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Bladder Cancer Causes, Risk Factors, and Prevention

Learn about the risk factors for bladder 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 bladder cancer.

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

Prevention

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

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

Bladder Cancer Risk Factors

Many risk factors make a person more likely to develop bladder cancer.

- [What is a risk factor?](#)
- [Smoking](#)
- [Workplace exposures](#)
- [Certain medicines or herbal supplements](#)
- [Arsenic in drinking water](#)
- [Not drinking enough fluids](#)
- [Race and ethnicity](#)
- [Older age](#)
- [Being born male](#)
- [Chronic bladder irritation and infections](#)
- [Personal history of bladder or other urothelial cancer](#)
- [Bladder birth defects](#)
- [Genetics and family history](#)
- [Chemotherapy or radiation therapy](#)

What is a risk factor?

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

But having a risk factor, or even many, doesn't mean that you will get the disease. Many people with risk factors never get bladder cancer, while others with this disease may have few or no known risk factors.

Still, it's important to know about the risk factors for bladder cancer because there may be things you can do that might lower your risk of getting it. If you're at higher risk of

Workplace exposures

Certain industrial chemicals have been linked with bladder cancer.

Chemicals called aromatic amines, such as benzidine and beta-naphthylamine, which are sometimes used in the dye industry, can cause bladder cancer. Workers in other industries that use certain organic chemicals also may have a higher risk of bladder cancer.

Industries carrying higher risks include makers of rubber, leather, textiles, and paint products, as well as printing companies.

Other workers with an increased risk of developing bladder cancer include painters, machinists, printers, [firefighters](#)³, hairdressers (probably because of heavy exposure to [hair dyes](#)⁴), and truck drivers (likely because of exposure to [diesel](#)⁵ fumes).

Cigarette smoking and workplace exposures can act together to cause bladder cancer. So, people who smoke and also work with cancer-causing chemicals have an especially high risk of bladder cancer.

Certain medicines or herbal supplements

Some research has suggested that the use of the diabetes medicine

People who drink a lot of fluids each day tend to have lower rates of bladder cancer. This might be because they empty their bladders more often, which could keep chemicals from lingering in their bladder.

Race and ethnicity

White people are about twice as likely to develop bladder cancer as African American and Hispanic people. Asian American people have slightly lower rates of bladder cancer. The reasons for these differences are not well understood.

Older age

The risk of bladder cancer increases with age. About 9 out of 10 people with bladder cancer are older than 55.

Being born male

Bladder cancer is more common in men than in women.

Chronic bladder irritation and infections

Urinary infections, kidney and bladder stones, bladder catheters left in place a long time, and other causes of chronic (ongoing) bladder irritation have been linked to bladder cancer (especially squamous cell carcinoma of the bladder). But it's not clear if they cause bladder cancer.

Schistosomiasis (also known as bilharziasis), an infection with a parasitic worm that can get into the bladder, is also a risk factor for bladder cancer. In countries where this parasite is common (mainly in Africa and the Middle East), squamous cell cancers of the bladder are much more common. This infection is an extremely rare cause of bladder cancer in the United States.

Personal history of bladder or other urothelial cancer

Urothelial carcinomas can sometimes start in different areas in the bladder, as well as in the lining of the kidney, the ureters, and urethra. Having cancer in the lining of any part of the urinary tract puts you at higher risk of having another cancer, either in the same spot as before, or in another part of the urinary tract. This is true even when the first

For this reason, people who have had bladder cancer (or other urothelial cancers) need careful follow-up to look for new cancers.

Bladder birth defects

Before birth, there's a connection between the belly button and the bladder. This is called the **urachus**. If part of this connection remains after birth, it could develop into cancer. Cancers that start in the urachus are usually adenocarcinomas, which are made up of cancerous gland cells. Some adenocarcinomas of the bladder start here. But this is still rare, accounting for less than 1% of all bladder cancers.

Another rare birth defect called **exstrophy** greatly increases a person's risk of bladder cancer. In bladder exstrophy, both the bladder and the abdominal wall in front of the bladder don't close completely during fetal development and are fused together. This leaves the inner lining of the bladder exposed outside the body. Surgery soon after birth can close the bladder and abdominal wall (and repair other related defects), but people who have this still have a higher risk for urinary infections and bladder cancer.

Genetics and family history

People who have family members with bladder cancer have a higher risk of getting it themselves. Sometimes this may be because the family members are exposed to the same cancer-causing chemicals (like those in tobacco smoke). They may also share changes in some genes (like *GSTM1* and *NAT2*) that make it hard for their bodies to break down certain toxins, which can make them more likely to get bladder cancer.

A small number of people inherit a gene syndrome that increases their risk for bladder cancer. For example:

- A mutation of the **retinoblastoma** (*RB1*) gene can cause [cancer of the eye](#)⁷ in infants, and also increases the risk of bladder cancer.
- **Cowden disease**, caused by mutations in the *PTEN* gene, is linked mainly to cancers of the [breast](#)⁸ and [thyroid](#)⁹. People with this disease also have a higher risk of bladder cancer.
- **Lynch syndrome** (also known as hereditary non-polyposis colorectal cancer, or HNPCC) is linked mainly to [colon](#)¹⁰ and [endometrial](#)¹¹ cancer. People with this syndrome might also have an increased risk of bladder cancer, as well as other cancers of the urinary tract.

For information on testing for inherited gene changes that increase cancer risk, see [Understanding Genetic Testing for Cancer Risk¹²](#).

Chemotherapy or radiation therapy

Taking the chemotherapy drug cyclophosphamide for a long time can irritate the bladder and increase the risk of bladder cancer. Those taking this drug are often told to drink plenty of fluids to help protect the bladder from irritation.

People who get radiation to the pelvis to treat other types of cancer are more likely to develop bladder cancer.

Hyperlinks

1. www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/detection.html
2. www.cancer.org/cancer/risk-prevention/tobacco/guide-quitting-smoking.html
3. www.cancer.org/cancer/risk-prevention/chemicals/firefighting.html
4. www.cancer.org/cancer/risk-prevention/chemicals/hair-dyes.html
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Last Revised: March 12, 2024

What Causes Bladder Cancer?

Researchers don't know exactly what causes most bladder cancers. But they have found some risk factors (see [Bladder Cancer Risk Factors](#)) and are starting to understand how some of them might cause cells in the bladder to become cancer.

- [How DNA changes \(mutations\) can cause cancer](#)
- [Acquired gene mutations](#)
- [Inherited gene mutations](#)

mutations) can cause cancer

Some genes normally help control when our cells grow, divide to make new cells, repair mistakes in DNA, or cause cells to die when they're supposed to. If these genes aren't working properly, it can lead to cells growing out of control. For example:

- Changes in genes that normally help cells grow, divide, or stay alive can lead to these genes being more active than they should be, causing them to become **oncogenes**. These genes can result in cells growing out of control.
- Genes that normally help keep cell division under control or cause cells to die at the right time are known as **tumor suppressor genes**. Changes that turn off these genes can result in cells growing out of control.
- Some genes normally help repair mistakes in a cell's DNA. Changes that turn off these **DNA repair genes** can result in the buildup of DNA changes within a cell, which might lead to them growing out of control.

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Inherited gene mutations

Some people inherit gene changes from their parents that increase their risk of bladder cancer (see [Bladder Cancer Risk Factors](#)). But bladder cancer does not often run in families, and inherited gene mutations are not thought to be a major cause of this disease.

Some people inherit changes in genes (such as *GSTM1* and *NAT2*) that lower their ability to detoxify (break down) and get rid of certain types of cancer-causing chemicals. These people are more sensitive to the cancer-causing effects of tobacco smoke and certain industrial chemicals. Researchers have developed tests to identify such people, but these tests are not routinely done. It's not certain how helpful the results of such

Last Revised: March 12, 2024



Can Bladder Cancer Be Prevented?



Drink plenty of liquids

Some research suggests that drinking a lot of fluids, mainly water, might lower a person's risk of bladder cancer.

Limit arsenic intake

[Arsenic](#)⁵ in drinking water has been linked with a higher risk of bladder cancer in some parts of the world. Arsenic levels in water are higher in some parts of the US than in others.

Arsenic occurs naturally, so it can't be avoided completely, but there may be things you can do to lower your exposure. If your drinking water comes from a public source, you can find out about the levels of arsenic in your drinking water by contacting your local water system. If you get your water from a private source such as a well, you may want to have your water tested for arsenic levels by a reputable lab. People who live in areas with high levels of arsenic in the water may consider using alternative sources of drinking water, such as bottled water.

Limiting consumption of foods known to contain high levels of arsenic, such as seafood, rice and rice products, and fruit . 8e, y 1 72 .8hamo27 4ovels of arsenic, such as seafood,

4. www.cancer.org/cancer/risk-prevention/chemicals/diesel-exhaust-and-cancer.html
5. www.cancer.org/cancer/risk-prevention/chemicals/arsenic.html

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Last Revised: March 12, 2024

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