

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

ONYCHOMYCOSIS (Tinea Unguium)

WHAT IS IT?

Onychomycosis is a fungal infection of the nails. It is the most common nail disease in adults. Toenails are more likely to be infected than fingernails. Because fungi like warm, moist environments, the inside of a shoe is a perfect place for fungi to grow.

WHAT CAUSES IT?

Onychomycosis is caused by 3 main classes of fungi: dermatophytes (fungi that specifically infect hair, skin, and nails), yeasts, and non-dermatophyte molds.

- Dermatophytes are the most common cause of toenail onychomycosis, whereas yeast is more likely to infect fingernails.
- Typically, a fungal infection will start on the skin, then spread to and invade the underside of an adjacent nail. A common example is someone with “athlete’s foot” (a fungal infection of the foot) who develops a toenail infection.

Risk factors for fungal nail infections include:

- Frequent exposure of hands and feet to moisture.
- Being diabetic or immunocompromised.

Fungal infections are the cause of abnormal appearing nails in only about 50-60% of cases. Trauma, psoriasis, eczematous conditions, iron deficiency, and other conditions may have similar symptoms.

IS IT CONTAGIOUS?

Nail fungus is not highly contagious. It can be transmitted from person to person but only with constant intimate contact.

WHAT ARE THE SYMPTOMS?

Onychomycosis usually begins as a white or yellow spot on the nail that spreads, causing discoloration and thickening of the nail. The nail may become distorted in shape, curling up or down. The nail surface may also soften and split or crumble. Eventually the nail may separate from the underlying nail bed.

Mild symptoms generally lead to cosmetic problems only. However, if a toenail becomes severely thickened and presses against the inside of a shoe, it can cause significant pain and irritation. Fungal nail infections can also lead to ingrown toenails.

HOW IS IT DIAGNOSED?

Onychomycosis is often diagnosed simply by its appearance. A nail scraping can be performed and examined under the microscope to confirm the presence of fungi. If necessary, nail samples may be sent to the laboratory for a fungal culture to identify the specific fungus causing the infection.

HOW IS IT TREATED?

Nail infections are difficult to treat, and recurrence is common. The choice of treatment is based on the severity of symptoms and how much it is affecting your quality of life.

- Treatment may not be necessary if symptoms are mild or not very bothersome. An untreated nail infection is unlikely to resolve on its own, but it’s also unlikely to cause any long-term problems.
- If treatment is desired, antifungal drugs are the mainstays of therapy.

ANTIFUNGAL MEDICATIONS

Improvement with antifungal therapy typically takes months. This is because nails grow out slowly (4-6 months for fingernails and 12-18 months for toenails). Even when therapy works, the fungus may return. Both topical and oral antifungal treatments are available.

- ❖ **Topical antifungal solutions or lacquers** are considered one of the first-line treatments for mild to moderate fungal nail infections. They have fewer serious side effects compared to oral options.
 - Examples include ciclopirox, efinaconazole, and tavaborole. These agents require a prescription and are applied once daily to the affected nail for up to 48 weeks. They tend to be more effective if the nail has not become too thickened.
- ❖ **Oral antifungal medications** are the treatments of choice for onychomycosis, especially for moderate to severe cases. These medications are considered the gold standard because of higher cure rates and shorter treatment courses. However, they also require close monitoring due to the risk of serious side effects, including liver toxicity.
 - The most commonly used medication in this class is terbinafine (Lamisil). Typically, this medication is taken for 6 weeks to treat fingernails and 12 weeks to treat toenails.
 - If oral antifungal therapy is being considered, the diagnosis should be confirmed by a lab test. If a nail scraping does not show fungi, then a fungal nail culture should be sent.
 - Due to the risk of serious side effects with oral antifungals, your Student Health provider may refer you to a specialist for this type of treatment.
- ❖ **Antifungal creams** are not effective treatments for nail fungus because they do not penetrate nails well.

HOME REMEDIES

If you have a mild infection, starting with a home treatment may be helpful. The following home remedies consist of natural fungicides and/or antiseptics. Many months of treatment will be needed to see results. These treatments should be continued until all symptoms resolve.

- ❖ **Treatment Options**
 - **Vicks VapoRub Salve:** Apply this to the nail and under the nail edge twice a day. Cover with a band-aid, and leave it on as long as possible, ideally 8 hours or more.
 - **Vinegar Soaks:** Mix equal parts white/plain vinegar and warm water (about 1 cup each). Soak the affected nail(s) for 10-20 minutes once or twice a day.
 - **Tea Tree Oil with Lavender Oil:** Mix equal parts tea tree oil and lavender oil. Apply the mixture to the nail and under the nail edge twice a day.
- ❖ **Nail Care For Home Treatments**
 - First, trim the nail back if possible. Carefully remove the infected part of the nail.
 - It's important to disinfect nail clippers after use on infected nails. Soak the clippers in boiling water for a few minutes. Other options include soaking them in 90% isopropyl alcohol or Listerine for several hours.
 - Do not share nail clippers with others.
 - The infected part of the nail may turn black with these home remedies, but this change is temporary and not harmful. The healthy part of the nail is usually not affected.
 - Do not apply nail polish until symptoms have resolved.
 - Do not pick at the infected nail, as this can spread the fungus to other nails.

FOOT CARE

Here are some tips to prevent fungal infections of the feet and toenails. It's also important to follow these recommendations during treatment.

- Sprinkle antifungal powders, such as Desenex or Tinactin, in your socks and shoes daily (especially the toe areas) to reduce the foot fungus that is the source of the nail infection.
- Wear breathable socks and shoes. Avoid shoes that are tight in the toes.
 - Merino wool, polyester, Olefin fiber, or Drymax may be preferred over cotton socks because they are better at keeping moisture away.
 - Leather, canvas, and mesh materials are good options for shoes.
- Change socks and shoes if they become wet.
- Avoid walking barefoot in public areas, like communal showers and locker rooms.
- Dispose of footwear that is old and in poor repair after completing treatment.
- Trim toenails straight across, and keep them shorter than the ends of the toes.

RECOMMENDED WEBSITES: www.aad.org, www.familydoctor.org, www.mayoclinic.org