



**K** [*L. kalium*] Symbol for the element potassium.

**K, k** 1. Symbol for the Greek letter *kappa*.

2. Used in some formulas in chemistry and physics to indicate a constant or value that does not change. 3. Kelvin temperature scale. 4. Symbol for kilo.

**Kabuki syndrome, Kabuki make up syndrome** (kā-boo'kē) [From the resemblance of patients to actors wearing the white makeup of Kabuki theater] An autosomal dominant disorder characterized by mild to moderate mental retardation, cranial and facial anomalies, poor muscle tone, and often cleft palate, seizures, heart defects, and other anomalies. SYN: *Niikawa-Kuroki syndrome*.

**Kader's operation** (kā'dērs) [Bronislaw Kader, Polish surgeon, 1863–1937] The surgical formation of a gastric fistula with the feeding tube inserted through a valvelike flap.

**Kahler's disease** [O. Kahler, Austrian physician, 1849–1893] multiple myeloma.

**kaiserling** (kī'zēr-ling) [Karl Kaiserling, Ger. pathologist, 1869–1942] A solution used in preserving pathological specimens.

**kala-azar** (kā'lā ā-zār') [Hindi, black fever] An infectious disease caused by *Leishmania donovani*, an intracellular protozoan. It is marked by fevers, splenic enlargement, and decreased blood cell counts. The disease is common in the rural parts of tropical and subtropical areas of the world, where it is often fatal. SYN: *visceral leishmaniasis*.

**kaliuresis** (kā'lē-ū-rē'sis) [*L. kalium*, potassium, + Gr. *ouresis*, urination] The excretion of potassium in the urine.

**kallidin** (kāl'ī-din) A plasma kinin. SEE: *kinin*.

**kallikrein** (kāl'ī-krē'in) [Gr. *kallikreas*, pancreas] An enzyme normally present in plasma, urine, and body tissue in an inactive state. When activated, kallikrein has many actions: it dilates blood vessels, influences blood pressure, modulates salt and water excretion by the kidneys, and influences cardiac remodeling after myocardial infarction.

**kallikreinogen** (kāl'ī-krē'nō-jēn) [' + *gennan*, to produce] The precursor of kallikrein in plasma.

**Kallmann's syndrome** (kāl'mānz) [Franz Josef Kallman, U.S. psychiatrist, 1897–1965] A disorder whose hallmarks are congenital absence of the sense of smell and decreased functional activity of the sex organs, resulting from

insufficient production of gonadotropin-releasing hormone. Affected individuals also may have hearing loss and other deficits caused by intracranial, sinus, or facial abnormalities.

**Kampo** (kōm'pō') [Japanese, Chinese medicine] Traditional Japanese medicine, a healing discipline adapted from ancient Chinese healing traditions. It includes the use of acupuncture, herbal remedies, and moxibustion, among others.

**Kanner syndrome** (kän'ēr) [Leo Kanner, Austrian psychiatrist in the U.S., 1894–1981] Infantile autism.

**kaolin** (kā'ō-lin) [Fr., from Mandarin Chinese *kao*, high, + *ling*, mountain] A yellow-white or gray clay powder occurring in a natural state as a form of hydrated aluminum silicate. It is used internally as an absorbent, e.g., in treating diarrhea, externally as a protective by absorbing moisture. SYN: *China clay*.

**kaolin cephalin time** ABBR: KCT. A laboratory test used to measure the health of the intrinsic pathway of coagulation, that is, the function of clotting factors VII, IX, XI, and XII. It is also known as the activated partial thromboplastin time (APTT). When a prolonged kaolin cephalin clotting time does not normalize after the addition of normal plasma, a lupus anticoagulant is present in the blood.

**kaolinosis** (kā'ō-lin-ō'sis) Pneumonococcosis caused by inhaling kaolin particles.

**kapha** (kā'fā, pā) [Sanskrit, lit. "phlegm"] In ayurvedic medicine, the principle responsible for the structure of the body.

**Kaposi, Moritz K.** (kāp'ō-sē") Hungarian physician, 1837–1902. Originally his name was Moritz Kohn.

**K's disease** Xeroderma pigmentosum.

**K's sarcoma, Kaposi sarcoma** ABBR: KS. A lymphatic endothelial malignancy, rather than a true sarcoma, composed of multiple red or purple macules, papules, or nodules, that is first apparent on the skin or mucous membranes but may involve the internal organs. Once a rare disease seen primarily in elderly men of Mediterranean, African, or Ashkenazi descent (so-called classic KS), it is the most common cancer related to the acquired immunodeficiency syndrome (AIDS). In patients with AIDS, KS is believed to be sexually acquired as a result of the acquisition of

human herpesvirus 8. When KS is associated with AIDS, it progresses and disseminates rapidly to multiple skin sites, as well as the lymph nodes and visceral organs. **SEE: illus.; AIDS.**



#### KAPOSI'S SARCOMA

As seen on the hard palate of a patient with AIDS

**SYMPTOMS:** The lesions are typically painless but may be cosmetically disfiguring or may interfere with internal organ function. They are found most often on the dorsa of the feet and lower extremities in patients with classic KS, and on the face, trunk, oral cavity, and internal organs in immunosuppressed patients (patients who have had organ transplantation, or patients with HIV/AIDS). KS is sometimes referred to as “epidemic” in patients with HIV infection; “endemic” in parts of Africa; and “acquired” in patients taking immunosuppressing drugs after organ transplantation). In advanced disease, the lesions may merge into large plaques, sometimes blocking lymphatics and causing localized edema. Involvement of internal organs, primarily the gastrointestinal tract or the lungs, may result in dyspepsia or dyspnea.

**DIAGNOSIS:** Characteristic tumors on the skin suggest the diagnosis, which should be confirmed by tissue biopsy.

**TREATMENT:** Treatment options include radiation therapy, cancer chemotherapies, cryotherapy, hormone thera-

pies, and biotherapy (interferon alfa-2b).

**PATIENT CARE:** Epidemic KS may profoundly alter the patient's appearance. Emotional support to the patient and family may help them cope with the diagnosis and its effects on body image. Psychological counseling may be needed. Standard precautions should be followed when assessing or caring for the patient. The skin should be assessed for new lesions at each health-care contact.

**K's varicelliform eruption** Eczema herpeticum.

**Kaposi's sarcoma-associated herpesvirus** ABBR: KSHV. Human herpesvirus 8.

**karela** (kā-rē'lā) [Sanskrit] Bitter melon.

**karelian fever** (kā-rē'l'ē-ān) [Fm. *Karelia*, in the northwest of Russia] An infectious disease marked by influenza-like symptoms (headache, body aches, fever, nausea, vomiting) and rashes (esp. blistering rashes on the hands and feet). A postinfectious arthritis sometimes follows.

**ETIOLOGY:** It is caused by the Sindbis virus, an alphavirus that mosquitoes transmit to people.

**Karnofsky Index, Karnofsky Scale** (kār'nōf-skē) [D. A. Karnofsky, U.S. oncologist, 1914–1969] A tool to estimate clinically a patient's physical state, performance, and prognosis. The scale is from 100%, perfectly well and active, to 0%, completely inactive, or dead. It has been used in studying cancer and chronic illness. Lower Karnofsky scores are generally associated with poorer treatment response and prognosis. **SEE: table.**

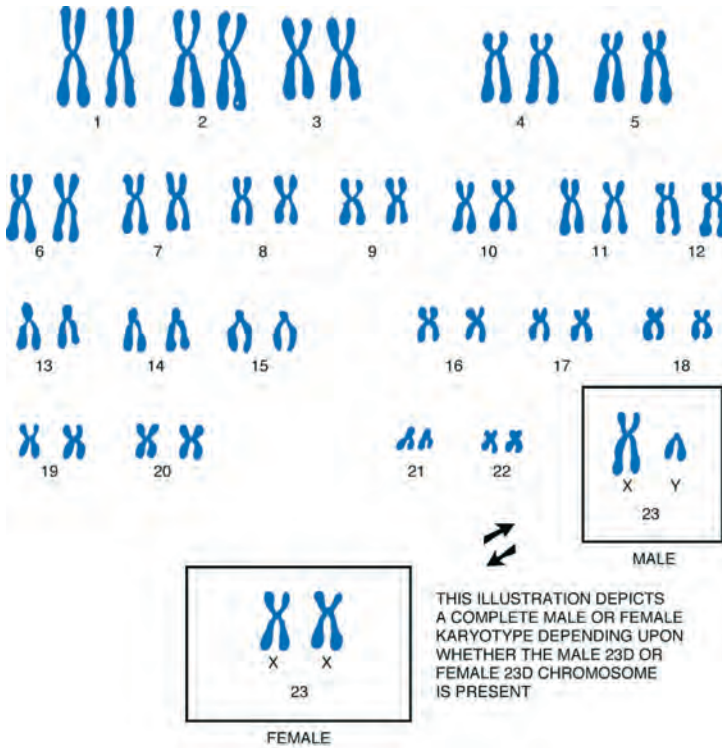
**Kartagener's syndrome** (kār'tā-gā'nērz) [Manes Kartagener, Swiss physician, 1897–1975] A hereditary syndrome consisting of abnormal ciliary movement, bronchiectasis, maldevelopment of the sinuses, and transposition of the viscera. **SEE: immotile cilia syndrome.**

**Karvonen formula** (kār-vōn'ēn) A cal-

#### Karnofsky Index

100%	Normal, no complaints; no evidence of disease
90%	Able to carry on normal activity; minor signs or symptoms of disease
80%	Normal activity with effort, some signs or symptoms of disease
70%	Cares for self; unable to carry on normal activity or do active work
60%	Requires occasional assistance, but is able to care for most personal needs
50%	Requires considerable assistance and frequent medical care
40%	Disabled; requires special care and assistance
30%	Severely disabled; hospitalization is indicated, although death not imminent
20%	Very sick; hospitalization is necessary; active supportive treatment is required
10%	Terminally ill; fatal processes progressing rapidly
0%	Dead

- ulation of the optimal range of heart rate for achieving physical fitness during cardiovascular endurance exercise. The calculation is based on a percentage of predicted maximum heart rate of 220 minus the person's age ( $HR_{max}$ ) and the resting heart rate ( $HR_{rest}$ ). The formula that determines the best physical training range is:  $HR = HR_{rest} + (HR_{max} - HR_{rest}) \cdot (.60 \text{ to } .80)$ .
- karyo-, kary-** [Gr. *karyon*, kernel] Prefixes referring to a cell's nucleus.
- karyochrome** (kär'ē-ō-krōm") A neuron in which the nucleus stains readily but the cytoplasm does not.
- karyocyte** (kär'ē-ō-sīt) [" + *kytos*, cell] An immature normoblast.
- karyogamy** (kär'ē-ōg'ā-mē) [" + *gamos*, marriage] The union of nuclei in cell conjugation.
- karyogenesis** (kär'ē-ō-jēn'ē-sīs) [" + *genesis*, generation, birth] The formation and development of a cell nucleus.
- karyokinesis** (kär'ē-ō-kīn-ē'sīs) [" + *kinesis*, movement] The equal division of nuclear material that occurs in cell division. SYN: *karyomitosis*. SEE: *cytokinesis*; *mitosis*.
- karyokinetic** (kär'ē-ō-kī-nēt'īk) **1.** Pert. to karyokinesis. **2.** Ameboid.
- karyolysis** (kär'ē-ōl'ī-sīs) [" + *lysis*, dissolution] Chromatolysis. **karyolytic** (-ō-līt'īk), *adj.*
- karyomere** (kär'ē-ō-mēr") [" + *meros*, part] **1.** Chromomere. **2.** A vesicle containing only a small portion of the nucleus.
- karyomicrosome** (kär'ē-ō-mī'krō-sōm) [" + *mikros*, small, + *soma*, body] Any of the segments or portions of chromatin within the nucleus.
- karyomitosis** (kär'ē-ō-mī-tō'sīs) [" + *mitos*, thread, + *osis*, condition] Karyokinesis.
- karyomorphism** (kär'ē-ō-mor'fīzm) [" + *morphe*, form, + *-ismos*, state of] The form of a cell nucleus.
- karyon** (kär'ē-ōn) [Gr.] The nucleus of a cell.
- karyophage** (kär'ē-ō-fāj) [Gr. *karyon*, kernel, + *phagein*, to eat] An intracellular protozoan parasite that destroys the nucleus of a cell.
- karyopyknosis** (kär'ē-ō-pīk-nō'sīs) [" + *pyknos*, thick, + *osis*, condition] Shrinkage of the nucleus of the cell with condensation of the chromatin.
- karyorrhexis** (kär'ē-ō-rēk'sīs) [" + *rhexis*, rupture] Fragmentation of the chromatin in nuclear disintegration.
- karyosome** (kär'ē-ō-sōm) [" + *soma*, body] Irregular clumps of nondividing chromatin material seen in the nuclei of cells. SYN: *chromocenter*.
- karyostasis** (kär'ē-ōs'tā-sīs) [" + *stasis*, standing] The resting stage of a cell nucleus.
- karyotheca** (kär'ē-ō-thē'kā) [" + *theke*, sheath] The enveloping membrane of a cell nucleus.
- karyotype** (kär'ē-ō-tīp) [" + *typos*, mark] A photomicrograph of the chromosomes of a single cell, taken during metaphase, when each chromosome is still a pair of chromatids. The chromosomes are then arranged in numerical order, in descending order of size. SEE: *illus.*
- karyozoic** (kär'ē-ō-zō'īk) [" + *zoon*, animal] Living in the cell nucleus, as would occur with an intracellular protozoal parasite.
- Kasabach-Merritt syndrome** (kās'ā-bōk-mēr'īt) [Haig H. Kasabach, U.S. pediatrician, 1898–1943; Katherine K. Merritt, U.S. physician, b. 1886] Capillary hemangioma associated with thrombocytopenic purpura.
- Kasai procedure** (kā-sī') [Morio Kasai, Japanese surgeon] A procedure performed to treat biliary atresia in the newborn. SYN: *hepatic portoenterostomy*.
- Kashin-Beck disease** (kā-shīn'-bēk) [N. I. Kashin, Russian physician, 1825–1872; E. V. Beck (Bek), Russian 20th century physician] Endemic polyarthritides typically found in children in Tibet, China, and neighboring regions. Its cause is unknown, but it is associated with the consumption of grains contaminated with fungi, with selenium deficiency, and possibly with iodine deficiency.
- kata-** [Gr. *kata*, down] Prefix meaning *down, reversing process, wrongly, back, destruction, against*. SEE: *cata-*.
- katal** ABBR: kat. A measure of the activity of an enzyme, specifically the quantity of an enzyme that catalyzes one mole of substrate production each second.
- katharmometer** (kät"ā-thēr-mōm'ē-ter) [" + *therme*, heat, + *metron*, measure] A device consisting of two thermometers, one a dry bulb and the other a wet bulb. Both are heated to 110°F (43.3°C) and the time required for each thermometer to fall from 100° to 90°F (37.8° to 32.2°C) is noted. The dry bulb gives the cooling power by radiation and convection, the wet bulb by radiation, convection, and evaporation.
- Katayama fever** (kah-tā-yōm'ā) [Fm. the *Katayama* River Valley in Japan, where the disease was first identified] A systemic allergic reaction to invasion of the body by *Schistosoma* larvae. It is marked by fevers, an urticarial rash, cough, enlargement of the lymph nodes and viscera, and eosinophilia.
- Kaufman assessment battery for children** (kōwf'mān) [Alan and Nadeen Kaufman, U.S. educators] ABBR: K-ABC. A test consisting of 16 subtests, used to assess cognitive development in children ages 3 to 18. This intelligence test,



KARYOTYPE OF PAIRS OF HUMAN CHROMOSOMES OF MALE AND FEMALE

consisting of both verbal and nonverbal subtests, asks children to place objects in order or logical sequence. It may be used alone or with other intelligence tests to gauge overall intelligence.

**kava** (kā'vā) [Tongan, bitter] *Piper methysticum*, a plant native to the Pacific islands, whose dried roots are used medicinally to treat anxiety and stress. It can produce stomach upset and side effects similar to those produced by alcohol. It is also known as kava kava.



Kava should not be used by women who are pregnant or breastfeeding, or by children. Usage should be discontinued if the skin becomes dry, scaly, or yellowed. Cases of hepatotoxicity have been reported.

**kavalactone** (kā'vā-lāk-tōn) The active ingredient derived from kava; it has a sedative effect on the central nervous system. Its use has been banned in Canada and Western Europe as a result of idiosyncratic cases of severe liver injury.

**Kawa Model** The title of a text by Michael Iwama that proposes a model of

occupational therapy based on Eastern philosophical principles.

**Kawasaki disease** (kā'wā-sā'kē) [Tomisaku Kawasaki, contemporary Japanese pediatrician] An acute febrile vasculitis of children, marked acutely by fever, rashes, lymphadenopathy, and irritability and chronically by late cardiac complications, including coronary artery aneurysms and myocardial infarction. Fever is present on the first day of the illness and may last from 1 to 3 weeks. The child with Kawasaki disease is irritable, lethargic, and has bilateral congestion of the conjunctivae. The oral mucosa may turn deep red, and the lips often become dry and cracked. A strawberry tongue is a prominent sign, as is redness and peeling of the skin of the hands and feet. The disease is rarely fatal in the acute phase, but children may die suddenly from coronary artery disease some years later. This disease was previously called *mucocutaneous lymph node syndrome*. Cervical lymph nodes are most often the ones enlarged. SEE: *toxic shock syndrome*; *Nursing Diagnoses Appendix*.

**EPIDEMIOLOGY:** In 80% of the children, diagnosis takes place before age 5,

and usually the younger the age at onset, the more severe the disease. The disease is rare after age 8. It occurs more commonly in Asian children than in other ethnic groups. In Japan, there are about 5000 to 6000 cases annually. By comparison, about 4000 cases occur annually in the U.S.

**DIAGNOSIS:** Because of the similarities of this disease to others (e.g., scarlet fever and toxic shock syndrome), diagnostic criteria are strict. There must be fever and at least four of the following five findings: conjunctivitis; oral lesions like those described above; redness, swelling, and peeling of the fingers and toes; rash similar to that described above; cervical lymphadenopathy. The erythrocyte sedimentation rate (ESR) is elevated.

**ETIOLOGY:** The cause is unknown, but both infectious and immune mechanisms have been proposed.

**COMPLICATIONS:** Formation of giant aneurysms of the coronary artery (esp. in infants and very young children) is the major complication and can lead to sudden death or myocardial infarction later in life. Mortality from the disease is about 1%. Other findings may include arthritis, otitis media, diarrhea, uveitis, pyuria (sterile), and hepatic dysfunction.

**TREATMENT:** If given within 10 days of onset of fever, high-dose intravenous immunoglobulin (IVIG) therapy over 12 to 24 hr can dramatically relieve the symptoms and prevent coronary artery dilation. Daily aspirin therapy has traditionally also been given to decrease the risk of coronary artery dilation, but its safety (given the risk of Reye's syndrome) and its effectiveness have been questioned. Neither antibiotics nor high-dose corticosteroids are effective. Frequent follow-up care, including repeat evaluations to detect or monitor heart disease, is essential.

**PATIENT CARE:** Medications are administered as prescribed, and the child is observed for salicylate toxicity. Both child and family benefit from psychological support during the acute period of illness and require continued support through the chronic phase. Parents learn about the importance of following the prescribed regimen and early signs of toxicity. The child requires careful monitoring during the acute phase and conscientious follow-up thereafter. The child's progress is monitored; parents must understand the importance of normal activity, sound nutrition, and good hygiene. Referral to a mental health practitioner, support groups such as the Kawasaki Disease Foundation, or spiritual counselor may be helpful for patients and families.

**Kayser-Fleischer ring** (kī'zēr-flī'shēr) A

pigmented ring seen within the limbus of patients with Wilson's disease and some other liver disorders. SEE: *Wilson's disease*.

**KBr** Potassium bromide.

**kc** *kilocycle*.

**K cells** A type of T lymphocyte activated by an antigen-antibody reaction that directly lyses (kills) infected cells.

**KC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>** Potassium acetate.

**KCl** Potassium chloride.

**KClO** Potassium hypochlorite.

**KClO<sub>3</sub>** Potassium chlorate.

**K<sub>2</sub>CO<sub>3</sub>** Potassium carbonate.

**kc.p.s., kc/s** *kilocycles per second*.

**KED** *Kendrick extrication device*.

**K-edge** In radiography, the sharp increase in characteristic x-ray production resulting when the incoming x-ray beam matches the K-shell-binding energy of an atom. K-edge production can cause problems in predicting radiation exposure; i.e., when kilovolts peak is decreased and the K-edge is matched by the incoming x-ray photons, image density may increase.

**keepsake fetal ultrasound** (kēp'sāk") A colloquialism for a three-dimensional image of an unborn child visualized in the womb with ultrasonography treated as a memento. The image is kept by expectant parents as part of a scrapbook of pregnancy and anticipated childbirth.

**keep vein open** ABBR: kvo. An order indicating that the patency of an intubated vessel be maintained so that subsequent intravenous solutions or medicines can be administered. This is done using the lowest possible infusion rate with a microdrop set or a volume controller.

**kefir, kefyr** (kēf'ēr) [Caucasus region of Russia] A preparation of curdled milk made originally in the Caucasus by adding kefir grains to milk.

**Kegel exercise** (kā'gēl) [A. H. Kegel, contemporary U.S. physician] An exercise for strengthening the pubococcygeal and levator ani muscles. The patient should repeatedly and rapidly alternate contracting and relaxing the muscles for 10 seconds; relax for 20 seconds, then sustain the contraction for 10 to 20 seconds; the patient should then rest for 10 seconds and repeat the routine until fatigued. The number of repetitions should be increased gradually to 150 per day. SYN: *pelvic floor exercise*. SEE: *incontinence, stress urinary*.

**Kehr's sign** (kērz) [Hans Kehr, German surgeon, 1862-1916] Pain that radiates into the shoulder during respiration. The sign points to a diaphragmatic or peridiaphragmatic lesion, and when it involves the left shoulder, is considered an indication of splenic rupture.

**Keith-Wagener-Barker classification** Classification of the fundoscopic findings in hypertensive patients. Grades 1



to 4 indicate progressive pathological changes. Grade 1 is moderate narrowing of the retinal arterioles; grade 2 indicates retinal hemorrhages in addition to arteriolar narrowing; in grade 3 there are cotton-wool exudates; grade 4 shows papilledema, i.e., edema of the optic disk.

**Kell blood group** (kĕl) [Named after the family in whom the blood group was first discovered.] One of the human blood groups. It is composed of three forms of antigens present on the surface of the red blood cells. SEE: *blood group*.

**keloid** (kĕ'lōyd) [Gr. *kele*, tumor, + *eidōs*, form, shape] An exuberant scar that forms at the site of an injury (or an incision) and spreads beyond the borders of the original lesion. The scar is made up of a swirling mass of collagen fibers and fibroblasts. Grossly it appears to have a shiny surface and a rubbery consistency. The most common locations for keloid formation are on the shoulders, chest, and back. SEE: *illus.*



KELOIDS

**TREATMENT:** The injection of a corticosteroid sometimes helps the lesion regress. Freezing the tissue with liquid nitrogen, applying pressure dressings, treating it with lasers, excising it surgically, or a combination of these treatments may be used, but recurrences are frequent.

**acne k.** A keloid that develops at the site of an acne pustule.

**keloidosis** (kĕ'lōy-dō'sis) [" + " + *osis*, condition] The formation of keloids.

**kelotomy** (kĕ-lōt'ō-mē) [" + *tome*, incision] An operation for strangulated hernia through tissues of the constricting neck.

**kelp** (kĕlp) **1.** Any member of the brown seaweeds of the order Laminariales. **2.** The ash of seaweed from which potassium and iodine salts are prepared.

**Kelvin scale** (kĕl'vīn) [Lord (William Thomson) Kelvin, Brit. physicist, 1824–1907] ABBR: K. The temperature scale in which absolute zero is equal to minus 273° on the Celsius scale. On the Kelvin scale the freezing point of water is 273°K, and the boiling point 373°K.

**Kendrick Extrication Device** (kĕn'drīk)

ABBR: KED. A vest-type immobilizer designed to limit movement of the cervical and thoracic spine in seated patients with suspected spinal cord injuries.

**Kent's bundles** (kĕnts) [Albert Frank Stanley Kent, Brit. physiologist, 1863–1958] Accessory conduction fiber bundles in the heart which rapidly convey atrial impulses across the atrioventricular tissue. They are usually present in the Wolff-Parkinson-White syndrome.

**kerasin** (kĕr'ā-sīn) A cerebroside isolated from brain tissue.

**kerectasia** (kĕr'ā-tĕk-tā'sĕ-ā) [" + *ektasis*, extension] Conical protrusion of the cornea.

**kerectomy** (kĕr'ā-tĕk'tō-mē) [" + *ektome*, excision] Excision of a portion of the cornea.

**photorefractive k.** ABBR: PRK. The removal of microscopic layers of corneal cells and the resculpting of the cornea with an excimer laser. The procedure is used to correct myopia. Its complications may include corneal haze, keratitis, retinal tears, and a delay in refractive stabilization.

Only one eye is treated at a time. This allows the patient to function during the 24 to 48 hr that the corrected eye may be covered. Frequently, the treated patient does not need glasses after the procedure.



Potential complications include corneal swelling, double vision, shadow images, light sensitivity, tearing, and pupil enlargement. Possible long-term adverse effects are as follows: anterior stromal reticular haze, glare, halo, loss of previously corrected vision, improper correction, induced astigmatism, increased intraocular pressure, and night vision difficulties.

**keratic** (kĕr'āt'īk) **1.** Horny. **2.** Relating to the cornea.

**k. precipitates** ABBR: KP. Inflammatory cells of the iris and ciliary body that enter the aqueous and adhere to the corneal endothelium. These precipitates are present in uveitis.

**keratin** (kĕr'ā-tīn) A family of durable protein polymers that are found only in epithelial cells. They provide structural strength to skin, hair, and nails. The fibrous protein is produced by keratinocytes and may be hard or soft.

**hard k.** Keratin found in the hair and nails.

**soft k.** Keratin found in the epidermis of the skin as the flexible, tough stratum corneum in the form of flattened non-nucleated scales which slough continually.

**keratinase** (kĕr'ā-tī-nās) An enzyme that hydrolyzes the protein keratin.

**keratinization** (kĕr'ă-tĭn-ĭ-ză'shŭn) The process of keratin formation, that is, of maturation or hardening of the skin, hair and nails.

**keratinize** (kĕr'ă-tĭn-ĭz) [Gr. *keras*, horn] To become hard or horny; usually said of tissue.

**keratinocyte** (kĕ-răt'ĭ-nō-sĭt) [*r* + *kytos*, cell] Any one of the cells in the skin that synthesize keratin.

**cultured k.** Keratinocytes that are grown in the laboratory so that a small biopsy sample from uninjured skin may grow as a sheet and expand to have a surface area 1,000 to 10,000 times the area of the sample. The sheet can be used to cover wounds such as burns. The culture technique requires 2 to 3 weeks, and the regeneration of tissue below the sheet may not be complete for 5 to 6 months.

**keratinous** (kĕr-ăt'ĭ-nŭs) Pert. to or composed of keratin.

**keratitis** (kĕr-ă-tĭ'tĭs) [*r* + *itis*, inflammation] Inflammation of the cornea, which is usually associated with decreased visual acuity and, if untreated, may sometimes result in blindness. Eye pain, tearing, light sensitivity, and low vision are the most common symptoms.

**ETIOLOGY:** The inflammation may be caused by microorganisms, trauma, drugs, vitamin A deficiency, exposure, or immune-mediated reactions.

**TREATMENT:** Therapy depends upon the underlying cause. Bacterial infections respond to antibacterial medications (typically administered in drops), herpes simplex viral infection requires antiviral agents, fungal keratitis is treated with antifungal agents, while exposure keratitis, as in Bell's palsy, is preventable with topical lubricants.

**PATIENT CARE:** Because of the seriousness of this condition, patients experiencing eye inflammation or pain should seek immediate medical attention. The patient is assessed for a history of recent upper respiratory infection accompanied by cold sores; pain; central vision loss; sensitivity; the sensation of a foreign body in the eye; contact lens use; photophobia; and blurred vision. The eye is inspected for loss of normal corneal luster and inflammation. A slit lamp examination is often used for optimal viewing of the eye to confirm the condition. Fluorescein staining helps in determining the extent and depth of corneal ulcerations. The patient should refrain from rubbing the eye, which can cause complications. Prescribed therapies are administered, and the patient is instructed in their use. Warm compresses are applied as prescribed to relieve pain. If the patient complains of photophobia, the use of dim lighting or sunglasses is recommended. The patient should follow the

prescribed treatment regimen carefully for the entire course and return for follow-up examination.

**Patient education:** the correct instillation of prescribed eye medications and the importance of thorough handwashing prior to and following touching the eye are emphasized. Contact lenses are removed and not replaced until infectious forms of keratitis are cured. Any potentially contaminated lenses or lens solutions should be discarded. Stress, traumatic injury, fever, colds, and overexposure to the sun may trigger flare-ups. Both patient and family are taught about safety precautions pertaining to visual sensory or perceptual alterations. They are encouraged to verbalize their fears and concerns. Appropriate information and emotional support and reassurance are provided.



Because many common forms of keratitis are infectious, examiners should use standard precautions during the evaluation of the eye.

**chlamydial k.** Corneal ulcerations that accompany chlamydial infection of the conjunctiva.

**dendritic k.** Superficial branching corneal ulcers.

**k. disciformis** A gray, disk-shaped opacity in the middle of the cornea.

**exposure k.** Epithelial defects of the cornea that result from inadequate protection of the eye by the eyelids, as in Bell's palsy.

**fascicular k.** A corneal ulcer resulting from pterygia that spread from limbus to the center of cornea accompanied by fascicle of blood vessels.

**herpetic k.** Dendritic keratitis in herpes zoster or herpes simplex infections.

**hypopyon k.** A serpent-like ulcer with pus in the anterior chamber of the eye.

**interstitial k.** A deep form of nonsuppurative keratitis with vascularization, occurring usually in syphilis and rarely in tuberculosis. It commonly occurs between ages 5 and 15. Symptoms include pain, photophobia, lacrimation, and loss of vision. SYN: *parenchymatous keratitis*.

**lagophthalmic k.** Drying due to air exposure of the cornea resulting from a defective closure of the eyelids.

**mycotic k.** Keratitis produced by fungi.

**neuroparalytic k.** The dull and slightly cloudy insensitive cornea seen in lesions of the fifth nerve. SYN: *neurotrophic keratitis*.

**neurotrophic k.** Neuroparalytic keratitis.

**parenchymatous k.** Interstitial k.  
**phlyctenular k.** Circumscribed in-

inflammation of the conjunctiva and cornea accompanied by the formation of small projections called phlyctenules, which consist of accumulations of lymphoid cells. The phlyctenules soften at the apices, forming ulcers. SEE: *phlyctenular keratoconjunctivitis*.

**punctate k.** Punctate epithelial defects on the cornea epithelium, often seen in dry eye. SYN: *superficial punctate keratitis*.

**purulent k.** Keratitis with the formation of pus.

**sclerosing k.** A triangular opacity in the deeper layers of the cornea, associated with scleritis.

**superficial punctate k.** Punctate k. SEE: *Thygeson's disease*.

**thermal k.** Damage to the cornea resulting from a burn.

**trachomatous k.** A form of chlamydial keratitis. SEE: *pannus*.

**traumatic k.** Keratitis caused by a wound of the cornea.

**xerotic k.** Softening, desiccation, and ulceration of cornea resulting from dryness of the conjunctiva.

**kerato-, kerat-** [Gr. *keras*, horn] Combining forms indicating *horny substance* or *cornea*.

**keratoacanthoma** (kēr'ā-tō-āk'ānthō'mā) [" + *akantha*, thorn, + *oma*, tumor] A common benign tumor that has a mound-shaped body with a central keratin-filled crater. The lesion clinically and histologically resembles squamous cell carcinoma of the skin, and may be related to this cancer. SEE: *illu.*



**KERATOACANTHOMA**

**TREATMENT:** Spontaneous healing of the tumor is common. Lesions that do not heal on their own can be surgically excised.

**keratocele** (kēr-āt'ō-sēl) [" + *kele*, tumor, swelling] The protrusion or herniation of Descemet's membrane through a weakened or absent corneal stroma as a result of injury or ulcer.

**keratoconjunctivitis** (kēr'ā-tō-kōnjūnk'tī-vī'tis) Inflammation of the cornea and the conjunctiva.

**epidemic k.** An acute, self-limited keratoconjunctivitis caused by a highly infectious adenovirus. SYN: *acute contagious conjunctivitis*.

**flash k.** Painful keratoconjunctivitis resulting from exposure of the eyes to intense ultraviolet irradiation. Arc welders whose eyes are not properly protected will develop this acute condition.

**phlyctenular k.** A delayed hypersensitivity response (type IV) to antigens in the conjunctiva. The disease may be caused by *Chlamydia*, *Mycobacterium tuberculosis*, and *Staphylococcus aureus*. Symptoms include pain and photophobia; in severe cases, perforation of the cornea can occur. Treatment depends on the underlying cause.

**k. sicca** Dryness with hyperemia of the conjunctiva in Sjögren's syndrome owing to autoimmune-mediated decreased lacrimal function. The corneal epithelium may be thickened and visual acuity impaired. The condition is treated by use of artificial tears and other ocular lubricants. SYN: *dry eye*; *xerophthalmia*. SEE: *Schirmer's test*; *Sjögren's syndrome*.

**keratoconus** (kēr-ā-tō-kō'nūs) [" + *konos*, cone] A hereditary, degenerative corneal disease resulting in a conical protrusion of the central cornea with thinning. It is often bilateral, occurring in the second decade of life. Initially, the disease is asymptomatic with a decrease in vision, correctable with glasses. Significant astigmatism is associated with progression of the disease. Rigid contact lenses and eventually a corneal transplant may be needed to improve vision. Perforation of the thinned central cornea may result and is called hydrops, which can significantly decrease visual acuity.

**keratocyte** (kēr'ā-tō-sīt) **1.** A corneal connective tissue cell. **2.** A spiculated or spindle-shaped red blood cell, sometimes seen in peripheral blood smears in patients with hemolytic anemias.

**keratoderma** (kēr'ā-tō-dēr'mā) [" + *derma*, skin] A localized or disseminated disease of the horny layer of the skin.

**k. blennorrhagica** Prominent hyperkeratotic scaling lesions of the palms, soles, and penis; around the nails; and occasionally in other areas. This condition is associated with Reiter's syndrome.

**k. climactericum** Hyperkeratosis of the palms and soles of women, which may occur during menopause.

**keratodermatitis** (kēr'ā-tō-dēr'mā-tī'tis) [" + " + *itis*, inflammation] Inflammation of the horny layer of the skin with proliferation.

**keratodermia** (kēr'ā-tō-dēr'mē-ā) Hypertrophy of the stratum corneum or horny layer of the epidermis, esp. on the palms of hands and soles of feet, producing a horny condition of the skin. SYN: *hyperkeratosis*.



**keratogenous** (kěr'ă-tōj'ě-nūs) [ʹ + *gennan*, to produce] Causing horny tissue development.

**keratoglobus** (kěr'ă-tō-glō'būs) [ʹ + *L. globus*, circle] A globular protrusion and enlargement of the cornea, seen in congenital glaucoma.

**keratohelcosis** (kěr'ă-tō-hěl-kō'sīs) [ʹ + *helkosis*, ulceration] Corneal ulceration.

**keratohyalin** (kěr'ă-tō-hī'ă-līn) The precursor of keratin, present in the form of granules in the cytoplasm of cells in the stratum granulosum of keratinized mucosa or epidermis of the skin.

**keratoid** (kěr'ă-toyd) [ʹ + *eidos*, form, shape] Horny; resembling corneal tissue.

**keratoiritis** (kěr'ă-tō-ī-rī'tīs) [ʹ + *iris*, iris, + *itis*, inflammation] Inflammation of the cornea and iris.

**keratoleptynsis** (kěr'ă-tō-lēp-tīn'sīs) [ʹ + *leptynein*, to make thin] A cosmetic operation performed on a sightless eye. The procedure involves removing the corneal surface and covering the area with bulbar conjunctiva.

**keratoleukoma** (kěr'ă-tō-lū-kō'mă) [ʹ + *leukos*, white, + *oma*, tumor] White corneal opacity.

**keratolysis** (kěr'ă-tōl'ī-sīs) [ʹ + *lysis*, dissolution] 1. A loosening of the horny layer of the skin. 2. Shedding of the skin at regular intervals.

**pitted k.** Hyperkeratotic areas of the soles and palms with erosion and pitting. The etiology is unknown but may involve infection with *Corynebacterium* or *Actinomyces*. It occurs mostly in barefooted adults in the tropics.

**keratolytic** (kěr'ă-tō-līt'ik) 1. Rel. to or causing keratolysis. SYN: *desquamative*. 2. An agent that causes or promotes keratolysis.

**keratoma** (kěr'ă-tō'mă) [ʹ + *oma*, tumor] Keratosis (2).

**keratomalacia** (kěr'ă-tō-mă-lă'shē-ă) [ʹ + *malakia*, softness] Softening of the cornea seen in early childhood owing to deficiencies of vitamin A. SEE: *xerotic keratitis*.

**keratome** (kěr'ă-tōm) [ʹ + *tome*, incision] A knife for incising the cornea. SYN: *keratotome*.

**keratometer** (kěr'ă-tōm'ě-ter) [ʹ + *metron*, measure] An instrument for measuring the curves of the cornea that is used to prepare contact lenses.

**keratometry** (kěr'ă-tōm'ě-trē) [ʹ + *metron*, measure] Measurement of the cornea.

**keratomileusis** (kěr'ă-tō-mī-loo'sīs) [ʹ + *smileusis*, carving] Plastic surgery of the cornea in which a portion is removed and frozen and its curvature reshaped; then it is reattached to the cornea.

**laser-assisted in-situ k.** ABBR: LA-SIK. A surgical treatment for near-

sightedness, farsightedness, and other refractive errors of vision. In this procedure, a microtome is used to cut a thin flap on the surface of the cornea and a laser is used to resculpt the deeper tissue and correct refractive errors. Many patients have a marked improvement in their visual acuity as a result of the procedure. Complications can include infections, hazy vision, double vision, visual halos, the need for reoperation, corneal burns requiring corneal transplant, and blindness.

**keratomycosis** (kěr'ă-tō-mī-kō'sīs) [ʹ + *mykes*, fungus, + *osis*, condition] Fungal infection of the cornea.

**keratonosis** (kěr'ă-tō-nō'sīs) [ʹ + *nosos*, disease] Any noninflammatory disease or deformity of the horny layer of the skin.

**keratopathy** (kěr'ă-tōp'ă-thē) [ʹ + *pathos*, disease] A degenerative process with small blister-like lesions in a swollen corneal epithelial layer; vision is significantly decreased.

**band k.** Band-shaped calcium deposits in the superficial layer of the cornea and Bowman's membrane. This occurs with chronic intraocular inflammation such as in juvenile rheumatoid arthritis, and with systemic diseases in which there is hypercalcemia.

**bullous k.** Blistering of the cornea, accompanied by corneal swelling.

**pseudophakic bullous k.** Keratopathy occurring after cataract surgery; more common after placement of an anterior chamber lens.

**keratoplasty** (kěr'ă-tō-plăs'tē) [ʹ + *plassein*, to form] Corneal grafting. The replacement of a cloudy cornea with a transparent one, typically derived from an organ donor. SEE: *lens*, *corneal contact*.

**optic k.** The removal of a corneal scar and replacement with corneal tissue.

**refractive k.** Treatment of myopia or hyperopia by removing a portion of the cornea, freezing it in order to reshape it surgically to correct refractive error, and then replacing it after it has thawed. SEE: *keratomileusis*.

**tectonic k.** Use of corneal tissue to replace that lost because of trauma or disease.

**keratoprosthesis** (kěr'ă-tō-prōs-thē'sīs) A corneal implant, used to replace a clouded portion of the cornea.

**keratoprotein** (kěr'ă-tō-prō'tē-īn) [ʹ + *protos*, first] The protein of the hair, nails, and epidermis. SEE: *keratin*.

**keratorrhexis** (kěr'ă-tō-rěks'īs) [ʹ + *rhexis*, rupture] Corneal rupture.

**keratoscleritis** (kěr'ă-tō-sklēr-ī'tīs) [ʹ + *skleros*, hard, + *itis*, inflammation] Inflammation of both cornea and sclera.

**keratoscope** (kěr'ăt-ō-skōp) [ʹ + *skopein*, to examine] An instrument for examination of the cornea.

**keratoscopy** (kĕr'ă-tōs'kō-pē) Examination of the cornea and its reflection of light.

**keratose** (kĕr'ă-tōs) [Gr. *keras*, horn] Horny.

**keratosis** (kĕr'ă-tō'sis) *pl.* **keratoses** [' + *osis*, condition] **1.** Growth of the horny layer of the skin (also known as a callus, a callosity, or a keratoma). **2.** Any condition of the skin characterized by the formation of horny growths or excessive development of the horny growth. SYN: *keratoma*.

**actinic k.** ABBR: AK. A rough, sandpaper-textured, premalignant macule or papule caused by excess exposure to ultraviolet light. AKs often appear on facial skin (e.g., near the eyes, on the nose, on the ears, or the lips) and the parts of the body that receive the most sunlight exposure. Prevention of AKs depends on limiting one's exposure to sunlight, beginning in childhood and continuing throughout life.

**TREATMENT:** Liquid nitrogen destroys these lesions and prevents them from progressing to other cancers of the skin. SYN: *solar keratosis*. SEE: *sunscreen*.

**k. follicularis** Darier's disease.

**k. nigricans** Acanthosis nigricans.

**oral k.** Keratinization of the mucosa of the mouth to an unusual extent, or in locations normally not keratinized, as a result of an inherited autosomal dominant gene or the more common effect of tobacco and other carcinogens.

**k. palmaris et plantaris** A congenital abnormality of the palms and soles, characterized by a dense thickening of the keratin layer in these regions.

**k. pharyngis** Horny projections from the pharyngeal tonsils and adjacent lymphoid tissue.

**k. pilaris** Chronic inflammatory disorder of area surrounding the hair follicles. The etiology is unknown.

**SYMPTOMS:** The disorder is characterized by an accumulation of horny material at follicular orifices of persons with rough, dry skin. It is most pronounced in winter on lateral aspects of thighs and upper arms with possible extension to legs, forearms, and scalp.

**TREATMENT:** There is no specific therapy, but keratolytic lotions may be of some value.

**k. punctata** Discrete horny projections from the sweat pores of the palms and soles.

**seborrhic k.** A benign skin tumor that may be pigmented. It is composed of immature epithelial cells and is quite common in older adults. Its etiology is unknown.

**SYMPTOMS:** Keratoid, nevoid, acanthoid, or verrucose types occur in older adults and in those with long-standing dry seborrhea, on the face, scalp, inter-

scapular or sternal regions, and backs of the hands. The yellow, gray, or brown sharply circumscribed lesions are covered with a firmly adherent scale, greasy or velvety on the trunk or scalp but harsh, rough, and dry on the face or hands.

**TREATMENT:** Thorough curettage is effective. This leaves a flat surface that becomes covered with normal skin within about 1 week. Pedunculated lesions can be removed surgically. Caution may produce scarring and should not be used. SYN: *wart*, *seborrhic*. SEE: *illus*.



**SEBORRHEIC KERATOSSES ON BACK**

**k. senilis** An inaccurate synonym for actinic keratosis, which is caused by accumulated ultraviolet light exposure, not by aging.

**solar k.** Actinic k.

**keratotome** (kĕr'ăt'ō-tōm) [' + *tome*, incision] Keratome.

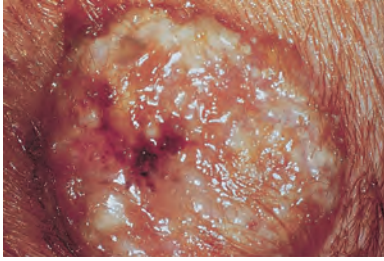
**keratotomy** (kĕr'ăt-tōt'ō-mē) **1.** Incision of the cornea. **2.** Removal of the corneal epithelium, typically by scraping.

**radial k.** Surgical therapy for nearsightedness. Very shallow, bloodless, hairline, radial incisions are made (e.g., by a laser) in the outer portion of the cornea where they will not interfere with vision. This allows the cornea to flatten and helps correct the nearsightedness. About two thirds of patients undergoing this procedure will be able to eliminate the use of glasses or contact lenses.

**keratouveitis** Inflammation of both the cornea and the uveal tract (i.e., of both the cornea and the iris, ciliary body, and choroid). SYN: *cyclokeratitis*.

**kerion** (kĕ'rĕ-ōn) [Gr., honeycomb] An inflamed, boggy mass that appears on the scalp of some patients with tinea capitis. It is believed to represent a hypersensitivity reaction to fungal antigens. It may result in a localized area of permanent hair loss. SEE: *illus*.

**Kerley lines** (kĕr'lē) [P. J. Kerley, Brit. radiologist, b. 1900] Lines present on chest radiographs of patients with any disease that causes thickening or infiltration of the interlobular septa. Those



KERNION

in the costophrenic angle area are called Kerley B lines, and those extending peripherally from the hilum are termed Kerley A lines. Kerley C lines are fine lines in the middle of pulmonary tissue.

**kernicterus** (kēr-nik'tēr-ūs) [Ger.] A form of jaundice occurring in newborns during the second to eighth day after birth. The basal ganglia and other areas of the brain and spinal cord are infiltrated with bilirubin, a yellow substance produced by the breakdown of hemoglobin. The disorder is treated by phototherapy and exchange transfusion to limit neurological damage. The prognosis is quite poor if the condition is left untreated. SEE: *erythroblastosis fetalis*; *hemolytic disease of the newborn*; *hyperbilirubinemia*; *icterus gravis neonatorum*; *phototherapy*.

**Kernig's sign** (kēr'nīgz) [Vladimir Kernig, Russ. physician, 1840–1917] A sign of meningeal irritation evidenced by reflex contraction and pain in the hamstring muscles, when attempting to extend the leg after flexing the hip.

**kerosene** (kēr'ō-sēn) A flammable liquid fuel distilled from petroleum. It is used as a solvent as well as a fuel source. SEE: *Poisons and Poisoning Appendix*.

**ketoacidosis** (kē'tō-ās'ī-dō'sīs) [Ger. *keton*, alter. of *azeton*, acetone, + L. *acidus*, sour, + Gr. *osis*, condition] Acidosis due to an excess of ketone bodies. It occurs in individuals who do not produce adequate insulin to sustain normal fat metabolism.

**ketoaciduria** (kē'tō-ās'ī-dū'rē-ä) [" + Gr. *ouron*, urine] The presence of keto acids in the urine.

**ketogenesis** (kē'tō-jēn'ēs'īs) [" + Gr. *genesis*, generation, birth] The production of acetone or other ketones.

**ketolide** (kē'tō-lid') A derivative of the macrolide antibiotics, modified by the addition of a ketone to the macrolide structure. Telithromycin is a ketolide.

**ketolysis** (kē-tōl'ī-sīs) [" + Gr. *lysis*, dissolution] The dissolution of acetone or ketone bodies. **ketolytic**, *adj.*

**ketone** (kē'tōn) A substance containing the carbonyl group (C=O) attached to two carbon atoms. Acetone, C<sub>3</sub>H<sub>6</sub>O, is an example of a simple ketone.

**k. threshold** The level of ketone in the blood above which ketone bodies appear in the urine.

**ketone body** One of a number of substances that increase in the blood as a result of faulty carbohydrate metabolism. Among them are β-hydroxybutyric acid, acetoacetic acid, and acetone. They increase in persons with untreated or inadequately controlled diabetes mellitus and are the primary cause of acidosis. They may also occur in other metabolic disturbances. SYN: *acetone body*.

**ketonemia** (kē'tō-nē'mē-ä) [" + Gr. *haima*, blood] The presence of acetone bodies in the blood, which causes the characteristic fruity breath odor in ketoacidosis.

**ketonuria** (kē-tō-nū'rē-ä) [" + Gr. *ouron*, urine] Acetone bodies in the urine.

**ketoplasia** (kē-tō-plā'sē-ä) [" + Gr. *plassein*, to form] The formation or excretion of ketones.

**ketoplastic** (kē'tō-plās'tīk) [" + Gr. *plastikos*, formed] Pert. to ketoplasia or to the formation of ketones.

**ketose** (kē'tōs) A carbohydrate containing the ketones.

**ketosis** (kē-tō'sīs) [" + Gr. *osis*, condition] The accumulation in the body of the ketone bodies: acetone, beta-hydroxybutyric acid, and acetoacetic acid. It is frequently associated with acidosis. Ketosis results from the incomplete metabolism of fatty acids, usually from carbohydrate deficiency or inadequate use, and is commonly observed in starvation, high-fat diet, and pregnancy; following ether anesthesia; and most significantly in inadequately controlled diabetes mellitus. Large quantities of these ketone bodies may be eliminated in the urine (ketonuria). Ketosis is easily determined by testing for the presence of ketones in blood specimens. **ketotic**, *adj.*

**17-ketosteroid** (kē-tō-stēr'oyd) One of a group of neutral steroids having a ketone group in carbon position 17. They are produced by the adrenal cortex and gonads and appear normally in the urine. Among them are androsterone, dehydroisoandrosterone, corticosterone, and 11-hydroxyisoandrosterone. A greater than normal or less than normal excretion in the urine is indicative of certain endocrine disorders such as adrenal adenomas or Cushing's syndrome. SEE: *perhydrocyclopentanophenanthrene*.

**ketosuria** (kē'tō-sū'rē-ä) Presence of ketone bodies in the urine. SEE: *ketosis*.

**keV** *kiloelectron volts*.

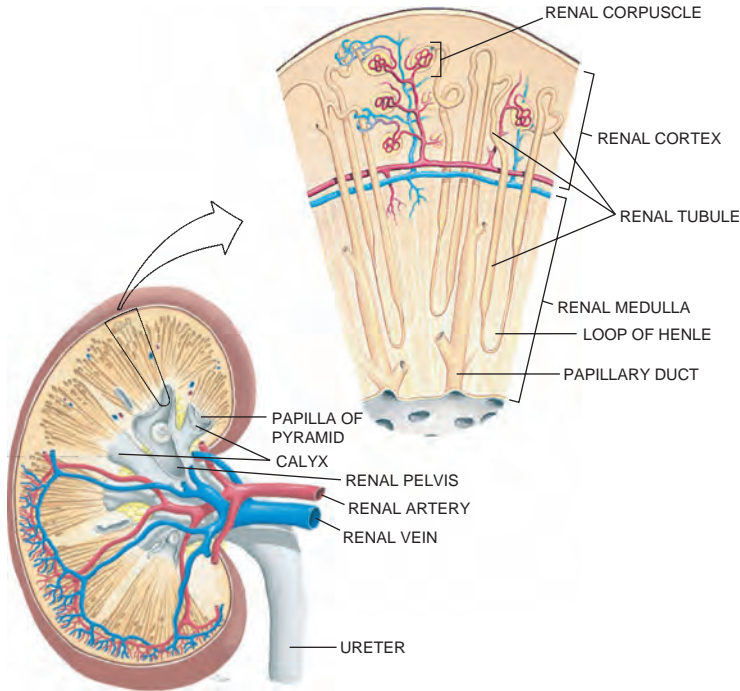
**keystone area** ABBR: K area. The junction of the perpendicular portion of the ethmoid bones with the nasal septum.

**kg** *kilogram*.

**kg-m** *kilogram-meter*.

**KHCO<sub>3</sub>** Potassium bicarbonate.

**KHSO<sub>4</sub>** Potassium bisulfate.



### KIDNEY

Frontal section

**kHz** *kilohertz*.

**KI** Potassium iodide.

**kidney** (kĭd'nē) [ME. *kidenei*] One of a pair of purple-brown organs situated at the back (retroperitoneal area) of the abdominal cavity; each is lateral to the spinal column. The kidneys form urine from blood plasma. They are the major regulators of the water, electrolyte, and acid-base content of the blood and, indirectly, all body fluids.

**ANATOMY:** The top of each kidney is opposite the 12th thoracic vertebra; the bottom is opposite the third lumbar vertebra. The right kidney is slightly lower than the left one. Each kidney weighs 113 to 170 g (4 to 6 oz), and each is about 11.4 cm (4½ in) long, 5 to 7.5 cm (2 to 3 in) broad, and 2.5 cm (1 in) thick. The kidneys in the newborn are about three times as large in proportion to body weight as they are in the adult.

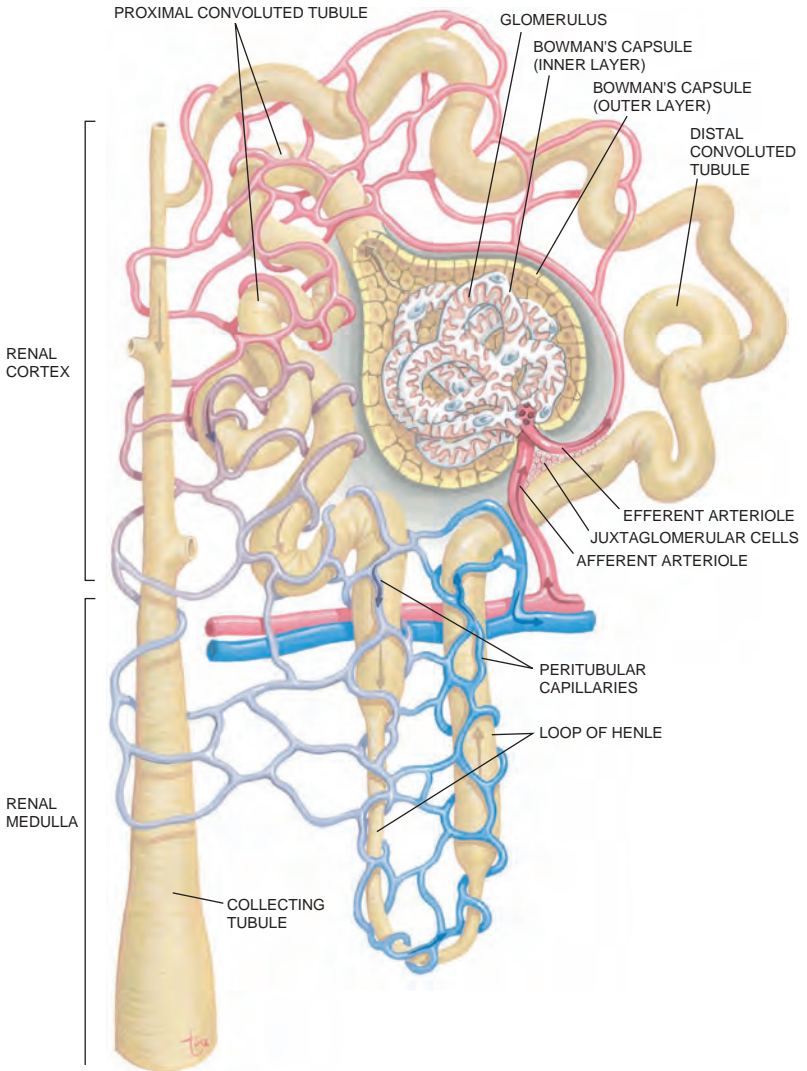
Each kidney is surrounded by adipose tissue and by the renal fascia, a fibrous membrane that helps hold the kidney in place. On the medial side of a kidney is an indentation called the hilus or hilum, at which the renal artery enters and the renal vein and ureter emerge. The microscopic nephrons are the structural and functional units of the kidney; each consists of a renal corpuscle and renal

tubule with associated blood vessels. In frontal section, the kidney is composed of two areas of tissue and a medial cavity. The outer renal cortex is made of renal corpuscles and convoluted tubules. The renal medulla consists of 8 to 18 wedge-shaped areas called renal pyramids; they are made of loops of Henle and collecting tubules. Adjacent to the hilus is the renal pelvis, the expanded end of the ureter within the kidney. Urine formed in the nephrons is carried by a papillary duct to the tip (papilla) of a pyramid, which projects into a cuplike calyx, an extension of the renal pelvis. **SEE: illus. (Kidney).**

**NEPHRON:** The nephron consists of a renal corpuscle and renal tubule. The renal corpuscle is made of a capillary network called a glomerulus surrounded by Bowman's capsule. The renal tubule extends from Bowman's capsule. The parts, in order, are as follows: proximal convoluted tubule, loop of Henle, distal convoluted tubule, and collecting tubule, all of which are surrounded by peritubular capillaries. **SEE: illus. (Nephron and Blood Vessels).**

**FORMATION OF URINE:** Urine is formed by filtration, reabsorption, and secretion. As blood passes through the





NEPHRON AND BLOOD VESSELS

glomerulus, water and dissolved substances are filtered through the capillary membranes and the inner or visceral layer of Bowman's capsule; this fluid is now called glomerular filtrate. Blood cells and large proteins are retained within the capillaries. Filtration is a continuous process; the rate varies with blood flow through the kidneys and daily fluid intake and loss. As the glomerular filtrate passes through the renal tubules, useful materials such as water, glucose, amino acids, vitamins, and minerals are reabsorbed into the peritubular capillaries. Most of these

have a renal threshold level, i.e., a limit to how much can be reabsorbed, but this level is usually not exceeded unless the blood level of these materials is above normal. Reabsorption of water is regulated directly by antidiuretic hormone and indirectly by aldosterone. Most waste products remain in the filtrate and become part of the urine. Hydrogen ions, creatinine, and the metabolic products of medications may be actively secreted into the filtrate to become part of the urine. The collecting tubules unite to form papillary ducts that empty urine into the calyces of the renal pelvis, from



which it enters the ureter and is transported to the urinary bladder. Periodically the bladder is emptied (a reflex subject to voluntary control) by way of the urethra; this is called micturition, urination, or voiding. If a normally hydrated individual ingests a large volume of aqueous fluids, in about 45 min a sufficient quantity will have been excreted into the bladder to cause the urge to urinate. SEE: *illus. (Formation of Urine)*.

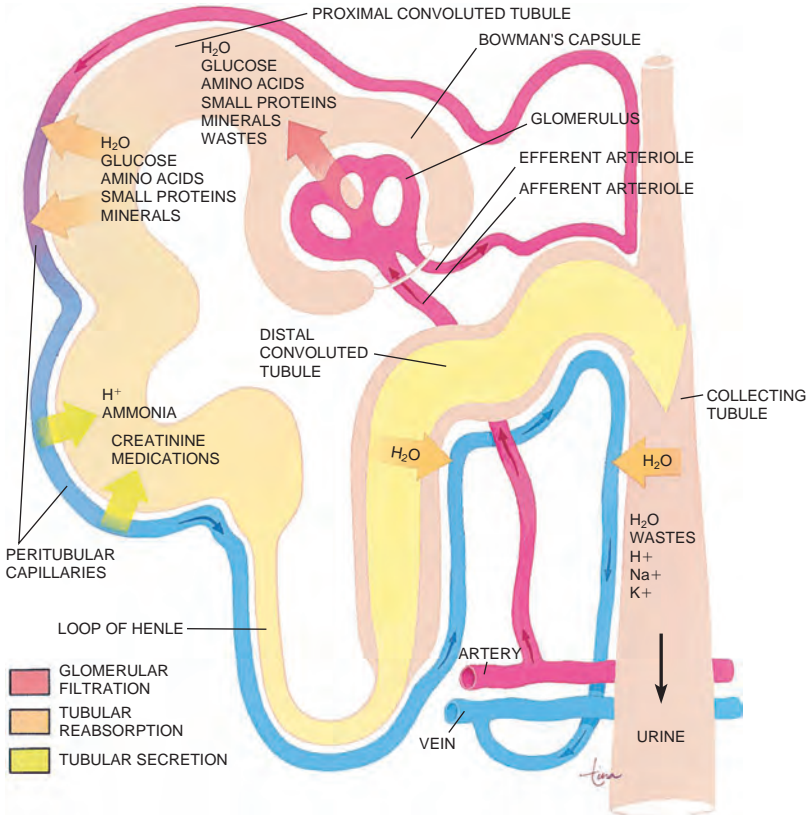
**URINE:** Urine is about 95% water and about 5% dissolved substances. The dissolved materials include minerals, esp. sodium, the nitrogenous waste products urea, uric acid, and creatinine, and other metabolic end products. The volume of urine excreted daily varies from 1000 to 2000 ml (averaging 1500 ml). The amount varies with water intake, nature of diet, degree of body activity, environmental and body temperature, age, blood pressure, and many other factors. Pathological conditions may affect the volume and nature of the urine excreted. However, patients with

only one kidney have been found to have normal renal function even after half of that kidney was removed because of cancer. There is no evidence that forcing fluids is detrimental to the kidneys.

**NERVE SUPPLY:** The nerve supply consists of sympathetic fibers to the renal blood vessels. These promote constriction or dilation, esp. of arteries and arterioles.

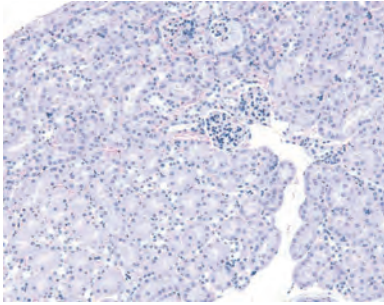
**DISORDERS:** Frequently encountered diseases of the kidney include infection (pyelonephritis), stone formation (nephrolithiasis), dilation (hydronephrosis), protein loss (nephrosis), cancer (hypernephroma), and acute or chronic renal failure. SEE: *dialysis; glomerulonephritis; nephropathy; nephritis; renal failure*.

**EXAMINATION:** The kidneys are examined by palpation, intravenous pyelography, ultrasonography, computed tomography scan, cystoscopy, retrograde cystoscopy, or magnetic resonance imaging. Kidney function is also frequently examined with blood tests (e.g., for electrolytes, blood urea nitro-



FORMATION OF URINE

gen, and creatinine) and by urinalysis or timed collections of urine. **SEE:** *illus.*



### KIDNEY TUBULES

Microscopic appearance of the kidney

**amyloid k.** An enlarged, firm, smooth kidney usually associated with systemic amyloidosis. **SYN:** *waxy kidney*.

**SYMPTOMS:** Infected persons typically lose large quantities of protein in the urine and may present with edema or symptoms of fluid overload, nephrosis, or renal failure.

**artificial k.** Hemodialyzer.

**cake k.** Congenitally fused kidneys.

**contracted k.** The abnormally small kidney found in end-stage renal disease.

**cystic k.** A kidney that has undergone cystic degeneration. **SEE:** *polycystic kidney disease*.

**embolic contracted k.** A kidney in which embolic infarction of the renal arterioles produces degeneration of renal tissue and hyperplasia of fibrous tissues produces irregular contraction.

**fatty k.** A kidney with fatty infiltration or degeneration of tubular, glomerular, or capsular epithelium, or of vascular connective tissue.

**flea-bitten k.** A kidney with small pectichiae covering the surface, a pathological finding in bacterial endocarditis and some other systemic illnesses.

**floating k.** A kidney that is displaced and movable.

**fused k.** A condition in which the kidneys are joined into one anomalous organ.

**Goldblatt k.** **SEE:** *Goldblatt kidney*.

**horseshoe k.** A congenital malformation in which the superior or inferior extremities are united by an isthmus of renal or fibrous tissue, forming a horseshoe shape.

**hypermobile k.** A freely movable kidney. **SYN:** *wandering kidney*.

**medullary sponge k.** A congenital condition characterized by the presence—seen best during urography—of spongy or porous appearing renal collecting tubules. The disease may be asymptomatic or may cause urinary bleeding, stone formation with renal

colic, or recurrent urinary tract infections. **SYN:** *Cacchi-Ricci syndrome*.

**movable k.** A kidney that is not firmly attached owing to lack of support of fatty tissue and perinephric fascia. **SYN:** *nephroptosis*.

**polycystic k.** A kidney bearing many cysts. **SEE:** *kidney disease, polycystic*.

**sacculated k.** A condition in which the kidney has been absorbed and only the distended capsule remains.

**syphilitic k.** Kidney with fibrous bands running across it, and caseating gummata, as a result of syphilis.

**wandering k.** Hypermobile k.

**waxy k.** Amyloid k.

**kidney disease, polycystic** **ABBR:** PKD. An inherited renal disorder transmitted as an autosomal recessive trait in infants and as an autosomal dominant trait in adults. PKD was previously termed *adult polycystic kidney disease*. It is characterized by cyst formation in ductal organs, particularly the kidney and liver, and by gastrointestinal and cardiovascular abnormalities. Included are colonic diverticula, cardiac valvular abnormalities, and intracranial and aortic aneurysms. Symptoms include hypertension, acute and chronic pain, and urinary tract infections. It is one of the most common hereditary disorders, occurring in about 1 in 400 to 1 in 1000 people. An estimated 500,000 persons have the disease in the U.S. It accounts for 10% of cases of end-stage renal disease. Treatment includes medical therapy for renal failure with eventual renal dialysis and renal transplantation.

**kidney stone** Renal calculus.

**kidney stone removal, laser treatment for** The use of a laser to disintegrate renal calculi. A fiberoptic device is inserted via the urethra, bladder, and ureter to the calculus. The laser is activated and the stone is destroyed without injuring adjacent tissues. **SEE:** *extracorporeal shock-wave lithotripter*.

**Kienböck's disease** (kēn'bēks) [Robert Kienböck, Austrian physician, 1871–1953] Osteochondrosis or slow degeneration of the lunate bone of the wrist; usually resulting from trauma. Radiographic evidence includes sclerosis and collapse of the lunate. Treatment goals are to reduce pain, maintain motion, and prevent carpal collapse and ultimately arthritis.

**Kiesselbach's area** (kē'sēl-bōks) [Wilhelm Kiesselbach, Ger. laryngologist, 1839–1902] A rich network of veins on the anteroinferior portion of the nasal septum. Because of its abundant supply of capillaries, it is a common site of nosebleed.

**kilo-** [Fr.] Combining form indicating 1000.

**kilobase** (kīl'ō-bās") **ABBR:** kb. Unit indicating the length of a nucleic acid se-

quence. One kb is 1000 nucleotide sequences long.

**kilocalorie** (kīl'ō-kāl'ō-rē) ABBR: C, kcal. A unit of measure for heat. In nutrition, a kilocalorie is known as a large Calorie and is always written with a capital C. SEE: *calorie*.

**kilocycle** (kīl'ō-sī'k'l) ABBR: kc. One thousand cycles; previous name for kilohertz.

**kilodalton** (kīl'ō-dōl'tīn) [ " + " ] ABBR: kD. A unit of mass consisting of 1000 daltons.

**kilogram** (kīl'ō-grām) [Fr. *kilo*, a thousand, + *gramme*, a weight] ABBR: kg. One thousand grams or 2.2 lb avoirdupois. A unit of mass. SEE: *newton*; *pascal*; SI Units Appendix.

**kilogram-meter** (kīl'ō-grām"-mē'tēr) ABBR: kg-m. The work required to raise one kilogram one meter.

**kilohertz** (kīl'ō-hērtz") ABBR: kHz. In electricity, a unit of 1000 cycles; formerly called kilocycle.

**kilojoule** (kīl'ō-jū'l) ABBR: kJ. One thousand joules.

**kiloliter** (kīl'ō-lē'tēr) [Fr. *kilolitre*] ABBR: kl. One thousand liters.

**kilometer** (kīl'ō-mē'tēr, kī-lōm'ī-tēr) [Fr. *kilometre*] ABBR: km. One thousand meters, or 3281 feet (roughly 0.62 mile).

**kilopascal** (kīl'ō-pās-kāl') [Fr. *kilo*, a thousand, + *pascal*, Fr. scientist] ABBR: kPa. In SI units, a unit of pressure equal to 1000 pascals. Attempts to have blood pressure expressed in kPa have not been accepted. SEE: *pascal*.

**kilounit** (kīl'ō-ū'nīt) One thousand units.

**kilovolt** (kīl'ō-vōlt") [Fr. *kilo*, a thousand, + *volt*] ABBR: kV. One thousand volts.

**kilovoltage peak** (kīl'ō-vōlt'īj) ABBR: kVp. The highest voltage occurring during an electrical cycle.

**kilowatt** (kīl'ō-wāt") ABBR: kW. A unit of electrical energy equal to 1000 watts.

**Kimmelstiel-Wilson syndrome** (kīm'ēl-stēl-wīl'sōn) [Paul Kimmelstiel, Ger. physician, 1900–1970; Clifford Wilson, Brit. physician, 1906–1997] A syndrome that may develop in patients in whom diabetes mellitus has been present for several years. Hypertension, glomerulonephrosis, edema, and retinal lesions are present; arteriosclerosis of the renal artery is a common complication. SEE: *diabetes*.

**kinesthesia** (kīn-ān-ēs-thē'zē-ā) [Gr. *kinesis*, movement, + *an-*, not, + *ais-thesis*, sensation] The inability to perceive the extent of a movement or direction, resulting in ataxia.

**kinase** (kīn'ās) An enzyme that catalyzes the conversion of a proenzyme to a fully active enzyme.

**cyclin-dependent k.** ABBR: CDK. A family of enzymes involved in regulation of the cell cycle. They serve as tar-

gets for pharmacological manipulation of this cycle, particularly during the unregulated proliferation of tumor cells.

**myosin light chain k.** An enzyme in smooth muscle cells that catalyzes the transfer of a phosphate group from adenosine triphosphate to myosin, which initiates contraction.

**protein k.** SEE: *protein kinase*.

**tyrosine k.** Any of a group of enzymes that influence signaling between cells, esp. as relates to cell growth and death, cellular adhesion and movement, and cellular differentiation. Abnormalities in tyrosine kinases are found in some human diseases, including chronic myeloid (myelogenous) leukemia.

**kindling** (kīnd'ling) The triggering of seizures as a result of repetitive low-amplitude electrical stimulation of the brain. This phenomenon is typical of seizures in persons suffering alcohol (and other forms of drug) withdrawal.

**kinematics** (kīn'ē-māt'īks) [Gr. *kinematos*, movement] The branch of biomechanics concerned with description of the movements of segments of the body without regard to the forces that caused the movement to occur. SEE: *arthrokinematics*; *osteokinematics*.

**kineplasty** (kīn'ē-plās'tē) A form of amputation enabling the muscles of the stump to impart motion to an artificial limb. SEE: *Boston arm*; *cineplastics*.

**kinescope** (kīn'ē-skōp) [ " + *skopein*, to examine] A device for testing the refraction of the eye. A slit of variable width moves as the patient observes a fixed object.

**kinesia** (kī-nē'sē-ā) 1. Sickness caused by motion (e.g., seasickness, carsickness). 2. Movement.

**kinesiatrics** (kī-nē'sē-āt'riks) [ " + *iatrikos*, curative] Kinesiotherapy.

**kinesics** (kī-nē'sīks) Systematic study of the body and the use of its static and dynamic position as a means of communication. SEE: *body language*.

**kinesigenic** (kī-nē'sī-jēn'īk) [ " + " ] Said of certain involuntary body movements, triggered by voluntary muscular activity.

**kinesimeter** (kīn'ē-sīm'ē-tēr) [ " + *metron*, measure] An apparatus for determining the extent of movement of a part.

**kinesiodic** (kī-nē'sē-ōd'īk) [ " + *hodos*, path] Pert. to paths through which motor impulses pass.

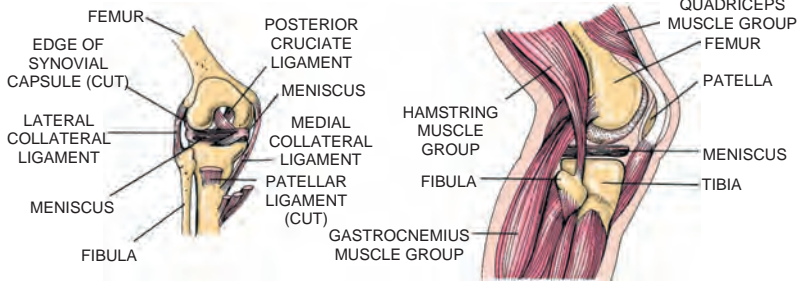
**kinesiology** (kī-nē'sē-ōl'ō-jē) [ " + *logos*, word, reason] The study of muscles and body movement. SEE: *biomechanics*.

**kinesioneurosis** (kī-nē'sē-ō-nū-rō'sīs) [ " + *neuron*, nerve, + *osis*, condition] A functional disorder marked by tics and spasms. SEE: *Tourette's syndrome*.

**external k.** Kinesioneurosis affecting external muscles.

- vascular k.** Kinesioneurosis of the vasomotor system.
- visceral k.** Kinesioneurosis affecting muscles of internal organs.
- kinesiotherapy, kinesitherapy** (kī-nē'sē-ō-thēr'ā-pē, kī-nē'sē-thēr'ā-pē) [*"* + *therapeia*, treatment] A rehabilitative treatment that uses exercise or movement. It was formerly known as corrective therapy and was devised by the U.S. Armed Forces to help physical therapists with the large number of soldiers wounded during World War II. SYN: *kinesiatrix*; *motorpathy*.
- kinesis** (kīn-ē'sis) [Gr.] Motion.
- kinesthesia** (kīn'ēs-thē'zē-ä) [*"* + *ais-thesis*, sensation] The ability to perceive extent, direction, or weight of movement. **kinesthetic**, *adj.*
- kinesthesiometer** (kīn'ēs-thē-zē-ōm'ētēr) [*"* + *"* + *metron*, measure] An instrument for testing the ability to determine the position of the muscles.
- kinetic** (kī-nēt'ik) [Gr. *kinesis*, motion] Pert. to or consisting of motion.
- kinetics** (kī-nēt'iks) **1.** The branch of mechanics that examines the forces acting on the body during movement and the motion with respect to time and forces. **2.** The turnover rate or rate of change of a factor, esp. a chemical process.
- cell k.** The study of cells and their growth and division. Study of these factors has led to understanding of cancer cells and has been useful in developing chemotherapeutic methods.
- kinetochore** (kī-nēt'ō-kor") A protein disk attached to the DNA of the centromere that connects a pair of chromatids during cell division. A spindle fiber is in turn attached to the kinetochore.
- kinetotherapy** (kī-nēt'ō-thēr'ā-pē) [*"* + *therapeia*, treatment] Kinesiotherapy.
- King, Imogene** (king) A nurse educator and theorist who developed King's Conceptual System (formerly called the General Systems Framework) and the Theory of Goal Attainment. SEE: *Nursing Theory Appendix*.
- King's Conceptual System** SEE: *General Systems Framework*.; *Nursing Theory Appendix*.
- kingdom** [AS. *cyningdom*] The largest category in the classification of living organisms. There are five kingdoms: Procar-yotae (Monera), Protista, Fungi, Plantae, and Animalia. SEE: *taxonomy*.
- Kingella** (kīng-ēl'läh) A genus of gram-negative bacilli of the family Neisseriaceae, normal flora of the oral cavity.
- K. kingae** A species that may cause bone or joint infections in children.
- kinin** (kī'nin) [Gr. *kinesis*, movement] A general term for a group of polypeptides that have considerable biological activity. They are capable of influencing smooth muscle contraction, inducing hypotension, increasing the blood flow and permeability (vasodilation) of small blood capillaries, and inciting pain.
- kininases, plasma** (kī'nī-nās'ēz) Plasma carboxypeptidases that inactivate plasma kinins.
- kininogen** (kī'nin-ō-jēn) A substance that produces a kinin when acted on by certain enzymes.
- kink** [Low Ger. *kinke*, a twist in rope] An unnatural angle or bend in a duct or tube such as the intestine, umbilical cord, or ureter.
- kinky hair disease** A congenital syndrome caused by an autosomal recessive gene, consisting of short, sparse, often poorly pigmented, kinky hair and physical and mental retardation. The disease is due to a metabolic defect that causes an abnormality in the fatty acid composition of the gray matter of the brain. Death follows progressive severe degenerative changes in the central nervous system.
- kino-** (kī'nō) [Gr. *kinein*, to move] Combining form meaning *movement*.
- kinocilium** (kī'nō-sil'ē-ūm) [*"* + L. *cilium*, eyelash] Protoplasmic filament on the cell surface.
- kinship** (kīn'shīp) The descendants of a common ancestor.
- Kirschner wire** (kērsh'nēr) [Martin Kirschner, Ger. surgeon, 1879–1942] Steel wire placed through a long bone in order to apply traction to the bone.
- Kisch's reflex** (kīsh'ēs) [Bruno Kisch, Ger. physiologist, 1890–1966] Closure of an eye resulting from stimulation by heat or some tactile irritant on the auditory meatus.
- KJ** *knee jerk*.
- KK** *knee kick* (knee jerk).
- kl** *kiloliter*.
- Klatskin tumor** (klät'skīn) [Gerald Klat-skin, American physician, 1910–1986] A cholangiocarcinoma that arises in the large intrahepatic biliary ducts.
- Klebsiella** (klēb'sē-ēl'ä) [T. A. Edwin Klebs, Ger. bacteriologist, 1834–1913] A genus of gram-negative, encapsulated bacilli of the family Enterobacteriaceae.
- K. granulomatis** A species that causes granuloma inguinale. It was formerly called *Calymmatobacterium granulomatis*.
- K. ozaenae** A species found in ozena.
- K. pneumoniae** A species that may cause sinusitis, bronchitis, or pneumonia. SYN: *Friedländer's bacillus*.
- K. rhinoscleromatis** A species that can cause rhinoscleroma, a destructive granuloma of the nose and pharynx.
- Kleiger test** (klīg'ēr) A test used to determine stability of the distal tibiofibular syndesmosis and rotatory instability of the ankle mortise. With the patient sitting with the knee flexed over the table's edge, the examiner stabilizes the patient's lower leg, slightly dorsiflexes the ankle, and externally rotates the





ANATOMY OF THE SUPPORTING STRUCTURES OF THE KNEE

foot. Pain along the lateral ankle indicates a sprain of the distal tibiofibular syndesmosis. Medial ankle pain or a palpable subluxation of the talus within the ankle mortise is indicative of ankle rotatory instability.

**Klein-Bell ADL Scale** (klīn-bēl) In rehabilitation, an objectively scored measure of functional independence, which includes items related to self-care, mobility, and communication.

**klepto-** (klēp'tō) [Gr. *kleptin*, to steal] Combining form meaning *stealing, theft*.

**kleptomania** (klēp-tō-mā'nē-ā) [" + *mania*, madness] A compulsion to steal, often expressed by the repeated theft of meaningless or economically worthless objects.

**kleptomaniac** (klēp'tō-mā'nē-āk") 1. Pert. to kleptomania. 2. An individual who repeatedly steals objects that he or she does not need.

**Klieg eye** (klēg) [after John H. Klieg], Ger. manufacturer, 1869–1959] Conjunctivitis, lacrimation, and photophobia from exposure to the intense lights used in making motion pictures or television films.

**Klinefelter's syndrome** (klīn'fēl-tēr's) [Harry F. Klinefelter, Jr., U.S. physician, b. 1912] The most common sex chromosome syndrome, marked by primary testicular failure. The classic form is associated with the presence of an extra X chromosome. Affected persons have small, firm testes, gynecomastia, abnormally long legs, minimal body and facial hair, and infertility. In variant forms the chromosomal abnormalities vary and the severity and number of abnormal findings are diversified. The syndrome is estimated to occur in one of 500 live male births. Diagnosis may be confirmed by chromosomal analysis of tissue culture, which usually demonstrates a 47, XXY genotype.

**Klippel's disease** (klī-pēlz') [Maurice Klippel, Fr. neurologist, 1858–1942] Weakness or pseudoparalysis due to generalized arthrits.

**Klippel-Feil syndrome** (fil, fā) [Maurice Klippel; André Feil, Fr. physician, b.

1884] A congenital anomaly characterized by a short, wide neck; low hairline, esp. on the back of the neck; reduction in the number of cervical vertebrae; and fusion of the cervical spine. The central nervous system also may be affected.

**Klumpke's paralysis** (kloomp'kēz) [Madame Augusta Déjérine-Klumpke, Fr. neurologist, 1859–1927] Atrophic paralysis of the forearm.

**Klüver-Bucy syndrome** (kloo'vēr-bū'sē, klū') [Heinrich Klüver, Ger.-born U.S. neurologist, 1897–1979; Paul C. Bucy, U. S. neurologist, b. 1904] Behavioral syndrome usually following bilateral temporal lobe removal. It is characterized by loss of recognition of people, loss of fear, rage reactions, hypersexuality, uncontrolled appetite, memory deficits, and overreaction to certain stimuli.

**Kluyvera** (klī'vēr-ā) A genus of bacteria in the family Enterobacteriaceae whose members are all motile, gram-negative rods.

**km** *kilometer*.

**kMc** *kilomegacycle*.

**KMnO<sub>4</sub>**, Potassium permanganate.

**Knapp's forceps** (nāps) [Herman J. Knapp, U.S. ophthalmologist, 1832–1911] A forceps with roller-like blades for expressing trachomatous granulations on the palpebral conjunctiva.

**kneading** (nēd'ing) [AS. *cnedan*] Pétrissage.

**knee** [AS. *cnœ*] 1. The articulations formed by the distal femur, proximal tibia, and the patella. **SEE: illus.** 2. Any structure shaped like a semiflexed knee. SYN: *geniculum*.

**Brodie's k.** Osteomyelitis of the knee. SYN: *Brodie's abscess*.

**carpetlayer's k.** Prepatellar bursitis. Housemaid's k.

**dislocation of k.** Displacement of the knee, an uncommon injury, universally complicated by tearing of the cruciate ligaments, and often associated with peroneal nerve or popliteal artery damage. Dislocations should be reduced by an orthopedic surgeon as soon as is feasible to preserve circulation to the lower extremity.



**game k.** A lay term for internal derangement of the knee joint, characterized by pain or instability, locking, and weakness. It is usually the result of a torn internal cartilage, a fracture of the tibial spine, or an injury to the collateral or cruciate ligaments.

**FIRST AID:** The knee should be immobilized with a posterior splint.

**DIAGNOSIS:** Arthroscopy and/or magnetic resonance imaging may be necessary for a definitive diagnosis.

**housemaid's k.** Prepatellar bursitis.

**jumper's k.** An overuse syndrome, marked by chronic inflammation and infrapatellar tendonitis, resulting from repetitive jumping or leg extension exercises. The usual treatment is nonsteroidal anti-inflammatory drugs, rest, and phonophoresis.

**locked k.** A condition in which the leg cannot be extended. It is usually due to displacement of meniscal cartilage or dislocation of the patella.

**posterolateral corner k.** The ligamentous, capsular, and muscular structures that stabilize the knee against varus, external rotation, and anterior/posterior forces. Disruption of these structures can result in posterolateral rotary instability of the knee.

**replacement of k.** Orthopedic implantation of a prosthetic knee joint, particularly useful in treating patients with severe disabling arthritis of the knee. SEE: *arthroplasty*.

**roofer's k.** Housemaid's k.

**runner's k.** A general term describing several overuse conditions resulting from excessive running. These may involve the extensor mechanism and other musculotendinous insertions. Patellar tendonitis (jumper's knee), patellofemoral dysfunction, iliotibial band syndrome, and pes anserinus tendonitis or bursitis have all been called by this term.

**kneecap** Patella.

**kneeling bus** A specially designed bus to transport the elderly and disabled. The front of the bus can be lowered to facilitate getting on and off. A ramp or lift is usually provided to facilitate wheelchair access.

**Kneipp cure, kneippism** (nĭp) [Rev. Father Sebastian Kneipp, Ger. priest, 1821–1897] The application of water in various forms and temperatures to treat disease. Treatments used in kneippism include walking barefoot in the morning dew, bathing in cool water, applying wet compresses, and hosing or spraying with water, among others. SEE: *hydrotherapy*.

**knemometry** (nĕ-mŏm'ĕt-rĕ) [Gr. *kneme*, shinbone, + *metron*, measure] A precise method of determining the length of a limb, esp. the lower leg. It has been used to assess infant and

childhood growth and development (e.g., in premature infants or children treated with corticosteroids).

**Kniest's dysplasia** (nĕsts, knĕsts) [Wilhelm. Kniest, 20th-cent. Ger. pediatrician] An autosomal-dominant collagen disorder that causes dwarfism. Findings include a short trunk, prominent and stiff joints, flattened face, eye abnormalities, deafness, inguinal hernias, hip dislocation, cleft palate, and talipes equinovarus. Patients develop severe dorsal kyphosis or kyphoscoliosis and lumbar lordosis. SYN: *Swiss cheese cartilage syndrome*.

**knife** (nĭf) [AS. *cnif*] A cutting device.

**diamond k.** A cutting instrument with a very thin, hard mineral edge, used to incise specimens or to perform delicate operations (e.g., on facial skin or the eyes).

**electric k.** A knife that functions by use of a high-frequency cutting current.

**gamma k.** A radiosurgical device first used in 1968 that relies on gamma rays from radioactive cobalt to cut or excise diseased tissue, esp. in the brain. The radioactive energy emitted by the knife is focused stereotactically to limit injury to healthy tissue.

**gold k.** A contra-angle knife used to trim a gold filling in a tooth.

**Humby k.** A cutting blade used to shave off a layer of skin, used in skin grafting.

**periodontal k.** A surgical knife with a scaler-shaped blade whose entire perimeter is a cutting edge. It is used in gingivectomy and other periodontal surgery.

**plaster k.** A stout knife used for cutting and trimming plaster study models in dental practice.

**knitting** [AS. *cnyttan*, to make knots] The process of healing by uniting pieces of a fractured bone.

**KNO<sub>3</sub>** Potassium nitrate; niter; saltpeter.

**knob** (nŏb) [ME. *knobbe*] A protuberance on a surface or extremity; a mass or nodule.

**knockdown** A modification of a gene that limits its expression to specified conditions or circumstances.

**knock-knee** A condition in which knees are very close to each other and the ankles are apart. SYN: *genu valgum*.

**knockout** 1. A deletion or inactivation of a gene. 2. A cell or organism from which a gene has been eliminated.

**Knoop hardness test** (noop) ABBR: KHT. A test of surface hardness, using a stylus with a pyramidal diamond indenter. The long diagonal of the resulting indentation determines the hardness of the substance.

**knot** [AS. *cnotta*] 1. An intertwining of a cord or cordlike structure to form a lump or knob. 2. In surgery, the intertwining of the ends of a suture, ligature, ban-

dage, or sling so that the ends will not slip or become separated. **SEE:** *illus.*; *square knot*. **3.** In anatomy, an enlargement forming a knoblike structure.

**false k.** An external bulging of the umbilical cord, resulting from the coiling of the umbilical blood vessels.

**granny k.** A double knot in which the ends of the cord do not lie parallel, but alternate being over and under each other. This knot is not as secure as a square knot. **SEE:** *knot* for *illus.*

**square k.** A double knot in which the ends of the second knot are in the same place as the ends of the first knot. **SEE:** *knot* for *illus.*; *square knot*.

**surgeon's k.** A double knot in which the cord is passed through the first loop twice. **SEE:** *knot* for *illus.*

**syncytial k.** A protuberance formed by many nuclei of the syntrophoblast and found on the surface of a chorionic villus.

**true k.** A knot formed by the fetus slipping through a loop of the umbilical cord.

**knowledge, deficient** Lack of specific information necessary for the patient and significant other(s) to make informed choices regarding condition/therapies/treatment plan. **SEE:** *Nursing Diagnoses Appendix*.

**knowledge, fund of** Information that a person has stored in memory about people, places, and things. The fund of stored memories increases with education and decreases in dementia.

**knowledge (specify), readiness for enhanced** The presence or acquisition of cognitive information related to a specific topic is sufficient for meeting health-related goals and can be strengthened. **SEE:** *Nursing Diagnoses Appendix*.

**knowns** (nōnz) In hypnotherapy those feelings, ideas, or images familiar to a person and therefore comfortably identifiable.

**knuckle** (nūk'ēl) [Middle Low Ger. *knockel*] Prominence of the dorsal aspect of any of the phalangeal joints, esp. of the distal heads of the metacarpals when the fist is clenched.

**k. pad** A discrete fibromatous pad appearing over a finger joint. It usually appears between the ages of 15 and 30.

The etiology is unknown but trauma is not a significant factor.

**Koch, Heinrich Herman Robert** (kōk) German bacteriologist, 1843–1910.

**K.'s bacillus** *Mycobacterium tuberculosis*.

**K.'s phenomenon** A local inflammatory reaction resulting from injection of tuberculin into the skin of a person who has been previously exposed to the tubercle bacillus. The test represents the clinical application of a type IV (delayed-type) hypersensitivity reaction. In contemporary skin tests for tuberculosis, Koch's, or "old," tuberculin has been replaced by tuberculin purified protein derivative. **SEE:** *tuberculosis*.

**K.'s postulate** The criterion used in proving an organism is the cause of a disease or lesion: the microorganism in question is regularly found in the lesions of the disease; pure cultures can be obtained from it. When inoculated into susceptible animals, pure cultures can reproduce the disease or pathological condition; and the organism can be obtained again in pure culture from the inoculated animal.

**Koch, Walter** (kōk) German surgeon, born 1880.

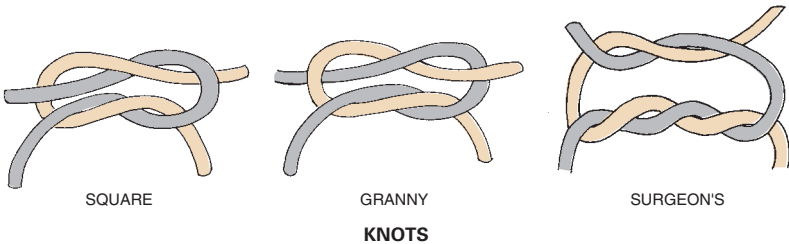
**K.'s node** Atrioventricular node.

**kocherization** (kōk'ēr-i-zā'shūn) An operative maneuver (as per Theodor Kocher) to mobilize the duodenum prior to performing other procedures locally or before incising the duodenum, e.g., to expose the papilla of Vater.

**Kocher's reflex** (kō'kērz) [Theodor Kocher, Swiss surgeon, 1841–1917] A contraction of abdominal muscles following moderate compression of the testicle.

**Kock pouch, Koch pouch** (kōk) [Nils Kock, 20th-century Swedish surgeon] A continent ileostomy, that is, one constructed with a reservoir that holds intestinal waste until a catheter is used to empty it.

**Koebner phenomenon** (kēb'nēr) [Heinrich Koebner, Ger. dermatologist, 1838–1904] The appearance of a skin lesion as a result of nonspecific trauma (e.g., sunlight, burn, operative wound). It will appear at the trauma site and may be of a type found elsewhere on the skin. It may be seen in lichen planus or eczema



but is particularly characteristic of psoriasis. The lesion must be sufficient to act on the papillary and epidermal layers of the skin and will appear in 3 to 18 days following the trauma.

**KOH** Symbol for potassium hydroxide.

**Kohler's disease** (kă'lĕrz) [Alban Kohler, Ger. physician, 1874–1947] **1.** Aseptic necrosis of the navicular bone of the wrist. **2.** Osteochondrosis of the head of the second metatarsal bone of the foot.

**Kohler's syndrome** (kôl'ĕr) Pain in the midfoot with accompanying point tenderness over the navicular bone, with increased density and narrowing of the tarsal navicular on radiographs. Most patients respond to 6 weeks' cast immobilization without long-term sequelae.

**Kohlman Evaluation of Living Skills** (kôl'măn) ABBR: KELS. A standard assessment for determining the ability of an individual to perform self-care and community living tasks. The assessment includes an interview and tasks that measure self-care, safety and health, money management, transportation and telephone use, and work and leisure behaviors.

**Kohnstamm's phenomenon** (kôn'stămz) [Oscar Kohnstamm, Ger. physician, 1871–1917] Aftermovement.

**koiocyte** (koy'lô-sit) [Gr. *koiolos*, hollow, + *kytos*, cell] An abnormal cell of the squamous epithelium of the cervix. It is characterized by having a double nucleus with a perinuclear halo. It is associated with an infection with the human papilloma virus.

**koiocytotic atypia** (koy'lô-si-tôt'ik ā-tīp'ĕ-ā) [ " + " + *osis*, condition, + *a-*, not, + *typicalis*, typical] Abnormality of the top layers of the epithelium of the uterine cervix wherein the cells undergo vacuolization and enlargement. SEE: *koiocyte*.

**koilonychia** (koy-lô-nik'ĕ-ā) [ " + *onyx*, nail] Dystrophy of the fingernails in which they are thin and concave with raised edges. This condition is sometimes associated with iron-deficiency anemia. It is often called *spooning of nails*. SEE: *illus*.

**koilosternia** (koy'lô-stĕr'nĕ-ā) [ " + Gr. *sternon*, sternum] Condition in which the chest has a funnel-like depression in the middle of the thoracic wall.

**kolp-** SEE: *colpo-*.

**kolpo-** SEE: *colpo-*.

**kombucha tea** A folk remedy made by fermenting tea in the Kombucha "mushroom," a culture composed of yeast and other microorganisms mixed with brewed sweetened green or black tea. The tea is promoted for its healthful effects but has not been studied formally. Some outbreaks of illness and occasional deaths have been associated with its consumption.



**KOILONYCHIA**

**Kondoleon's operation** (kôn-dô'lĕ-ōnz) [Emmanuel Kondoleon, Gr. surgeon, 1879–1939] The surgical removal of layers of subcutaneous tissue to relieve elephantiasis.

**koniocellular** (kôn'ĕ-ō-sĕl'ū-lĭr) [Gr. *konis*, dust + " ] Having a granular appearance; said of cells, esp. those found in the lateral geniculate nucleus of the thalamus.

**Koplik's spots** (kôp'liks) [Henry Koplik, U.S. pediatrician, 1858–1927] Small red spots with blue-white centers on the oral mucosa, particularly in the region opposite the molars; a diagnostic sign in measles before the rash appears. Not infrequently, the spots disappear as the rash develops.

**koro** (kô'rô) In China and Southeast Asia, a phobia that the penis will retract into the abdomen (or in females, that the nipples or vulva will retract into the chest or pelvis). The individual believes that once the sexual organ disappears completely, he or she will die.

**Korotkoff's sounds** (kô-rôt'kôfs) [Nikolai S. Korotkoff, Russ. physician, 1874–1920] Sounds heard in auscultation of blood pressure. SEE: *blood pressure*.

**Korsakoff's syndrome** (kor'să-kôfs) [Sergei S. Korsakoff, Russ. neurologist, 1854–1900] Anterior superior poliоencephalitis.

**kosher** (kô'shĕr) [Hebrew *kasher*, proper] Pert. to food prepared and served according to Jewish dietary laws.

**koumiss** (koo'mĭs) [Tartar *kumyz*] Fermented cow's milk or substance used for fermenting cow's milk; also spelled *kumiss* and *kumyss*. It is a drink traditionally consumed in Central Asia. Its alcoholic content is about 2%. SYN: *fermented milk*.

**Kr** Symbol for the element krypton.

**Krabbe's disease** (krăb'ĕz) [Knud H. Krabbe, Danish neurologist, 1885–1961] Globoid cell leukodystrophy due to the accumulation of galactocerebroside in the tissues, resulting from a deficiency of galactocerebrosidase. Clinically, affected infants develop seizures, deafness, blindness, cachexia, paralysis,

and marked mental deficiency. Survival beyond 2 years is rare.

**Kraepelin's classification** (krā'pā-līnz) [Emil Kraepelin, Ger. psychiatrist, 1856–1926] An obsolete classification of mental illness into two groups: the manic-depressive and the schizophrenic.

**krait** (krāt) A small venomous snake of the genus *Bungarus*, indigenous to India.

**kraurosis** (krō-rō'sīs) [Gr. *krauros*, dry] Atrophy and dryness of the skin and any mucous membrane, esp. of the vulva. The subcutaneous fat of the mons pubis and labia disappears, clitoris and prepuce atrophy, and stenosis of the vaginal orifice is common. Fissures may develop.

**k. penis** Kraurosis in which the glans penis atrophies and becomes shriveled.

**k. vulvae** Lichen sclerosis et atrophicus.

**Krause's corpuscle** (krow'sēz) An encapsulated nerve ending for cutaneous touch.

**Krebs cycle** (krēbz) [Sir Hans Krebs, Ger. biochemist, 1900–1981, co-winner of a Nobel prize in 1953.] A complicated series of reactions in the body involving the oxidative metabolism of pyruvic acid and liberation of energy. It is the main pathway of terminal oxidation in the process of which not only carbohydrates but proteins and fats are utilized. SYN: *citric acid cycle*; *tricarboxylic acid cycle*. SEE: *illus.*

**kringle** (krīng'gl) A subunit of plasminogen consisting of 80 amino acids in a loop structure.

**Krönig's area** (krā'nīgz) [Georg Krönig, Ger. physician, 1856–1911] Resonant region in the thorax over the apices of the lungs.

**Krukenberg's spindle** [Friedrich Ernst Krukenberg, Ger. gynecologist and pathologist, specializing in ophthalmology, 1871–1946] Vertical pigment deposits seen on the corneal endothelium in pigment dispersion syndrome and pigmentary glaucoma.

**Krukenberg's tumor** (kroo'kēn-bērgz) [Frederick Krukenberg, Ger. pathologist, 1871–1946] A malignant tumor of the ovary, usually bilateral and frequently secondary to malignancy of the gastrointestinal tract. Histologically, these tumors consist of myxomatous connective tissue and cells having a signet ring arrangement of their nuclei. The epithelial tissue resembles malignancy of the original site.

**krypton** (krīp'tōn) [Gr. *kryptos*, hidden] SYMB: Kr. A generally nonreactive gaseous element found in small amounts in the atmosphere; atomic weight 83.80; atomic number 36. Krypton is a noble gas.

**K<sub>2</sub>SO<sub>4</sub>** Potassium sulfate.

**K-space** In magnetic resonance imaging,

the computer memory where frequency multiecho data can be stored prior to full reconstruction of the image.

**Kt/V** A mathematical formula representing a dose of dialysis. K represents the relative efficiency of the dialyzer in removing harmful solutes from the circulation; t, the duration of the treatment; and V, the volume of urea in the body.

Increases in dialyzer efficiency and the duration of dialysis increase the dialysis dose, as do decreases in the total body volume of urea.

**KUB** *kidneys, ureters, bladder*; pert. to anteroposterior projection films of the abdomen.

**kubisagari** (koo-bis'ā-gā'rē) [Japanese, hang-head] Ptosis and bulbar weakness in nutritionally deficient children; endemic in Japan. A similar disorder was observed in prisoners of war in Japan. Parenteral administration of thiamine has been beneficial.

**Kufs' disease** (küfs) [H. Kufs, Ger. psychiatrist, 1871–1955] An adult-onset, neuronal ceroid lipofuscinosis. The onset of symptoms is usually between 21 and 26 years, and always before 40. The disease is characterized by the development of dementia, myoclonic jerks, blindness, and retinitis pigmentosa.

**Kugelberg-Welander disease** (koo'gēl-bērg-vō'län-dēr) [Eric Klaus Henrik Kugelberg, 1913–1983; L. Welander, b. 1909; Swedish neurologists] Juvenile spinal muscular atrophy.

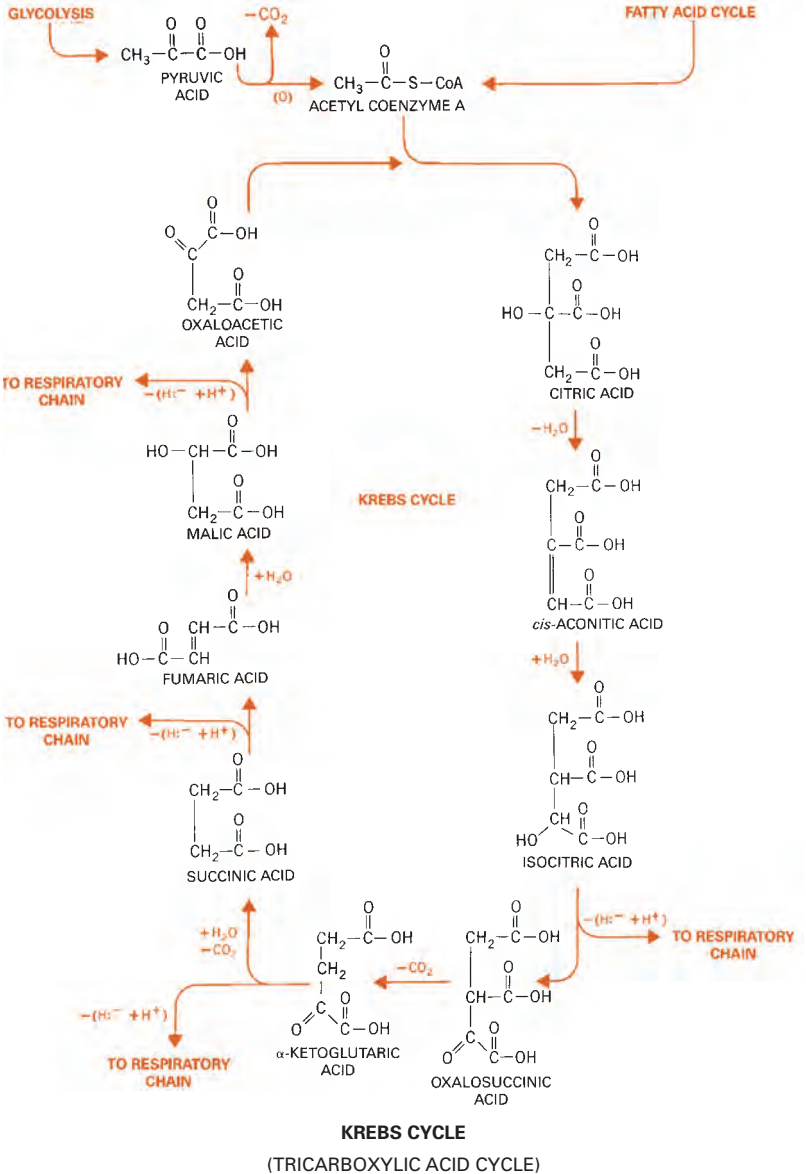
**Kümmell's disease, Kümmell's spondylitis** (kīm'ēlz) [Hermann Kümmell, Ger. surgeon, 1852–1937] Spondylitis following compression fracture of the vertebrae.

**Kunjin virus** (koon-jēn') A group B Flavivirus that is one of the causative agents of encephalitis in Australia.

**Kupffer cell** (koop'fēr) [Karl W. von Kupffer, Ger. anatomist, 1829–1902] A macrophage of the liver. SEE: *liver*.

**Kurtzke Expanded Disability Status Scale** (kürtz'kē) A widely used scale for measuring the functional status of persons with multiple sclerosis. Ratings on eight systems (pyramidal, cerebellar, brainstem, sensory, bowel and bladder, visual, mental, and other) provide a combined disability score.

**kuru** (koo'roo) A rapidly progressive neurological disease that is invariably fatal. The disease affects mostly adult women and children of both sexes belonging to the Fore tribe of New Guinea. This disease is transmitted by consuming tissues that harbor infectious proteins (called "prions") from an individual who has died (ritual cannibalism) and rubbing infected tissues over the bodies of the women and children kin to the victim. With the decline of this practice, the incidence of kuru has decreased.



**Kussmaul, Adolph** (kooos'mowl)  
[German physician, 1822–1902]

**K's breathing** A very deep gasping type of respiration associated with severe diabetic ketoacidosis.

**K's coma** The coma, acidosis, and deep breathing in diabetic coma.

**K's disease** An infrequently used eponym for polyarteritis nodosa.

**K's sign** Elevation of the neck veins (and of the central venous pressure) during inspiration, a visible indication of

pericardial effusion or tamponade or of other disorders that affect the filling of the right side of the heart (e.g., severe obstructive lung disease).

**kV** kilovolt.

**kv** kilovolt.

**KVO** keep vein open.

**kVp** kilovoltage peak.

**kwashiorkor** (kwāsh-ē-or'kor) [Ghana, Africa, deposed child, i.e., child that is no longer suckled] A severe protein-deficiency type of malnutrition of chil-



dren. It occurs after the child is weaned. The clinical signs are, at first, a vague type of lethargy, apathy, or irritability and, later, failure to grow, mental deficiency, inanition, increased susceptibility to infections, edema, dermatitis, and liver enlargement. The hair may have a reddish color.

**TREATMENT:** In addition to dietary therapy, the acute problems of infections, diarrhea, poor renal function, and shock need immediate attention. At first the diet must be carefully supervised to prevent overloading the system with calories or protein. In the first weeks of therapy, the child may lose weight owing to the loss of edema. If the disease has been severe and long-standing, the child may never attain full growth and mental development.

**Kyasaur Forest disease** (kyä'sä-nür) A viral encephalitis transmitted to humans by tick bite, esp. in certain regions of India. The responsible virus is a flavivirus.

**Kyasaur Forest virus** (kyä'sä-nür) [Kyasaur Forest, India] A single-stranded RNA virus, transmitted to humans by tick bite. It causes a two-stage illness: fever followed by a brief remission, and then meningoencephalitis, hemorrhagic pneumonia, and hepatic and splenic disruption.

**kymatism** (kī'mä-tizm) [Gr. *kyma*, wave, + *-ismos*, state of] Twitching of isolated segments of muscle. SYN: *myokymia*.

**kymogram** (kī'mō-grām) A tracing or recording made by a kymograph.

**kymograph** (kī'mō-gräf) [Gr. *kyma*, wave, + *graphein*, to write] **1.** An apparatus for recording the movements of a writing pen, designed so that the pen moves in response to a force applied to it. The device consists of a drum rotated by a spring or electric motor. The drum is covered by a paper on which the record is made by the stylus of a pen. It is widely used in physiology to record activities such as blood pressure

changes, muscle contractions, respiratory movements, and so on. **2.** An obsolete radiographical device for recording the range of motion of involuntary movements of the heart or diaphragm.

**kymography** (kī-mög'rā-fē) Radiographical examination to record the range of involuntary movements such as those of the heart or diaphragm.

**kynocephalus** (kī'nō-séf'ä-lüs) [Gr. *kyon*, dog, + *kephale*, head] A deformed fetus in which the head resembles that of a dog.

**kynurenine** (kī'nū-rēn'in) [ʹ + L. *ren*, kidney] An intermediate compound in tryptophan metabolism.

**kypho-** [Gr. *kyphos*, a hump] Prefix meaning *humped*.

**kyphorachitis** (kī'fō-rāk-ī'tis) [ʹ + *rhachis*, spine, + *itis*, inflammation] A rachitic deformity involving the thorax and spinal column, which results in the development of an anteroposterior hump.

**kyphos** (kī'fös) [Gr., hump] A convex prominence of the spine.

**kyphoscoliosis** (kī'fō-skō'lē-ō'sis) [ʹ + *skoliosis*, curvature] Lateral curvature of the spine accompanying an anteroposterior hump. SYN: *scoliokyphosis*.

**kyphosis** (kī'fō'sis) [Gr., humpback]

**1.** An exaggeration or angulation of the posterior curve of the thoracic spine, giving rise to the condition commonly known as humpback, hunchback, or Pott's curvature. It may be due to congenital anomaly, disease (tuberculosis, syphilis), malignancy, or compression fracture. This term also refers to an excessive curvature of the spine with convexity backward, which may result from osteoarthritis or rheumatoid arthritis, rickets, or other conditions. **2.** The normal posterior curvature of the thoracic and sacral spine. SYN: *humpback*; *spinal curvature*. **kyphotic** (-fōt'ik), *adj.*

**kysth-** SEE: *kystho-*.

**kystho-, kysth-** Combining forms meaning *vagina*.