What are viruses?

Viruses are very small organisms – most cannot even be seen with a regular microscope. They cannot reproduce on their own. They must enter a living cell, which becomes the host cell, and “hijack” the cell’s machinery to make more viruses.

Different viruses can enter the body in different ways, such as:

- Through the mucous membranes, such as the inner lining of the nose or mouth, the lining of the eyes, or the genitals
- Through the digestive system (such as the lining of the stomach or intestines)
- Through insect bites, needle sticks, or other breaks in the skin
- Through unbroken skin

Once inside the body, each virus infects a specific type of cell. For example, cold and flu viruses invade cells that line the respiratory tract (nose, sinuses, breathing tubes, and lungs).

What is HPV?

HPV is short for human papillomavirus. HPVs are a group of more than 150 related viruses. Each HPV virus is given a number, which is called an HPV type. HPVs are called papillomaviruses because some HPV types cause papillomas (warts), which are non-cancerous tumors. But some types of HPV are known to cause cancer, including cancers of the cervix (the base of the womb at the top of the vagina), vagina, vulva (the area around the outside of the vagina), penis, anus, and parts of the mouth and throat.

HPVs are attracted to and can live only in certain cells called squamous epithelial cells.
These cells are found on the surface of the skin and on moist surfaces (called *mucosal surfaces*) like:

- The vagina, cervix, vulva (area around the outside of the vagina), and anus
- The inner foreskin and urethra of the penis
- The inner lining of the nose, mouth, and throat
- The trachea (windpipe) and bronchi (smaller breathing tubes branching off the trachea)
- The inner eyelids

**Cutaneous (skin) HPV types**

Most HPV types are called *cutaneous* because they cause warts on the skin, such as on the arms, chest, hands, and feet. These are common warts, not genital warts.

**Mucosal (genital) HPV types**

The other HPV types are considered *mucosal* types because they invade and live in cells on mucosal surfaces. The mucosal HPV types are also called *genital (or anogenital)* HPV types because they often affect the anal and genital area. These types can also infect the lining of the mouth and throat. Mucosal HPV types generally don’t grow in the skin or parts of the body other than the mucosal surfaces.

**Low-risk mucosal (genital) HPV types:** HPV types that tend to cause warts and rarely cause cancer are called *low-risk types*. Low-risk genital HPV infection can cause cauliflower-shaped warts on or around the genitals and anus of both men and women. In women, warts may appear in areas that aren’t always noticed, such as the cervix and vagina.

**High-risk mucosal (genital) HPV types:** HPV types that can cause cancer are called *high-risk types*. These types have been linked to certain cancers\(^1\) in both men and women. Doctors worry about the cell changes and pre-cancers these types cause because they are more likely to grow into cancers over time.

This diagram shows the different groups of HPV types and the problems each group can cause.
How do you get HPV?

Mucosal (genital) HPV is spread mainly by direct skin-to-skin contact during vaginal, oral, or anal sexual activity. It’s not spread through blood or body fluids. It can be spread even when an infected person has no visible signs or symptoms.

Anyone who has had sexual contact can get HPV, even if it was only with only one person, but infections are more likely in people who have had many sex partners.

The virus can also be spread by genital contact without sex, but this is not common. Oral-genital and hand-genital spread of some genital HPV types have been reported. And there may be other ways to become infected with HPV that aren’t yet clear.

You DO NOT get HPV from:

- Toilet seats
- Hugging or holding hands
- Swimming in pools or hot tubs
- Sharing food or utensils
- Being unclean

Transmission from mother to newborn during birth is rare, but it can happen, too. When it does, it can cause warts (papillomas) in the infant’s breathing tubes (trachea and bronchi) and lungs, which is called respiratory papillomatosis. These papillomas can also grow in the voice box, which is called laryngeal papillomatosis. Both of these infections can cause life-long problems.

**How common is HPV? Who gets it?**

HPV is a very common virus. Some doctors think it’s almost as common as the cold virus. The Centers for Disease Control (CDC) estimates that about 79 million people are currently infected with HPV in the United States, and about 14 million people in the US get a new HPV infection every year.

Most men and women who have ever had sexual contact get at least one type of genital HPV at some time in their lives. Even people who have only had sex with one person in their lifetime can get HPV.

In most people, the body clears the infection on its own. But sometimes, the infection doesn’t go away. Chronic, or long-lasting infection, especially when it’s caused by certain high-risk HPV types, can cause cancer over time.

**Can HPV be prevented?**

HPV is very common, so the only way to keep from becoming infected may be to completely avoid any contact of the areas of your body that can become infected (like the mouth, anus, and genitals) with those of another person. This means not having vaginal, oral, or anal sex, but it also means not allowing those areas to come in contact with someone else’s skin.

**HPV vaccines** can prevent infection with the types of HPV most likely to cause cancer and genital warts, although the vaccines are most effective when given at a younger age (in older children and teens). See [HPV Vaccines](#) for more on this.

If you are sexually active, **limiting the number of sex partners** and avoiding sexual activity with people who have had many other sex partners can help lower your risk of exposure to genital HPV. But again, HPV is very common, so having sexual
contact with even one other person can put you at risk.

**Condoms** can offer some protection from HPV infection, but HPV might be on skin that’s not covered by the condom. And condoms must be used every time, from start to finish. The virus can spread during direct skin-to-skin contact before the condom is put on, and male condoms don’t protect the entire genital area, especially for women. The female condom covers more of the vulva in women, but hasn’t been studied as carefully for its ability to protect against HPV. Condoms are very helpful, though, in protecting against other infections that can be spread through sexual activity.

It’s usually not possible to know who has a mucosal HPV infection, and HPV is so common that even using these measures doesn’t guarantee that a person won’t get infected, but they can help lower the risk.

**What are the symptoms of HPV?**

Most people will never know they have HPV because they have no symptoms and most won’t develop health problems because of HPV. In most people, their immune system attacks the virus and clears the HPV infection, typically within 2 years. This is true of both high-risk and low-risk HPV types. But sometimes HPV infections are not cleared by the body.

Infection with a high-risk HPV type usually has no symptoms. But, this type of HPV can lead to cell changes that over many years may develop into cancer.

Infection with a low-risk HPV type can cause genital warts. Genital warts may appear within weeks or months after contact with a partner who has HPV. The warts may also show up years after exposure, but this is rare. The warts usually look like small bumps or groups of bumps in the genital area. They can be small or large, raised or flat, or shaped like a cauliflower. If they’re not treated, genital warts might go away, might stay and not change, or might increase in size or number. But, the warts caused by low-risk HPV types rarely turn into cancer.

**Can HPV be treated?**

There’s no treatment for the virus itself. But most genital HPV infections go away with the help of a person’s immune system.

Even though HPV itself cannot be treated, the cell changes caused by an HPV infection can. For example, genital warts can be treated. Pre-cancer cell changes caused by HPV can be found by Pap tests and treated. And head and neck, cervical, anal, and
genital cancers can be treated, too.

**Testing for HPV**

**What’s the difference between a Pap test and an HPV test?**

A [Pap test](#) is used to find cell changes or abnormal cells in the cervix. (These abnormal cells may be pre-cancer or cancer, but they may also be other things, too.) Cells are lightly scraped or brushed off the cervix. They are sent to a lab and looked at under a microscope to see if the cells are normal or if changes can be seen. The Pap test is a very good test for finding cancer cells and cells that might become cancer.

HPV is a virus that can cause cervix cell changes. The [HPV test](#) checks for the virus, not cell changes. The test can be done at the same time as the Pap test, with the same swab or a second swab. You won’t notice a difference in your exam if you have both tests. A Pap test plus an HPV test (called co-testing) is the preferred way to find early [cervical cancers](#) or pre-cancers in women 30 and older.

**Should I be tested for HPV?**

**If you are a woman under age 30**

The American Cancer Society recommends that women between ages 21 and 29 should have a Pap test every 3 years (at ages 21, 24, and 27) to test for cervical cancer and pre-cancers. These women should *not* get the HPV test with the Pap test (co-testing) because HPV is so common in women these ages that it’s not helpful to test for it. But HPV testing may be used in this age group after an abnormal Pap test result.

The most common abnormal Pap test result seen is called ASC-US (your health care provider may say this as “ask us”). ASC-US cells usually are not pre-cancer, but they aren’t quite normal either. If there are ASC-US cells in your Pap test result, an HPV test may be done to see if HPV is causing the cell changes. If HPV is found, you’ll need more tests.

In cases like this, the HPV test is used to help decide if more testing is needed. This is not the same as using the HPV test with the Pap test as part of your normal health visit.

Women who are HIV positive or who have been diagnosed or treated for a cervical cancer or pre-cancer should talk to their health care providers about how often they should be tested for cervical cancer and what tests should be used.
If you are a woman aged 30 to 65

The American Cancer Society recommends that women aged 30 to 65 have an HPV test with their Pap test (co-testing) every 5 years to test for cervical cancer. Talk to your health care provider about co-testing. It’s also OK to continue just to have Pap tests every 3 years.

Women who are HIV positive or who have been diagnosed or treated for a cervical cancer or pre-cancer should talk to their health care providers about how often they should be tested for cervical cancer and what tests should be used.

Why should women over age 30 with normal test results change to co-testing every 5 years and start doing HPV testing? Is that safe?

Cell changes in the cervix happen very slowly. It usually takes more than 10 years for cell changes to become cancer. Pap tests have been done yearly in the past, but now we know that Pap tests are not needed every year – every 3 years is enough. In fact, doing Pap tests every year can lead to unneeded treatment of cell changes that would never go on to cause cancer.

One of the benefits of adding testing for HPV is that women can get cervical cancer testing even less often. Getting the Pap test and HPV test (co-testing) every 5 years means fewer tests, follow-up visits, and treatments may be needed. Women with normal Pap and HPV test results have almost no chance of getting cervical cancer within at least 5 years.

Co-testing is preferred, but it’s also OK to continue to have the Pap test alone every 3 years.

What about testing other sites on the body, or testing men?

There’s no FDA-approved HPV test for men at this time, nor is there an FDA-approved HPV test to find the virus anywhere besides the cervix, including the mouth or throat.

The FDA has only approved tests to find HPV in a woman’s cervix, where positive results can be managed with extra testing and prompt treatment if the infection causes abnormal cell growth. Although HPV tests might be used in research studies to look for HPV in other sites, there’s no proven way to manage positive findings. Also, the accuracy of the test itself may be affected by the site it’s taken from and the way the sample is taken.

Finally, there’s no useful test to find out a person’s “HPV status,” because an HPV test
result can change over a period of months or years as the body fights the virus. (See “If I have a positive HPV test, what does it mean?”)

If I have a positive HPV test, what does it mean?

If you have cervical HPV infection and an abnormal Pap test result, your health care provider will explain what other tests you might need.

If you have cervical HPV infection and a normal Pap test result, it means that you have genital HPV, but no cell changes were seen on your Pap test. There are 2 options:

- You’ll most likely be tested with an HPV test and a Pap test again in 12 months. In most cases, re-testing in 12 months shows no sign of the virus. If the virus does go away and your Pap test is normal you can go back to normal screening. If the virus is still there or changes are seen on the Pap test, you’ll need more testing.
- As another option, the provider may suggest testing specifically for HPV-16 or both -16 and -18 (the 2 types that are most likely to cause cervical cancer). If testing shows that you have HPV-16 and/or -18, more testing will be needed. If the test doesn’t show infection with HPV-16 and/or -18, you should be retested in 12 months with both an HPV test and a Pap test.

If HPV goes away, can you get it again?

There are many types of HPV. You may have one type that goes away, but you can get another different type. It’s possible to get the same type again, but the risk of this is low.

Will HPV affect my pregnancy or my baby?

HPV infection does not directly affect the chances of getting pregnant.

If HPV infection leads to cervical changes that need to be treated, the treatment should not affect your chances of getting pregnant. But if you have many treatments and biopsies, which can happen with more frequent screening, the risk of pre-term labor and low birth weight babies can go up.

HPV is rarely passed from a mother to her baby. The rare cases where this has happened do not involve the types of HPV that can cause cancer. “How do you get HPV?” has more on HPV being transmitted from mother to baby during pregnancy.
Hyperlinks


References


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