

PATHOPHYSIOLOGY PRACTICE

CARDIOVASCULAR SYSTEM

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Components of the cardiovascular system

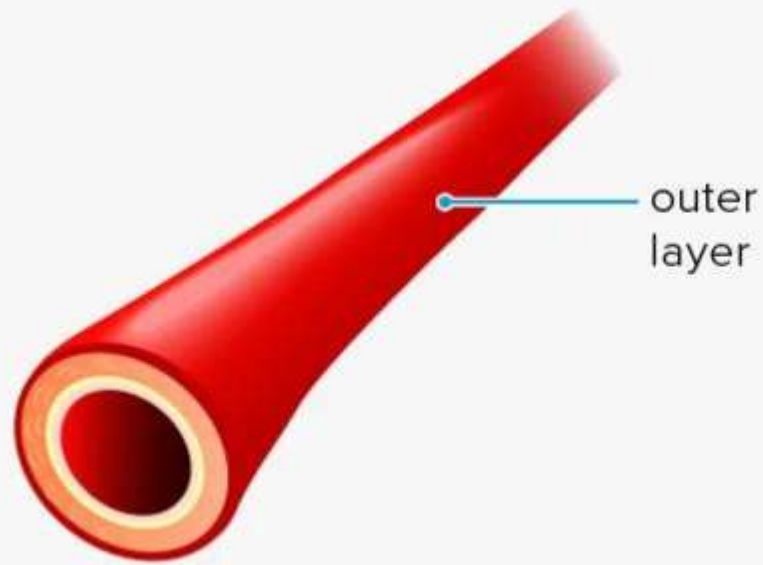
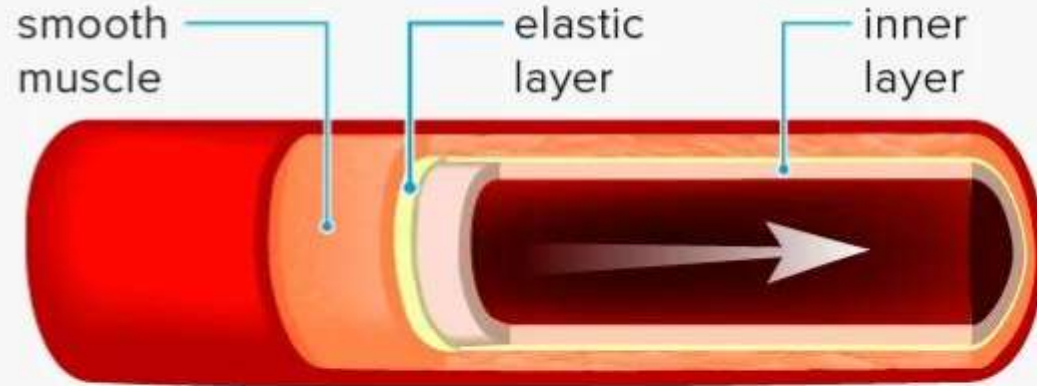
- The **cardiovascular system** is the system responsible for delivering blood to different parts of the body. It consists of the following organs and tissues:
- **The heart:** A muscular pump that forces blood around the body.
- **blood vessels:** These vessels include:
 - **Arteries:** Vessels that carry blood away from the heart.
 - **Veins:** Vessels that bring blood back to the heart.
 - **Capillaries: Tiny vessels that branch off from arteries to deliver blood to all body tissues**

Veins and arteries consist of three layers:

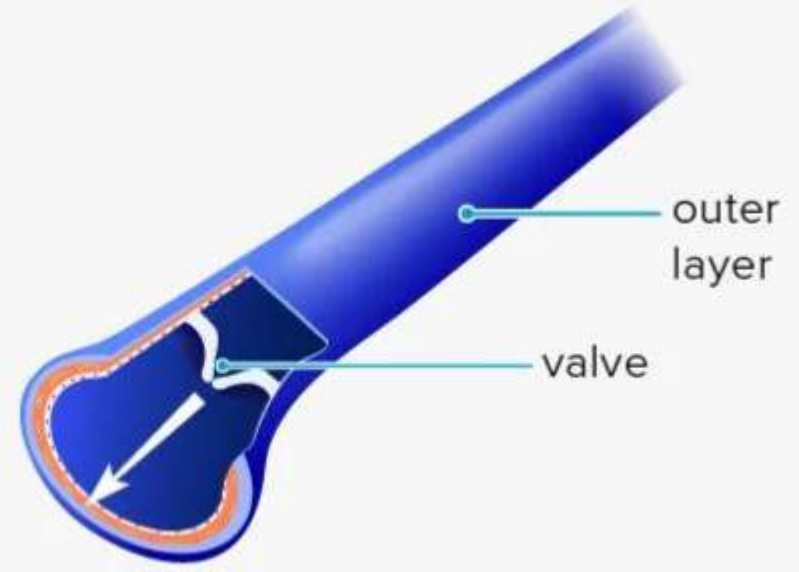
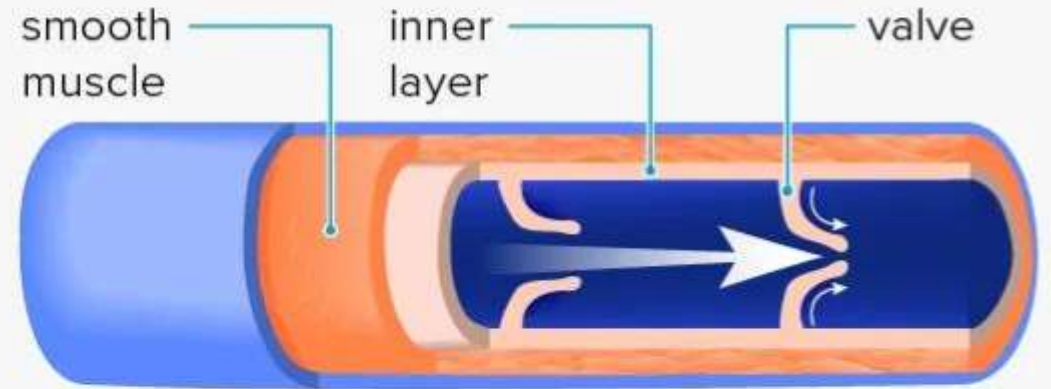
- **Tunica adventitia:** The outer layer of a blood vessel consists of collagen and elastin and is known as the tunica adventitia. This layer allows the vessel to expand or contract, depending on what type of vein or artery it is. This feature is important for controlling blood pressure.
- **Tunica media:** This is the middle layer of a blood vessel. Elastin and muscle fibers make up the tunica media. The amount of elastin or muscle varies, depending on the type of blood vessel. For example, elastic arteries contain few muscle fibers in their tunica media.
- **Tunica intima:** This name refers to the inner layer of a blood vessel. It mostly contains elastic membranes and tissues and can include valves that help the blood move in the right direction.

Artery vs. Vein

Artery



Vein



Common diseases of the cardiovascular system

- Abnormalities or injuries to any or all parts of the cardiovascular system can result in serious health complications. Common conditions that can affect the cardiovascular system include coronary artery disease, heart attack, high blood pressure, and stroke.

■ Heart attack

A [heart attack](#) happens when a part of the heart muscle does not receive enough blood. This can occur due to a blockage, a tear in an artery around the heart, or if the heart requires more oxygen than is available.

Symptoms of a heart attack include:

- [chest pain](#) or discomfort
- feeling lightheaded
- pain or discomfort in the jaw, neck, or back
- pain or discomfort in one or both arms or shoulders
- [shortness of breath](#)



Three of the main risk factors of a heart attack are:

- 1 [high blood cholesterol](#)
- 2 [high blood pressure](#)
- 3-[smoking](#)

Stroke:

A stroke is a medical condition in which the blood supply to a part of the brain becomes cut off. This lack of blood supply triggers the death of brain cells.

There are two types of stroke. [Ischemic](#) stroke occurs as a result of a blood clot blocking blood flow to the brain. [Hemorrhagic](#) stroke occurs as a result of a bleed in or around the brain.

Some significant risk factors of a stroke include:

Some significant risk factors of a stroke include:

1-high blood pressure

2-[diabetes](#)

3 [heart disease](#)

4 smoking

5 personal or family history of stroke

6 older age

Heart failure

Heart failure occurs when the heart is unable to pump enough blood to satisfy the body's needs.

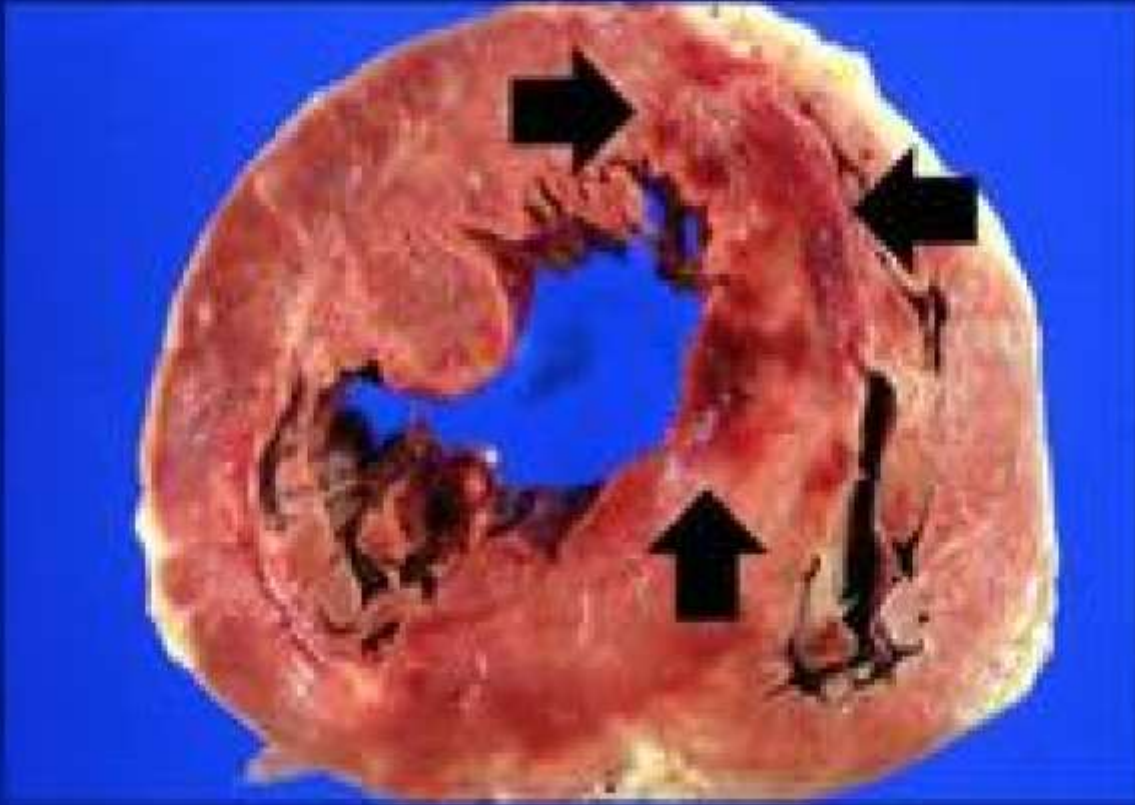
Some symptoms of heart failure include:

- persistent coughing or wheezing
- shortness of breath
- exercise intolerance
- increased heart rate
- nausea
- lack of appetite
- swelling
- fatigue
- confusion

Risk factors of heart failure include:

- high blood pressure
- [coronary artery disease](#)
- personal history of one of the following conditions:
 - heart attack
 - diabetes
 - [sleep apnea](#)
 - [congenital heart defect](#)

Coagulative Necrosis: Heart : Gross



Coagulative necrosis: typically found in myocardial infarction, as well as infarcts of kidney & spleen. No dissolution of tissue, the outline of the dead tissue remains preserved, the necrotic tissue appears paler.



**Thank
you**