

## A Brief Comment on Heart's Structure

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### Description

The heart is a muscular organ that pumps blood through the circulatory system's blood arteries. Pumped blood transports oxygen and nutrients to the body while also transporting metabolic waste like carbon dioxide to the lungs. The heart in humans is about the size of a closed fist and is placed in the middle compartment of the chest, between the lungs. The heart is divided into four chambers in humans, other mammals, and birds: upper left and right atria and bottom left and right ventricles. The right atrium and ventricle are commonly referred to as the right heart, while their left counterparts are referred to as the left heart. Fish, on the other hand, have two chambers, an atrium and a ventricle, whereas reptiles have three. Due to cardiac valves that prevent backflow, blood flows in one direction through a healthy heart. The pericardium, a protective sac that also contains a tiny amount of fluid, surrounds the heart. Epicardium, myocardium, and endocardium are the three layers that make up the heart's wall. A collection of pacemaker cells in the sinoatrial node regulates the heart's pumping rhythm. These generate a current that travels through the atrioventricular node and along the heart's conduction system, causing the heart to contract. The right atrium gets low-oxygen blood from the systemic circulation, which enters from the superior and inferior venae cavae and flows to the right ventricle. It is then pushed into the pulmonary circulation, where it gets oxygen and emits carbon dioxide through the lungs. The oxygenated blood then returns to the left atrium, flows through the left ventricle, and is pushed into the systemic circulation via the aorta, where it is utilised and converted into carbon dioxide. The resting heart rate is around 72 beats per minute. Exercise temporarily raises the rate, but in the long run, it lowers the resting heart rate, which is beneficial to heart health. As of 2008, cardiovascular diseases (CVD) were the leading cause of death worldwide, accounting for 30% of all deaths. More than three-quarters of these are caused by coronary artery disease and stroke. Smoking, being overweight,

not getting enough exercise, having high cholesterol, having high blood pressure, and having controlled diabetes are all risk factors. Cardiovascular disorders are often asymptomatic, but they can produce chest pain or shortness of breath. A medical history, listening to heart sounds with a stethoscope, ECG, echocardiography, and ultrasound are all used to diagnose heart. Cardiologists are specialists who specialize on cardiac disorders, though therapy may entail a variety of medical specialties.

### Location and shape

The human heart is located in the mediastinum, between the thoracic vertebrae T5 and T8, at the level of the thoracic vertebrae T5 and T8. The pericardium is a double-membraned sac that surrounds the heart and connects it to the mediastinum. The front surface of the heart is hidden behind the sternum and rib cartilages, whereas the rear surface is near the vertebral column. Several significant blood arteries, including the venae cavae, aorta, and pulmonary trunk, attach to the upper region of the heart. At the level of the third costal cartilage, the upper half of the heart is placed. The greatest component of the heart is normally somewhat offset to the left side of the chest (though it may be displaced to the right on rare occasions) and is thought to be on the left since the left heart is stronger and larger because it pumps blood to all regions of the body. Because the heart is located between the lungs, the left lung is smaller than the right lung and has a cardiac notch in its border to allow the heart to pass through.

The heart is cone-shaped, with an upward-facing base and a downward-facing apex. The mass of an adult heart is 250–350 grammes (9–12 oz). The heart is commonly described as being the size of a fist: 12 cm (5 in) long, 8 cm (3.5 in) wide, and 6 cm (2.5 in) thick; however, this description is debatable because the heart is likely to be significantly larger. Due to the impact of exercise on the heart muscle, which is similar to the response of skeletal muscle, well-trained athletes can have substantially larger hearts.