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Adrenal Cancer Causes, Risk Factors, and Prevention

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 adrenal cancer.

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

Prevention

Since there are no known preventable risk factors for this cancer, it is not possible to prevent this disease.

Adrenal Cancer Risk Factors

A risk factor is anything that changes 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.

Scientists have found few risk factors that make a person more likely to develop adrenal cancer. Even if a patient does have one or more risk factors for adrenal cancer, it is impossible to know for sure how much that risk factor contributed to causing the cancer.

But having a risk factor, or even several, does not mean that you will get the disease. Many people with risk factors never develop adrenal cancer, while others with this disease may have few or no known risk factors.

Genetic syndromes

The majority of adrenal cortex cancers are not inherited (sporadic), but some (up to 15%) are caused by a genetic defect. This is more common in adrenal cancers in children.

Li-Fraumeni syndrome

The Li-Fraumeni syndrome is a rare condition that is most often caused by a defect in the *TP53* gene. People with this syndrome have a high risk of several types of cancer, including include [breast cancer](#)¹, [bone cancer](#)², [brain cancer](#)³, and adrenal cortex cancer.

Beckwith-Wiedemann syndrome

People with this problem have large tongues, are large themselves, and have an increased risk for developing cancers of the [kidney](#)⁴, [liver](#)⁵ and adrenal cortex.

Multiple endocrine neoplasia (MEN1)

People with MEN1 have a very high risk of developing tumors of 3 glands: the [pituitary](#)⁶, parathyroid, and [pancreas](#)⁷. About one-third to one-half of people with this condition also develop adrenal adenomas (benign tumors) or enlarged adrenal glands. These usually do not cause any symptoms. This syndrome is caused by defects in a gene called *MEN1*. People who have a family history of MEN1 or pituitary, parathyroid, pancreas, or adrenal cancers should ask their doctor if they might benefit from [genetic counseling](#)⁸.

Familial adenomatous polyposis (FAP)

People with this syndrome develop hundreds of polyps in the large intestine. These polyps will lead to [colon cancer](#)⁹ if the colon is not removed. FAP also increases the risk of other cancers, and may increase the risk for adrenal cancer. Still, most adrenal tumors in patients with FAP are benign adenomas. This syndrome is caused by defects in a gene called *APC*.

Lynch syndrome or hereditary nonpolyposis colorectal cancer (HNPCC)

Lynch syndrome (formerly known as HNPCC) is an inherited genetic disorder that increases the risk of [colorectal cancer](#)¹⁰, stomach cancer, and some other cancers, including adrenal cortex cancer. In most cases, this disorder is caused by a defect in either the *MLH1* or *MSH2* gene, but other [genes](#)¹¹ can cause Lynch syndrome, including *MLH3*, *MSH6*, *TGFBR2*, *PMS1*, and *PMS2*. Lynch syndrome is discussed in more detail in [Colorectal Cancer](#)¹².

Lifestyle and environmental factors

Risk factors such as being overweight, smoking, living a sedentary lifestyle, and being exposed to cancer-causing substances in the environment can affect a person's risk of many types of cancer. Although none of these factors has been found to definitely influence a person's risk of developing adrenal cancer, smoking has been suggested as a risk factor by some researchers.

Hyperlinks

1. www.cancer.org/cancer/breast-cancer.html
2. www.cancer.org/cancer/bone-cancer.html
3. www.cancer.org/cancer/brain-spinal-cord-tumors-adults.html
4. www.cancer.org/cancer/kidney-cancer.html
5. www.cancer.org/cancer/liver-cancer.html
6. www.cancer.org/cancer/pituitary-tumors.html
7. www.cancer.org/cancer/pancreatic-cancer.html
8. www.cancer.org/cancer/cancer-causes/genetics.html
9. www.cancer.org/cancer/colon-rectal-cancer.html
10. <https://author-prod.cancer.org/content/cancer/en/cancer/colon-rectal-cancer.html>
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What Causes Adrenal Cancer?

We do not know exactly what causes most adrenal cortical tumors. Over the past several years, experts have made great progress in understanding how certain changes in a person's DNA can cause cells in the adrenal gland to become cancerous. DNA is

the chemical in our cells that makes up our genes, which controls nearly everything the cells do. We usually look like our parents because they are the source of our DNA. But DNA affects more than just the way we look. It also determines our risk for developing certain diseases, including some types of cancer.

- Genes that help our cells grow and divide are called **oncogenes**.
- Genes that slow down cancer cell division or make them die at the right time are called **tumor suppressor genes**.

Cancers can be caused by DNA mutations (changes) that turn on oncogenes or turn off tumor suppressor genes. Some people with cancer have inherited DNA mutations from a parent, which increase their risk for developing the disease. But most DNA mutations that are seen in cancers happen during life rather than having been inherited. Some of these mutations may result from exposure to things like radiation or cancer-causing chemicals. But most of these mutations seem to happen for no apparent reason, without having an outside cause.

Some of the DNA mutations that cause adrenal tumors in people with genetic syndromes are discussed in [Adrenal Cancer Risk Factors](#). Overall though, these rarely cause adrenal cortical cancer. However, because adrenal cancer is so rare, if you have adrenal cancer, it may be worthwhile to consider [genetic testing](#)¹ to find out if you have one of these syndromes. If you do, you (and your family members) might have an increased risk of developing other cancers also.

The Li-Fraumeni syndrome is caused by inherited mutations that inactivate the *TP53* tumor suppressor gene. This syndrome causes a small portion of adrenal cancer in adults (about 1 of every 20), but it's often the cause of adrenal cancer in children. In fact, about 8 of every 10 cases of adrenal cancer in children are caused by Li-Fraumeni syndrome. Many other adrenal cancers have also been found to have *TP53* gene changes that were acquired after birth (not inherited).

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/genetics.html

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Can Adrenal Cancer Be Prevented?

Since there are no known preventable [risk factors](#) for this cancer, it is not possible to prevent this disease at this time.

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