Plantar warts

What are plantar warts?
Plantar warts are hard, grainy growths that usually appear on the heels or balls of your feet, areas that feel the most pressure. This pressure also may cause plantar warts to grow inward beneath a hard, thick layer of skin (callus). Plantar warts are caused by the human papillomavirus (HPV) in the outer layer of skin on the soles of your feet. More than 100 types of HPV exist, but only a few cause warts on your feet. Other types of HPV are more likely to cause warts on other areas of your skin or on mucous membranes.

Plantar wart signs and symptoms include:
- A small, fleshy, rough, grainy growth (lesion) on the bottom of your foot
- Hard, thickened skin (callus) over a well-defined "spot" on the skin, where a wart has grown inward
- Black pinpoints, which are commonly called wart seeds but are actually small, clotted blood vessels
- A lesion that interrupts the normal lines and ridges in the skin of your foot
- Pain or tenderness when walking or standing

Most plantar warts aren't a serious health concern and may not require treatment. But plantar warts can cause discomfort or pain. If self-care treatments for plantar warts don't work, you may want to see your doctor to have them removed. You'll likely start by seeing your primary care doctor. But you may be referred to a specialist in disorders of the skin (dermatologist) or feet (podiatrist).

Transmission of the virus
Each person's immune system responds differently to HPV. Not everyone who comes in contact with it develops warts. The HPV strains that cause plantar warts aren't highly contagious, so the virus isn't easily transmitted by direct contact from one person to another. However, it thrives in warm, moist environments. Consequently, you may contract the virus by walking barefoot around swimming pools or locker rooms. If the virus spreads from the first site of infection, more warts may appear.

The virus also needs to have a point of entry into the skin of the foot:
- Cracks in dry skin
- Cuts or scrapes
- Wet, softened, fragile skin from being in the water a long time

Anyone can develop plantar warts, but this type of wart is more likely to affect:
- Children and teenagers
- People with weakened immune systems
- People who have had plantar warts before
- People who walk barefoot where exposure to a wart-causing virus is common, such as public showers

Diagnosis of plantar warts
In most cases, your doctor can diagnose a plantar wart with one or more of these techniques:
- Examining the lesion
- Paring the lesion with a scalpel and checking for signs of dark, pinpoint dots — tiny clotted blood vessels
- Removing a small section of the lesion (shave biopsy) and sending it to a laboratory for analysis
Treatment of Plantar warts
Most plantar warts go away without treatment, though it may take a year or two. All treatments are hampered by wart persistence and recurrence. Warts are only an outward symptom of an underlying infection; topical treatments do not eradicate HPV but merely hold it at bay. If your warts are painful or spreading, you may want to try treating them with over-the-counter (nonprescription) medications or home remedies. You may need many repeated treatments before the warts go away, and they may return later. If pressure on the wart causes pain, try wearing well-cushioned shoes, such as athletic shoes that evenly support the sole and relieve some of the pressure. Avoid wearing uncomfortable shoes.

Many people have removed warts with:
- **Peeling medicine (salicylic acid).** Nonprescription wart removal products are available as a patch or liquid. Usually, you're instructed to wash the site, soak it for up to 20 minutes, gently remove dead tissue with a pumice stone or emery board, and apply the solution or patch according to the directions. You may not see results for several weeks.
- **Freezing medicine (cryotherapy).** Nonprescription medicines that freeze the wart include Compound W Freeze Off or Dr. Scholl's Freeze Away. The Food and Drug Administration cautions that some wart removers are flammable and shouldn't be used around fire, flame, heat sources (such as curling irons) and lit cigarettes.
- **Duct tape.** You use this by covering the wart with silver duct tape for six days, removing the tape, soaking the wart in water, gently removing dead tissue with a pumice stone or emery board, and then leaving the wart exposed for about 12 hours. You repeat the process until the wart is gone. Study results have been mixed on the effectiveness of duct tape in removing warts, either alone or with other therapies.

If your self-care approaches haven't helped, talk with your doctor about trying these treatments:
- **Freezing medicine (cryotherapy).** Freezing therapy done at a doctor's office involves applying liquid nitrogen to your wart, either with a spray or a cotton swab. Your doctor may numb the area first because it can be painful when the liquid nitrogen is applied. The chemical causes a blister to form around your wart, and the dead tissue sloughs off within a week or so. It may also stimulate your immune system to fight viral warts. Usually, you'll return to the doctor's office for repeat treatments until the wart disappears. Some studies show that this treatment is more effective when combined with salicylic acid treatments.
- **Stronger peeling medicine (salicylic acid).** Prescription-strength wart medications with salicylic acid work by removing layers of a wart a little bit at a time. They may also stimulate your immune system's ability to fight the wart. Your doctor will likely suggest you apply the medicine regularly at home, followed by occasional visits to the doctor's office. Your doctor may pare away part of the wart or use freezing treatment (cryotherapy). Studies show that salicylic acid is more effective when combined with freezing.

**Surgical or other procedures**
If salicylic acid and freezing don't work, your doctor may recommend one or more of the following treatments:
- **Other acids.** Your doctor shaves the surface of the wart and applies bichloracetic acid or trichloroacetic with a wooden toothpick. You'll need to return to the doctor's office for repeat treatments every week or so. Side effects include burning and stinging. Between visits, you may be asked to apply salicylic acid to the wart.
- **Immune therapy.** This method uses medications or solutions to stimulate your immune system to fight viral warts. Your doctor may inject your warts with a foreign substance (antigen) or apply a solution or cream to the warts.
- **Minor surgery.** Your doctor cuts away the wart or destroys it by using an electric needle (electrodesiccation and curettage). This procedure can be painful, so your doctor will numb your skin first. Because surgery can cause scarring, this method usually isn't used to treat plantar warts.
- **Laser treatment.** Pulsed-dye laser treatment burns closed (cauterizes) tiny blood vessels. The infected tissue eventually dies, and the wart falls off. The evidence for the effectiveness of this method is limited, and it can cause pain and scarring.

- **Vaccine.** Human papillomavirus (HPV) vaccine has been used with success to treat warts.

**To reduce your risk of plantar warts**

- Avoid direct contact with warts. This includes your own warts.
- Keep your feet clean and dry. Change your shoes and socks daily.
- Wear shoes or sandals where it’s common to be exposed to a wart-causing virus, such as around swimming pools or in gym showers.
- Don't pick at warts. Picking may spread the virus.
- Don't use the same emery board, pumice stone or nail clipper on your warts as you use on your healthy skin and nails.
- Use a disposable emery board, to avoid spreading the virus.
- Wash your hands carefully after touching your warts.

*Sources: Mayo Clinic, American Family Physician*