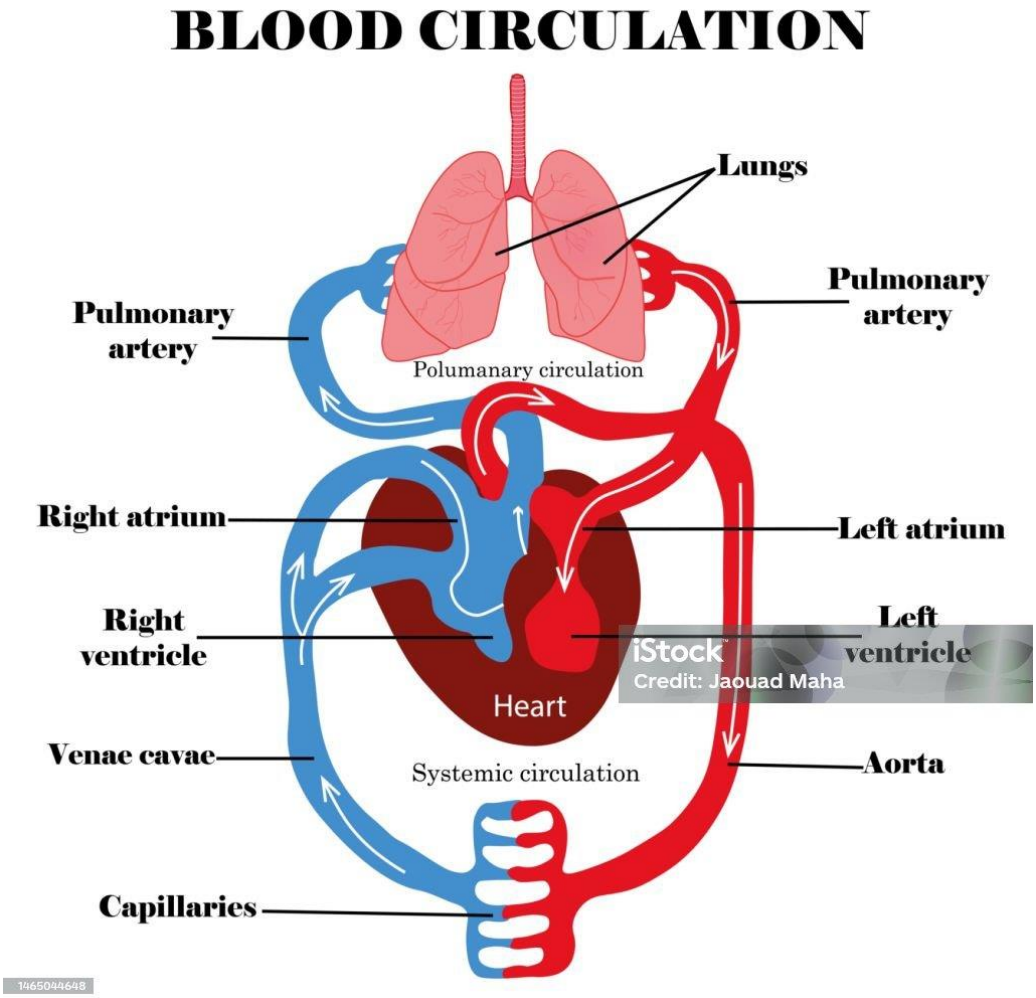
Dr. Ali Alomran

Systemic Circulation

Systemic circulation is the part of the circulatory system that carries oxygenated blood from the heart to the rest of the body and returns deoxygenated blood back to the heart.



Dr. Ali Alomran

Stages of Systemic Circulation

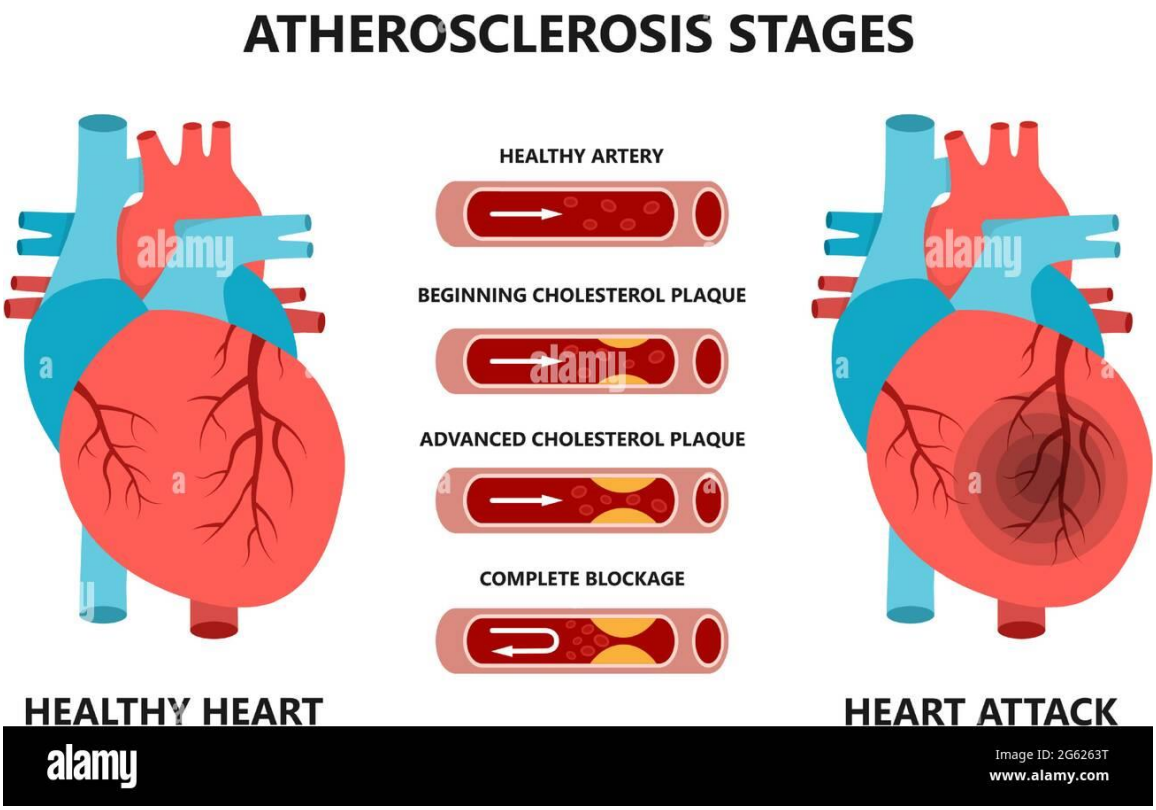
1. **Pumping Oxygenated Blood**:
    - Blood leaves the left ventricle of the heart.
    - It is pumped through the aortic valve into the aorta.
2. **Distribution through Arteries**:
    - Blood travels through the aorta, which branches into smaller arteries.
    - These arteries further branch into arterioles and eventually into capillaries, distributing blood to tissues and organs.
3. **Exchange of Materials in Capillaries**:
    - Nutrients and oxygen are exchanged between blood and cells.
    - Gases are also exchanged; oxygen leaves the blood and carbon dioxide enters the blood.
4. **Collecting Deoxygenated Blood**:
    - Deoxygenated blood is collected from the capillaries into Venules.
    - Venules merge to form larger veins.
5. **Returning Blood to the Heart**:
    - Deoxygenated blood is carried through large veins such as the superior and inferior vena cava.
    - The blood enters the right atrium of the heart.

Key Components

- **Aorta**: The main artery that carries oxygenated blood from the heart to the body.
- **Capillaries**: Small vessels where the exchange of materials between blood and tissues occurs.
- **Veins**: Vessels that carry deoxygenated blood from the tissues back to the heart.
- **Venous Valves**: Prevent the backflow of blood, ensuring it moves in one direction towards the heart.

Clinical Significance

1. **Blood Pressure**:
    - Measured as systolic and diastolic blood pressure.
    - Plays a crucial role in ensuring proper blood flow to tissues.
2. **Vascular Diseases**:
    - Such as atherosclerosis: buildup of fats on arterial walls, hindering blood flow.
    - Blood clots: can lead to vessel blockage, preventing blood flow.
3. **Vital Functions**:
    - Supplying oxygen and nutrients to cells.
    - Removing waste products and carbon dioxide.


ATHEROSCLEROSIS STAGES
HEALTHY ARTERY
BEGINNING CHOLESTEROL PLAQUE
ADVANCED CHOLESTEROL PLAQUE
COMPLETE BLOCKAGE
HEALTHY HEART
HEART ATTACK
alamy
Image ID: 2G6263T
www.alamy.com