

Glossary of Terms

A Vessels	End arteries that arise from epicardial arteries at a shallow angle, then branch within and supply the outer half of the myocardium.
Absolute Refractory	The portion of the depolarization-repolarization cycle during which myocardial fibers cannot respond to any stimulus.
Acetylcholine	A neurotransmitter released as a result of as a result of parasympathetic stimulation having important physiological functions, such as increasing cardiac cell membrane permeability to potassium.
Acidosis	Accumulation of acid in or loss of base from the body causing a decrease in blood pH.
Action Potential	The electrical activity developed in muscle and nerve cells during activity, such as conduction of electrical impulses or contraction. The action potential may be elicited by electrical, chemical or mechanical stimulation, and is characterized by definite phases that return the cell again to the membrane resting potential.
Afterload	The force or resistance against which the left ventricle must pump.
Akinesis	Wall motion abnormality characterized by absent systolic motion. Akinesia is generally associated with severe infarction or cardiomyopathy.
Aldosterone	A steroid hormone produced by the adrenal cortex whose principal action is to facilitate potassium exchange for sodium in the kidney. Excessive secretion leads to sodium and water retention and an increase in blood volume.
Analgesic	An agent that relieves pain.
Anastomoses	Communications between vessels, as between the smaller arteries that supply the heart muscle. An increase in their size and number provides a collateral circulation to regions of the myocardium threatened with ischemia by gradual narrowing of a larger artery.
Aneurysm	A circumscribed sac caused by dilation of the wall of an artery, a vein or the heart.
Angina Pectoris	Severe constricting pain in the chest, often I radiating to the left shoulder and arm and or to the jaw, due to myocardial ischemia.
Angiography	The roentgenographic visualization of blood vessels following the introduction of contrast material; used as a diagnostic aid in conditions such as myocardial infarct and ischemia.
Anion	A negatively charged ion, such as chloride.
Anoxia	Reduction of oxygen in body tissues below physiologic levels and, therefore, threatening tissue death.
Antiarrhythmic Drug	An agent that prevents or alleviates cardiac arrhythmia.
Aorta	The major artery responsible for the distribution of oxygenated blood to the body's tissues. The coronary arteries originate from the aorta to supply the myocardium with oxygen-rich blood.
Aortic Root	The lowermost portion of the aorta by which the coronary arteries are firmly attached.
Aortic Valve	The trileafleted valve located at the junction of the aortic orifice in the left ventricle. The aortic valve prevents backflow, or regurgitation of blood into the left ventricle.
Apex of the Heart	The blunt rounded tip of the heart forming the left ventricle. The apical portion of the ventricular myocardium is thinner than other portions

Arrhythmia	Any variation from the normal rhythm of the heartbeat.
Arteriography	A diagnostic technique done during catheterization in which opaque contrast agents are injected directly into an artery. The term is used interchangeably with angiography.
Arterioles	The terminal branches of the arteries end in capillaries.
Arteriosclerosis	A group of diseases characterized by thickening and loss of elasticity of the arterial walls.
Artifact	A spurious structure or feature in an image or data produced by an imaging technique or instrument rather than by the imaged object itself.
Arteriosclerosis	Hardening of the walls of larger and medium-sized arteries; characterized lipid deposits in the innermost lining of the vessel.
Atherosclerotic Plaque	Fibrous tissue, sometimes calcified, around a central core of lipid that locally replaces normal lining of an artery and protrudes out into the arterial lumen.
ATP	Adenosine triphosphate. Breakdown ATP releases energy, which fuels cells.
Atria	The two smaller chambers of the heart act as receiving chambers of blood from the venous system and lungs.
Atrioventricular Bundle	Commonly known as the bundle of His
Atrioventricular (AV) Node	The specialized mass of tissue located (A V) Node beneath the surface of the interventricular septum that forms the only normal conduction pathway from the atria to the ventricles.
Atrioventricular Septum	The fibrous "skeleton" to which are attached the atria and ventricles, the heart valves and the trunks of the aorta and pulmonary artery.
Atrioventricular Valves	The mitral and tricuspid valves.
Auscultation	The act of listening to sounds within the body as an aid to diagnosis or for evaluating the condition of such organs as the heart and the lungs.
Automaticity	The ability to initiate an impulse or stimulus. The cells of the cardiac conduction system, called pacemaker cells, have this inherent capacity. They spontaneously depolarize without external stimulation.
Autonomic Nervous	The subdivision of the central nervous system that regulates the involuntary activity of cardiac muscle, smooth muscle and glands.
B-vessels	End arteries that arise from epicardial arteries at a right angle, branch near the endocardial margin of the heart wall, thus, supplying the inner portion of the myocardium.
Baroreceptor	A sensory nerve ending that is stimulated by changes in pressure.
Base of the Heart	The region formed by the atrium and roots of the great vessels; thus, the "top" of the heart, located opposite the apex of the heart.
Bicuspid Valve	A congenital aortic valve abnormality when the valve has 2 cusps rather than 3 and can be associated with regurgitation and/or stenoses.

Blood Urea Nitrogen(BUN)	Nitrogen in the form of urea found normally in whole blood or serum. Elevated BUN values occur in many disorders, including reduction of cardiac and renal output which may occur following myocardial infarction.
Bradycardia	Slow heart rate; usually applied to rates below 60 beats per minute.
Bundle Branches	The right and left conduction pathway continuing from the bundle of His and proceeding along both sides of the inter- ventricular septum to the tips of the ventricles.
Bundle Branch Block	A defect in the heart's electrical conduction system in which there is a failure to conduct electricity down either the left or the right bundle of His.
Bundle of His	The band of cardiac nerve-like fibers that originates at the atrioventricular node and propagates the impulse originating in the sinoatrial node through the right and left bundle branches to the terminal Purkinje fibers.
Capillaries	The minute vessels of the vascular system that connect arterioles with venules, forming a network in almost all parts of the body for the exchange of nutrients and gases between blood and other tissues.
Capillary Bed	The combined mass of capillaries within the body.
Cardiac Catheterization	The introduction of the catheter from outside the body, into the heart, through blood vessels. The catheter may be introduced into one of the heart's chambers, or it may be guided into one of the coronary arteries, or both.
Cardiogenic Shock	Acute peripheral circulation failure due to severely diminished cardiac output.
Cardiomegaly	Enlargement of the heart.
Cardiomyopathy	Disease of the muscular wall of the heart which impedes filling and/or emptying of the cardiac chamber.
Cardioversion	Conversion of cardiac arrhythmias to normal sinus rhythm by electrical shock; also called defibrillation, especially when the arrhythmia is ventricular fibrillation.
Catecholamine	One of a group of similar compounds that produces effects similar to those of the sympathetic nervous system. Epinephrine, norepinephrine and dopamine are examples.
Cation	A positively charged ion, such as sodium or potassium.
Central Nervous System	The portion of the nervous system consisting of the brain and spinal cord.
Circumflex Artery	The branch of the left coronary artery that normally supplies the posterior wall and a portion of the inferior and lateral walls of the left ventricle.
Concentration Gradient	The continuous variation in concentration of a dissolved substance, such as potassium, along some dimension of a confined solution; used to describe the difference in concentration of positive potassium and sodium ions across the myocardial cell membrane.
Conductivity	The ability to transmit impulses to other areas. Both the cells of the conduction system and the myocardial muscle fibers have this property.
Congestive Heart Failure	The syndrome of tissue congestion and edema that develops with failure of the heart to maintain adequate circulation of blood. The congestion may occur in the lungs (pulmonary edema), in the peripheral circulation, or in both, depending on whether the failure is of the left ventricle, right ventricle, or both.
Contractility	The ability to respond to stimulus with mechanical action. Myocardial fibers

respond mechanically to electrical stimulation by shortening.

Coronary Angioplasty	Percutaneous transluminal coronary (PTCA) angioplasty, a technique in which a catheter with a small balloon at the distal end is inserted into a diseased coronary artery. The balloon tip is inserted through the lesion and the balloon positioned at the center of the lesion. The balloon is then inflated with a solution of contrast material to allow visualization under fluoroscopy. The inflation of the balloon compresses the atheromatous plaque against the side of the arterial wall, improving blood flow through the previously stenotic vessel.
Coronary Arteries	The right and left coronary arteries, which branch <i>off</i> the aorta to supply the heart muscle with oxygen and nutrients.
Coronary Artery Bypass Graft	(CABG) A surgical procedure, performed by anastomosing small-vein grafts to the aorta and to the sides of more peripheral coronary vessels. Usually one to three grafts are performed during the procedure, each of which supplies a peripheral coronary artery beyond the blockage.
Coronary Artery Disease	(CAD) A disease state that affects the coronary arteries, such as arteriosclerosis resulting in reduced blood flow capability.
Coronary Artery Stenosis	The narrowing of the coronary arteries by plaque or physical compression.
Creatine Phosphokinase	(CPK) An enzyme important in phases of cellular metabolism found in many body tissues, but in highest concentrations in heart and skeletal muscle. Rapid elevation in serum levels occurs in a number of conditions, including muscle injury and infarction.
Cyanosis	Bluish-purple discoloration of mucous membranes due to deficient oxygenation of the blood and consequently high concentrations of reduced (oxygen lacking) hemoglobin.
Depolarization	The reversal of the negative resting potential in excitable cell membranes when they are stimulated; the process electrical impulses are spread throughout the cardiac conduction system and the heart muscle.
Diaphoresis	Perspiration, usually profuse and of sudden onset.
Diastole	The relaxation period of the heart; usually refers to the ventricles unless otherwise specified.
Diuretic	An agent that promotes the excretion or formation of urine.
Dyskinesis	Wall motion abnormality characterized by passive systolic outward motion. Most common at the ventricular apex but may occur wherever a thinned infarcted segment occurs. Generally in the apex. Dyskinesia may be associated with ventricular aneurysm.
Edema	The presence of abnormally large amounts of fluid in the intercellular tissue of the body (Swelling).
Electrical Activity	The initiation and transmission of impulses by the heart's intrinsic electrical system that prepares the heart to contract.
Electrocardiogram	Graphic representation of the activity generated as result of the depolarization and repolarization of ventricles. (ie the ECG)
Electrolyte	A substance that dissociates into ions in solution, and thus becomes capable of conducting electricity. For example, sodium chloride (NaCl) dissociates into Na ⁺ ions and Cl ⁻ ions in solution.
Embolus	A dislodged blood clot (thrombus) or other material brought by the blood from one vessel that may lodge in a smaller one and thus obstruct blood flow.

Endocardium	The thin membrane which is the inner lining of the cardiac chambers.
Epicardium	The thin external layer of the cardiac wall.
Erythrocyte	(Red blood cells) The blood cell whose oxygen-carrying pigment, hemoglobin, is responsible for the red color of fresh blood
Excitability	The ability to respond to an impulse or stimulus. Atrial and ventricular myocardial fibers respond to the impulse generated by the pacemaker cells of the cardiac conduction system by depolarization and repolarization.
Fibrillation	Rapid, asynchronous incomplete, uncontrollable quivering of the atria or ventricles. Occurs due to multiple small reentrant circuits as opposed to the normal rhythmic synchronous electrical excitation.
Fibrin	An insoluble protein formed from fibrinogen (coagulation factor) during normal clotting of blood. Fibrin is the essential portion of the blood clot.
Galvanometer	An instrument for measuring current by electromagnetic action.
Heart Block	An interruption of the normal physiological function of the A V node resulting in the dissociation of the atrial and ventricular rhythms. Complete heart block occurs when no atrial signals reach the ventricle. The ventricle then produces an “escape rhythm” to, in part maintain cardiac output
Hematocrit Value	The percentage of whole blood volume occupied by the red cells following centrifugation of blood.
Hematuria	The presence of blood or red blood cells in the urine.
Hemoglobin	The oxygen-carrying red pigment of erythrocytes (red blood cells).
Hyperkalemia	Abnormally high level of potassium in the blood.
Hyperlipidemia	Any abnormally high level of one or more lipids, such as triglycerides or cholesterol, in the blood.
Hypertrophy	Enlargement or overgrowth of an organ due to an increase in size of its constituent’s cells. May be concentric
Hypokalemia	Abnormally low level of potassium in the blood.
Hypokinesis	Wall motion abnormality characterized by decreased systolic wall contraction. Hypokinesia is associated with infarction, ischemia and cardiomyopathy.
Hypotension	Diminished or abnormally low blood pressure.
Hypoxia	Deficiency of oxygen available to, or utilized by, body tissues.
Infarction	An area of coagulation necrosis in a tissue due to partial or total obstruction of circulation to the area, most commonly by thrombus or embolus.
Inferior Vena Cava	The venous trunk for the lower extremities and the pelvic and abdominal organs, which empties into the right atrium of the heart.
Interatrial Septum	The thin muscular wall that separates the two atria of the heart.
Interventricular Septum	The thick muscular wall that separates the two ventricles of the heart.
Ischemia	The state of a tissue that is receiving insufficient blood to meet its metabolic needs.

Ischemia may be reversible or irreversible, depending upon the cause of the insufficiency.

Leukocytosis	An increase in the number of the white blood cells (leukocytes), usually due to acute infection.
Lumen	The cavity or channel within a tubular organ; in a blood vessel, the flow channel contained within the vessel wall.
Mean Arterial Pressure	The average, or half the sum, of the systolic and diastolic pressures.
Mechanical Activity	The functioning of the heart as a pump, consisting of the contraction of the ventricles.
Mediastinum	The area separating the two lungs, between the sternum in front and the vertebral column behind. It contains the heart and its great vessels in addition to other structures and tissues.
Membrane Resting Potential	The potential difference that exists across the membrane of the normal cell at rest. In myocardial cells, the membrane resting potential is -70 to -90mv.
Mitral Valve	The left atrioventricular valve, between the left atrium and left ventricle of the heart.
Murmur	Results from vibrations produced by movement of blood within the heart and adjacent large blood vessels.
Myelin	A soft, white fatty substance that forms a sheath around nerve fibers.
Myocarditis	Inflammation of the myocardium, due to such causes as infection or drug toxicity, or idiopathic in nature.
Myocardium	The muscular middle layer of the heart wall, often used to refer to the entire tissue mass of the heart.
Necrosis	Death of a tissue, usually as individual cells, groups of cells, or in small localized areas.
Norepinephrine	A hormone released as a result of sympathetic stimulation having important physiological functions
Pacemaker	The mass of tissue that rhythmically initiates the heartbeat. Normally, the sinoatrial node is the heart's pacemaker. However, other cells in the cardiac conduction system may initiate impulses and act as a pacemaker.
Papillary Muscles	Rounded or conical muscular projections from the walls of the ventricles that connect via delicate fibrous cords to the cusps of the atrioventricular valves.
Parasympathetic nervous System	The part of the autonomic nervous system that responds to rest or an increase in blood volume in such a way as to increase the membrane permeability of myocardial cells to potassium, resulting in a decreased heart rate and cardiac output.
Peak Systolic Pressure	The pressure (or tension) of blood within the arteries at the moment of endventricular systole.
Perfusion	Blood flow to the tissues. A perfusion defect implies decreased flow to the region of interest.
Pericardial Effusion	Accumulation of serous fluid, pus or blood between the two layers of pericardium. This effusion may prevent adequate filling of the chambers and reduce cardiac output.
Pericardial Friction Rub	A sound heard on auscultation, produced by the rubbing together of inflamed pericardial surfaces. Pericarditis Inflammation of the pericardium, due to infection, trauma or idiopathic in nature.
Pericardium	The fibrous sac that surrounds the heart and roots of the great vessels.
Platelet	A minute, irregularly disk-shaped structure that assists in blood clotting.

Preload	The tension imposed On the heart muscle due to ventricular end diastolic volume. Preload is influenced by venous return.
Prophylaxis	Prevention
Prothrombin	A plasma protein precursor of thrombin which in turn, converts fibrinogen to fibrin in the process of blood coagulation.
Pulmonary Edema	Effusion of fluid into the air sacs and tissues of the lungs, most commonly due to left heart failure.
Pulmonary Embolism	Obstruction of one or more of the pulmonary arteries, usually caused by fragments of a thrombus from a leg vein. pulmonary embolism is a common complication of long confinement to bed.
Pulmonary Valve	The valve that guards the pulmonary orifice between the pulmonary artery and the heart. The pulmonary valve prevents backflow into the right ventricle from the pulmonary artery.
Purkinje Fibers	The treelike terminal branchings of the right and left bundle branches that carry the excitation impulse to the myocardial fibers.
Regurgitation	Backward flow into the ventricles of the heart from the aorta or pulmonary artery, or into the atria from the ventricles, due to valvular incompetency
Reperfusion	The ability to restore adequate blood flow to the myocardium, as a result of thrombolytic therapy, angioplasty or surgical intervention.
Repolarization	The return of the cell membrane potential to the negative resting potential following depolarization; a recharging of the myocardial cells so they may again respond to stimulation.
Semilunar Valves	The aortic and pulmonary valves (ie two leaflets)
Sensitivity	Referring to a test, it describes the ability of the test to detect a disease when present; it usually expressed as the ratio of true positive results compared with all tested who had the disease. (ie percentage positive in disease)
Sinoatrial (SA) Node	A specialized mass of tissue located in the right atrium near the superior vena cava that normally initiates impulses at a more rapid rate than any other part of the heart; the pacemaker of the heart.
Sodium/potassium Pump	The mechanism of active transport by which sodium is extruded from the interior of cells in order to maintain the higher extracellular concentration of sodium and the highest intracellular concentration of potassium.
Specificity	Referring to a test, it measures the ability of the test to exclude disease when it is absent; expressed as the ratio of true negative results compared with all tested who did not have the disease. The higher the specificity, the lower the false positives
Stable Angina	The most common symptom of ischemic heart disease. The pain is due to narrowing of the coronary arteries which produces a reversible, mild degree of myocardial ischemia when demand for oxygenated blood to the myocardium exceeds supply.eg. during exertion and/or emotional stress.
Streptokinase	An enzyme produced by bacteria which aids in the dissolving of clots by converting plasminogen into plasmin. Plasmin is the active portion of the fibrinolytic, or clot-lysing, system.
Subendocardial Infarction	Infarction that involves only the layer of muscle beneath the endocardium, and thus not the entire thickness of the myocardial wall.

Subendothelial	Situated beneath the innermost layer of cells lining the cavities of the heart and blood vessels.
Superior Vena Cava	The venous trunk that collects blood from the head, neck, upper extremities and chest, and empties into the right atrium of the heart.
Sympathetic Nervous System	The part of the autonomic nervous system that responds to stress or exercise resulting in increased heart rate and contractile force.
Synchrony	Simultaneous occurrence, specifically that characteristic of the healthy heartbeat whereby the entire mass of myocardial fibers contract more or less simultaneously.
Systemic Circulation	The circulation that carries oxygenated blood from the left ventricle of the heart to the body tissues and returns venous blood to the right atrium.
Systole	The contraction, or period of contraction of the heart; usually refers to the ventricle.
Tachycardia	Rapid heart rate; usually applied to rates over 100 beats per minute.
Tachypnea	Very rapid breathing.
Thrombolysis	The phenomenon by which pre-formed thrombi are dissolved by a complex series of events, the most important of which involves the local action of plasmin confined within the substance of the thrombus.
Thrombus	A blood clot that forms gradually at an art of blood vessel wall damage or over an atherosclerotic lesion. Thrombi may be occlusive or may remain attached to the vessel or heart wall without obstructing blood flow.
Transmural Infarction	Infarction that involves the entire thickness of the myocardium.
Tricuspid Valve	The right atrioventricular valve, between the right atrium and the right ventricle of the heart. The tricuspid valve has three cusps.
Unstable Angina	A more severe and ominous type of angina characterized by severe pain lasting several minutes or an increase in the frequency of a patient's regular angina. The mechanism is usually a ruptured coronary plaque and subsequent coronary thrombosis. The pain may occur at periods of rest and relaxation. Myocardial infarct and arrhythmia may occur due to tissue damage from decreased myocardial blood flow.
Vagus Nerve	A bundle of nerve fibers originating from the medulla oblongata of the brain, passing down to supply neural innervation to the larynx, lungs, heart, esophagus, stomach and abdominal viscera.
Valsalva Maneuver	Forced expiration against a closed airway to raise and maintain intrapulmonary pres- sure. Blood pressure responses to this maneuver provide information about cardiac function.
Vasoactive Drug	An agent that affects the caliber of blood vessels, especially one that increases or decreases arterial caliber to correspondingly decrease or increase blood pressure.
Vasopressor	Any substance that causes contraction of the muscular tissue of the capillaries and arteries.
Ventricles	The lower, larger chambers of the heart that are responsible for pumping blood through pulmonary circulation (right ventricle) and systemic circulation (left ventricle). The ventricles are formed of thick muscular (myocardial) walls.
Ventricular Aneurysm	Dilation or outpocketing of the ventricular wall during systole, caused by healing with fibrosis and scar formation of infarcted myocardium.

Ventriculography

A diagnostic procedure in which opaque contrast dyes are injected directly into the ventricle under catheterization. X-ray motion pictures may then be obtained of the ventricles through systole and diastole. The procedure is valuable in the diagnosis of a variety of cardiac diseases, including valvular heart disease, infarct and ventricular aneurysm.

Viable Myocardium

The term applied to myocardium that is alive, even if ischemic, in tissue zones with reduced perfusion. Cell function may improve after revascularization/reperfusion. May be hibernating (ie chronically underperfused "Asleep") or stunned ((transiently non functional myocardium due to an acute ischemic insult which has been corrected and thus now is perfused by oxygenated blood). Non viable myocardium is associated with coronary arteries that remain occluded