
Cervical Cancer Causes, Risk Factors, and Prevention

Learn about the risk factors for cervical 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 cervical cancer.

- [Risk Factors for Cervical Cancer](#)
- [What Causes Cervical 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 Cervical Cancer Be Prevented?](#)

Risk Factors for Cervical Cancer

- [Risk factors you can possibly change](#)
- [Risk factors that cannot be changed](#)

- [Factors that may lower your risk](#)

A risk factor is anything that increases your chance of getting a disease such as cancer. Different cancers have different risk factors. For example, exposing skin to strong sunlight is a risk factor for skin cancer. Smoking is a risk factor for many cancers. But having a risk factor, or even several, does not mean that you will get the disease.

Several risk factors can increase your chance of developing cervical cancer. People without any of these risk factors rarely develop cervical cancer. Although these risk factors can increase the odds of developing cervical cancer, many with these risks do not develop this disease.

When you think about risk factors, it helps to focus on those you can change or avoid (like smoking or human papillomavirus infection), rather than those you cannot (such as your age and family history). However, it is still important to know about risk factors that cannot be changed, because it's even more important for those who have these factors to get regular screening tests to find cervical cancer early.

Risk factors you can possibly change

Human papillomavirus (HPV) infection

Infection by the [human papillomavirus](#)¹ (HPV) is the most important risk factor for cervical cancer. HPV is a group of more than 150 related viruses. Some of them cause a type of growth called **papillomas**, which are more commonly known as warts.

- HPV can infect cells on the surface of the skin, and those lining the genitals, anus, mouth and throat, but not the blood or internal organs such as the heart or lungs.
- HPV can spread from one person to another during skin-to-skin contact. One way HPV spreads is through sexual activity, including vaginal, anal, and even oral sex.
- Different types of HPV cause warts on different parts of the body. Some cause common warts on the hands and feet; others tend to cause warts on the lips or tongue.

Certain types of HPV may cause warts on or around the female and male genital organs and in the anal area. These are called low-risk types of HPV because they are seldom linked to cancer.

Other types of HPV are called **high-risk types** because they are strongly linked to

cancers, including cancer of the cervix, [vulva](#)², and [vagina](#)³ in women, [penile cancer](#)⁴ in men, and cancers of the [anus](#)⁵, [mouth, and throat](#)⁶ in both men and women.

Infection with HPV is common, and in most people the body can clear the infection by itself. Sometimes, however, the infection does not go away and becomes chronic. Chronic infection, especially when it is caused by certain high-risk HPV types, can eventually cause certain cancers, such as cervical cancer.

Although there is currently no cure for HPV infection, there are ways to treat the warts and abnormal cell growth that HPV causes. Also, [HPV vaccines](#)⁷ are available to help prevent infection by certain types of HPV and some of the cancers linked to those types.

For more information on this topic, see [HPV](#)⁸.

Sexual history

Several factors related to your sexual history can increase the risk of cervical cancer. The risk is most likely affected by increasing the chances of exposure to HPV.

- Becoming sexually active at a young age (especially younger than 18 years old)
- Having many sexual partners
- Having one partner who is considered high risk (someone with HPV infection or who has many sexual partners)

Smoking

When someone smokes, they and those around them are exposed to many cancer-causing chemicals that affect organs other than the lungs. These harmful substances are absorbed through the lungs and carried in the bloodstream throughout the body.

Women who smoke are about twice as likely as those who don't smoke to get cervical cancer. Tobacco by-products have been found in the cervical mucus of women who smoke. Researchers believe that these substances damage the DNA of cervix cells and may contribute to the development of cervical cancer. Smoking also makes the immune system less effective in fighting HPV infections.

Having a weakened immune system

[Human immunodeficiency virus \(HIV\)](#)⁹, the virus that causes AIDS, weakens the immune system and puts people at higher risk for HPV infections.

The immune system is important in destroying cancer cells and slowing their growth and spread. In women with HIV, a cervical pre-cancer might develop into an invasive cancer faster than it normally would.

Another group of women at risk for cervical cancer are those taking drugs to suppress their immune response, such as those being treated for an autoimmune disease (in which the immune system sees the body's own tissues as foreign and attacks them, as it would a germ) or those who have had an organ transplant.

Chlamydia infection

Chlamydia is a relatively common kind of bacteria that can infect the reproductive system. It is spread by sexual contact. Women who are infected with chlamydia often have no symptoms and they may not know that they are infected at all unless they are tested during a pelvic exam. Chlamydia infection can cause pelvic inflammation, leading to infertility.

Some studies have seen a higher risk of cervical cancer in women whose blood tests and cervical mucus showed evidence of past or current chlamydia infection. Certain studies show that the Chlamydia bacteria may help HPV grow and live on in the cervix which may increase the risk of cervical cancer.

Long-term use of oral contraceptives (birth control pills)

There is evidence that taking oral contraceptives (OCs) for a long time increases the risk of cancer of the cervix. Research suggests that the risk of cervical cancer goes up the longer a woman takes OCs, but the risk goes back down again after the OCs are stopped, and returns to normal many years after stopping.

A woman and her doctor should discuss whether the benefits of using OCs outweigh the potential risks.

Having multiple full-term pregnancies

Women who have had 3 or more full-term pregnancies have an increased risk of developing cervical cancer. It is thought this is probably due to the increased exposure to HPV infection with sexual activity. Also, studies have pointed to hormonal changes during pregnancy as possibly making women more susceptible to HPV infection or cancer growth. Another thought is that pregnant women might have weaker immune systems, allowing for HPV infection and cancer growth.

Young age at first full-term pregnancy

Women who were younger than 20 years when they had their first full-term pregnancy are more likely to get cervical cancer later in life than women who waited to get pregnant until they were 25 years or older.

Economic status

Many low-income women do not have easy access to adequate health care services, including cervical cancer screening with Pap tests and HPV tests. This means they may not get screened or treated for cervical pre-cancers.

A diet low in fruits and vegetables

Women whose diets don't include enough fruits and vegetables may be at increased risk for cervical cancer.

Risk factors that cannot be changed

Diethylstilbestrol (DES)

DES is a hormonal drug that was given to some women between 1938 and 1971 to prevent miscarriage. Women whose mothers took DES (when pregnant with them) develop clear-cell adenocarcinoma of the vagina or cervix more often than would normally be expected. These types of cancer are extremely rare in women who haven't been exposed to DES. There is about 1 case of vaginal or cervical clear-cell adenocarcinoma in every 1,000 women whose mothers took DES during pregnancy. This means that about 99.9% of "DES daughters" do not develop these cancers.

DES-related clear cell adenocarcinoma is more common in the vagina than the cervix. The risk appears to be greatest in women whose mothers took the drug during their first 16 weeks of pregnancy. The average age of women diagnosed with DES-related clear-cell adenocarcinoma is 19 years. Since the use of DES during pregnancy was stopped by the FDA in 1971, even the youngest DES daughters are older than 40 past the age of highest risk. Still, there is no age cut-off when these women are felt to be safe from DES-related cancer. Doctors do not know exactly how long these women will remain at risk.

DES daughters may also be at increased risk of developing squamous cell cancers and pre-cancers of the cervix linked to HPV.

You can learn more in [DES Exposure: Questions and Answers](#)¹⁰. Read it on our website, or call (1-800-227-2345) to have a free copy sent to you.

Having a family history of cervical cancer

Cervical cancer may run in some families. If your mother or sister had cervical cancer, your chances of developing the disease are higher than if no one in the family had it. Some researchers suspect that some rare instances of this familial tendency are caused by an inherited condition that makes some women less able to fight off HPV infection than others. In other instances, women in the same family as a patient already diagnosed could be more likely to have one or more of the other non-genetic risk factors previously described in this section.

Factors that may lower your risk

Intrauterine device (IUD) use

Some research suggests that women who had ever used an intrauterine device (IUD) had a lower risk of cervical cancer. The effect on risk was seen even in women who had an IUD for less than a year, and the protective effect remained after the IUDs were removed.

IUDs do have some risks. A woman interested in using an IUD should first discuss the possible risks and benefits with her doctor. Also, a woman with multiple sexual partners should use condoms to lower her risk of sexually transmitted illnesses no matter what other form of contraception she uses.

Hyperlinks

1. www.cancer.org/cancer/risk-prevention/hpv.html
2. www.cancer.org/cancer/types/vulvar-cancer.html
3. www.cancer.org/cancer/types/vaginal-cancer.html
4. www.cancer.org/cancer/types/penile-cancer.html
5. www.cancer.org/cancer/types/anal-cancer.html
6. www.cancer.org/cancer/types/oral-cavity-and-oropharyngeal-cancer.html
7. www.cancer.org/cancer/risk-prevention/hpv/hpv-vaccines.html
8. www.cancer.org/cancer/risk-prevention/hpv.html

9. www.cancer.org/cancer/risk-prevention/infections/hiv-infection-aids.html
10. www.cancer.org/cancer/risk-prevention/medical-treatments/des-exposure.html

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What Causes Cervical Cancer?

In recent years, there has been a lot of progress in understanding what happens in cells of the cervix when cancer develops. In addition, several risk factors have been identified that increase the odds that a woman might develop cervical cancer (see [Risk Factors for Cervical Cancer](#)).

The development of normal human cells mostly depends on the information contained in the cells' DNA. DNA is the chemical in our cells that makes up our genes, 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, and die:-

- Genes that help cells grow, divide, and stay alive are called **oncogenes**.
- Genes that help keep cell growth under control or make cells die at the right time are called **tumor suppressor genes**.

Cancers can be caused by DNA mutations (gene defects) that turn on oncogenes or turn off tumor suppressor genes.

[Human papillomaviruses](#)¹ (HPV) have two proteins known as E6 and E7 which turn off some tumor suppressor genes, such as p53 and Rb. This may allow the cells lining the cervix to grow too much and to develop changes in additional genes, which in some cases can lead to cancer.

But HPV is not the only cause of cervical cancer. Most women with HPV don't get cervical cancer, and other risk factors, like smoking and HIV infection, influence which women exposed to HPV are more likely to develop cervical cancer.

Hyperlinks

1. www.cancer.org/cancer/risk-prevention/hpv.html

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Can Cervical Cancer Be Prevented?

- [Finding cervical pre-cancers](#)
- [Things to do to prevent pre-cancers and cancers](#)

The two most important things you can do to prevent cervical cancer are to get the HPV vaccine if you are eligible, and to be tested regularly according to American Cancer Society (ACS) guidelines. These can be found in [The American Cancer Society Guidelines for the Prevention and Early Detection of Cervical Cancer](#)¹.

The most common form of cervical cancer starts with pre-cancerous changes and there are ways to stop this from developing. The first way is to find and treat pre-cancers before they become invasive cancers, and the second is to prevent the pre-cancers.

Finding cervical pre-cancers

A well-proven way to prevent cervical cancer is to have screening tests. Screening is having tests to find conditions that may lead to cancers and can find pre-cancers before they can turn into invasive cancer. The Pap test (or Pap smear) and the human papillomavirus (HPV) test are specific tests used during screening for cervical cancer. These tests are done the same way. A health professional uses a special tool to gently scrape or brush the cervix to remove cells for testing. If a pre-cancer is found it can be treated, keeping it from turning into a cervical cancer.

The [HPV test](#)² looks for infection by high-risk types of HPV that are more likely to cause pre-cancers and cancers of the cervix. There are certain HPV tests approved to be a primary HPV test and others approved as part of a co-test. The type you get most often depends on which test is available in your area.

[The Pap test](#)³ or smear is a procedure used to collect cells from the cervix so that they can be looked at closely in the lab to find cancer and pre-cancer. It's important to know that most invasive cervical cancers are found in women who have not had regular Pap tests. A Pap test can be done during a pelvic exam, but not all pelvic exams include a Pap test.

The result of the HPV test, along with your past test results, determines your risk of developing cervical cancer. If the test is positive, this could mean more follow-up visits, more tests to look for a pre-cancer or cancer, and sometimes a procedure to treat any pre-cancers that might be found.

It is best to talk to your healthcare provider about your screening test results in more detail to fully understand your risk of developing cervical cancer and next steps.

Things to do to prevent pre-cancers and cancers

Based on your age, overall health, and personal [risk](#) for cervical cancer, there are some things that can be done that may prevent pre-cancers and conditions that lead to pre-cancers.

Get an HPV vaccine

Vaccines are available that can help protect children and young adults against certain HPV infections. These vaccines protect against infection with the HPV types most commonly linked to cancer, as well as some types that can cause anal and genital warts.

These vaccines only work to prevent HPV infection they will not treat an infection that is already there. That is why, to be most effective, the HPV vaccines should be given before a person becomes exposed to HPV (such as through sexual activity).

These vaccines help prevent pre-cancers and cancers of the cervix. Some HPV vaccines are also approved to help prevent other types of cancers and anal and genital warts.

The vaccines require a series of injections (shots). Side effects are usually mild. The most common ones are short-term redness, swelling, and soreness at the injection site. Rarely, a young person might faint shortly after the injection.

The ACS recommends:

- HPV vaccination of children between the ages of 9 and 12.
- Children and young adults age 13 through 26 who have not been vaccinated, or who haven't gotten all their doses, should get the vaccine as soon as possible. Vaccination of young adults will not prevent as many cancers as vaccination of children and teens.
- The ACS does not recommend HPV vaccination for persons older than 26 years.

It's important to know that no vaccine provides complete protection against all cancer-causing types of HPV, so routine cervical cancer screening is still needed.

For more information on the vaccine and HPV, please see [HPV Vaccines⁴](#).

Limit exposure to HPV

HPV is passed from one person to another during skin-to-skin contact with an infected area of the body. Although HPV can be spread during skin to skin contact including vaginal, anal, and oral sex sex doesn't have to occur for the infection to spread. All that is needed is skin-to-skin contact with an area of the body infected with HPV. This means that the virus can be spread without sex. It is even possible for a genital infection to spread through hand-to-genital contact.

Also, HPV infection seems to be able to spread from one part of the body to another. This means that an infection may start in the cervix and then spread to the vagina and vulva.

It can be very hard not to be exposed to HPV. It may be possible to prevent HPV infection by not allowing others to have contact with your anal or genital area, but even then there might be other ways to become infected that aren't yet clear.

Limiting the number of sex partners and avoiding sex with people who have had many other sex partners may lower your risk of exposure to HPV. But again, HPV is very common, so having sexual activity with even one other person can put you at risk. Remember that someone can have HPV for years and still have no symptoms. So it's possible someone can have the virus and pass it on without knowing it.

Use a condom

Condoms ("rubbers") provide some protection against HPV but they don't completely prevent infection. One reason that condoms cannot protect completely is because they don't cover every possible HPV-infected area of the body, such as skin of the genital or

anal area. Still, condoms provide some protection against HPV, and they also help protect against HIV and some other sexually transmitted infections.

Don't smoke

[Not smoking](#)⁵ is another important way to reduce the risk of cervical pre-cancer and cancer.

Hyperlinks

1. www.cancer.org/cancer/types/cervical-cancer/detection-diagnosis-staging/cervical-cancer-screening-guidelines.html
2. www.cancer.org/cancer/types/cervical-cancer/detection-diagnosis-staging/screening-tests/hpv-test.html
3. www.cancer.org/cancer/types/cervical-cancer/detection-diagnosis-staging/screening-tests/pap-test.html
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