

# Anatomy and Physiology

## Cardiovascular System

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### Coronary circulation

- Blood supply to the Heart is called **Coronary circulation**.
- Coronary circulation of the heart is the circulation of blood in the blood vessels of the heart muscle(myocardium).

Coronary circulation consists:

1. Coronary arteries
2. Cardiac veins

#### 1. Coronary Arteries

There are Two coronary arteries.

- a) Left coronary arteries
- b) Right coronary arteries

The left and right coronary arteries both arise from the base of the aorta and encircle the heart in the coronary sulcus.

- a. The **left coronary artery** runs toward the left side of the heart and then divides into two major branches:
  - a. The **anterior interventricular artery** (also known clinically as the left anterior descending artery) follows the anterior interventricular sulcus and supplies blood to the interventricular septum and anterior walls of both ventricles.
  - b. The **circumflex artery** supplies the left atrium and the posterior walls of the left ventricle
- b. The **right coronary artery** courses to the right side of the heart, where it also gives rise to two branches:
  - a. The **right marginal artery** serves the myocardium of the lateral right side of the heart.
  - b. The **posterior interventricular artery** runs to the heart apex and supplies the posterior ventricular walls.

Near the apex of the heart, this artery merges (anastomoses) with the anterior interventricular artery.

Together the branches of the right coronary artery supply the right atrium and nearly all the right ventricle

#### 2. Cardiac Veins

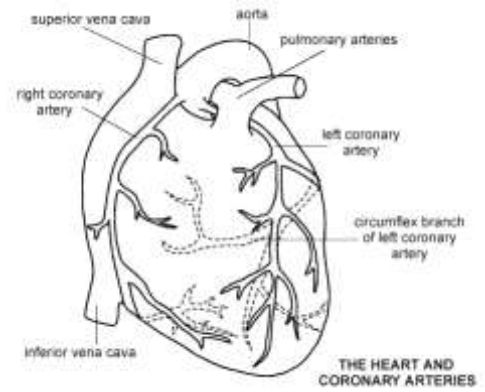
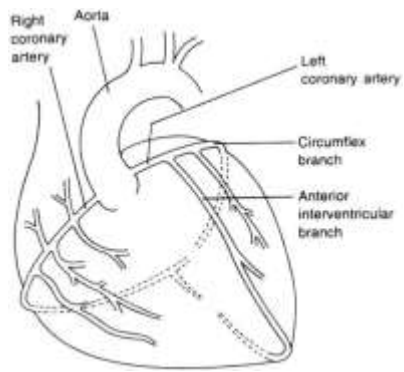
After passing through the capillary beds of the myocardium, the venous blood is collected by the **cardiac veins**.

These veins join to form an enlarged vessel called the **coronary sinus**, which empties the blood into the right atrium.

The coronary sinus is on the posterior aspect of the heart.

The sinus has three large tributaries:

1. The **great cardiac vein** in the anterior interventricular sulcus;
2. The **middle cardiac vein** in the posterior interventricular sulcus; and
3. The **small cardiac vein**, running along the heart's right inferior margin.
4. Additionally, several **anterior cardiac veins** empty directly into the right atrium anterior.



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