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**THE HUMAN HEART**

* is a hollow muscular organ in the middle compartment of the chest cavity (mediastinum), enclosed in a protective sac called the pericardium

- made of a specific muscle type with three layers:
 - the outer layer – **epicardium
 -** the cardiac muscle **– myocardium**

**-** the inner layer **- endocardium**

*The structure of the heart*

* the interventricular septum divides the heart into the **left** and the **right** heart
* there **atria** in the upper part (atrium)
* the lower parts are called **ventricles**(ventriculum)

![Obr. Prierez srdca [44.66 kB]]()

http://www.kickboxing.sk/kardio/Co%20by%20ste%20o%20srdci%20mali%20vediet.htm

*Cardiac cycle*

* the impulses for heart activity do not come from the brain but in the heart itself, from the e**lectrical conduction system of the heart**, which has four parts:
1. *the sinoatrial (SA) node* – at the beginning of the right atrium
2. *the atrioventricular (AV) node* – between the atria
3. *the bundle of His* – in the septum, branches into the right and left branches
4. *the Purkinje fibers* – go towards the apex of the heart and branch out
When the electrical conduction system malfunctions, it can lead to heart failure.
* by the cardiac cycle we mean the rotation between the **systole** (inflow of blood, relaxation) and **diastole** (blood ejection, contraction). The backflow is prevented by valves – between the right atrium and the right ventricle it is the **tricuspid valve**, between the left atrium and the left ventricle it is the **mitral** valve, where the aorta and the pulmonary artery enter, it is the **semilunar valves (the aortic and pulmonary valves)**.



**Obr. Prevodový systém srdca**

**https://www.upjs.sk/public/media/22891/Kardiovaskularny%20system.pdf**

* the heart pumps approx. 5 l of blood per minute – **cardiac output** (rises with increased activity)
* when the blood is ejected, pressure is formed against the walls of the blood vessels and it is called **blood pressure** (values for a healthy individual: systolic - 100-120 mmHg, diastolic - 60-80 mmHg)
* blood ejected into the aorta widens the vessel and this pressure wave spreads into its branches and is called the **pulse** (most easily palpated at the radial artery). The normal pulse rate of a healthy individual is 70 beats/min.