



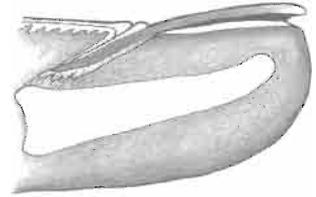
**F**ingernails and toenails are there for two reasons: adornment and function. The desire to dress up nails dates back to the dawn of time, and it also seems to start very early in life. For instance, my daughter first demonstrated a strong interest in her nails at the age of three. She would corral her mother and any available baby-sitter into painting her nails, and the more shocking the color, the more gleeful she became.

Nonetheless, these hard and durable parts of our hands actually serve other needs as well. For one thing, they assist in dexterity. One day, my five-year-old son decided he didn't need his nails anymore. To prove him wrong, we put small pieces of modeling clay under his fingertips, so it was as though he had no nails. My challenge to him: if he could pick up a dime with his fingers altered in this way, he could keep the dime. He failed several times, finally understanding how important nails are to everyday life.

Nails serve another important purpose, at least to doctors: they are a kind of external warning system because often it's there that the outward signs of internal disease may develop. Finally, in the world of dermatology, we are especially aware of the greatest importance of nails: scratching that pesky itch.

Nails are actually an integral part of the skin. The nail itself is made of keratin, the same material hair is composed of. Nails have no nerve endings. This is true for horses as well as human beings, which is why the farrier of bygone days and the horsemen of today are able to nail (pardon the pun) iron shoes directly into the hooves of the trusty mare or steed. Because fingernails are in constant contact with the environment around us, they are subjected to a great deal of minor and not-so-minor trauma. That's probably why nature made them so tough. Nails are torn, banged by hammers, and slammed by doors.

Nail growth is slow but steady—about an eighth of an inch per month for fingernails and a tenth of an inch per month for toenails. With age the growth rate slows and nails become more brittle. The apparatus that makes the nail sits just under the cuticle. It is called the nail matrix and functions much like a pasta maker, extruding new nail slowly but surely. For a detailed look at your nail see the illustration on this page.



Cross-section of fingernail showing nail matrix where the nail is made

## ▪ NAILS GIVE CLUES

Many internal conditions or other bigger skin problems can show up in the nails. In fact, in psoriasis, the condition may be apparent only in the nails. From 10 to 50 percent of people with psoriasis have small pits or so-called oil spots on their nails. The same sort of nail pits, small depressions in the surface of the nails, are also sometimes seen in alopecia areata (see p. 159).

In people with AIDS, one may see brownish spots on the palms and soles. When this same discoloration occurs in the nails, it appears as a thin brown stripe. Brown stripes in the nail may be worrisome because occasionally they represent a melanoma growing under the nail. This is not very common but is important to know about and get diagnosed early, as there is a high mortality rate associated with this cancer. Although a dark line may develop from trauma (a bruise under the nail), any pigmented streak should be immediately evaluated by your doctor. This is especially true if the line has developed for the first time in a single nail in someone over fifty years of age. Pigment that is due to trauma under the nail will

## NAIL CLUES

Nail changes can sometimes herald internal conditions and are therefore an important part of your regular physical exam:

Abnormality	Appearance	Internal Condition
Beau's lines	Horizontal grooves	Correspond to periods of severe illness
Splinter hemorrhages	Small dark brown or rust flecks	Bacterial endocarditis; trichinosis
Red lunula	Red discoloration in front of the cuticle	Rheumatoid arthritis, Lupus, alopecia areata
Clubbing	Curving of the nail with thickening of the fingertip	Lung disease
Spoon nails	Inward curving of the nails to resemble a spoon	Iron deficiency
Double white lines (Muehrcke's lines)	Transverse white lines that move out as the nail grows and occur in pairs	Liver disease; malnutrition

over time migrate out with the nail's growth, but the pigmented band of melanoma does not; in fact, it will sometimes get darker and broader.

In blacks, however, longitudinal or linear pigmented stripes of the nails, called *longitudinal melanonychia* (pronounced mel-AN-no-nick-ee-ah), are common. The condition is a result of increased pigment production by the pigment cells in the nail matrix. Both the incidence of these stripes and their darkness increase with the age of the person.

The challenge for the dermatologist is to make sure that the linear band in a nail does not represent an abnormal mole or a melanoma. Any line that is single, wider than a quarter of an inch, very dark, or has wide variation in pigmentation should be biopsied. If multiple lines are present on multiple nails and no one line stands out, it is much less likely that the band represents a melanoma.

Another important change you might see in your nails is *splinter hemorrhage*. This results from blood leaching out of the small blood vessels right under the nail, within the nail bed. If a splinter hemorrhage is seen closer to the lunula (the white, semicircular moonlike area of whiteness adjacent to the cuticle), it may be a sign of a bacterial infection of the

heart, called endocarditis. The most common cause of splinter hemorrhages, however, is trauma.

## ▪ PARONYCHIA

Paronychia is an inflammation of the skin around the nail. It is due to infection and is characterized by reddening at the junction of the nail and skin, swelling, tenderness, and pain. In addition, pus may be trapped under the skin.

A paronychial infection is usually the direct result of a small break in the skin. The break may be caused by trimming a nail carelessly or by a cut or nick in the skin acquired during the day's activities. Acute paronychia is usually bacterial and caused by staph, strep, or other germs. Chronic paronychia is often due to yeast such as candida and develops when the fingers are very moist.

In general, infections of the nail are easily treated. If there has been an accumulation of pus near the nail, it must be drained. This is not nearly as terrible as it sounds, and the discomfort is often much less than the pain the infected digit is already giving you. If you have infection in the nail unit, it is important to keep the area dry, especially if the cause was candida. Sometimes, candida will clear up on its own just by keeping the area dry. Yeast are like fish in this regard: they need water to thrive.

## ▪ FUNGAL INFECTION

The most common fungal infection of the nail is onychomycosis. It usually affects the toenails, but fingernails can be infected as well. Onychomycosis is characterized by a thickening of the nail, due to the accumulation of scales underneath. It usually turns the nail white and eventually leads to the separation of the nail from the nail bed.

Taken orally, itraconazole (Sporanox) is one of the most common treatments for this persistent fungus. Itraconazole has a cure rate of approximately 70 percent; the course of treatment is two to three months. A new antifungal treatment, terbinafine (Lamisil), has a similar treatment cycle and an 80 percent cure rate. Before your dermatologist prescribes either treatment, he or she may draw your blood to monitor for side effects. After the fungus is eradicated, an antifungal cream may be prescribed to avoid a recurrence of the fungal infection.

## ▪ HANGNAILS

Hangnails are splits or projections in the skin adjacent to the nail, or tears in the edge of the nail itself. They can be painful and can become infected. (Paronychia infections can begin with hangnails.)

## ▪ SPLINTERS

Who hasn't had a splinter? It's true they are no calamity, but they should be attended to promptly. Most foreign objects that make their way under the nail are splinters of wood, but shards of glass, small nails, and even thin wires can also cause fingernail problems.

Fortunately, the skin of the palms, soles, fingers, and toes is thicker than on the rest of the body, protected by a thickened coat of keratin. Therefore splinters can usually be dislodged with a sterilized sewing needle, causing relatively little pain unless the culprit has penetrated deeply into the skin.

While most splinters cause no problems once removed, infections can arise at the injury site if the splinter is not attended to properly. If you can see the splinter, you can use tweezers to grab and remove it. Afterward, clean the area with antibacterial soap to prevent infection. If the splinter is not protruding, but hidden under the nail or otherwise hard for you to get at, you should call your doctor. Your doctor will remove the splinter with tools that are actually only slightly more sophisticated than tweezers. A topical antiseptic will then be applied, and an oral antibiotic may be prescribed to avoid infection or if the area is already infected.

## ▪ INGROWN TOENAILS

Ingrown toenails can become very painful. An ingrown toenail occurs when the nail (usually on a big toe) pierces the skin.

The best way to minimize suffering is to catch the problem early. If you notice the edge of a toenail growing into the surrounding skin, soak the skin immediately in warm water. If the problem is just beginning, try placing a tiny piece of cotton under the advancing nail edge to coax it into growing straight out.

Ingrown toenails are usually caused by improper nail care—in particular cutting nails too short. Try to prevent ingrown toenails if you can.

When all else fails, see your doctor. Left alone, ingrown nails can get infected, which is a real problem for people with diabetes or poor circulation.

If ingrown nails are a recurring problem, it is sometimes possible to fix them surgically in an office procedure. The toe is numbed with lidocaine (ask your doctor to apply a topical anesthetic cream first) and the edge of the nail matrix on either side, which is where the nail is made, is destroyed with a scalpel, a laser, or even a chemical called phenol. When the area heals, no new nail can be produced. End result: a slightly narrower nail that does not grow into the nail folds and cause pain.

### ▪ BRITTLE OR BROKEN NAILS

One of the most common questions I hear about nails is: “Is there anything I can do for my nails? They’re so brittle.” I am not aware that eating gelatin or coating nails with micronutrients like vitamins will help. If you remember, the nail is made by the little nail factory that lives just in front of the nail, near the cuticle. If brittle nails are caused by excessive dryness, applying a urea-containing cream like Carmol 20 will help.

### ▪ ARTIFICIAL NAILS

Many people prefer the cosmetic benefit of acrylic nails. These are fine unless you develop nail infections as a result of the irritation of adjacent skin. Also, some people may develop a contact dermatitis to the chemical in the adhesive or the artificial nail itself. The hassle of these complications may not be worth it, and the only way to stop them is to stop using artificial nails.