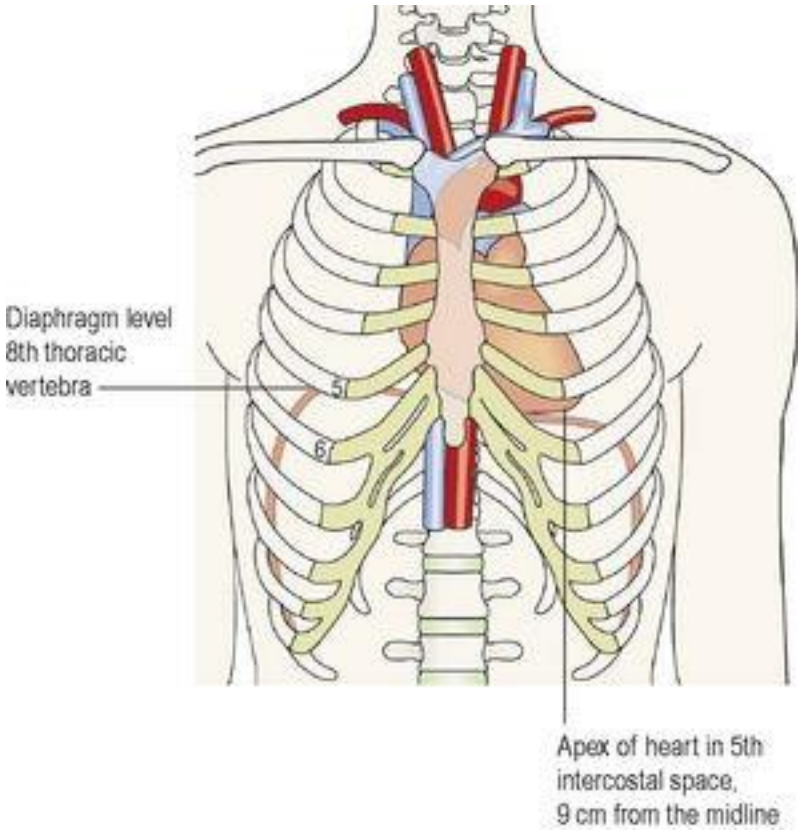
## Heart

The heart is a roughly cone-shaped hollow muscular organ. It is about 10 cm long and is about the size of the owner 's fist. It weighs about 225 g in women and is heavier in men (about 310 g).

## Location

The heart lies in the thoracic cavity in the mediastinum (the space between the lungs). It lies obliquely, a little more to the left than the right, and presents a base above, and an *apex* below. The apex is about 9 cm to the left of the midline at the level of the 5th intercostal space, i.e. a little below the nipple and slightly nearer the midline. The base extends to the level of the 2nd rib.




**Position of the heart in the thorax**

## Structure

## The heart wall

The heart wall is composed of three layers of tissue pericardium, myocardium and endocardium.

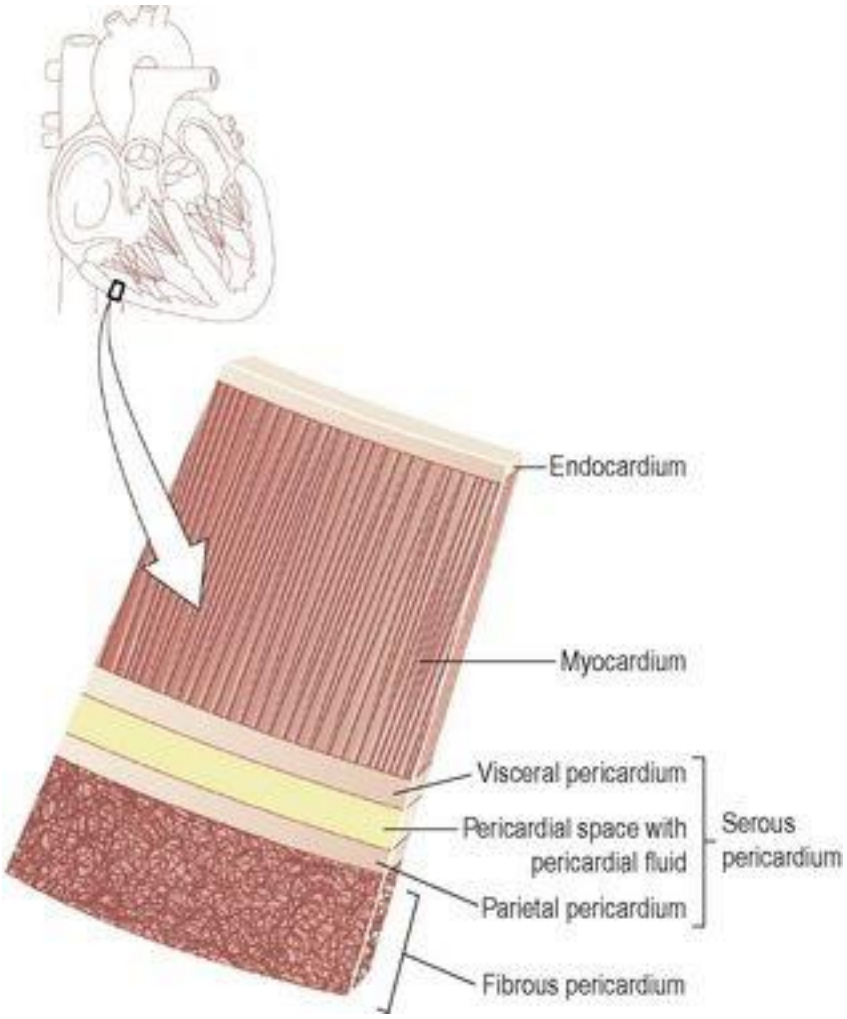



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**Fig:Layers of the heart wall**.

**Pericardium**

The pericardium is the outermost layer and is made up of two sacs. The outer sac consists of fibrous tissue and the inner of a continuous double layer of serous membrane.

The outer layer of the serous membrane, the *parietal pericardium*, lines the fibrous sac. The inner layer, the *visceral pericardium*, or epicardium, which is continuous with the parietal pericardium, is adherent to the heart muscle. The serous membrane consists of flattened epithelial cells. It secretes serous fluid into the space between the visceral and parietal layers, which allows smooth movement between them when the heart beats. The space between the parietal and visceral pericardium is only a *potential space*,two layers lie closely together, with only the thin film of serous fluid between them.

**Myocardium**

The myocardium is composed of specialised cardiac muscle found only in the heart It is not under voluntary control but is striated, like skeletal muscle. Each fibre (cell) has a nucleus and one or more branches. The ends of the cells and their branches are in very close contact with the ends and branches of adjacent cells. These 'joints', or *intercalated discs*, are thicker, darker lines than the striations. This arrangement gives cardiac muscle the appearance of being a sheet of muscle rather than a very large number of individual cells. When an impulse is initiated it spreads from cell to cell via the branches and intercalated discs over the whole 'sheet' of muscle, causing contraction.

**Endocardium**

This lines the chambers and valves of the heart. It is a thin, smooth, glistening membrane that permits smooth flow of blood inside the heart. It consists of flattened epithelial cells, and it is continuous with the endothelium lining the blood vessels.