CONDITION

Warts and plantar warts

Warts are harmless skin growths caused by a virus, including plantar warts that develop on the soles of the feet.

WHAT IT IS
Benign skin growths caused by human papillomavirus

BODY SYSTEM
Skin

MAIN SYMPTOMS
Rough bumps, black dots, pressure pain, clustered growths

WHAT CAUSES IT
Skin infection with human papillomavirus

HOW IT IS DIAGNOSED
Skin examination, with biopsy if appearance is unusual

MAIN TREATMENT
Observation, salicylic acid, freezing, or specialist procedures

CAN IT BE CURED?
Sometimes - warts clear, but recurrence can happen

IS IT AN EMERGENCY?
No - urgent care for severe bleeding or infection

LONG-TERM OUTLOOK
Most clear, though recurrence and persistence are common

Overview

Warts are small, usually harmless skin growths caused by certain types of human papillomavirus, or HPV. The virus infects the top layer of skin, often through a tiny cut or area of irritation.

Common warts often appear on the hands, fingers, knees, or elbows. Plantar warts grow on the soles of the feet. They are also called verrucas in some countries. Pressure from standing and walking may push a plantar wart inward, making it feel like a hard patch under the skin.

Warts are not cancer. The HPV types that usually cause common and plantar warts are different from the types most often linked to genital warts and HPV-related cancers.

Many warts disappear without treatment as the immune system learns to control the virus.

This can take months or years. Treatment may be helpful when a wart hurts, spreads, affects daily activities, or causes distress.

Symptoms

The appearance of a wart depends on where it grows.

Common warts are often firm, raised, and rough. They may be skin-coloured, grey, brown, or yellowish. Some contain tiny black dots. These are small blood vessels that have clotted, not "seeds" or dirt.

Warts around the fingernails may have an uneven surface and can affect nail growth. Flat warts are smoother and less raised. They often occur in groups on the face, hands, or legs.

Plantar warts may look like rough, grainy patches on the sole. Features can include:

A plantar wart can resemble a corn or callus. Corns and calluses develop from pressure or friction and usually keep the skin's normal lines. Warts tend to interrupt those lines and may contain visible blood vessels.

Not every new lump or rough patch is a wart. Skin cancers and other conditions can sometimes look similar, especially when a growth changes, bleeds, or does not heal.

- Pain or tenderness when standing or walking
- Tiny black or red dots within the growth
- A hard layer of skin over the wart
- Normal skin lines stopping at the wart
- Several small warts forming one larger cluster

Causes and risk factors

Warts develop after skin becomes infected with a type of HPV that affects ordinary skin. The virus causes skin cells to grow more quickly, producing the raised or thickened area.

The virus can spread through direct skin contact or through contact with contaminated surfaces. It may enter through small cuts, cracked skin, damaged cuticles, or skin softened by moisture. A wart can also spread from one part of your body to another through picking, scratching, shaving, or nail biting.

You are more likely to develop warts if you:

Warts do not result from poor hygiene. Touching a wart does not always lead to infection.

Whether a wart develops is affected by the HPV type, the condition of the skin, and how the immune system responds.

The time between contact with the virus and a visible wart can be several months. This often makes it impossible to identify where the infection came from.

- Are a child or teenager
- Have eczema or frequently damaged skin
- Bite your nails or pick at the skin around them
- Have close contact with someone who has warts
- Walk barefoot in shared wet areas
- Have an immune system weakened by illness or medication

Diagnosis

A healthcare professional can usually diagnose a wart by examining the skin. They may use a magnifying tool called a dermatoscope to see the surface and blood vessels more clearly.

For a thick plantar growth, a clinician may gently remove some dead surface skin. Pinpoint bleeding or dark dots underneath can support the diagnosis of a wart. This should not be attempted at home because cutting too deeply can cause pain, bleeding, or infection.

A biopsy is not usually needed. During a biopsy, a small sample of tissue is removed and examined under a microscope. This may be recommended if the growth looks unusual, keeps bleeding, forms an open sore, grows quickly, or does not respond as expected to treatment.

It is particularly important to have a foot growth assessed before self-treatment if you have diabetes, reduced feeling in your feet, poor circulation, or a weakened immune system.

Treatment and management

Treatment is not always necessary. A painless wart that is not spreading or causing concern can often be watched. Many eventually clear through the body's immune response, although there is no reliable way to predict how long this will take.

Salicylic acid is a common non-prescription treatment. It gradually removes infected surface skin. Products come in different strengths and forms, so follow the package directions carefully. Treatment usually requires repeated use over time.

Soaking the wart and gently filing away loose dead skin may help some products work. Do not

make the skin bleed, and do not share the file or use it on healthy skin. Wash your hands afterward. Salicylic acid products should not be used on the face or genitals unless a healthcare professional recommends it.

Ask a pharmacist or clinician before treating a foot wart yourself if you have diabetes, poor circulation, reduced sensation, or a condition that affects healing.

Cryotherapy freezes the wart, usually with liquid nitrogen. It is provided in a clinic and may need more than one treatment. Freezing can cause pain, blistering, temporary colour changes, and, less often, scarring. Non-prescription freezing products do not become as cold as liquid nitrogen used in a clinic.

Persistent or troublesome warts may be treated by a dermatologist or another trained professional. Options can include stronger medicines, blistering agents, treatments that stimulate an immune response, scraping or burning the wart, or laser treatment. No single treatment works for everyone, and some procedures can leave a scar.

Evidence for covering warts with duct tape is mixed. It may irritate the surrounding skin and should not replace assessment of an uncertain growth.

Do not cut, burn, or dig out a wart yourself. This can cause infection, scarring, and further spread. A wart also has infected cells below the visible surface, so removing only the top does not reliably cure it.

Complications

Most warts cause no lasting physical harm. Plantar warts can become painful enough to change how you walk. This may lead to discomfort elsewhere in the foot or leg.

Picking, cutting, or repeatedly irritating a wart can cause bleeding or a bacterial skin infection. Signs of infection include increasing warmth, swelling, pus, worsening pain, or redness spreading into nearby skin.

Warts may multiply or return after treatment. This does not necessarily mean treatment was performed incorrectly. HPV may remain in nearby skin for a time, and treatment does not always remove every infected cell.

People with weakened immune systems may develop larger numbers of warts that are harder to clear. They may also need assessment to make sure an unusual growth is not another skin condition.

Visible warts can cause embarrassment or anxiety, especially when they occur on the hands or face. This is a valid reason to discuss treatment, even if the wart is not painful.

Prevention

There is no guaranteed way to prevent common or plantar warts. HPV is widespread, and infection can occur through skin contact before a wart is noticed.

You can reduce the chance of spreading the virus:

Current HPV vaccines mainly protect against HPV types linked to genital warts and certain cancers. They are not routine treatment for existing common or plantar warts and do not target most HPV types that cause them.

- Avoid picking, scratching, biting, or shaving over a wart
- Wash your hands after touching or treating it
- Keep foot warts covered in shared changing or swimming areas
- Wear sandals or water shoes in shared wet spaces
- Do not share socks, shoes, towels, nail tools, or wart-treatment files
- Keep cuts, cracked skin, and damaged cuticles clean and covered
- Change socks if they become wet and allow shoes to dry

Living with it and what to expect

Many warts gradually shrink and disappear as the immune system controls the infection. This may happen within months, but some last for several years. Warts in adults and people with weakened immune systems may be more persistent.

During that time, a wart may stay the same, slowly grow, or produce nearby warts. Plantar warts may become less comfortable when they are under a weight-bearing part of the foot. Cushioned footwear or padding placed around, rather than directly over, the wart may reduce pressure.

Treatment often requires patience. Surface changes can occur before the entire wart has cleared. Stop self-treatment and seek advice if the skin becomes very sore, raw, swollen, or infected.

A wart can return after it seems to have gone. Recurrence is common enough that another course of treatment may be needed, but it does not mean that the condition will be permanent.

Most people continue their usual work, school, exercise, and family activities. Covering a wart and avoiding direct sharing of personal items can reduce spread without requiring isolation.

When to get medical help

Arrange a routine appointment with a healthcare professional if:

Seek prompt medical advice if the area develops increasing redness, warmth, swelling, pus, or worsening pain. Fever or feeling unwell with these symptoms can suggest a spreading infection.

Warts are not usually an emergency. Seek urgent care for bleeding that does not stop after steady pressure, rapidly spreading redness with severe pain, or signs of serious illness.

- You are unsure whether the growth is a wart
- It is painful, spreading, or interfering with walking or daily activities
- It is on your face, genitals, or around a nail
- It keeps returning or has not improved with correctly used treatment
- It changes shape or colour, grows quickly, bleeds repeatedly, or develops an open sore
- You have many warts or a weakened immune system
- You have diabetes, poor circulation, or reduced feeling in your feet

Common questions

Are plantar warts contagious?

Yes. They can spread through direct contact and possibly through contaminated wet surfaces. The risk from any single contact is uncertain. Covering the wart, wearing footwear in shared wet areas, and not sharing personal items can reduce spread.

Can I pull or cut a wart out?

No. Cutting or digging may cause pain, bleeding, infection, and scarring. It can also spread the virus. Plantar warts often extend beneath a hard surface layer, so removing the visible top does not remove all infected tissue.

Why does my plantar wart have black dots?

The dots are usually tiny clotted blood vessels. They are not roots or seeds. If a dark area is changing, irregular, or not clearly part of a typical wart, have it examined.

Will a wart go away by itself?

Many do, but the timing is unpredictable. Some clear within months, while others remain for years. Treatment is reasonable if the wart hurts, spreads, or bothers you.

Is a plantar wart the same as a corn?

No. A corn is thickened skin caused by pressure or friction. A plantar wart is caused by HPV. Skin lines often continue across a corn but stop at a wart. An examination can help when the difference is unclear.

Does having a common wart mean I have a sexually transmitted infection?

No. Common and plantar warts are usually caused by HPV types that infect ordinary skin and are not considered sexually transmitted infections. Growths on the genitals need separate medical assessment.

Sources

- NHS. Warts and verrucas
- American Academy of Dermatology. Warts: Diagnosis and treatment
- DermNet. Viral wart
- Kwok CS, Gibbs S, Bennett C, Holland R, Abbott R. Topical treatments for cutaneous warts. Cochrane Database of Systematic Reviews. 2012;9:CD001781
- Zhu P and colleagues. Clinical guideline for the diagnosis and treatment of cutaneous warts. Journal of Evidence-Based Medicine. 2022;15:284-301