

Explain structure of heart in detail

Heart:

Definition

The human heart is a muscular organ that pumps blood throughout the body. It is divided into chamber and surrounded by protective layers.

Structure of Heart:

Size and location:

- The heart is about the size of a closed fist.
- It weighs around 250 to 350 grams.
- It is located in the chest cavity between the lungs slightly toward the left side of the body.
- The heart is protected by the rib cage.

Shape and covering:

The heart has a cone like shape, with the pointed end called the apex, which points to the left.

The heart is covered by a double layered protective sac called the pericardium

The pericardium contains fluid that reduces friction when the heart beats.

Chambers of the Heart:

The human heart has four chambers

Upper chamber

- Right atrium
- Left atrium

Lower chamber

- Right ventricle
- Left ventricle

Atria (upper chambers:)

These chamber receive blood.

Right Atrium.

receive deoxygenated blood (blood without oxygen) from the body.

Left Atrium:

This receive oxygenated blood (blood with oxygen) from the lungs.

Ventricles (Lower Chambers)

These chambers pump blood.

Right ventricle:

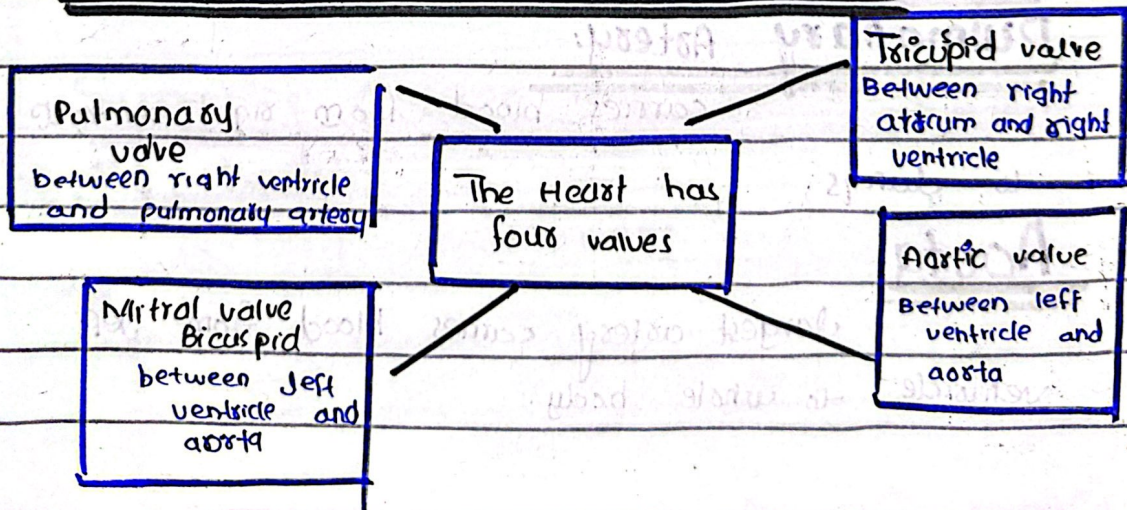
pumps deoxygenated blood to the lungs.

Left ventricle

pumps oxygenated blood to the whole body.

→ The left ventricle is the strongest part of the heart because it pushes blood to the entire body.

Valves of the Heart



Blood Vessels connected to

the Heart

The heart is connected to major blood vessels that carry blood to and from the body and lungs.

Veins (bring blood to the heart)

Superior Vena cava:

from the upper body to the right atrium.

Inferior vena cava:

from the lower body to the right atrium

Pulmonary veins:

bring oxygenated blood from lungs to left atrium.

Arteries (carry blood away from the heart)

Pulmonary Artery:

carries blood from right ventricle to lungs

Aorta

largest artery carries blood from left ventricle to whole body.

Layers of the Heart wall

The wall of the heart has three main layers.

Endocardium

the inner layer
lining the inside
of the heart

Myocardium

the middle muscular
layer which makes
the heart beat

Epicardium

the outer layer
part of the
pericardium

Functions of the Heart:

Circulates Blood Throughout the Body:

The heart pumps oxygen rich blood to all body parts and bring oxygen - poor blood back from the body to be sent to the lungs. This process is called circulation.

Supplies oxygen and Nutrients to the body:

The blood pumped by the heart carries

- Oxygen from the Lungs
- Nutrients from the digestive system.

These are delivered to cells, tissues, and organs to keep them alive and working.

Remove waste products:

The heart helps remove:

- carbon dioxide (waste gas)
- other body wastes through the blood, which are then removed by the lungs, kidneys and liver.

Maintains Blood pressure:

The heart creates a pumping force that keeps the blood pressure stable. proper blood pressure is needed for blood to reach all parts of the body.

Supports the lungs (pulmonary circulation)

The heart pumps blood to the lungs through the pulmonary artery. In the lungs blood receives fresh oxygen and releases carbon dioxide.

Separates Oxygenated and Deoxygenated blood.

→ The heart keeps oxygen rich blood (left side) separate from oxygen poor blood (right side) through the septum.

This helps the body work efficiently.

