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## Fungal nail infections

[Fungal infection](#) of the nails is known as "onychomycosis". It is increasingly common with increased age. It rarely affects children.

### Responsible organisms

Onychomycosis can be due to:

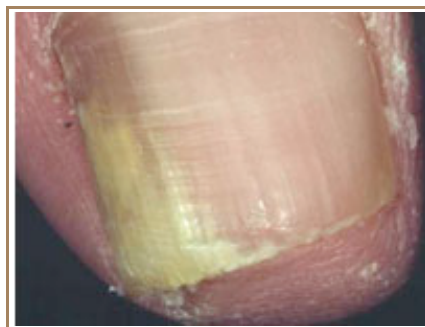
- [Dermatophytes](#) such as *Trichophyton rubrum* (*T rubrum*), *T. interdigitale*. The infection is also known as tinea unguium.
- [Yeasts](#) such as *Candida albicans*.
- [Moulds](#) especially *Scopulariopsis brevicaulis* and *Fusarium* species.



Onychomycosis from *T rubrum* with secondary bacterial infection



Complete nail destruction



Lateral onychomycosis



Nail infection due to *Microsporium canis* (rare)



All nails are yellow due to *T rubrum* infection



Extensive tinea unguium due to *T rubrum*

### Clinical features

Onychomycosis may affect one or more toenails and/or fingernails and most often involves the great toenail or the little toenail. It can present in one or several different patterns:

- Lateral onychomycosis. A white or yellow opaque streak appears at one side of the nail.

- Subungual hyperkeratosis. Scaling occurs under the nail.
- Distal [onycholysis](#). The end of the nail lifts up. The free edge often crumbles.
- Superficial white onychomycosis. Flaky white patches and pits appear on the top of the nail plate.
- Proximal onychomycosis. Yellow spots appear in the half-moon (lunula).
- Complete destruction of the nail.

Tinea unguium often results from untreated [tinea pedis](#) (feet) or [tinea manuum](#) (hand). It may follow an injury to the nail.

Candida infection of the nail plate generally results from [paronychia](#) and starts near the nail fold (the cuticle). The nail fold is swollen and red, lifted off the nail plate. White, yellow, green or black marks appear on the nearby nail and spread. The nail may lift off its bed and is tender if you press on it.

[Mould](#) infections are usually indistinguishable from tinea unguium.

Onychomycosis must be distinguished from other [nail disorders](#) such as:

- Bacterial infection especially *Pseudomonas aeruginosa*, which turns the nail black or green.
- [Psoriasis](#).
- Eczema or [dermatitis](#).
- [Lichen planus](#).
- Viral [warts](#).
- [Onycholysis](#)
- Onychogryphosis (nail thickening and scaling under the nail), common in the elderly.

## Nail clippings

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Clippings should be taken from crumbling tissue at the end of the infected nail. The discoloured surface of the nails can be scraped off. The debris can be scooped out from under the nail.

Previous treatment can reduce the chance of growing the fungus successfully in culture so it is best to take the clippings before any treatment is commenced:

- To confirm the diagnosis – antifungal treatment will not be successful if there is another explanation for the nail condition.
- To identify the responsible organism. Moulds and yeasts may require different treatment from [dermatophyte](#) fungi.
- Treatment may be required for a prolonged period and is expensive. Partially treated infection may be impossible to prove for many months as antifungal drugs can be detected even a year later.

## Treatment

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Fingernail infections are usually cured more quickly and effectively than toenail infections.

Mild infections affecting less than 80% of one or two nails may respond to [topical antifungal](#) medications but cure usually requires an [oral antifungal](#) medication for several months. Combined topical and oral treatment is probably the most effective regime.

### Related information

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#### On DermNet NZ:

- [Introduction to fungal infections](#)
- [Laboratory tests for fungal infections](#)
- [Treatment of fungal infections](#)
- [Nail disorders](#)

**Other websites:**

- [Best treatments](#) clinical evidence for patients from the BMJ: Nail infection, fungal
- [Onychomycosis](#) - emedicine dermatology, the online textbook

**Books about skin diseases:**

See the [DermNet NZ bookstore](#)

DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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