



Analysis of physiological indicators specific to the cardiac system

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ABSTRACT

The heart provides blood circulation. The heart is divided into the “left heart” and the “right heart”. Each of them consists of a ventricle and a chamber. The blood leaves the capillaries, flows to the right heart and goes to the lungs. The blood is saturated with oxygen in the lungs and returns to the left heart, which distributes the blood to the entire body. The movement of blood from the right heart to the left heart through the pulmonary blood vessels constitutes the pulmonary circulation, that is, the small blood circulation. The blood supply of the remaining organs is called the systemic circulation or the large blood circulation. These two sections combine to form a single circulatory system. The pumping of blood by the heart is carried out by successive relaxation (diastole) and contraction (systole) During diastole, the atria and ventricles fill with blood, and during systole, blood is ejected from the ventricles into the large arteries, the aorta and pulmonary artery. At the exit of these arteries from the heart, there are semilunar valves that prevent blood from returning to the heart.

Keywords:

left heart, right heart, diastole, systole, ventricle, blood pressure, systolic, minute, volume, pulse rate, dynamics

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(diastole) and contraction (systole) During diastole, the atria and ventricles fill with blood, and during systole, blood is ejected from the ventricles into the large arteries, the aorta and pulmonary artery. At the exit of these arteries from the heart, there are semilunar valves that prevent blood from returning to the heart. There are also two- and three-layer valves between the atria and ventricles. These valves prevent blood from returning from the ventricles to the atria in the ventricular system. Before entering the ventricles, the blood is pumped into the atria through the large veins. Due to the systole of the atria, the blood passes into the ventricles. The blood vessels that deliver blood to the heart are called veins, and those that carry blood away from the heart are

called arteries. The heart creates a constant blood pressure between the arteries and veins and, maintaining it, ensures blood flow. When the heart stops, the pressure between the arteries and veins quickly equalizes and blood circulation stops. The heart valves close automatically under the influence of blood pressure, ensuring that blood flows in one direction.

The heart of a healthy person in a moderate state rhythmically contracts 70 times per minute. During physical activity, the number of heart contractions may increase. When the heart contracts 70 times, the full cycle of cardiac activity is 0.8 seconds. The atria and ventricles contract sequentially.

The average weight of the human heart is 300 g in men, and slightly less in women - 200-250 g. The heart of a newborn baby is round in shape, located slightly above the navel, weighs 23-27 g, in eight-month-old children the weight of the heart doubles, in 2-3-year-old children it triples, and by 16 years it increases eleven times. In middle-aged people, the length of the heart is 13-14.5 cm, the widest part (transverse) is 9-10.5 cm, the length of the anterior and posterior surfaces is 6-7 cm. The weight of the heart is in the ratio of 1:200 or 1:75 to the total body weight.

The cardiac cycle consists of three phases: the first phase is ventricular systole (0.1 s), the second is ventricular diastole (0.3 s) and the third is a general pause (0.4 s). During the general pause, the atria and ventricles relax. During the cardiac cycle, the atria contract for 0.1 s and remain in a relaxed diastolic state for 0.7 s. The ventricles contract for 0.3 s, their diastole lasts 0.5 s. The cardiac cycle is divided by the shortening of the heart rate. The duration of the systole of the atria and ventricles does not change. During the general pause, the muscles of the atria and ventricles relax, the mitral valves open, and the semilunar valves close. Blood flows from the veins into the atria under the influence of pressure, and since the valves between the atria and ventricles are open, it flows freely into the ventricles. Thus, during the general pause, the heart gradually fills with

blood, and at the end of the pause, the ventricles are 70% filled with blood.

The ventricular systole begins with the contraction of the annular muscles surrounding the place of confluence of the veins that feed the heart. This prevents the blood from returning from the ventricles to the veins. During ventricular systole, the blood pressure rises to 4-5 mm Hg. And the blood flows only in one direction to the ventricles. After the ventricular systole ends, ventricular diastole begins, and at the beginning of the contraction, the valves between the ventricles and the atria close. Ventricular systole consists of two phases: the tension phase (0.05 s) and the blood ejection phase (0.25 s).

The tension phase occurs when the mitral and semilunar valves are closed. At this time, the heart muscle tightens around the uncompressed blood, and as the muscle tension increases, the pressure in the ventricles increases. When the blood pressure in the ventricles exceeds the pressure in the arteries, the semilunar valves open and blood is ejected into the ventricles, into the aorta and pulmonary trunk. The second phase of ventricular systole is the ejection phase. The systolic pressure in the left ventricle is 120 mmHg, and in the right ventricle it is 25-30 mmHg. After the ejection phase, the ventricular diastole begins, and the pressure in them decreases. When the pressure in the aorta and pulmonary trunk is higher than in the ventricles, the semilunar valves close. At this time, the ventricular and interventricular valves open under the pressure of the blood accumulated in the ventricles. A general pause begins. Then the cardiac cycle repeats.

Systolic and minute volume of the heart. At rest, the ventricles of the heart eject approximately 60-70 ml of blood with each contraction. This is called the systolic volume of the heart. It is the same for the right and left ventricles. When performing physical work, the systolic volume increases.

Cardiac output. This is the amount of blood pumped by the heart in one minute. At rest, this is around 5 liters. If the systolic volume is 70 ml and the heart contracts 70 times per minute, the cardiac output is $70 \times 70 = 4900$ ml.

Dynamics of the number of money in different situations						
F.I.SH	Year of birth	Age	Standing	Lying down	Sitting down	Arterial puls soni
Siddiqova Guli'rano G'anijon qizi			72 ta	70 ta	80 ta	
Olimova Kamola Abdurashid qizi	2006	19 years old	85 ta	79 ta	89 ta	
Ne'matjonova Husanjon qizi			72 ta	65 ta	78 ta	
Xolmatova Muhlisaxon Xatamjon qizi	2006	19 years old	70 ta	64 ta	78 ta	
To'xtanazarova Ruxshona Maxmudjon qizi			78 ta	70 ta	85 ta	
Ahadjonova Akmaljon qizi	2006	19 years old	80 ta	71 ta	86 ta	
O'ktamova Akmaljon qizi			82 ta	75 ta	87 ta	
Abduraximova Abdurashid qizi	2005	20 years old	75 ta	69 ta	80 ta	
Abdusamatova Mirabbos qizi			78 ta	70 ta	80 ta	

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