

## PATIENT INFORMATION

# Plantar Warts (Verrucae): Causes, Symptoms and Treatment

*Plantar warts are small, rough growths on the sole of the foot caused by the human papillomavirus (HPV). They are very common, particularly in children and teenagers. Many resolve on their own over time, but stubborn or painful warts benefit from professional treatment.*

Updated February 2026

**AT A GLANCE**

Plantar warts are HPV-caused viral skin growths on the sole of the foot. Common in children and communal barefoot environments. Many resolve naturally with time. Professional treatments include cryotherapy, salicylic acid debridement, microwave therapy (Swift), and needling. Surgical excision is not recommended due to scarring risk.

**At a Glance**

Plantar warts (verrucae plantaris) are caused by HPV infection of the skin on the sole of the foot. They affect around 14% of the population in any given year and are most common in children, teenagers, and people who use communal barefoot areas. Many warts resolve without treatment in people with healthy immune systems, but persistent or painful warts respond well to professional treatment.

**What is a Plantar Wart?**

A plantar wart is a viral skin infection caused by the human papillomavirus (HPV) — specifically strains that infect the outer layer of skin on the foot. The virus enters through small cuts or breaks in the skin and causes the outer skin cells to multiply abnormally, producing a rough, thickened growth.

Unlike warts on the hands, plantar warts are often pushed inward by the weight of walking rather than growing outward. This can make them harder to spot and sometimes quite painful.

They may appear as single warts (solitary) or as clusters of smaller warts that merge together — these are called mosaic warts and can be more difficult to treat.

**Who Does It Affect?**

Plantar warts are more common in:

- Children and teenagers (highest risk group)
- People who walk barefoot in communal areas (swimming pools, gym changing rooms, sports facilities)
- Those with cuts, abrasions, or dry skin on the feet that allow the virus to enter
- People who have previously had plantar warts (some people are more susceptible)
- Individuals with conditions that affect immune function

Plantar warts are not highly contagious in the way a cold or flu virus is, but they can be spread by direct contact with the virus on contaminated surfaces. The virus survives well in warm, moist environments.

## Symptoms

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Plantar warts typically:

- Appear on the ball of the foot, heel, or base of the toes — weight-bearing areas
- Feel like a small lump or pebble under the skin
- Have a rough, cauliflower-like surface with tiny black dots (these are clotted blood vessels, often called "seeds")
- Cause pain when you squeeze the wart from the sides (rather than pressing directly on it)
- Disrupt the normal pattern of skin lines on the sole of the foot (visible on close inspection)

If you have a hard, painful area on your foot without these features, it may be a corn or callus rather than a wart — a podiatrist can distinguish between these.

## How Is It Diagnosed?

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Diagnosis is usually clinical, based on the characteristic appearance described above. Your podiatrist may:

- Pare down (trim) the surface layer to reveal the wart structure beneath and the characteristic black dots
- Use dermoscopy (a magnifying tool with a light) for detailed skin examination
- In rare cases of diagnostic uncertainty, refer for biopsy

## Treatment Options

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Treatment depends on the number of warts, their location, your pain levels, and how long they have been present.

**Watchful waiting:** In children with healthy immune systems, plantar warts often resolve on their own within 1 to 2 years. If the wart is not painful and not spreading, watchful waiting is a reasonable approach. However, treatment is advisable if the wart is causing pain, has been present for more than 12 months without improvement, or is spreading.

### At-home treatment:

- **Salicylic acid preparations:** Available as gels, creams, or plasters from pharmacies. Apply daily after filing the surface, and cover with a plaster. This is a slow process — it typically takes 12 weeks or longer and requires consistent use.

### Professional podiatry treatments:

- **Cryotherapy:** Liquid nitrogen is applied to freeze the wart tissue. Usually requires multiple sessions 2 to 4 weeks apart. Effective but can be uncomfortable.
- **Salicylic acid debridement:** High-concentration salicylic acid applied in clinic, combined with regular debridement of the overlying callus. A common, well-tolerated approach.
- **Microwave therapy (Swift):** A newer treatment that uses microwave energy to heat the wart tissue and stimulate the immune system to recognise and attack the HPV virus. Several sessions are required. Evidence from 2023 to 2025 shows clearance rates of 60 to 83% — higher than cryotherapy in head-to-head comparisons. Suitable for adults and older children.
- **Needling:** A procedure performed under local anaesthetic where the wart is repeatedly punctured to introduce viral particles into deeper tissue and trigger an immune response. Effective for stubborn warts, particularly mosaic types.
- **Laser therapy:** CO2 laser or pulsed dye laser can destroy wart tissue. Used for resistant cases.

**What to avoid:** Surgical excision (cutting out the wart) is generally not recommended as a first-line treatment for plantar warts. It carries a risk of painful scarring on the weight-bearing surface of the foot and warts can recur at the scar site.

## Self-Care and Home Management

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- Keep feet clean and dry
- Cover the wart with a waterproof plaster when using swimming pools or communal showers
- Wear thongs (flip-flops) in communal barefoot areas
- Do not scratch or pick at the wart, as this can spread the virus to other parts of the foot
- File the surface of the wart with a disposable nail file before applying salicylic acid preparations — this removes dead tissue and improves penetration. Use a separate file and dispose of it after each use.
- Avoid cutting into the wart with scissors or a blade at home

## When to See a Podiatrist

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See a podiatrist if:

- The wart has been present for more than 3 to 6 months without improvement
- It is causing pain when walking
- The wart is on the heel or ball of the foot where weight-bearing pressure is significant
- The wart is spreading or multiplying

- You are unsure whether it is a wart, corn, or other skin lesion
- You have diabetes, peripheral neuropathy, or reduced circulation (do not attempt home treatment)

## Prognosis and Recovery

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The outlook for plantar warts is generally good:

- **Spontaneous resolution:** Up to 65% of warts in healthy children resolve within 2 years without treatment
- **Professional treatment:** Most warts resolve with 3 to 6 sessions of appropriate treatment
- **Stubborn warts:** Mosaic warts and those present for more than 2 years can be more resistant; combination treatment or newer approaches like microwave therapy or needling are often more effective in these cases
- **Recurrence:** Possible if re-exposed to the virus, particularly in individuals who are more susceptible

## Prevention

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- Wear thongs in communal barefoot areas (pools, gyms, changing rooms)
- Keep feet clean and dry
- Inspect feet regularly and treat any warts promptly before they spread
- Avoid walking barefoot on surfaces where the virus may be present

## Further Reading

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- [Warts — Better Health Channel \(Victoria\)](#)
- [Plantar Warts — Mayo Clinic](#)
- [Warts — Healthdirect Australia](#)

## Frequently Asked Questions

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### Are plantar warts contagious?

Yes, but not highly so. The HPV virus can spread via contaminated surfaces in warm, moist environments like swimming pools and gym changing rooms. Wearing thongs in these areas significantly reduces your risk.

### How do I know if it is a wart or a corn?

Warts have a rough, cauliflower-like surface with tiny black dots and cause pain when squeezed from the sides. Corns are usually smoother with a hard central core and hurt most when pressed directly. A podiatrist can easily distinguish between them.

### Will my plantar wart go away on its own?

Many do, particularly in children with healthy immune systems. Studies suggest up to 65% of warts in

children resolve within 2 years without treatment. However, if the wart has been present for more than 6 months or is causing pain, professional treatment is worthwhile.

**How many sessions of treatment will I need?**

This varies by treatment type and wart characteristics. Cryotherapy typically requires 3 to 6 sessions over 6 to 12 weeks. Microwave therapy (Swift) requires 2 to 4 sessions. Stubborn or mosaic warts may need more.

**Can I go swimming with a plantar wart?**

Yes, but cover the wart with a waterproof plaster and wear thongs in communal areas to reduce the risk of spreading the virus to others or to other parts of your own foot.