

WELLNESS

## A Day in the Life of a Nail Expert: Diagnosing and Treating Nail Fungus

By Dr. Dana Stern | September 30, 2019

Nail fungus is one of the most commonly treated nail entities in this country, comprising half of all nail disorders. Thirty-five million people in the U.S. are affected and the prevalence is especially high among elderly and diabetic populations. Interestingly, only 6.3 million people are actually diagnosed and of those, 2.5 million end up being treated.

The medical term “onychomycosis” refers to fungal infection of the nail. Nail fungus can be caused by dermatophytes such as *Trichophyton rubrum* (the number-one cause of nail fungus in the U.S.), yeast, or non-dermatophyte molds.

Onychomycosis is also very commonly misdiagnosed. In fact only 50% of abnormal, thick, discolored toenails are due to fungus! This is why it becomes important to have an accurate diagnosis and a clear understanding of when it is appropriate to refer clients to a medical professional.

### Risk Factors



*Only 50% of abnormal, thick, discolored toenails are due to fungus. That's why an accurate diagnosis is essential.*

Why do some people get nail fungus and others seem immune when, in reality, we are all exposed? Interestingly, there was a study done that looked at the presence of fungus in a high-end hotel and found that every single room contained evidence of it. Onychomycosis is multifactorial; in other words, there are many factors that play into whether you are susceptible. The most common risk factors include increasing age, diabetes, suppressed immunity, excessive sweating (hyperhidrosis), poor circulation, and nail dystrophy (irregularly growing nails).

In addition, we believe that there is genetic susceptibility. Nail fungus can also be acquired from fungal infections at other areas of the body. For example, tinea pedis (athlete's foot) can spread to the toenail, especially if the nail is damaged or lifted. In fact, most toenail fungus begins in the soft tissue (the skin near the nail) as opposed to the actual hard nail. Tinea pedis is essentially a fungal reservoir that has the potential to take up residence in the nail.

Although the appearance of nail fungus can be highly variable, generally the nail appears yellow, brown, and/or white, thickened, and crumbly. Often there is significant debris under the nail and the surrounding nail folds and cuticle area can be redder than normal.

Fungal infections of the nail can be challenging to treat, often persistent and even when effectively treated, often have high recurrence rates. Patients tend to have variable and often unpredictable response rates to treatment and no single therapy has 100% cure rate. This leads people to often wonder if it is even worth treating nail fungus. There are however, several reasons to consider treating nail fungus.

## *Why Treat It?*

Nail fungus can spread to other areas of the body such as the hands, legs, and back. Those who take medications that weaken the immune system like steroids or chemotherapy are particularly susceptible, and although most healthy adults who ignore nail fungus will probably not observe any immediate issues, over time, fungal infection can cause the nails to become thickened, brittle, discolored, and even painful. Additionally, the longer one waits to treat nail fungus, the harder it becomes to effectively treat it.

Nail fungus can also be contagious. In a nail salon setting, a client with fungus can spread it to other clients if proper disinfection precautions are not followed. This becomes especially relevant when porous materials such as files and toe separators are re-used. Proper disinfection between clients is also especially relevant for pedicure foot baths in order to prevent fungal spread. In fact, children who get toenail fungus are more likely to be in a household where there is an adult with fungus. This phenomenon can also be attributable to genetics. When I treat children with nail fungus I request that the entire household come to the office for examination and, when necessary, treatment in order to effectively eradicate the source. In these instances there is almost always an adult carrier source. Fungus can also create microscopic cracks in the skin where bacteria can lodge and consequently cause serious infections. Diabetics are particularly prone to this phenomenon.

As previously mentioned, not all abnormal toenails are fungal. If a client has persistent abnormal nails, a major clue that it could be fungal is when the person also has athlete's foot. Ultimately though, the diagnosis can be tricky even for medical professionals. The nail needs to be tested either by looking for hyphae under a microscope or by being sent to a lab for special staining or even newer techniques such as PCR (Polymerase chain reaction) where the DNA of the organism can be identified.



*Although the appearance of nail fungus can vary greatly, generally the nail appears yellow, brown, and/or white, thickened, and crumbly.*

## ***Treatment: Oral or Topical?***

When we approach the treatment of onychomycosis we have a choice of either topical treatments or oral agents. Oral agents (Terbinafine, for example) tend to have more potential side effects, although these drugs have been on the market for a long time and are generally well tolerated and safe when used with the appropriate patient. We now have some newer topical FDA approved antifungal therapy prescriptions including Efinaconazole and Tavaborole. Both of these options have higher efficacy rates than over-the-counter and naturopathic approaches and are generally safe with very minimal side effect profiles.

If you were to search for a treatment for toenail fungus online, you would come across a ton of natural and alternative approaches. Typically I would recommend conventional FDA approved therapies as we have more validated safety and efficacy studies for these treatments, although naturopathic approaches are appealing in that they are generally relatively innocuous and inexpensive. In this day and age, we can't ignore the costs of topical antifungal prescriptions — they can be cost-prohibitive and often are not covered by insurance — so these alternative approaches can be very relevant and are therefore important to understand.

There are lots of purported natural or home-remedies for the treatment of onychomycosis. Vicks VapoRub, for example, is often mentioned by patients and online in the lay literature as an effective treatment. This is because the active and inactive ingredients in Vicks VapoRub (thymol, menthol, camphor, and oil of eucalyptus) have shown efficacy against dermatophytes in vitro (in a lab setting). If you do decide to go the natural or alternative treatment route, I would suggest seeing a dermatologist if the treatment is not working after four months for toenails and two months for fingernails.



*Dermatologists treat skin, hair, and nails. I am a board-certified dermatologist and I specialize in the treatment of nail disorders including nail infections, inflammatory diseases of the nail, cosmetic issues related to the nail, cancers of the nail, and sports-related nail injuries.*

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