



HPV infection

Overview

HPV infection is a viral infection that commonly causes skin or mucous membrane growths (warts). There are more than 100 varieties of human papillomavirus (HPV). Some types of HPV infection cause warts, and some can cause different types of cancer.

Most HPV infections don't lead to cancer. But some types of genital HPV can cause cancer of the lower part of the uterus that connects to the vagina (cervix). Other types of cancers, including cancers of the anus, penis, vagina, vulva and back of the throat (oropharyngeal), have been linked to HPV infection.

These infections are often transmitted sexually or through other skin-to-skin contact. Vaccines can help protect against the strains of HPV most likely to cause genital warts or cervical cancer.

Symptoms

In most cases, your body's immune system defeats an HPV infection before it creates warts. When warts do appear, they vary in appearance depending on which kind of HPV is involved:

- **Genital warts.** These appear as flat lesions, small cauliflower-like bumps or tiny stemlike protrusions. In women, genital warts appear mostly on the vulva but can also occur near the anus, on the cervix or in the vagina.
In men, genital warts appear on the penis and scrotum or around the anus. Genital warts rarely cause discomfort or pain, though they may itch or feel tender.
- **Common warts.** Common warts appear as rough, raised bumps and usually occur on the hands and fingers. In most cases, common warts are simply unsightly, but they can also be painful or susceptible to injury or bleeding.
- **Plantar warts.** Plantar warts are hard, grainy growths that usually appear on the heels or balls of your feet. These warts might cause discomfort.
- **Flat warts.** Flat warts are flat-topped, slightly raised lesions. They can appear anywhere, but children usually get them on the face and men tend to get them in the beard area. Women tend to get them on the legs.

Cervical cancer

Feedback

Nearly all cervical cancers are caused by HPV infections, but cervical cancer may take 20 years or longer to develop after an HPV infection. The HPV infection and early cervical cancer typically don't cause noticeable symptoms. Getting vaccinated against HPV infection is your best protection from cervical cancer.

Because early cervical cancer doesn't cause symptoms, it's vital that women have regular screening tests to detect any precancerous changes in the cervix that might lead to cancer. Current guidelines recommend that women ages 21 to 29 have a Pap test every three years.

Women ages 30 to 65 are advised to continue having a Pap test every three years, or every five years if they also get the HPV DNA test at the same time. Women over 65 can stop testing if they've had three normal Pap tests in a row, or two HPV DNA and Pap tests with no abnormal results.

When to see a doctor

If you or your child has warts of any kind that cause embarrassment, discomfort or pain, seek advice from your doctor.

Causes

HPV infection occurs when the virus enters your body, usually through a cut, abrasion or small tear in your skin. The virus is transferred primarily by skin-to-skin contact.

Genital HPV infections are contracted through sexual intercourse, anal sex and other skin-to-skin contact in the genital region. Some HPV infections that result in oral or upper respiratory lesions are contracted through oral sex.

If you're pregnant and have an HPV infection with genital warts, it's possible your baby may get the infection. Rarely, the infection may cause a noncancerous growth in the baby's voice box (larynx).

Warts are contagious. They can spread through direct contact with a wart. Warts can also spread when someone touches something that already touched a wart.

Risk factors

HPV infections are common. Risk factors for HPV infection include:

- **Number of sexual partners.** The more sexual partners you have, the more likely you are to contract a genital HPV infection. Having sex with a partner who has had multiple sex partners also increases your risk.
- **Age.** Common warts occur mostly in children. Genital warts occur most often in adolescents and young adults.
- **Weakened immune systems.** People who have weakened immune systems are at greater risk of HPV infections. Immune systems can be weakened by HIV/AIDS or by immune system-suppressing drugs used after organ transplants.

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- **Damaged skin.** Areas of skin that have been punctured or opened are more prone to develop common warts.
- **Personal contact.** Touching someone's warts or not wearing protection before contacting surfaces that have been exposed to **HPV** — such as public showers or swimming pools — might increase your risk of **HPV** infection.

Complications

- **Oral and upper respiratory lesions.** Some **HPV** infections cause lesions on your tongue, tonsils, soft palate, or within your larynx and nose.
- **Cancer.** Certain strains of **HPV** can cause cervical cancer. These strains might also contribute to cancers of the genitals, anus, mouth and upper respiratory tract.

Prevention

Common warts

It's difficult to prevent **HPV** infections that cause common warts. If you have a common wart, you can prevent the spread of the infection and formation of new warts by not picking at a wart and not biting your nails.

Plantar warts

To reduce the risk of contracting **HPV** infections that cause plantar warts, wear shoes or sandals in public pools and locker rooms.

Genital warts

You can reduce your risk of developing genital warts and other **HPV**-related genital lesions by:

- Being in a mutually monogamous sexual relationship
- Reducing your number of sex partners
- Using a latex condom, which can reduce your risk of **HPV** transmission

HPV vaccines

Gardasil 9 is an **HPV** vaccine approved by the U.S. Food and Drug Administration and can be used for males and females to protect against cervical cancer and genital warts.

The Centers for Disease Control and Prevention (CDC) recommends routine **HPV** vaccination for girls and boys ages 11 and 12, although it can be given as early as age 9. It's ideal for girls and boys to receive the vaccine before they have sexual contact and are exposed to **HPV**. Research has shown that receiving the vaccine at a young age isn't linked to an earlier start of sexual activity.

Once someone is infected with **HPV**, the vaccine might not be as effective or might not work at all. Also, response to the vaccine is better at younger ages than older ones. But, if given before someone is infected, the vaccine can prevent most cases of cervical cancer.

The [CDC](#) recommends that all 11- and 12-year-olds receive two doses of [HPV](#) vaccine at least six months apart. Younger adolescents ages 9 and 10 and teens ages 13 and 14 can also receive vaccination on the updated two-dose schedule. Research has shown that the two-dose schedule is effective for children under 15.

Teens and young adults who begin the vaccine series later, at ages 15 through 26, should continue to receive three doses of the vaccine.

The [CDC](#) recommends catch-up [HPV](#) vaccinations for all people through age 26 who aren't adequately vaccinated.

The U.S. Food and Drug Administration recently approved the use of Gardasil 9 for males and females ages 9 to 45. If you're age 27 to 45, discuss with your doctor whether he or she recommends that you get the [HPV](#) vaccine.

By Mayo Clinic Staff

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