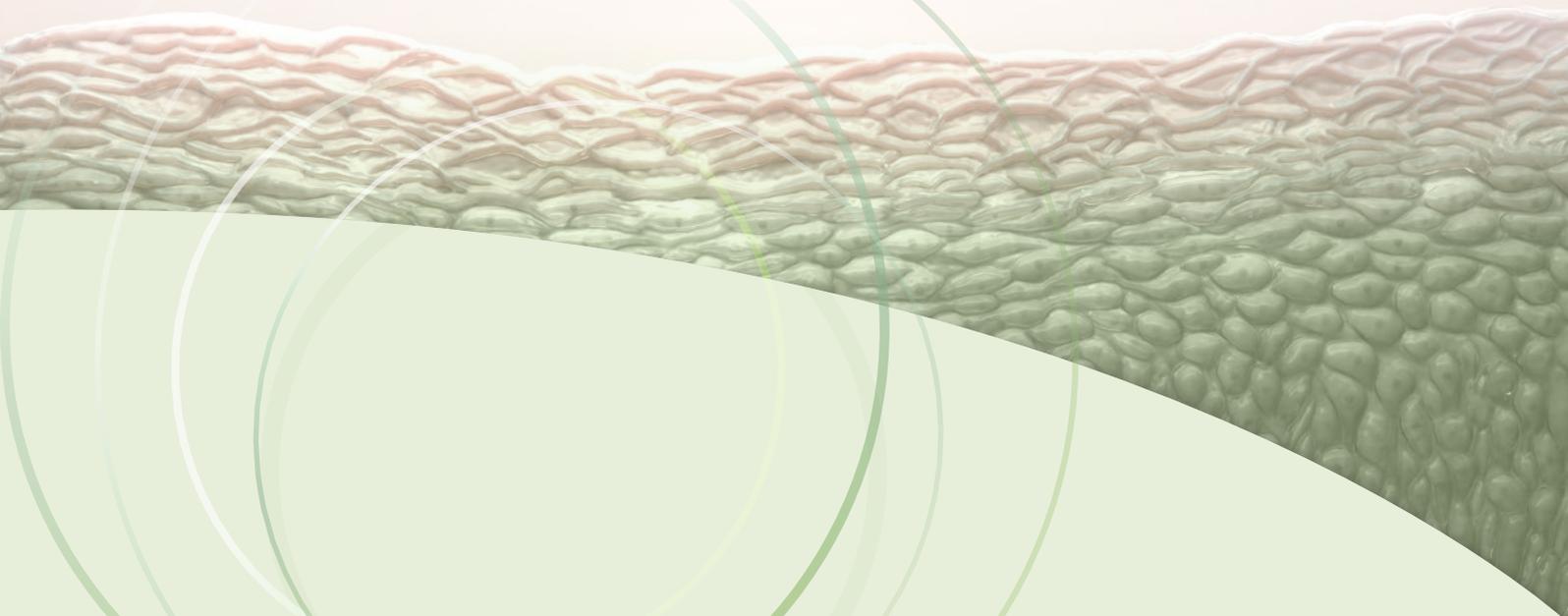


Information Leaflet for Patients

A detailed, 3D-rendered illustration of the epidermal layer of human skin, showing the characteristic brick-and-mortar structure of keratinocytes. The top layer is reddish-pink, while the lower layers are greenish. Overlaid on the skin are several concentric, semi-transparent green circles of varying sizes, creating a ripple effect.

FUNGAL INFECTIONS OF THE NAILS (*ONYCHOMYCOSIS*)

The aim of this leaflet

This leaflet is designed to help you understand more about fungal infections of the nails. It tells you what this condition is, what causes it, what can be done for treatment, and how it can be prevented.

FUNGAL INFECTIONS OF THE NAILS (*ONYCHOMYCOSIS*)

What is a fungal infection of the nail?

Fungal infections of the nails (or *onychomycosis*) are most commonly caused by fungi (the plural of fungus), which are *microbes* that cause infections, athlete's foot, and ringworm (a fungal infection of the skin which forms round patches on the body or scalp). When they damage the nails, they spread from the skin on the toes or fingers and infect the hard "nail plate" (the fingernail).

What are the causes of fungal infections of the nail?

Fungi that cause athlete's foot, which are known as *dermatophytes*, are the most common causes of fungal nail infections. However, nail infections are sometimes caused by different fungi, such as *Candida* or mold fungi, which may affect the choice of treatment (depending on the fungus). Not all nail changes are due to fungal infection. For instance, trauma due to sports such as running, or wearing tight-fitting shoes, can also cause changes to the nails. This is also true for other skin diseases such as *psoriasis*. The most common site for fungal infection is the toenail, particularly in older patients where it may cause discomfort. People with poor circulation or diabetes are also prone to nail infection.

What are the changes associated with fungal infections of the nails?

Most people notice nail infections because the nail becomes thicker and discoloured (white or yellow), although sometimes it becomes partially detached from the underlying toe (*onycholysis*). The skin on the feet may also be abnormal; cracking and itching between the toes is a common sign of athlete's foot, which occurs before nail infection.

On the fingers, the skin around the "nail fold" may be swollen, and the nail may also become discoloured. The swelling may be painful and unpleasant-smelling pus or fluid may leak out. This type of infection is usually caused by *Candida*, the "thrush" fungus

called *paronychia*. People who perform a lot of work involving exposure to water, such as cooking or washing, are more prone to this kind of infection.

How are fungal infections of the nail diagnosed?

Since there are other causes of nail damage and treatment can be lengthy, it is important to confirm the diagnosis which your physician will usually confirm by taking samples for the laboratory. This involves taking a clipping from the affected nail or debris taken below the nail; your clinician will want to take several pieces of nail and send them to a laboratory. It takes up to 4 weeks to obtain a full report.

How can fungal infections of the nails be treated?

Treatment may take several months and is not always successful, so your doctor will discuss the advantages and disadvantages of treatment. Remember, it is your choice: you may decide not to have treatment.

Oral therapy is the most successful, meaning tablets or capsules called terbinafine or itraconazole. For very early infections, a topical (local) antifungal application such as a nail lacquer/varnish may be sufficient to cure the infection, but it is important to follow the instructions provided with the medication to obtain the best results. Your clinician may combine both topical and oral therapies. Currently, there are other therapies but they are not widely used unless as an addition to the treatments described above. These include the removal of parts of the infected nail.

In the case of *paronychia* described above, treatments include topical solutions applied under the edge of the nail fold, oral medication, and sometimes creams (which may include steroid-containing creams) applied to the swollen base of the nail. It is also important to protect the nail and its surroundings from moisture.

Why can treatment be a slow process?

Successful treatment of fungal nail infection is a slow process because the nail itself grows slowly. The fingernail grows faster than the toenail. This explains why the course of treatment is longer for toenails than fingernails. Medicines may be prescribed either continuously or intermittently, and your clinician will discuss the most suitable choice of treatment with you. This will depend on the type of fungus that has caused the infection, and the medication may be altered depending on the results of the laboratory tests. Try not to be discouraged that the appearance of the nail does not swiftly return to normal once you start treatment. This is because the changes are due to damage to the nail plate, which has to grow out and be replaced by new nail, which takes months. The fungus may reoccur over time in one in five patients.

What precautions may be taken during treatment?

Your clinician may want to order blood tests if you are on oral treatment. Although side effects are not common, this is a precaution which is often taken. If you experience nausea, like influenza, severe headaches, diarrhoea, or a skin rash, contact your clinician for advice. Also, be sure to give your clinician a list of the medications that you currently take, as sometimes one medicine can interfere with another.

Can relapses be prevented?

There are no precautions that are completely effective in preventing the relapse of nail infection, but the following steps may reduce the risk of another infection:

- Treating new episodes of athlete's foot (scaling between the toes) with a topical antifungal cream is a sensible precaution. Other members of the family living with you, who have athlete's foot, should also be treated.
- Do not share towels or socks.
- Wash your socks at a temperature of ≥ 60 °C.
- Use bath slippers in public baths to prevent athlete's foot.
- Make sure to dry your feet completely after taking a shower or bath. ■