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Hodgkin Lymphoma 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 Hodgkin lymphoma.

- [Hodgkin Lymphoma Risk Factors](#)
- [What Causes Hodgkin Lymphoma?](#)

Prevention

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

- [Can Hodgkin Lymphoma Be Prevented?](#)
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Hodgkin Lymphoma Risk Factors

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

A few risk factors make a person more likely to develop Hodgkin lymphoma (HL), but it's not always clear why these factors increase risk. Having a risk factor, or even many, does not mean that you'll definitely get the disease. And many people who get HL have few or no known risk factors.

Epstein-Barr virus infection/mononucleosis

The Epstein-Barr virus (EBV) causes infectious mononucleosis (often called **mono**). People who have had mono have an increased risk of HL. But even though the risk is higher than for people who haven't had mono, it is still very small (about 1 in 1,000).

The exact role of EBV in the development of HL isn't clear. Many people are infected with EBV, but very few develop HL. Parts of the virus are found in Reed-Sternberg cells in about 1 out of 4 people with [classic HL](#)¹ in the US. But most people with HL have no signs of EBV in their cancer cells.

Age

People can be diagnosed with HL at any age, but it's most common in early adulthood (especially in a person's 20s) and in late adulthood (after age 55).

Gender

HL occurs slightly more often in males than in females.

Family history

Brothers and sisters of young people with this disease have a higher risk for HL. The risk is very high for an identical twin of a person with HL. But a family link is still uncommon – most people with HL do not have a family history of it.

It's not clear why family history might increase risk. It might be because family members have similar childhood exposures to certain infections (such as Epstein-Barr virus), because they share inherited gene changes that make them more likely to get HL, or some combination of these factors.

Weakened immune system

The risk of HL is increased in people infected with [HIV](#)², the virus that causes AIDS.

People who take medicines to suppress the immune system after an organ transplant and people with auto-immune diseases are also at higher than normal risk for HL.

Hyperlinks

1. www.cancer.org/cancer/hodgkin-lymphoma/about/what-is-hodgkin-disease.html
2. www.cancer.org/cancer/cancer-causes/infectious-agents/hiv-infection-aids.html

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Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

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What Causes Hodgkin Lymphoma?

Some researchers think that infection with the Epstein-Barr virus sometimes causes DNA changes in B lymphocytes. In some cases, this leads to the development of Reed-Sternberg cells, which are the cancer cells in HL.

DNA is the chemical in our cells that makes up our [genes](#)¹, which control how our cells work. We look like our parents because they are the source of our DNA. But DNA affects more than just how we look.

Some genes control when cells grow, divide into new cells, and die:

- Genes that help cells grow, divide, and stay alive are called [oncogenes](#)².
- Genes that slow down cell division or cause cells to die at the right time are called [tumor suppressor genes](#)³.

Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

Scientists have found many gene changes in Reed-Sternberg cells that help the cells grow and divide or live longer than they should. Reed-Sternberg cells also make substances called cytokines, which attract many other cells into the [lymph node](#)⁴, causing it to swell (enlarge). In turn, these non-cancerous cells then release substances that help Reed-Sternberg cells grow.

Despite the advances in knowing how cancer cells work, scientists do not yet know what sets off these processes. An abnormal reaction to infection with EBV or to other infections may be the trigger in some cases. But a lot more research is needed to understand what causes Hodgkin lymphoma.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer.html
2. www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html
3. www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html
4. www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html

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Can Hodgkin Lymphoma Be Prevented?

Few of the known [risk factors](#) for Hodgkin lymphoma (HL) can be changed, so it's not possible to prevent most cases of the disease at this time.

Infection with HIV, the virus that causes AIDS, is known to increase risk, so one way to limit your risk is to avoid known risk factors for HIV, such as intravenous (IV) drug use or unprotected sex with many partners. You can read more about this in [HIV Infection, AIDS, and Cancer](#)¹.

Another risk factor for HL is infection with the Epstein-Barr virus (the cause of infectious mononucleosis, or mono), but there's no known way to prevent this infection.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/infectious-agents/hiv-infection-aids.html

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Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

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