Human Physiology

Third Edition

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Brief Contents

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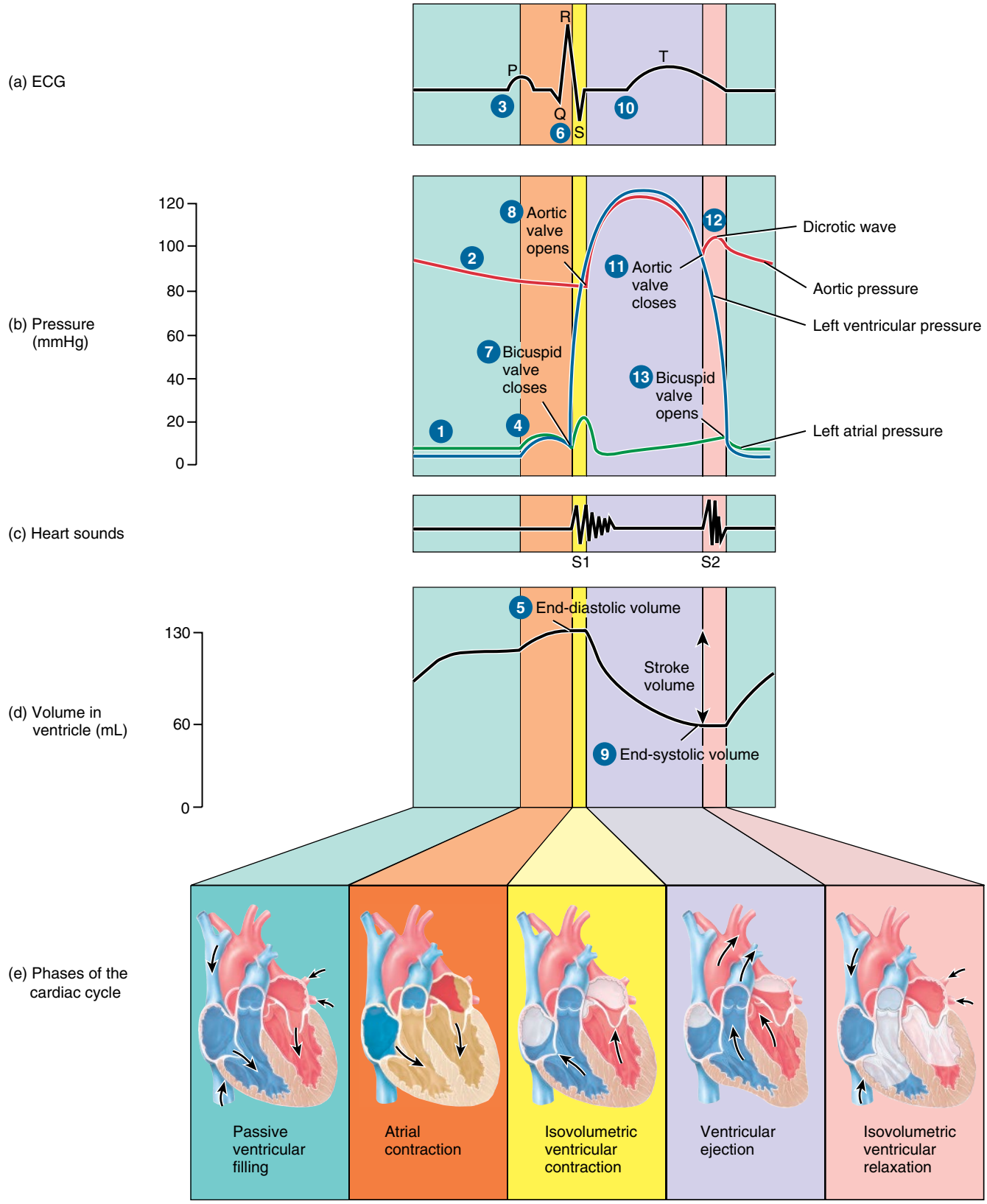
FIGURE 14.19 Cardiac cycle. (a) ECG. (b) Changes in left atrial pressure (green line), left ventricular pressure (blue line), and aortic pressure (red line) as they relate to the opening and closing of heart valves. (c) Heart sounds. (d) Changes in left ventricular volume. (e) Phases of the cardiac cycle.

A cardiac cycle includes all of the events associated with a single heartbeat.



Question How much blood remains in each ventricle at the end of ventricular diastole in a resting person? What is this volume called?

number of progressively smaller cells, called blastomeres.

Clitoris (KLI-to-ris) An erectile organ of the female, located at the front end of the vulva, that is homologous to the male penis.

Clone (KLŌN) A population of identical cells.

Cochlea (KOK-lē-a) A winding, cone-shaped tube forming a portion of the inner ear and containing the organ of Corti.

Cochlear duct The membranous cochlea consisting of a spirally arranged tube enclosed in the bony cochlea and lying along its outer wall. Also called the scala media (SCA-la MĒ-dē-a).

Colon The portion of the large intestine consisting of ascending, transverse, descending, and sigmoid portions.

Colony-stimulating factor (CSF) One of a group of molecules that stimulates development of leukocytes.

Common bile duct A tube formed by the union of the common hepatic duct and the cystic duct that empties bile into the duodenum at the ampulla of Vater (hepatopancreatic ampulla).

Concentration gradient A difference in the concentration of a chemical from one place to another.

Cone The type of photoreceptor in the retina that is specialized for highly acute color vision in bright light.

Connective tissue One of the most abundant of the four basic tissue types in the body, performing the functions of binding and supporting; consists of relatively few cells in a generous matrix (the ground substance and fibers between the cells).

Consciousness (KON-shus-nes) A state of wakefulness in which an individual is fully alert, aware, and oriented, partly as a result of feedback between the cerebral cortex and reticular activating system.

Contractility (kon′-trak-TIL-i-tē) The ability of cells or parts of cells to generate force actively to undergo shortening for movements. Muscle fibers (cells) exhibit a high degree of contractility.

Control center Part of a feedback system that sets the range of values within which a controlled variable should be maintained, evaluates input from receptors, and generates output commands.

Convergence (con-VER-jens) A synaptic arrangement in which the synaptic end bulbs of several presynaptic neurons terminate on one postsynaptic neuron. The medial movement of the two eyeballs so that both are directed toward a near object being viewed in order to produce a single image.

Cornea (KOR-nē-a) The part of the outer layer of the eye that is transparent.

Corona radiata (kō-RŌ-na rā-dē-A-ta) The innermost layer of granulosa cells that is firmly attached to the zona pellucida around a secondary oocyte.

Coronary artery disease (CAD) A condition such as atherosclerosis that causes narrowing of coronary arteries so that blood flow to the heart is reduced. The result is coronary heart disease, in which the heart muscle receives inadequate blood flow due to an interruption of its blood supply.

Corpus albicans (KOR-pus AL-bi-kanz) A mass of white fibrous scar tissue in the ovary that forms after the corpus luteum regresses.

Corpus luteum (LOO-tē-um) A yellowish body in the ovary formed when a follicle has discharged its secondary oocyte; secretes estrogens, progesterone, relaxin, and inhibin.

Corticobulbar pathway Motor pathway that conveys information for voluntary control of skeletal muscles of the head.

Corticobulbar tract Motor (descending) tract that conveys information from the motor cortex to the brain stem for voluntary control of skeletal muscles of the head.

Corticospinal pathway Motor pathway that conveys information for voluntary control of skeletal muscles of the limbs and trunk.

Cranial nerve One of 12 pairs of nerves that connect the brain to sensory receptors and effectors in the head, neck, and many organs in the thoracic and abdominal cavities. Each is designated by a Roman numeral and a name.

Cushing's syndrome Condition caused by a hypersecretion of glucocorticoids characterized by spindly legs, "moon face," "buffalo hump," pendulous abdomen, flushed facial skin, poor wound healing, hyperglycemia, osteoporosis, hypertension, and increased susceptibility to disease.

Cytokinesis (sī′-tō-ki-NĒ-sis) Distribution of the cytoplasm into two separate cells during cell division; coordinated with nuclear division (mitosis).

Cytolysis (sī-TOL-i-sis) The rupture of living cells in which the contents leak out.

Cytoplasm (SĪ-tō-plasm) Cytosol plus all organelles except the nucleus.

Cytoskeleton Complex internal structure of cytoplasm consisting of microfilaments, microtubules, and intermediate filaments.

Cytosol (SĪ-tō-sol) Fluid portion of cytoplasm in which solutes are dissolved and organelles are suspended. Also called intracellular fluid.

D

Defecation (def-e-KĀ-shun) The discharge of feces from the rectum.

Deglutition (dē-gloo-TISH-un) The act of swallowing.

Dehydration (dē-hī-DRĀ-shun) Excessive loss of water from the body or its parts.

Dendrite (DEN-drīt) A neuronal process that carries electrical signals, usually graded potentials, toward the cell body.

Diabetes mellitus (dī-a-BĒ-tēz MEL-i-tus) An endocrine disorder caused by an inability to produce or use insulin. It is characterized by the three "polys": polyuria (excessive urine production), polydipsia (excessive thirst), and polyphagia (excessive eating).

Diagnosis Distinguishing one disease from another or determining the nature of a disease from signs and symptoms by inspection, palpation, laboratory tests, and other means.

Dialysis The removal of waste products from blood by diffusion through a selectively permeable membrane.

Diaphragm (DĪ-a-fram) Any partition that separates one area from another, especially the dome-shaped skeletal muscle between the thoracic and abdominal cavities; a dome-shaped device that is placed over the cervix, usually with a spermicide, to prevent conception.

Diarrhea (dī-a-RĒ-a) Frequent defecation of liquid caused by increased motility of the intestines.

Diastole (dī-AS-tō-lē) In the cardiac cycle, the phase of relaxation or dilation of the heart muscle, especially of the ventricles.

Diastolic (dī-as-TOL-ik) pressure (DP) The force exerted by blood on arterial walls during ventricular relaxation; the lowest blood pressure measured in the large arteries, normally about 70 mmHg in a young adult.

Diencephalon (dī-en-SEF-a-lon) A part of the brain consisting of the thalamus, hypothalamus, and pineal gland.

Diffusion (di-FŪ-zhun) The random mixing of particles from one location to another because of the particles' kinetic energy.

Digestion (dī-JES-chun) The mechanical and chemical breakdown of food to simple molecules that can be absorbed and used by body cells.

Digestive system Body system that ingests food, breaks it down, processes it, and eliminates wastes from the body.

Direct motor pathways Motor tracts that convey information from the motor cortex to cause voluntary movements of skeletal muscles. Also called the pyramidal pathways.

Disease An illness characterized by a recognizable set of signs and symptoms.

Disorder Any abnormality of structure or function.

Dorsal column Sensory (ascending) tract that conveys information up the spinal cord to the brain for sensations of touch, pressure, vibration, and proprioception.

Dorsal column pathway Sensory pathway that conveys information for touch, pressure, vibration, and proprioception.