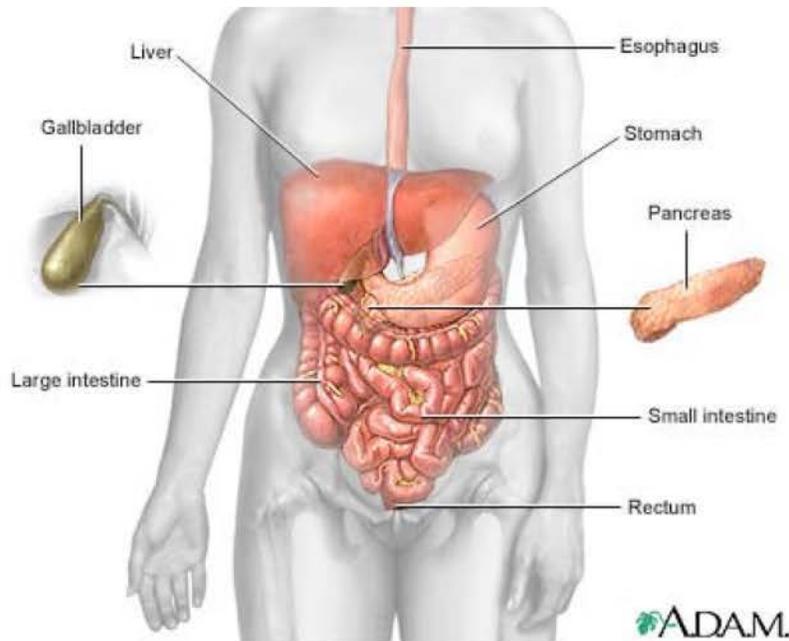


## Hepatitis B

### Digestive system



The esophagus, stomach, large and small intestine, aided by the liver, gallbladder and pancreas convert the nutritive components of food into energy and break down the non-nutritive components into waste to be excreted.

<http://www.nlm.nih.gov/medlineplus/ency/article/000279.htm>

#### **Definition** [Return to top](#)

The term "hepatitis" refers to syndromes or diseases causing liver inflammation, including inflammation due to viruses and chronic alcohol abuse. Viruses causing hepatitis include Hepatitis [A](#), [B](#), [C](#), [E](#) and the [delta factor](#). Each virus causes a distinct syndrome, though they share some symptoms and consequences.

Most people who become infected with Hepatitis B get rid of the virus within 6 months. A short infection is known as an "acute" case of Hepatitis B.

Approximately 10% of people infected with the Hepatitis B virus develop a chronic, life-long infection. People with chronic infection may have symptoms, but many of these patients never develop symptoms. These patients are sometimes referred to as "carriers" and can spread the disease to others. Having chronic Hepatitis B increases your chance of permanent liver damage, including cirrhosis (scarring of the liver) and liver cancer.

#### **Causes, incidence, and risk factors** [Return to top](#)

Hepatitis B is transmitted via blood and other body fluids. Infection can occur through:

- Contact with blood in healthcare settings -- this puts physicians, nurses, dentists, and other healthcare personnel at risk
- "Unsafe" sex with an infected person
- Blood transfusions
- Sharing needles during drug use
- Receiving a tattoo or acupuncture with contaminated instruments
- Birth -- an infected mother can transmit the virus to the baby during delivery or shortly thereafter

People who are at higher risk, including people who live with someone with hepatitis B and healthcare workers, should get the [hepatitis B vaccine](#).

In acute hepatitis, it takes about 1 to 6 months from the time of infection until the disease manifests itself. Early symptoms may include nausea and vomiting, loss of appetite, fatigue, and muscle and joint aches. Jaundice, together with dark urine and light stools, follows. About 1 percent of patients infected with hepatitis B die due to liver damage in this early stage.

The risk of becoming chronically infected depends on the age at the time of infection: more than 90 percent of newborns, about 50 percent of children, and less than 5 percent of adults infected with hepatitis B develop chronic hepatitis.

Most damage from hepatitis B virus is caused by the body's response to the infection. The body's immune response against the infected liver cells (hepatocytes) damages the cells, causing liver inflammation (hepatitis). As a result, liver enzymes (transaminases) leak out of the liver into the blood, causing transaminase blood levels to be elevated. The virus impairs the liver's ability to produce the clotting factor prothrombin, increasing the time required for blood clot formation (prothrombin time).

Liver damage also impairs the body's ability to rid itself of bilirubin (a breakdown product of old red blood cells), causing jaundice (yellow discoloration of the eyes and body) and dark urine.

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- Fatigue, malaise, joint aches (arthralgias) and low grade fever
- Nausea, vomiting, loss of appetite and abdominal pain
- Jaundice and dark urine due to increased bilirubin

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- Hepatitis B surface antigen (HBsAg) -- this represents the first viral marker present in blood tests after the patient is infected. It usually disappears from the blood in 1-2 months.
- Hepatitis B core antibody (Anti-HBc) -- this is usually detected within 1-2 weeks of the appearance of hepatitis B surface antigen.
- Hepatitis B surface antibody (Anti-HBs) -- this is found both in those who have been immunized and those who have recovered from hepatitis infection.
- Both hepatitis B surface antibody and core antibody persist indefinitely in the blood of patients who have recovered from hepatitis B.
- Liver enzyme (transaminase) blood levels may be elevated due to liver damage.
- Albumin levels may be low and prothrombin time may be prolonged due to severe liver failure.

### **Treatment** [Return to top](#)

Acute hepatitis needs no treatment other than careful monitoring of liver function, by measuring serum transaminases and prothrombin time.

In rare cases of liver failure, the patient should be monitored in an intensive care unit. Because damage to the liver decreases its ability to degrade proteins, protein intake should be restricted and oral lactulose or neomycin should be administered (to limit protein production by bacteria in the gut). Patients should be supported and monitored until they recover or until prognostic factors indicate a liver transplant is necessary. Liver transplantation is the only definitive cure in cases of liver failure.

Treatment of chronic hepatitis is geared towards reducing inflammation, symptoms, and infectivity. Recombinant alpha interferon, currently the only approved antiviral agent for hepatitis, converts 37 percent of patients from the replicative phase to non-replicative phase. However, it is ineffective in most patients, very expensive, and causes some adverse effects. These include a flu-like syndrome, fever, chills, malaise, muscle aches, and rigors ('shakes'). Currently, trials are underway in Europe for natural interferon, which has fewer side effects and is more effective. Liver transplantation is used to treat end-stage chronic hepatitis B liver disease.