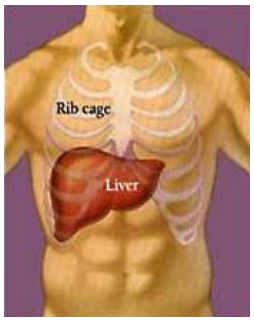
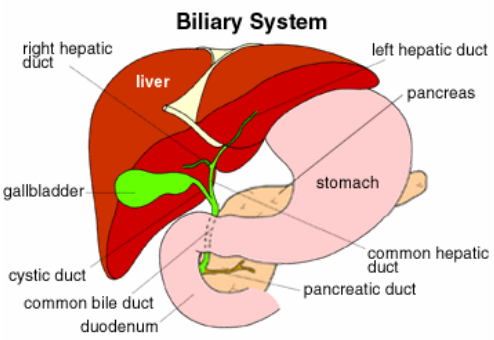
Your Liver and How It Works



What does my liver look like?
The liver is the largest organ inside the body. In an adult, it is about the size of a football and weighs close to three pounds. It is located behind the ribs in the upper right-hand portion of the abdomen. Shaped like a triangle, the liver is dark reddish-brown and consists of two main lobes. There are over 300 billion specialized cells in the liver that are connected by a well organized system of bile ducts and blood vessels called the biliary system (see graphic below).

How important is my liver?
The liver is such an important organ that we can survive only one or two days if it shuts down—if the liver fails, your body will fail, too. Fortunately, the liver can function even when up to 75% of it is diseased or removed. This is because it has the amazing ability to create new liver tissue (i.e. it can regenerate itself) from healthy liver cells that still exist.

What does my liver do?
If your body was an automobile, your liver would be considered the engine. It does hundreds of vital things to make sure everything runs smoothly. Some of the most important functions of the liver include:



- Stores vitamins, sugar and iron to help give your body energy.
- Controls the production and removal of cholesterol.
- Clears your blood of waste products, drugs, and other poisonous substances.
- Makes clotting factors to stop excessive bleeding after cuts or injuries.
- Produces immune factors and removes bacteria from the bloodstream to combat infection.
- Releases a substance called “bile” to help digest food and absorb important nutrients.

What is “hepatitis” and how does it affect my liver?
The medical term “hepatitis” literally means “inflammation of the liver.” Chronic inflammation of the liver may result in liver damage or failure if left untreated. “Hepatitis” can be caused by many different things - drinking too much alcohol, traumatic injury, autoimmune disorders, an adverse drug reaction, or a virus such as the hepatitis B virus.

What is hepatitis B?
Hepatitis B is the most common serious liver infection in the world. It is caused by the **hepatitis B virus (HBV),** which attacks liver cells and can lead to cirrhosis, liver cancer, or liver failure if it is not detected and managed. The virus is transmitted through contact with infected blood and bodily fluids that contain blood.

Approximately 10% of adults, 30-50% of children, and 90% of babies will not get rid of the virus and will develop a chronic HBV infection. Chronically infected people can pass the virus on to others and are at increased risk for liver problems later in life. HBV is 100 times more infectious than the AIDS virus. Yet, hepatitis B can be prevented with a safe and effective vaccine. For the 400 million people worldwide who are chronically infected with HBV, the vaccine is of no use. However, there are promising new treatments for those who live with chronic hepatitis B.

How can the hepatitis B virus damage my liver?
A healthy liver is soft and flexible. With a chronic hepatitis B infection, however, the liver is constantly under attack by the virus and eventually it can become hardened over time. Some of the changes and liver damage that can occur are described below:

Fibrosis: After becoming inflamed, the liver tries to repair itself by forming tiny scars. This scarring, called "fibrosis," makes it difficult for the liver to do its job. As damage continues, many scars form and begin to join together, leading to the next stage, cirrhosis.

Cirrhosis: With a chronic HBV infection, large areas of the liver can become permanently scarred and nodules may form. Blood cannot flow freely through scarred liver tissue. This causes the liver to begin to shrink and become hard.

Liver Failure: If cirrhosis becomes very severe, liver failure can occur. This means the liver is unable to filter wastes, toxins, and drugs from the blood. It can no longer produce the clotting factors necessary to stop bleeding. Liver failure can lead to death.

Liver Cancer: Cirrhosis can sometimes set the stage for liver cancer. One explanation for this is that damage to liver cells may alter the genes inside the cells in such a way that they can become cancerous. People living with chronic hepatitis B infections are at high risk for developing liver cancer and must be teste once or twice a year for early detection. Early detection will save lives!

Normal Liver

Fibrosis

Cirrhosis

What should I do if I am chronically infected with hepatitis B?
Individuals who test positive for the hepatitis B virus for more than six months are diagnosed as being chronically infected. A chronic hepatitis B infection places you at greater risk for liver problems later in life, so you need to be seen by a good liver specialist or a doctor knowledgeable about hepatitis B on a regular basis (usually once or twice a year). To find a physician in your area who is familiar with hepatitis B, please check the ***Hepatitis B Foundation's Liver Specialist Directory*** on our website at www.hepb.org/resources/liver_specialist_directory, or visit the American Gastroenterological Association at www.gastro.org/patient-center, and click on "Locate a GI".