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# Liver Cancer Causes, Risk Factors, and Prevention

Learn about the risk factors for liver cancer and what you might be able to do to help lower your risk.

## Risk Factors

A risk factor is anything that affects your chance of getting a disease such as cancer. Learn more about the risk factors for liver cancer.

- [Liver Cancer Risk Factors](#)
- [What Causes Liver Cancer?](#)

## Prevention

There is no way to completely prevent cancer. But there are things you can do that might lower your risk. Learn more.

- [Can Liver Cancer Be Prevented?](#)

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# Liver Cancer Risk Factors

- [Factors that can increase your risk of liver cancer](#)
- [Factors that may lower your risk of liver cancer](#)

- [Factors with unclear effects on liver cancer risk](#)

A risk factor is anything that increases your chance of getting a disease, such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

But having a risk factor, or even several risk factors, does not mean that you will get the disease. And some people who get the disease may have few or no known risk factors.

## **Factors that can increase your risk of liver cancer**

Several factors can increase a person's chance of getting a hepatocellular carcinoma

through blood transfusions, although this is very rare in the United States since blood products are tested for these viruses. In developing countries, children sometimes contract hepatitis B infection from prolonged contact with family members who are infected.

HBV is more likely to cause symptoms, such as a flu-like illness and jaundice (a yellowing of the eyes and skin). But most people recover completely from HBV infection within a few months. Only a very small percentage of adults become chronic carriers (and have a higher risk for liver cancer). Infants and small children who become infected have a higher risk of becoming chronic carriers.

HCV, on the other hand, is less likely to cause symptoms. But most people with HCV develop chronic infections, which are more likely to lead to liver damage or even cancer.

Other viruses, such as the hepatitis A virus and hepatitis E virus, can also cause hepatitis. But people infected with these viruses do not develop chronic hepatitis or cirrhosis, and do not have an increased risk of liver cancer.

## **Cirrhosis**

Cirrhosis is a disease in which liver cells become damaged and are replaced by scar tissue. People with cirrhosis have an increased risk of liver cancer. Most (but not all) people who develop liver cancer already have some evidence of cirrhosis.

There are several possible causes of cirrhosis. Most cases in the United States occur in people who abuse alcohol or have chronic HBV or HCV infections.

### ***Non-alcoholic fatty liver disease***

Non-alcoholic fatty liver disease is a common condition in obese people. People with a subtype of this disease, known as **non-alcoholic steatohepatitis** (NASH), might go on to develop cirrhosis.

### ***Primary biliary cirrhosis***

Some types of autoimmune diseases that affect the liver can also cause cirrhosis. For example, in **primary biliary cirrhosis** (PBC) the bile ducts in the liver are damaged and even destroyed which can lead to cirrhosis. People with advanced PBC have a high risk of liver cancer.

## **Inherited metabolic diseases**

Certain inherited metabolic diseases can lead to cirrhosis.

People with **hereditary hemochromatosis** absorb too much iron from their food. The iron settles in tissues throughout the body, including the liver. If enough iron builds up in the liver, it can lead to cirrhosis and liver cancer.

### **Heavy alcohol use**

Alcohol abuse is a leading cause of cirrhosis in the US, which in turn is linked with an increased risk of liver cancer.

### **Tobacco use**

Smoking increases the risk of liver cancer. People who smoked and stopped have a lower risk than those who still smoke, but both groups have a higher risk than those who never smoked.

### **Obesity**

Being obese (very overweight) increases the risk of developing liver cancer. This is probably because it can result in fatty liver disease and cirrhosis.

### **Type 2 diabetes**

Type 2 diabetes has been linked with an increased risk of liver cancer, usually in patients who also have other risk factors such as heavy alcohol use and/or chronic viral hepatitis. This risk may also be increased because people with type 2 diabetes tend to be overweight or obese, which in turn can cause liver problems.

### **Certain rare diseases**

Diseases that increase the risk of liver cancer include:

- Tyrosinemia
- Alpha1-antitrypsin deficiency
- Porphyria cutanea tarda
- Glycogen storage diseases
- Wilson disease

**Aflatoxins**

These cancer-causing substances are made by a fungus that contaminates peanuts, wheat, soybeans, ground nuts, corn, and rice. Storage in a moist, warm environment can lead to the growth of this fungus. Although this can occur almost anywhere in the





formation of cancers.

Hepatitis viruses can also change DNA when they infect liver cells. In some patients, the virus's DNA can insert itself into a liver cell's DNA, where it may turn on the cell's oncogenes.

Liver cancer clearly has many different causes, and there are undoubtedly many different genes involved in its development. It is hoped that a more complete understanding of how liver cancers develop will help doctors find ways to better prevent and treat them.

## Hyperlinks

1. [www.cancer.org/cancer/risk-prevention/genetics.html](http://www.cancer.org/cancer/risk-prevention/genetics.html)

## References

Abou-Alfa GK, Jarnigan W, Dika IE, D'Angelica M, Lowery M, Brown K, et al. Ch. 77 - Liver and Bile Duct Cancer. In: Niederhuber JE, Armitage JO, Doroshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa: Elsevier; 2020:1314–1341.

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# Can Liver Cancer Be Prevented?

- [Avoid, get tested for, and treat hepatitis B and C infections](#)
- [Limit alcohol and tobacco use](#)
- [Get to and stay at a healthy weight](#)
- [Limit exposure to cancer-causing chemicals](#)
- [Treat diseases that increase liver cancer risk](#)

Many liver cancers could be prevented by reducing exposure to known risk factors for this disease.

## Avoid, get tested for, and treat hepatitis B and C infections

Worldwide, the most significant risk factor for liver cancer is [chronic infection with hepatitis B virus \(HBV\) and hepatitis C virus \(HCV\)](#)<sup>1</sup>. These viruses can spread from person to person through sharing contaminated needles (such as in drug use), through unprotected sex, and through childbirth, so some liver cancers could be avoided by not sharing needles and by using safer sex practices (such as always using condoms).

Blood transfusions were once a major source of hepatitis infection as well. But because blood banks in the United States test donated blood to look for these viruses, the risk of getting a hepatitis infection from a blood transfusion is extremely low.

### HBV vaccine

The US Centers for Disease Control and Prevention (CDC) recommends that all children and adults up to age 59, as well as older adults at risk for HBV, get the **HBV vaccine** to reduce their risk of chronic hepatitis B and liver cancer.

There is no vaccine for HCV. Preventing HCV infection, as well as HBV infection in people who have not been immunized, is based on understanding and avoiding some of the ways in which these infections occur.

### Screening and testing for chronic HBV and HCV infections

Some people might have a chronic HBV or HCV infection without even knowing it. To help find these infections, the CDC recommends that all people 18 years of age or older get tested for HBV and HCV at least once during their lifetime, and that some groups of people get tested at a younger age and/or more often. (For detailed lists of who should

get tested for HBV and HCV and how often, visit the CDC website at <https://www.cdc.gov/hepatitis/hbv/bfaq.htm><sup>2</sup> and <https://www.cdc.gov/hepatitis/hcv/cfaq.htm><sup>3</sup>.)

### **Treating chronic HBV and HCV**

If a person is found to have a chronic HBV or HCV infection, treatment and preventive measures can help slow liver damage and reduce cancer risk.

Medicines to treat chronic HCV infection can eliminate the virus in many people and may lower their risk of liver cancer.

A number of medicines can be used to treat chronic HBV. They can reduce the number of viruses in the blood and lessen liver damage. Although these drugs don't cure the disease, they lower the risk of cirrhosis, and they may lower the risk of liver cancer as well.

### **Limit alcohol and tobacco use**

Drinking alcohol can lead to cirrhosis, which in turn, can lead to liver cancer. Not drinking alcohol or drinking in moderation could help prevent liver cancer.

Since smoking also increases the risk of liver cancer, not smoking will also prevent some of these cancers. If you smoke, quitting will help lower your risk of this cancer, as well as many other cancers and life-threatening diseases.

### **Get to and stay at a healthy weight**

Avoiding obesity might be another way to help protect against liver cancer. People who are obese are more likely to have fatty liver disease and diabetes, both of which have been linked to liver cancer.

### **Limit exposure to cancer-causing chemicals**

Changing the way certain grains are stored in tropical and subtropical countries could reduce exposure to cancer-causing substances such as [aflatoxins](#). Many developed countries already have regulations to prevent and monitor grain contamination.

### **Treat diseases that increase liver cancer risk**

Certain [inherited diseases](#) can cause cirrhosis of the liver, increasing a person's risk for liver cancer. Finding and treating these diseases early in life could lower this risk. For example, all children in families with hemochromatosis should be screened for the disease and treated if they have it. Treatment regularly removes small amounts of blood to lower the amount of excess iron in the body.

## Hyperlinks

1. [www.cancer.org/cancer/risk-prevention/infections/infections-that-can-lead-to-cancer/viruses.html](http://www.cancer.org/cancer/risk-prevention/infections/infections-that-can-lead-to-cancer/viruses.html)
2. [www.cdc.gov/hepatitis/hbv/bfaq.htm](http://www.cdc.gov/hepatitis/hbv/bfaq.htm)
3. [www.cdc.gov/hepatitis/hcv/cfaq.htm](http://www.cdc.gov/hepatitis/hcv/cfaq.htm)

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Abou-Alfa GK, Jarnigan W, Dika IE, et al. Chapter 77: Liver and Bile Duct Cancer. In: Niederhuber JE, Armitage JO, Doroshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa: Elsevier; 2020:1314–1341.

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