



Examination of cardiovascular system (part 1)

Cardiovascular system : is part of the larger circulatory system, which circulates fluids throughout the body. The circulatory system includes both the cardiovascular system and the lymphatic system. The cardiovascular system moves blood throughout the body, and the lymphatic system moves lymph, which is a clear fluid that's similar to the plasma in blood.

Function Of Cardiovascular System

- ♣ Transport nutrients, hormones
- ♣ Remove waste products
- ♣ Gaseous exchange
- ♣ Immunity
- ♣ Blood vessels transport blood
 - ✓ Carries oxygen and carbon dioxide
 - ✓ Also carries nutrients and wastes
- ♣ Heart pumps blood through blood vessels

Components of cardiovascular system:

A-Heart B- Arteries C- Veins D- Capillaries E- Blood

A- **Heart** : It is a four-chambered muscular organ which pumps blood through the blood vessels of the circulatory system.



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Function:

- ❖ Left and right atria Chambers that receive blood returning from your body through your veins
- ❖ Left and right ventricles chambers where blood is pumped to your body through your arteries

The Heart Valves :The human heart contain four type of valves:

- Two atrioventricular valves (AV) between atria and ventricles:
 - Tricuspid valves : allows blood flowing one way from right atrium to right ventricle.
 - Mitral valve: allows blood flowing one way from left atria to left ventricles.

The function of AV valves is to prevent backflow of blood into the atria during ventricular contraction.

- Two semilunar valves:
 - Aortic valve : allows blood flowing one way from left ventricle to aorta (transport oxygenated blood to the body).
 - Pulmonary valve : allows blood flowing one way from right ventricle to pulmonary artery(Transport deoxygenated blood to lung)

B- **Arteries** : The arteries are the blood vessels that deliver oxygen-rich blood from the heart to the tissues of the body.



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Function:

Coronary arteries also aid the heart in pumping blood. Arteries carry oxygenated blood away from the heart to the tissues, except for pulmonary arteries, which carry blood to the lungs for oxygenation (usually veins carry deoxygenated blood to the heart but the pulmonary veins carry oxygenated blood as well as).

C- **Veins** : are blood vessels that carry blood toward the heart.

Function :

- They are responsible for returning deoxygenated blood back to the heart after arteries carry blood out.
- The vena cava is the largest vein in the body. Veins have much thinner walls than arteries.

D- **Capillaries** : are tiny blood vessels connecting arteries to veins. These blood vessels carry oxygen and nutrients to individual cells throughout the body.

Function: They bring nutrients and oxygen to tissues and remove waste product.



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	Artery	Vein
DEFINITION	An artery is a type of blood vessel that carries blood away from the heart	A vein is another type of blood vessel that carries blood towards the heart
MAIN FUNCTION	Carry oxygenated blood away from the heart	Carry deoxygenated blood towards the heart
TYPES OF BLOOD TRANSPORTED	Oxygenated	Deoxygenated
WALL OF THE VESSEL	Wall is thicker and more elastic compared to walls of veins	Wall is thinner and less elastic
LOCATION	Deep-seated	More superficial
LUMEN	Lumen is narrow	Lumen is wide
PRESENCE OF VALVES	Don't have valves	Have valves to prevent backflow
BLOOD PRESSURE	High	Low
AFTER DEATH	Become empty	Contains blood

E- **Blood** : is a body fluid in humans and other animals that delivers necessary substances such as nutrients and oxygen to the cells.



Function :

- + Supplying oxygen to cells and tissues
- + Regulating acidity (pH) levels and body temperature .

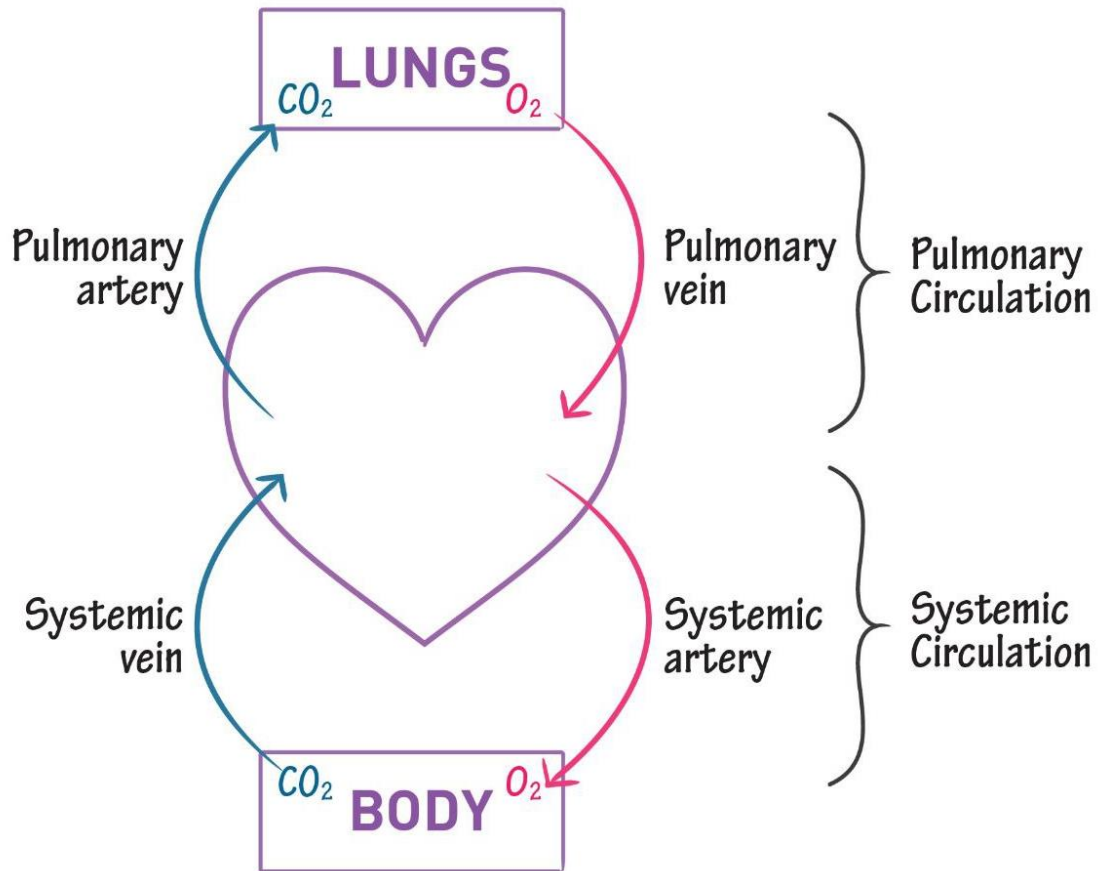
TYPES OF CIRCULATION :

A-Pulmonary Circulation B-Systemic Circulation

Pulmonary circulation	Systemic circulation
(i) This involves circulation of blood between the heart and the lungs.	(i) This involves circulation of blood between the heart and body organs (except lungs).
(ii) It is the function of the right side of the heart.	(ii) It is the function of the left side of the heart.
(iii) It carries deoxygenated blood to the lungs to receive oxygen.	(iii) It carries oxygenated blood to the body organs.
(iv) It begins on the rightventricle and ends on left auricle.	(iv) It starts at left ventricle and ends at the right auricle.
(v) It returns oxygenated blood back to the heart.	(v) It returns deoxygenated blood back to the heart.
(vi) Blood flows as: Right ventricle ↓ Deoxygenated blood Lungs ↓ oxygenated blood Left auricle	(vi) Blood flows as: left ventricle ↓ oxygenated blood Body organs ↓ Deoxygenated blood Right auricle



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cardiac cycle:

cardiac cycle refers to the series of contractions & relaxations of the heart to produce a complete heartbeat :

systole = contraction

diastole = relaxation

Events of the cardiac cycle

❖ Diastole

I. Atria and ventricles fill with blood

II. Atria contract (simultaneously) to complete the filling of ventricles; ventricles are relaxed

❖ Systole

A. Ventricles contract forcing blood up and out of the heart arteries; AV valves shut (“lup”)



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B. Backflow in the aorta & pulmonary arteries cause semilunar valves to shut (“dup”)