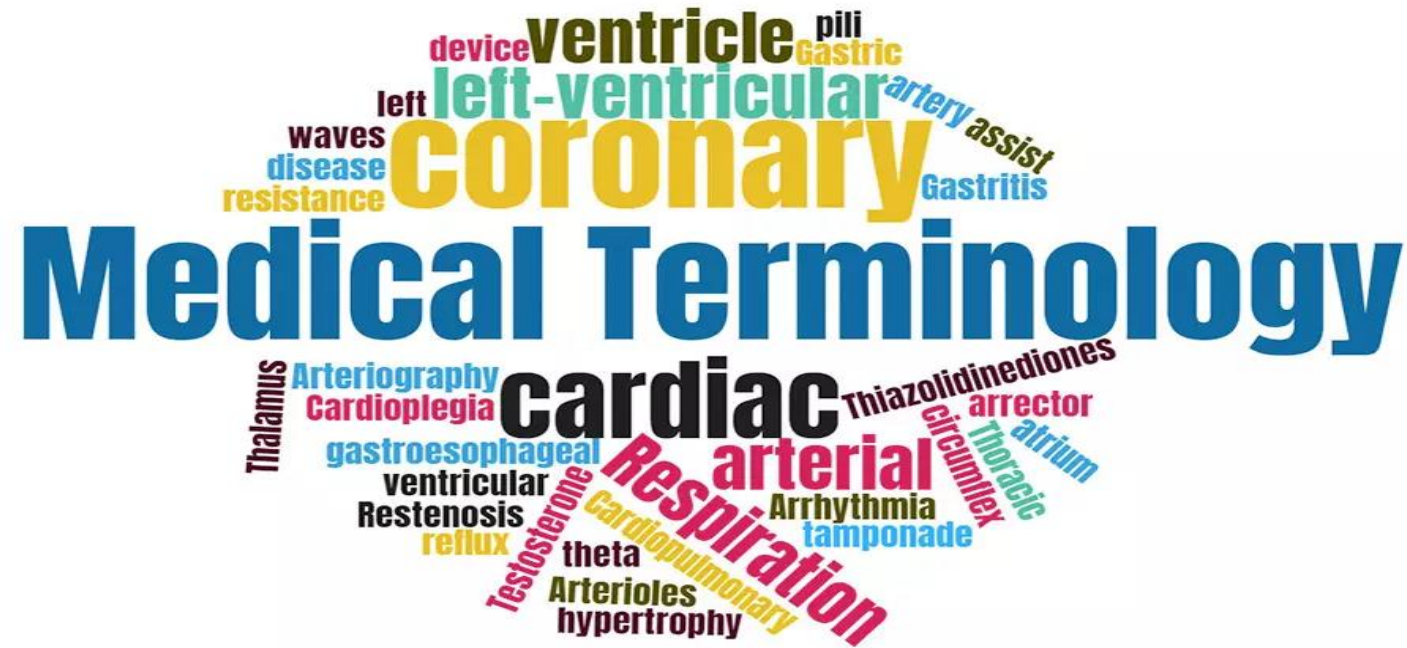




AL MUSTAQBAL UNIVERSITY

College of Pharmacy / First Year



(L5) Cardiovascular System Terminology

Dr. Abdulhusein Mizhir Almaamuri

**-scope** (instrument used to view)

**-scopy** (process of viewing)

**-ectomy** (excision, surgical removal)

**-tomy** (cut into, incision)

**-ostomy** (surgical creation of an opening into the body)

**-gram** (record, radiographic image)

**-graph** (instrument used to record)

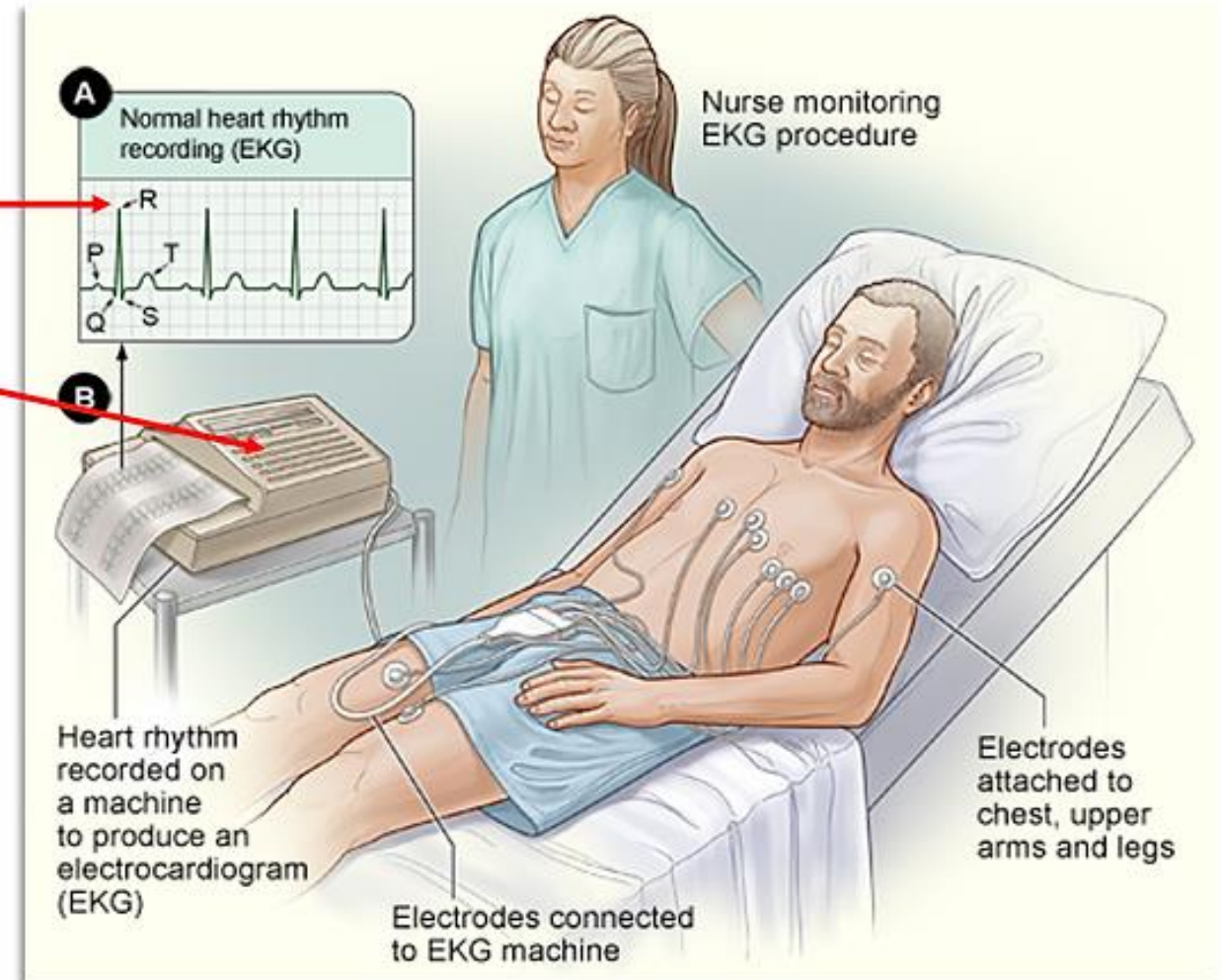
**-graphy** (process of recording, radiographic imaging)

# ECG

## -GRAPHY; -GRAM; -GRAPH

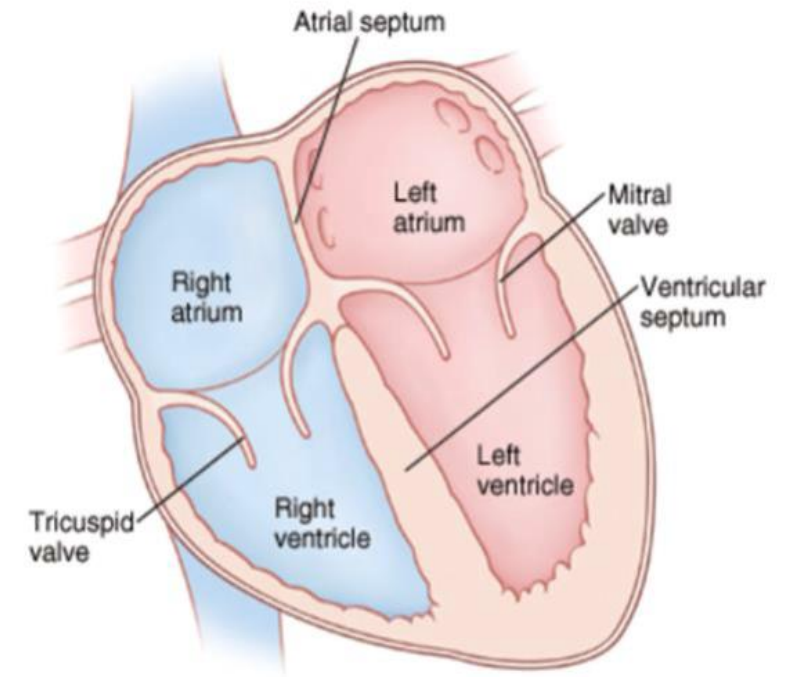
Electrocardiogram

Electrocardiograph



# CARDIOVASCULAR SYSTEM

- The **cardiovascular system** (CVS) is composed mainly from the **heart** and **blood vessels**.
- The medical word for heart: is the Latin word **Cardium**, which is often combined with other words in the forms **cardi** or **cardio**.
- The heart consists of **four chambers**:
  1. The upper two chambers are called an **atrium** (plural: atria).
  2. The lower two chambers are called **ventricles** (also called ventriculi).



*The four chambers of the heart*



# HEART WALL LAYERS

- The **heart wall** is composed of three layers:

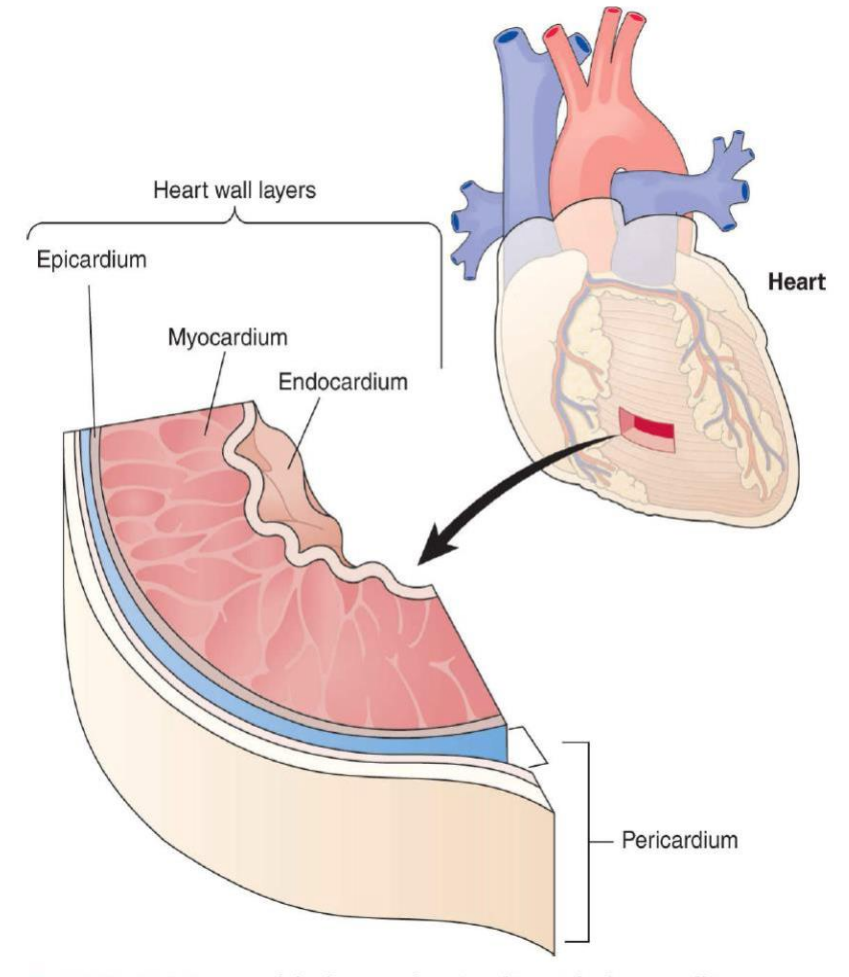
**1. The endocardium layer:** is the innermost which lines the heart's chambers and covers its valves.

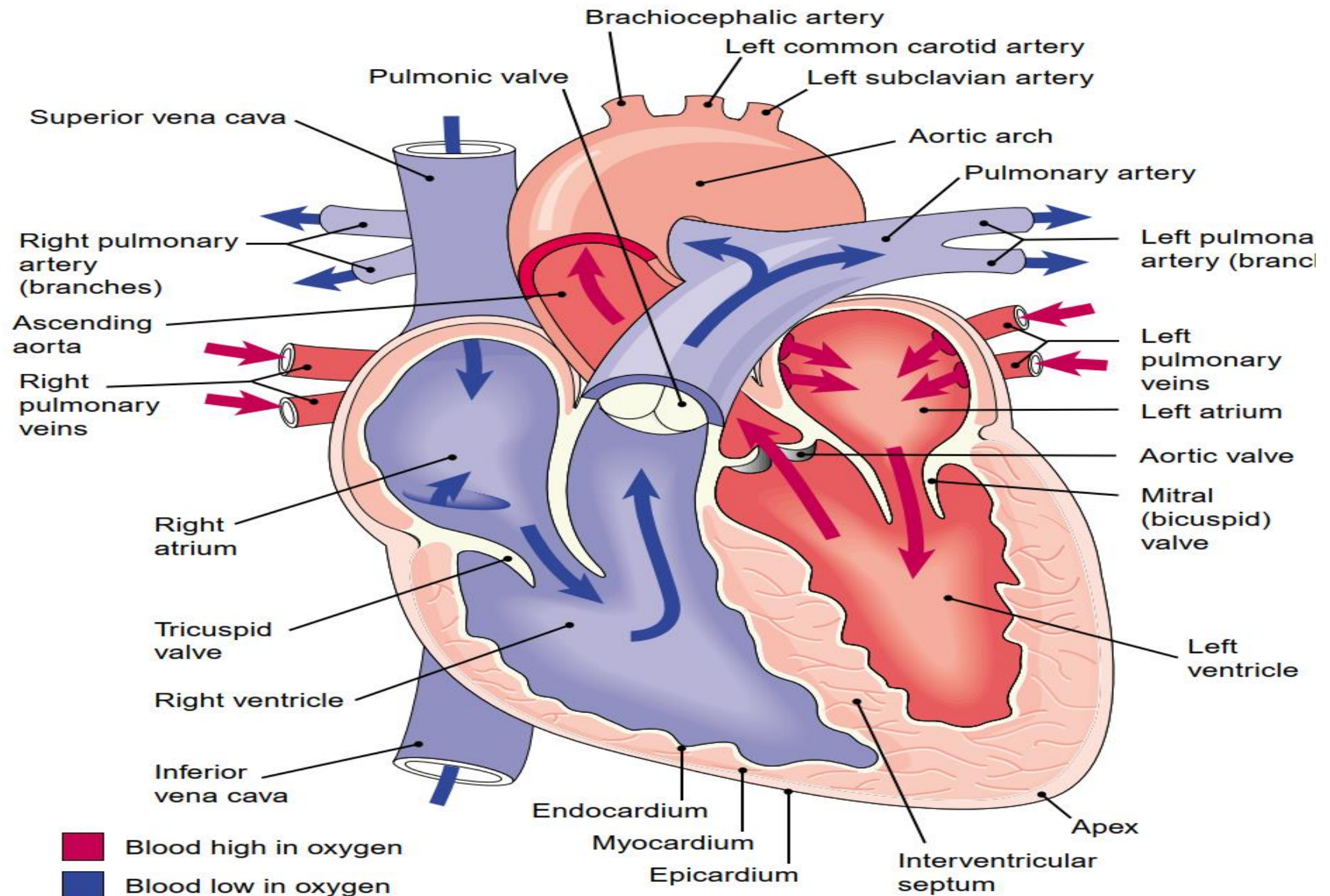
**Endo-** is a Greek prefix that means within.

**2. The myocardium:** is the heart muscle itself.

**3. The epicardium:** is the outer layer, **Epi-** is a Greek prefix that means on.

- The heart is protected by a thin sac called the **pericardium**. **Peri-** is a Greek prefix that means around.

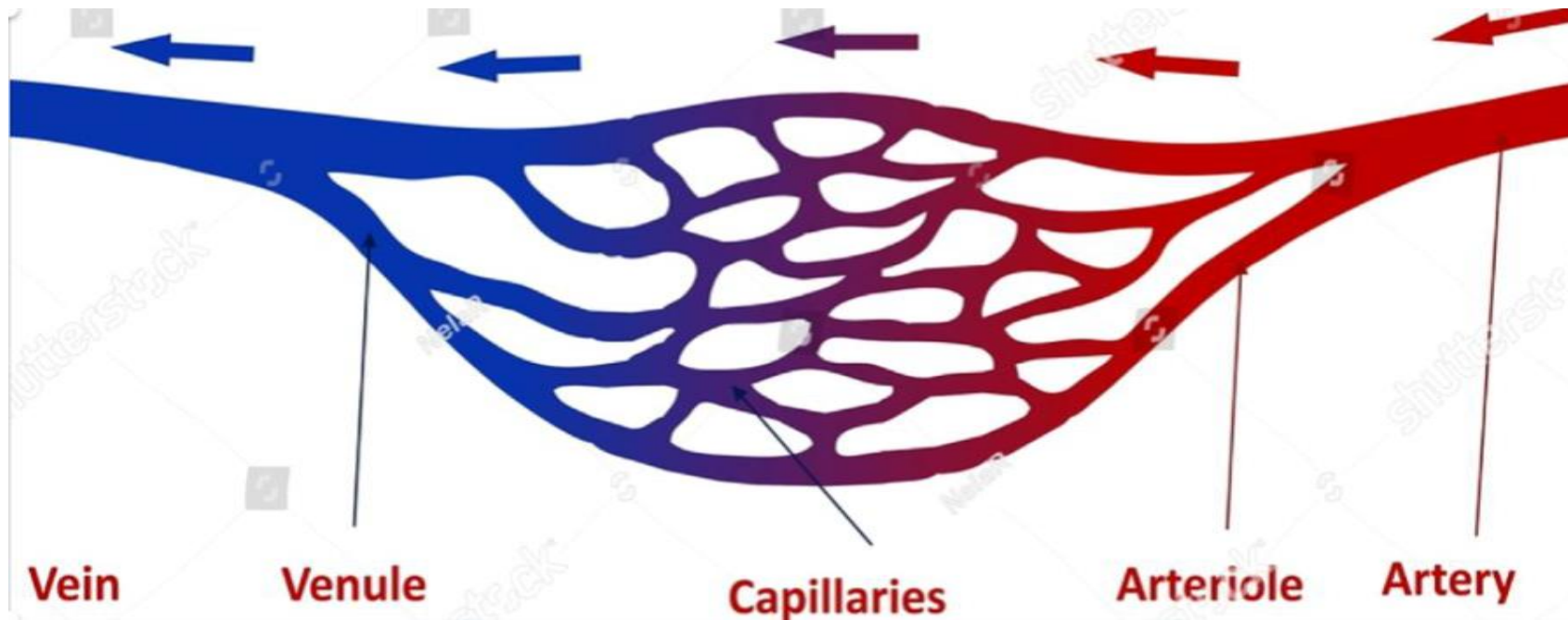




# VASCULAR NETWORK

The peripheral vascular system consists of a network of **arteries, arterioles, capillaries, venules, and veins**.

- Artery carries blood away from the heart.
- Nearly all arteries carry oxygen-rich blood from the heart to the rest of the body. The only exception is the pulmonary artery, which carries oxygen-depleted blood to the lungs.
- **Coronary arteries** got their name because they encircle the heart like a crown (=koron).



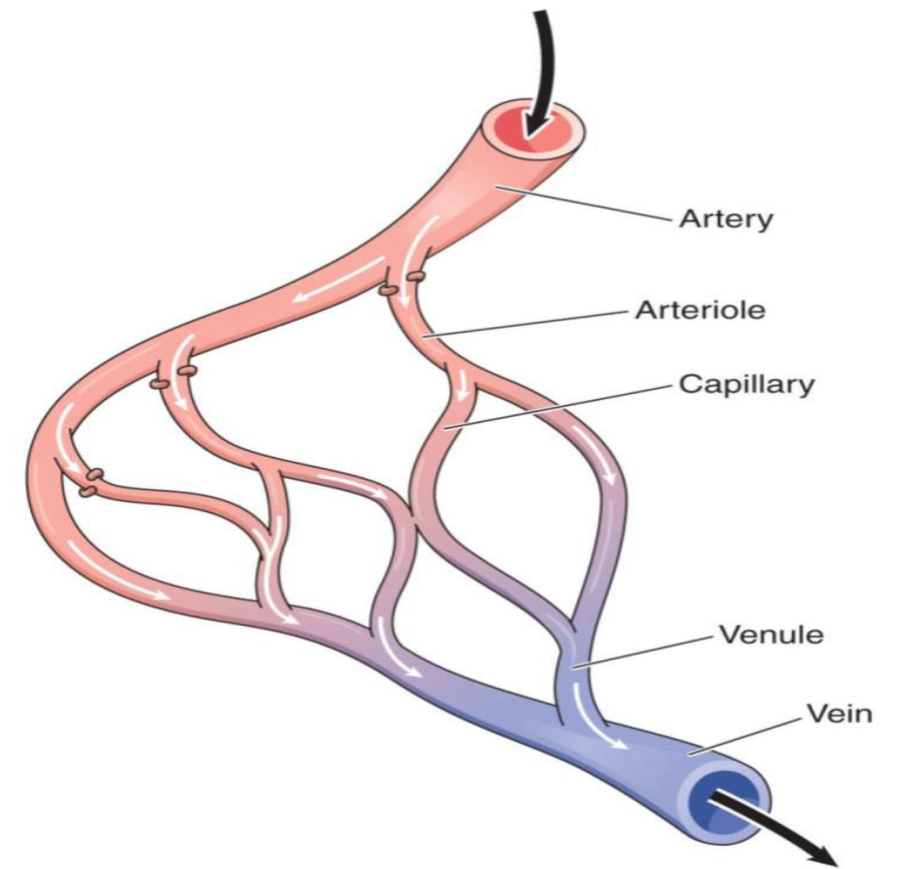


- The exchange of fluid, nutrients, and metabolic wastes between blood and cells occurs in the **capillaries**, which are connected to arteries and veins through intermediary vessels called arterioles and venules, respectively.

- **Veins** carry blood toward the heart.
- Nearly all veins carry oxygen-depleted blood. Except for the **pulmonary vein**, which carries oxygen-rich blood from the lungs to the heart.

- **Vasoconstriction** refers to the narrowing of the vessel diameter.

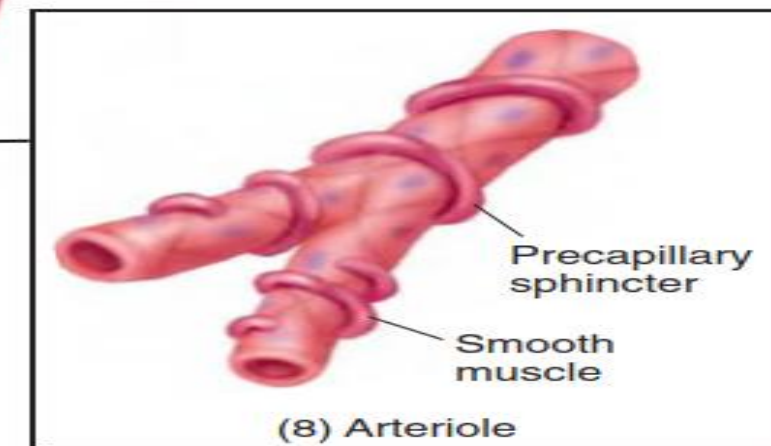
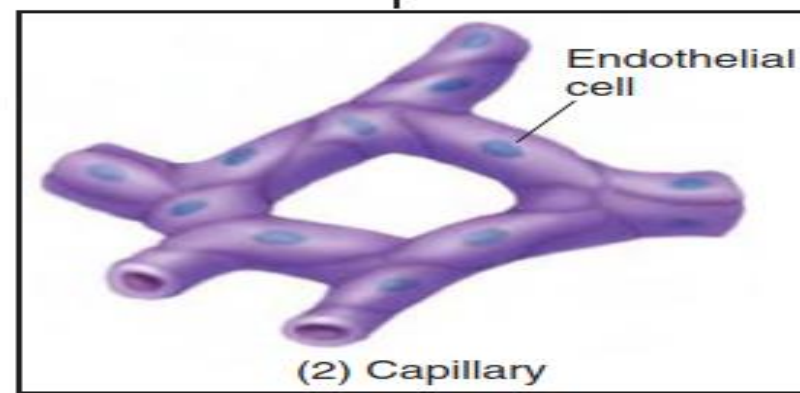
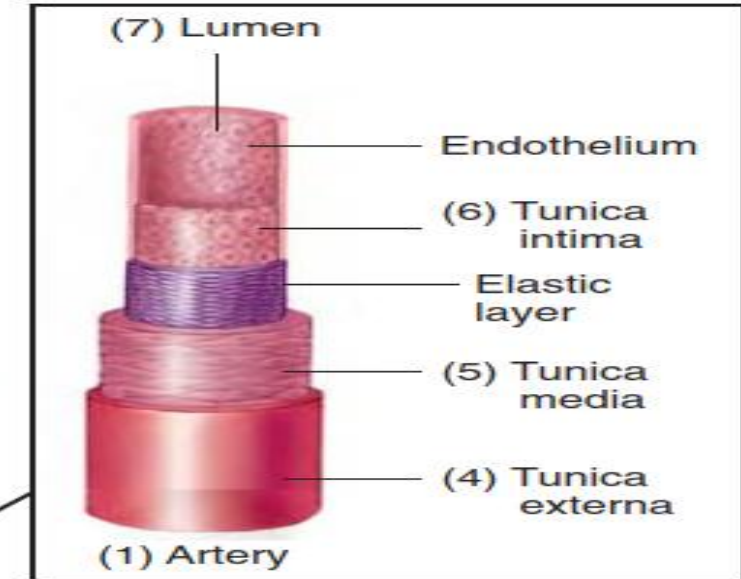
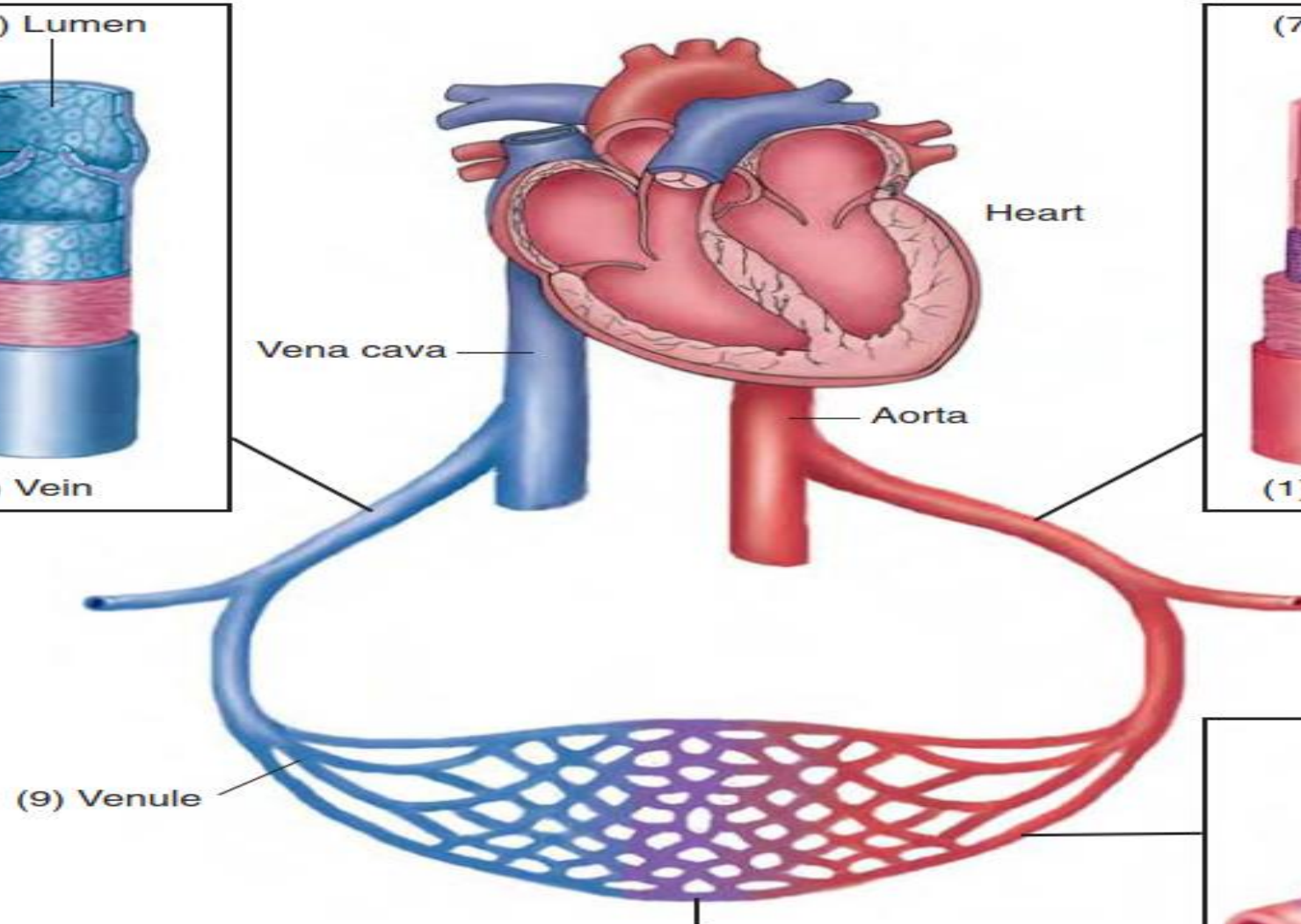
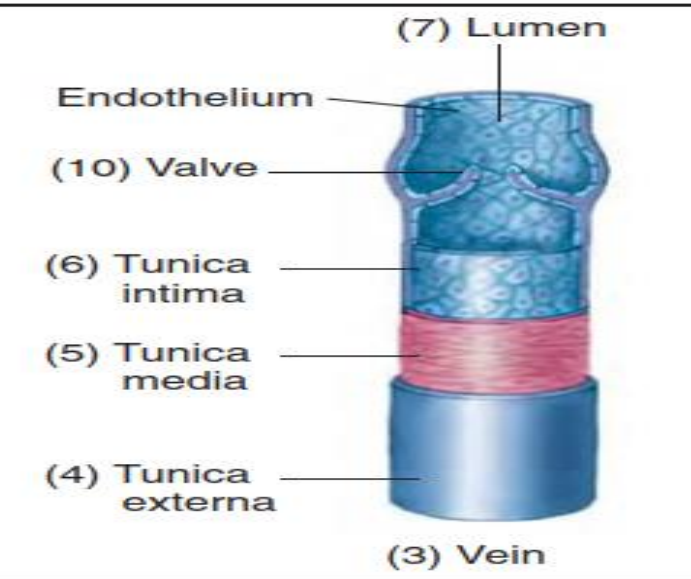
- **Vasodilation** refers to enlargement of the vessel diameter.

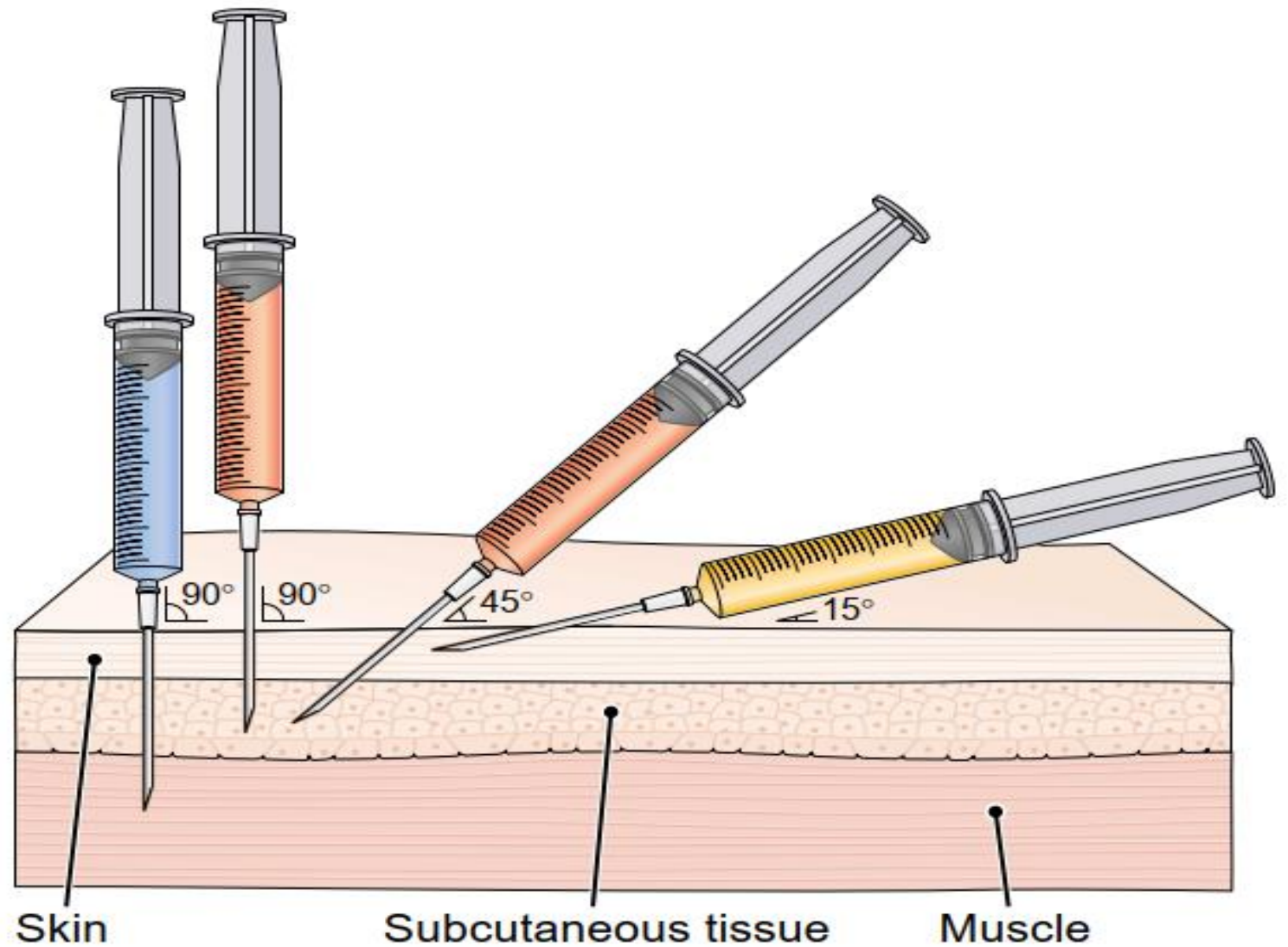





### Vasoconstriction and Vasodilation









-  Intramuscular injection
-  Subcutaneous injection
-  Intradermal injection

**TABLE 1 Roots for the Heart**

ROOT	MEANING	EXAMPLE	DEFINITION OF EXAMPLE
cardi/o	heart	cardiomyopathy* <i>kar-dē-ō-mī-OP-a-thē</i>	any disease of the heart muscle
atri/o	atrium	atriotomy <i>ā-trē-OT-ō-mē</i>	surgical incision of an atrium
ventricul/o	cavity, ventricle	supraventricular <i>SŪ-pra-ven-TRIK-ū-lar</i>	above a ventricle
valv/o, valvul/o	valve	valvectomy <i>val-VEK-tō-mē</i>	surgical removal of a valve

\*Preferred over myocardioathy.

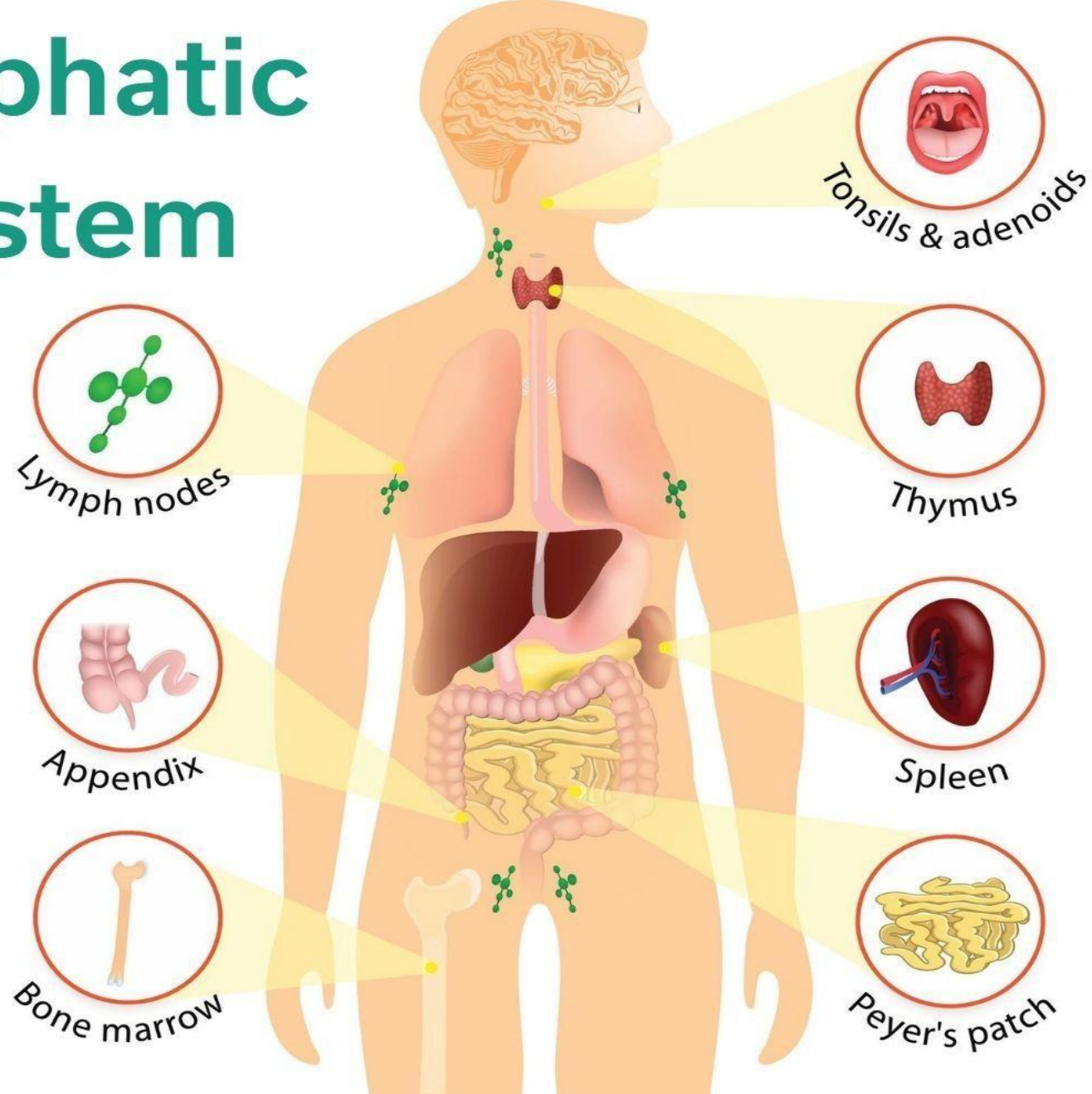
**TABLE 2 Roots for the Blood Vessels**

ROOT	MEANING	EXAMPLE	DEFINITION OF EXAMPLE
angi/o*	vessel	angiopathy <i>an-jē-OP-a-thē</i>	any disease of blood vessels
vas/o, vascul/o	vessel, duct	vasodilation <i>vas-ō-dī-LĀ-shun</i>	widening of a blood vessel
arter/o, arteri/o	artery	endarterial <i>end-ar-TĒ-rē-al</i>	within an artery
arteriol/o	arteriole	arteriolar <i>ar-tē-rē-Ō-lar</i>	pertaining to an arteriole
aort/o	aorta	aortoptosis <i>a-or-top-TŌ-sis</i>	downward displacement of the aorta
ven/o, ven/i	vein	venous <i>VĒ-nus</i>	pertaining to a vein
phleb/o	vein	phlebectasia <i>fleb-ek-TĀ-zē-a</i>	dilatation of a vein

\*The root *angi/o* usually refers to a blood vessel but is used for other types of vessels as well. *Hemangi/o* refers specifically to a blood vessel.



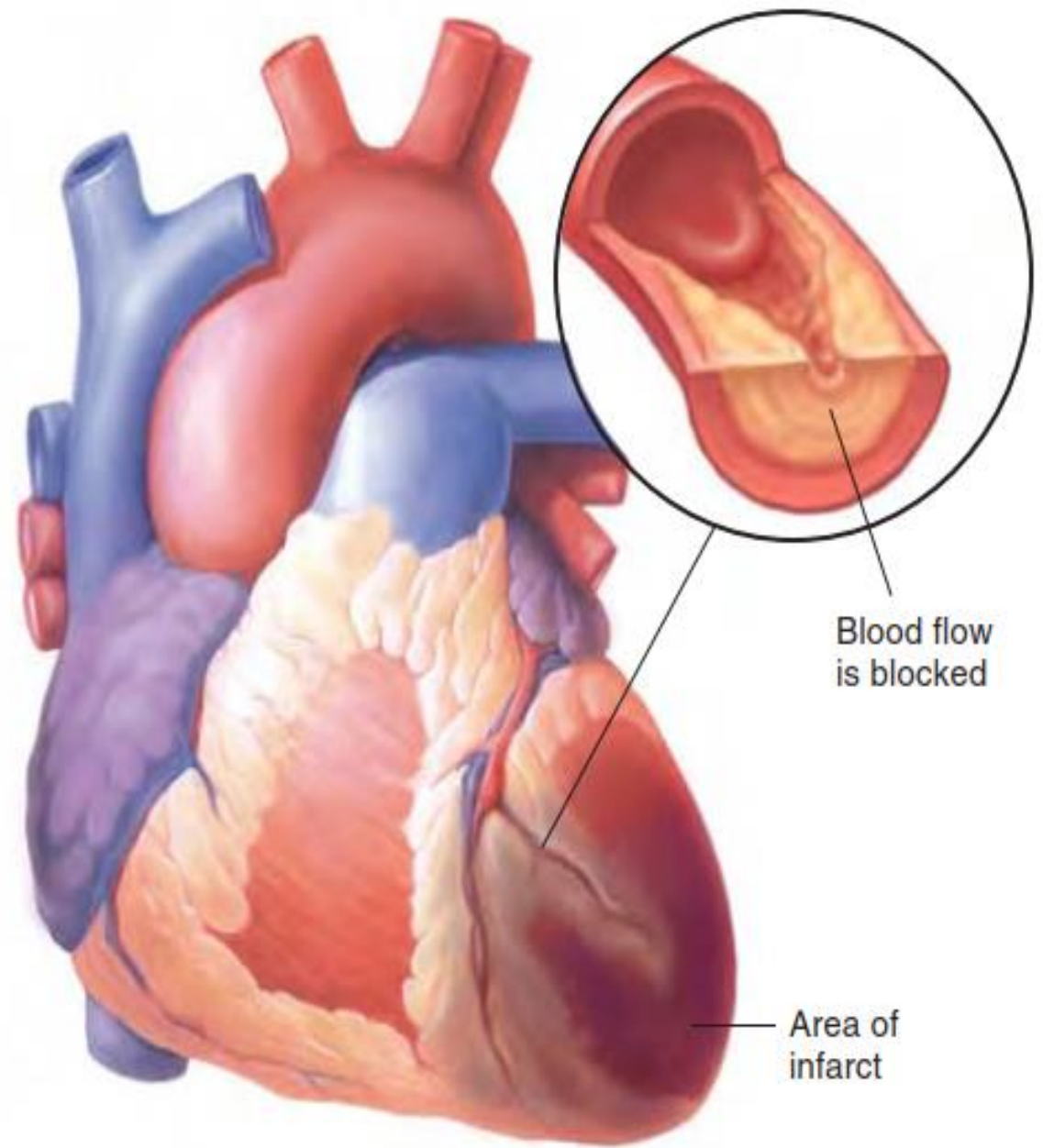
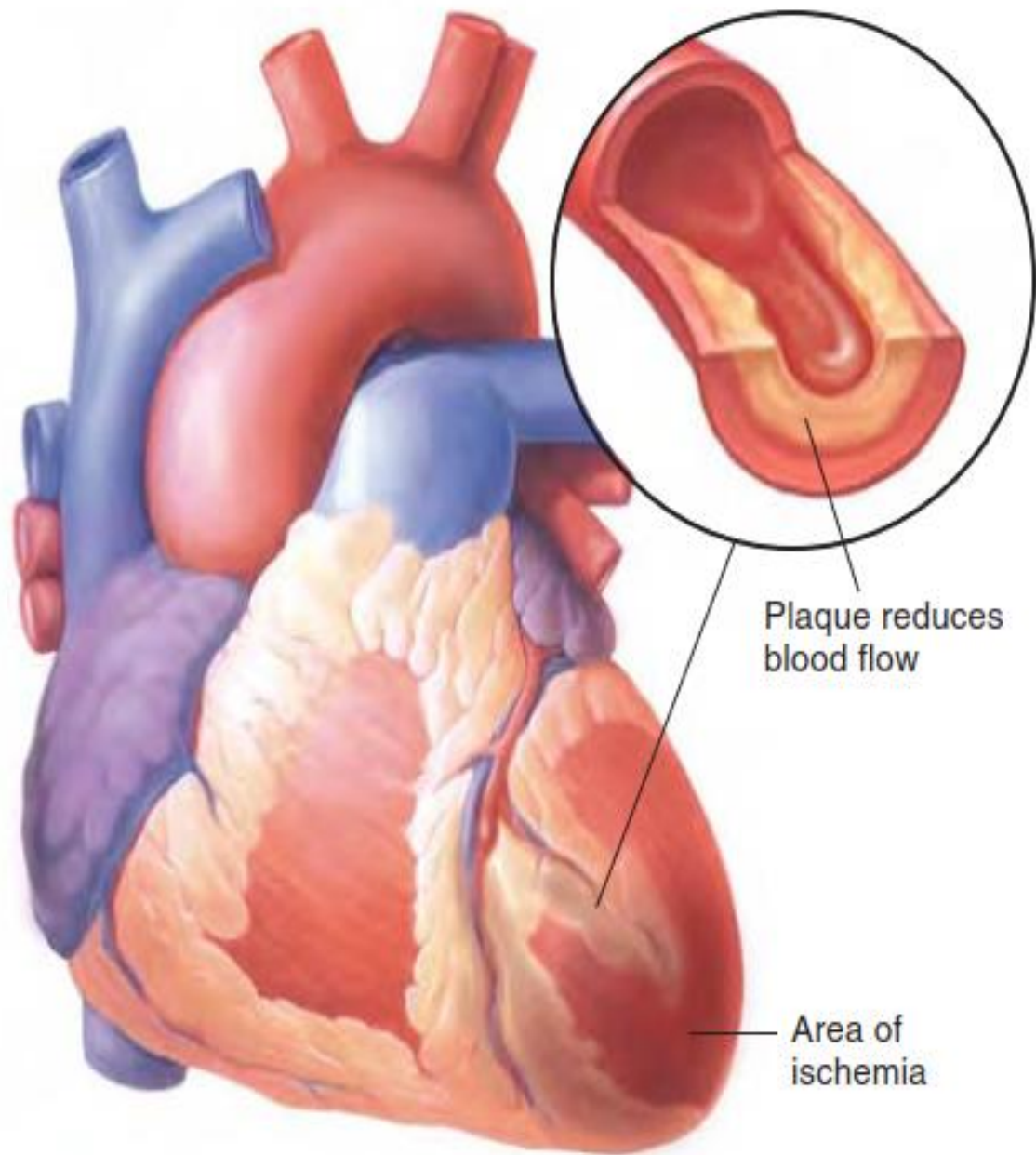
# Lymphatic System





**TABLE 3 Roots for the Lymphatic System**

<b>ROOT</b>	<b>MEANING</b>	<b>EXAMPLE</b>	<b>DEFINITION OF EXAMPLE</b>
lymph/o	lymph, lymphatic system	lymphoid <i>LIM-foyd</i>	resembling lymph or lymphatic tissue
lymphaden/o	lymph node	lymphadenectomy <i>lim-fad-e-NEK-tō-mē</i>	surgical removal of a lymph node
lymphangi/o	lymphatic vessel	lymphangioma <i>lim-fan-jē-Ō-ma</i>	tumor of lymphatic vessels
splen/o	spleen	splenomegaly <i>splē-nō-MEG-a-lē</i>	enlargement of the spleen
thym/o	thymus gland	athymia <i>a-THĪ-mē-a</i>	absence of the thymus gland
tonsill/o	tonsil	tonsillar <i>TON-sil-ar</i>	pertaining to a tonsil



**Figure**  Occlusions. (A) Partial occlusion. (B) Total occlusion.

	meaning	example
CARDIO-	heart	echocardiogram = sound wave image of the heart.
CYTE-	cell	thrombocyte = clot forming cell.
HAEM-	blood	haematoma - a tumour or swelling filled with blood.
THROMB-	clot, lump	thrombocytopenia = deficiency of thrombocytes in the blood
ERYTHRO-	red	erythrocyte = red blood cell
LEUKO-	white	leukocyte = white blood cell
VAS-	vessel / duct	cerebrovascular = blood vessels of the cerebrum of the brain.
HYPER-	excessive	hyperglycaemia = excessive levels of glucose in blood.
HYPO-	deficient / below	hypoglycaemia = abnormally low glucose blood levels.
-PENIA	deficiency	neutropenia = low levels of neutrophilic leukocytes.
-EMIA	condition of blood	anaemia = abnormally low levels of red blood cells.

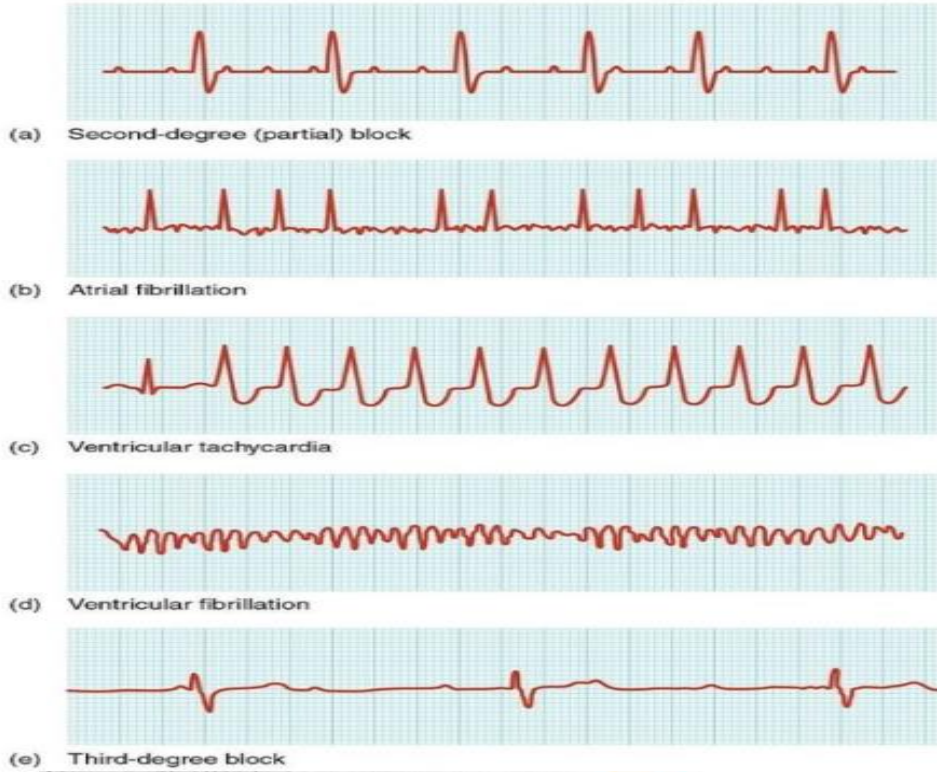
Element	Meaning	Word Analysis
<b>peri-</b>	around	<p>peri/cardi/o/tomy (pĕr-ĭ-kărdĕ-ŎT-ō-mĕ): incision of the pericardium, usually performed to drain a pericardial effusion</p> <p><i>cardi/o</i>: heart  <i>-tomy</i>: incision</p>
<b>tachy-</b>	rapid	<p>tachy/cardia (tăk-ē-KĂR-dĕ-ă): abnormally rapid heart rate</p> <p><i>-cardia</i>: heart condition</p>
<b>trans-</b>	across	<p>trans/sept/al (trăns-SĚP-tăl): across the septum</p> <p><i>sept</i>: septum  <i>-al</i>: pertaining to, relating to</p>
<b>brady-</b>	slow	<p>brady/cardia (brăd-ē-KĂR-dĕ-ă): abnormally slow heart rate</p> <p><i>-cardia</i>: heart condition</p>
<b>endo-</b>	in, within	<p>endo/vascul/ar (ĕn-dō-VĂS-kū-lăr): relating to the inside of a vessel</p> <p><i>vascul</i>: vessel  <i>-ar</i>: pertaining to, relating to</p>
<b>extra-</b>	outside	<p>extra/vascul/ar (ĕks-tră-VĂS-kū-lăr): relating to the outside of a vessel</p> <p><i>vascul</i>: vessel  <i>-ar</i>: pertaining to, relating to</p>



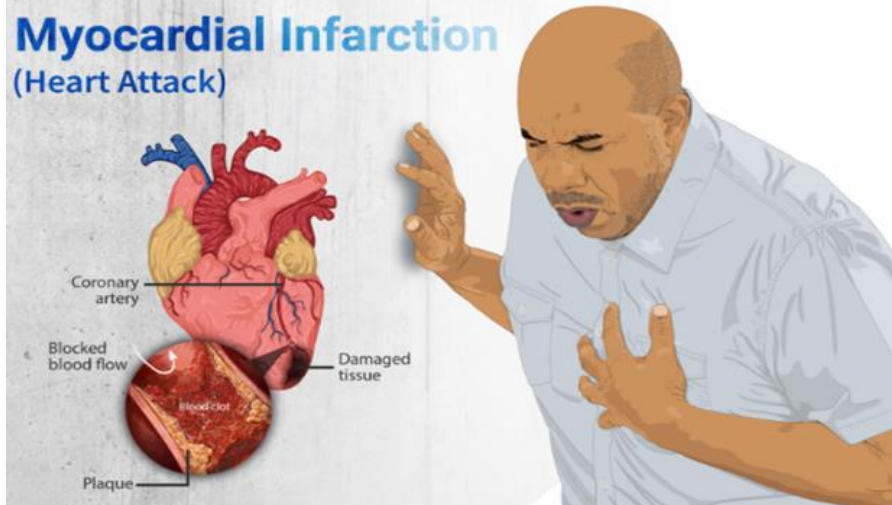
Element	Meaning	Word Analysis	(Continued)
SUFFIXES			
-gram	record, writing	<p>arteri/o/gram (ăr-TĒ-rē-ō-grăm): radiograph of an artery after injection of a radiopaque contrast medium, usually directly into the artery or near its origin</p> <p><i>arteri/o:</i> artery</p> <p><i>An arteriogram is used to visualize almost any artery, including those of the heart, head, kidneys, lungs, and other organs.</i></p>	
-graph	instrument for recording	<p>electr/o/cardi/o/graph (ē-lĕk-trō-KĂR-dē-ō-grăf): device used to record changes in the electrical activity produced by the action of the heart muscles</p> <p><i>electr/o:</i> electricity</p> <p><i>cardi/o:</i> heart</p>	
-graphy	process of recording	<p>angi/o/graphy (ăn-jē-ŎG-ră-fē): visualization of the internal anatomy of the heart and blood vessels after introduction of a radiopaque contrast medium</p> <p><i>angi/o:</i> vessel (usually blood or lymph)</p> <p><i>Angiography is commonly used to identify atherosclerosis and diagnose heart and peripheral vascular disease.</i></p>	
-sphyxia	pulse	<p>a/sphyxia (ăs-FĬK-sē-ă): deficiency of oxygen and excess of carbon dioxide in the blood and body tissues; also called <i>suffocation</i></p> <p><i>a-:</i> without, not</p>	
-stenosis	narrowing, stricture	<p>aort/o/stenosis (ā-or-tō-stĕ-NŌ-sĭs): narrowing of the aorta</p> <p><i>aort/o:</i> aorta</p>	



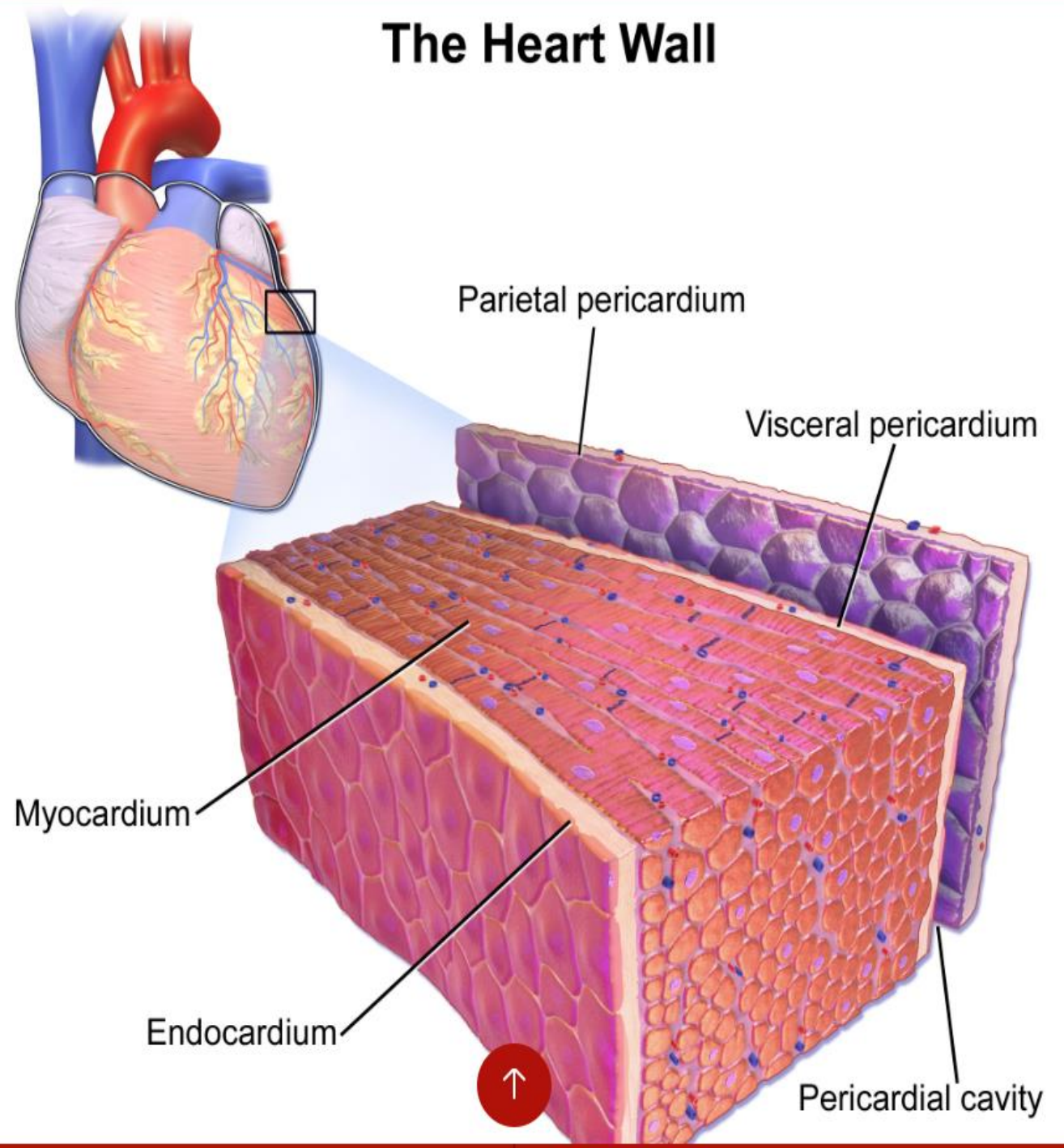
# Arrhythmia:



## Myocardial Infarction (Heart Attack)



## The Heart Wall



Color		
<b>albin/o</b>	white	<p>albin/ism (ĂL-bĭn-ĭzm): partial or total lack of pigment in skin, hair, and eyes</p> <p><i>-ism</i>: condition</p>
<b>leuk/o</b>		<p>leuk/o/cyte (LOO-kō-sĭt): white blood cell</p> <p><i>-cyte</i>: cell</p>
<b>cyan/o</b>	blue	<p>cyan/o/tic (sĭ-ăn-ŎT-ĭk): pertaining to blueness, especially of the skin and mucous membranes</p> <p><i>-tic</i>: pertaining to, relating to</p>
<b>erythr/o</b>	red	<p>erythr/o/cyte (ĕ-RĭTH-rō-sĭt): red blood cell</p> <p><i>-cyte</i>: cell</p>
<b>melan/o</b>	black	<p>melan/oma (mĕl-ă-NŌ-mă): malignant tumor of melanocytes</p> <p><i>-oma</i>: tumor</p> <p><i>Melanocytes are found in the lower epidermis and are responsible for skin pigmentation.</i></p>

## Hemostasis

hem/o: blood

-stasis: standing still

: Arrest of bleeding or circulation

**-stenosis** (narrowing, constriction)

**-sclerosis** (hardening)

## Etiology

eti/o: cause

-logy: study of

: Study of the causes of disease.

## Diagnosis

dia-: through, across

-gnosis: knowing

: Identification of a disease or condition.

## Idiopathic

idi/o: unknown

path: disease

-ic: pertaining to, relating to

: Pertaining to conditions or disease, without recognizable cause



## **Thrombus:**

thromb: blood clot

-us: condition; structure

:Blood clot that obstructs a vessel.

## **Embolus**

embol: plug

-us: condition, structure

: Mass of undissolved matter (foreign object, air, gas, tissue, thrombus) circulating in blood or lymphatic channels until it becomes lodged in a vessel.

## **Hypertension**

hyper-: excessive, above normal

-tension: to stretch

: Common disorder characterized by elevated blood pressure persistently exceeding 140 mm Hg systolic or 90 mm Hg diastolic

## **Hyperlipidemia**

hyper-: excessive, above normal

lipid: fat

-emia: blood condition

: Excessive amounts of lipids (cholesterol, phospholipids, and triglycerides) in the blood.



# THANK YOU!

