

WARTS

- Warts are caused by a virus called the Human Papilloma virus (HPV), which infects the skin through direct skin contact.
- Warts are contagious, particularly when the skin is broken or crusted. It is important to ***not pick at or bite on*** warts.
- Warts grow when they are in direct sunlight, as UV light immunosuppresses the skin (i.e., makes the immune system weaker). If your warts are in sun-exposed areas, it is critical to wear sunscreen and/or sun protective clothing when outside.

Treatment of warts

- Wart treatment requires *patience* and *persistence*, and can take months. It is important to continue treatment until the wart is gone as they can grow back if treatment is discontinued early. Warts can sometimes recur even after treatment.
- Doing nothing is reasonable, especially in young children, who generally do not tolerate pain. Warts in children will eventually go away without treatment, but it can take several years.

At home treatment:

- Goal of treatment is to **irritate, traumatize and inflame** the warts; once the immune system kicks in, the warts will go away
- **Buy over the counter: SALICYLIC ACID 40% in form of the “[Wart Stick](#)” or “[Medioplast bandaids](#)”**
 - **Nightly:** Apply salicylic acid directly to warts, then cover with electrical or sticky medical tape. Strip the tape off the warts in the morning, intentionally trying to pull off dead skin on top of the wart. If you buy the salicylic acid bandaids, there is no need for the electrical tape.
- **Weekly or twice weekly (if the warts have a lot of dead skin on top):** After soaking the wart in warm water/taking a bath or shower, pare the wart(s) down using an emery board, nail file or pumice stone that you do not use anywhere else on your body.
- **Oral antihistamines:** We may recommend you buy an over the counter oral antihistamine such as [famotidine](#) (brand name: Pepcid AC) to boost your immune system to fight the wart virus. We may recommend taking famotidine 10 mg once or twice a day as an adjuvant therapy to help boost your immune response.



In-office treatment options:

- **Inducing direct trauma:**
 - **Liquid nitrogen:** In older children and adults, liquid nitrogen is first-line treatment, and often needs to be done every 2-4 weeks for several treatments. It freezes/thaws the wart, causing destruction of the wart and stimulates an immune response against the wart. Blistering is common.
 - **Cantharidin:** For certain body sites, cantharidin is a liquid medication containing the protein from blister beetles that is applied by the doctor to individual warts. It does not hurt when applied, but it causes blistering several hours to days later, which can be a little sensitive. It needs to be washed off with soap and water about 4 hours after it is applied. Several treatments are common.
 - **Bleomycin:** This is a very aggressive modality to remove warts as fast as possible when they are refractory to liquid nitrogen and other treatments. It is a chemotherapy agent that is injected directly into and under the wart to directly kill it. After the affected area is anesthetized, it will likely develop a blister and then a large black scab (also known as an eschar) that can last for several weeks. This treatment can be quite painful and may scar. It may need to be done several times to reach full efficacy.

- **Immunotherapy** (i.e, waking up your immune system to come to the site of the wart)
 - **Candida antigen:** Candida is a protein from yeast that is injected just underneath the wart stimulating an immune response. Side effects include swelling, redness, and sometimes a little pain for a few days. If this occurs, elevating the affected area, applying ice and taking ibuprofen can be helpful.
 - **Squaric acid dibutyl ester (SADBE):** This is a non-toxic, non-carcinogenic and painless treatment that involves making your body develop an allergy to a chemical that you have never been exposed to before, and then having you paint that chemical on the wart according to a schedule we give you. The potential side effects are itching, redness, and rarely blisters. We have a compounding pharmacy mail you this as a special compounded prescription. It costs ~\$60.

Topical prescription medications to be used at home (used in very specific cases):

- **Efudex (5-fluorouracil) cream:** A chemotherapy cream that directly damages the virus cells when applied directly to warts (not an option if patients are young children who could put it in their mouth).
- **Aldara (imiquimod) cream:** This cream is used on certain body sites (wet sites such as in the nostrils, lips or genital sites). It is applied to the lesions nightly for 1-3 months. The medication is supplied in packets intended for single use. However, if you tear a small hole in the corner, squeeze out what you need, and then fold over the corner and clip it, you can save it in your refrigerator to get several applications out of a single packet. There are 12 packets in a box.

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