

# A&P Key Terms

19

# Cardiovascular System Heart

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## 4. Chapter: A&P Key Terms 19 Cardiovascular System Heart

### 1. A&P Key Terms 19 Cardiovascular System Heart Questions

<u>afterload</u>	force the ventricles must develop to effectively pump blood against the resistance in the vessels
<u>anastomosis</u>	(plural: anastomoses) area where vessels unite to allow blood to circulate even if there may be partial blockage in another branch
<u>anterior cardiac veins</u>	vessels that parallel the small cardiac arteries and drain the anterior surface of the right ventricle; bypass the coronary sinus and drain directly into the right atrium
<u>anterior interventricular artery</u>	(also, left anterior descending artery or LAD) major branch of the left coronary artery that follows the anterior interventricular sulcus
<u>anterior interventricular sulcus</u>	sulcus located between the left and right ventricles on the anterior surface of the heart
<u>aortic valve</u>	(also, aortic semilunar valve) valve located at the base of the aorta
<u>artificial pacemaker</u>	medical device that transmits electrical signals to the heart to ensure that it contracts and pumps blood to the body
<u>atrial reflex</u>	(also, called Bainbridge reflex) autonomic reflex that responds to stretch receptors in the atria that send impulses to the cardioaccelerator area to increase HR when venous flow into the atria increases
<u>atrioventricular (AV) node</u>	clump of myocardial cells located in the inferior portion of the right atrium within the atrioventricular septum; receives the impulse from the SA node, pauses, and then transmits it into specialized conducting cells within the interventricular septum
<u>atrioventricular bundle branches</u>	(also, left or right bundle branches) specialized myocardial conductile cells that arise from the bifurcation of the atrioventricular bundle and pass through the interventricular septum; lead to the Purkinje fibers and also to the right papillary muscle via the moderator band
<u>atrioventricular bundle</u>	(also, bundle of His) group of specialized myocardial conductile cells that transmit the impulse from the AV node through the interventricular septum; form the left and right atrioventricular bundle branches
<u>atrioventricular septum</u>	cardiac septum located between the atria and ventricles; atrioventricular valves are located here
<u>atrioventricular valves</u>	one-way valves located between the atria and ventricles; the valve on the right is called the tricuspid valve, and the one on the left is the mitral or bicuspid

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atrium (plural: atria) upper or receiving chamber of the heart that pumps blood into the lower chambers just prior to their contraction; the right atrium receives blood from the systemic circuit that flows into the right ventricle; the left atrium receives blood from the pulmonary circuit that flows into the left ventricle

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auricle extension of an atrium visible on the superior surface of the heart

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autonomic tone contractile state during resting cardiac activity produced by mild sympathetic and parasympathetic stimulation

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autorhythmicity ability of cardiac muscle to initiate its own electrical impulse that triggers the mechanical contraction that pumps blood at a fixed pace without nervous or endocrine control

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Bachmann's bundle (also, interatrial band) group of specialized conducting cells that transmit the impulse directly from the SA node in the right atrium to the left atrium

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Bainbridge reflex (also, called atrial reflex) autonomic reflex that responds to stretch receptors in the atria that send impulses to the cardioaccelerator area to increase HR when venous flow into the atria increases

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baroreceptor reflex autonomic reflex in which the cardiac centers monitor signals from the baroreceptor stretch receptors and regulate heart function based on blood flow

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bicuspid valve (also, mitral valve or left atrioventricular valve) valve located between the left atrium and ventricle; consists of two flaps of tissue

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bulbus cordis portion of the primitive heart tube that will eventually develop into the right ventricle

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bundle of His (also, atrioventricular bundle) group of specialized myocardial conductile cells that transmit the impulse from the AV node through the interventricular septum; form the left and right atrioventricular bundle branches

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cardiac cycle period of time between the onset of atrial contraction (atrial systole) and ventricular relaxation (ventricular diastole)

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cardiac notch depression in the medial surface of the inferior lobe of the left lung where the apex of the heart is located

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<u>cardiac output</u>	(CO) amount of blood pumped by each ventricle during one minute; equals HR multiplied by SV
<u>cardiac plexus</u>	paired complex network of nerve fibers near the base of the heart that receive sympathetic and parasympathetic stimulations to regulate HR
<u>cardiac reflexes</u>	series of autonomic reflexes that enable the cardiovascular centers to regulate heart function based upon sensory information from a variety of visceral sensors
<u>cardiac reserve</u>	difference between maximum and resting CO
<u>cardiac skeleton</u>	(also, skeleton of the heart) reinforced connective tissue located within the atrioventricular septum; includes four rings that surround the openings between the atria and ventricles, and the openings to the pulmonary trunk and aorta; the point of attachment for the heart valves
<u>cardiogenic area</u>	area near the head of the embryo where the heart begins to develop 18-19 days after fertilization
<u>cardiogenic cords</u>	two strands of tissue that form within the cardiogenic area
<u>cardiomyocyte</u>	muscle cell of the heart
<u>chordae tendineae</u>	string-like extensions of tough connective tissue that extend from the flaps of the atrioventricular valves to the papillary muscles
<u>circumflex artery</u>	branch of the left coronary artery that follows coronary sulcus
<u>coronary arteries</u>	branches of the ascending aorta that supply blood to the heart; the left coronary artery feeds the left side of the heart, the left atrium and ventricle, and the interventricular septum; the right coronary artery feeds the right atrium, portions of both ventricles, and the heart conduction system
<u>coronary sinus</u>	large, thin-walled vein on the posterior surface of the heart that lies within the atrioventricular sulcus and drains the heart myocardium directly into the right atrium
<u>coronary sulcus</u>	sulcus that marks the boundary between the atria and ventricles
<u>coronary veins</u>	vessels that drain the heart and generally parallel the large surface arteries



<u>diastole</u>	period of time when the heart muscle is relaxed and the chambers fill with blood
<u>ejection fraction</u>	portion of the blood that is pumped or ejected from the heart with each contraction; mathematically represented by SV divided by EDV
<u>electrocardiogram</u>	(ECG) surface recording of the electrical activity of the heart that can be used for diagnosis of irregular heart function; also abbreviated as EKG
<u>end diastolic volume</u>	(EDV) (also, preload) the amount of blood in the ventricles at the end of atrial systole just prior to ventricular contraction
<u>end systolic volume</u>	(ESV) amount of blood remaining in each ventricle following systole
<u>endocardial tubes</u>	stage in which lumens form within the expanding cardiogenic cords, forming hollow structures
<u>endocardium</u>	innermost layer of the heart lining the heart chambers and heart valves; composed of endothelium reinforced with a thin layer of connective tissue that binds to the myocardium
<u>endothelium</u>	layer of smooth, simple squamous epithelium that lines the endocardium and blood vessels
<u>epicardial coronary arteries</u>	surface arteries of the heart that generally follow the sulci
<u>epicardium</u>	innermost layer of the serous pericardium and the outermost layer of the heart wall Frank-Starling mechanism relationship between ventricular stretch and contraction in which the force of heart contraction is directly proportional to the initial length of the muscle fiber
<u>filling time</u>	duration of ventricular diastole during which filling occurs
<u>foramen ovale</u>	opening in the fetal heart that allows blood to flow directly from the right atrium to the left atrium, bypassing the fetal pulmonary circuit
<u>fossa ovalis</u>	oval-shaped depression in the interatrial septum that marks the former location of the foramen ovale
<u>great cardiac vein</u>	vessel that follows the interventricular sulcus on the anterior surface of the heart and flows along the coronary sulcus into the coronary sinus on the posterior surface; parallels the anterior interventricular artery and drains the areas supplied by this vessel

	this vessel
<u>heart block</u>	interruption in the normal conduction pathway
<u>heart bulge</u>	prominent feature on the anterior surface of the heart, reflecting early cardiac development
<u>heart rate</u>	(HR) number of times the heart contracts (beats) per minute
<u>heart sounds</u>	sounds heard via auscultation with a stethoscope of the closing of the atrioventricular valves ("lub") and semilunar valves ("dub")
<u>hypertrophic cardiomyopathy</u>	pathological enlargement of the heart, generally for no known reason
<u>inferior vena cava</u>	large systemic vein that returns blood to the heart from the inferior portion of the body
<u>interatrial band</u>	(also, Bachmann's bundle) group of specialized conducting cells that transmit the impulse directly from the SA node in the right atrium to the left atrium
<u>interatrial septum</u>	cardiac septum located between the two atria; contains the fossa ovalis after birth
<u>intercalated disc</u>	physical junction between adjacent cardiac muscle cells; consisting of desmosomes, specialized linking proteoglycans, and gap junctions that allow passage of ions between the two cells
<u>internodal pathways</u>	specialized conductile cells within the atria that transmit the impulse from the SA node throughout the myocardial cells of the atrium and to the AV node
<u>interventricular septum</u>	cardiac septum located between the two ventricles
<u>isovolumic contraction</u>	(also, isovolumetric contraction) initial phase of ventricular contraction in which tension and pressure in the ventricle increase, but no blood is pumped or ejected from the heart
<u>isovolumic ventricular relaxation phase</u>	initial phase of the ventricular diastole when pressure in the ventricles drops below pressure in the two major arteries, the pulmonary trunk, and the aorta, and blood attempts to flow back into the ventricles, producing the dicrotic notch of the ECG and closing the two semilunar valves
<u>left atrioventricular valve</u>	(also, mitral valve or bicuspid valve) valve located between the left atrium and ventricle; consists of two flaps of tissue

<u><a href="#">marginal arteries</a></u>	branches of the right coronary artery that supply blood to the superficial portions of the right ventricle
<u><a href="#">mesoderm</a></u>	one of the three primary germ layers that differentiate early in embryonic development
<u><a href="#">mesothelium</a></u>	simple squamous epithelial portion of serous membranes, such as the superficial portion of the epicardium (the visceral pericardium) and the deepest portion of the pericardium (the parietal pericardium)
<u><a href="#">middle cardiac vein</a></u>	vessel that parallels and drains the areas supplied by the posterior interventricular artery; drains into the great cardiac vein
<u><a href="#">mitral valve</a></u>	(also, left atrioventricular valve or bicuspid valve) valve located between the left atrium and ventricle; consists of two flaps of tissue
<u><a href="#">moderator band</a></u>	band of myocardium covered by endocardium that arises from the inferior portion of the interventricular septum in the right ventricle and crosses to the anterior papillary muscle; contains conductile fibers that carry electrical signals followed by contraction of the heart
<u><a href="#">murmur</a></u>	unusual heart sound detected by auscultation; typically related to septal or valve defects
<u><a href="#">myocardial conducting cells</a></u>	specialized cells that transmit electrical impulses throughout the heart and trigger contraction by the myocardial contractile cells
<u><a href="#">myocardial contractile cells</a></u>	bulk of the cardiac muscle cells in the atria and ventricles that conduct impulses and contract to propel blood
<u><a href="#">myocardium</a></u>	thickest layer of the heart composed of cardiac muscle cells built upon a framework of primarily collagenous fibers and blood vessels that supply it and the nervous fibers that help to regulate it
<u><a href="#">negative inotropic factors</a></u>	factors that negatively impact or lower heart contractility
<u><a href="#">P wave</a></u>	component of the electrocardiogram that represents the depolarization of the atria
<u><a href="#">Purkinje fibers</a></u>	specialized myocardial conduction fibers that arise from the bundle branches and spread the impulse to the myocardial contraction fibers of the ventricles
<u><a href="#">pacemaker</a></u>	cluster of specialized myocardial cells known as the SA node that initiates the sinus rhythm

<u><a href="#">papillary muscle</a></u>	extension of the myocardium in the ventricles to which the chordae tendineae attach
<u><a href="#">pectinate muscles</a></u>	muscular ridges seen on the anterior surface of the right atrium
<u><a href="#">pericardial cavity</a></u>	cavity surrounding the heart filled with a lubricating serous fluid that reduces friction as the heart contracts
<u><a href="#">pericardial sac</a></u>	(also, pericardium) membrane that separates the heart from other mediastinal structures; consists of two distinct, fused sublayers: the fibrous pericardium and the parietal pericardium
<u><a href="#">pericardium</a></u>	(also, pericardial sac) membrane that separates the heart from other mediastinal structures; consists of two distinct, fused sublayers: the fibrous pericardium and the parietal pericardium
<u><a href="#">positive inotropic factors</a></u>	factors that positively impact or increase heart contractility
<u><a href="#">posterior cardiac vein</a></u>	vessel that parallels and drains the areas supplied by the marginal artery branch of the circumflex artery; drains into the great cardiac vein
<u><a href="#">posterior interventricular artery</a></u>	(also, posterior descending artery) branch of the right coronary artery that runs along the posterior portion of the interventricular sulcus toward the apex of the heart and gives rise to branches that supply the interventricular septum and portions of both ventricles
<u><a href="#">posterior interventricular sulcus</a></u>	sulcus located between the left and right ventricles on the anterior surface of the heart
<u><a href="#">preload</a></u>	(also, end diastolic volume) amount of blood in the ventricles at the end of atrial systole just prior to ventricular contraction
<u><a href="#">prepotential depolarization</a></u>	(also, spontaneous depolarization) mechanism that accounts for the autorhythmic property of cardiac muscle; the membrane potential increases as sodium ions diffuse through the always-open sodium ion channels and causes the electrical potential to rise
<u><a href="#">primitive atrium</a></u>	portion of the primitive heart tube that eventually becomes the anterior portions of both the right and left atria, and the two auricles
<u><a href="#">primitive heart tube</a></u>	singular tubular structure that forms from the fusion of the two endocardial tubes

<u>primitive ventricle</u>	portion of the primitive heart tube that eventually forms the left ventricle
<u>pulmonary arteries</u>	left and right branches of the pulmonary trunk that carry deoxygenated blood from the heart to each of the lungs
<u>pulmonary capillaries</u>	capillaries surrounding the alveoli of the lungs where gas exchange occurs: carbon dioxide exits the blood and oxygen enters
<u>pulmonary circuit</u>	blood flow to and from the lungs
<u>pulmonary trunk</u>	large arterial vessel that carries blood ejected from the right ventricle; divides into the left and right pulmonary arteries
<u>pulmonary valve</u>	(also, pulmonary semilunar valve, the pulmonic valve, or the right semilunar valve) valve at the base of the pulmonary trunk that prevents backflow of blood into the right ventricle; consists of three flaps
<u>pulmonary veins</u>	veins that carry highly oxygenated blood into the left atrium, which pumps the blood into the left ventricle, which in turn pumps oxygenated blood into the aorta and to the many branches of the systemic circuit
<u>QRS complex</u>	component of the electrocardiogram that represents the depolarization of the ventricles and includes, as a component, the repolarization of the atria
<u>right atrioventricular valve</u>	(also, tricuspid valve) valve located between the right atrium and ventricle; consists of three flaps of tissue
<u>semilunar valves</u>	valves located at the base of the pulmonary trunk and at the base of the aorta
<u>septum primum</u>	flap of tissue in the fetus that covers the foramen ovale within a few seconds after birth
<u>septum</u>	(plural: septa) walls or partitions that divide the heart into chambers
<u>sinoatrial (SA) node</u>	known as the pacemaker, a specialized clump of myocardial conducting cells located in the superior portion of the right atrium that has the highest inherent rate of depolarization that then spreads throughout the heart
<u>sinus rhythm</u>	normal contractile pattern of the heart

<a href="#">sinus venosus</a>	develops into the posterior portion of the right atrium, the SA node, and the coronary sinus
<a href="#">small cardiac vein</a>	parallels the right coronary artery and drains blood from the posterior surfaces of the right atrium and ventricle; drains into the great cardiac vein
<a href="#">spontaneous depolarization</a>	(also, prepotential depolarization) the mechanism that accounts for the autorhythmic property of cardiac muscle; the membrane potential increases as sodium ions diffuse through the always-open sodium ion channels and causes the electrical potential to rise
<a href="#">stroke volume</a>	(SV) amount of blood pumped by each ventricle per contraction; also, the difference between EDV and ESV
<a href="#">sulcus</a>	(plural: sulci) fat-filled groove visible on the surface of the heart; coronary vessels are also located in these areas
<a href="#">superior vena cava</a>	large systemic vein that returns blood to the heart from the superior portion of the body
<a href="#">systemic circuit</a>	blood flow to and from virtually all of the tissues of the body
<a href="#">systole</a>	period of time when the heart muscle is contracting
<a href="#">T wave</a>	component of the electrocardiogram that represents the repolarization of the ventricles
<a href="#">target heart rate</a>	range in which both the heart and lungs receive the maximum benefit from an aerobic workout
<a href="#">trabeculae carneae</a>	ridges of muscle covered by endocardium located in the ventricles
<a href="#">tricuspid valve</a>	term used most often in clinical settings for the right atrioventricular valve
<a href="#">truncus arteriosus</a>	portion of the primitive heart that will eventually divide and give rise to the ascending aorta and pulmonary trunk
<a href="#">valve</a>	in the cardiovascular system, a specialized structure located within the heart or vessels that ensures one-way flow of blood
<a href="#">ventricle</a>	one of the primary pumping chambers of the heart located in the lower portion of the heart; the left ventricle is the major pumping chamber on the lower left side of the heart that ejects blood into the systemic circuit via the aorta and receives blood from the left atrium; the right ventricle is the

the left atrium; the right ventricle is the major pumping chamber on the lower right side of the heart that ejects blood into the pulmonary circuit via the pulmonary trunk and receives blood from the right atrium

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[ventricular ejection](#)

phase second phase of ventricular systole during which blood is pumped from the ventricle

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