

Republic of Iraq Ministry of Higher
Education and Scientific Research
Al-Zahraa University for Women
College of Pharmacy



Human Anatomy
second semester/ Lab.2
Circulatory System

By:

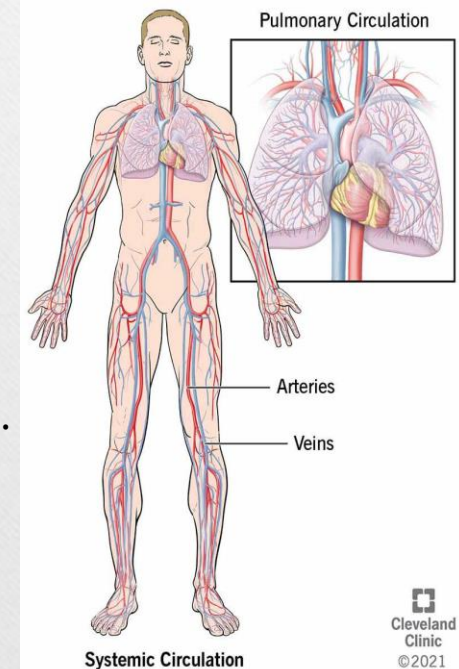
Asst. Lec. Nabaa Faiz Abbas

Circulatory System

- The circulatory system (cardiovascular system) pumps blood from the heart to the lungs to get oxygen.
- The heart then sends oxygenated blood through arteries to the rest of the body.
- The veins carry oxygen-poor blood back to the heart to start the circulation process over.
- Your circulatory system is critical to healthy organs, muscles and tissues.

What are the circulatory system parts?

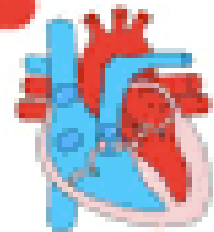
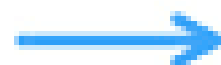
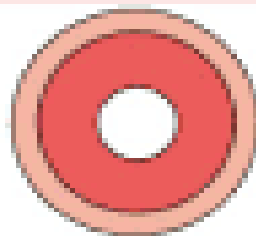
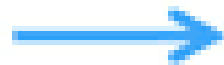
- ☐ The parts of your circulatory system are :
- ☐ **Heart**, a muscular organ that pumps blood throughout your body.
- ☐ **Blood vessels**, which include your arteries, veins and capillaries.
- ☐ **Blood**, made up of red and white blood cells, plasma and platelets.



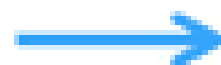
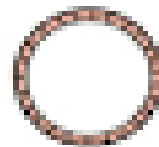
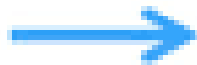
What are the types of blood vessels?

Types of blood vessels

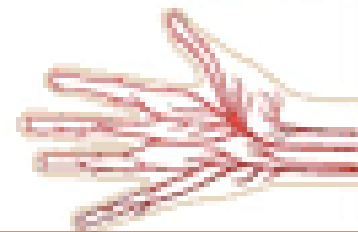
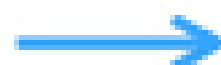
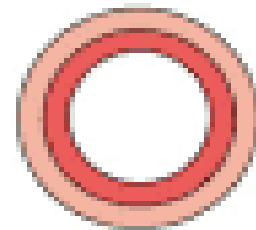
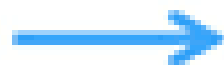
Artery



Capillary



Vein



The circulatory system included:

1. Heart.

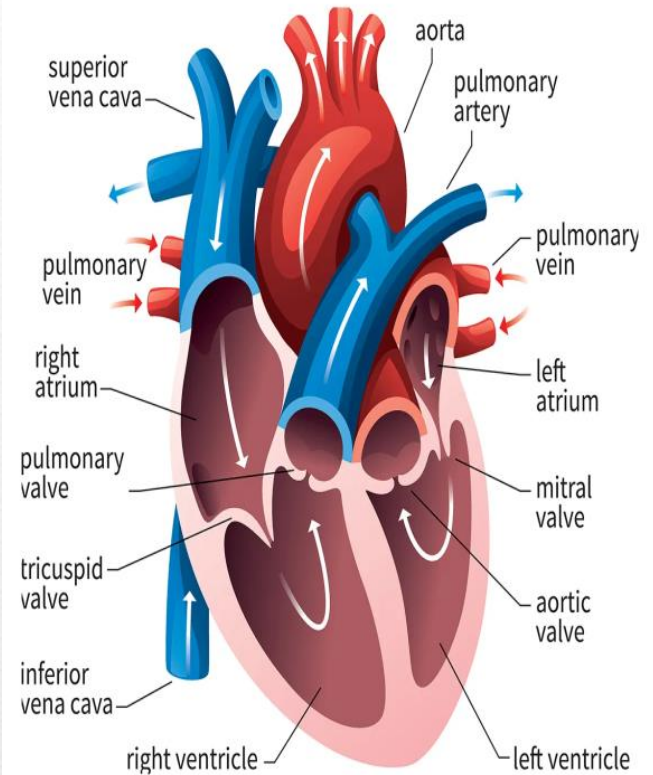
2. Arteries and veins.

1. Heart:

The heart contains four chambers:

1. Two atria
2. Two ventricles.

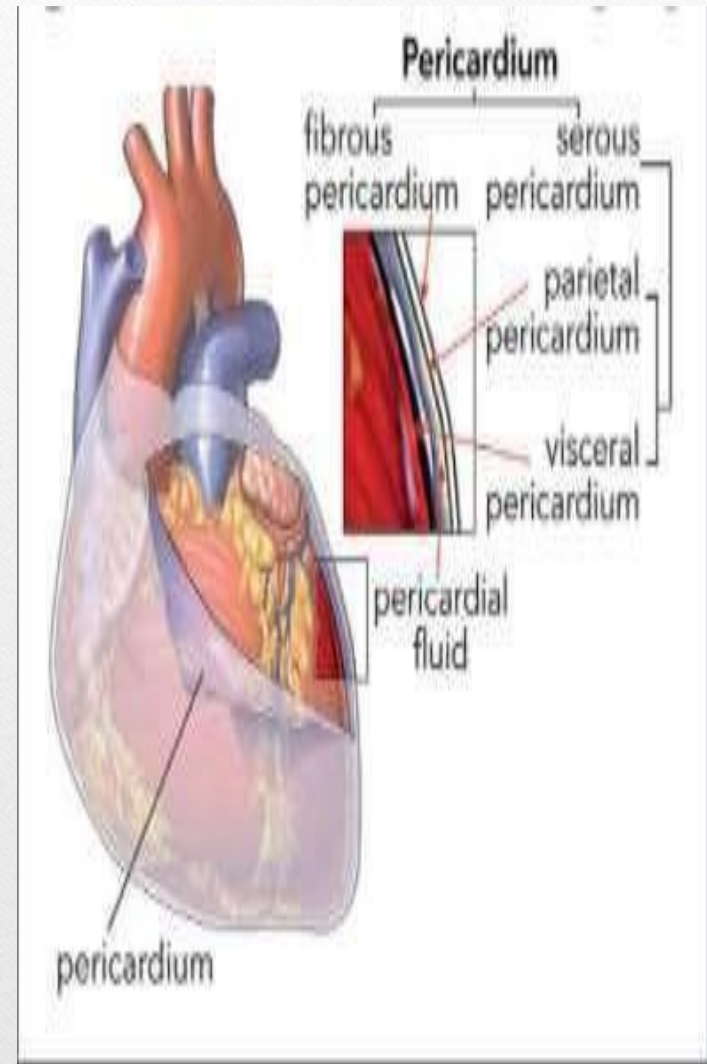
The atria and ventricles are connected via atrioventricular valves.



Pericardium

The pericardium (pericardial sac) is a double-walled sac containing the heart and the roots of the great vessels.

It has two layers, an outer layer made of strong connective tissue (**Fibrous pericardium**), and an inner layer made of serous membrane (**Serous pericardium**).

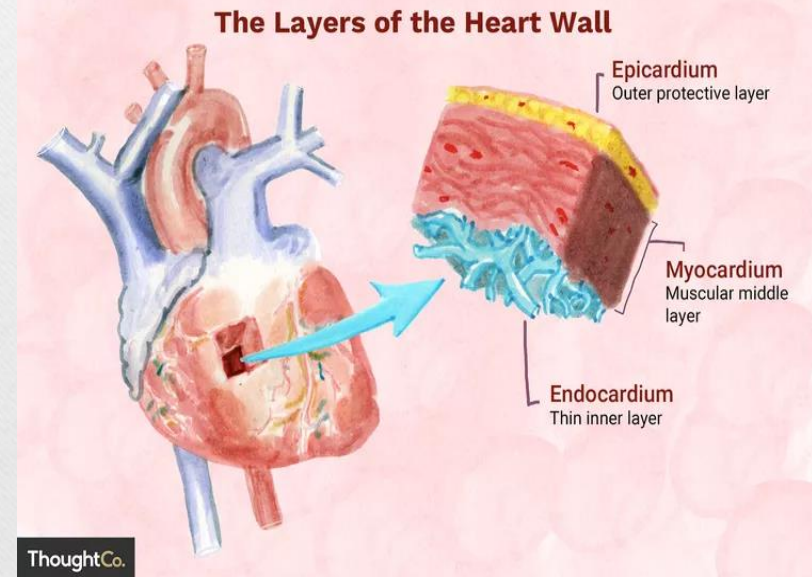


Walls of the heart

- 1- **Endocardium:** the innermost layer of the cardiac wall
- 2- **Myocardium:** the myocardium is composed of cardiac muscle and is an involuntary striated muscle. The myocardium is responsible for contractions of the heart.
- 3- **Epicardium:** is the outermost layer of the heart

Great vessels of the heart

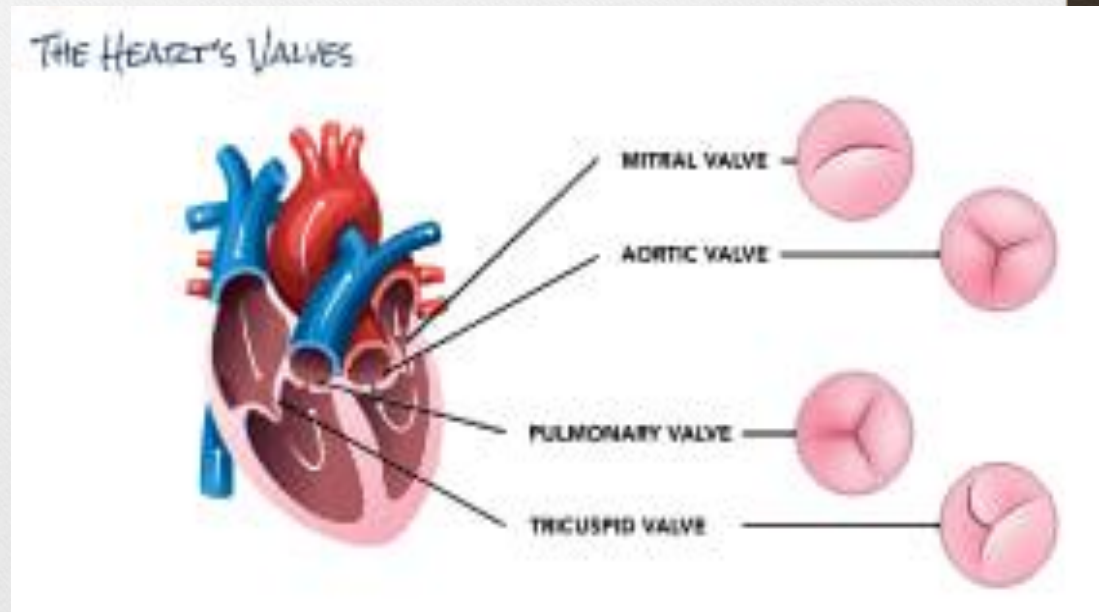
- 1- Aorta
- 2- Pulmonary arteries
- 3- Pulmonary veins
- 4- Superior vena cava
- 5- Inferior vena cava



The Valves of the heart

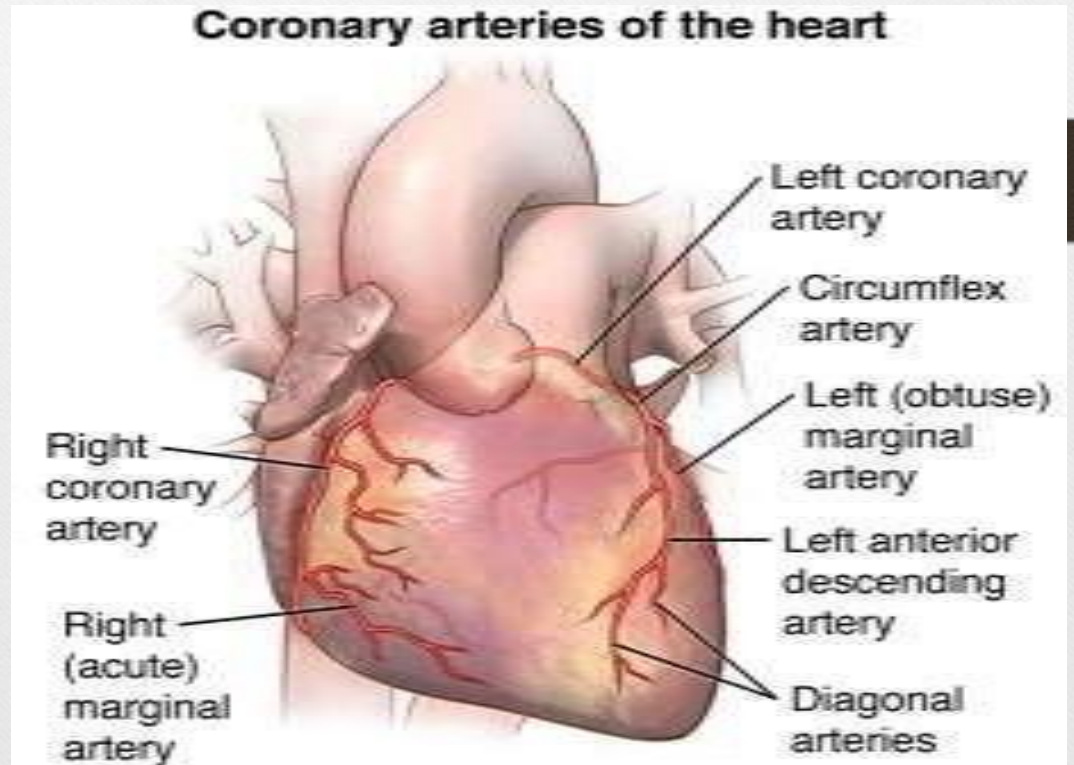
There are four valves of the heart, which are divided into two categories:

- **Atrioventricular valves:** The tricuspid valve and bicuspid valve (mitral). They are located between the atrium and corresponding ventricle.
- **Semilunar valves:** The pulmonary valve and aortic valve. They are located between the ventricles and their corresponding artery, and regulate the flow of blood leaving the heart.



Arterial supply of the heart:

- 1- Left coronary artery
- 2- Right coronary artery

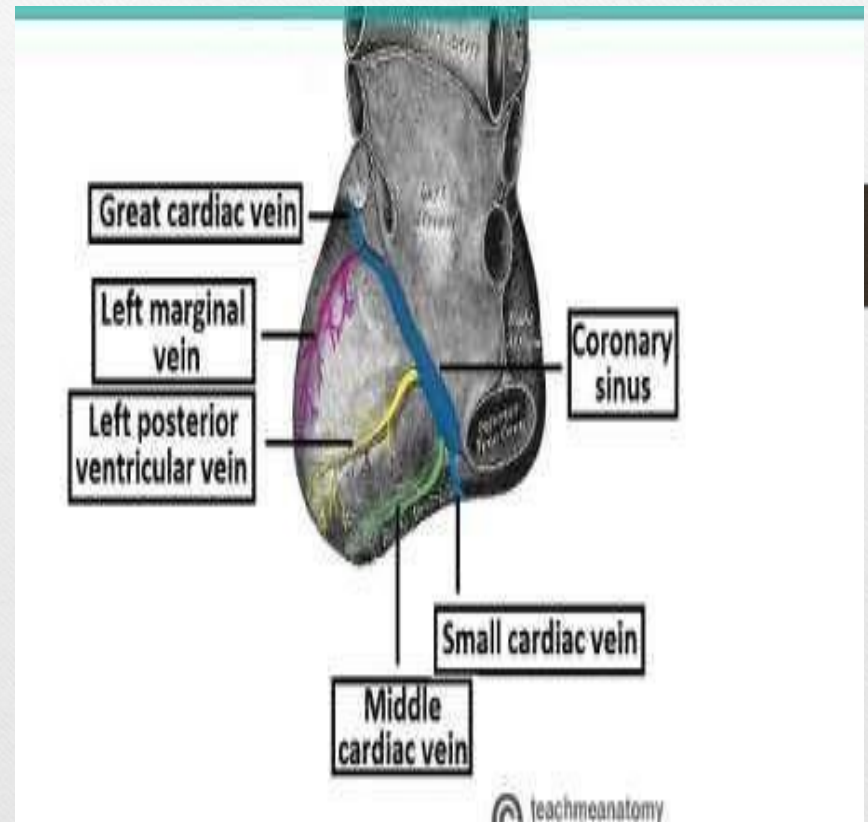


Cardiac Veins

The coronary sinus is the main vein of the heart, drains into the right atrium.

There are five tributaries which drain into the coronary sinus:

- a. **The great cardiac vein**
- b. **The small cardiac vein**
- c. **the middle cardiac vein.**
- d. **the left marginal vein.**
- e. **the left posterior ventricular vein.**



1. Arteries: transport oxygenated blood away from the heart.

Three types of arteries:

- a) Large (conducting)..... aorta.
- b) Medium(distributing)..... brachial artery.
- c) Small.....arteriole

2. Veins: return deoxygenated blood back toward the heart.

- a) Large..... Superior vena cava
- b) Medium Cephalic
- c) Small venules

3. Capillaries:.

The Lymphatic System

Components of lymphoid system:

1- **Lymphatic plexus:** Network of lymphatic capillaries that originate in the extracellular space of most tissues. Distributed everywhere with blood capillaries except teeth, bone marrow, central nerve system.

2- **Lymphatic vessels (Superficial and Deep):**

- Thin-walled vessels with abundant valves.
- Drain lymph from lymphatic capillaries.

3- **Lymphatic trunks:** large collecting vessels receive lymph from multiple lymphatic vessels.

4- **Lymph:** usually clear watery and slightly yellow similar in composition to blood plasma.

5- **Lymph nodes:** small masses of lymphatic tissue located along the course of lymphatic vessels, through which lymph is filtered on its way to the venous system.

6- **Lymphocytes:** circulating cells of the immune system.

7- **Lymphoid organs:** produce lymphocytes (thymus, red bone marrow, spleen, tonsils).

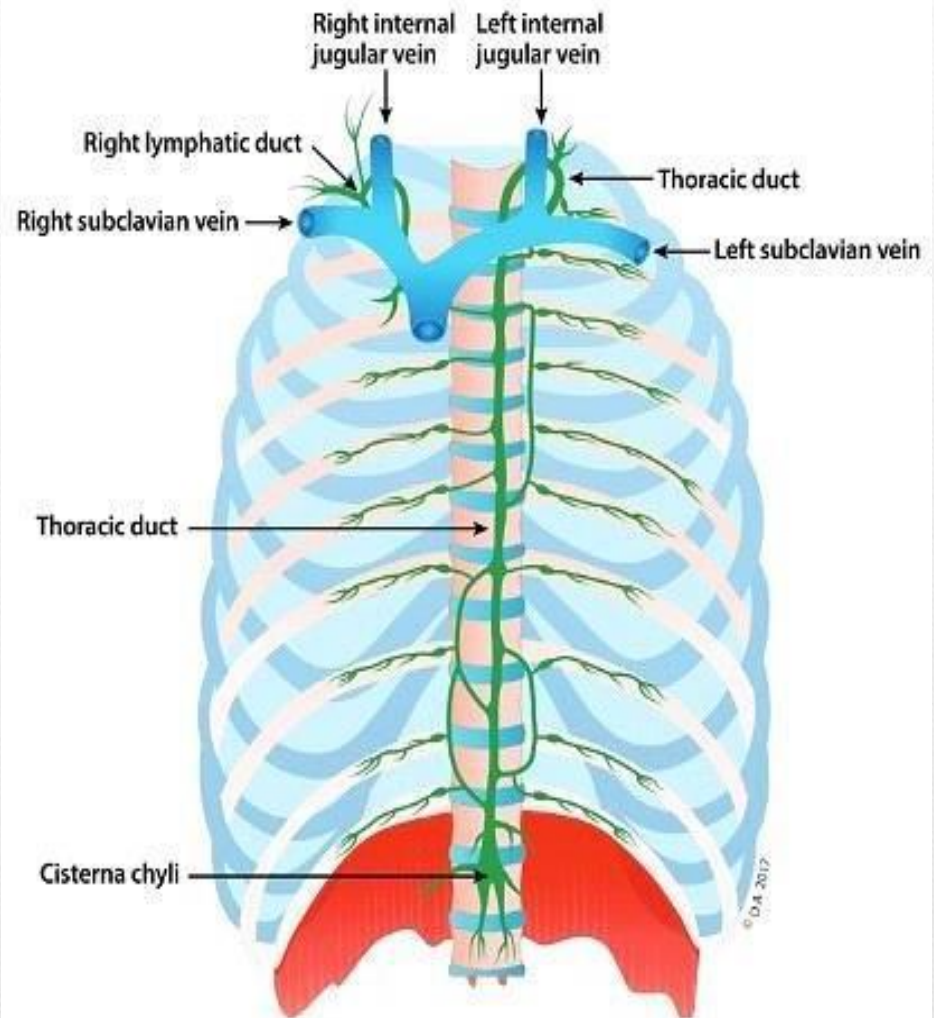
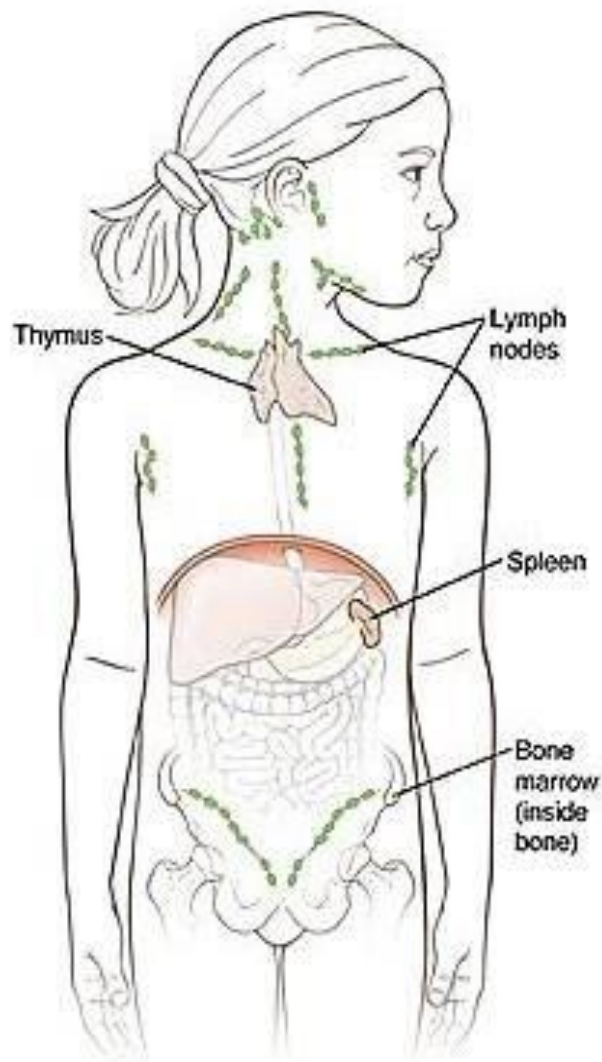


Figure 1. Diagram illustrates the normal anatomy of the lymphatic system.



THANK YOU

Nabaa Faiz Abbas