

General Anatomy

Great vessels of the Heart

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Goals

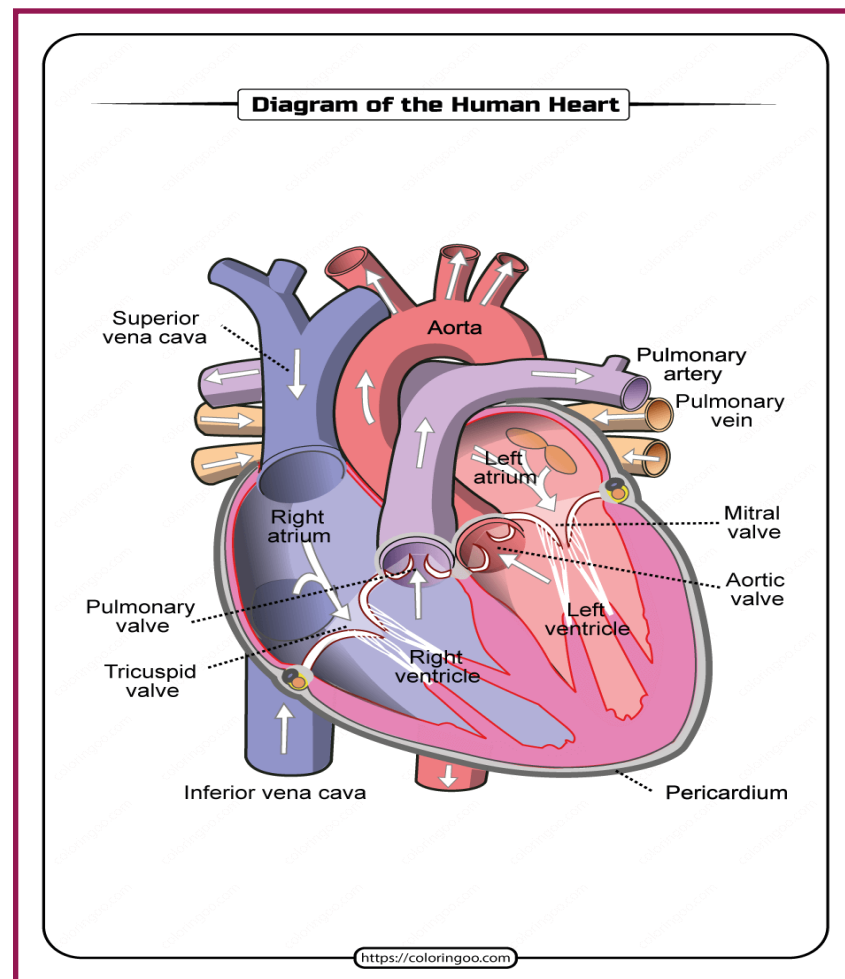
- **Knowing** the different vesseles which take blood from and brink blood to the heart.
- Knowing there functions

Objectives

- Introduction.
- Definition.
- Function of the the great vessels of the heart.
- The great vessels of the heart.
 - Aorta
 - Pulmonary trunk
 - Pulmonary veins
 - Superior vena cava
 - Inferior vena cava

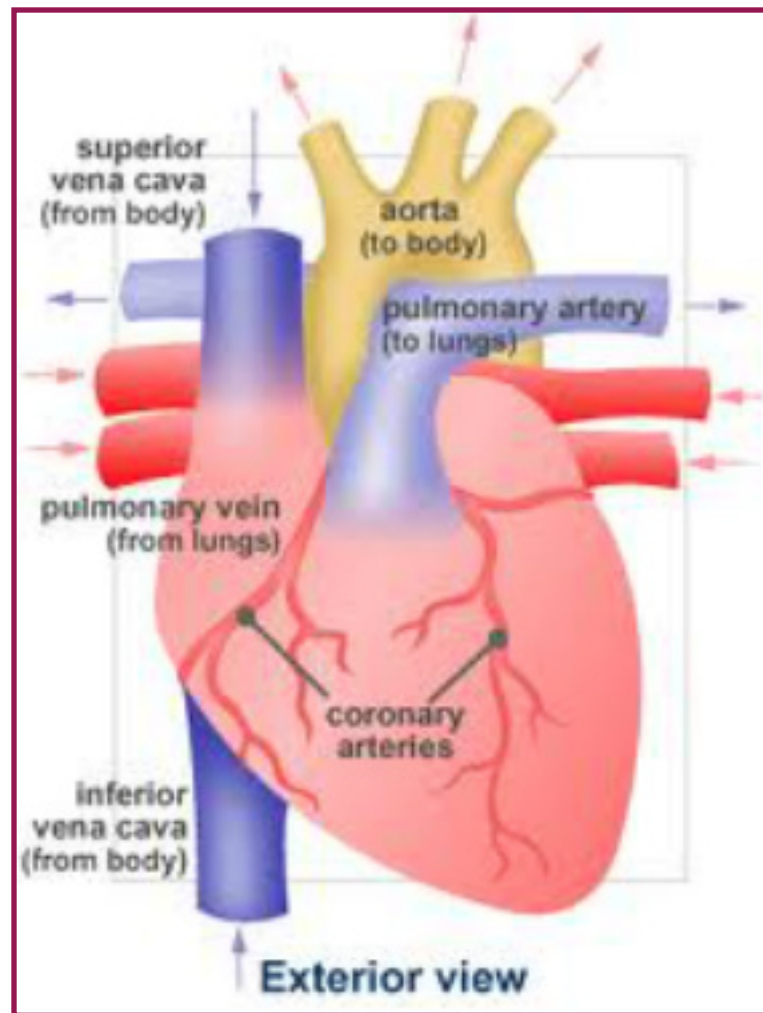
Introduction

The great vessels of the heart function to carry blood to and from the heart as it pumps, located largely within the **middle mediastinum**.



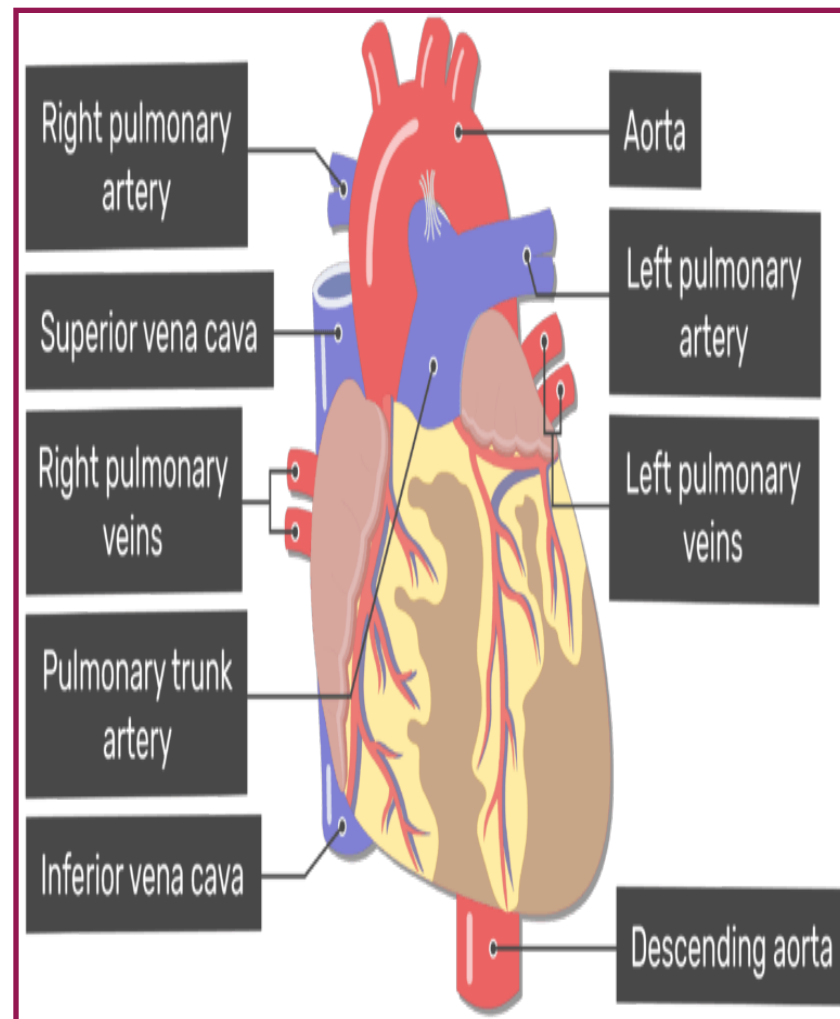
Definition

The **great vessels** is the collective term given to the **major arteries** and veins that convey **blood** to and away from the **heart**: aorta. pulmonary **artery**.



Great vessels

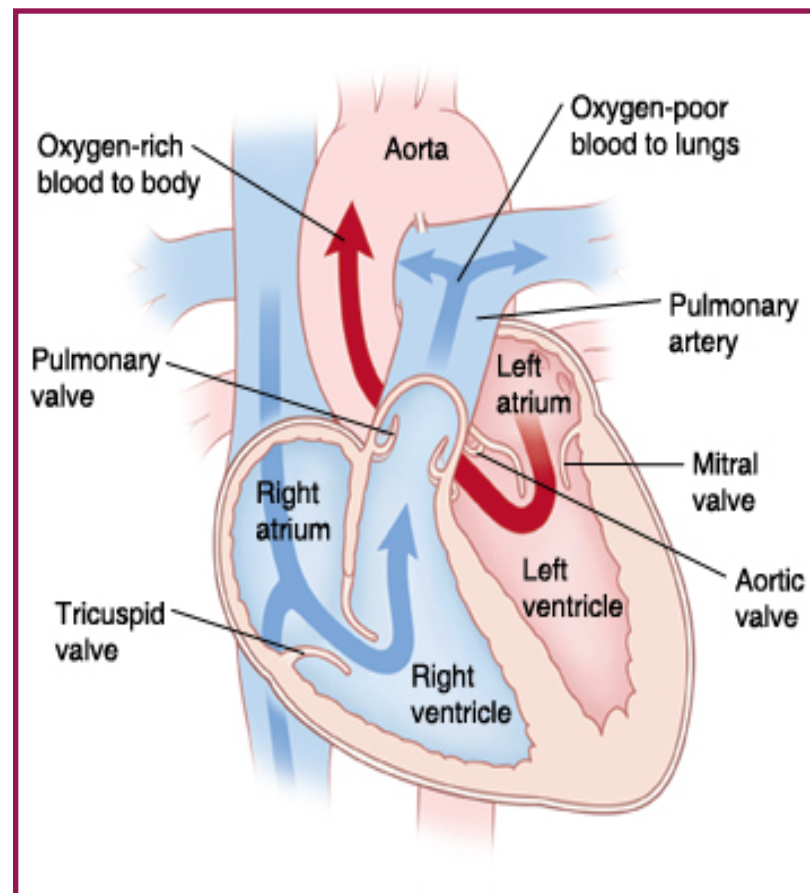
There are a number of great vessels associated directly with the heart. These are the **ascending aorta**, the **pulmonary trunk**, the **pulmonary veins**, the **superior vena cava**, and the **inferior vena cava**.



Aorta

The **aorta** is the largest artery in the body. It carries oxygenated blood (pumped by the left side of the heart) to the rest of the body.

The aorta arises from the **aortic orifice** at the base of the left ventricle, with inflow via the **aortic valve**. Its first segment is known as the **ascending aorta**, which lies within the pericardium (covered by the visceral layer).



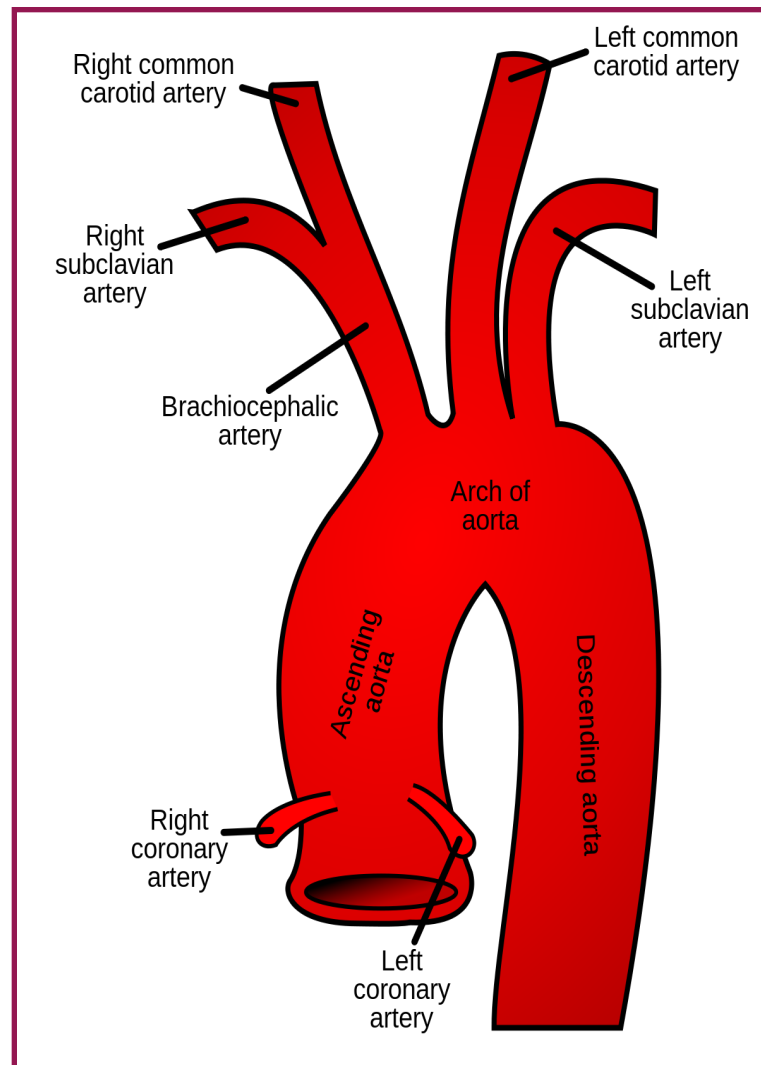
Branches of the Aorta

The first is **Coronary arteries**.

The second continuous segment is the **arch of the aorta**, from which branch the major arteries to the head, neck and upper limbs. These are:

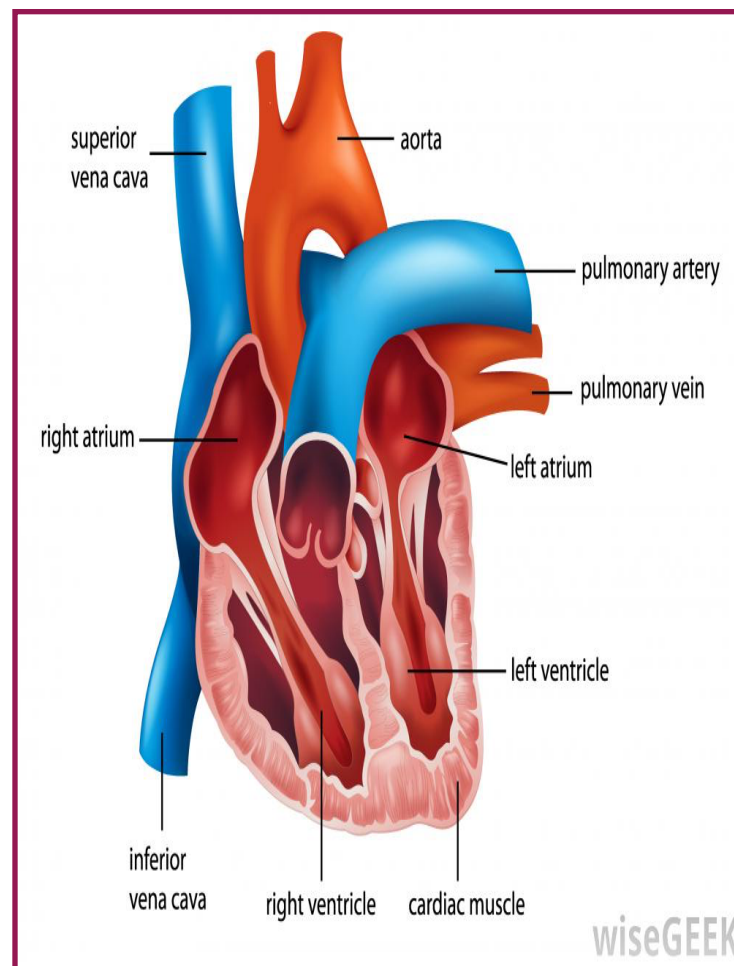
- ▶ Brachiocephalic trunk
- ▶ Left common carotid artery
- ▶ Left subclavian artery

After the arch of the aorta, the aorta then becomes the **descending aorta** which continues down through the diaphragm into the abdomen.



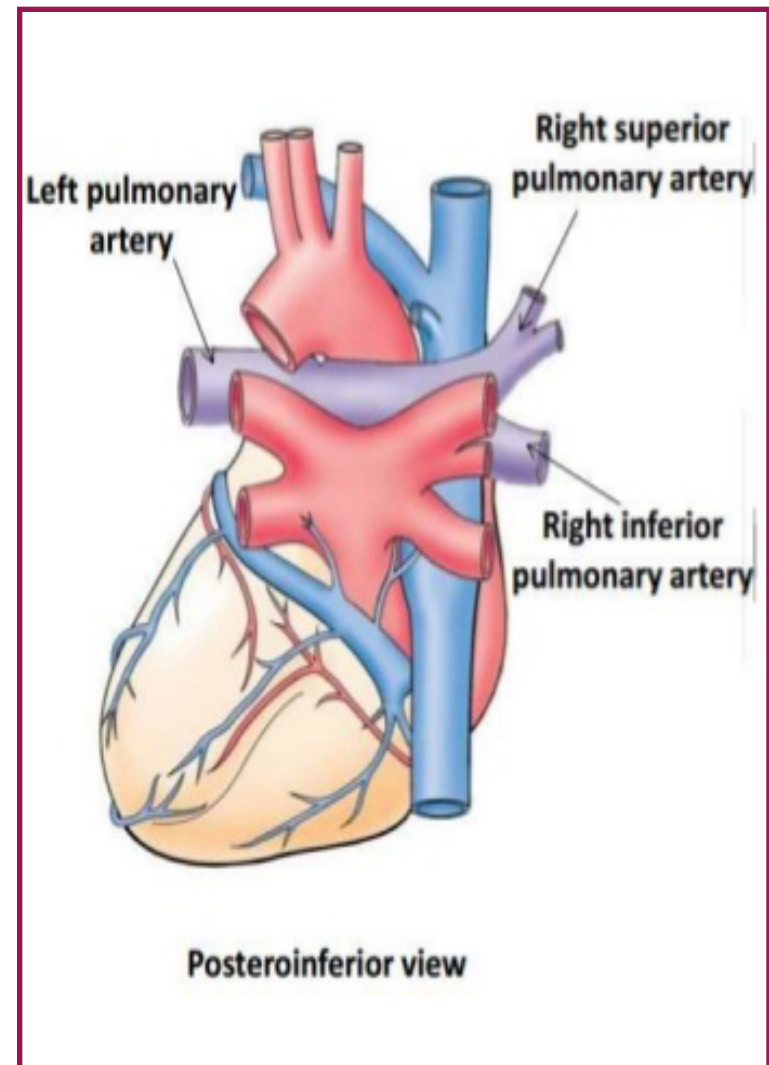
Pulmonary arteries

The **arteries** begin as the pulmonary trunk, a thick and short vessel, which is separated from the right ventricle by the **pulmonary valve**. The **trunk** is located anteriorly and medially to the right atrium, sharing a common layer of pericardium with the **ascending aorta**. It continues upwards, overlapping the root of the aorta and passing posteriorly.



Pulmonary arteries

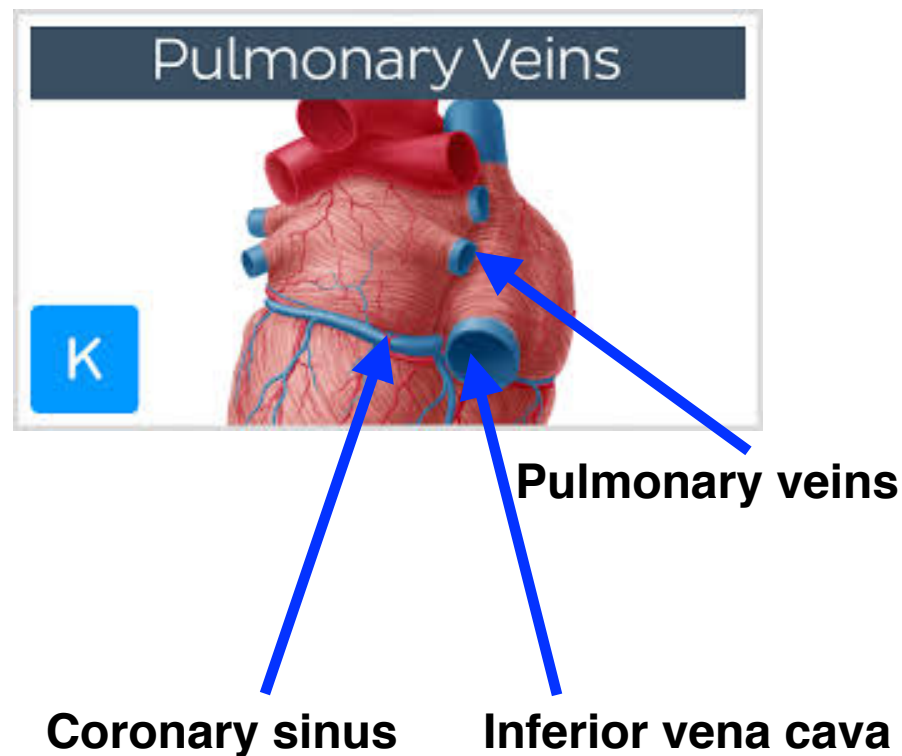
At around the level of T5-T6, the **pulmonary** trunk splits into the right and left pulmonary arteries. The left pulmonary artery supplies blood to the left lung, bifurcating into two branches to supply each **lobe** of the lung. The right pulmonary artery is the thicker and longer artery of the two, supplying blood to the right lung. It also further divides into two branches.



Pulmonary Veins

The pulmonary veins receive **oxygenated** blood from the lungs, delivering it to the left side of the heart to be pumped back around the body.

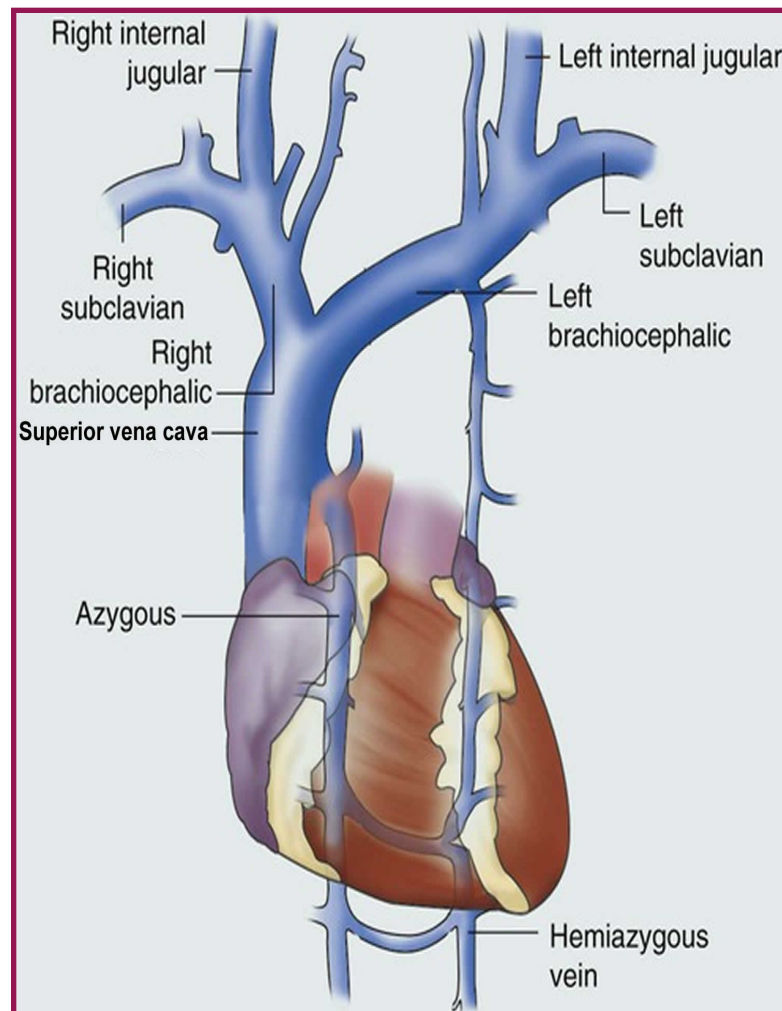
There are **four** pulmonary veins, with one superior and one inferior for each of the lungs. They enter the pericardium to drain into the superior left atrium, on the posterior surface.



Superior Vena Cava

The **superior vena cava** (vena, vein + cava, hollow) transports oxygen-depleted blood from the upper extremities, head, and neck.

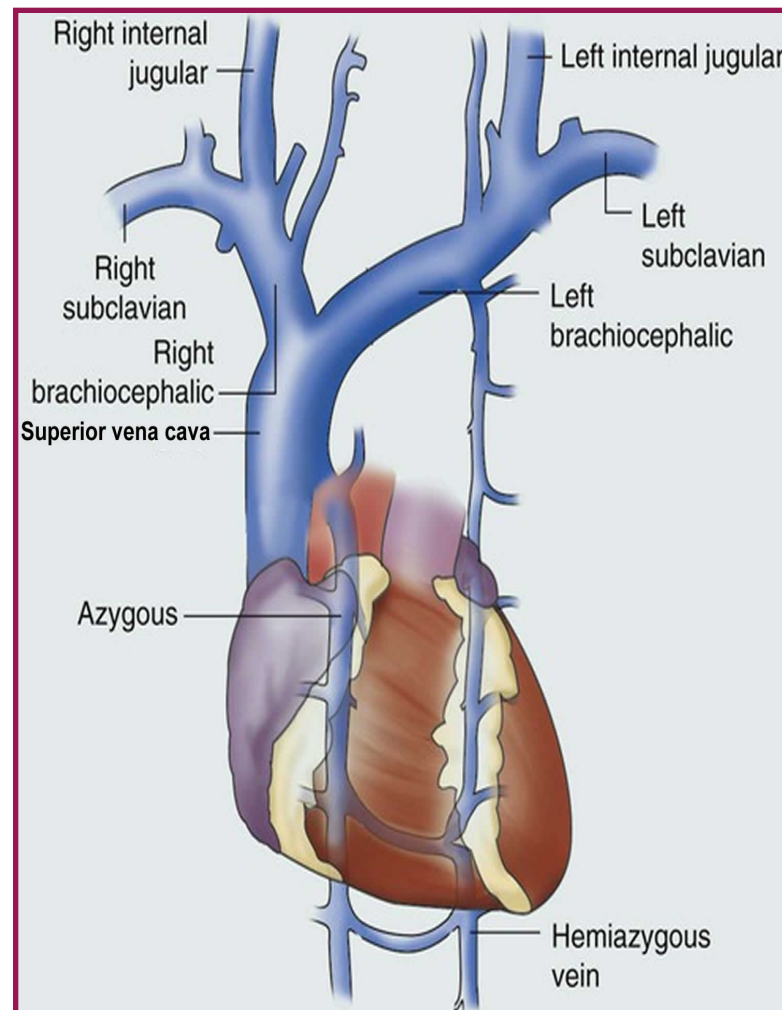
The superior **vena cava** receives **deoxygenated** blood from the upper body (superior to the diaphragm, excluding the lungs and heart), delivering it to the right atrium.



Superior Vena Cava

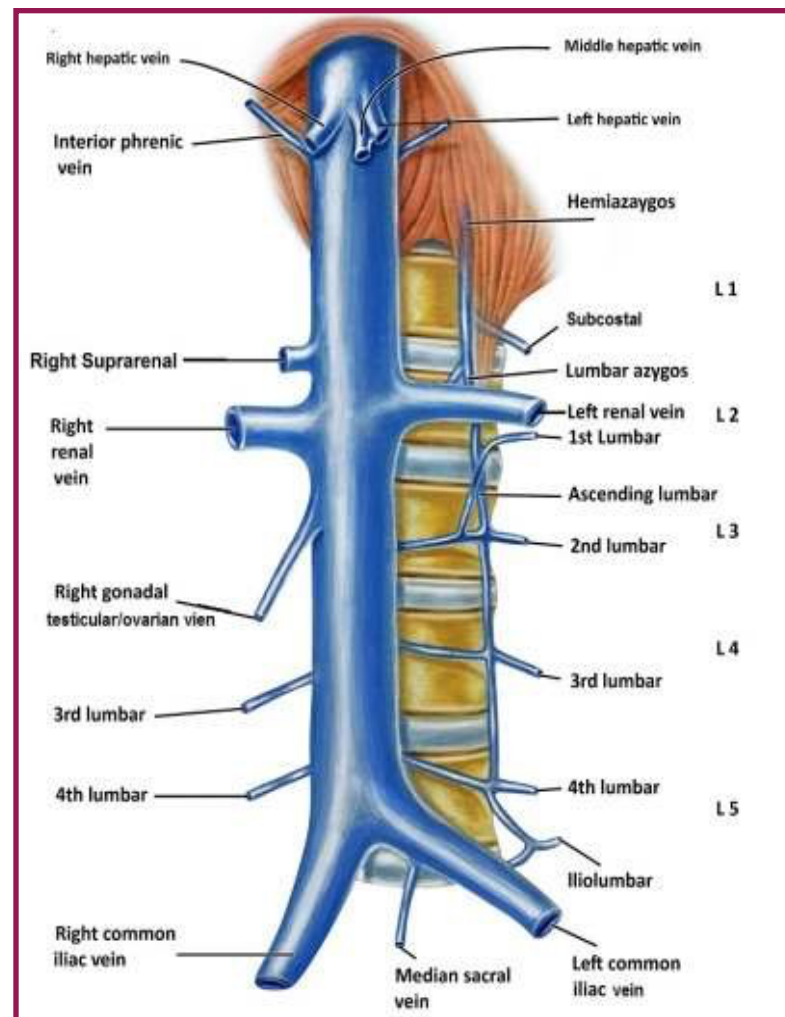
It is formed by merging of the **brachiocephalic veins**, travelling inferiorly through the thoracic region until draining into the superior portion of the right atrium at the level of the 3rd rib.

As the **superior vena cava** makes its descent it is located in the right side of the superior mediastinum, before entering the middle mediastinum to lie beside the ascending aorta.



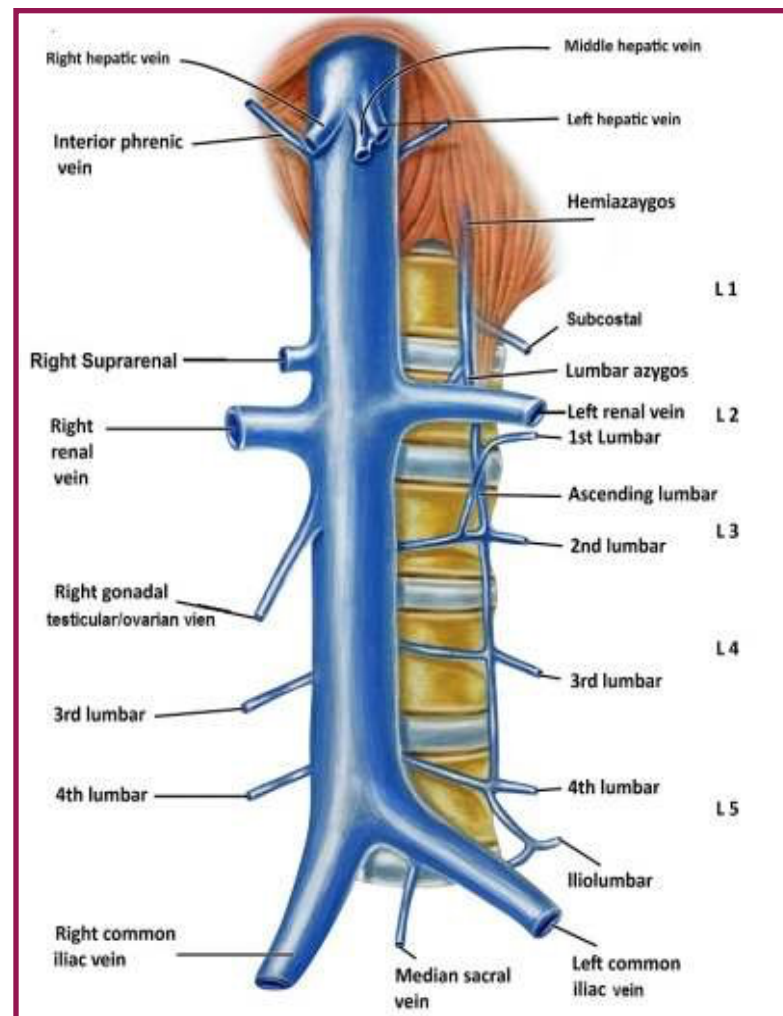
Inferior Vena Cava

The inferior vena cava receives **deoxygenated** blood from the lower body (all structures inferior to the diaphragm), delivering it back to the heart.



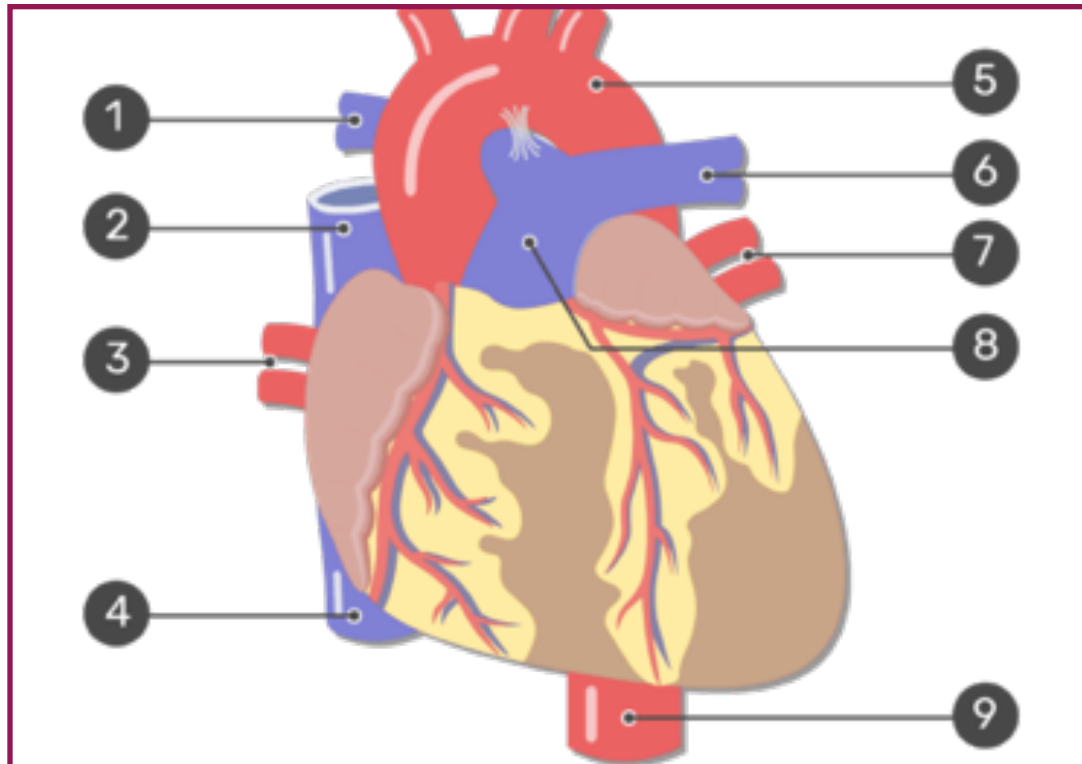
Inferior Vena Cava

Inferior Vena Cava is initially formed in the pelvis by the **common iliac veins** joining together. It travels through the abdomen, collecting blood from the hepatic, lumbar, gonadal, renal and phrenic veins. The inferior vena cava then passes through the diaphragm, entering the pericardium at the level of T8. It drains into the inferior portion of the right atrium.



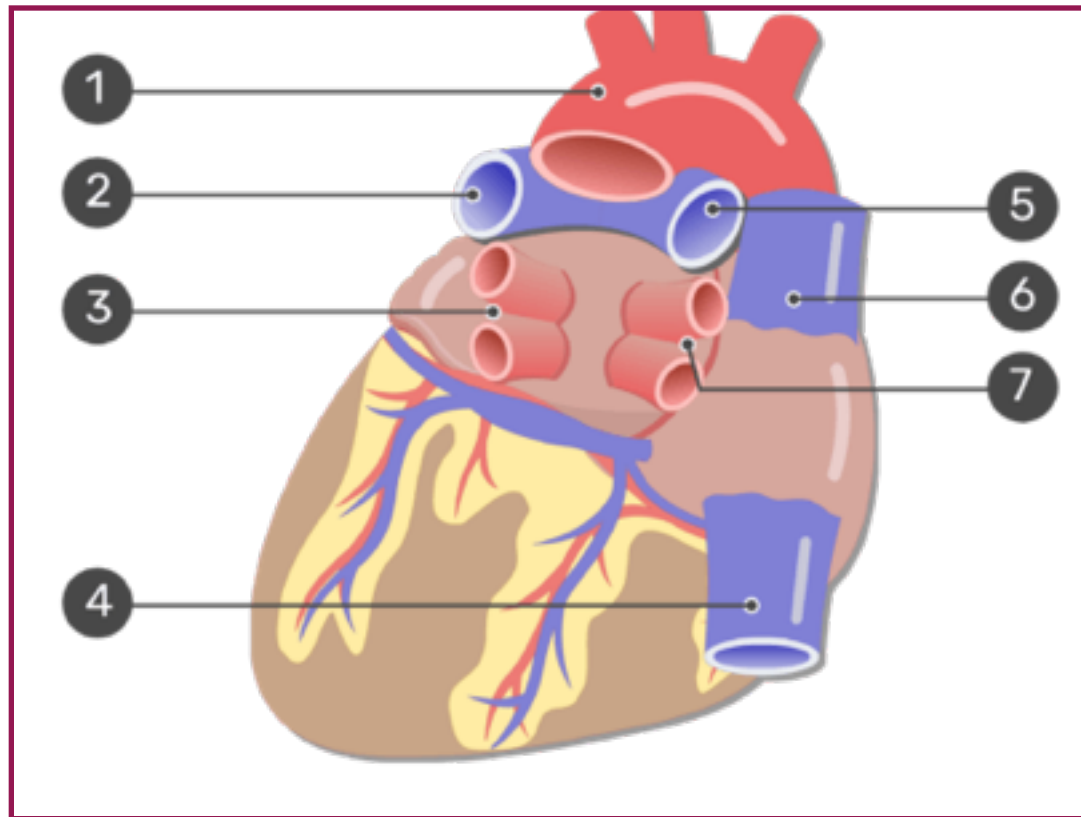
Surface Anatomy of heart

Q: Name the following blood vessels



Surface Anatomy of heart

Q: Name the following blood vessels





Thank You

