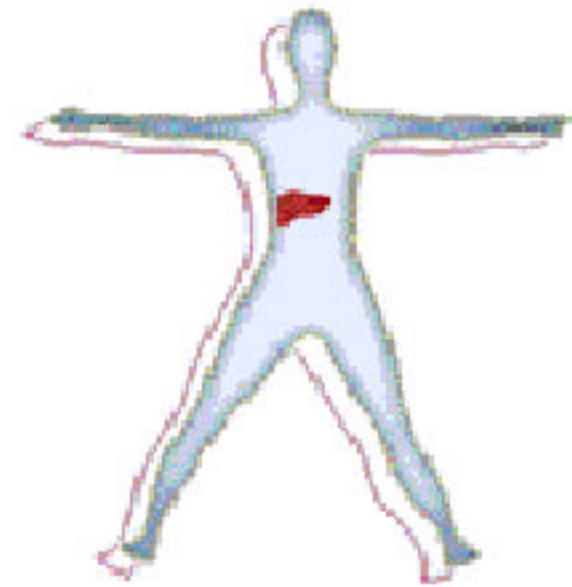


Basic facts about the liver

Your liver, the largest organ in the body, weighs about three pounds and is roughly the size of a football. It lies in the upper right side of your abdomen, situated mostly under the lower ribs. The normal liver is soft and smooth and is connected to the small intestine by the bile duct, which carries bile formed in the liver to the intestines.



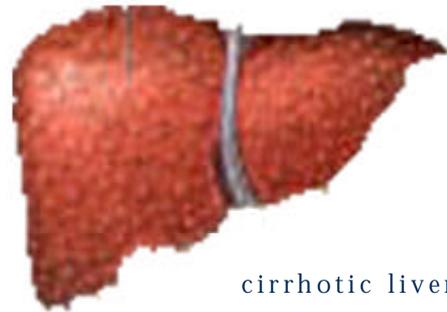
Nearly all of the blood that leaves the stomach and intestines must pass through the liver. Acting as the body's largest chemical factory, it has many functions, including:

- The production of clotting factors, blood proteins, bile and more than a thousand different enzymes
- The metabolism of cholesterol
- The storage of energy (glycogen) to fuel muscles
- Maintenance of normal blood sugar concentration
- The regulation of several hormones
- The detoxification of drugs and poisons including alcohol

It is no wonder that liver disease can cause widespread disruption of body function. While many liver diseases can occur, one of the most important problems is cirrhosis.

What is cirrhosis?

Cirrhosis is a term that refers to a consequence of chronic liver diseases in which normal liver cells are damaged and replaced by scar tissue, decreasing the amount of normal liver tissue. The distortion of the normal liver structure by the scar tissue interferes with the flow of blood through the liver. It also handicaps the function of the liver, which, with the loss of normal liver tissue, leads to failure of the liver to perform some of its critically important functions.



cirrhotic liver

What causes cirrhosis?

There are a number of conditions that can lead to cirrhosis:

- Excessive intake of alcohol (most common)
- Chronic viral hepatitis, types B, C, and D
- Primary biliary cirrhosis - an autoimmune liver disease primarily affecting women
- Primary sclerosing cholangitis - a disease of the bile ducts, most often seen in patients with colitis
- Inherited or congenital diseases:
 - **hemochromatosis** - abnormal accumulation of iron in the liver and other organs due to the decreased excretion of iron from the liver

Wilson's disease - abnormal accumulation of copper in the liver and other organs due to the decreased excretion of copper from the liver.
alpha1-antitrypsin deficiency - inherited absence of a specific enzyme in the liver
Glycogen storage diseases - inability to properly utilize sugars

autoimmune hepatitis - progressive inflammation of the liver associated with an abnormality of the body's immune system

- Prolonged exposure to environmental toxins
- Some forms of heart disease (cardiac cirrhosis)
- Schistosomiasis (parasitic infection)

Can the condition responsible for cirrhosis be identified?

Cause of cirrhosis can be identified by certain factors:

In alcoholic cirrhosis

- History of regular and excessive alcoholic intake
- Physical and behavioral changes
- Examination of liver tissue obtained by needle biopsy under local anaesthesia

In active viral hepatitis infection

- Blood tests
- Liver biopsy

Does heavy drinking always lead to cirrhosis?

While almost everyone who drinks excessive amounts of alcohol sustains some liver damage, it does not necessarily develop into cirrhosis. In those individuals who drink one-half to one pint (8 to 16 ounces) of hard liquor per day (or the equivalent in other alcoholic drinks), for 15 years or more, about one-third develop cirrhosis. Another third develop fatty livers, while the remainder have only minor liver problems.

In general, the more you drink, the greater the fre-

quency and regularity of excessive intake, the more likely that cirrhosis will result. A poor diet, long considered to be the main factor in the development of cirrhosis in the alcoholic, is probably only a contributing factor. Alcohol by itself, in large amounts, is a poison that can cause cirrhosis.

Can social drinkers get cirrhosis?

Some individuals who are "social drinkers," not alcoholics, can develop cirrhosis. Factors affecting the development of cirrhosis include:

- The amount of alcohol consumed
- The regularity of intake
- Natural tendency
- Perhaps the state of nutrition

It is not known why some individuals are more prone to adverse reactions to alcohol than others. Women are less tolerant of alcohol than men. Researchers believe that this is because men have a greater ability than women to break down the alcohol for elimination. Studies show that a much higher percentage of women consuming less alcohol than men go on to cirrhosis.

Does hepatitis always result in cirrhosis?

Some patients with chronic viral hepatitis develop cirrhosis. There are five known types of viral hepatitis, each caused by a different virus.

- Acute hepatitis A and acute hepatitis E do not lead to chronic hepatitis.
- Acute hepatitis B leads to chronic hepatitis infection in approximately 5% of adult patients. In a few of these patients, the chronic hepatitis B progresses to cirrhosis.
- Acute hepatitis D infects individuals already infected by hepatitis B.
- Acute hepatitis C becomes chronic in approximately 80% of adults. A minority of these patients (20-30%) will progress to cirrhosis, typically over many years.

What are the signs and symptoms of cirrhosis?

The onset of cirrhosis is often "silent" with few specific symptoms to identify what is happening in the liver. As continued scarring and destruction occur, the following signs and symptoms may appear:

- Loss of appetite
- Nausea and vomiting
- Weight loss
- Enlargement of the liver
- Jaundice - yellow discoloration of the whites of the eyes and skin occurs because bile pigment can no longer be removed by the liver
- Itching - due to the retention of bile products in the skin
- Ascites - abdominal swelling due to an accumulation of fluid caused by the obstruction of blood flow through the liver
- Vomiting of blood - frequently occurs from swollen, ruptured varices (veins that burst) in the lower end of the esophagus due to the increased pressure in these vessels caused by scar tissue formation
- Increased sensitivity to drugs - due to the inability of the liver to inactivate them
- Encephalopathy (impending coma) - subtle mental changes advancing to profound confusion and coma

Many patients may have no symptoms and are found to have cirrhosis by physical examination and laboratory tests, which may have been performed in the course of treatment for unrelated illnesses.

How is cirrhosis treated?

Treatment depends on the type and stage of the cirrhosis. It aims to stop the progress of the cirrhosis, reverse (to whatever extent possible) the damage that has already occurred, and treat complications that are disabling or life-threatening.

CIRRHOSIS: MANY CAUSES

“The onset of cirrhosis is often ‘silent’ with few specific symptoms.”

Stopping or reversing the process requires removal of the cause.

In alcoholic cirrhosis

- Abstinence from alcohol
- An adequate, wholesome diet

In cirrhosis caused by primary biliary cirrhosis

- ursodeoxycholic acid is recommended

In cirrhosis caused by viral hepatitis

- Medication to improve immune responses to viral infection is an approved approach

In certain types of cirrhosis caused by autoimmune hepatitis

- Corticosteroids alone or with azathioprine may be an effective treatment

In cirrhotic patients with jaundice

- Supplemental fat soluble vitamins may be helpful

Wilson’s disease

- Removal of excess copper by drugs that deplete the body’s copper

Hemochromatosis

- Removal of excess iron by phlebotomy (removal of one pint of blood per week)

Most types of cirrhosis

- Liver transplantation with replacement of the diseased organ when advanced liver failure occurs

What are the complications of cirrhosis?

Complications of cirrhosis include ascites, coma and hemorrhage from esophageal varices.

- Ascites is treated by reducing the intake of salt and the administration of drugs to improve excretion of salt and water (diuretics). In some instances, large amounts of fluids are removed by direct catheter drainage through the abdominal wall (large volume paracentesis).

- Treatment of coma, or impending coma (encephalopathy), includes specific medications, and control of intestinal hemorrhage.

- Treatment of hemorrhage from varices (internal varicose veins) includes drugs to reduce the likelihood of bleeding or rebleeding, endoscopic band ligation of varices, and a radiological procedure called transjugular intrahepatic portosystemic shunt (TIPS).

How can I avoid cirrhosis?

1. Do not drink to excess.

Avoid the use of alcoholic beverages. Alcohol destroys liver cells. How well damaged cells regenerate varies with each individual. Prior injury to the liver by unknown and unrecognized viruses or chemicals can also affect the regeneration process.

2. Take precautions when using man-made chemicals.

The liver must process many chemicals that were not present in the past. More research is needed to determine the effects on the liver of many of these compounds. When using chemicals at work, in cleaning your home, or working in your garden:

- Be sure there is good ventilation
- Follow directions for use of all products
- Never mix chemical products
- Avoid getting chemicals on the skin, where they can be absorbed, and wash promptly if you do
- Avoid inhaling chemicals
- Wear protective clothing

3. Seek medical advice.

Remain under supervision of a physician if you develop viral hepatitis until your recovery is assured.

How might cirrhosis affect other diseases I might have or treatment of them?

The responsibility of the liver for the proper functioning of the whole body is so great that the chronic disease of the liver may modify the body’s responses to a variety of illnesses. Abnormal function of the liver in cirrhosis may:

- Affect the dose of medicine required in the treatment of other conditions
- Affect the treatment of diabetes
- Alter response of the body to infection
- Alter tolerance for surgical procedures

Patients with cirrhosis are particularly prone to develop fatal bacterial infections, kidney malfunctions, stomach ulcers, gallstones, a type of diabetes and cancer of the liver.

What are my prospects for reasonable health and survival with treatment?

Treatment at this stage, with proper adherence to the physician’s recommendations, leads to improvement in the majority of cases and the patient is able to pursue a normal life and activities.

When cirrhosis is not discovered until extensive damage has resulted, the outlook may be less favorable for improvement, and complications such as ascites and hemorrhage are more likely to be encountered.

The liver is a large organ and is able to perform its vital functions despite some damage. It also has the ability to repair itself to a limited degree. Cells that die are replaced by new cells. If the cause of cirrhosis can be removed, these factors provide hope for both improvement and carrying on a normal life.

An increasing number of scientific investigators conducting liver research give hope for new breakthroughs in treatment, management and cures for liver diseases in the foreseeable future.

Please donate to the American Liver Foundation. Your contribution can make a difference to the 25,000,000 Americans who have been afflicted by liver disease.



American Liver Foundation
75 Maiden Lane
Suite 603
New York, NY 10038

1-800-GO-LIVER (465-4837)
1-888-4HEP-ABC (443-7222)

Web site: www.liverfoundation.org
E-mail: info@liverfoundation.org

The American Liver Foundation is a nonprofit, national voluntary health organization dedicated to the prevention, treatment, and cure of hepatitis and other liver diseases through research, education, and advocacy.

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