostosis frontalis interna) is associated with increased production of androgens, prolactin, and somatotropins. Affected persons suffer with headaches, obesity, and virilism.

**Morganella morganii** (mör'gän-ël'lä mör-gän'ē-i) [Harry de R. Morgan, Brit. physician, 1863–1931] A gram-negative bacillus that is part of colon flora; it may cause urinary tract infections,

wound infections, bacteremia, meningitis, keratitis, and acute enteritis.

**morgue** (morg) [Fr.] A place for holding dead bodies until they are identified or claimed for burial.

**moria** (mō'rē-ä) [Gr. *moria*, folly] 1. Simple dementia. 2. Foolishness. SEE: *witzelsucht*.

**moribund** (mor'i-bünd) [L. *moribundus*] In a dying condition; dying.

**morning care** Care provided for a patient, which includes measuring temperature, pulse, and respiration, assistance with oral hygiene and bathing, changing bed linen, and providing breakfast.

**morning sickness** The nausea and vomiting that affects many women during the first few months of pregnancy. The condition typically starts about 4 to 6 weeks after conception, peaks in incidence and severity between 8 and 11 weeks, and subsides spontaneously between 12 and 16 weeks of gestation. Occurring in 50% to 88% of pregnancies, nausea is the most common complaint in the first trimester; it probably is caused by the high level of human chorionic gonadotropin, low blood sugars related to fasting while asleep, and altered carbohydrate metabolism. SYN: *nausea gravidarum*.

**SYMPTOMS:** Patient complaints vary from mild nausea on arising to severe intermittent nausea and vomiting throughout the day. The woman also may experience headache, vertigo, and exhaustion. Severe persistent vomiting with retching between meals should be reported and investigated. SEE: *hyperemesis gravidarum*.

**TREATMENT:** In most cases of simple morning sickness, dietary management will minimize or eliminate symptoms. The woman is advised to eat dry crackers or toast before rising; to eat something every 2 hr; to drink fluids between meals; and to avoid spicy, greasy, or fried foods and foods with strong odors. Rarely will the patient need antiemetics.



The use of any drug during pregnancy should be carefully evaluated prior to its administration to avoid possible damage to the fetus.

**morning stiffness** Limitations of joint and muscle movement that are present on awakening or after resting, but which subside with activity. This is one of the principal symptoms of inflammatory, rather than degenerative, arthritis.

**Moro reflex** (mo'rō) [Ernst Moro, Ger. pediatricist, 1874–1951] A reflex seen in infants in response to stimuli, such as that produced by suddenly striking the surface on which the infant rests. The

infant responds by rapid abduction and extension of the arms followed by an embracing motion (adduction) of the arms. SYN: *embrace reflex*; *startle reflex*.

**morph-**, **morpho-** Combining forms meaning *form, shape, or structure*.

**morphea** (mor-fē'ā) [Gr. *morphe*, form] Localized or widespread sclerotic plaques of the skin, often arrayed in lines or bands. The lesions typically have an ivory-colored to yellow slightly firm center, with a violet border. SEE: *progressive systemic sclerosis*.

**generalized m.** A severe form of localized morphea. There are multiple indurated plaques, hyperpigmentation, and possible muscle atrophy. It is not associated with systemic disease. The disease may become inactive in 3 to 5 years.

**localized m.** A localized form of scleroderma that does not progress to the systemic form of the disease.

**morpheme** (mor'fēm) The smallest meaningful grammatical unit in a language (e.g., the *s* in "beds"). SEE: *phoneme*.

**morphia** (mor'fē-ā) Morphine.

**morphine** (mor'fēn) [L. *morphina*, from *Morpheus*, god of dreams or sleep] The principal alkaloid found in opium, occurring as bitter colorless crystals.

**m. sulfate** An opiate commonly used in oral or injectable form to control severe acute or chronic pain. Its side effects may include sedation, respiratory depression, constipation, itching, hallucinations, tolerance, and dependence.



1. Like other narcotic analgesics, morphine sulfate is a controlled substance with a potential for abuse. 2. The commonly used abbreviation for morphine sulfate, MSO<sub>4</sub>, is considered a dangerous abbreviation because it may be confused with an abbreviation for magnesium sulfate.

**morphinism** (mor'fin-izm) [L. *morphina*, morphine, + *-ismos*, condition] Morbid condition due to habitual or excessive use of morphine. SEE: *morphine poisoning*.

**morphodifferentiation** (mor'fō-dif'fēr-en-chē-ā'shūn) The stage of tooth formation that determines the shape and size of the tooth crown. SEE: *enamel organ*.

**morphogen** (mōr'fō-gēn) [Gr. *morphe*, form, + *genesis*, generation, birth] A protein that influences the development, differentiation, growth, and patterning of embryonic tissues.

**morphogenesis** (mor'fō-jēn'ē-sis) [Gr. *morphe*, form, + *genesis*, generation, birth] 1. Various processes, including cell migration, cell aggregation, localized growth, splitting (delamination

and cavitation), and folding (invagination and evagination), occurring during development by which the form of the body and its organs is established. SYN: *morphosis*. 2. The assembly of virion from its components. **morphogenetic** (mor'fō-jēn-ēt'ik), *adj.*

**morphography** (mor-fōg'rā-fē) [" + *graphein*, to write] The classification of organisms by form and structure.

**morphology** (mor-fōl'ō-jē) [Gr. *morphe*, form, + *logos*, word, reason] The science of structure and form of organisms without regard to function.

**morphometry** (mor-fōm'ē-trē) [" + *metron*, measure] The measurement of forms.

**morphosis** (mor-fō'sis) Morphogenesis.

**morphovar** (mōr'fō-vār) [*morphological variation*] Variants within a species defined by variation in morphological characteristics. SEE: *biovar*; *serovar*.

**morpio**, **morpion** (mor'pē-ō, -pē-ōn) [L.] The crab louse, *Phthirus pubis*, that infests the pubic area. SEE: *lice*.

**Morrow's operation** (mōr'ōz) Surgical excision of a segment of heart muscle (myocardium) of the basal anterior ventricular septum below the aortic valve to treat hypertrophic obstructive cardiomyopathy.

**Morse Falls Scale** ABBR: MFS. A rapid screening tool to assess a patient's risk for falling. The MFS uses six weighted indices to determine fall risk:

1. history of falling,
2. co-morbidity,
3. gait,
4. walking aids,
5. intravenous therapy, and
6. mental status.

**morsulus** (mor'sū-lūs) [L. dim. of *morsus*, bite] Troche.

**mortal** (mōr'tl) [L. *mortalis*] 1. Causing death. 2. Subject to death.

**mortality** (mōr-tāl'i-tē) 1. The condition of being mortal. 2. The number of deaths in a population. In the U.S. about 2,300,000 people die each year. The most common causes of death, according to the National Center for Health Statistics, are (in descending order) heart disease, cancer, stroke, chronic obstructive lung disease, accidents, pneumonia and influenza, diabetes mellitus, suicide, kidney failure, cirrhosis, and other chronic liver diseases. The causes of death vary by age group: accidents are the most common cause of death among infants, children, adolescents, and young adults; cancers are the most common cause of death among people ages 45 to 64. Heart disease predominates after age 65. SEE: table.

**fetal m.** The number of fetal deaths per 1000 live births, usually per year.

**infant m.** The number of deaths of

### Leading Causes of Death in Children Under Five Years of Age, Estimates for 2000-2003

Rank	Cause	Numbers (thousands per year)	% of all deaths
1	Neonatal causes	3,910	37
2	Acute respiratory infections	2,027	19
3	Diarrheal diseases	1,762	17
4	Malaria	853	8
5	Measles	395	4
6	HIV/AIDS	321	3
7	Injuries	305	3
	Other causes	1,022	10
	Total	10,596	100.0

Worldwide, 50% of all deaths under the age of five are caused by infectious diseases.

SOURCE: World Health Organization, The World Health Report 2005.

children younger than 1 year of age per 1000 live births per year.

**maternal m.** The number of deaths of women during childbearing per 100,000 births.

**neonatal m.** The number of deaths of infants younger than 28 days of age per 1000 live births per year.

**perinatal m.** The number of fetal deaths plus the number of deaths of infants younger than 7 days of age per 1000 live births per year.

**mortality table** A compilation of the death rates of individuals according to specific demographic characteristics (e.g., age, race, sex) or specific health status (e.g., accidental death, death during childbirth, or death caused by cancer).

**mortar** (mŏr'tĕr) [L. *mortarium*] A vessel with a smooth interior in which crude drugs are crushed or ground with a pestle.

**mortician** (mŏr-tish'ăn) [L. *mors*, death] Undertaker; person trained to prepare the dead for burial.

**mortification** (mŏr'tĭ-fi-kă'shŭn) SEE: *gangrene*; *necrosis*.

**mortinatality** (mŏr'tĭ-nă-tăl'ĭ-tĕ) [n + *natus*, birth] Natimortality.

**mortise** A depression, groove, or hole into which another anatomical structure fits.

**mortise joint** (mŏr'tĭs) SEE: *under joint*.

**Morton's neuralgia** (mŏr'tănz) [Thomas G. Morton, U.S. surgeon, 1835–1903] Pain in the metatarsal area due to a fallen transverse arch with pressure on the lateral plantar nerve. SYN: *metatarsalgia*.

**Morton's neuroma** A neuroma-like mass of the neurovascular bundle of the intermetatarsal spaces. SYN: *interdigital neuropathy*.

**Morton's plane** A plane passing through the most projecting points of the parietal and occipital protuberances.

**Morton's toe** (mŏr'tŭnz) [Dudley J. Morton, U.S. orthopedist, 1884–1960] Congenital short, hypertrophied second

metatarsal bone with tenderness over the head of that bone, callosities under the second and third metatarsals, and pain and tenderness of the metatarsal area. Also called *Morton's disease* or *Morton's syndrome*. SEE: *illius*.

**mortuary** (mŏr'chŭ-ă-rĕ) [L. *mortuarium*, a tomb] **1.** Temporary place for keeping dead bodies before burial. SEE: *morgue*. **2.** Relating to the dead or to death.

**morula** (mŏr'ŭ-lă) [L. *morus*, mulberry] **1.** Solid mass of cells, resembling a mulberry, resulting from cleavage of an ovum. **2.** A mulberry-shaped body found in white blood cells in patients afflicted with human granulocyte ehrlichiosis. SEE: *fertilization* for *illius*.

**morulation** (mŏr'ŭ-lă'shŭn) The formation of morula.

**moruloid** (mŏr'ŭ-loyd) [n + Gr. *eidos*, form, shape] **1.** A bacterial colony made up of a mass resembling a mulberry. **2.** Resembling a mulberry.

**Morvan's disease** (mŏr'vănz) [Augustin M. Morvan, Fr. physician, 1819–1897] A form of syringomyelia in which there are trophic changes in the extremities with slowly healing ulcers.

**MOS** *medical outcomes study*.

**mosaic** (mŏ-ză'ĭk) **1.** A pattern made up



MORTON'S TOE

of many small segments. **2.** Genetic mutation wherein the tissues of an organism are of different genetic kinds even though they were derived from the same cell. SEE: *chimera*.

**mosaicism** (mō-zā'ī-sīzm) Presence of cells of two different genetic materials in the same individual.

**Moschcowitz syndrome** Thrombotic thrombocytopenic purpura.

**mOsm** Symbol for milliosmol(e).

**mosquito** [Sp., little fly] A bloodsucking insect belonging to the order Diptera, family Culicidae. Important genera are *Anopheles*, *Culex*, *Aedes*, *Haemagogus*, *Mansonia*, and *Psorophora*. They are vectors of many diseases, including malaria, filariasis, yellow fever, dengue, viral encephalitis, and dermatobiasis. Illnesses carried by mosquitoes cause millions of deaths annually, especially in underdeveloped countries.

**mosquitocide** (mō-skē'tō-sīd) [ʹ + L. *caedere*, to kill] An agent that is lethal to mosquitoes or their larvae.

**moss** Any low-growing green plant of the class Musci.

**sphagnum m.** Peat moss. It has been used as a surgical bandage and by some primitive people as a form of external menstrual protection.

**mother** [AS. *modor*] **1.** Female parent. **2.** A structure that gives rise to others.

**biological m.** A woman whose ovum was fertilized and became a fetus. This term does not apply to an individual who provided the uterus for the gestation of a fertilized ovum obtained from a donor. SEE: *birth mother*; *surrogate parenting*.

**birth m.** The woman who actually gives birth to a child, whether or not she is the biological mother (i.e., provided the ovum that developed into that child). SEE: *surrogate parenting*.

**surrogate m.** A woman who, through in vitro fertilization, gives birth to a child to which she may not have a genetic relationship.

**mother's mark** A birthmark. SEE: *mark*.

**motile** (mō'tīl) [L. *motilis*, moving] Able to move.

**motilin** (mō-tīl'īn) A polypeptide that stimulates and controls contractions of the gastrointestinal tract. It is secreted by the mucosa of the small intestine.

**motility** (mō-tīl'ī-tē) Ability to move.

**motion** (mō'shūn) [L. *motio*, movement]

**1.** A change of place or position; movement. **2.** Evacuation of the bowels. **3.** Matter evacuated from bowels. SEE: words beginning with *cine-* and *kine-*.

**accessory m., accessory joint m.** Associated movement in synovial and secondary cartilaginous joints that accompanies active voluntary range of motion and is necessary for full painless joint range of motion and function. These relatively small rolling and gliding move-

ments, also called accessory movements or joint play, cannot be isolated voluntarily.

**active m.** Movement caused by the patient's own intention. SEE: *active range of motion*.

**astrokinetic m.** Pert. to movements of the centrosome.

**continuous passive m.** ABBR: CPM. Use of a mechanical device following surgery to passively and gradually move a repaired joint through a prescribed range of motion continuously over an extended period. The goal is to reduce recovery time by decreasing soft tissue stiffness, increasing range of motion, promoting healing of joint surfaces and soft tissue, and preventing the development of motion-limiting adhesions.



Patients should be monitored closely during use of these devices.

**passive m.** Movement as the result of an external force; that is, without voluntary muscle contraction.

**total active m.** ABBR: TAM. A measure of hand range of motion in which the sum of the extension at the MCP, PIP, and DIP joints is subtracted from the total achievable flexion of the same joints.

**motion sickness** Sickness, motion.

**motivation** (mō'tī-vā'shūn) The internal drive or externally arising stimulus to action or thought.

**motivational enhancement therapy** (mō'tī-vā'shūn-ūl) A form of psychotherapy to overcome ambivalence and help people to reach desired goals. It is used to treat alcoholism, drug dependency, and anorexia/bulimia.

**motive** (mō'tīv) A need, reason, or want that impels action.

**motofacient** (mō'tō-fā'shēnt) Producing motion.

**motoneuron** (mō'tō-nū'rōn) Motor neuron.

**peripheral m.** Peripheral motor neuron.

**motor** [L. *motor*, mover] **1.** Causing motion. **2.** In anatomy, pert. to neurons or axons involved in the output of the nervous system; efferent. **3.** In psychology, pert. to neural events relating to motions made by the body. **4.** A part or center that induces movements, as nerves or muscles. **5.** A structural mechanism producing motion. **motorial, adj.**

**motor area** Posterior part of the frontal lobe anterior to the central sulcus, from which impulses for volitional movement arise.

**Motor Assessment Scale** An eight-item measurement tool used to assess motor function and physical mobility after a stroke.



**motor control** The neural and biomechanical basis of planned, coordinated movement. SEE: *motor learning*.

**Motor-Free Visual Perception Test** A standardized test of visual perception that does not require motor performance.

**motor lag** An unusually long delay before a movement is initiated in response to a stimulus.

**motor neuron disease** Any of several impairments in motoneurons, including progressive muscular atrophy, primary lateral sclerosis, progressive bulbar paralysis, and amyotrophic lateral sclerosis. These diseases occur principally in males and are characterized by degeneration of anterior horn cells of the spinal cord, the motor cranial nerve nuclei, and the corticospinal tracts. These illnesses limit the ability to use the upper and lower extremities and/or to speak and swallow. In the U.S., amyotrophic lateral sclerosis is better known as *Lou Gehrig's disease*.

**motorpathy** (mō-tor'pāth-ē) [L. *motus*, moving, + Gr. *pathos*, disease, suffering] Kinesiotherapy.

**motor sense** The brain's awareness of the position of muscles, both moving and at rest; it may be conscious or unconscious. SYN: *kinesthetic sense*; *muscular sense*.

**motor skills disorder** Developmental coordination disorder.

**motor speech area** Broca's area.

**motor test meal** The use of various techniques to monitor the progress of food through the gastrointestinal tract.

**motor unit** A somatic motor neuron and all the muscle cells it innervates.

**mottling** (mōt'ling) [ME. *motteley*, many colored] **1.** Condition that is marked by discolored areas. **2.** The variation or fluctuation of x-ray photons used in radiography. Images with increased mottling (mottle) have a lower ratio of accurate signal to unwanted interference.

**moulage** (moo-lāzh') [Fr.] **1.** A wax model or reproduction of the configuration of some part of the anatomy such as the face or nose, or of a pathological skin lesion. **2.** Molding of a wax model.

**mounding** (mōwn'ding) [origin uncertain] The rising of a lump, as the mounding of a wasting muscle when struck a quick, firm blow. SYN: *myoedema* (1).

**mount** (mownt) [ME. *mounten*, to mount] **1.** To place on a support or backing. **2.** To place specimens or sections in special containers or on slides for study.

**x-ray m.** A stiff cardboard folder with windows in which radiographs of teeth in the dental arches are placed in sequence for examination and diagnosis.

**mountain sickness, chronic** The slow onset of symptoms in persons who reside

at high altitude for several years. Included are apathy, fatigue, and headache. Laboratory studies often reveal hypoxia and polycythemia. Persons between ages 40 and 60 are most likely to be affected. The symptoms subside when the person returns to sea level. SYN: *Monge's disease*.

**mounting** (mownt'ing) **1.** The arrangement of specimens on slides, frames, chart boards, display boards, or any background for study. **2.** In dentistry, the attachment of a cast of the mandible or maxilla to an articulator.

**mourning** [AS. *murnan*] The observable expression of grief after a death, esp. of a loved one. Mourning is not synonymous with depression or melancholia. SEE: *grief*.

**mouse** (mows) **1.** A small rodent of the genus *Mus*. Mice are used extensively in research. **2.** A small piece of tissue that has become free or unattached, esp. in a body cavity or joint.

**joint m.** Fragment of synovial membrane or cartilage found free in the joint space due to trauma or osteoarthritis.

**New Zealand black m.** ABBR: NZB m. A mouse bred for the genetic trait of spontaneously developing autoimmune hemolytic anemia.

**nude m.** A mutant mouse, completely devoid of hair and lacking T lymphocytes, bred for use in immunological investigations.

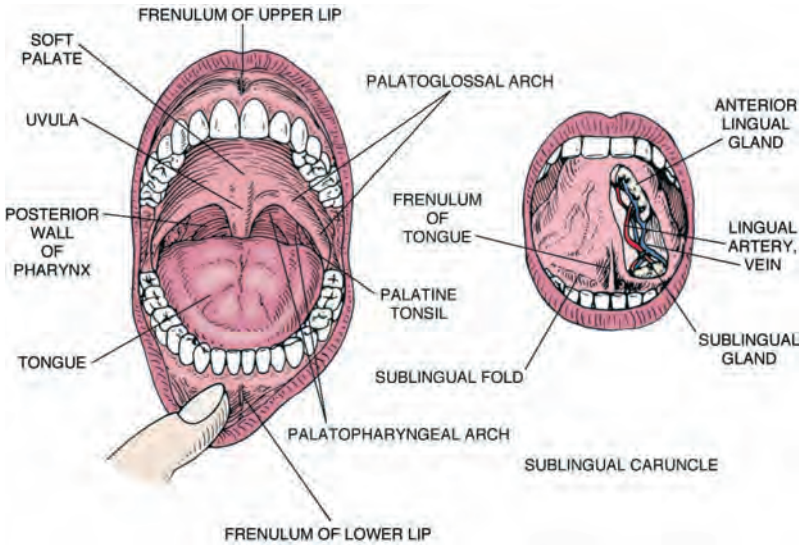
**mouth** [AS. *muth*] **1.** The opening of any cavity. **2.** The cavity within the cheeks, containing the tongue and teeth, and communicating with the pharynx. SYN: *buccal cavity*; *oral cavity*. SEE: *illus.*

**ABNORMALITIES:** *Tongue:* dry, coated, smooth, strawberry, large, pigmented, geographic, deviated, tremulous, sore. *Gums and teeth:* gingivitis, sordes, lead line, pyorrhea, atrophy, hypertrophy, dental caries, alveolar abscesses. *Mucous membranes and other parts of mouth:* eruptions accompanying exanthematous diseases, stomatitis, canker sores, herpes simplex, thrush, trench mouth, cysts, tumors, carcinoma, lesions of syphilis such as chancre, mucous patches, gumma, lesions of tuberculosis, abscesses.

Disorders of the mouth cavity may be indications of purely local diseases or they may be symptoms of systemic disturbances such as dehydration, pernicious anemia, and nutritional deficiencies, esp. avitaminosis.

Rashes of the mouth may indicate stomatitis, measles, or scarlet fever. Rashes on lips may indicate typhoid fever, meningitis, or pneumonia. In secondary syphilis, chancre, cancer, and epithelioma, mucous patches appear.

**EXAMINATION:** In addition to visual examination, careful digital examination should be made because it reveals



MOUTH, TONGUE, AND PHARYNX

areas of tenderness and alterations of texture characteristic of leukoplakia, cancer, cystic swellings, and lymphadenopathy.

Excessive moisture of the mouth is seen in stomatitis, irritation of the vagus nerve, ingestion of irritating drugs or foods, nervous disorders, teething, seeing appetizing foods, and smelling pleasant odors. SEE: *burning mouth syndrome*.

**trench m.** Necrotizing ulcerative gingivitis.

**mouth guard** A removable dental appliance used to protect the teeth and investing tissues during contact sports.

**PATIENT CARE:** Mouth guards, like other dental appliances, should be cleaned daily. SEE: *occlusal guard*.

**mouthrinse** Mouthwash.

**mouthstick** Assistive technology device consisting of a stick attached to a molded dental mouthpiece that permits page turning and other tasks by means of head movement.

**mouthwash** A medicated solution used to cleanse or treat diseases of the oral mucosa, reduce halitosis, or add fluoride to the teeth for control or prevention of dental caries. It may contain various chemical compounds, such as fluoride or zinc chlorides, alcohol, glycerin, detergents, essential oils for flavoring, and coloring agents. According to the composition and proposed function, mouthwashes may be described as antibacterial, astringent, buffered, concentrated, cosmetic, deodorizing, or therapeutic. SYN: *mouthrinse*.

**MOV** *minimal occluding volume*.

**Movat's pentachrome stain** (mō'vāts pēn'tă-krōm") A stain used to highlight body structures, such as blood vessels, that contain collagen, elastic fibers, fibrin, muscle, and cell nuclei.

**movement** [L. *movere*, to move] **1.** The act of passing from place to place or changing position of the body or its parts. **2.** Bowel movement.

**active m.** Voluntary movement of joints and muscles through their usual range of motion, accomplished without external assistance.

**ameboid m.** Cellular movement like that of an amoeba. A protoplasmic pseudopod extends, and then the remaining cell contents flow into the pseudopod, which swells gradually. This type of movement allows cells such as leukocytes to move through very small openings. SEE: *diapedesis*.

**angular m.** The change in the joint position between long bones. Flexion, extension, abduction, and adduction are examples of angular movement.

**associated m.** **1.** Synchronous correlation of two or more muscles or muscle groups that, although not essential for the performance of some function, normally accompany it, as the swinging of arms in normal walking. Associated movements are characteristically lost in cerebellar disease. **2.** An involuntary movement in one limb accompanying a voluntary movement on the other side of the body.

**autonomic m.** Spontaneous, involuntary movement independent of external stimulation.

**boldly m.** Movement of a tooth by

natural or orthodontic forces so that the crown and root maintain their same vertical axis. SEE: *rotational m.*; *tipping m.*

**bowel m.** Evacuation of feces from the gastrointestinal tract. The number of bowel movements varies in healthy individuals, some having a movement after each meal, others one in the morning and one at night, and still others only one in several days. SYN: *defecation*; *movement* (2).



A persistent change in bowel habits should be investigated thoroughly because it may be a sign of cancer or inflammation in the gastrointestinal tract.

Bloody bowel movements may be caused by a variety of lesions in the upper or lower gastrointestinal tracts, including hemorrhoids, anal fissures, dysentery, bleeding diverticuli, arteriovenous malformations, inflammatory bowel diseases (e.g., ulcerative colitis), or cancers. Black (melanic) bowel movements may result from bleeding in the upper gastrointestinal tract but may be mimicked by other conditions (e.g., the use of iron supplements or bismuth-containing medications). Clay-colored stools are often seen in biliary obstruction. Constipation with a decrease in the caliber of stools may indicate a malignant obstruction of the large intestine.

**PATIENT CARE:** A history is obtained of the patient's usual bowel habits, and any change is documented. The patient is questioned and the stool is inspected for color, shape, odor, consistency, and other characteristics, as well as the presence of any unusual coatings or contents (mucus, blood, fat, parasites). Privacy is provided for the patient when using a bed pan, toilet, or bedside commode. The area should be ventilated or a deodorant spray used after the bowel movement to limit the patient's embarrassment and to reduce the discomfort of others sharing the area. The patient is taught the importance of fluid intake, diet, and activity to help prevent constipation, supportive therapies for diarrhea, and the importance of hand hygiene after toileting. The rationale for testing the stool for occult blood or other laboratory studies, if this is required, is explained.

**brownian m.** SEE: *brownian movement*.

**cardinal m. of labor** Changes in the position of the fetal head as it descends through the birth canal and exits the mother's body. The cardinal movements are: engagement, descent, flexion, internal rotation, extension, external rotation and expulsion.

**ciliary m.** Rhythmic movement of the

cilia of a ciliated cell or epithelium. SYN: *vibratile m.*

**circus m.** 1. A phenomenon appearing after injury to a corpus striatum, optic thalamus, or crus cerebri, and causing an odd circular gait. 2. In cardiac rhythm disturbances caused by re-entry, the conduction of electrical activity cyclically through tissue, a process that continues indefinitely as long as the tissue ahead of the electrical wave has adequate time to recover before the electrical stimulus reappears. The movement occurs because of a conduction block in one limb of a circuit, in which the electrical impulse is permitted to travel in only one direction.

**disorders of m.** Hemiplegia, ataxia, monoplegia, tremors, rigors, chorea, athetosis, convulsions, spasm (clonic or tonic), reflex (hysterical, habit spasm, tics), and spastic paralysis. Movement disorders are common in the elderly (e.g., those with degenerative neurological diseases). When they occur acutely, they are often caused by a new medication or toxin, stroke, or trauma.

**doll's eye m.** Oculocephalic reflex.

**fetal m.** Muscular movements performed by the fetus in utero.

**gliding m.** Movement of one surface over another without angular or rotatory movement, as well. This type of movement occurs in the temporomandibular joint after opening when the condyles and disks move forward, as in protrusion of the jaw.

**hinge m.** Movement in a joint around a transverse axis, as occurs in the lower compartment of the temporomandibular joints at the beginning of jaw opening when the occluding teeth are separated or in the final stage of wide opening of the mouth.

**independent living m.** A collective term for societal programs that support a philosophy of full participation, self-reliance, and social integration of people with functional impairment. Emphasis on self-help, environmental accessibility, freedom of choice, and programs to enable community living characterize this movement.

**jaw m.** Movement of the mandible. SEE: *gliding m.*; *hinge m.*

**masticatory m.** One of the movements of the jaw that results in the cutting and grinding of food. It may involve unilateral chewing, alternating bilateral chewing according to the learned automatic pattern of activity, or consciously initiated movements.

**molecular m.** The rotational, translational, and vibrational movement of molecules, primarily as a function of temperature. The higher the temperature, the greater the movement (i.e., the greater the kinetic energy). SEE: *brownian movement*.

**orthodontic m.** Movement of teeth and bone produced by orthodontic appliances.

**passive m.** Movement of the body or a part due to outside forces.

**pendular m.** Swaying movements of the intestines caused by rhythmic contractions of the longitudinal muscles of the walls of the intestines.

**peristaltic m.** Peristalsis.

**physiological m.** A movement normally executed by muscles under voluntary control (e.g., flexion, extension, abduction, adduction, and rotation). It is also known as physiological motion.

**purposeful m.** Motor activity requiring the planned and consciously directed involvement of the patient. It is hypothesized that evoking cortical involvement in movement patterns during sensorimotor rehabilitation will enhance the development of coordination and voluntary control.

**rapid eye m.** ABBR: REM. Cyclic movement of the closed eyes observed or recorded during sleep.

**relaxed m.** Passive exercise.

**respiratory m.** Any movement resulting from the contraction of respiratory muscles or occurring passively as a result of elasticity of the thoracic wall or lungs. SEE: *compliance* (1); *expiration*; *inspiration*; *respiration*.

**m. of restitution** Alteration in position that aligns the fetal head with the fetal spine.

**rotational m.** Movement around an axis, as in hinge movement of the temporomandibular joint or rotation of a tooth around its longitudinal axis in tooth movement or extraction. SEE: *bodily m.*; *tipping m.*

**saccadic m.** Jerky movements of the eyes as they move from one point of fixation to another.

**segmenting m.** Movement of the intestine in which annular constrictions occur, dividing the intestine into ovoid segments.

**tipping m.** Movement of a tooth crown while the root apex remains essentially stationary, resulting in an inclination of the axis of the tooth in one direction. SEE: *bodily m.*; *rotational m.*

**tooth m.** The change in position of a tooth or teeth in the dental arch. This may be due to abnormal pressure from the tongue, pathological changes in tooth-supporting structures, malocclusion, missing teeth, or a therapeutic orthodontic procedure. Thumb sucking, if prolonged, may cause malocclusion and, eventually, displacement of teeth. SEE: *tooth migration, pathological*.

**triplanar m.** Movement occurring around an oblique axis in all three body planes.

**vermicular m.** The wormlike movements of peristalsis.

**vibratile m.** Ciliary movement.

**movement system** The physiological components that function together to produce motion at a joint or multiple body segments. The components include the support and base; modulating nerves and muscles; cardiovascular and pulmonary reserves; and cognitive-affective elements. Specialists in physical medicine are trained to manage the components of the movement system.

**moxa** (mōk'sa) [Japanese] The use of a soft combustible substance, such as the herb *Artemisia vulgaris*, burned on the skin. It is popular in eastern Asia, Japan, and complementary medicine as a cauterizing and counterirritant. SEE: *moxibustion*.

**moxibustion** (mōks-i-būs'chūn) [ + L. *combustus*, burned] In traditional Asian and alternative medicine, cauterization and counterirritation used to treat disease by means of a cylinder or cone of cotton wool, called a moxa, placed on the skin and fired at the top.

**M-Oxy** Oxycodone.

**Mozart ear** (mōt'sahrht) [Wolfgang Amadeus Mozart, Austrian composer, 1756–1791. Alleged to have had this deformity] Deformity of the ear in which the antihelix is fused with the crura of the helix.

**MPD** *maximum permissible dose*.

**MPN** *most probable number* (of bacteria present in a quantity of solution, esp. water).

**MPS** *mucopolysaccharidosis; mononuclear phagocytic system*

**MR** *magnetic resonance; mitral regurgitation*.

**mR** *milliroentgen*.

**MRCP** *Member of the Royal College of Physicians*.

**MRCP(C)** *Member of the Royal College of Physicians of Canada*.

**MRCS** *Member of the Royal College of Surgeons*.

**MRCS(C)** *Member of the Royal College of Surgeons of Canada*.

**mrem** *millirem*.

**MRI** *magnetic resonance imaging*.

**mRNA** *messenger RNA*.

**MRSA** *methicillin-resistant Staphylococcus aureus*.

**MRSE** *Methicillin-resistant Staphylococcus epidermidis*.

**MS** *multiple sclerosis*.

**ms** *millisecond*.

**MSAFP** *maternal serum alpha-fetoprotein*.

**MSDS** *material safety data sheets*.

**msec** *millisecond*.

**MSH** *melanocyte-stimulating hormone*. SEE: *under hormone*.

**MSVC** *maximum sustainable ventilatory capacity*. SEE: *ventilation, maximum sustainable*.

**MTP** *metatarsophalangeal*.

**Mu** *Mache unit*.

**mu** (mū) [Gr.  $\mu$ , letter m] SYMB:  $\mu$ ; u. Symbol used for the prefix *micro-* which stands for multiplication by  $10^{-6}$ . Thus,  $\mu\text{m}$  would stand for  $10^{-6}$  m.

**muc-** SEE: *muc-*.

**Mucha-Haberman disease** Pityriasis lichenoides, acute.

**Much's granules** (mooks, mūks) [Hans Christian Much, Ger. physician, 1880–1932] The granules sometimes seen in sputum from patients with tuberculosis. They do not stain with acid-fast stain but do take Gram stain. These particles are probably degenerated tubercle bacilli.

**muci-** SEE: *muc-*.

**muciform** (mū'si-form) [ʹ + *forma*, shape] Appearing similar to mucus.

**mucigen** (mū'si-jěn) [ʹ + Gr. *gennan*, to produce] A substance present in mucous cells that, upon being extruded from the cell, is converted into mucin.

**mucilage** (mū'si-līj) [L. *mucilago*, moldy juice] Thick, viscid, adhesive liquid, containing gum or mucilaginous principles dissolved in water, usually employed to suspend insoluble substances in aqueous liquids or as a demulcent.

**mucilaginous** (mū-sil-āj'in-ūs), *adj.*

**mucilloid** (mū'sil-loyd) A mucilaginous preparation.

**psyllium hydrophilic m.** Mucilloid prepared from psyllium seeds. It is used as a bulk-type laxative.

**mucin** (mū'sin) [L. *mucus*, mucus] A glycoprotein found in mucus. It is present in saliva, bile, skin, glandular tissues, connective tissues, tendon, and cartilage. Mucin is formed from mucigen and forms a slimy solution in water.

**mucinoid** (mū'sin-oyd), *adj.*

**mucinase** (mū'si-nās) Any enzyme that acts on mucin.

**mucinemia** (mū'sin-ē'mē-ā) [ʹ + Gr. *haima*, blood] Accumulation of mucin in the blood.

**mucinogen** (mū-sin'ō-jěn) [ʹ + Gr. *gennan*, to produce] A glycoprotein that forms mucin.

**mucinolytic** (mū'si-nō-lit'ik) [ʹ + Gr. *lysis*, dissolution] Capable of hydrolyzing or dissolving mucin.

**mucinuria** (mū-sin-ū'rē-ā) [ʹ + Gr. *ouron*, urine] Presence of mucin in the urine.

**muc-**, **muc-**, **muci-** [L. *mucus*, mucus] Combining forms meaning *mucus*.

**mucocoele** (mū'kō-sel) [ʹ + Gr. *kele*, tumor, swelling] 1. Enlargement of the lacrimal sac. 2. A mucous cyst. 3. A mucous polypus. 4. Cystic disease of the air cavities of the cranial bones causing erosion of the bone.

**mucociliary** (mū'kō-sil'ē-ār-ē) Pert. to ciliated mucosa.

**mucocutaneous** (mū'kō-kū-tā'nē-ūs) [ʹ + *cutis*, skin] Pert. to mucous membrane and the skin.

**mucocutaneous lymph node syndrome** Kawasaki disease.

**mucroenteritis** (mū'kō-ēn-tēr-ī'tis) [ʹ + Gr. *enteron*, intestine, + *itis*, inflammation] Inflammation of intestinal mucosa.

**mucoglobulin** (mū'kō-glōb'ū-lin) [ʹ + *globulus*, globule] A type of glycoprotein.

**mucoid** (mū'koyd) [ʹ + Gr. *eidōs*, form, shape] 1. Glycoprotein similar to mucin. 2. Muciform, similar to mucus. SYN: *blennoid*.

**mucokinesis** (mū'kō-kī-nē'sis) Any therapeutic technique that removes excessive or abnormal secretions from the respiratory tract.

**mucopolidosis** (mū'kō-lip-i-dō'sis) ABBR: ML. One of several rare, inherited lysosomal storage diseases in which abnormalities in the transport of lysosomal enzymes into lysosomes result in their accumulation in extracellular fluids or plasma. Findings include muscle and skeletal anomalies, coarsened facial features, eye abnormalities (including a visible "cherry-red spot" on the retina), and mental retardation.

**m. type I** ABBR: ML I. A rare autosomal recessive disorder in which abnormal metabolism of glycoproteins and starches results in their accumulation in cells and tissues. Mental retardation, eye diseases, and musculoskeletal deformities are common clinical findings. ML I is also known as sialidosis.

**m. type II** ABBR: ML II. A rare autosomal recessive disease that results in death in infancy or early childhood. Characteristic findings include severe mental retardation, poor muscle tone, kyphosis, and coarsened facial features. SYN: *I cell disease*.

**m. type III** ABBR: ML III. A rare autosomal recessive disease characterized by bone and joint anomalies, esp. of hip and spine development; eye diseases; and sometimes mild mental retardation. It typically becomes clinically recognizable in childhood or young adulthood. SYN: *pseudo-Hurler polydystrophy*.

**mucolytic** (mū'kō-lit'ik) Pert. to a class of agents that liquefy sputum or reduce its viscosity. SEE: *cystic fibrosis*.

**mucomembranous** (mū'kō-mēm'brā-nūs) [ʹ + *membrana*, membrane] Concerning mucous membrane.

**mucoperiosteum** (mū'kō-pēr'ē-ōs'tē-ūm) Periosteum that has a mucous surface, as in the middle ear and hard palate.

**mucopolysaccharidase** (mū'kō-pōl'ē-sāk'ā-rī-dās) An enzyme that catalyzes the hydrolysis of polysaccharides.

**mucopolysaccharide** (mū'kō-pōl'ē-sāk'ā-rīd) A group of polysaccharides, containing hexosamine and sometimes proteins, that forms chemical bonds with water. The thick gelatinous material is

found in many places in the body, forming intercellular ground substance and basement membranes of cells and found in mucous secretions and synovial fluid.

**mucopolysaccharidosis** (mū'kō-pōl'ē-sāk-ā-rī-dō'sīs) ABBR: MPS. A group of inherited disorders characterized by a deficiency of enzymes that are essential for the degradation of the mucopolysaccharides heparan sulfate, dermatan sulfate, and keratan sulfate. These chemicals are excreted in excess quantities in the urine, and they usually accumulate in macrophages, the central nervous system, endothelial cells, intimal smooth muscle cells, and fibroblasts throughout the body. Clinical changes are not usually apparent at birth, but the inherited defect can be diagnosed prior to birth by culturing amniotic fluid cells and testing them for specific enzyme activity. After birth, the conditions may be diagnosed by testing cultured skin fibroblasts for specific enzymes. Some MPS may be treated with bone marrow transplantation.

**m. IH** Mucopolysaccharidosis due to a deficiency of the enzyme  $\alpha$ -L-iduronidase with accumulation of dermatan sulfate and heparan sulfate. Clinically, there are lens opacities, coarse facies, skeletal dysplasia, hepatosplenomegaly, and mental retardation. SYN: *Hurler's syndrome*.

**m. IHS** Hurler-Scheie syndrome. An intermediate form of MPS between MPS IH and MPS IS, due to the same enzyme deficiency. Mental development may be normal.

**m. IS** Mucopolysaccharidosis due to the same enzyme defect as MPS IH and with similar clinical characteristics, except mental retardation is absent. SYN: *Scheie's syndrome*.

**m. II** Mucopolysaccharidosis due to a deficiency of the enzyme L-iduronosulfate sulfatase. Clinically, there are retinal degeneration without corneal clouding, mental retardation, joint stiffness, skeletal dysplasia, cardiac lesions, and deafness. SYN: *Hunter's disease*.

**m. III** Mucopolysaccharidosis that has been further differentiated into Sanfilippo A, B, C, or D, on the basis of the specific enzyme deficiency present in each form. Clinically, it may not be possible to distinguish the types. Present are moderate coarse facies, severe mental retardation, and mild hepatosplenomegaly. Corneal clouding is absent and growth is normal. SYN: *Sanfilippo's disease*.

**m. IV** Mucopolysaccharidosis due to a deficiency of the enzyme N-acetylgalactosamine-6-sulfatase. Clinically, there are dwarfism, thoracolumbar gibbus (hunchback), kyphoscoliosis, coarse facies, cardiac lesions, moderate hepatosplenomegaly, and joint hypermobility. SYN: *chondro-osteodystrophy*; *Morquio's syndrome*.

**m. V** Former designation for mucopolysaccharidosis IS.

**m. VI** Maroteaux-Lamy syndrome; MPS due to a deficiency of the enzyme N-acetylgalactosamine-4-sulfatase. Clinically, MPS VI is similar to MPS IH, except intelligence is normal.

**m. VII** Mucopolysaccharidosis due to a deficiency of  $\beta$ -glucuronidase. Clinically, MPS VII is quite similar to MPS IH, except intelligence may be normal. SYN: *Sly disease*; *glucuronidase deficiency disease*; *Sly syndrome*.

**mucopolysacchariduria** (mū'kō-pōl'ē-sāk-ā-rī-dū'rē-ā) Mucopolysaccharides in the urine.

**mucoprotein** (mū'kō-prō'tē-īn) A complex of protein and mucopolysaccharide. Usually, the polysaccharide contains hexosamine.

**Tamm-Horsfall m.** SEE: *Tamm-Horsfall mucoprotein*.

**mucopurulent** (mū-kō-pūr'ū-lēnt) [L. *mucus*, mucus, + *purulentus*, made up of pus] Consisting of mucus and pus.

**Mucor** (mū'kor) [L.] A genus of mold found in dead and decaying matter. Some species can cause infections of external ear, skin, and respiratory passageways. SEE: *mucormycosis*.

**mucoriferous** (mū'kor-if'ēr-ūs) [L. *mucor*, mold, + *ferre*, to carry] Covered with mold or a moldlike substance.

**mucormycosis** (mū'kor-mī-kō'sīs) [' + Gr. *mykes*, fungus, + *osis*, condition] An invasive and frequently fatal infection with fungi of the family Mucoraceae and the class Zygomycetes. SYN: *zygomycosis*.

**PATHOLOGY:** The fungi responsible have an affinity for blood vessels, in which they cause thrombosis and infarction. The form of this disease that affects the head and face usually causes paranasal sinus infections, esp. during periods of ketoacidosis in persons with diabetes mellitus. This form may also disseminate to the brain. The pulmonary form of the disease causes infarcts of the lung; the gastrointestinal form causes mucosal ulcers and gangrene of the stomach. The disease is contracted by inhalation or ingestion of the fungus by susceptible individuals. Most persons have a natural resistance to the fungus, accounting for the rarity of the disease.

**TREATMENT:** Radical surgery may sometimes be used to remove the invasive fungal mass. Potent antifungal agents, such as amphotericin B, may be given intravenously. Control of underlying immunosuppressive conditions may be helpful.

**RISK FACTORS:** The infection occurs most commonly in persons with immunosuppressive conditions, such as AIDS, or poorly controlled diabetes mellitus, or in recipients of transplanted or-

gans who are taking immunosuppressive drugs.

**mucorrhea** (mū'kō-rē'ä) [*"* + *rhoia*, to flow] Increased cervical discharge at ovulation, usually covering a span of 3 to 4 days. The discharge has the character and appearance of raw egg white. SEE: *spinnbarkeit*.

**mucosa** (mū-kō'sä) *pl.* **mucosae** [L., mucous] A mucous membrane or moist tissue layer that lines the hollow organs and cavities of the body that open to the environment. It consists of an epithelial layer on a basement membrane and a connective tissue layer called the lamina propria. The tissue lining the alimentary canal also contains a smooth muscle layer called the muscularis mucosae. The type of epithelium, thickness, and presence or absence of glands vary with the function or location of the mucosa. **mucosal** (mū-kō'säl), *adj.*

**alveolar m.** A thin, nonkeratinized mucosal layer covering the alveolar process of maxillae and mandible and loosely attached to underlying bone. It is continuous with the mucosa of the cheek, lips, tongue, and palate.

**buccal m.** The lining of the cheeks of the oral cavity. It is characterized by stratified squamous nonkeratinized epithelium that may become keratinized in local areas due to cheek-biting. It may also contain ectopic sebaceous glands. SEE: *Fordyce's disease*.

**lingual m.** The keratinized, papillated covering of the dorsum of the tongue that contains nerve endings for the sense of taste.

**masticatory m.** Those areas of the mucosa of the mouth that have become keratinized due to the friction and abrasion of the masticatory process, esp. the gingivae and hard palate.

**nasal m.** The lining of the nasal cavities and paranasal sinuses, made of pseudostratified ciliated epithelium with goblet cells. The nasal mucosa warms and humidifies the inhaled air, and the cilia sweep mucus-entrapped dust and microbes to the pharynx.

**oral m.** The stratified squamous epithelial lining of the oral cavity in its many locations: the gingiva, hard palate, soft palate, cheek, vestibule, lip, tongue, and oropharynx.

**mucosanguineous** (mū'kō-sän-gwīn'ē-ūs) [*"* + *sanguineus*, bloody] Containing mucus and blood.

**mucoserous** (mū'kō-sēr'ūs) Composed of mucus and serum.

**mucositis** (mū'kō-sī'tis) [*"* + Gr. *itis*, inflammation] Inflammation of a mucous membrane.

**chemotherapy-induced m.** Oral inflammation caused by medications, especially those used to treat cancers or autoimmune diseases.

**radiation-induced m.** Inflammation

of the lining of the mouth due to radiation injury to the head and/or neck. SEE: *gingivitis*, *acute necrotizing ulcerative*.

**mucosocutaneous** (mū-kō'sō-kū-tā'nē-ūs) Concerning a mucous membrane and the skin.

**mucostatic** (mū'kō-stät'ik) [*"* + *statis*, standing] Stopping the secretion of mucus.

**mucous** (mū'kūs) **1.** Having the nature of or resembling mucus. **2.** Secreting mucus. **3.** Depending on presence of mucus.

**mucous membrane** The membrane lining passages and cavities communicating with the air, consisting of a surface layer of epithelium, a basement membrane, and an underlying layer of connective tissue (lamina propria). Mucus-secreting cells or glands are usually present in the epithelium but may be absent. In humans, mucous membranes and the skin provide effective mechanisms for preventing the entry of pathogens. Mucous membranes are normally colonized with nonpathogenic organisms that discourage colonization by pathogens because the resident organisms compete for the nutrients essential to their survival. Some mucosal surfaces in the digestive tract have special characteristics that tend to repel or kill organisms, such as the extremely high acid level on the mucosa of the stomach.

Noninvasive examination of membranes should reveal the degree of moisture, cyanosis, pallor, hyperemia, pigmentation, lesions or their absence, and hemorrhage. Pallor is seen in all anemias. If temporary, it may indicate shock or vasomotor spasm, or it may occur in severe hemorrhages. Blanching and flushing alternately accompany aortic regurgitation.

Hyperemia or excessive redness of the mucous membranes is indicative of certain pathological changes in particular tissues. For example: *Buccal mucous membrane*: Due to decayed teeth, traumatism, stomatitis. SEE: *mouth*. *Nasal mucosa*: Ulceration of nose, rhinitis, inflammation. SEE: *nose*. *Eyes (local irritation)*: Foreign body, ulcer, inflammation. SEE: *jaundice*. Dryness is seen in fevers, chronic gastritis, some liver disturbances, excitement, shock, prostration, fatigue, thirst, and certain drugs.

**mucoviscidosis** (mū'kō-vīs'ī-dō'sis) Cystic fibrosis.

**mucus** (mū'kūs) [L.] A viscid fluid secreted by mucous membranes and glands, consisting of mucin, leukocytes, inorganic salts, water, and epithelial cells. A good example is the almost ropy secretion from the sublingual and submandibular glands.

**cervical m.** The discharge secreted by the endocervical glands of the uterine cervix. Characteristic assessment

findings correlate with normal hormonal changes of the menstrual cycle that influence the type and amount of mucus secreted. Immediately before ovulation, high estrogen levels stimulate secretion of a large amount of thin, watery mucus that is hospitable to sperm transit. After ovulation, high progesterone levels stimulate secretion of a thick, viscous mucus that is less hospitable to sperm. SEE: *ferning; spinnbarkeit.*

**MUD** *matched unrelated donor.*

**Mueller maneuver** (mū'lēr) Inspiration against a blocked upper airway, a maneuver that generates negative pressure within the thorax. The Mueller maneuver can be performed voluntarily, by trying to suck air into the lungs with the mouth closed and the nostrils pinched. It also occurs spontaneously during obstructive sleep apnea when a person with an occluded airway struggles to breathe.

**MUFA** *monounsaturated fatty acid.*

**mugwort** (müg'wört) A perennial herb (*Artemisia vulgaris*) that is burned on or near the skin by acupuncturists during moxibustion to warm acupuncture points and nearby structures. It is toxic if eaten.

**Muir-Torre syndrome** (mūr'-taw'rā, tō'rē) An autosomal dominant condition marked by internal organ malignancies and sebaceous skin lesions. SYN: *Torre-Muir syndrome.*

**mull** (mül) To grind or pulverize.

**Müller, Johannes P.** (mül'ēr) German physician, 1801–1858.

**M. ducts** Embryonic tubes from which the oviducts, uterus, and vagina develop in the female; in the male, they atrophy. SYN: *müllerian duct.*

**M. maneuver** Inspiratory effort with a closed glottis at the end of expiration. This technique is used during radiographic studies to produce negative intrathoracic pressure and cause engorgement of blood vessels, thus allowing visualization of esophageal varices.

**M. ring** Muscular ring at the junction of the cervical canal and the gravid uterus.

**M. tubercle** Projection on the dorsal wall of the cloaca at which Müller's ducts terminate.

**mult-, multi-** [L. *multus*] Prefixes meaning *many, much.*

**multangular** (mül-täng'ü-lär) Having many angles (e.g., the trapezium and trapezoid bones in the wrist).

**multiallelic** (mül'tē-äl'l'ik) Concerning a large number of genes affecting hereditary characteristics.

**multiarticular** (mül'tē-är'tik'ü-lär) [L. *multus*, many, + *articulus*, joint] Polyarticular.

**multicellular** (mül'ti-sél'ü-lär) [ + *cellula*, small chamber] Consisting of many cells.

**Multiceps** (mül'ti-sēps) A genus of tapeworms.

**multicuspid, multicuspidate** (mül'ti-küs'pid, -pī-dät) [ + *cuspis*, point] Having several cusps.

**multicystic** (mül'tē-sis'tik) Composed of or having many cysts.

**multidisciplinary** (mül'ti-dīs'ī-plī-när-ē) Relating to multiple fields of study involved in the care of patients. The term suggests that the various disciplines are working in collaboration, but in a parallel mode of interaction. Each distinctive discipline is accountable and responsible for its tasks and functions regarding patient care.

**multifactorial** (mül'ti-fāk-tor'ē-äl) The result of many factors, as in a disease resulting from the combined effects of several components.

**multifamilial** (mül'ti-fā-mil'ē-äl) Concerning a familial disease that affects children in several generations.

**multifid** (mül'ti-fid) [ + *fidus*, from *findere*, to split] Divided into many sections.

**multifocal** (mül'ti-fō'käl) Concerning or arising from many locations.

**multiform** (mül'ti-form) [ + *forma*, shape] Having many forms or shapes. SYN: *polymorphic; polymorphous.*

**multigated acquisition scan, multigated ventriculogram** (mül'ti-gät'téd) ABBR: MUGA. A nuclear medicine scan used to measure the ejection fraction of the heart (i.e., the percentage of blood within the left ventricle that is forced out of the heart during each of its muscular contractions). The MUGA is performed by withdrawing a small amount of blood from the patient; his or her blood cells are incubated with a radioactive tracer, such as technetium or sestamibi, and then reinfused into the patient. A radioactive detector (the scanner) measures the quantity of blood in the heart at each of multiple stages in systole and diastole. Data obtained from the study are used to calculate the average expulsion of blood during each heartbeat. The MUGA is also known as a *nuclear ventriculogram* or *radionuclide ventriculogram.*

**multigenic** (mül'tē-jën'ik, -jën') Caused by, affecting, or relating to more than one gene.

**multiglandular** (mül'ti-gländ'ü-lar) [ + *glandula*, a little acorn] Concerning several glands.

**multigravida** (mül'ti-gräv'i-dä) [ + *gravida*, pregnant] A woman who has been pregnant more than once. The number of pregnancies may be recorded as gravida II, gravida III, and so on. SEE: *multipara.*

**multi-infection** (mül'ti-in-fék'shün) [L. *multus*, many, + *infectio*, an infection] Polyinfection.

**Multilevel Assessment Instrument A**



questionnaire (used primarily for community-based geriatric patients) that evaluates instrumental activities of daily living. It assesses cognitive and physical limitations in activities such as telephone use, shopping, housework, and money management.

**multilineage** (mül'tē-līn'ē-ij) [ʹ + ʹ] Derivation from multiple ancestors. In hematology, it is applied to cellular proliferation affecting several blood cell types.

**multilingual aphasia examination** ABBR: MAE. A battery of tests to measure language abilities in patients with speech disturbances. It consists of 11 components, including the following: the ability to repeat a sentence; to spell; to read; to understand spoken directions; to identify objects depicted in drawings; and to articulate clearly.

**multilobular** (mül'tī-lōb'ū-lar) [ʹ + *lobulus*, a small lobe] Formed of or possessing many lobules.

**multilocular** (mül'tī-lōk'ū-lar) [ʹ + *loculus*, a cell] Having many cells or compartments.

**multimammae** (mül'tī-mām'mē) [ʹ + *mamma*, breast] Polymastia.

**multimodal** (mul'tē-mō'dāl) [L. *multi-*, many, + *modus*, measure] **1.** Multidisciplinary. **2.** Using or relying on multiple methods, e.g., to treat an illness.

**multinodular** (mül-tī-nōd'ū-lar) [ʹ + *nodulus*, little knot] Possessing many nodules or small knots.

**multinuclear, multinucleate** (mül-tī-nū'klē-ār, -āt) Possessing several nuclei. SYN: *polynuclear*.

**multipara** (mül-tīp'ā-rā) [ʹ + *parere*, to bring forth, to bear] A woman who has carried more than one fetus to viability, regardless of whether the offspring were born alive. The number of deliveries may be recorded as para II, para III, and so on. SEE: *multigravida*.

**grand m.** A woman who has given birth seven or more times.

**multiparity** (mül-tī-pār'ī-tē) The condition of having carried one or more fetuses to viability, regardless of whether the infants were alive at birth. SEE: *multipara*.

**multiparous** (mül-tīp'ār-ūs) Having borne more than one child.

**multiphasic screening** (mül'tī-fā'zīk) SEE: *screening test, multiphasic*.

**multiple** (mül'tī-pl) [L. *multiplex*, many folded] **1.** Consisting of or containing more than one; manifold. **2.** Occurring simultaneously in various parts of the body.

**multiple chemical sensitivity syndrome** ABBR: MCSS. The association of multiple physical symptoms with prolonged or recurrent exposures to low levels of environmental pollutants. Clinical research has failed to establish the precise nature of the syndrome, its causes, the

functional limitations it may cause, or the best course of treatment. Many hypotheses have been suggested: some proponents of the syndrome believe that it results from allergic or immune-mediated mechanisms; skeptics have suggested that the symptoms are a form of masked depression, adverse conditioning to unusual odors, or, in some instances, a form of malingering. None of these hypotheses has been definitively proven.

**multiple drug resistance** A lack of expected therapeutic response to several disease-specific pharmaceutical agents, esp. antibiotics. In cancer therapy, resistance to a wide range of unrelated drugs may occur after resistance to a single agent has developed. SEE: *gene amplification*.

**multiple-ejaculate resuspension and centrifugation** ABBR: MERC. A method of isolating viable sperm from men previously thought to be sterile for in vitro fertilization. The patient ejaculates three or four times in a 24-hr period, and the semen is collected and concentrated. The small number of sperm isolated from the specimens can be used to impregnate the man's partner.

**multiple endocrine neoplasia** ABBR: MEN. One of several inherited syndromes caused by a defect in tumor suppressor genes that produces benign and malignant tumors of many endocrine glands. Angiofibromas and collagenomas of the skin also are common findings. This group of diseases has been classed according to the glands affected. In MEN type I (MEN I), there are tumors of the parathyroid, pituitary, and islet cells of the pancreas. SYN: *Wermer's syndrome*. MEN type II (MEN II) is characterized by medullary thyroid carcinoma, pheochromocytoma, and parathyroid hyperplasia. SYN: *Sipple syndrome*. MEN type III (MEN III) is quite similar to MEN II, but there are marked facial aberrations with neuromas of the conjunctiva, labial mucosa, tongue, larynx, and gastric intestinal tract.

**multiple malformation syndrome** Developmental anomalies of two or more systems in the fetus. These may be caused by chromosome and genetic abnormalities, or by teratogens including certain drugs and chemicals. In attempting to determine the etiology, it is important to obtain a complete family history and history of exposure to known teratogens and infectious diseases. SEE: *amniotic band disruption sequence syndrome*.

**multiple myeloma** SEE: *myeloma, multiple*.

**multiple organ dysfunction syndrome** ABBR: MODS. Progressive failure of two or more organ systems, resulting from acute, severe illnesses or injuries

(i.e., sepsis, systemic inflammatory response, trauma, burns) and mediated by the body's inability to sufficiently activate its defense mechanisms. SYN: *multiple systems organ failure*.

**PATIENT CARE:** Patients at risk should be closely monitored to help prevent MODS by prompt recognition and correction of perfusion problems, infection, and organ dysfunction. Patients with multiple organ failure often have pulmonary, cardiovascular, renal, and hepatic failure, often followed or accompanied by gram-negative sepsis and disseminated intravascular coagulation. Appropriate medical interventions are initiated for each failing system's problems. Nursing responsibilities include assessing for hemodynamic, acid-base and fluid and electrolyte balance, monitoring and assessing diagnostic study results, coordinating and carrying out prescribed therapies and evaluating patient responses while simultaneously assessing for adverse effects, protecting the patient from nosocomial infections and environmental stressors, and providing emotional support for the patient and family through this type of devastating illness, which has a 90% mortality rate.

The respiratory therapist assists the physician in determining when to intubate the patient and initiate mechanical ventilation. Mechanical ventilation ensures adequate oxygenation and carbon dioxide retention, protects against aspiration, and serves to rest the muscles of breathing and reduce oxygen consumption. The health care provider frequently measures arterial blood gases and pulse oximetry, continually monitors cardiac rhythms, assesses electrolyte and renal function, ensures patient and family comfort and understanding, and protects patients against complications, including deep venous thrombosis, pressure ulcers, malnutrition, and hospital-acquired infections.

**multiple personality** A term formerly used for dissociative identity disorder. SEE: *Nursing Diagnoses Appendix*.

**multiple-puncture test** Any skin test, but esp. a tuberculin test, in which the material is placed on the skin and multiple superficial punctures are produced under the material, thus allowing the material to enter the skin.

**multiple sclerosis** ABBR: MS. A chronic disease of the central nervous system, in which there is destruction of myelin within several regions of the brain and spinal cord at different times. This results in temporary, repetitive, or sustained disruptions in nerve impulse conduction, causing symptoms such as muscular weakness, loss of coordination, numbness, visual disturbances, loss of control of bowel, bladder, and

sexual functions. The clinical picture in MS depends upon the extent of demyelination. Multiple sclerosis is a relatively common disorder: more than 400,000 Americans are affected, of whom the majority (about 390,000) are adults. Multiple sclerosis usually begins between ages 20 and 40; women are twice as likely to have the disease as men, and European-Americans are more likely to be affected than African-Americans or Asian-Americans. Four main categories of MS are currently recognized. The *benign* variant is marked by several episodes of nervous system dysfunction, followed by complete recovery. The *primary progressive* variant is marked by rapid loss of neurological functions that do not resolve, causing severe functional impairments that worsen over time. More common than either of these types of MS are the two *relapsing-remitting* variants. In patients with these disorders, neurological deficits develop and then improve either completely or partially. In patients who achieve only partial restoration of neurological function, secondary progression of the disease may result in a gradual accumulation of visual, motor, or sensory disabilities. SYN: *insular sclerosis*. SEE: *Nursing Diagnoses Appendix*.

About half of all patients with MS become unable to work within 10 to 15 years of the first onset of symptoms. Within 25 years of the first symptoms, half of these patients cannot walk.

**ETIOLOGY:** The cause of the disease is unknown, although much evidence suggests that T lymphocytes that injure nerve cells and nerve sheaths play an important role, that is, that the disease has an autoimmune basis. Some evidence links MS to hypovitaminosis of vitamin D.

**SYMPTOMS:** Nearly a quarter of all patients with MS initially develop visual disturbances, or blindness. This condition, called optic (or "retrobulbar") neuritis, may respond to high doses of corticosteroids. Other consequences of the disease may include sudden or progressive weakness in one or more limbs, muscular spasticity, nystagmus, fatigue, tremor, gait instability, recurrent urinary tract infections (caused by bladder dysfunction), incontinence, and alterations in mood, including euphoria, irritability, and depression.

**DIAGNOSIS:** Diagnosis is usually based on the patient's history. MRI may detect areas of the brain and/or spinal cord with demyelination. Lumbar puncture is often performed to assess patients for oligoclonal bands, which are immunoglobulins released into the cerebrospinal fluid as a result of inflammation.

**TREATMENT:** Although there is no known cure for MS, corticosteroids, in-

terferon-alpha, and glatiramer may be used in specific settings to reduce disability or the frequency of relapses and the progression of disease in patients with some variants of MS. Treatment should be individualized because these therapies may be expensive, ineffective in benign or primary progressive disease, and poorly tolerated by some patients. Symptomatic relief (e.g., of spasticity with muscle relaxants, or of bladder dysfunction with anticholinergic drugs) is provided as needed.

**PATIENT CARE:** The health care professional provides support to patients with multiple sclerosis and their families. The patient is advised to avoid fatigue, overexertion, exposure to extreme heat or cold, and stressful situations, and is encouraged to follow a regular plan of daily activity and exercise based on levels of tolerance. The patient is taught about symptoms that may occur during exacerbations of the disease and the need to adapt the plan of care to changing needs, as well as about the administration of prescribed medications. Physical and occupational therapy referral assist the patient to maintain muscle tone and joint mobility, decrease spasticity, improve balance and coordination, and increase morale. Massages, relaxing baths, yoga, and tai chi may prove helpful. A nutritious, well-balanced diet with adequate roughage and fluids is recommended. Bladder and bowel training programs, self-catheterization, and the use of condom catheters may be required. Independence is encouraged by assisting the patient to develop new methods for ADL performance and optimal functioning. Both the patient and family are encouraged to promote safety in the home and the work environment. For support and information, the patient and family should be referred to the National Multiple Sclerosis Society (800-FIGHT-MS; www.nmss.org).

**multiple sleep latency test** A test to diagnose any of several causes of excessive daytime sleepiness. Causes include insomnia, narcolepsy, and obstructive sleep apnea.

**multiple systems organ failure** ABBR: MSOF. Multiple organ dysfunction syndrome.

**multipolar** (mül-tī-pōl'är) [L. *multus*, many, + *polus*, a pole] **1.** Possessing more than two poles. **2.** Possessing more than two processes, said of neurons.

**multipotent** (mül-tīp'ä-tént) Of stem cells, having the ability to differentiate into several types of specialized cells.

**multirooted** (mül'ti-root'éd) In dentistry, referring to a tooth having several roots.

**multiterminal** (mül'ti-tēr'mī-näl) [ + Gr. *terma*, a limit] Providing several

sets of terminals, making possible the use of several electrodes.

**multivalent** (mül-tī-väl'ént) [ + *valere*, to have power] **1.** Having ability to combine with more than two atoms of a univalent element or radical. **2.** Active against several strains of an organism.

**mummification** (müm'mī-fi-kä'shün) [Arabic *mumiya*, mummy, + L. *facere*, to make] **1.** Mortification producing a hard, dry mass. SYN: *dry gangrene*. **2.** Drying and shriveling of a body, as a dead and retained fetus.

**mumps** (mümps) An acute, contagious disease caused by the mumps paramyxovirus, which results in inflammation of the salivary glands and other organs. The incidence in the U.S. is extremely low because of childhood immunization with the measles, mumps, and rubella (MMR) vaccine. SEE: *Nursing Diagnoses Appendix*.

**SYMPTOMS:** Following an incubation period of 12 to 25 days, patients develop prodromal symptoms of fever, malaise, headache, followed by earache that increases with chewing, pain when chewing or drinking sour or acidic fluids, and swollen salivary glands, esp. the parotid glands. The virus is present in saliva 6 days before to 9 days after the onset of parotid swelling. Lifelong immunity is conferred in almost all cases by one attack (even if unilateral). Occasionally, involvement of other organs results in deafness, pancreatitis, or meningitis (about 10% of cases, usually with complete recovery). In boys or men, mumps orchitis or epididymo-orchitis may occur. Testicular swelling and tenderness, lower abdominal pain, nausea, vomiting, fever, and chills are present; the testicles may atrophy, but infertility (sterility) as a result of inflammatory testicular destruction is rare.

**TREATMENT:** Treatment is generally supportive, with bedrest, antipyretics, analgesics, and adequate fluid intake to prevent dehydration from fever. Intravenous fluids are given if they are needed.

**PATIENT CARE:** Immunization with MMR is encouraged for all children between ages 12 and 15 months and again between ages 4 and 6 years to prevent the disease. If mumps occurs, the patient is kept in droplet-isolation precautions to prevent transmission of the disease to others. Bedrest is encouraged during the febrile period. The patient's temperature is monitored closely and fluids are encouraged, with tepid sponge baths as needed. Analgesics, salt water gargles, local application of heat or cold, and a liquid or soft diet help reduce pain from swollen glands. Foods that require a great deal of chewing are poorly tolerated and should be avoided. Discomfort from mumps orchitis may be eased

with heat or cold applications as the patient prefers, scrotal support, and bed-rest. The patient is observed for signs and symptoms of neurological and other complications and is encouraged to gradually resume activity as symptoms subside. All cases of mumps should be reported to local health authorities.

**mumps virus vaccine live** A sterile preparation of attenuated mumps virus used to immunize against mumps.

**Munchausen syndrome** (mĕn-chow'zĕn) [Baron Karl F. H. von Munchausen, fictional 18th century baron created by Rudolph Raspe] A type of malingering or factitious disorder in which the patient may practice self-mutilation or deception to feign illness. When detected, patients with Munchausen syndrome may leave one hospital and appear in the emergency room of another. They are often misdiagnosed, frequently operated upon, and seldom receive timely psychiatric diagnoses and therapy, which might be beneficial. SEE: *disorder, factitious*.

**Munchausen syndrome by proxy** The fabrication of symptoms or physical evidence of another's illness, or the deliberate causing of another's illness, to gain medical attention.

**Munro Kerr maneuver** (mŭn-rō' kĕr) [John Munro Kerr, Scot. obstetrician, 1868–1955] A method used before the advent of ultrasonography to assess cephalopelvic disproportion, by manually comparing the size of the fetal head with that of the maternal pelvic brim.

**mural** (mŭ'rāl) [L. *murus*, a wall] Pert. to a wall of an organ or part.

**muramidase** (mŭr-ām'ī-dās) An enzyme found in blood cells of the granulocytic and monocytic series. Its serum and urine level is increased in patients with acute or chronic leukemia. It is also normally present in saliva, sweat, and tears. Also called lysozyme.

**Murchison-Pel-Ebstein fever** (mŭr'chī-sŏn-pĕl-ĕb'stĭn) [Charles Murchison, Brit. physician, 1830–1879; Pieter K. Pel; Wilhelm Ebstein] Pel-Ebstein fever.

**murein** (mŭr'ĕ-ĭn, -ĕn") [Fr *mur(amic acid)*, an amino sugar] Peptidoglycan.

**murine** (mŭ'rĭn) [L. *mus*, mouse] Concerning rodents, esp. rats and mice.

**murmur** (mŭr'mŭr) [L.] An abnormal sound heard when listening to the heart or neighboring large blood vessels. Murmurs may be soft, blowing, rumbling, booming, loud, or variable in intensity. They may be heard during systole, diastole, or both. A murmur does not necessarily indicate heart disease, and many heart diseases do not produce murmurs. SEE: *heart*.

**anemic m.** Hemic m.

**aneurysmal m.** A whizzing systolic sound heard over an aneurysm.

**aortic m.** An abnormal, soft sound heard on auscultation that may be due to stenosis or regurgitation. It is a sign of aortic valvular disease. SEE: *aortic regurgitant m.*

**aortic obstructive m.** A harsh systolic murmur heard with and after the first heart sound. It is loudest at the base.

**aortic regurgitant m.** A blowing or hissing following the second heart sound.

**apex m.** An inorganic murmur over the apex of the heart.

**arterial m.** A soft flowing murmur that is synchronous with the pulse.

**Austin Flint m.** SEE: *Austin Flint murmur*.

**bronchial m.** A murmur heard over large bronchi, resembling respiratory laryngeal murmur.

**cardiac m.** A sound arising due to blood flow through the heart.

**cardiopulmonary m.** A murmur caused by movement of the heart against the lungs.

**continuous m.** A murmur that extends throughout systole and diastole.

**crescendo m.** A murmur that progressively builds up in intensity and then suddenly subsides.

**Cruveilhier-Baumgarten m.** SEE: *Cruveilhier-Baumgarten murmur*.

**diastolic m.** A murmur occurring during relaxation of the heart.

**Duroziez' m.** SEE: *Duroziez' murmur*.

**ejection m.** A systolic murmur that is most intense at the time of maximum flow of blood from the heart. This murmur is associated with pulmonary and aortic stenosis.

**endocardial m.** An abnormal sound produced by any cause and arising within the heart.

**exocardial m.** A cardiac murmur produced outside the cavities of the heart.

**extracardiac m.** Exocardial murmur.

**friction m.** A murmur caused by an inflamed mucous surface rubbing against another, as in pericarditis.

**functional m.** A murmur occurring in the absence of any pathological change in the structure of the heart valves or orifices. It does not indicate organic disease of the heart, and may disappear upon a return to health. It may be mistaken for a pathological murmur by an inexperienced listener.

**Gibson's m.** SEE: *Gibson's murmur*.

**Graham Steell's m.** SEE: *Graham Steell's murmur*.

**heart m.** Cardiac murmur.

**hemic m.** A sound heard on auscultation of anemic persons without valvular lesions and resulting from an abnormal, usually anemic, blood condition.

**holosystolic m.** Pansystolic murmur.  
**machinery m.** Gibson's murmur.

**mitral m.** A murmur produced at the orifice of the mitral (bicuspid) valve.

**musical m.** A cardiac murmur with sounds that have an intermittent harmonic pattern.

**organic m.** A murmur due to structural changes.

**pansystolic m.** A heart murmur heard throughout systole.

**pericardial m.** A friction sound produced within the pericardium.

**physiologic m.** Functional murmur.  
**prediastolic m.** Systolic murmur.

**presystolic m.** A murmur occurring just before systole, due to mitral or tricuspid obstruction.

**pulmonary m.** A murmur produced at the orifice of the pulmonary artery.

**regurgitant m.** A murmur due to leakage or backward flow of blood through a dilated valvular orifice.

**seagull m.** A murmur that resembles the cry of a seagull; sometimes associated with aortic insufficiency.

**Still's m.** SEE: *Still's murmur*.

**systolic m.** A cardiac murmur during systole.

**to-and-fro m.** A pericardial murmur heard during both systole and diastole.

**tricuspid m.** A murmur produced at the orifice of the tricuspid valve and caused by stenosis or incompetency of the valve.

**vascular m.** A murmur occurring over a blood vessel.

**vesicular m.** Normal breath sounds.

**Murphy's button** (mŭr'fēz) [John B. Murphy, U.S. surgeon, 1857-1916] Mechanical device used for intestinal anastomosis consisting of two button-like hollow cylinders. Each cylinder is sutured to an open end of the intestine, then they are fitted together. After firm union of the ends of the intestine, the sutures separate and the cylinders are passed in stools.

**Murphy's sign** Pain on deep inspiration when an inflamed gallbladder is palpated by pressing the fingers under the rib cage.

**Mus** (mŭs) [L., mouse] A genus of rodents including mice and rats.

**M. musculus** The common house mouse.

**Musca** (mŭs'kā) [L., fly] A genus of flies belonging to the order Diptera, family Muscidae.

**M. domestica** The common house fly. It may mechanically transmit the causative agents of typhoid fever, bacillary and amebic dysentery, cholera, trachoma, and many other diseases to humans.

**muscae volitantes** (mŭs'sē vŏl-ĭ-tān'tēz) [L., flitting flies] The Latin term for a "floater."

**muscarinic** (mŭs'kā-rĭn'ĭk) Pert. to the

effect of acetylcholine at parasympathetic postganglionic effector sites.

**muscidæ** (mŭs'ĭ-sĭd) [" + *cidus*, killing] Lethal to flies.

**muscle** (mŭs'ĕl) [L. *musculus*] A type of tissue composed of contractile cells or fibers that effects movement of an organ or part of the body. The outstanding characteristic of muscular tissue is its ability to shorten or contract. It also possesses the properties of irritability, conductivity, and elasticity. Muscle tissue possesses little intercellular material; hence, its cells or fibers lie close together. SYN: *muscular tissue*; *musculus*. SEE: *illus. (Muscles of the Trunk)*; *leg for illus; arm; cell; face*.

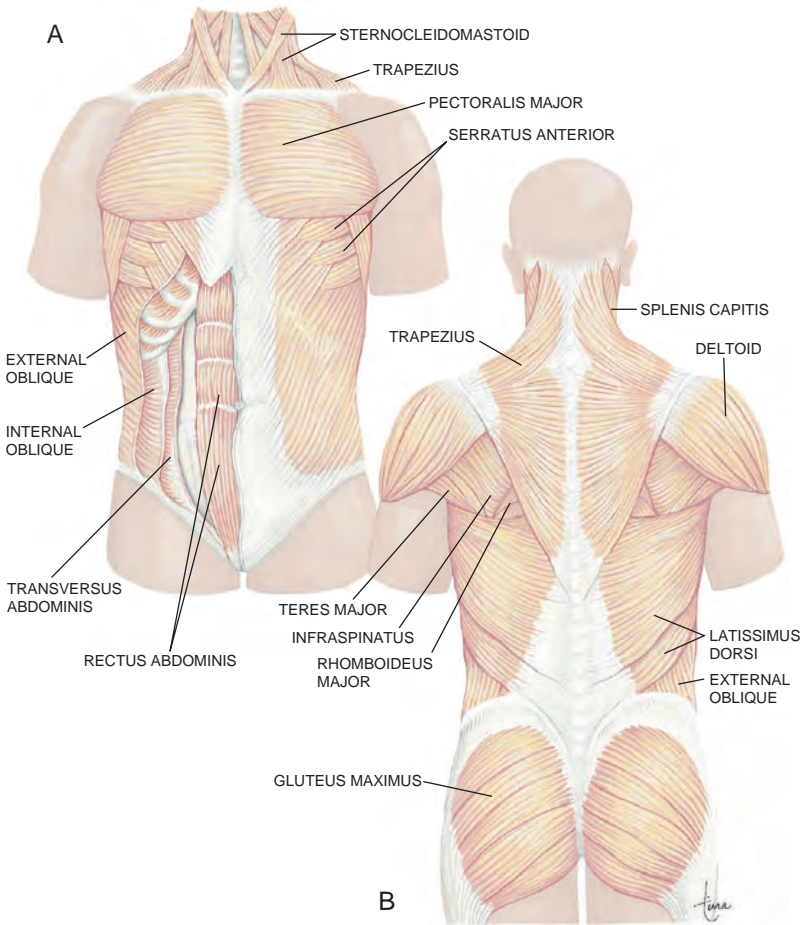
**TYPES:** Three types of muscle occur in the body, differentiated on the basis of histologic structure. These muscle types are smooth, skeletal (striated), and cardiac. SEE: *illus. (Muscle Tissues)*; *table*.

**Smooth (Involuntary):** Smooth muscle is found principally in the internal organs, esp. the digestive tract, respiratory passages, urinary and genital ducts, urinary bladder, gallbladder, and walls of blood vessels. It lacks the cross striations characteristic of other types of muscle. This type of muscle tissue is called involuntary because it is not under conscious control. Smooth muscle cells are fusiform or spindle-shaped, each containing a central nucleus. The cells are usually arranged in sheets or layers, but may occur as isolated units in connective tissue.

**Striated, Skeletal (Voluntary):** Striated muscle is found in all skeletal muscles. It also occurs in the tongue, pharynx, and upper portion of esophagus. Since movement is under conscious control, this type of muscle tissue is called voluntary. The cytoplasm (sarcoplasm) contains bundles of myofibrils made of sarcomeres, the unit of contraction. The cell membrane is called the sarcolemma. Muscle fibers are grouped into bundles called fasciculi, each of which is surrounded by a sheath or connective tissue called perimysium. The fibers within a fasciculus are surrounded by and held together by delicate reticular fibrils forming the endomysium.

**Cardiac:** Cardiac muscle fibers are often branched. Intercalated disks at end-to-end junctions increase the efficiency of electrical impulse transmission throughout the myocardium. Purkinje fibers are cardiac cells that have a faster natural rate of depolarization and thus form the conducting pathways leading from the atrioventricular node to the ventricles.

**ANATOMY:** Muscle is a contractile tissue that shortens and moves a body part. A typical skeletal muscle is spindle-shaped and consists of a central por-



## MUSCLES OF THE TRUNK

(A) anterior, (B) posterior

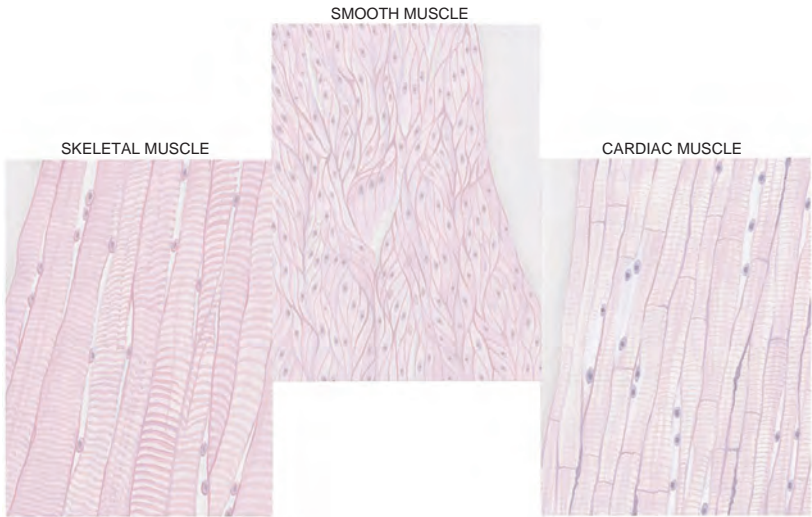
tion called the belly and two or more attaching sites (with tendons) at the ends. The more stationary attachment to bone is called the origin; the more movable attachment is the insertion. Most tendons are cylindrical but a few are flat (an aponeurosis); they are made of fibrous connective tissue that merges with the deep fascia surrounding the muscle and with the periosteum covering the bone. **SEE: illus. (Skeletal Muscle).**

**BLOOD SUPPLY:** It is obtained from small blood vessels that enter the muscular tissue and subdivide into capillaries that permeate throughout.

**NERVE SUPPLY:** *Voluntary:* These muscles are innervated by somatic branches of cranial or spinal nerves; it is because of this that the skeletal mus-

cles are under conscious control. *Involuntary:* Smooth and cardiac muscles receive their nerve supply from the autonomic nervous system and function involuntarily without conscious control.

**abdominal m.** The group of four muscles that make up the abdominal wall, consisting of: 1. the external oblique (the most superficial of the four), whose fibers are directed downward and medially from the lower ribs to the linea alba and pelvis; 2. the internal oblique, whose fibers are directed upward and medially from the iliac crest and lumbodorsal fascia to the lower ribs; 3. the rectus abdominis, a vertically oriented muscle from the crest of the pubis to the cartilages of the fifth, sixth, and seventh ribs and xiphoid process; and 4. the transversus abdominis, whose fibers are



### MUSCLE TISSUES

(Orig. mag.  $\times 430$ )

oriented transversely. These muscles participate in a variety of functions, including flexion, side bending and rotation of the trunk, stabilization of the trunk in the upright posture, the expiratory phase of respiration, coughing, and Valsalva's maneuver.

**abducens m., abducens oculi** Lateral rectus muscle, one of the extraocular eye muscles.

**abductor m.** A muscle that on contraction draws a part away from the median plane of the body or the axial line of an extremity. SEE: *adductor m.*

**abductor digiti minimi m.** An intrinsic hypothenar hand muscle that originates on the pisiform bone of the wrist and attaches along the medial side of the base of the proximal phalanx of the little finger. It acts to abduct the little finger, and it is innervated by a deep branch of the ulnar nerve (C8, T1)

**abductor pollicis brevis m.** A thenar

muscle (an intrinsic hand muscle) that moves the thumb away from the first finger. It originates in the flexor retinaculum and on the tubercles of the scaphoid and trapezium wrist bones. It attaches to the outside (lateral) base of the proximal phalanx of the thumb. It abducts the thumb and together with the other thenar muscles it opposes the thumb against the little finger. It is innervated by the recurrent branch of the median nerve (C8, T1).

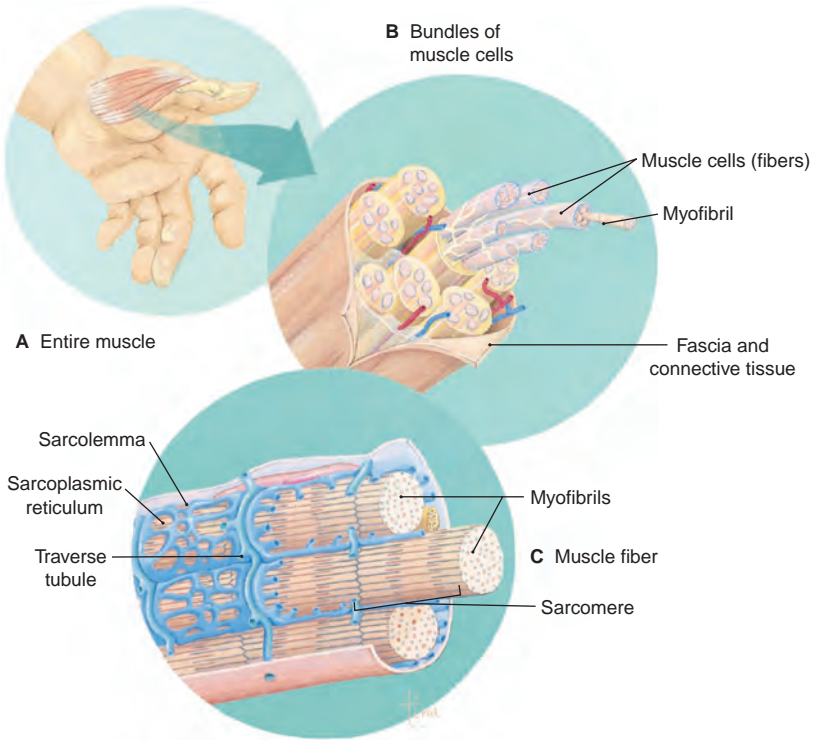
**adductor m.** A muscle that draws toward the midline. SEE: *abductor m.*

**adductor brevis m.** A muscle of the medial thigh originating on the ramus of the pubis and inserted in the linea aspera of the femur. It adducts, flexes, and medially rotates the thigh and is controlled by the obturator nerve.

**adductor longus m.** A muscle of the medial thigh originating on the pubic crest and symphysis and inserted in the

### Comparison of Properties of Three Types of Muscle

	Smooth	Cardiac	Striated
Synonyms	Involuntary Nonstriated Visceral	Myocardial	Voluntary Skeletal
Fibers			
Length (in/m)	50–200		25,000
Thickness (in/m)	4–8		75
Shape	Spindles		Cylinders
Markings	No striation	Striation	Marked striation
Nuclei	Single	Single	Multiple
Effects of cutting related nerve	Slight	Regulation of heart rate is lost	Complete paralysis



## SKELETAL MUSCLE

linea aspera of the femur. It adducts, flexes, and rotates the thigh medially and is controlled by the obturator nerve.

**adductor magnus m.** A muscle of the medial thigh originating on the ramus of the ischium and pubis and inserted in the linea aspera and adductor tubercle of the femur. It adducts the thigh (the anterior portion flexing the thigh, the posterior portion extending it) and is controlled by the sciatic and obturator nerves.

**adductor pollicis m.** An intrinsic hand muscle that closes the web between the thumb and first finger. The adductor pollicis has two origins: the oblique head begins along the bases of the second and third metacarpals and their adjacent carpals, the transverse head begins on the front (anterior) surface of the shaft of the third metacarpal. Both heads attach to the base of the proximal phalanx of the thumb. The adductor pollicis adducts the thumb. The muscle is innervated by a deep branch of the ulnar nerve (C8, T1).

**agonist m.** Agonist.

**anconeus m.** A short muscle along the back of and outside the elbow. It originates from the lateral epicondyle of the humerus, crosses the back of the el-

bow joint on the same side, attaches to the lateral surface of the olecranon process and the adjacent surface of the ulna. It extends the forearm and abducts the elbow as the forearm pronates. It is innervated by the radial nerve (C7, C8, T1).

**antagonist(ic) m.** A muscle that produces the opposite motion of or undoes the motion of another muscle.

**antigravity m.** Muscles that pull against the constant force of gravity to maintain posture. SYN: *postural m.*

**appendicular m.** One of the skeletal muscles of the limbs.

**arrector pili m.** Arrector pili.

**articular m.** A muscle attached to the capsule of a joint.

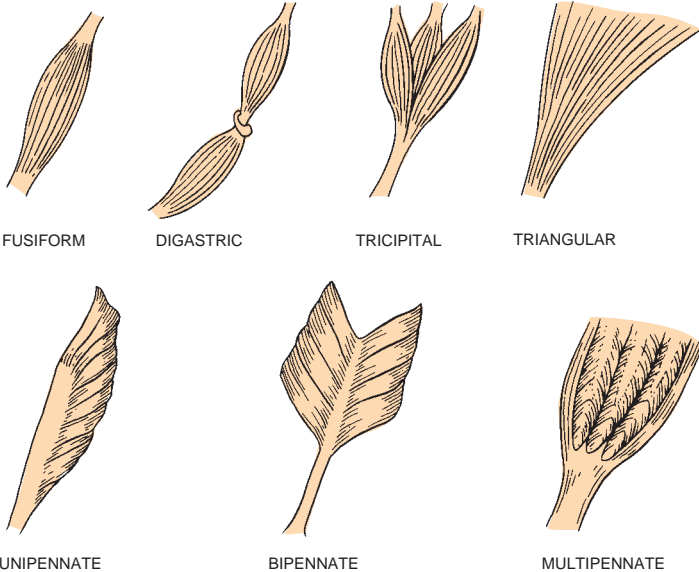
**auditory m.** The tensor tympani and stapedius muscles.

**axial m.** A skeletal muscle of the head or trunk.

**bipennate m.** A muscle in which the fibers converge from both sides to a central tendon. SEE: *illus.*

**ciliary m.** The smooth muscle forming a part of the ciliary body of the eye. Contraction pulls the choroid forward, lessening tension on the fibers of the zonula (suspensory ligament) and allowing the lens, which is elastic, to become more





#### MORPHOLOGICAL FORMS OF MUSCLE

spherical. Accommodation for near vision is accomplished by this process.

**constrictor m. of pharynx** A muscle that constricts the pharynx; it is important for swallowing.

**deep neck m.** One of the various neck muscles that surround the vertebral column and base of the skull and which are contained in the prevertebral cylinder of deep cervical fascia. All these muscles are innervated by cervical spinal nerves, and most of these muscles act primarily to move and stabilize the head.

**deltoid m.** The large triangular muscle that covers the shoulder joint. The deltoid muscle is referred to by its anterior, middle, and posterior fibers and is controlled by the axillary nerve.

**digastric m.** A muscle that lowers the jaw. SEE: *bipennate m.* for illus.

**erector spinae m.'s** Three vertical bands of back muscles: the iliocostalis, longissimus, and spinalis. The erector spinae muscles begin in a wide tendon running along the iliac crest to the sacrum and in the lower lumbar and sacral spinous processes, they end along the back in angles of the lower ribs and on the transverse processes of the thoracic and cervical vertebrae, they are innervated by dorsal rami of the spinal nerves, and they act to extend (bend backward) the vertebral column and neck or to twist the back.

**external intercostal m.** The outer layer of muscles between the ribs, originating on the lower margin of each rib and inserted on the upper margin of the

next rib. During inspiration, they draw adjacent ribs together, pulling them upward and outward, and increasing the volume of the chest cavity. They are controlled by the intercostal nerves.

**external oblique m.** Either of a pair of muscles of the lower trunk originating on the lower eight ribs and inserted in the iliac crest and linea alba. Each muscle laterally flexes the vertebral column; both muscles together flex the vertebral column and compress the abdomen. The muscles are controlled by the intercostal nerves VII through XII.

**extraocular eye m.** ABBR: EOM. A muscle attached to the eyeball that controls eye movement and coordination. The six extraocular muscles are the inferior and superior oblique muscles, and the lateral, medial, inferior, and superior rectus muscles. SEE: *extraocular* for illus.

**extrinsic m.** ABBR: EM. The muscles outside an organ that control its position, such as the e.m. of the eye or tongue.

**fibularis longus m.** A muscle along the outside of the leg that bends the foot outward at the ankle. The fibularis longus originates from the head and upper lateral surface of the fibula, runs in a bony groove along the bottom of the foot to attach on the other side at the base of the first metatarsal and the neighboring medial cuneiform bone, and acts to evert the foot; it is innervated by the superficial fibular nerve (L5, S1, S2). SYN: *peroneus longus m.*

**fixation m.** A muscle that steadies a

part so that more precise movements in a related structure may be accomplished.

**flexor pollicis brevis m.** A muscle of the hand originating on the flexor retinaculum and trapezium, trapezoid, and capitate and inserted on the lateral side of the base of the first phalanx of the thumb. It flexes the thumb at both the carpometacarpal joint and the metacarpophalangeal joint and is controlled by the median and the ulnar nerves.

**fusiform m.** A muscle resembling a spindle. SEE: *bipennate m.* for *illus.*

**gastrocnemius m.** (gäs"trök-nē'mē-ūs) A large superficial muscle along the back of the leg. The gastrocnemius has two heads, one originating along the outside (lateral surface) of the head and condyle of the femur and the other originating along the medial popliteal surface of the femur. Both heads attach via the calcaneal (Achilles) tendon to the back surface of the calcaneus (heel) bone. The gastrocnemius plantar flexes the ankle, flexes the knee, and allows a person to stand on tiptoes. It is innervated by the tibial nerve (S1, S2).

**gemellus m.** (jēm-ē'l'ūs) Either of the two muscles (gemelli muscles) that attach to the medial surface of the greater trochanter of the femur (i.e., the trochanteric fossa) where they mesh with the tendon of the obturator internus muscle. The superior gemellus muscle arises from the ischial spine and is innervated by the nerve to the obturator internus; the inferior arises from the ischial tuberosity and is innervated by the femoral nerve. Both muscles hold the head of the femur in the acetabulum, rotate (laterally) the thigh in extension, and abduct the thigh when it is flexed.

**genioglossus m.** A fan-shaped extrinsic tongue muscle that makes up most of the volume of the tongue. The genioglossus originates from the inside of the anterior base of the mandible. Most of its muscle fibers attach broadly along the intrinsic tongue muscles of the top of the tongue. Some of the lower genioglossal fibers attach along the body of the hyoid bone. The genioglossus pulls the tongue down and forward. It is innervated by cranial nerve XII (hypoglossal nerve).

**gluteus maximus m.** A muscle of the buttock originating on the iliac crest, sacrum, and coccyx and inserted in the fascia lata and shaft of the femur below the greater trochanter. It extends and laterally rotates the thigh and is controlled by the inferior gluteal nerve.

**gluteus medius m.** A muscle of the hip originating on the lateral surface of the ilium and inserted in the greater trochanter of the femur. It abducts and

medially rotates the thigh and is controlled by the superior gluteal nerve.

**hyoglossus m.** A sheet of muscle extending up from the hyoid bone to the ipsilateral base and sides of the tongue. It depresses the sides of the tongue and is innervated by cranial nerve XII (hypoglossal nerve).

**iliacus m.** A muscle of the hip and thigh originating on the iliac fossa and inserted (with the psoas major, forming the iliopsoas) in the lesser trochanter of the femur. The psoas major and the iliacus flex and laterally rotate the thigh. If the thigh is fixed, the iliacus flexes the trunk at the hip. The iliacus is controlled by the femoral nerve.

**infraspinatus m.** A muscle of the back originating in the infraspinous fossa of the scapula and inserted in the greater tubercle of the humerus. It adducts and laterally rotates the arm and is controlled by the suprascapular nerve from the brachial plexus.

**internal intercostal m.** The muscles between the ribs, lying beneath the external intercostals. During expiration, they pull the ribs downward and inward, decreasing the volume of the chest cavity and contributing to a forced exhalation.

**intrinsic m.** A muscle that has both its origin and insertion within a structure, as intrinsic muscles of the tongue, eye, hand, or foot.

**involuntary m.** A muscle not under conscious control; mainly smooth and cardiac muscle.

**laryngeal m. (intrinsic)** Any of the six short muscles inside the larynx that move the vocal apparatus and (except for the cricothyroid muscle) are innervated by the recurrent laryngeal branch of the vagus nerve (CN X).

**latissimus dorsi m.** A large triangular muscle of the back originating on the lower six thoracic and the lumbar vertebrae, the lower four ribs, the sacrum, and the iliac crest and inserted in the intertubercular groove of the humerus. It adducts, extends, and medially rotates the arm and is controlled by the thoracodorsal nerve.

**lumbrical m.** In the hands and feet, any of the four intrinsic muscles that flex the straightened digits. They originate on the carpal or tarsal bones and attach on the proximal phalanges of digits 2 to 5. They act to flex the metacarpophalangeal joints while extending the interphalangeal joints.

**mastication m.** Any of the chewing muscles innervated by the mandibular division of cranial nerve V (the trigeminal nerve). These muscles are the masseter, temporalis, and medial and lateral pterygoids.

**mimetic m.** Superficial muscles of the

facial region controlling skin movement that produce the facial expressions. Also called *muscles of facial expression*.

**multipennate m.** A muscle with several tendons of origin and several tendons of insertion, in which fibers pass obliquely from a tendon of origin to a tendon of insertion on each side. SEE: *bipennate m.* for illus.

**nasalis m.** The major nose muscle and a muscle of facial expression.

**nonstriated m.** Smooth muscle.

**obturator m.** Either of the two muscles on each side of the pelvic region that rotate the thighs outward.

**opponens pollicis m.** A muscle of the hand originating on the trapezium and flexor retinaculum and inserted in the first metacarpal. It flexes and adducts the thumb (brings it across the palm) and is controlled by the median nerve.

**orbicular m.** Muscle encircling an opening.

**orbicularis oculi m.** A circular muscle of the face originating on the frontal bone and maxilla of the medial wall of the orbit and inserted in the eyelid and skin encircling the eye. It closes the eye and is controlled by the facial nerve.

**orbicularis oris m.** A circular muscle of the face originating on other muscles around the mouth whose mainly circular fibers are inserted in the skin at the corners of the mouth. It closes and purses the lips and is controlled by the facial nerve.

**papillary m.** A column of myocardium that arises from the floor of each ventricle. It is attached to the chordae tendinae, which anchor the flaps of the atrioventricular valves during ventricular systole.

**pectinate m.** A ridge of myocardium on the inner wall of either atrium of the heart.

**peroneus longus m.** Fibularis longus muscle.

**postaxial m.** A muscle on the posterior or dorsal aspect of a limb.

**postural m.** Antigravity muscles.

**preaxial m.** A muscle on the anterior or ventral aspect of a limb.

**procerus m.** A muscle that arises in the skin over the nose and is connected to the forehead. It acts to draw the eyebrows down.

**rectus abdominis m.** A muscle of the abdomen originating on the pubic symphysis and crest and inserted in the cartilage of the fifth through seventh ribs and the xiphoid process of the sternum. It flexes the vertebral column, compresses or flattens the abdomen, and is controlled by the seventh through twelfth intercostal nerves.

**rectus femoris m.** A muscle of the anterior thigh (the anterior, central component of the quadriceps femoris) origi-

nating on the iliac spine and the upper margin of the acetabulum and inserted in the tibial tuberosity via the patellar ligament. It extends the leg, contributes to flexion of the thigh, and is controlled by the femoral nerve.

**m. of respiration** SEE: under *respiration*.

**semimembranosus m.** A muscle of the posterior thigh (the hamstring group) originating on the ischial tuberosity and inserted in the medial condyle of the tibia. It extends the thigh, flexes and medially rotates the leg, and is controlled by the sciatic nerve.

**serratus anterior m.** A muscle of the upper trunk originating on the first eight or nine ribs and inserted on the anterior surface of the vertebral border and inferior angle of the scapula. It keeps the scapula in position close to the chest wall, abducts the scapula, and turns it upward to raise the point of the shoulder. If the scapula is fixed, the serratus anterior can elevate the ribs. The serratus anterior is controlled by the long thoracic nerve.

**skeletal m.** Muscle tissue that is attached primarily to the bone, moves the skeleton, and is under conscious control. The cells have distinct striations. SYN: *striated m.*; *voluntary m.*

**smooth m.** Muscle tissue that lacks cross striations on its fibers. Its action is involuntary and it is found principally in visceral organs. SYN: *nonstriated m.*; *unstriated m.*

**somatic m.** Muscle derived from mesodermal somites, including most skeletal muscle.

**sphincter m.** A muscle that encircles a duct, tube, or orifice, thus controlling its opening.

**sphincter m. of urinary bladder** The smooth muscle fibers around the origin of the urethra. Contraction of this muscle prevents urination; relaxation permits it.

**stabilizer m.** A muscle that supports a body segment so muscles attached to it can function.

**striated m.** Skeletal muscle.

**supraspinatus m.** The uppermost of the rotator cuff muscles. It originates along the supraspinatus fossa of the scapula, attaches to the top (superior facet) of the greater tubercle of the humerus, works with the deltoid to abduct the arm, and holds the head of the humerus in the glenoid fossa. It is innervated by the suprascapular nerve.

**synergistic m.** Muscles aiding one another in function.

**teres major m.** A muscle of the shoulder originating on the inferior angle of the scapula and inserted in the lesser tubercle of the humerus. It extends, adducts, and medially rotates the arm and



is controlled by the lower subscapular nerve.

**thenar m.** The abductor or flexor muscle of the thumb.

**thyroepiglottic m.** A muscle arising on the inner surface of the thyroid cartilage. It extends upward and backward and is inserted on the epiglottis. It depresses the epiglottis.

**tibialis anterior m.** A muscle of the leg originating on the lateral condyle of the tibia and the interosseus membrane between the tibia and the fibula and inserted in the first cuneiform and first metatarsal bones. It dorsiflexes and inverts the foot, supports the arch, and is controlled by the deep peroneal nerve.

**tonic m.** Slowly contracting muscle fibers that cannot propagate an action potential along their cell membranes. Tonic muscles are uncommon in humans and found only in the extraocular eye muscles, stapedius muscle (in the middle ear), and intrafusal fibers of the muscle spindles.

**triangular m.** A flat muscle with a broad origin and narrow insertion.

**tricipital m.** A muscle with three tendons of origin and a single, common insertion.

**twitch m.** Muscle fibers that can conduct axon potentials along their cell membranes. Almost all skeletal muscle in humans is twitch muscle. A very small number of muscles in humans are tonic muscles.

**unipennate m.** A muscle whose fibers converge on only one side of a tendon. SEE: *bipennate m.* for *illus.*

**unstriated m.** Smooth muscle.

**vastus intermedius m.** A muscle of the anterior thigh (the central component of the quadriceps femoris) originating on the anterior and lateral shaft of the femur and inserted in the tibial tuberosity via the patellar ligament. It extends the leg and is controlled by the femoral nerve.

**vastus lateralis m.** A muscle of the anterior thigh (the lateral component of the quadriceps femoris) originating on the linea aspera and the greater trochanter of the femur and inserted in the tibial tuberosity via the patellar ligament. It extends the leg and is controlled by the femoral nerve.

**vastus medialis m.** A muscle of the anterior thigh (the medial component of the quadriceps femoris) originating on the linea aspera and intertrochanteric line of the femur and inserted in the tibial tuberosity via the patellar ligament. It extends the leg and is controlled by the femoral nerve.

**voluntary m.** Skeletal muscle.

**muscle contraction, concentric** Contraction of a muscle in which the extended muscle is shortened. An example would

be pulling the body up by grasping a bar over the head.

**muscle contraction, eccentric** Lengthening of the muscle as it contracts against resistance. An example would be the lowering of the body from a position in which the body was supported by the flexed arms, i.e., holding on to a bar above the head.

**muscle cramps** Painful involuntary contractions of muscles. They may be due to ischemia of the muscle(s), dehydration, or electrolyte imbalance.

Cramps associated with exercise may be alleviated, if not abolished, by flexing (stretching) the involved muscle group. At the same time, gentle massage to the area will help.

Active muscle cramps, an unwanted tonic contraction that accompanies a voluntary muscle contraction, occur when the muscle is already in its most shortened position.

**muscle dysmorphia, muscle dysmorphic disorder** A body image disorder principally experienced by males, characterized by excessive fear about one's body size, esp. a concern that one's muscles are not large enough. Boys affected by muscle dysmorphia often take drugs, e.g., androgenic or anabolic steroids, to increase their body size. The syndrome is also known colloquially as *bigorexia*. SYN: *reverse anorexia*.

**muscle fiber** A muscle cell in striated, smooth, or cardiac muscle.

**muscle metabolism** The consumption of energy by all cells, including those of muscle tissue, in order to perform work. The source of chemical energy, adenosine triphosphate (ATP), is metabolized to adenosine diphosphate (ADP). If the energy requirement is short term, the ADP is converted back to ATP. This process goes at a rate too slow to keep up with energy demands during long-term exercise; thus, consumption of other fuels is required. The main sources of fuel for muscles are carbohydrates and lipids. Prior to being available for intracellular metabolism, glycogen is obtained when glucose is converted to glycogen. The main lipid fuel is free fatty acids present in plasma. Carbohydrates can be metabolized in either the presence (aerobically) or absence (anerobically) of oxygen, but lipids can be metabolized only aerobically. During light exercise or when the body is at rest, muscle metabolism is usually entirely aerobic and the source of fuel is the free fatty acids in plasma. During intense exercise, metabolism of the fatty acids cannot keep up with the demand; thus, glycogen is used. However, as intense exercise continues, glycogen stores are exhausted and free fatty acids become the principal source of energy. Trained athletes have an increased ability to metabolize

fatty acids as compared with sedentary individuals. This permits athletes to exercise longer and at higher work rates than would be the case if they were not trained. Athletic trainers found that muscle glycogen stores could be increased by what is known as carbohydrate loading. This regimen will permit the athlete to exercise for a much longer period than would be possible if carbohydrate loading had not been done prior to exercising. SEE: *carbohydrate loading*.

**muscle phosphorylase deficiency** McArdle's disease.

**muscle soreness** A nonspecific term used to describe general discomfort in a muscle or muscle group that is the result of disease, trauma, or exertion. SEE: *delayed onset m.s.*

**delayed-onset m.s.** ABBR: DOMS. Muscle tenderness, decreased strength, and decreased range of motion that develops 12 to 24 hr following strenuous exercise and peaks in intensity between 24 to 48 hr, although symptoms may persist 72 hr or more. DOMS may result from microtearing of muscular fibers, lactic acid accumulation, local inflammatory response, and/or physiochemical changes within the muscle fibers. Muscle soreness is most pronounced following eccentric exercise. SEE: *eccentric exercise; inflammation*.

**muscular** (müs'kü-lär) [L. *muscularis*]  
1. Pert. to muscles. 2. Possessing well-developed muscles.

**muscular contractions, graduated**

1. The mechanism by which all smooth, coordinated muscle activity occurs. Normally controlled involuntarily by the central nervous system, motor units are recruited and stimulated at an intensity needed to accomplish a desired activity. 2. Contractions accomplished by use of electric current of varying strength and duration. This method is used in muscles with an intact nerve supply when muscles are atonic, wasted away, or when voluntary exercise is not feasible, and in denervated muscles, as in cases following nerve injury or poliomyelitis.

**muscular dystrophy** One of nine distinct genetic syndromes that affect muscular strength and action, some of which first become obvious in infancy, and others of which develop in adolescence or young adulthood. The syndromes are marked by either generalized or localized muscle weakness, difficulties with walking or maintaining posture, muscle spasms, and in some instances, neurological, behavioral, cardiac, or other functional limitations. Detailed information about the disease can be obtained from the Muscular Dystrophy Association website at [www.mdaua.org](http://www.mdaua.org).

**muscularis** (müs'kü-lä'ris) [L.] The

smooth muscle layer of an organ or tubule.

**m. mucosae** Smooth muscle tissue of a mucous membrane.

**muscular system** The system that includes the skeletal muscles and their tendons. SEE: *muscle*.

**muscular tissue** SEE: under *muscle*.

**musculature** (müs'kü-lä-chür) [L. *musculus*, muscle] The arrangement of muscles in the body or its parts.

**musculo-** [L. *musculus*, muscle] Combining form meaning *muscle*.

**musculoaponeurotic** (müs'kü-lō-äp'ō-nū-rōt'ik) Composed of muscle and an aponeurosis of fibrous connective tissue.

**musculocutaneous** (müs'kü-lō-kū-tän'ē-üs) [ʹ + *cutis*, skin] 1. Pert. to the muscles and skin. 2. Supplying or affecting the muscles and skin. 3. The specific nerve from the brachial plexus that innervates the coracobrachialis, biceps brachii, and brachialis muscles and provides cutaneous sensory distribution to the forearm.

**musculofascial** (müs'kü-lō-fäsh'ē-äl) Composed of muscle and fascia.

**musculomembranous** (müs'kü-lō-mēm'brän-üs) Pert. to or consisting of muscle and membrane.

**musculophrenic** (müs'kü-lō-frēn'ik) Pert. to muscles of the diaphragm.

**musculoskeletal** (müs'kü-lō-skēl'ē-täl) Pert. to the muscles and skeleton.

**musculospiral** (müs'kü-lō-spī'räl) [ʹ + *spira*, coil] Concerning the musculospiral (radial) nerve.

**musculotendinous** (müs'kü-lō-tēn-dī-nī'tis) Composed of both muscle and tendon.

**musculus** (müs'kü-lūs) [L.] Muscle.

**mushroom** [Fr. *mousseron*] Umbrella-shaped fungus belonging to the class Basidiomycetes. Mushrooms grow on decaying vegetable matter and are generally found in woods and dark, damp places. Some of the poisonous varieties include *Amanita* species and toadstools. SEE: *amanita; toadstool*.

COMPOSITION: Mushrooms are low in carbohydrates and fats, and high in protein. Their relationship and similarity to poisonous fungi are so close that only those who are thoroughly capable of distinguishing the poisonous varieties from the edible ones should attempt to gather and eat them.

**mushroom and toadstool poisoning** Mushroom poisoning.

**musicians, medical problems of** Profession-related injuries, most commonly overuse injuries involving muscle-tendon units. The pain associated with this type of injury may be mild or severe enough to prevent use of the affected part. Those who play string instruments have more difficulty than those who use percussion instruments; women are more commonly affected

than men. Focal dystonias may involve the hands or the muscles of the face and lips, and may be severe. Stress and anxiety may interfere with or prevent performing.

**TREATMENT:** Treatment consists of rest for physical difficulties and beta-adrenergic blocking agents for stress and anxiety.

**musicogenic** (mū'zī-kō-jěn'ík) [L. *musica*, music, + *gennan*, to produce] Caused by music, esp. epileptic convulsions.

**musicogenic epilepsy** Epilepsy in which the convulsive attacks are induced by music. SEE: *epilepsy*.

**musicomania** (mū'zīk-ō-mā'nē-ā) [" + Gr. *mania*, madness] Insane love of music.

**music therapy** [" + *therapeia*, treatment] Treatment of disease, esp. mental illness, with music.

**musk** (müsk) [Sanskrit *muska*, testicle] An oily secretion obtained from a gland beneath the abdominal skin of male mammals. It has a strong odor and plays a part in animal communication. It is commercially used in manufacturing perfume.

**mussel** A bivalve mollusk belonging to the class Pelecypoda.

**Musset's sign** (mū-sāz') [Louis C. A. de Musset, Fr. poet, 1810–1857] Repetitive jerking movements of the head and neck, in synchrony with ventricular contractions of the heart, seen in advanced aortic regurgitation or aortic aneurysm.

**mustard** [Fr. *moutarde*] Yellow powder of mustard seed used as a counterirritant, rubefacient, emetic, stimulant, and condiment. SEE: *plaster*.

**nitrogen m.** SEE: *nitrogen mustards*.

**mustard gas** SEE: *under gas*.

**Mustard procedure** (müs'ātrd) A surgical procedure to repair transposition of the great vessels, in which a baffle is placed to shunt blood between the right and left atria, allowing more oxygenated blood to be circulated systemically.

**mutacism** (mū'tā-sīzm) Mytacism.

**mutagen** (mū'tā-jěn) [L. *mutare*, to change, + Gr. *gennan*, to produce] Any agent that causes genetic mutations. Many medicines, chemicals, and physical agents such as ionizing radiation and ultraviolet light have this ability. SEE: *teratogen*. **mutagenic, adj.**

**mutagenesis** (mū'tā-jěn'ē-sis) The induction of genetic mutation. SEE: *mutation*; *teratogenesis*.

**mutant** (mū'tānt) [L. *mutare*, to change] SEE: *under gene*.

**mutase** (mū'tās) [" + *ase*, enzyme] **1.** Enzyme that accelerates oxidation-reduction reactions through activation of oxygen and hydrogen. **2.** A food preparation made from leguminous plants high in protein content.

**mutation** (mū-tā'shūn) **1.** Change;

transformation; instance of such change. **2.** Permanent variation in genetic structure with offspring differing from parents in a characteristic; differentiated from gradual variation through many generations. **3.** A change in a gene potentially capable of being transmitted to offspring.

**conservative m.** A change in DNA or RNA that results in the replacement of an amino acid with one that has a similar structure, such as glycine replaced by alanine.

**escape m.** A mutation in a cell or organism that allows it either to resist treatment or to avoid destruction by the immune system.

**factor V Leiden m.** An autosomal dominant mutation in coagulation factor V that is found in about 5% of all whites. It produces a hypercoagulable state as a result of inherited resistance to activated protein C. Clinically, it is found in many patients with deep venous thrombosis.

**founder m.** An altered gene that proliferates in a kinship or community from a single identifiable ancestor.

**frameshift m.** The deletion or insertion of one or two DNA nucleotides that alters the reading (the "transcription") of each subsequent triplet.

**gain-of-function m.** A change in DNA that results in the synthesis of a protein with a new or different function. Gain-of-function mutations are typically dominant.

**germline m.** A mutation in the genetic content of a sperm or egg.

**induced m.** Mutation resulting from exposure to x-rays, radioactive substances, and certain drugs and chemicals.

**loss-of-function m.** A change in DNA that results in the decreased production of a protein or a protein with impaired function. Loss-of-function mutations are usually recessive.

**missense m.** A substitution of a single DNA nucleotide for another. This results in the transcription of a different amino acid than is normally found in the protein coded by the gene. Missense mutations are found in diseases such as sickle cell anemia. Red blood cell sickling is caused by the replacement of the amino acid glutamic acid by valine in the sixth position of the beta hemoglobin chain.

**natural m.** Mutation occurring without artificial external intervention. Natural mutation is thought to be a primary factor in evolutionary change.

**nonconservative m.** A change in DNA that results in the replacement of an amino acid with one that is not biochemically similar, such as serine replaced by proline.

**nonsense m.** A change in a single

DNA nucleotide that creates a stop codon (TGA, TAA, TAG) that results in the premature termination of protein synthesis (i.e., the synthesis of an incomplete protein).

**null m.** 1. A change in DNA or RNA that does not result in any change in the protein product or content of a cell. 2. A change in a nucleotide that results in the complete failure of protein synthesis by a cell.

**point m.** A change in only one nucleotide in the DNA sequence of a gene. Frame-shift, conservative, nonconservative, missense, nonsense, and silent mutations are examples of point mutations.

**regulatory m.** A change in DNA or RNA that alters the expression of other genes by a cell.

**silent m.** A change in a single nucleotide that does not change the amino acid sequence of a protein (e.g., in DNA, the codons AAA and AAG both designate the amino acid phenylalanine).

**somatic m.** Mutation occurring in somatic cells.

**mute** (müt) [L. *mutus*, dumb] 1. Lacking the ability to speak. 2. One who is unable to speak. 3. Refraining from speech; silent.

**deaf m.** SEE: *deaf-mute*.

**mutene** (mü'tē-in, tēn") [Fm. *mut(ation)* + (*pro*)*tein*] A protein produced by a genetically engineered mutation.

**mutilate** [L. *mutilatus*, to maim] To deprive of a limb or a part; to maim or disfigure.

**mutilation** (mü'tī-lā'shŭn) The removal, destruction, or injury of a conspicuous or essential body part or organ; maiming.

**mutism** (mü'tīzm) [L. *mutus*, dumb] 1. Inability or unwillingness to speak. 2. Persistent inhibition of speech, seen in some severe forms of mental illness.

**akinetic m.** The condition of being immobile and silent while partially or fully awake. This may be caused by lesions of the frontal lobes of the brain or by hydrocephalus.

**elective m.** Selective m.

**selective m.** A form of social phobia, typically first identified in young children, in which the child fails to speak in certain public settings but has normal speech at other times. SYN: *elective mutism*.

**mutual help group** (mü'choo-ĭl) [L. *mutuus*, reciprocal] Support group.

**mutualism** (mü'tū-äl-izm) [L. *mutuus*, exchanged] A form of symbiosis in which organisms of two different species live in close association to the mutual benefit of each.

**mutualist** (mü'tū-äl-ĭst) Organism associated with another organism to the mutual benefit of each.

**mv** *millivolt*.

**MW** *molecular weight*.

**MWIA** *Medical Women's International Association*.

**my-, myo-** [Gr. *mys*, muscle] Prefixes denoting *muscle*.

**myalgia** (mī-äl'jē-ä) [" + *algos*, pain] Tenderness or pain in the muscles; muscular rheumatism.

**myasis** (mī-ä'sis) [Gr. *myia*, a fly] Myiasis.

**myasthenia** (mī-äs-thē'nē-ä) [Gr. *mys*, muscle, + *astheneia*, weakness] Muscular weakness and abnormal fatigue. **myasthenic, adj.**

**m. gravis** ABBR: MG. An autoimmune motor disorder marked by muscular fatigue that develops with repetitive muscle use and improves with rest or with the application of a cold pack. It is caused by antibodies to the acetylcholine receptor in the neuromuscular junction and a decrease in receptor sites for acetylcholine. Because the smallest concentration of acetylcholine receptors in the body is in the cranial nerves, weakness and fatigue of the eye muscles, muscles of mastication, and pharyngeal muscles are the most prominently affected in most patients, but any (skeletal) muscle group may be involved. The disease is rare, affecting about 14 persons out of 100,000. SEE: *Nursing Diagnoses Appendix*.

**DIAGNOSIS:** Diagnosis is made on the basis of patient history, a thorough neurological examination, electromyography, repetitive nerve stimulation, a Tensilon (edrophonium chloride) test, or some combination of these tests. Intravenous injection of Tensilon significantly improves muscle weakness within 60 sec., lasting up to 30 min. Acetylcholinesterase receptor antibody titers in the blood are elevated in about 50% to 70% of patients with myasthenia gravis.

**SYMPTOMS:** Clinical signs include drooping of the upper eyelid (ptosis) and double vision (diplopia) due to fatigue and weakness in the extraocular muscles, and difficulty chewing and swallowing from impaired facial and pharyngeal muscles. Speech that becomes progressively more dysarthric during prolonged dialogue is another common symptom. Symptoms are exacerbated by repetitive muscle use, and in some patients, by menses, emotional stress, prolonged exposure to sunlight or cold, and infections. Myasthenia gravis crisis is a sudden exacerbation of symptoms with respiratory failure.

**TREATMENT:** The primary treatment is with anticholinesterases (drugs that prevent the breakdown of acetylcholine at the neuromuscular junction) and immunosuppressive agents. Anticholinesterase therapy often becomes less effective as the disease worsens. In

selected patients, removal of the thymus, plasmapheresis, or immunoglobulin therapy is used.

**PATIENT CARE:** The patient with MG should seek medical attention immediately if he or she experiences difficulty breathing, talking, chewing, or swallowing. These symptoms may herald a myasthenic crisis. In crisis the patient's cardiovascular, neurologic, and respiratory status should be monitored in an intensive care unit. Suctioning the airway and postural changes may sometimes maintain adequate oxygenation and ventilation. If it does not the patient will need intubation and positive-pressure ventilation as life support. Exercise, meals, and care activities should be planned around medication-induced energy peaks. The patient should be taught that soft but solid foods are more easily managed than liquids when swallowing is difficult. Additional help for patients is available through support groups and Internet-based resources such as the Myasthenia Gravis Foundation of America ([www.myasthenia.org](http://www.myasthenia.org)).



Because edrophonium occasionally causes significant bradycardia or asystole, atropine should be kept at the bedside of any patient given this medication.

**myasthenic reaction** A gradual decrease and eventual cessation of muscle contractions when a muscle is stimulated repeatedly.

**myotonia** (mī-ā-tō'nē-ā) Deficiency or loss of muscular tone.

**m. congenita** Myotonia congenita.

**myatrophy, myoatrophy** (mī-āt'rō-fē) Muscular wasting.

**myc-** SEE: *myco-*.

**mycelioid** (mī-sē'lē-oyd) [ + *helos*, nail, + *eidōs*, form, shape] Moldlike; resembling mold colonies in which filaments radiate from a center, said of bacterial colonies.

**mycelium** (mī-sē'lē-ūm) [Gr. *mykes*, fungus, + *helos*, nail] The mass of filaments (hyphae) that constitutes the vegetative body of fungi such as molds.

**mycetes** (mī-sē'tēz) The fungi.

**mycetism, mycetismus** (mī'sē-tīzm, mī-sē-tīzm) [ + *ismos*, condition] Poisoning from eating fungi, esp. poisonous mushrooms.

**mycetogenetic** (mī-sē'tō-jěn-ēt'ik) [ + *gennan*, to produce] Induced by fungi.

**mycetoma** (mī-sē-tō'mā) [ + *oma*, tumor] A syndrome caused by a variety of aerobic actinomycetes and fungi. It is characterized by swelling and suppuration of subcutaneous tissues and formation of sinus tracts, with granules present in the pus draining from the

tracts. These tracts usually appear on the lower body.

**TREATMENT:** Sulfones, trimethoprim and sulfamethoxazole, or sulfonamides may benefit lesions caused by actinomycetes. If lesions are due to fungi, there is no specific therapy.

**-mycin** (mī'sin) A suffix used in pharmacology to designate any antibiotic derived from species of *Streptomyces*.

**myco, myc-** [Gr. *mykes*, fungus] Combining forms meaning *fungus*.

**mycobacteriosis** (mī'kō-bāk-tēr'ē-ō'sis) An infection caused by any mycobacterium.

**Mycobacterium** (mī'kō-bāk-tēr'ē-ūm) [ + *bakterion*, little rod] A genus of acid-fast, nonmotile, non-spore-forming bacilli of the family Mycobacteriaceae, which includes the causative agents of tuberculosis and leprosy. The organisms are slender, nonmotile, gram-positive rods and do not produce spores or capsules.

Species include *M. africanum*, *M. avium intracellulare*, *M. bovis*, *M. chelonae*, *M. fortuitum*, *M. gastri*, *M. goodii*, *M. kansasii*, *M. marinum*, *M. scrofulaceum*, *M. terrae*, *M. triviale*, *M. smegmatis*, and *M. xenopi*.

**M. avium complex** ABBR: MAC, MAI. An atypical mycobacterium that causes systemic bacterial infection in patients with advanced immunosuppression (esp. those with acquired immunodeficiency syndrome [AIDS]). It occasionally causes lung infections in patients with chronic obstructive lung disease. SYN: *Mycobacterium avium-intracellulare complex*.

**SYMPTOMS:** MAC infection in persons with AIDS can cause fatigue, fever, weight loss, cachexia, pancytopenia, and death.

**TREATMENT:** Multiple antimicrobial agents, given at the same time and for long courses, are required to treat MAC. Combination therapy may include a macrolide with drugs such as rifabutin, ethambutol, ciprofloxacin, amikacin, and/or clofazimine.

**M. avium-intracellulare complex** *m. avium complex*.

**M. bovis** The organism that causes tuberculosis in cows and, less commonly, in humans.

**M. kansasii** A cause of tuberculosis-like pulmonary disease in humans.

**M. leprae** The causative agent of leprosy.

**M. marinum** An atypical mycobacterium that thrives in water, and produces skin infection resembling sporotrichosis. It is the cause of swimming pool granuloma.

**nontuberculous M.** ABBR: NTM. Any mycobacterium that does not cause tuberculosis. There are four main classes. Three of these groups grow more

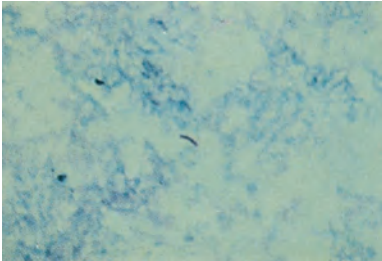


slowly than *M. tuberculosis* and one group grows more rapidly. These organisms may cause various skin, lung, or other conditions or they may be harmless.

***M. simiae-avium* group** ABBR: SAV mycobacterium. An emerging group of nontuberculous bacilli found widely in nature. They are slow-growing, acid-fast, and occasionally cause opportunistic infections in immunocompromised patients. They are generally resistant to most antituberculous drugs.

***M. triplex*** An emerging but still uncommon acid-fast bacillus that grows slowly. It differs from *M. avium* in having distinct mycolic acids and ribosomal RNA.

***M. tuberculosis*** The causative agent of tuberculosis in humans. SEE: *tuberculosis*; *illus.*



#### MYCOBACTERIUM TUBERCULOSIS

Acid-fast bacillus in sputum (orig. mag.  $\times 500$ )

***M. ulcerans*** A species that causes infections of skin and its underlying soft tissues. It is a common cause of illness in tropical and subtropical Africa and South America, where it is responsible for Buruli ulcer. It is thought to be the third most common disease-causing mycobacterium (after *M. tuberculosis* and *M. leprae*) in humans.

**mycochemical** (mī'kō-kēm'ī-kīl) [" + "] Any chemical compound derived from or naturally produced by a fungus.

**mycoderma** (mī'kō-dēr'mā) [Gr. *mykos*, mucus, + *derma*, skin] Mucous membrane.

**mycoid** (mī'koyd) [" + *eidōs*, form, shape] Fungus-like.

**mycology** (mī-kōl'ō-jē) [" + *logos*, word, reason] The science and study of fungi.

**mycophenolate** (mī-kō-fē'nō-lāt) An immunosuppressive drug used to prevent organ rejection after transplantation.

**mycophthalmia** (mī-kōf-thāl'mē-ā) Ophthalmia resulting from fungus infection.

**Mycoplasma** (mī'kō-plāz'mā) A group of bacteria that lack cell walls and are highly pleomorphic. There are more than 70 organisms in this group, includ-

ing 12 species that infect humans. Tetracyclines or erythromycins are effective for treatment of *M. pneumoniae* and *M. hominis* infections. Other treatment choices include some cephalosporins or fluoroquinolones.

***M. genitalium*** A species of *Mycoplasma* that is the smallest free-living organism known. It, like *M. hominis*, can cause nongonococcal urethritis.

***M. hominis*** A species of *Mycoplasma* that can cause genital tract infections (nongonococcal urethritis).

***M. pneumoniae*** A species of *Mycoplasma* that can cause infections of the upper respiratory tract and the lungs (mycoplasma pneumoniae).

**mycoprotein** (mī'kō-prō'tēn,-tē-in) [" + "] A meat substitute made from fungi. It can be shaped, textured, and flavored, provides protein and fiber, and is low in saturated fats.

**mycose** (mī'kōs) Trehalose.

**mycosis** (mī-kō'sīs) [" + *osis*, condition] Any disease induced by a fungus, or resembling a fungal disease.

***m. fungoides*** ABBR: MF. Cutaneous T-cell lymphoma, esp. when the disease is first clinically apparent on the skin. The skin is marked by irregularly shaped macules, plaques, or nodules, which usually first appear on the trunk and may sometimes cause considerable itching. The rash may be difficult to diagnose or may be misdiagnosed as another form of dermatitis. Biopsy specimens may reveal atypical-appearing lymphocytes in the epidermis or collections of malignant lymphocytes in clusters called Pautrier's microabscesses. Eventually (e.g., 10 or more years after diagnosis), the malignant cells disseminate throughout the skin and into lymph nodes and internal organs.

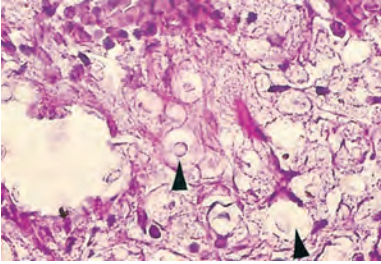
**TREATMENT:** Topical nitrogen mustard, phototherapy with psoralens and ultraviolet light, systemic chemotherapy, interferons, extracorporeal phototherapy, and electron beam radiation of the skin have all been used. The disease may be curable when treated in its very earliest stage.

**NOTE:** The name "mycosis fungoides" is deceptive, as the disease is not fungal in origin.

**superficial m.** Any of a group of fungus infections of the skin. Included in this group are erythrasma, tinea barbae, tinea capitis, tinea corporis, tinea cruris, tinea favosa, tinea pedis, tinea unguium, and trichomyces axillaris.

**systemic m.** Any of a group of deep fungus infections involving various bodily systems or regions. Included in this group are aspergillosis, blastomycosis, chromoblastomycosis, coccidioidomycosis, cryptococcosis, geotrichosis, histoplasmosis, maduromycosis, moniliasis, mucormycosis, nocardiosis, penicil-

liosis, rhinosporidiosis, and sporotrichosis. **SEE:** *illus.*



### SYSTEMIC MYCOSIS

Cryptococcosis of lung; arrows indicate fungus (orig. mag.  $\times 450$ )

- mycostasis** (mī-kōs'tā-sīs) [Gr. *mykes*, fungus, + *stasis*, standing] Stopping the growth of fungi.
- mycostat** (mī'kō-stāt) [ʹ + *statikos*, standing] Any agent that stops the growth of fungi.
- mycotic** (mī-kōt'ik) Caused by or infected with fungus; concerning mycosis. The term is also used improperly to signify a bacterial infection, esp. one that has metastasized from one part of the body (e.g., a heart valve) to another (e.g., the wall of a blood vessel).
- mycotoxicosis** (mī'kō-tōk'si-kō'sīs) [ʹ + *toxikon*, poisoning, + *osis*, condition] Disease either caused by toxins on molds or produced by molds.
- mycotoxins** (mī'kō-tōk'sīnz) Substances produced by mold growing in food or animal feed and causing illness or death when ingested by humans or animals. **SEE:** *ergotism.*
- mydriasis** (mid-rī'ā-sīs) [Gr.] Pronounced or abnormal dilation of the pupil.
- ETIOLOGY:** Causes include fright and other causes of sympathetic nervous system activation, first and third stages of anesthesia, drugs, coma, botulism, and irritation of the cervical sympathetic nerve.
- alternating m.** Mydriasis that affects one eye, then the other.
- paralytic m.** Mydriasis resulting from paralysis of the oculomotor nerve.
- spastic m.** Mydriasis resulting from overactivity of the dilator muscle of the iris or of sympathetic nerves supplying that muscle.
- spinal m.** Mydriasis resulting from irritation of, or a lesion in, the ciliospinal center of spinal cord.
- mydriatic** (mid-rē-āt'ik) **1.** Causing pupillary dilatation. **2.** A drug that dilates the pupil, such as atropine, cocaine, ephedrine, ephthalamine, and homatropine. In certain eye diseases, it is essential that the pupil be dilated during the
- course of treatment to prevent adhesions of the pupils.
- myectomy** (mī-ēk'tō-mē) [Gr. *mys*, muscle, + *ektome*, excision] Excision of a portion of a muscle.
- myel-** **SEE:** *myelo-*.
- myelalgia** (mī-ēl-āl'jē-ā) [Gr. *myelos*, marrow, + *algos*, pain] Pain in the spinal cord or its membranes.
- myelauхе** (mī-ēl-awks'ē) [ʹ + *auхе*, increase] Abnormal enlargement of the spinal cord.
- myelencephalon** (mī'ēl-ēn-sēf'ā-lōn) [Gr. *myelos*, marrow, + *enkephalos*, brain] The most posterior portion of the embryonic hindbrain (rhombencephalon), which gives rise to the medulla oblongata.
- myelic** (mī-ēl'ik) Pert. to the spinal cord.
- myelin** (mī'ē-lin) The phospholipid-protein of the cell membranes of Schwann cells (peripheral nervous system) and oligodendrocytes (central nervous system) that forms the myelin sheath of neurons. It acts as an electrical insulator and increases the velocity of impulse transmission. Another difference between central and peripheral myelin sheaths is that a single oligodendroglial cell can put out many tongues of cell membrane and form separate myelin sheaths for many different axons, whereas each Schwann cell ensheaths only one axon. **SEE:** *neuron* for *illus.*
- myelinic** (mī-ēl-in'ik), *adj.*
- myelination** (mī'ēl-in-ā'shūn) [Gr. *myelos*, marrow] Process of growth of a myelin sheath around nerve fibers. **SYN:** *myelinization.*
- myelinization** (mī'ēl-in-ī-zā'shūn) Myelination.
- myelinoclasia** (mī'ē-lin-ōk'lā-sīs) [ʹ + *klasis*, breaking] Process of destruction of myelin.
- myelinogenetic** (mī'ēl-in-ō-jēn-ēt'ik) [ʹ + *gennan*, to produce] Producing myelin or a myelin sheath.
- myelinolysis** (mī'ē-lin-ōl'ī-sīs) [ʹ + *lysis*, dissolution] Destruction of the myelin sheaths of nerves.
- myelinopathy** (mī'ē-lī-nōp'ā-thē) Degeneration of the myelin sheaths of neurons, esp. in the central nervous system. **SEE:** *multiple sclerosis.*
- myelinosis** (mī'ēl-in-ō'sīs) [ʹ + *osis*, condition] Fatty degeneration during which myelin is produced.
- myelitis** (mī-ē-lī'tis) [ʹ + *itis*, inflammation] **1.** Inflammation of the spinal cord, resulting from either an infection (e.g., a viral or bacterial infection) or a noninfectious necrosing or demyelinating lesion of the cord. Patients often exhibit flaccid limb paralysis, incontinence, weakness or numbness of the limbs, and other symptoms. **SEE:** *poliomyelitis.* **2.** Inflammation of bone marrow. **SEE:** *osteomyelitis.* **myelitic** (mī-ēl-it'ik), *adj.*

**acute m.** Myelitis that develops rapidly, that is, in hours or days. Myelitis of rapid onset is more likely to be reversible than chronic or slowly developing inflammation of the spinal cord.

**acute ascending m.** Myelitis that moves progressively upward in the spinal cord.

**acute transverse m.** An acute form of myelitis involving the entire thickness of the spinal cord, developing, for example, subsequent to injury to the spinal cord.

**bulbar m.** Myelitis involving the medulla oblongata.

**central m.** Inflammation of the gray matter of the spinal cord.

**compression m.** Myelitis caused by pressure on the spinal cord, as by a hemorrhage or tumor.

**descending m.** Myelitis affecting successively lower areas of the spinal cord.

**disseminated m.** Inflammation of several separate areas of the spinal cord.

**focal m.** Myelopathy of small areas of the spinal cord.

**hemorrhagic m.** Myelitis with hemorrhage.

**sclerosing m.** Myelopathy wherein there is hardening of the spinal cord.

**transverse m.** Myelitis involving the whole thickness of the spinal cord, but limited longitudinally.

**traumatic m.** Myelitis due to spinal cord injury.

**myelo-, myel-** [Gr. *myelos*, marrow] Combining forms meaning *spinal cord*, *bone marrow*.

**myeloblast** (mī'ēl-ō-blāst) [" + *blastos*, germ] Immature bone marrow cell that develops into a myelocyte. It matures to develop into a promyelocyte, and eventually into a granular leukocyte.

**myeloblastemia** (mī'ēl-ō-blāst-ē'mē-ā) [" + " + *haima*, blood] The occurrence of myeloblasts in the blood.

**myeloblastoma** (mī'ēl-ō-blāst-ō'mā) [" + " + *oma*, tumor] Chloroma.

**myeloblastosis** (mī'ē-lō-blās-tō'sis) [" + " + *osis*, condition] Excess production of myeloblasts and their presence in circulating blood.

**myelocele** (mī'ē-lō-sēl) [" + *kele*, tumor, swelling] A form of spina bifida with spinal cord protrusion.

**myelocyst** (mī'ēl-ō-sīst) [" + *kystis*, bladder] Cyst arising from the rudimentary vertebral canal enclosing the spinal cord.

**myelocystocele** (mī'ēl-ō-sīst'ō-sēl) [" + " + *kele*, tumor, swelling] Protrusion of the spinal cord through a defect in the vertebral canal.

**myelocystomeningocele** (mī'ēl-ō-sīst'ō-mēn-in'gō-sēl) [" + *kystis*, bladder, + *meninx*, membrane, + *kele*, tumor,

swelling] Combined myelocystocele and meningocele.

**myelocyte** (mī'ēl-ō-sīt) [" + *kytos*, cell] A large immature, granular blood cell from which leukocytes are derived.

**myelocytthemia** (mī'ēl-ō-sī-thē'mē-ā) [" + " + *haima*, blood] Myelocytosis.

**myelocytic** (mī'ēl-ō-sīt'ik) Characterized by presence of, or pert. to, myelocytes.

**myelocytosis** (mī'ēl-ō-sī-tō'sis) [" + " + *osis*, condition] Presence of an excess number of myelocytes in the blood. SYN: *myelocytthemia*.

**myelodysplasia** (mī'ēl-ō-dīs-plā'zē-ā) [" + *dys*, bad, + *plassein*, to form] ABBR: MDS. 1. Any of a group of hematological diseases which primarily affect people over 60, in which there is inadequate bone marrow production of normal blood cells. These conditions begin when an abnormal clone of cells dominates the marrow; they may evolve into acute leukemia. Under the French-American-British classification there are five types of myelodysplasia:

1. refractory anemia;
2. refractory anemia with ringed sideroblasts;
3. refractory anemia with excess blasts;
4. refractory anemia with excess blasts in transformation; and
5. chronic myelomonocytic leukemia.

The World Health Organization has proposed a different classification system:

1. refractory anemia (with or without ringed sideroblasts);
2. refractory anemia with multilineage dysplasia (with or without ringed sideroblasts);
3. refractory anemia with excess blasts;
4. the 5q-syndrome; and
5. unclassified myelodysplasia.

**PATIENT CARE:** Patients gradually become more and more anemic and often require frequent blood transfusions. Bone marrow transplantation, when a matching donor is available, can cure the disease. Several forms of chemotherapy based on thalidomide-like drugs may improve symptoms and outcomes. Drugs that stimulate the bone marrow to produce more cells ("hematopoietic growth factors") alleviate symptoms caused by anemia and other cytopenias.

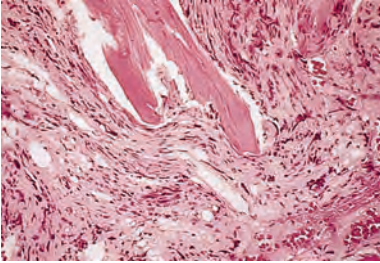
2. Defective formation of the spinal cord.

**myelodysplastic syndrome** (mī'ē-lō-dīs-plās'tik) ABBR: MDS. Myelodysplasia.

**myeloencephalitis** (mī'ēl-ō-ēn-sēf'ā-lī'tis) [" + " + *itis*, inflammation] Inflammation of the spinal cord and the brain.

**myelofibrosis** (mī'ē-lō-fī-brō'sis) A myeloproliferative disorder marked by the overproduction of a single stem cell

clone and reactive bone marrow fibrosis.  
SEE: *illus.*



### MYELOFIBROSIS

Normal bone marrow cells have been replaced by fibrous tissue.

**myelogenesis** (mī'ēl-ō-jěn'ē-sīs) [*"* + *genesis*, generation, birth] **1.** Development of the brain and the spinal cord. **2.** Development of the myelin sheath of nerve fiber.

**myelogenic, myelogenous** (mī-ē-lō-jěn'ik, -lōj'ēn-ūs) [*"* + *gennan*, to produce] Producing or originating in marrow.

**myelogram** (mī'ē-lō-grām) [*"* + *gramma*, something written] **1.** A radiograph of the spinal cord and associated nerves. **2.** A differential count of bone marrow cells.

**myelography** (mī'ē-lōg'rā-fē) [*"* + *graphēin*, to write] Radiography of the spinal cord and associated nerves after intrathecal injection of a radiopaque, water-soluble contrast medium. This technique has limited use, owing to computed tomography and magnetic resonance imaging.

**air m.** Myelography using a radiolucent contrast medium, usually air or oxygen.

**myeloid** (mī'ē-loyd) [*"* + *eidōs*, form, shape] **1.** Pert. to or produced in the bone marrow. **2.** Resembling cells produced in the bone marrow. **3.** Pert. to the spinal cord.

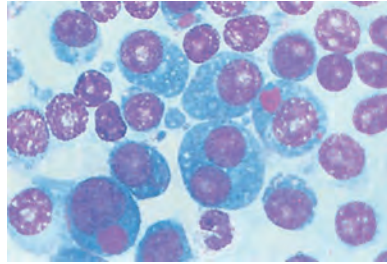
**myeloidosis** (mī'ē-loy-dō'sīs) [*"* + *osis*, condition] Development of myeloid tissue.

**myelolysis** (mī'ē-lōl'is-sīs) [*"* + *lysis*, dissolution] Dissolution of myelin.

**myeloma** (mī-ē-lō'mā) [*"* + *oma*, tumor] A tumor originating in cells of the hematopoietic portion of bone marrow.

**multiple m.** A malignant disease characterized by infiltration of the bone marrow by cancerous plasma cells. These cells produce excessive levels of monoclonal immunoglobulins, antibodies that are normally made by plasma cells to recognize foreign antigens and fight infection. In myeloma, inadequate production of normal antibodies makes patients susceptible to infection. Tumors composed of malignant plasma

cells also grow within the skeleton, making bones fragile and prone to fracture. SEE: *illus.*



### MULTIPLE MYELOMA

Numerous plasma cells replace normal bone marrow (orig. mag. ×600)

**DIAGNOSIS:** Characteristics include: 10% or more plasma cells in the bone marrow; monoclonal or "M" protein (produced by the myeloma cells) in serum and/or urine; at least one of four organ dysfunctions indicated by elevated serum calcium or creatinine levels, lytic bone lesions, or osteoporosis.

**SYMPTOMS:** The disease accounts for about 1% of all cancers. The cause is unknown. The median age at diagnosis is 62, and only 30% of patients survive 5 years or more. Patients typically report fatigue, weakness, shortness of breath and dyspnea on exertion (resulting from anemia (present in about 75% of patients at diagnosis), due to plasma cells inhibiting hemoglobin production in the bone marrow. They also may have bone pain, fevers, hypercalcemia, and infections with bacteria such as *Streptococcus pneumoniae*.

**TREATMENT:** Chemotherapies include melphalan and prednisone. Drugs that modulate the immune system and improve outcome include thalidomide and arsenic derivatives. Patient care focuses on helping the patient manage signs and symptoms, forestalling infection, preserving adequate levels of hemoglobin, relieving pain, preserving or restoring neurologic function, maintaining spinal stability, and controlling tumor growth. Acetaminophen, opioids or opiates, antiseizure medications, or tricyclic antidepressants may be prescribed for pain. Radiation therapy may be applied to affected bones. Chemotherapy alleviates or prevents hypercalcemia and tumor metastasis. Early recognition and immediate, vigorous treatment are needed for infection. Prophylactic antibacterial, antiviral, and antifungal drugs may be prescribed. Pneumococcal vaccine and annual influenza immunization are standard therapies. Plasmapheresis can decrease serum viscosity in an emergency. Exercise

and occupational therapy can be helpful in retaining or restoring function.

**nonsecretory m.** Multiple myeloma is which there is infiltration of the bone marrow by abnormal plasma cells, hypercalcemia, anemia, renal failure, or pathological bone fractures, but in which a monoclonal protein cannot be detected in either the urine or the blood.

**myelomalacia** (mī'ē-lō-mā-lā'shē-ă) [Gr. *myelos*, marrow, + *malakia*, softening] Abnormal softening of the spinal cord.

**myelomeningocele** (mī'ē-lō-mēn-īn'gō-sēl) [" + " + *kele*, tumor, swelling]

A hernia of the spinal cord and meninges through the posterior vertebral column that results from failure of the neural tube to close during embryonic development (about 28 days after conception). The defect usually is found in the lumbosacral spine and often results in significant impairment in urination, defecation, and walking (spastic or flaccid paralysis).

**PREVENTION:** Folic acid supplementation is recommended for all women of childbearing age as maternal dietary folate deficiency is a known risk factor. It reduces but does not completely eliminate the risk of severe neural tube defects (NTDs) like myelomeningocele.

**PATIENT CARE:** When an NTD has been diagnosed by amniocentesis prenatally, the parents should be referred for genetic counseling, information, and support regarding decisions to terminate or continue the pregnancy. Myelomeningoceles are common, occurring in about 1 in 2000 live births. After birth, the defect is cleansed gently, and foam or sheepskin support provided to prevent pressure, skin breakdown, and infection. Parental bonding is encouraged: the infant needs cuddling and loving, and should be prone-positioned when held on one's lap. Fluid balance is monitored and adequate nutrition provided. Passive ROM exercises help to minimize contractures. Surgical repair of the defect is followed by careful monitoring for hydrocephalus, infection, shock, and increased ICP (bulging fontanelles are the most common indicator in infants). The wound is inspected and redressed according to protocol. Leg casts may be needed to treat hip and knee deformities. Close assessment of the child's growth and development, and ongoing physical and occupational therapy will be needed throughout the child's life, along with psychological support for the child and parents who may feel guilt, anger, or helplessness. Mental stimulation helps to ensure maximum development. Bladder and bowel training are taught, with management dependent on the severity of the deficit. Social services may be able to assist parents with fi-

nancial needs. Counseling and careful follow-up are needed to optimize outcomes and the adaptation of the child and parents to the illness. Parents may acquire additional support and information from the Spina Bifida Association of America (800-621-3141; www.sbaa.org). SYN: *meningomyelocele*.

**myelomere** (mī'ē-lō-mēr) [" + *meros*, part] A segment of the developing spinal cord.

**myeloneuritis** (mī'ē-lō-nū-rī'tis) [" + *neuron*, nerve, + *itis*, inflammation] Neuromyelitis.

**myelopathy** (mī-ē-lōp'ă-thē) [" + *pathos*, disease, suffering] Any pathological condition of the spinal cord.

**ascending m.** Myelopathy that ascends along the spinal cord toward the head.

**descending m.** Myelopathy that descends along the spinal cord toward the feet.

**focal m.** Myelopathy of small areas.  
**HTLV-1-associated m.** Tropical spastic paraparesis.

**sclerosing m.** Myelopathy in which there is hardening of the spinal cord.

**transverse m.** Myelopathy extending across the spinal cord.

**traumatic m.** Myelopathy due to trauma to the spinal cord.

**myeloperoxidase** (mī-ēl'ō-pēr-ōks'ī-dās") [" + peroxidase] ABBR: MPO. An enzyme found principally in neutrophils and monocytes that generates hypochlorous acid from hydrogen peroxide and chloride ions. The enzyme is released into plasma in infectious and inflammatory diseases. Measurement of plasma levels of MPO has been used in some risk assessments for patients with acute coronary syndrome.

**myelophthisis** (mī-ē-lōf'thī-sīs) [" + *phthisis*, a wasting] 1. Atrophy of the spinal cord. 2. Replacement of the bone marrow by a disease process such as a neoplasm.

**myeloplegia** (mī'ēl-ō-plē'jē-ă) [Gr. *myelos*, marrow, + *plege*, stroke] Paralysis of spinal origin.

**myelopoiesis** (mī'ēl-ō-poy-ē'sis) [" + *poiein*, to form] Development of bone marrow or formation of cells derived from bone marrow.

**ectopic m.** Extramedullary myelopoiesis.

**extramedullary m.** Development of myeloid elements (erythrocytes and granular leukocytes) in regions other than bone marrow. SYN: *ectopic m.*

**myeloproliferative** (mī'ē-lō-prō-lif'ēr-ă'tiv) Concerning abnormal proliferation of hematological stem cells.

**myeloproliferative disorder** Any of several hematologic malignancies marked by the excessive multiplication of one or more types of blood cells. These disor-

ders include polycythemia rubra vera, essential thrombocytosis, chronic myeloid leukemia, and idiopathic myelofibrosis.

**myeloradiculitis** (mī'ē-lō-rā-dīk'ū-lī'tīs) [" + *L. radiculus*, rootlet, + *Gr. itis*, inflammation] Inflammation of the spinal cord and the dorsal roots of spinal nerves.

**myeloradiculodysplasia** (mī'ē-lō-rā-dīk'ū-lō-dīs-plā'sē-ā) [" + " + *Gr. dys*, bad, + *plassein*, to form] Congenital abnormality of the spinal cord and spinal nerve roots.

**myeloradiculopathy** (mī'ē-lō-rā-dīk'ū-lōp'ā-thē) [" + " + *Gr. pathos*, disease, suffering] Disease of the spinal cord and spinal nerves.

**myelorrhagia** (mī-ē-lō-rā'jē-ā) [" + *rhegnynai*, to burst forth] Hemorrhage into the spinal cord.

**myelorrhaphy** (mī-ēl-or'ā-fē) [" + *rhaphe*, seam, ridge] Suture of a cut or wound of the spinal cord.

**myelosarcoma** (mī'ēl-ō-sār-kō'mā) [" + *sarx*, flesh, + *oma*, tumor] Sarcoma composed of bone marrow cells and tissue. SYN: *osteosarcoma*.

**myelosarcomatosis** (mī'ē-lō-sār-kō'mā-tō'sīs) [" + " + " + *osis*, condition] Disseminated myelosarcomas.

**myeloschisis** (mī'ē-lōs'kī-sīs) [" + *schisis*, a splitting] Cleft spinal cord resulting from failure of the neural tube to close. SEE: *rachischisis*; *spina bifida cystica*.

**myelosclerosis** (mī'ē-lō-sklēr-ō'sīs) [" + *sklerosis*, hardening] Sclerosis of the spinal cord.

**myelosis** (mī-ē-lō'sīs) [" + *osis*, condition] Formation of a myeloma or medullary tumor.

**erythremic m.** A malignancy involving the erythropoietic tissue. Symptoms and signs include anemia, fever, hepatosplenomegaly, bleeding tendency, and abnormal cells in the circulating blood. Also known as Di Guglielmo syndrome.

**myelosuppression** (mī'ē-lō-sū-prēsh'ūn) Inhibition of bone marrow function.

**myelotome** (mī-ēl'ō-tōm) [" + *tome*, incision] Instrument used to dissect the spinal cord.

**myelotomy** (mī-ēl-ōt'ō-mē) Surgical severance of nerve fibers of the spinal cord.

**myenteric reflex** (mī'ēn-tēr'īk) SEE: *reflex*, *myenteric*.

**myenteron** (mī-ēn'tēr-ōn) The smooth muscle layer of the intestine. **myenteric** (mī'ēn-tēr'īk), *adj.*

**Myerson's sign** (mī'ēr-sūnz) [Abraham Myerson, U.S. neurologist, 1881–1948] In Parkinson's disease, repeated blinking of the eyes in response to tapping the forehead, nasal bridge, or maxilla.

**myesthesia** (mī'ēs-thē'zē-ā) [*Gr. mys*, muscle, + *aisthesis*, sensation] Mus-

cle sense; consciousness of muscle contraction.

**myiasis** (mī-ī'ā-sīs) [*Gr. myia*, fly, + *-sis*, condition] Infestation by the larvae (maggots) of flies. It may be caused by cutaneous, intestinal, or atrial (within a cavity such as mouth, nose, eye, sinus, vagina, urethra).

**myiocephalon** (mī-ī'ō-sēf'ā-lōn) [" + *kephale*, head] Extrusion of a part of the iris through a tear in the cornea.

**myiosis** (mī'ī'ō'sīs) [" + *osis*, condition] Myiasis.

**Mylabris** (mī-lāb'rīs) The scientific name for a genus of blister beetle, several species of which (*Mylabris phalerata* and *M. cichorii*) have been used in traditional Chinese medicine as a vesicant and antitumor agent. Skin exposure to the crushed body of the beetle results in contact dermatitis. The blistering agent in the beetle, cantharides, is also known as Spanish fly.

**mylodus** (mī-lō'dūs) A molar tooth.

**mylohyoid** (mī'lō-hī'oyd) [*Gr. myle*, mill, + *hyoid*, U-shaped] **1.** Pert. to the hyoid bone and the molar teeth. **2.** The paired muscles attached to the mandible that fuse in the midline and form the floor of the mouth.

**myo-** [*Gr. mys*, muscle] Combining form meaning *muscle*.

**myoalbumin** (mī'ō-āl-bū'mīn) [" + *L. albus*, white] Albumin found in muscular tissue.

**myoarchitectonic** (mī'ō-ār'kī-tēk-tōn'īk) [*Gr. mys*, muscle, + *architekton*, master workman] Pert. to or resembling structural arrangement of muscle or of fibers.

**myoblast** (mī'ō-blāst) [" + *blastos*, germ] An embryonic cell that develops into muscle cell.

**myoblastoma** (mī'ō-blās-tō'mā) [" + " + *oma*, tumor] A tumor consisting of cells resembling myoblasts.

**myobradia** (mī'ō-brā'dē-ā) [" + *bradys*, slow] Slow muscular reaction to stimulation.

**myocardial, myocardiac** (mī-ō-kār'dē-āl, -āk) [" + *kardia*, heart] Concerning the myocardium.

**m. contusion** Cardiac injury resulting from blunt or penetrating trauma to the chest. It is an occasional cause of cardiac arrhythmia and rarely a cause of rupture of the heart.

**myocardial infarction** ABBR: MI. The loss of living heart muscle as a result of coronary artery occlusion. MI or its related syndromes (acute coronary syndrome or unstable angina) usually occurs when an atheromatous plaque in a coronary artery ruptures, and the resulting clot obstructs the injured blood vessel. Perfusion of the muscular tissue that lies downstream from the blocked artery is lost. If blood flow is not re-

stored within a few hours, the heart muscle dies.

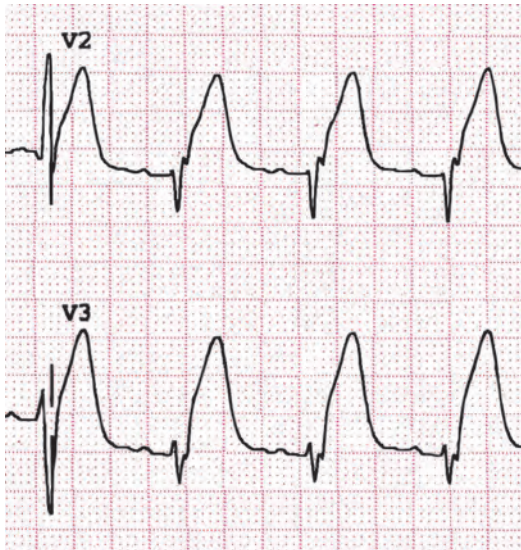
Acute MI affects 1.1 million people each year, and approximately 350,000 of them die. The probability of dying from MI is related to the patient's underlying health, whether arrhythmias such as ventricular fibrillation or ventricular tachycardia occur, and how rapidly the patient seeks medical attention and receives appropriate therapies (e.g., thrombolytic drugs, angioplasty, antiplatelet drugs, beta blockers, and intensive electrocardiographic monitoring). **SEE: illus.; life support, advanced cardiac; atherosclerosis; cardiac arrest; sudden death.**

**ETIOLOGY:** Proven risk factors for MI are tobacco use, diabetes mellitus, abnormally high cholesterol levels, high blood pressure, gender, advanced age, obesity, physical inactivity, chronic kidney disease, a family history of MI at an early age, and loss of albumin in the urine. Some research suggests that high C reactive protein levels, and other conditions may also lead to increased risk.

**SYMPTOMS:** Classic symptoms of MI in men are a gradual onset of pain or pressure, felt most intensely in the center of the chest, radiating into the neck, jaw, shoulders, or arms, and lasting more than a half hour. Pain typically is dull or heavy rather than sharp or stabbing, and often is associated with difficult breathing, nausea, vomiting, and profuse sweating. Clinical presentations, however, vary considerably, and

distinct presentations are seen in woman and the elderly, in whom, e.g., unexplained breathlessness is often the primary symptom. Many patients may mistake their symptoms for indigestion, intestinal gas, or muscular aches. About a third of all MIs are clinically silent, and almost half present with atypical symptoms. Often patients suffering MI have had angina pectoris for several weeks before and simply did not recognize it.

**DIAGNOSIS:** A compatible history associated either with segment elevation (on a 12-lead electrocardiogram) or with elevated blood levels of cardiac muscle enzymes such as troponins or creatine kinase can establish the diagnosis. An ST-segment elevation of more than 1 mm above baseline in at least two contiguous precordial leads or two adjacent limb leads suggests myocardial injury. Myocardial infarctions with this presentation are known as ST-segment elevation MI (abbreviated STEMI). This finding usually indicates significant muscle damage in the infarct area, a poorer prognosis, and a higher incidence of complications (arrhythmias, cardiogenic shock) than in a non-ST-segment elevation MI (non-STEMI). The differential diagnosis of chest pain must always be carefully considered because other serious illnesses, such as pulmonary embolism, pericarditis, aortic dissection, esophageal rupture, acute cholecystitis, esophagitis, or splenic rupture may mimic MI.



#### MYOCARDIAL INFARCTION

Myocardial infarction as seen on an electrocardiogram

**TREATMENT:** Myocardial infarction is a medical emergency; diagnosis and treatment should not be delayed. People who experience symptoms suggestive of MI should be taught to call 911 immediately and chew and swallow aspirin. Oxygen is administered at 4 L/min as soon as it is available. History is gathered throughout the first few minutes after admission even as a 12-lead ECG is being done and blood taken for biomarkers. Cardiac troponins may not become elevated until 4 or more hr after symptoms begin. If the patient is hypotensive or in cardiogenic shock, right-sided ECG leads are assessed for a right ventricular (RV) infarct. An intravenous access is established along with continuous cardiac monitoring, and medications (which may include chewed aspirin [162 to 325 mg], heparins, or other medications to inhibit platelet aggregation, nitroglycerin [given SL, sprayed or IV], IV morphine, and beta-blockers) are administered as prescribed. Pain is assessed on a 1 to 10 intensity scale, and morphine 2 to 10 mg administered IV, with incremental doses of 2 to 8 mg every 5 to 15 min until relief is obtained. Beta-blockers (e.g., metoprolol or atenolol) decrease myocardial oxygen demand, helping to limit the amount of heart muscle damaged. An IV beta-blocker should be given if the patient is hypertensive or has a tachyarrhythmia as long as no contraindications exist. Patients with STEMI who arrive at the hospital within 6 hr of the onset of symptoms are treated with fibrinolytic therapy or percutaneous coronary intervention (PCI). The goal for administration of fibrinolytic therapy is 30 min postsymptom onset ("door-to-needle"); for PCI 90 min ("door-to-balloon inflation"). Absolute contraindications of fibrinolytic therapy include previous intracranial hemorrhage or ischemic stroke within 3 months ("intracranial malignancy"), active bleeding, or bleeding disorders (except menses), significant closed head or facial trauma within 3 months (known structural cerebral vascular lesions), and suspected aortic dissection. Reperfusion is the immediate goal, usually best accomplished with balloon angioplasty and endovascular stent placement, although emergency coronary bypass surgery may be needed in cases when PCI fails. An angiotensin-converting enzyme (ACE) inhibitor is administered within 24 hr of a STEMI to suppress the renin-angiotensin-aldosterone system and prevent excess fluid retention. ACE inhibitors also prevent conversion of angiotensin I to angiotensin II (a potent vasoconstrictor), thus reducing afterload to help prevent heart failure.

In MI complicated by pulmonary

edema, diuretics are administered, and dobutamine infusions may be necessary to increase cardiac output. Strict glucose control (maintaining blood sugars below 150 mg/dl, and preferably in the normal range) reduces mortality in acute MI. Hypotension and circulatory collapse frequently occur in patients with significant RV infarctions, and fluid challenge is administered to optimize RV preload. If this is unsuccessful, the patient with an RV infarct will require inotropic support, correction of bradycardia, and measures to achieve atrioventricular synchrony (cardioversion for atrial fibrillation, etc). In patients with ventricular arrhythmias, defibrillation, or cardioversion, lidocaine, vasopressin, or amiodarone infusions, or other drugs, may be necessary. Anemic patients (e.g., hematocrit less than 30 or those actively bleeding) benefit from blood (packed red cell) transfusions.

With contemporary care, about 95% of patients with acute MI who arrive at the hospital in time will survive. These patients are referred to nutrition therapists to learn how to use low-fat, low-cholesterol diets, and to cardiac rehabilitation programs for exercise training, tobacco cessation, and psychosocial support.

**PATIENT CARE:** *Acute Care:* On admission, all diagnostic and treatment procedures are explained briefly to reduce stress and anxiety. Continuous electrocardiographic monitoring is used to identify changes in heart rhythm, rate, and conduction. Location, radiation, quality, severity, and frequency of chest pain are documented and relieved with IV morphine. Bleeding is the most common complication of antiplatelet, anticoagulant, and fibrinolytic therapies. The complete blood count, prothrombin time, and activated partial thromboplastin time are monitored at daily intervals. IV sites are assessed for evidence of bleeding. Fluid balance and pulmonary status are closely monitored for signs of fluid retention and overload. Breath sounds are auscultated for crackles (which may resolve by having the patient cough when caused by atelectasis, or which may indicate pulmonary edema when they do not). Heart sounds are auscultated for S3 or S4 gallops or new heart murmurs. Patient care and other activities should be organized to allow for periods of uninterrupted rest. Stool softeners are prescribed to prevent straining during defecation, which can cause vagal stimulation and slow the heart rate. Antiembolism stockings help to prevent venostasis and deep vein thrombosis. Emotional support is provided to decrease stress and anxiety. Adjustment



disorders and depression are often experienced by MI patients, and the patient and family are assisted to deal with these feelings. Stress tests, coronary angiography, cardiac imaging procedures, reperfusion techniques, and other interventions are explained. The patient receives assistance in coping with changes in health status and self-concept.

**Ambulatory Care:** Cardiac rehabilitation begins as soon as the patient is physiologically stable. The goal of cardiac rehabilitation is to have the patient establish a healthy lifestyle that minimizes the risk of another MI. Ambulation is slowly increased, and a low-level treadmill test may be ordered before discharge to determine exercise tolerance and the risk of future heart attacks. Patients are taught not only to measure their pulse but also to assess their response to exercise in terms of fatigue, ease of breathing, and perceived workload. Following discharge, exercise is slowly increased, first while being monitored closely by supervised cardiac rehabilitation, and then more independently. The patient also receives information about a low saturated fat, low cholesterol, low calorie diet, such as the DASH eating plan (Dietary Approaches to Stop Hypertension), resumption of sexual activity, work, and other activities. The patient is taught about desired and adverse effects of all medications: aspirin therapy is usually prescribed as ongoing antiplatelet therapy (with or without clopidogrel), but patients should be warned about the risk of bleeding and be advised to avoid products containing ibuprofen, which blocks aspirin's antiplatelet effects. Smoking cessation is an important preventive for future MIs. High blood pressure, obesity, adverse cholesterol levels, and diabetes mellitus also should be carefully managed to help prevent future MIs. Alcohol intake should be limited to 1 drink daily (women), 2 drinks daily (men). Opportunities are created for patients and families to share feelings and receive realistic reassurance about common fears.

**exercise-related m.i.** A myocardial infarction whose symptoms begin within an hour of vigorous physical exercise.

**myocardial insufficiency** Inability of the heart to perform its usual function, eventually resulting in cardiac failure.

**myocardial ischemia** SEE: *ischemia, myocardial*.

**myocardiograph** (mī'ō-kār'dē-ō-grāf) [" + " + *graphein*, to write] Instrument for recording heart movements.

**myocardopathy** (mī'ō-kār'dē-ōp'ā-thē) [" + " + *pathos*, disease, suffering] Any disease of the myocardium.

**myocarditis** (mī'ō-kār-dī'tis) [" + *kar-*

*dia*, heart, + *itis*, inflammation] Inflammation of the heart muscle, usually in the U.S. as a consequence of *infections* (viruses, esp. coxsackie virus, and occasionally as a consequence of bacterial, protozoan or fungal infections); *immunological-rheumatological conditions* (e.g., systemic lupus erythematosus, ulcerative colitis, hypersensitivity reactions, or transplant rejection); exposure to chemicals or *toxins* (e.g., cocaine, doxorubicin); *nutritional or metabolic abnormalities* (e.g., thiamine deficiency or hypophosphatemia); or *radiation*. Myocarditis also is occasionally found in pregnancy and with advanced age. The myocardium is infiltrated by leukocytes, lymphocytes, and macrophages, leading to inflammation, necrosis of muscle cells, and fibrosis. Inflammatory damage to heart muscle fibers may resolve spontaneously or may cause progressive deterioration of the heart with pericarditis, arrhythmias, chronic dilated cardiomyopathy, and heart failure. SEE: *cardiomyopathy*.

**SYMPTOMS:** Patients may be entirely asymptomatic or may seek medical attention because of vague symptoms consistent with a viral infection, or because of sudden onset of palpitations, pleuritic chest pain, shortness of breath, cough, edema, congestive heart failure, or arrhythmias. When chest pain is reported, it may be described as sharp, stabbing precordial pain or as substernal squeezing pain (like that of myocardial infarction). In children, symptoms tend to be very nonspecific, but can include poor feeding, respiratory distress, and cyanosis. Often the initial infection has resolved or subsided by the time the patient seeks medical advice and care.

**DIAGNOSIS:** Diagnosis is based on history, physical examination, and occasionally on endomyocardial biopsy.

**TREATMENT:** Any identifiable causes are corrected or treated. Symptomatic management also may include drugs such as angiotensin-converting enzyme (ACE) inhibitors or diuretics (for heart failure), beta-blocking agents, sodium restriction, supplemental oxygen, steroids and immunoglobulins, and anticoagulant therapy when needed.

**PATIENT CARE:** Hospitalization may be required so that patients can be monitored for arrhythmias and signs of congestive heart failure (e.g., increasing dyspnea, edema, weight gain, fatigue). If this worsens, vigorous diuresis, mechanical ventilation, inotropic support, and a pacemaker may be needed. If severe cardiomyopathy develops, options for management include a left-ventricular assist device and heart transplant. Bed rest is maintained to decrease the work of the heart and to minimize myo-

cardial damage. Stool softeners may be used to decrease straining, which can result in a vagal response, increasing the risk for heart block. Elastic or pneumatic stockings and passive and resistive exercises are used to decrease the risk of venous stasis and thrombosis. Activity is increased gradually after the acute phase, and a progressive exercise program is developed for use after recovery. Patients are cautioned to stop exercising if shortness of breath occurs. The patient is taught prescribed drug and dietary regimens and to recognize and report signs of congestive heart failure.

**myocardium** (mī-ō-kār-dē-ŭm) [ " + *kardia*, heart] The middle layer of the walls of the heart, composed of cardiac muscle. The layers of cardiac muscle form a complex spiral. When they contract they twist or wring blood from the ventricles. The muscle layers are attached to an internal "skeleton" of the heart composed of dense connective tissue.

**myocele** (mī-ō-sēl) [ " + *kele*, tumor, swelling] Muscular protrusion through a muscle sheath.

**myocelitis** (mī-ō-sē-lī-tīs) [ " + " + *itis*, inflammation] Inflammation of abdominal muscles.

**myocellulitis** (mī-ō-sēl-ŭ-lī-tīs) [ " + L. *cellula*, little chamber, + Gr. *itis*, inflammation] Myositis combined with cellulitis.

**myocerosis** (mī-ō-sē-rō-sīs) [ " + *keros*, wax] Waxy degeneration of a muscle or muscular tissue. SYN: *myokerosis*.

**myochoorditis** (mī-ō-kor-dī-tīs) [ " + *chorde*, cord, + *itis*, inflammation] Inflammation of the muscles of the vocal cord.

**myocilin** (mī-ō-sīl'in) A glycoprotein that influences or regulates intraocular pressure. Mutations in the myocilin gene are found in some people with glaucoma.

**myoclonia** (mī-ō-klō-nē-ā) Myoclonus.

**myoclonus** (mī-ōk'lō-nūs) [ " + *klonos*, tumult] Twitching or clonic spasm of a muscle or group of muscles.

**m. multiplex** Condition marked by persistent and continuous muscular spasms in unrelated muscles. SYN: *paramyoclonus multiplex*.

**nocturnal m.** Restless legs syndrome.

**palatal m.** Rapid clonus of one or both sides of the palate.

**myocolpitis** (mī-ō-kōl-pī-tīs) [ " + *kolpos*, vagina, + *itis*, inflammation] Inflammation of vaginal muscular tissue.

**myocyte** (mī-ō-sīt) [ " + *kytos*, cell] A muscle tissue cell.

**myocytoma** (mī-ō-sī-tō-mā) [ " + " + *oma*, tumor] Tumor containing muscle cells.

**myodemia** (mī-ō-dē-mē-ā) [ " + *demōs*,

fat] Fatty degeneration of muscular tissue. Muscular fiber cells become filled with fat and are ultimately destroyed.

**myodiastasis** (mī-ō-dī-ās'tā-sīs) [Gr. *mys*, muscle, + *diastasis*, separation] Division or rupture of a muscle.

**myodioter** (mī-ō-dī-ōp'tēr) The force of ciliary muscle contraction needed to increase the refraction of the eye one diopter more than when the eye is at rest.

**myodynamia** (mī-ō-dī-nām'ē-ā) [ " + *dynamis*, force] Muscular force or strength.

**myodynamometer** (mī-ō-dī'nā-mōm'ēt-ēr) [ " + " + *metron*, measure] Device for measurement of muscular strength.

**myodynia** (mī-ō-dīn'ē-ā) [ " + *odyne*, pain] Muscle pain. SEE: *myalgia*.

**myodystrophy** (mī-ō-dīs'trō-fē) [ " + " + *trophe*, nutrition] Muscular dystrophy. SEE: *spinal muscular atrophy*.

**myoedema** (mī-ō-ē-dē-mā) [ " + *oiedema*, swelling] 1. Mounding. 2. Edema of a muscle.

**myoelastic** (mī-ō-ē-lās'tik) Pert. to smooth muscle and elastic tissue.

**myoelectric prosthesis** SEE: under *prostheses*.

**myoendocarditis** (mī-ō-ēn'dō-kār-dī-tīs) [ " + *endon*, within, + *kardia*, heart, + *itis*, inflammation] Inflammation of the cardiac muscular wall and membranous lining.

**myoepithelial cell** (mī-ō-ēp'i-thē'lē-āl) SEE: *cell*, *myoepithelial*.

**myoepithelioma** (mī-ō-ēp'i-thē'lē-ō-mā) [ " + *epi*, upon, + *thele*, nipple, + *oma*, tumor] A slow-growing tumor of the sweat gland.

**myoepithelium** (mī-ō-ēp'i-thē'lē-ŭm) [ " + " + *thele*, nipple] Modified smooth muscle cells found in some glands. **myoepithelial** (mī-ō-ēp'i-thē'lē-āl), *adj.*

**myofascial pain syndrome** (mī-ā-fāsh'āl, shē-āl) ABBR: MFP. A chronic musculoskeletal pain disorder characterized by the presence of trigger points; decreased range of motion in affected muscle groups; weakness; and, on occasion, local autonomic disturbances such as localized perspiration.

**myofasciitis** (mī-ō-fās'ē-i'tīs) [ " + L. *fascia*, band, + Gr. *itis*, inflammation] Inflammation of a muscle and its fascia.

**myofiber** (mī-ō-fī'bēr) A skeletal muscle cell.

**type 1 m.** A skeletal muscle cell that has a rich concentration of myoglobin and oxidative enzymes. Also known as "red" or "slow twitch" myofibers, these cells rely principally on aerobic metabolism for energy.

**type II m.** A skeletal muscle cell with little myoglobin content. Also known as "white" or "fast-twitch" myofibers, these cells rely principally on anaerobic metabolism for energy.

**myofibril, myofibrilla** (mī-ō-fī'bril, -fī-

- bril'lä** [ʰ + L. *fibrilla*, a small fiber] A microscopic fibril found in muscle cells, grouped into bundles that run parallel to the long axis of the cell. It is made of sarcomeres placed end-to-end, which in turn are made of myofilaments of myosin and actin, the contractile proteins.
- myofibroma** (miʰō-fi-brōʰmä) [ʰ + L. *fibra*, fiber, + Gr. *oma*, tumor] Tumor containing muscular and fibrous tissue.
- myofibrosis** (miʰō-fi-brōʰsis) [ʰ + ʰ + Gr. *osis*, condition] Increase of connective or fibrous tissue with degeneration of muscular tissue.
- myofibrositis** (miʰō-fiʰbrō-siʰtis) [Gr. *mys*, muscle, + L. *fibra*, fiber, + Gr. *itis*, inflammation] Inflammation of the perimysium, the fibrous tissue that encloses muscle tissue.
- myofibril** (miʰō-flʰä-mënt) A filament within the myofibrils of muscle cells. Thick ones are made of myosin; thin ones are made of actin, troponin, and tropomyosin.
- myofunctional** (miʰō-fünkʰshün-äl) Concerning muscle function.
- myogelosis** (miʰō-jē-lōʰsis) [ʰ + L. *gelare*, to congeal] Abnormal hardening of a portion of muscle.
- myogenesis** (miʰō-jēnʰē-sis) [ʰ + *genesis*, generation, birth] Formation of muscular tissue, esp. in embryos.
- myogenetic, myogenic** (miʰō-jē-nētʰik, miʰō-jēnʰik) [ʰ + *gennan*, to produce] Originating in muscle.
- myoglobin** (miʰō-glōʰbin) The iron-containing protein found in muscle cells that stores oxygen for use in cell respiration.
- myoglobinuria** (miʰō-glōʰbin-ü-rē-ä) Myoglobin in the urine. It may occur following muscular activity, trauma, or as a result of a deficiency of muscle phosphorylase.
- myoglobulin** (miʰō-glōʰbün-lin) [ʰ + L. *globulus*, globule] A coagulable globulin present in muscular tissue.
- myognathus** (miʰō-gʰnä-thüs) [ʰ + *gnathos*, jaw] Deformed individual with a rudimentary conjoined twin.
- myogram** (miʰō-grām) [ʰ + *gramma*, something written] Tracing made by the myograph of muscular contractions.
- myograph** (miʰō-gräf) [ʰ + *graphein*, to write] Instrument for tracing movements caused by muscular contractions.
- myographic** (miʰō-gräfʰik), *adj.*
- myography** (miʰō-gʰrä-fē) **1.** Recording of muscular contractions by a myograph. **2.** Description of the muscles and their action.
- myohemoglobin** (miʰō-hēʰmō-glōʰbin) Myoglobin.
- myoid** (miʰoyd) [Gr. *mys*, muscle, + *eidōs*, form, shape] Resembling muscle.
- myoidema** (miʰoy-dēʰmä) [ʰ + *oidema*, swelling] Myoedema.
- myoischemia** (miʰō-is-kēʰmē-ä) [ʰ + *is-* *chein*, to hold back, + *haima*, blood] Localized deficiency of blood supply in muscle tissue.
- myokerosis** (miʰō-kē-rōʰsis) [ʰ + *keros*, wax, + *osis*, condition] Myocerosis.
- myokinase** (miʰō-kinʰäs) An enzyme present in muscle that catalyzes the synthesis of adenosine triphosphate.
- myokinesimeter** (miʰō-kinʰē-simʰē-tēr) [ʰ + *kinesis*, movement, + *metron*, measure] A device for measuring muscle activity.
- myokinesis** (miʰō-kinʰē-sis) [ʰ + *kinesis*, movement] **1.** Muscular activity. **2.** Surgical displacement of muscular fibers.
- myokymia** (miʰō-kimʰē-ä) [ʰ + *kyma*, wave] Twitching of isolated segments of muscle. The condition may be functional; however, it is also seen in organic diseases and general paresis. SYN: *ky-matism*.
- myolemma** (miʰō-lēmʰä) [ʰ + *lemma*, sheath] Sarcolemma.
- myolipoma** (miʰō-lī-pōʰmä) [ʰ + *lipos*, fat, + *oma*, tumor] Muscle tissue tumor containing fatty elements.
- myology** (miʰō-lō-jē) [ʰ + *logos*, word, reason] The scientific study of the structure and function of muscles.
- myolysis** (miʰō-lʰi-sis) [ʰ + *lysis*, dissolution] Fatty degeneration and infiltration with destruction of muscular tissue accompanied by separation and disappearance of muscle cells.
- myoma** (miʰō-mä) *pl.* **myomas** or **myomata** [ʰ + *oma*, tumor] A tumor containing muscle tissue. SEE: *chondromyoma*; *leiomyoma*. **myomatous** (-tüs), *adj.*
- m. striocellulare** Rhabdomyoma.
- m. uteri** Uterine leiomyoma.
- myomalacia** (miʰō-mä-läʰsē-ä) [Gr. *mys*, muscle, + *malakia*, softening] Softening of muscular tissue.
- m. cordis** Softening of the heart muscle.
- myomatosis** (miʰō-mä-tōʰsis) [ʰ + *oma*, tumor, + *osis*, condition] The development of multiple myomas.
- myomectomy** (miʰō-mēkʰtō-mē) [ʰ + *oma*, tumor, + *ektome*, excision] **1.** Removal of a portion of muscle or muscular tissue. **2.** Removal of a myomatous tumor, generally uterine, usually by abdominal section, leaving the uterus in place.
- myomelanosis** (miʰō-mēl-ä-nōʰsis) [ʰ + *melanosis*, blackening] Abnormal darkening of muscle tissue.
- myomere** (miʰō-mēr) [ʰ + *meros*, part] Myotome (2).
- myometer** (miʰō-mʰēt-ēr) [ʰ + *metron*, measure] Device for measurement of muscular contractions.
- myometrial** (miʰō-mēʰtrē-al) Concerning the myometrium.
- myometritis** (miʰō-mē-triʰtis) [ʰ + *metra*, uterus, + *itis*, inflammation] In-

flammation of the muscular wall of the uterus. SYN: *mesometritis*.

**myometrium** (mī'ō-mē'trē-ŭm) The smooth muscle layer of the uterine wall, forming the main mass of the uterus.

**myon** (mī'ōn) [Gr. *mys*, muscle] A single muscle unit.

**myonecrosis** (mī'ō-nē-krō'sīs) [" + *nekrosis*, state of death] Necrosis of muscle tissue.

**myonephropey** (mī'ō-nēf'rō-pēk'sē) [" + *nephros*, kidney, + *pexis*, fixation] Fixation of a movable kidney by attaching it to a portion of muscular tissue with sutures.

**myoneural** (mī'ō-nūr'āl) Pert. to muscle and nerve, esp. nerve terminations in muscles.

**myoneuralgia** (mī'ō-nū-rāl'jē-ā) [" + *neuron*, nerve, + *algos*, pain] Muscle pain.

**myoneural junction** SEE: *junction*, *myoneural*.

**myoneuroma** (mī'ō-nū-rō'mā) [" + " + *oma*, tumor] Neuroma partially composed of muscular elements.

**myoparalysis** (mī'ō-pā-rāl'i-sīs) Paralysis of a muscle.

**myoparesis** (mī'ō-pā-rē'sīs) Weakness or incomplete paralysis of a muscle.

**myopathic facies** (mī'ō-pāth'ik) SEE: *under facies*.

**myopathy** (mī-ōp'ā-thē) [" + *pathos*, disease, suffering] Any congenital or acquired muscle disease, marked clinically by focal or diffuse muscular weakness. **myopathic** (mī-ō-pāth'ik), *adj.*

**centronuclear m.** Myopathy in which the muscle fibers resemble those seen in fetal development. The nuclei of the cells are surrounded by a clear zone. SYN: *myotubular myopathy*.

**distal m.** Distal muscular dystrophy.

**intensive care m.** Muscular flaccidity occurring in patients undergoing treatment for life-threatening illnesses, most often those who have received high doses of steroids, or paralytic drugs, or both. The condition may result in failure to wean the patient from mechanical ventilation.

**myotubular m.** Centronuclear myocerosis. SEE: *myocerosis*.

**neuraline m.** Congenital nonprogressive weakness, esp. of the proximal muscles. The muscles are thin and resemble rods.

**ocular m.** Hereditary dystrophy of the extraocular muscles. This may progress to complete paralysis of these muscles.

**thyrotoxic m.** A progressive muscular weakness and atrophy as a result of hyperthyroidism.

**myope** (mī'ōp) [Gr. *myein*, to shut, + *ops*, eye] One afflicted with myopia (nearsightedness).

**myopericarditis** (mī'ō-pēr-ī-kar-dī'tis) [Gr. *mys*, muscle, + *peri*, around, +

*kardia*, heart, + *itis*, inflammation] Inflammation of the pericardium and cardiac muscular wall.

**myopia** (mī-ō'pē-ā) [Gr. *myein*, to shut, + *ops*, eye] An error in refraction in which light rays are focused in front of the retina, enabling the person to see distinctly for only a short distance. A negative (concave) lens of proper strength will correct this condition. SYN: *nearsightedness*. SEE: *emmetropeia* for *illus*. **myopic** (mī-ōp'ik), *adj.*

**axial m.** Myopia due to elongation of the axis of the eye.

**chromic m.** Color blindness only when viewing distant objects.

**curvature m.** Myopia due to the curvature of the eye's refracting surfaces.

**index m.** Myopia resulting from abnormal refractivity of the media of the eye.

**malignant m.** Progressive myopia leading to retinal detachment and blindness. SYN: *pernicious myopia*.

**pernicious m.** Malignant m.

**prodromal m.** Myopia, seen in incipient cataract, in which reading without glasses becomes possible.

**progressive m.** Myopia that increases steadily during adult life.

**space m.** Myopia occurring when the eye is attempting to focus on an object but all that is visible is a complete non-contrasting material, such as may occur when looking into dense fog (e.g., while piloting an airplane). No image is produced on the retina.

**stationary m.** Myopia that ends after adult growth is attained.

**transient m.** Myopia seen in spasm of accommodation, as in acute iritis or iridocyclitis.

**myoplasm** (mī'ō-plāzm) [Gr. *mys*, muscle, + LL. *plasma*, form, mold] The contractile part of the muscle cell, as differentiated from the sarcoplasm.

**myoplastic** (mī'ō-plās'tik) [" + *plassein*, to form] Pert. to the plastic use of muscle tissue or plastic surgery on muscles.

**myoplasty** (mī-ō-plās'tē) Plastic surgery of muscle tissue.

**myoreceptor** (mī'ō-rē-sēp'tor) A proprioceptor in the muscle.

**myorhythmia** (mī'ō-rīth'mē-ū) [" + " ] A coarse muscular tremor of the hands or feet.

**myorrhaphy** (mī-or'ā-fē) [Gr. *mys*, muscle, + *rhaphe*, a sewing] Suture of a muscle. SYN: *myosuture*.

**myorrhexis** (mī-or-ēk'sīs) [" + *rhexis*, a rupture] Rupture of a muscle.

**myosalpingitis** (mī'ō-sāl-pīn-jī'tis) [" + *salpinx*, tube, + *itis*, inflammation] Inflammation of the muscular tissue of a fallopian tube.

**myosarcoma** (mī'ō-sar-kō'mā) [" + *sarx*, flesh, + *oma*, tumor] A malignant tumor derived from myogenic cells.

**myosclerosis** (mī'ō-sklēr-ō'sis) [" + *skleros*, hardening] Hardening of muscle.

**myosin** (mī'ō-sin) [Gr. *mys*, muscle] A protein present in muscle fibrils and constituting about 45% of total muscle protein. It consists of long chains of polypeptides joined to each other by side chains. Myosin and actin are the contractile proteins in muscle fibers. Myosin also is an enzyme that catalyzes the removal of the third phosphate from ATP, thereby releasing the energy needed for contraction. SEE: *sarcomere*; *actin*.

**myosinose** (mī-ōs'īn-ōs) A protease resulting from the hydrolysis of myosin.

**myosinuria** (mī'ō-sin-ū'rē-ā) The presence of myosin in the urine. SYN: *myosuria*.

**myositis** (mī-ō-sī'tis) [" + *itis*, inflammation] Inflammation of muscle tissue, esp. voluntary muscles caused, for example, by infection, trauma, autoimmunity, or infestation by parasites. SEE: *fibromyalgia*.

**epidemic m.** Bornholm disease.

**m. fibrosa** Myositis accompanied by infiltration of fibrous tissue.

**interstitial m.** Myositis with hyperplasia of connective tissue.

**m. ossificans** Myositis marked by ossification of the intramuscular fascia.

**parenchymatous m.** Myositis of the substance of a muscle.

**m. purulenta** Suppurative myositis with abscesses; caused by bacterial infection.

**traumatic m.** Myositis due to physical injury. The condition may be simple, with accompanying pain and swelling, or may be suppurative.

**m. trichinosa** Myositis due to infestation with trichinae.

**myospasm** (mī'ō-spāzm) [" + *spasmos*, a convulsion] Spasmodic contraction of a muscle.

**myostatin** (mī'ō-stāt'in) A growth-regulating protein that limits the size of muscles by inhibiting excessive growth.

**myosteoma** (mī-ōs'tē-ō'mā) [" + *osteon*, bone, + *oma*, tumor] A bony growth found in muscle tissue.

**myosthenometer** (mī'ō-sthē-nōm'ē-tēr) [" + *sthenos*, strength, + *metron*, measure] Device for measuring muscle power.

**myostroma** (mī'ō-strō'mā) [" + *stroma*, mattress] The framework of muscle tissue.

**myosuria** (mī-ō-sū'rē-ā) [" + *ouron*, urine] Myosinuria.

**myosuture** (mī'ō-sū'chūr) [" + L. *sutura*, sewing] Myorrhexis.

**myotactic** (mī'ō-tāk'tik) [" + L. *tactus*, touch] Pert. to muscle or kinesthetic sense.

**myotasis** (mī-ōt'ā-sīs) [" + *tasis*,

stretching] Stretching of a muscle. **myotatic, adj.**

**myotatic reflex** Stretch reflex.

**myotenositis** (mī'ō-tēn-ō-sī'tis) [" + " + *itis*, inflammation] Inflammation of a muscle and its tendon.

**myototomy** (mī'ō-tēn-ōt'ō-mē) [" + " + *tome*, incision] Division of the tendon of a muscle.

**myotherapy** (mī'ō-thēr'ā-pē) A method for relaxing muscle spasm, improving circulation, and alleviating pain. The therapist applies finger pressure to "trigger points," usually in the muscle tissue or area surrounding joints. The success of this method, developed by Bonnie Prudden in 1976, depends on the use of specific corrective exercise of the freed muscles.

**myothermic** (mī'ō-thēr'm'ik) [Gr. *mys*, muscle, + *therme*, heat] Pert. to rise in muscle temperature due to its activity.

**myotome** (mī'ō-tōm) [" + *tome*, incision] **1.** Instrument used for cutting muscles. **2.** That portion of an embryonic somite that gives rise to somatic (striated) muscles. SYN: *myomere*.

**myotomy** (mī-ōt'ō-mē) Surgical division or anatomical dissection of muscles.

**myotonia** (mī'ā-tō'nē-ā) [" + *tonos*, tension] Tonic spasm of a muscle or temporary rigidity after muscular contraction. **myotonic** (-tōn'ik), *adj.*

**m. atrophica** Myotonia dystrophica.

**m. congenita** A benign disease characterized by tonic spasms of the muscles induced by voluntary movements. The condition is usually congenital and is transmitted by either dominant or recessive genes. SYN: *Oppenheim's disease*; *paramyotonia*; *Thomsen's disease*.

**SYMPTOMS:** The disease appears in early childhood and is manifested by a tonic spasm of the muscles every time the muscles are used. In a few minutes, rigidity wears away and the movements become free from repeated contractions, the muscles becoming firm and extremely well developed.

**TREATMENT:** Quinine or procainamide are indicated for relief of myotonia. Neostigmine is contraindicated. Avoidance of obesity is important.

**PROGNOSIS:** The disease is incurable, but may improve with age.

**m. dystrophica** A hereditary disease characterized by muscular wasting, myotonia, and cataract. SYN: *m. atrophica*; *Steinert's disease*.

**myotonic** (mī-ā-tōn'ik) Pert. to tonic muscular spasm, as differentiated from myokinetic spasm.

**myotonus** (mī-ōt'ō-nūs) A tonic muscle spasm with temporary rigidity.

**myotrophy** (mī-ōt'rō-fē) [" + *trophe*, nourishment] Nutrition of muscle tissues.

**myotropic** (mī'ō-trōp'īk) [ʹ + *trope*, a turn] Attracted to muscle tissue.

**myotube** (mī'ō-tūb) The developing stage of skeletal muscle. The central nucleus occupies most of the cell.

**myovascular** (mī'ō-vās'kū-lār) Concerning muscles and their blood supply.

**My Pyramid** A compendium of dietary recommendations for Americans of all ages, body weights, and exercise levels. Website: www.mypyramid.gov

**myriachit** (mīr-ē'ā-chīt) [Russian] Miryachit.

**Myriapoda** (mīr-ē-āp'ō-dā) [Gr. *myrios*, numberless, + *pous*, foot] Group of arthropods including millipedes and centipedes.

**myriapodiasis** (mīr'ē-āp-ō-dī'ā-sīs) Infestation with one of the Myriapoda class of arthropods.

**myricin** (mīr'ī-sīn) A chemical obtained from beeswax.

**myring-** SEE: *tympano-*.

**myringa** (mīr-in'gā) [L.] The tympanic membrane.

**myringectomy** (mīr-in-jēk'tō-mē) [ʹ + Gr. *ektome*, excision] Myringodectomy.

**myringitis** (mīr-in-jī'tīs) [L. *myringa*, drum membrane, + Gr. *itis*, inflammation] Inflammation of the tympanic membrane (eardrum).

**m. bullosa** Myringitis with serous or hemorrhagic blebs or vesicular inflammation of the eardrum and adjacent wall. A sign of infection with *Mycoplasma pneumoniae*.

**myringo-** Combining form meaning *tympanic membrane* or *eardrum*.

**myringodectomy** (mīr-in'gō-dēk'tō-mē) [ʹ + Gr. *ektome*, excision] Excision of a part of or the entire tympanic membrane. SYN: *myringectomy*.

**myringomycosis** (mīr-in'gō-mī-kō'sīs) [ʹ + Gr. *mykes*, fungus, + *osis*, condition] Inflammation of the tympanic membrane resulting from infection by parasitic fungi. SYN: *otomycosis*.

**myringoplasty** (mīr-in'gō-plāst'ē) [ʹ + Gr. *plassein*, to form] Plastic surgery of the tympanic membrane.

**myringotome** (mī-rin'gō-tōm) [ʹ + Gr. *tome*, incision] Surgical knife used for incising the tympanic membrane.

**myringotomy** (mīr-in-gōt'ō-mē) Incision of the tympanic membrane with placement of a tympanostomy tube. This procedure is most often performed on children with recurrent otitis media or medically refractory middle ear effusion. SEE: *Nursing Diagnoses Appendix*.

**PATIENT CARE:** Because this procedure is most often performed on young children in response to a recurring condition, parents are taught to recognize the signs of otitis media and to seek medical assistance when their child complains of recurring ear pain, esp. if it is associated with evident loss of hear-

ing. The parents are advised that tubes inserted after myringotomy gradually come out of the eardrum (usually falling out within 9 to 12 months), and that the child should not swim in the early period after surgery.

Postoperatively, the outer ear may be lightly packed with material selected by the surgeon. Parents are taught to change this packing when it is damp, using hand hygiene prior to and following handling of these materials. A common complication of the procedure is otorrhea. It is often prevented by instillation of topical medications including antibiotics and steroids. Parents are also taught to report headache, fever, severe pain, or disorientation, which may signal infection. Parents should not feed infants in a supine position or put them to bed with a bottle because reflux of nasopharyngeal flora into the middle ear can result. For patients old enough to understand, performing Valsalva's or Politzer's maneuver gently, several times each day, helps to promote Eustachian tube patency. Vigorous Valsalva maneuver may dislodge the tympanostomy tube.

**myrmecia** (mūr-mē'shē-ā) [Gr. *myrmex*, ant] A dome-shaped wart.

**myrrh** (mūr) [Gr. *myrra*] A gum resin used in antiquity as a constituent of incense and perfume. Its most important use today is as an aromatic astringent mouthwash. Tincture of myrrh provides symptomatic relief when applied to cancer sores.

**myrtol** An herbal remedy used to treat upper respiratory infections, such as acute bronchitis or sinusitis.

**mysophilia** (mī'sō-fīl'ē-ā) Erotic interest in body excretions.

**mysophobia** (mī'sō-fō'bē-ā) [Gr. *mysos*, filth, + *phobos*, fear] Abnormal aversion to dirt or contamination. SYN: *molyssophobia*.

**mytacism** (mī'tā-sīzm) [Gr. *mytakismos* from Gr. letter  $\mu$ ] Excessive or incorrect use of the letter *m* in writing, or the *m* sound in speaking. SYN: *mutacism*.

**myth** (mīth) [Gr. *mythos*, story] 1. A narrative whose plot, characters, and themes are well known culturally or globally. It may have a variety of cultural meanings and may become an emblem of psychological, religious, or social truth. Alternatively, it may be used to summon inspiration or courage or provide a source of fear or wonder. 2. A falsehood; an unscientific proposition, often one that is demonstrably untrue. SYN: *urban legend*.

**myxadenitis** (mīks'ād-ēn-ī'tīs) [Gr. *myxa*, mucus, + *aden*, gland, + *itis*, inflammation] Inflammation of a mucous gland.

**m. labialis** Painless inflammation of the mucous glands of the lips.

**myxadenoma** (miks"äd-ë-nö'mä) [" + " + *oma*, tumor] **1.** A tumor with the structure of a mucous gland. SYN: *myxoadenoma*. **2.** A tumor of glandular structure containing mucous elements.

**myxangitis** (miks"än-jī'tis) [" + *angion*, vessel, + *itis*, inflammation] Inflammation of mucous gland ducts.

**myxedema** (miks-ë-dë'mä) [Gr. *myxa*, mucus, + *oidema*, swelling] **1.** Infiltration of the skin by mucopolysaccharides, giving it a waxy or coarsened appearance. Myxedematous skin is seen particularly in patients with hypothyroidism. **2.** The clinical and metabolic manifestations of hypothyroidism in adults, adolescents, and children. **myxedematous** (miks-ë-dë'm'ä-tüs), *adj.*

**SYMPTOMS:** The patient with hypothyroidism often complains of sluggishness, cold intolerance, apathy, fatigue, and constipation. Findings may include infiltration of the subcutaneous layers of the skin by mucopolysaccharides, which coarsen the features and create nonpitting edema. The hair may become dry and brittle. If the syndrome is left untreated, hypothermia, coma, and death may result.

**TREATMENT:** Thyroid hormone replacement reverses the symptoms and re-establishes normal metabolic function.

**childhood m.** Myxedema occurring before puberty.

**operative m.** Myxedema following removal of the thyroid gland.

**pituitary m.** Myxedema occurring secondary to anterior pituitary hypofunction.

**pretibial m.** Edema of the anterior surface of the legs following hyperthyroidism and exophthalmos.

**myxedematoid** (miks-ë-dë'm'ä-toyd) [Gr. *myxa*, mucus, + *oidema*, swelling, + *eidōs*, form, shape] Resembling myxedema.

**myxo-, myx-** [Gr. *myxa*] Combining forms denoting *mucus*.

**myxoadenoma** (miks"ö-äd-ë-nö'mä) [" + *aden*, gland, + *oma*, tumor] Myxadenoma (1).

**Myxobacterales** (miks"ö-bäk-të-rä'lëz) The gliding bacteria, gram-negative and of various shapes; they are soil inhabitants and do not cause disease in humans. They form a slimy spreading colony.

**myxochondrofibrosarcoma** (miks"ö-kön-drö-fi"brö-sär-kö'mä) A malignant tumor composed of myxomatous, chondromatous, fibrous, and sarcomatous elements.

**myxochondroma** (miks"ö-kön-drö'mä) A benign tumor composed of myxomatous and chondromatous elements.

**myxocystoma** (miks"ö-sis-tö'mä) [Gr. *myxa*, mucus, + *kystis*, cyst, + *oma*,

tumor] A benign cystic tumor containing mucus.

**myxocyte** (mik"sö-sit) [" + *kytos*, cell] A characteristic cell of mucous tissue.

**myxoedema** (miks"ë-dë'mä) [" + *oidema*, swelling] Myxedema.

**myxoenchondroma** (miks"ö-ën-kön-drö'mä) [" + *en*, in, + *chondros*, cartilage, + *oma*, tumor] A cartilaginous tissue tumor that has undergone partial mucous degeneration.

**myxofibroma** (miks"ö-fi-brö'mä) [" + L. *fibra*, fiber, + Gr. *oma*, tumor] Tumor composed of mucous and fibrous elements.

**myxofibrosarcoma** (mik"sö-fi"brö-sär-kö'mä) [" + " + Gr. *sarx*, flesh, + *oma*, tumor] Fibrosarcoma that contains primitive mesenchymal tissue.

**myxoglioma** (mik"sö-glī-ō'mä) [Gr. *myxa*, mucus, + *glia*, glue, + *oma*, tumor] Tumor composed of myxomatous and gliomatous elements.

**myxoid** (mik'soyd) [" + *eidōs*, form, shape] Similar to or resembling mucus.

**myxolipoma** (mik"sö-li-pö'mä) [" + *lipos*, fat, + *oma*, tumor] Mucous tumor with fatty tissue elements. SYN: *lipomyxoma*.

**myxoma** (mik-sö'mä) *pl.* **myxomas or myxomata** [" + *oma*, tumor] Tumor composed of mucous connective tissue similar to that present in the embryo or umbilical cord. Cells are stellate or spindle-shaped and separated by mucoid tissue. The tumors are usually soft, gray, lobulated, and translucent and are not completely encapsulated. Myxomas may be pure or of mixed types involving other types of tissue.

**cartilaginous m.** Chondromyxoma.

**cystic m.** A tumor with parts fluid enough to resemble cysts.

**enchondromatous m.** A tumor with nodules of hyaline cartilage.

**erectile m.** Myxoma containing an excess of vessels, resembling an angioma.

**fibrous m.** Fibromyxoma.

**intracanalicular m.** Myxoma that develops in the interstitial connective tissue of the breasts.

**odontogenic m.** A tumor of the jaw that appears to arise from mesenchymal tissue.

**telangiectatic m.** Myxoma of highly vascular structure. SYN: *vascular m.*

**vascular m.** Telangiectatic myxoma.

**myxomatosis** (mik"sö-mä-tö'sis) [" + " + *osis*, condition] **1.** Formation of multiple myxomas. **2.** Myxomatous degeneration.

**Myxomycetes** (mik"sö-mī-së'tëz) [Gr. *myxa*, mucus, + *mykes*, fungus] In one system of taxonomy, a class of fungi, the slime molds, which do not cause diseases in humans. This class is equivalent to the subkingdom Myxomycota in another system of taxonomy.

**myxoneuroma** (mīks"ō-nū-rō'mă) [" + *neuron*, nerve, + *oma*, tumor] Tumor made of mucous membrane and nerve.

**myxopapilloma** (mīk"sō-pāp"il-ō'mă) [" + L. *papilla*, nipple, + Gr. *oma*, tumor] A tumor containing myxomatous and papillomatous components.

**myxorrhœa** (mīk-sō-rē'ă) [" + *rhoia*, flow] Free discharge from mucous surfaces. SYN: *blennorrhœa*.

**myxosarcoma** (mīk"sō-sār-kō'mă) [" + *sarx*, flesh, + *oma*, tumor] Tumor containing myxomatous and sarcomatous components, having undergone partial degeneration. **myxosarcomatous** (mīk"sō-sār-kō'mă-tūs), *adj.*

**myxospore** (mīks'ō-spor) [" + *sporos*, seed] A spore embedded in a gelatinous mass; seen in some fungi and protozoa.

**Myxosporidia** (mīks-ō-spor-id'ē-ă) Parasitic sporozoans most commonly found in the epithelial cells of lower vertebrates.

**myxovirus** (mīk"sō-vī'rūs) Any of a family of viruses including those that cause influenza. Subgroups include paramyxovirus and orthomyxovirus. SEE: *paramyxovirus*.

**Myzomyia** (mī"zō-mī'ă) [Gr. *myzan*, to suck, + *myia*, fly] Subgenus of anopheline mosquitoes. Some species transmit malarial parasites.

**Myzorhynchus** (mī"zō-rīng'kūs) [" + *rhynchos*, snout] Subgenus of anopheline mosquitoes. Some species transmit malarial parasites.