

STRUCTURE AND FUNCTIONS OF THE LIVER

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Abstract: *The liver is the main organ in vertebrates that controls all metabolic processes in the body, detoxifying the body, synthesizing proteins and biochemicals necessary for digestion and growth, carbohydrate metabolism, hormone production, converting nutrients such as glucose and glycogen, and performs many important biological functions, such as storage and breakdown of red blood cells.*

Keywords: *fibroelastic connective tissue, sinusoid, lobule, phagocytosis, pigment*

The liver is the largest gland in the human body and is located in the upper right quadrant of the abdomen, under the diaphragm, on the right side of the stomach, under the right ribs and partly under the left ribs, above the gall bladder. It is reddish-brown in color, wedge-shaped, and consists of two unequal size and shape: a larger right lobe and a smaller left lobe. A human liver usually weighs about 1.5 kilograms and is about 15 centimeters wide. It is 970-1860 grams for men and 600-1770 g for women. The transverse cavity on the lower surface of the middle part is called the gate of the liver or valve. From this place, the artery, portal vein, nerves enter the liver, and the bile duct of the liver and the hepatic vein exit. his bile duct joins the duct from the gallbladder to form the common bile duct, which empties into the duodenum. The liver is connected by two major blood vessels: the hepatic artery and the portal vein. The portal vein carries blood rich in digested nutrients from the entire gastrointestinal tract, as well as from the spleen and pancreas. These blood vessels are divided into small capillaries called sinusoids that spread from the plates of liver hepatocytes and the central vein to the imaginary perimeter of the interlobular portal triads, which then lead to the hexagonal liver lobules, which are considered the functional units of the liver. Cell lobule composed of millions of hepatocytes, main metabolic and hepatic artery, portal vein and common bile duct, unique portal triad, united with elongated, thin, dense, irregular, fibroelastic connective tissue consisting of fibrous capsule. The liver is the central biochemical laboratory of the body and performs various functions. Without liver, people and animals cannot live. The liver produces 600-700 g of bile per day and plays an important role in the digestion of food and the absorption of nutrients from the intestine into the blood; participates in the metabolism of proteins, fats and carbohydrates; in addition, it performs a protective function by neutralizing toxic substances produced in the metabolism or introduced from the outside. Special stellate cells of the liver are able to phagocytose and form antelopes. The liver can collect blood. The liver is also involved in the formation of blood elements and hemoglobin during embryonic development. 1/5 of the total blood in the body can fit into the veins of the liver. Excess water in the blood is partially released in the liver and goes to the formation of bile and lymph. The liver continuously processes bile and releases it through its biliary tract; The entry of bile into the duodenum begins during meals and continues until the stomach is empty. At other times, the annular muscle of the common

bile duct contracts and blocks the opening of this duct. When the bile produced in the liver enters the gallbladder, it turns dark, because the water in it and partly some other substances pass through the gallbladder wall into the blood.

All substances passed from the digestive system into the blood come to the liver, where they are partly used for the structure of complex substances, and partly decomposed. For example, blood proteins albumins and globulins are formed from amino acids that come with blood, glucose is synthesized in the liver from several substances - fructose, galactose, lactose, glycerol, and glycogen is formed from this. Glycogen is stored in liver cells up to 5-6%, and when the body uses more energy, it turns into glucose and goes into the blood. Hemoglobin is partially destroyed in the liver and bilirubin is formed. Participates in the exchange of pigments. Fatty substance - produces lipoids and goes with the blood to other organs and tissues and participates in the exchange of substances.

One of the important functions of the liver is to neutralize harmful substances that come with the blood and partially excrete them with bile. Some of the substances that come to the liver with the blood can be harmful to the body. It is the function of the liver to neutralize these substances and partially excrete them with bile. For example, lead, arsenic, and other toxic substances are trapped in the liver, and then excreted in the form of harmful organic substances - often proteins. Ammonia, partially uric acid, formed from the breakdown of proteins in the body, turns into urea, a less toxic and easily soluble substance in the liver, which is excreted from the body with urine. In chronic diseases of the digestive organs, in alcoholism, due to the formation of a less toxic and more soluble substance, liver functions are disturbed, which leads to severe diseases. Acute and chronic inflammatory processes occur due to hepatitis, liver cirrhosis, and echinococcosis.

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