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## Nails - fingernail and toenail problems

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### Summary

- Nails support and protect the sensitive tips of our fingers and toes.
  - Common causes of nail problems include injury, infection and skin diseases such as eczema and psoriasis.
  - Some conditions need professional treatment from a doctor or a dermatologist.
  - People with diabetes or compromised immune systems have a higher risk of fungal nail infections.
  - Toenail problems tend to be more common among older people.
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Nails support and protect the sensitive tips of our fingers and toes. Fingernails also help us to pick up objects, scratch an itch or untie a knot. Fingernails grow about three times faster than toenails.

Nail problems affect people of all ages. Diet is generally not responsible for abnormal nail changes, unless the person is suffering from severe malnutrition. Some nail conditions need professional treatment from either a doctor or a dermatologist, while others respond to simple self-help techniques and minor lifestyle changes. When in doubt, seek medical advice.

Toenail problems can affect people of all ages, but tend to be more common in older people. Common causes of fingernail problems include injury, infection and skin diseases such as eczema and psoriasis. Causes of toenail problems include trauma, ill-fitting shoes, poor circulation, poor nerve supply and infection. Problems with toenails can be successfully treated by a podiatrist.

### Structure of the nail

Nails are made from a protein called keratin. This is the same protein that makes up skin and hair. Nails grow from cells that multiply within the base of the nail, then layer on top of each other and harden. This is called keratinisation.

The strength, thickness and growth rate of nails are characteristics that we inherit from our parents. The structures of the nail include:

- Nail matrix – where nail growth occurs, tucked under the skin behind the nail
- Nail plate – the visible part of the nail
- Nail bed – the nail plate sits on top of the nail bed. The nail plate looks pink because of the blood-rich capillaries in the nail bed
- Lunula – the crescent-moon shape that you can sometimes see at the base of the nail plate
- Nail folds – the slender skin grooves that hold the nail plate in place
- Cuticle – the flap of thin tissue over the base of the nail plate.

### Nail conditions

There are a number of conditions that can affect our nails, with different causes and treatments.

#### Nail discolouration

The healthy nail plate is pink, and the nail looks white as it grows off the nail bed. Causes of discoloured nails typically include:

- Nail polish
  - Nicotine from cigarette smoking
  - Hair-colouring agents
  - Certain infections
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- Injury to the nail bed
- Some medications, including antibiotics, anti-malarial medications, and some medications used in chemotherapy
- Melanoma.

#### **Lifted nail plate**

If the nail plate lifts off the nail bed, it will appear white. Common causes include:

- Overzealous cleaning under the fingernails
- Nail polishes that contain hardening chemicals such as formalin
- Rough removal of artificial nails
- Psoriasis
- Tinea (a fungal infection).

#### **Thickened nails**

This condition affects the toenails more than the fingernails. Older people are at greater risk. Causes include:

- Fungal infection
- Neglect
- Injury
- Poor circulation
- Arthritis in the toes
- Altered gait (walking) pattern
- Ill-fitting shoes
- Psoriasis.

#### **Ridged nails**

Ridges running either the length or width of the nail plate can have a number of causes, including:

- Age-related changes
- Trauma to the nail matrix
- Overzealous attention to the cuticles
- Fever or illness
- Eczema
- Rheumatoid arthritis
- Peripheral vascular disease
- Lichen planus infection.

#### **Splitting nails**

In this condition, the nail plate splits or layers as it grows off the nail bed. Common causes include:

- Having constantly wet hands, especially while using soap and washing detergents
- Frequently using and removing nail polish
- Continuous mild trauma such as habitual finger-tapping or using the nails as tools (to pick between the teeth, for example).

#### **Deformed or brittle nails**

A violent toe-stubbing, dropping a heavy object on the toe or some other trauma can injure the nail bed and cause the nail to grow in a deformed way. The nail may be thickened or ridged. It is a normal ageing process for nails to thicken.

Deformed or brittle toenails can benefit from regular professional attention. Trimming, shaping and nail care from a podiatrist can improve the health of your toenails and help diagnose and treat more serious nail problems.

### **Bacterial infection of the nail**

The *Staphylococcus aureus* bacterium is a common cause of bacterial infection of the nail. Typically, the infection first takes hold in the fold of skin at the base of the nail (proximal nail fold). Without treatment, the infection can worsen, leading to inflammation and pus. It is often associated with candida infection, particularly when it becomes chronic.

Activities that predispose a person to a bacterial nail infection include:

- Having constantly wet hands
- Overzealous attention to the cuticles
- Severe nail biting, which can expose underlying tissues to infection
- Eczema around the fingernails.

### **Inflammation of the skin alongside the nail – paronychia**

The skin lying alongside the nail can become infected with bacteria, typically *Staphylococcus aureus*. This infection is called paronychia. Symptoms may include pain, redness and swelling around the cuticle and yellow-green discharge.

Treatment for paronychia includes:

- Keeping your feet as dry as possible
- Use of barrier creams, antiseptic lotions and antifungal preparations
- Antibiotic therapy (in acute cases).

Chronic paronychia (where the condition is present for a long time) is more difficult to treat. In chronic paronychia, the nail may distort and become discoloured, and the skin may lift at the site of infection. Sometimes, the inflammation spreads from one nail to another. A range of micro-organisms working together are responsible for chronic paronychia.

### **Fungal infection**

Fungal infections, such as tinea, are spread from one person to another and can affect the fingernails or toenails. Without treatment, the nail bed itself can become infected. People with diabetes or with compromised immune systems are at higher risk of fungal infection.

The characteristics of a fungal nail infection depend on the cause, but may include:

- Lifting of the nail plate off the nail bed
- Thickening of the nail plate
- Crumbling of the nail plate
- Discolouration, usually in streaks
- White, yellow or green smelly discharge
- Flaking and pitting of the surface of the nail plate.

Treatment for fungal infection includes:

- Antifungal preparations applied topically (directly to the nail) or taken orally (by mouth)
- Professional trimming, shaping and care of the toenail by your podiatrist.

### **Trauma to the nail**

A blow to the nail or compulsive nail biting can cause a range of problems, including:

- Bruising of the nail bed
- Lifting of the nail plate
- Loss of the nail plate
- Nail ridges
- Deformed growth of the nail plate, if the nail matrix is injured.

### **Ingrown toenail**

One of the most common problems treated by podiatrists is ingrown toenails. The big toe is particularly prone to this painful condition. Causes may include:

- Incorrect nail-trimming technique
- Trauma (such as stubbing your toe)
- Nails that naturally curve sharply on the sides and dig into the skin
- Wearing tight shoes.

Treatment from a podiatrist depends on the severity of the injury, but may include removing the ingrown nail section using a local anaesthetic.

Suggestions to prevent an ingrown toenail include:

- Trim your nails straight across rather than rounding off the edges.
- Wear comfortable, well-fitting shoes that don't press on your toes.

### **Skin diseases and nails**

Skin diseases such as psoriasis, eczema (dermatitis), lichen planus or lupus can affect the nails. Abnormalities may include pits, grooves or crumbling nails.

### **Unusual nail shape**

Unusual nail shape – such as the nails becoming concave – can be caused by iron deficiency.

### **Nail tumours**

Nails can be affected by tumours – including squamous cell carcinoma, usually caused by infection with the human papillomavirus (HPV). Melanoma can also affect the nail.

### **Splinter haemorrhages of the nail**

These are thin lines of blood running along the nail bed. Causes include injury, severe anaemia, infective endocarditis (inflammation of the inner tissue of the heart) and certain diseases such as rheumatoid arthritis.

### **Other diseases and nails**

Some diseases that can affect the shape, integrity and colour of our nails include:

- Lung disease
- Heart disease
- Kidney disease
- Liver disease
- Thyroid disease.

### **Congenital disorders of nails**

Some nail conditions are congenital (present at birth). These include nail–patella syndrome, where the nails are improperly formed or missing.

### **Older age and nails**

As our body ages, the growth rate of our fingernails and toenails tends to slow. The change of protein in the nail plate makes nails brittle and prone to splitting. Discolouration and thickening are also common.

### **Diagnosis and treatment of nail problems**

Any abnormal changes to your nails should be medically investigated. See your doctor for treatment or possible referral to a dermatologist. If the cause of your nail problem is not immediately apparent, your doctor may take nail clippings and scrapings from beneath the nail for laboratory analysis. Fingernail infections usually respond faster to treatment than toenail infections.

Depending on the cause, treatment may include:

- Antibiotics for bacterial infections
- Antifungal preparations, mainly oral tablets, for fungal infections in the nails
- Treatment for any contributing skin disease
- Advice on appropriate nail care.

### **Self-help strategies for healthy nails**

Ways to reduce the risk of nail problems include:

- Practice good personal hygiene.
- Wear protective gloves for wet jobs such as washing the dishes.
- Avoid harsh chemicals such as strong soaps and detergents.
- Avoid or limit the handling of chemicals such as hair dyes.
- Take care with the use of nail polish.
- Don't clean under your nails too often or too aggressively.
- When giving yourself a home manicure, do not push back the cuticles.
- Resist the urge to bite or tear off hangnails – use nail clippers.
- Don't bite your nails.
- Remove artificial nails carefully and according to the manufacturer's instructions.
- Don't smoke.
- Moisturise your hands frequently, particularly after washing them.
- Remember to rub the moisturiser over your nails and cuticles too.
- Treat any sign of eczema on your hands promptly.
- To protect yourself from fungal infections, don't share towels, always dry yourself thoroughly after bathing (particularly between the toes), and wear thongs in communal bathing areas such as the local gym or swimming pool.
- Make sure your shoes are well-fitting and have plenty of room for air movement.

### **Where to get help**

- Your doctor
- Dermatologist
- Podiatrist
- **Australasian College of Dermatologists** Tel. (02) 8765 0242 or 1300 361 821
- **Australian Podiatry Association** (Vic.) Tel. (03) 9286 1885

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