



Fill in the blanks

The liver is one of five vital _____ which means it is necessary to keep you alive. The other vital organs are the brain, heart, lungs, and kidneys. Amazingly, only _____ of your liver is needed to maintain normal functioning. This organ performs over _____ vital tasks and this video will discuss some of the most important ones. The liver is the human body's second heaviest organ. It has _____, right, left, caudate, and quadrate. These lobes contain 1 million hexagonally shaped hepatic lobules. Lobules are the functional unit of the liver, meaning that they are the smallest structures capable of performing the liver's tasks. Lobules are made up of hepatocytes. A key task of the liver is to _____. At any given time, the liver contains 13% of your blood volume. Freshly oxygenated blood comes down from the heart's aorta and enters the left and right hepatic arteries to supply the liver. Blood leaves the liver by the hepatic vein and goes through the inferior vena cava back to the heart. Then, circulation starts anew. The liver also receives blood through the portal vein from the gastrointestinal tract. It _____ this blood to remove pathogens and toxins like _____.



The liver and kidneys are the only _____ your body will ever need. The filtered blood leaves the liver via the hepatic vein. The liver filters more than just toxins, it also houses Kupffer cells which are a kind of _____ called a tissue macrophage. Kupffer cells make up 80 to 90% of the body's tissue macrophages. Kupffer cells remove and destroy old or senescent _____.

Red blood cells live for around 120 days before this happens. Kupffer cells destroy red blood cells through phagocytic action and the haemoglobin within them gets recycled. Kupffer cells also _____ which can enter through the portal vein. They sense bacteria or endotoxins which are toxic substances bound to the bacterial cell wall and released when the bacterium ruptures or disintegrates. Upon detection, the Kupffer cells _____, releasing cytokines, nitric oxide, and oxygen species to destroy the pathogens. The liver also produces many of the _____ needed to help seal your wounds. Clotting factors are the reason you don't bleed to death when you get a small cut. _____, or clotting, is the process by which blood thickens from a liquid to a _____.



Coagulation is part of haemostasis, the process that causes bleeding to stop. Haemostasis begins when blood comes into contact with a foreign surface which happens when a blood vessel is damaged. Yet another role the liver plays is for _____. It helps digest fats by making _____ and it helps with vitamin absorption. Bile gets produced by hepatocytes within liver lobules and then gets stored in the gallbladder. From there, it goes into the duodenum where it helps to digest and absorb fat and fat soluble vitamins. Bile breaks down _____ into fatty acids which can be taken into the body by the digestive tract. Vitamins A and D are fat soluble vitamins that depend on bile salts for absorption. The liver and the _____ work together to control blood glucose levels. When glucose levels are low, the pancreas releases glucagon. Glucagon breaks down liver _____ which is released into the blood stream raising blood glucose levels. When blood glucose levels are high, the pancreas sends out insulin. _____ stimulates the liver to store glucose in the form of glycogen. It also tells the body's cells to take glucose from blood, either to use as _____ or to store for future use. This results in lower blood glucose levels in the bloodstream.



Word Search

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N U X F Q I E W R I T Y E L O
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H K H U U Z C R A O P Z V E G
O C C X R H T H F N J N H R T
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U M Z Y G O L E N G L D A X Y

Coagulation
Digestion
Filter
Bile

Nutrition
Glucose
Liver
Pathogen

Exercise
Vitamins
Organ
Toxins





Liver quiz: Questions

What is the liver?

Where is the liver located inside the body?

What is bile?

How many secondary functions does the liver perform?





Liver health quiz

Glucose that is being stored in the liver is called?

- Carbohydrates Toxins Fat Glycogen

The liver filters the blood to remove:

- Cytokines Toxins and pathogens Oxygen Sugar and fats

The liver makes _____, which helps your body absorb fats

- Cholesterol Glucose Bile Glycogen

When does the liver need to be detoxed?

- After eating unhealthy food After drinking alcohol Once a year to clean the liver Never

Coagulation is the process of?

- Turning blood from liquid to gel Destroying old red blood cells Absorbing fat soluble vitamins Storing glucose in the form of glycogen

How many secondary functions does the liver perform?

- 50+ 500+ 10+ 300+

What is important for keeping the liver healthy?

- Eating a healthy diet Having regular naps Drinking some alcohol All of the above

Bonus question: what else is important for keeping the liver healthy (0.5 points per answer)

