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# Vaginal Cancer, 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 vaginal cancer.

- [Risk Factors for Vaginal Cancer](#)
- [What Causes Vaginal 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 here.

- [Can Vaginal Cancer Be Prevented?](#)
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# Risk Factors for Vaginal Cancer

A risk factor is anything that affects 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 many, does not mean that you will get the disease. And

some people who get the disease may not have any known risk factors.

Scientists have found that certain risk factors make a woman more likely to develop vaginal cancer. But many women with vaginal cancer don't have any clear risk factors. And even if a woman with vaginal cancer has one or more risk factors, it's impossible to know for sure how much that risk factor contributed to causing the cancer.

## Age

Squamous cell cancer of the vagina occurs mainly in older women. It can happen at any age, but few cases are found in women younger than 40. Almost half of cases occur in women who are 70 years old or older.

## Diethylstilbestrol (DES)

DES is a hormone drug that was used from 1940 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. There's about 1 case of this type of cancer in every 1,000 daughters of women who took DES during their pregnancy. This means that about 99.9% of DES daughters do not develop this cancer.

DES-related clear cell adenocarcinoma is more common in the vagina than the cervix. The risk appears to be greatest in those whose mothers took the drug during their first 16 weeks of pregnancy. Their average age when they are diagnosed 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 45 – past the age of highest risk. But a woman is not safe from a DES-related cancer at any age. Doctors don't know exactly how long women remain at risk.

DES daughters have an increased risk of developing clear cell carcinomas, but women don't have to be exposed to DES for clear cell carcinoma to develop. In fact, women were diagnosed with this type of cancer before DES was invented.

DES daughters are also more likely to have high grade [cervical dysplasia \(CIN 3\)](#)<sup>1</sup> and [vaginal dysplasia \(VAIN 3\)](#)<sup>2</sup> when compared to women who were never exposed.

You can learn more in [DES Exposure: Questions and Answers](#)<sup>3</sup>.

## Vaginal adenosis

Normally, the vagina is lined by flat cells called *squamous cells*. In about 40% of women who have already started having periods, the vagina may have one or more areas lined instead by glandular cells. These cells look like those found in the glands of the cervix, the lining of the body of the uterus (the endometrium), and the lining of the fallopian tubes. These areas of gland cells are called *adenosis*. This occurs in nearly all women who were exposed to DES during their mothers' pregnancy. Having adenosis increases the risk of developing clear cell carcinoma, but this cancer is still very rare. The risk of clear cell carcinoma in a woman who has adenosis that's not related to DES is very, very small. Still, many doctors feel that any woman with adenosis should have very careful screening and follow-up.

## Human papillomavirus

HPV is short for *human papillomavirus*. HPVs are a large group of related viruses. Each virus in the group is given a number, which is called an *HPV type*.

Certain HPV types have been linked with cancers of the cervix and vulva in women, cancer of the penis in men, and cancers of the anus and throat (in men and women). They've also been linked to VAIN, and HPV is found in most cases of vaginal cancer. These types are known as *high-risk* types of HPV and include HPV 16 and HPV 18, as well as others. Infection with a high-risk HPV may produce no visible signs until pre-cancerous changes or cancer develops.

Vaccines have been developed to help prevent infection with some types of HPV. See [HPV<sup>4</sup>](#) for more information.

## Cervical cancer

Having [cervical cancer<sup>5</sup>](#) or pre-cancer (cervical intraepithelial neoplasia or cervical dysplasia) increases a woman's risk of vaginal squamous cell cancer. This is most likely because cervical and vaginal cancers have much the same risk factors, such as HPV infection and smoking.

Some studies suggest that treating cervical cancer with radiation therapy may increase the risk of vaginal cancer, but this was not seen in other studies, and the issue remains unresolved.

## Smoking

[Smoking cigarettes<sup>6</sup>](#) more than doubles a woman's risk of getting vaginal cancer.

## Alcohol

[Drinking alcohol](#)<sup>7</sup> might affect the risk of vaginal cancer. A study of alcoholic women found more cases of vaginal cancer than expected. But this study was flawed because it didn't look at other factors that can alter risk, such as smoking and HPV infection. A more recent study that did take these other risk factors into account found a decreased risk of vaginal cancer in women who do not drink alcohol at all.

## Human immunodeficiency virus

[Infection with HIV \(human immunodeficiency virus\)](#)<sup>8</sup>, the virus that causes AIDS, increases the risk of vaginal cancer.

## Vaginal irritation

In some women, stretched pelvic ligaments may let the uterus sag into the vagina or even extend outside the vagina. This is called *uterine prolapse*. It can be treated with surgery or by wearing a pessary, a device to keep the uterus in place. Some studies suggest that long-term (chronic) irritation of the vagina in women using a pessary may slightly increase the risk of squamous cell vaginal cancer. But this is very rare, and no studies have clearly proven that pessaries cause vaginal cancer.

## Hyperlinks

1. [www.cancer.org/cancer/cervical-cancer/about/what-is-cervical-cancer.html](http://www.cancer.org/cancer/cervical-cancer/about/what-is-cervical-cancer.html)
2. [www.cancer.org/cancer/vaginal-cancer/about/what-is-vaginal-cancer.html](http://www.cancer.org/cancer/vaginal-cancer/about/what-is-vaginal-cancer.html)
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## What Causes Vaginal Cancer?

The exact cause of most vaginal cancers is not known. But scientists have found that it is linked to a number of conditions described in [Risk Factors for Vaginal Cancer](#). Research is being done to learn more about how these risk factors cause cells of the vagina to become cancer.

Research has shown that normal cells make substances called [tumor suppressor gene<sup>1</sup> products](#) to keep from growing too rapidly and becoming cancers. High-risk [HPV](#)

([human papillomavirus](#))<sup>2</sup> types (like 16 and 18) produce 2 proteins (E6 and E7) that can change the way known tumor suppressor gene products work.

Women exposed to [diethylstilbestrol \(DES\)](#)<sup>3</sup> as a fetus (that is, their mothers took DES during pregnancy) are at increased risk for developing clear cell carcinoma. DES also increases the likelihood of vaginal adenosis (gland-type cells in the vaginal lining rather than the usual squamous cells). Most women with vaginal adenosis never develop vaginal clear cell carcinoma. Still, those with a rare type of adenosis called *atypical tuboendometrial adenosis* do have a higher risk of developing this cancer.

## Hyperlinks

1. [www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html](http://www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html)
2. [www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html](http://www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html)
3. [www.cancer.org/cancer/cancer-causes/medical-treatments/des-exposure.html](http://www.cancer.org/cancer/cancer-causes/medical-treatments/des-exposure.html)

## References

See all references for Vaginal Cancer ([www.cancer.org/cancer/vaginal-cancer/references.html](http://www.cancer.org/cancer/vaginal-cancer/references.html))

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# Can Vaginal Cancer Be Prevented?

The best way to reduce the risk of vaginal cancer is to avoid known [risk factors](#) and to find and treat any vaginal pre-cancers. But since many women with vaginal cancer have no known risk factors, it's not possible to completely prevent this disease.

## Avoid HPV infection

Infection with [human papillomavirus \(HPV\)](#)<sup>1</sup> is a risk factor for vaginal cancer. HPV infections occur mainly in younger women and are less common in women over 30. The

reason for this is not clear.

HPV is passed from one person to another during skin-to-skin contact with an infected area of the body. HPV can be spread during sexual activity – including vaginal, anal, and oral sex – but sex doesn't have to occur for the infection to spread. All that's needed is skin-to-skin contact with a part of the body infected with HPV. The virus can be spread through genital-to-genital contact. It's even possible for a genital infection to spread through hand-to-genital contact.

An HPV infection also seems to be able to be 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.

HPV is very common, so having sex with even one other person can put you at risk. In most cases the body is able to clear the infection on its own. But in some cases the infection doesn't go away and becomes chronic. Over time, chronic infection, especially with high-risk HPV types, can cause certain cancers, including vaginal cancer and pre-cancer.

### **Condom use**

Condoms (“rubbers”) provide some protection against HPV. Condoms cannot protect completely because they don't cover every possible HPV-infected area of the body, such as skin on the genital or anal area. Still, condoms do provide some protection against HPV, and also protect against HIV and some other sexually transmitted diseases.

### **HPV vaccines**

There are vaccines that protect against infection with certain types of HPV. These vaccines can only be used to prevent HPV infection – they don't help treat an existing infection. To work best, the vaccines should be given before a person is exposed to HPV (such as through sexual activity). These vaccines are approved to help prevent vaginal cancers and pre-cancers. They are also approved to help prevent others cancers, as well as anal and genital warts.

For more information about HPV and HPV vaccines, see [HPV \(Human Papillomavirus\)<sup>2</sup>](#).

### **Don't smoke**

[Not smoking<sup>3</sup>](#) is another way to lower vaginal cancer risk. Women who don't smoke are

also less likely to develop a number of other cancers, such as those of the lungs, mouth, throat, bladder, kidneys, and several other organs.

## Find and treat pre-cancers

Most vaginal squamous cell cancers are believed to start out as pre-cancerous changes, called [vaginal intraepithelial neoplasia or VAIN](#)<sup>4</sup>. VAIN may be present for years before turning into a true (invasive) cancer. [Screening for cervical cancer](#)<sup>5</sup> (such as with a Pap test or HPV test) can sometimes pick up these pre-cancers. If a pre-cancer is found, it can be treated, stopping cancer before it really starts.

Still, since vaginal cancer and VAIN are rare, doctors seldom do other tests to look for these conditions in women who don't have symptoms or a history of pre-cancer or cancer of the cervix, vagina, or vulva.

## How Pap tests and pelvic exams might help find VAIN

Vaginal intraepithelial neoplasia (VAIN; pre-cancer of the vagina) may not be visible during a routine exam of the vagina. But it may be found with a Pap test. Because [cervical cancer](#)<sup>6</sup> is much more common than vaginal cancer, Pap test samples are scraped or brushed from the cervix. But some cells of the vaginal lining are usually also picked up at the same time. That allows cases of VAIN to be found in women whose vaginal lining is not intentionally scraped. Still, the main goal of a Pap test is to find cervical pre-cancers and early cervical cancers, not vaginal cancer or VAIN.

In women whose cervix has been removed by surgery to treat cervical cancer or pre-cancer, Pap test samples may be taken from the lining of the upper vagina to look for cervical cancer that has come back, and to look for early vaginal cancer or VAIN. Vaginal cancer and VAIN are more common in women who have had cervical cancer or pre-cancer.

Many women with VAIN may also have a pre-cancer of the cervix (known as *cervical intraepithelial neoplasia or CIN*). If abnormal cells are seen on a Pap test, the next step is a procedure called [colposcopy](#)<sup>7</sup>, in which the cervix, the vagina, and at times the vulva are closely examined with a special instrument called a *colposcope*.

## Hyperlinks

1. [www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html](http://www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html)
2. [www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html](http://www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html)
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