

## Patient information from the BMJ Group

# Fungal nail infection

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## Fungal nail infection

If one of your toenails or fingernails is thick and white, you may have a fungal infection. It may look bad, but it's not serious. And treatment can help.

We've brought together the best research about fungal nail infections and weighed up the evidence about how to treat them. You can use our information to talk to your doctor and decide which treatments are best for you.

## What are fungal nail infections?

If one of your nails is thick and looks white or yellow, you may have what doctors call a fungal infection. It may look bad, but it's not serious. Treatments can stop it hurting and help clear up the infection.

It's easy to catch a fungal nail infection, especially in a toenail. <sup>[1]</sup>

## Key points for people with fungal nail infections

- Fungal infections of your nails don't usually cause serious problems.
- If you don't get treatment for an infected nail, it can spread to other nails.
- Serious infections can damage your nail. This can make it hard to walk.
- You don't need to be embarrassed about having a fungal nail infection, no matter how horrible you think it looks. Doctors are used to seeing them.
- Fungal nail infections can be cured.
- You can buy some treatments over the counter. Or your doctor can prescribe others if you need them.
- It might take up to one year to get rid of an infection.

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## What causes it?



If you have a fungal nail infection, your nail may look white.

You may not like the idea of a **fungus** living on your skin. But the fungi that grow under your nails are tiny **organisms**, like **bacteria** or a **virus**. The fungus is so small that you can't see it.

The type of fungus that gets under your nails lives only on top of your skin. It doesn't go inside your body. These tiny fungi often live in warm, damp places, such as showers and floors around changing rooms. But they can also live in dry environments.

There are lots of things you can do to avoid getting another nail infection. For example, you can wear flip-flops when you use changing rooms at the swimming pool or gym. See [How to avoid getting a fungal nail infection](#) for more tips.

Fungal infections often affect the nail on the big toe. If you don't treat the infection, it can spread to other nails on your toes and to your fingernails.

A condition called [athlete's foot](#) is also caused by a fungus. It's an itchy infection of the skin on and between your toes, but it can spread to your nails.

## Your nails

Your nails start under your skin, just below the **cuticle** (the thin layer of skin at the base of the nail).

Nails are mainly made of a tough protein called keratin. Your hair and skin also contain keratin. Underneath each nail is a fleshy area that doctors call the **nail bed**.

## What happens when you get a nail infection?

The fungi that cause nail infections often live in places that are warm and damp. <sup>[2]</sup> So if you work in a kitchen, for example, where your hands are often wet, it's easy for a fungus to get into the soft skin around your nail and work its way underneath the nail. Or you may pick up an infection if you walk around barefoot in damp places, such as around the showers at the gym. However, these fungi can also live in dry areas.

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- If you get a nail infection, the fungus has got under your nail and into the skin beneath it (the nail bed). Once the fungus is there, it feeds on dead skin cells and starts to grow.
- As the fungus grows, it spreads under the nail. This makes more space between the nail and the skin underneath, which makes the nail look white. If dirt gets trapped under the nail it can look black.
- Because there's a space between the nail and the skin beneath it, the nail sticks up higher than the other nails. So it's more likely to get bumped and banged as you walk around. When this happens, the nail gets thick.
- Fungal infections can be annoying. If you have an infection in your toenail and it gets bad, you may have trouble walking. Or if you have one in your fingernail, you may find it hard to handle small things such as a needle or thread.

### Fungal nail infection: what causes it?

Some people are more likely to get a fungal nail infection than other people, either because of the work that they do or because there's something about them that gives the infection a way in.

Here are some things that increase your chances of getting a fungal nail infection: <sup>[6]</sup> <sup>[7]</sup>  
<sup>[8]</sup>

- Being older. Children rarely get fungal nail infections
- Being male
- Having athlete's foot. The fungus that makes you have itchy toes and flaking skin in athlete's foot can spread to your nails
- Wearing shoes that make your feet sweat a lot
- Going swimming. This is because the **fungi** that cause nail infections often live in warm, damp places. And the areas around swimming pools and in changing rooms and showers are often the perfect place for them to start growing
- Using shared changing areas, such as in gyms
- Having bad circulation (for example, if you have **diabetes** ). This makes your body less able to fight off infections
- Having damaged nails. If your nails are cracked or broken, it's easier for a fungus to get underneath and cause an infection

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- Having a job that damages your nails or in which your hands and feet are constantly wet and warm, such as mining, working in a kitchen, or working as a cleaner
- Having a weak immune system as a result of a disease (for example, **AIDS**) or any treatments you are having (such as **chemotherapy**).<sup>[9]</sup> This makes it harder for your body to fight off any infections
- Taking a lot of antibiotics can sometimes make it easier for fungi to grow.<sup>[10]</sup>

### What are the symptoms of fungal nail infections?

If a fungus has infected your nail you may have a few symptoms. We've listed some of the most common ones below. You probably won't get all of them. Most people get one or two.<sup>[1] [6] [11] [12]</sup>

- Your nail may turn white or yellow.
- Your nail may get thicker and have ridges in it.
- The nail may start to lift away from your finger or toe. Or it may come off completely.
- You may get white spots on your nail that you can scrape off.
- If the infection is severe, your nail may get crumbly and powdery.
- The skin around your nail may turn red.
- If you've had a toenail infection for a long time, your nail may hurt and this can affect how you walk. Or if it is in a fingernail, it may affect how you use that finger.

You're more likely to get a fungal infection in your toenails than in your fingernails.

### How do doctors diagnose fungal nail infections?

You might feel embarrassed about showing your nails to a doctor. But your doctor has probably seen nail infections before and will be able to suggest treatments to get rid of the infection.

You may think that your nails look ugly because they have turned yellow. Or they may be thick. If the infection is severe, your nails may be crumbly.<sup>[6] [8]</sup> Many people with fungal nail infections have had them for a long time, often for many years, before they go to a doctor about them.<sup>[16]</sup>

If you think you have an infected nail or nails, you should see your doctor. You can buy some medicines over the counter from a pharmacist. Or your doctor or a doctor who

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specialises in foot, ankle, and leg problems (a podiatrist) can prescribe others if you need them.

Your doctor will probably look at your nail and may take a nail clipping. The clipping will be tested for a fungal nail infection at a laboratory. This helps your doctor decide if your nail has a fungal infection or if it has been damaged, say, by stubbing your toe. If a nail is damaged, antifungal treatments won't help.

If your nails have become thick, it can help to thin them down before you treat them so that medicine can get to the infection. Your doctor may refer you to a podiatrist for this treatment.

### How common are fungal nail infections?

Nail infections caused by a fungus are very common. Children don't usually get them, but adults do. And the older you get, the more likely you are to get one.

In the past, surveys have suggested that between 3 in 100 and 8 in 100 people in the UK have a fungal nail infection.<sup>[13]</sup> But the real number could be much higher. Only about 1 in 3 people with fungal nail infection go to see their doctor about it. In one study, 1 in 5 people diagnosed with a fungal nail infection had had it for at least 20 years.<sup>[5]</sup>

If you have a fungal infection you are much more likely to have it in a toenail than a fingernail.

### What treatments work for fungal nail infections?

With the right treatment you should be able to get rid of a nail infection caused by a fungus, even if you've had it for years. But you may have to be patient. It could take months to clear up.

### Key points about treating fungal nail infections

- To get rid of a fungal nail infection you will probably have to take tablets, sometimes for six months or longer.
- Fingernail infections tend to clear up quicker than toenail infections. You may need to take tablets for only six weeks for a fingernail infection.
- You'll probably need to have a sample of nail sent to the laboratory for tests to make sure you have a fungal infection.
- There's a small chance the tablets will damage your liver, so you may have a test to check your liver is healthy before starting treatment.
- There are also varnishes for infected nails. Normally doctors recommend tablets for this condition. But if the problem is mild, a nail varnish might kill the fungal infection.

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- If your infection is severe or keeps coming back, your doctor may recommend removing part or all of your nail. But this treatment is rarely used.
- If your nail infection doesn't bother you, you may wish to leave it alone.
- There are some things you can do to protect your nails from infections after they've been treated. To learn more, see [How to avoid getting a fungal nail infection](#) .

Which treatments work best? We've looked at the research and given a rating for each treatment according to how well it works. We've focused on the research for fungal toenail infections. These infections are the most common type and can be more difficult to treat than infections of the fingernails.

For more help in deciding which treatment is best for you, see [How to use research to support your treatment decisions](#).

### Treatment Group 1

#### Treatment of fungal nail infections

##### Treatments that work

- [Terbinafine tablets](#) (brand name Lamisil): These are antifungal tablets. They treat nail infections caused by a fungus. [More...](#)
- [Itraconazole tablets](#) (brand name Sporanox): These are antifungal tablets. They treat nail infections caused by a fungus. [More...](#)

##### Treatments that are likely to work

- [Fluconazole tablets](#) (brand name Diflucan): These are antifungal tablets. They treat infections caused by a fungus. But fluconazole isn't usually given to people with nail infections. [More...](#)

##### Treatments that need further study

- [Griseofulvin tablets](#) (brand name Grisovin): Griseofulvin is an antifungal drug. It doesn't seem to work as well as some other tablets against fungal infections. [More...](#)
- [Treatments you paint on your nail](#) : These include amorolfine (brand names Loceryl and Curanail) and tioconazole (Trosyl). [More...](#)
- [Removing part or all of your nail](#) : If your infection is severe or keeps coming back, your doctor may suggest removing some or all of your nail. But this isn't done very often. [More...](#)

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## What will happen to me?

Doctors and patients used to think that once you had a nail with an infection caused by a fungus you would have it forever. And this used to be true. But now there are treatments that can get rid of fungal nail infections.

But treatment takes time. And if your nail has come off, it can take as long as one year to grow back.

Fungal nail infections are not a big problem for most people.

- If your nail infection doesn't bother you, you may decide not to have it treated. If you don't have it treated it won't usually affect your health.
- But if you don't treat an infection, it may make your nail hurt. And if it's on your toe this can make walking difficult and painful.<sup>[14]</sup>
- If you have a bad nail infection on your finger, you may not be able to use your finger as well as you usually would. For example, you may find it hard to pick up something small.<sup>[15] [6]</sup>
- If the infection makes your nail look bad, you may feel embarrassed about it. Sometimes people with nail infections are too embarrassed to do things they enjoy, such as going swimming.<sup>[14] [6] [16]</sup>

If your immune system is weak, a fungal nail infection may get more serious. If you have HIV or AIDS, or if you are on chemotherapy, you may be more likely to get infections. So, it's important to see your doctor as soon as possible if you think you have a nail infection.

## Questions to ask your doctor

Here are some questions you may want to ask your doctor:

- How did I get a fungal nail infection?
- Will my nails get better?
- What's the best treatment for me?
- How long will I need to use this treatment?
- What are the side effects of treatment?
- Will my nails grow back or get back to normal?
- Do I have to stop doing any activities, such as running or swimming?

- Will the infection come back?
- 

### Treatments:

## Itraconazole tablets

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[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on itraconazole tablets?](#)

This information is for people who have a fungal nail infection. It tells you about itraconazole tablets, a treatment used for fungal nail infections. It is based on the best and most up-to-date research.

### Do they work?

Yes. If you take itraconazole tablets you're more likely to get rid of your fungal nail infection than if you don't have any treatment.

Itraconazole tablets may not work as well as [terbinafine tablets](#) .

### What are they?

Itraconazole is an antifungal drug (a drug that kills **fungi** ). It's used to treat infections that are caused by fungi, including those that affect fingernails and toenails. It doesn't change the way that damaged nails look. But, by stopping the fungus, it allows new nails to grow normally.

The brand name for itraconazole tablets is Sporanox.

You'll need to take itraconazole tablets for at least three months. There are two ways you can take itraconazole tablets:

- You can take them every day. This is called **continuous treatment**
- Or you can take them for one week in every four weeks. This is called **pulsed treatment** or **intermittent treatment**.

### How can they help?

If you take itraconazole tablets every day for 12 weeks, there's a 60 in 100 chance you'll get rid of your fungal toenail infection.<sup>[17]</sup>

And taking itraconazole tablets every day for one week out of every four weeks can work just as well as taking them continuously for 12 weeks or 16 weeks.<sup>[17]</sup>



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But itraconazole tablets may not work as well as [terbinafine tablets](#) .<sup>[17]</sup>

Some research suggests that many people are not completely cured a year after starting treatment. A complete cure means that the nail looks normal, and there are no signs of infection when a sample is checked in a laboratory and under a microscope. In one study, around 20 in 100 people with a toenail infection were completely cured a year later.<sup>[18]</sup>

### How do they work?

Like most antifungal drugs, itraconazole stops the fungus growing.<sup>[19]</sup> So eventually the fungus dies. This will allow new nail to grow normally.

### Can they be harmful?

All antifungal tablets can cause diarrhoea, a rash, or breathing problems.<sup>[17]</sup> But not many people get these problems. They are usually mild and go away when you stop taking the tablets.

Sometimes people get more serious side effects. These are rare but it is important to know about them. Itraconazole can cause liver problems and heart problems.

#### Liver problems

Itraconazole can cause liver problems, so you'll need to have regular tests to make sure your liver is working normally.

You should call your doctor straight away if you have any of these symptoms:

- Nausea
- Vomiting
- Fatigue
- Abdominal pain
- Dark urine.

#### Heart problems

Itraconazole may cause [heart failure](#) .

You should call your doctor straight away if you have any of these symptoms:

- Trouble catching your breath
- Coughing
- Feeling weak

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- Feeling very tired
- Feeling confused
- Weight gain
- Swelling in your legs or feet.

The Committee on Safety of Medicines, the government organisation that looks at the safety of medicines, says that doctors should be careful when they prescribe itraconazole to people who are at high risk of heart failure. This includes: <sup>[20]</sup>

- People who take high doses of itraconazole for a long time
- Older people
- People with heart disease
- People taking certain types of heart drugs, such as calcium channel blockers.

### How good is the research on itraconazole tablets?

There isn't a lot of evidence about itraconazole tablets. Below we've taken a look at the research on using these tablets for toenail infections.

We found one summary of the research (called a **systematic review**). <sup>[17]</sup> This included studies (called **randomised controlled trials**) of tablets used to treat fungal nail infections. It is difficult to draw many conclusions from the studies because:

- Most of the studies were paid for by the pharmaceutical companies that made the products
- Researchers had different ways of deciding whether fungal nail infections had been cured.

However, this is what the summary showed: <sup>[17]</sup>

- About 60 in 100 people who took itraconazole tablets every day for 12 weeks got rid of the infection
- Less than 10 in 100 people who took a dummy treatment (a **placebo**) got rid of their infection
- Itraconazole worked just as well if people took it every day for 12 weeks or 16 weeks, or if they took it intermittently (every day for one week out of every four weeks).

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The summary also included four studies that compared itraconazole tablets with [terbinafine tablets](#) .<sup>[17]</sup> Three studies found that terbinafine tablets worked better than itraconazole tablets (taken either continuously or intermittently). Overall, about 50 in 100 people who took itraconazole in these three studies got rid of their fungal nail infection, compared with about 70 to 80 in 100 people who took terbinafine. The fourth study found that about 80 in 100 people who took either drug for one year were cured.

Three studies compared itraconazole tablets with [griseofulvin tablets](#) .<sup>[17]</sup> None of these studies found any real difference between the two treatments.

We didn't find any good studies that compared itraconazole tablets with [fluconazole tablets](#) .

A study published after the summary looked at how many people were completely cured a year after they'd started taking itraconazole tablets. A complete cure means that the nail looks normal, and there are no signs of infection when a sample is checked in a laboratory and under a microscope. The study found that 22 in 100 people who'd taken itraconazole tablets were completely cured, compared with 1 in 100 people who'd taken a dummy treatment.<sup>[18]</sup>

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## Terbinafine tablets

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[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on terbinafine tablets?](#)

This information is for people who have a fungal nail infection. It tells you about terbinafine tablets, a treatment used for fungal nail infections. It is based on the best and most up-to-date research.

### Do they work?

Yes. If you take terbinafine tablets you're more likely to get rid of your fungal nail infection than if you don't have any treatment. Terbinafine tablets seem to work better than other antifungal drugs.

### What are they?

Terbinafine is an antifungal drug (a drug that kills **fungi** ). It's used to treat infections that are caused by fungi, including those that affect fingernails and toenails. It doesn't change the way that damaged nails look. But, by stopping the fungus, it allows new nails to grow normally.

The brand name for terbinafine tablets is Lamisil.

## Fungal nail infection

You'll need to take terbinafine tablets every day for several weeks or months.<sup>[21]</sup> The minimum for a fingernail infection is about six weeks. For an infected toenail, three months is more realistic. Some people need treatment for six months or more to get results.

Studies show that terbinafine is safe to take for most people. That includes people with diabetes or HIV, and people who have had a transplant.<sup>[22]</sup>

### How can they help?

If you take terbinafine tablets every day for 12 weeks, there's a 60 in 100 chance you'll get rid of your fungal toenail infection.<sup>[17]</sup>

If you take the drug for 24 weeks, you're even more likely to get rid of your fungal toenail infection. Nearly 90 in 100 people who take terbinafine for 24 weeks get rid of their fungal nail infection.<sup>[17]</sup>

Terbinafine tablets appear to work better than [itraconazole](#) and [griseofulvin](#) tablets.<sup>[17]</sup>

### How do they work?

Terbinafine kills the fungus that causes nail infections and makes nails look bad.<sup>[19]</sup> This allows new nails to grow normally.

### Can they be harmful?

All antifungal tablets can cause diarrhoea, a rash, or breathing problems.<sup>[17]</sup> But not many people get these problems. They are usually mild and go away when you stop taking the tablets.

You may be slightly more likely to get side effects if you're older (over 60). One study found that among 30 people over 60 years old there were 18 reports of side effects.<sup>[23]</sup> These were classed as mild or moderate. And no one in the study stopped their treatment because of these side effects.

Sometimes people get more serious side effects. These are rare but it is important to know about them. The main issue is liver problems.

### Liver problems

Terbinafine can cause liver problems, so you'll need to have regular tests to make sure your liver is working normally. You should call your doctor straight away if you get any of the following symptoms:

- Nausea
- Vomiting

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- Fatigue
- Abdominal pain
- Dark urine.

### How good is the research on terbinafine tablets?

There isn't a lot of evidence that terbinafine tablets help to get rid of fungal nail infections. Below we've taken a look at the research on using these tablets for toenail infections.

We found one summary of the research (called a [systematic review](#)).<sup>[17]</sup> This compared the results of many studies (called [randomised controlled trials](#)) of tablets used to treat fungal nail infections. It is difficult to draw many conclusions from the studies because:

- Most of the studies were paid for by the pharmaceutical companies that made the products
- Researchers had different ways of deciding whether fungal nail infections had been cured.

However, this is what the summary showed:<sup>[17]</sup>

- About 60 in 100 people who took terbinafine tablets every day for 12 weeks got rid of the infection. About 20 in 100 people who took a dummy treatment (a [placebo](#)) got rid of their infection.
- Nearly 90 in 100 people who took terbinafine tablets every day for 24 weeks were still free of infection six months later, compared with 70 in 100 who took the tablets every day for 12 weeks. Less than 10 in 100 people who took a dummy treatment (placebo) were cured of their infection.

The review also found four studies that compared terbinafine tablets with [itraconazole tablets](#).<sup>[17]</sup> Three studies found that terbinafine tablets worked better than itraconazole tablets. Overall, about 50 in 100 people who took itraconazole in these three studies got rid of their fungal nail infection compared with about 70 to 80 in 100 people who took terbinafine. The fourth study found that about 80 in 100 people who took either drug for one year were cured.

Three studies compared terbinafine tablets with [griseofulvin tablets](#).<sup>[17]</sup> All three found that terbinafine tablets worked best. Overall, between 60 and 80 in 100 people who took terbinafine tablets were cured of their fungal nail infection compared with about 50 to 60 in 100 people who took griseofulvin tablets.

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## Fluconazole tablets

# Fungal nail infection

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[How good is the research on fluconazole tablets?](#)

This information is for people who have a fungal nail infection. It tells you about fluconazole tablets, a treatment used for fungal nail infections. It is based on the best and most up-to-date research.

## Do they work?

Probably. If you take fluconazole tablets you may be more likely to get rid of your fungal nail infection than if you don't have treatment. But you'll probably need to take it for several months.

Fluconazole tablets don't seem to work as well as two other tablets for fungal nail infection, [itraconazole](#) and [terbinafine](#) .

## What are they?

Fluconazole is an antifungal drug. It's used to treat various infections that are caused by fungi . But it is not usually used for treating nail infections in the UK.

The brand name for fluconazole tablets is Diflucan.

## How can they help?

About 30 in 100 people get rid of their fungal toenail infection when they take fluconazole tablets for about four months.<sup>[17]</sup> You will be more likely to be cured if you take the tablets for at least six months.<sup>[17]</sup>

More people seem to get rid of their fungal nail infections with other treatments. But there haven't been any good-quality studies comparing fluconazole with [itraconazole tablets](#) or [terbinafine tablets](#) .

## How do they work?

Like most antifungal drugs, fluconazole stops the fungus growing.<sup>[19]</sup> So eventually it will die. This will allow new nail to grow normally.

## Can they be harmful?

You may get diarrhoea, a rash, or breathing problems with any kind of antifungal tablets.<sup>[17]</sup> But these problems are usually mild and not many people get them. They usually go away when you stop taking the tablets.

Sometimes people get more serious side effects. These are rare but it is important to know about them. Occasionally, fluconazole can cause liver problems, so you may need

## Fungal nail infection

to have regular tests. You should go to your doctor straight away if you get any of the following symptoms:

- Nausea
- Vomiting
- Fatigue
- Abdominal pain
- Dark urine.

### How good is the research on fluconazole tablets?

There isn't a lot of evidence for fluconazole tablets. Below we've taken a look at the research on using these tablets for toenail infections.

We found one summary of the research (called a [systematic review](#)).<sup>[17]</sup> This compared the results of many studies (called [randomised controlled trials](#)) of tablets used to treat fungal nail infections. It is difficult to draw many conclusions from the studies because:

- Most of the studies were paid for by the pharmaceutical companies which made the products
- Researchers had different ways of deciding whether fungal nail infections had been cured.

The summary found two studies on fluconazole tablets.<sup>[17]</sup> Together these studies included nearly 700 people. They found that between 30 and 50 people out of 100 got rid of their fungal nail infection after taking fluconazole for between 16 and 39 weeks. Also, the chance of being cured was greater with a higher dose of fluconazole. Less than 10 in 100 people who took a dummy medicine (a [placebo](#)) were cured.

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## Griseofulvin tablets

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[How good is the research on griseofulvin tablets?](#)

This information is for people who have a fungal nail infection. It tells you about griseofulvin tablets, a treatment used for fungal nail infections. It is based on the best and most up-to-date research.

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## Do they work?

We're not sure. There hasn't been enough research on griseofulvin tablets.

We know that other treatments, such as [terbinafine tablets](#) and [itraconazole tablets](#), work well.

## What are they?

Griseofulvin is an **antibiotic**. It is designed to kill bacteria, not the **fungi** that cause fungal nail infections. The brand name for griseofulvin tablets is Grisovin.

Griseofulvin is an older drug and there are better treatments now.

## How can they help?

Griseofulvin tablets don't work very well. Between 10 in 100 and 60 in 100 people may be helped, but you probably need to take these tablets for at least six months, and not many people want to take an antibiotic for that long. <sup>[17]</sup>

## How do they work?

Griseofulvin is an antibiotic that slows the growth of some fungi.

## Can they be harmful?

The side effects of griseofulvin are usually mild and go away when you stop taking the tablets. They include nausea, vomiting, diarrhoea, and headache. <sup>[20]</sup>

## How good is the research on griseofulvin tablets?

There isn't a lot of evidence on how well griseofulvin tablets work. Below we've taken a look at the research on using these tablets for toenail infections.

We found one summary of the research (called a **systematic review**). <sup>[17]</sup> This compared the results of many studies (called **randomised controlled trials**) of tablets used to treat fungal nail infections. It is difficult to draw many conclusions from the studies because:

- Most of the studies were paid for by the pharmaceutical companies that made the products
- Researchers had different ways of deciding whether fungal nail infections had been cured.

The summary included three studies that compared griseofulvin tablets with [itraconazole tablets](#). <sup>[17]</sup> These were fairly small studies. One included just 19 people. The largest included 108 people. None of the studies found any difference between the two treatments.



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Three studies compared griseofulvin tablets with [terbinafine tablets](#) .<sup>[17]</sup> In all the studies terbinafine worked better than griseofulvin.

About 1 in 2 people who took griseofulvin tablets every day (for at least 24 weeks) got rid of their fungal infection. But about 3 in 4 people who took terbinafine tablets (for at least 16 weeks) got rid of their infection.

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### Treatments you paint on your nail

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[How good is the research on treatments you paint on your nail?](#)

This information is for people who have a fungal nail infection. It tells you about treatments you paint on your nail to treat fungal nail infections. It is based on the best and most up-to-date research.

#### Do they work?

We're not sure. There hasn't been much research on the medicated nail varnishes you can get in the UK. So, we can't say whether they work for fungal nail infections.

#### What are they?

Instead of taking tablets to treat your fungal nail infection, you can put an antifungal medicine directly on your nails. This is called topical treatment. You can get antifungal medicines as a nail varnish that you paint onto your nails. Antifungal medicines kill the **fungus** that is causing the infection.

These are the most common topical treatments:

- Amorolfine (brand names Loceryl and Curanail): this comes as a nail varnish (nail lacquer). You need a prescription from your doctor for Loceryl. But you can buy Curanail from a pharmacy.
- Tioconazole (brand name Trosyl): this is a lotion that you brush on your nail. You can get it only on prescription from your doctor.

You'll need to follow the instructions carefully. Some medicines need to be put on your nails once or twice a day, others once or twice a week. You'll probably need to use the treatment for several months, or even one year. Toenails usually take longer to treat than fingernails.

Many people prefer topical treatments, like varnishes, to tablets, because topical treatments don't have the side effects (such as stomach upsets and liver problems) that

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can happen with tablets. Topical treatments can cause some soreness and redness around the nail, but this doesn't usually stop people using the treatment.

Topical treatments may not work as well as antifungal tablets, especially if several of your nails are infected. And you will probably need to use topical treatment for longer.

### How can they help?

We don't know. There are no good-quality studies to say whether these treatments help to get rid of fungal nail infections. <sup>[24]</sup>

Another type of varnish, called ciclopirox, does seem to work. But it is not available in the UK. <sup>[25]</sup>

### How do they work?

Antifungal drugs stop the fungus growing. <sup>[19]</sup> So, eventually it should die. This should allow new nails to grow normally.

### Can they be harmful?

You might get swelling, itching, or redness where you put the treatment on. If this is severe you may need to stop treatment. <sup>[20]</sup>

### How good is the research on treatments you paint on your nail?

We didn't find any good-quality studies of amorolfine or tioconazole creams, lotions, or varnishes for fungal nail infections. <sup>[24]</sup>

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## Removing part or all of your nail

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on removing part or all of your nail?](#)

This information is for people who have a fungal nail infection. It tells you about removing part or all of your nail, a treatment used for fungal nail infections. It is based on the best and most up-to-date research.

### Does it work?

We're not sure. There hasn't been much research on removing some or all of the nail to treat a fungal nail infection. This treatment isn't used very often, but your doctor might suggest it if your infection is severe or keeps coming back.

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## What is it?

You can have your nail completely removed (this is called avulsion) or partially removed (this is called debridement). There are two ways to do this: either with minor surgery or with an ointment that softens your nail so that it can be removed easily.

- **Surgery:** Your doctor will first numb the skin around and under your nail with an injection of a **local anaesthetic**. He or she will then use a tool to separate your nail from the surrounding skin and nail bed (this is the area under your nail). Once your nail is removed, the skin underneath should heal in a few weeks.
- **Removal with an ointment:** Your doctor will cover the skin around your nail to protect it and then put an ointment on the infected part of the nail. Your nail will then be covered with a plastic dressing, which you'll need to keep dry. After one week to 10 days, your nail should be softened enough for your doctor to remove it. The skin that was under your nail should heal in a couple weeks.

After your nail is removed, your doctor will probably recommend putting an antifungal cream on the nail bed or taking antifungal tablets. This is because the **fungus** lives on the skin under your nail, rather than on the nail itself.

If you have a fingernail removed, it should grow back in about six months. If you have a toenail removed, it may take 12 to 18 months to grow back.

If you keep getting infections, your doctor might recommend completely removing your nail and then putting a chemical on the thin layer of skin at the base of your nail (your cuticle) to stop your nail growing back.

## How can it help?

We don't know. There hasn't been much good-quality research on whether removing all or part of the nail can get rid of fungal nail infections.

We found one study that compared antifungal tablets ( [terbinafine](#) , [itraconazole](#) , and [fluconazole](#) ) with other types of treatments, including removing part of the nail and [putting antifungal medicine directly on the nail](#) .<sup>[26]</sup> It found that people who used antifungal tablets were more satisfied with their treatment than people who had part of their nail removed or put medicine on their nail.

## How does it work?

If your nail is misshapen and painful, removing it can make your toe or finger feel better. But removing your nail may not get rid of the infection, because the fungus lives on the skin under the nail, rather than on the nail itself. That's why this treatment is usually used along with antifungal tablets or medicine you put directly on your skin. Antifungal treatments stop the fungus growing.<sup>[19]</sup>

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## Can it be harmful?

Once your nail is removed, there's a chance the skin underneath could become infected while it heals. To prevent this, doctors recommend keeping the skin clean and dry, and putting on an antibiotic cream.

If all or part of your toenail is removed, it's possible that the corner or side of the nail could regrow into the skin on that toe. This is called an ingrown toenail. A mild ingrown toenail can be treated with remedies at home, such as soaking your foot in warm salt water and then putting cotton underneath the ingrown part to help it grow above the skin. A more severe ingrown toenail, however, will need to be treated by your doctor.

## How good is the research on removing part or all of your nail?

There hasn't been much good-quality research on whether removing all or part of your nail can help to get rid of fungal nail infections.

We found one study of 150 people that compared antifungal tablets ( [terbinafine](#) , [itraconazole](#) , and [fluconazole](#) ) with other types of treatments, including removing part of the nail (debridement) and [putting antifungal medicine directly on the nail](#) .<sup>[26]</sup> It found that people who used antifungal tablets were more satisfied with their treatment than people who had part of their nail removed or put medicine on their nail.

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## Further informations:

### How to avoid getting a fungal nail infection

There are a lot of things you can do to reduce your chances of getting a fungal infection in your nails or on your skin. The itchy, flaky skin that people get on their toes when they have [athlete's foot](#) is also caused by a fungus .

Keeping your feet and hands clean and dry is your best protection. But there are many other things you can do.<sup>[1] [2] [3] [4] [5] [6]</sup> We've listed a few things here.

#### Tips for avoiding nail infections

##### Your shoes and socks

- Take off your shoes when you're at home, and let air get to your feet. If your shoes get sweaty, let them dry out before wearing them again.
- Wear sandals to let the air get to your toes. Or wear shoes made from leather or canvas. These natural materials let your feet breathe more than those that are manmade.
- Don't spend any more time than you need to in sweaty sports shoes.

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- Choose your shoes carefully. Choose low heels. Heels that are higher than about 2 centimetres (1 inch) put extra pressure on the front of your foot and can damage your nails. This makes it easier for a fungus to get in and start growing.
- Try to find shoes that don't have any seams on the inside so they don't damage your toenails.
- Make sure your shoes fit well. If your shoes are too short, they can damage your toenails by rubbing against them. If they are too long, they can damage your nails because your foot moves around too much inside the shoe.
- Don't borrow other people's shoes.
- Change your socks every day, especially when it's warm. Washing your socks kills the fungus that causes nail infections.
- Wear cotton, silk, or wool socks rather than synthetic (nylon) ones. Synthetic fabrics tend to make your feet sweat more.

### In public places

- Dry your feet well, especially after using communal changing areas. Make sure the skin between your toes is dry.
- Don't walk barefoot in public areas (for example around gyms). Wear flip-flops or sandals.
- Don't borrow other people's towels.

### Treating infections

- If you have a fungal nail infection, get it treated. This will stop the infection spreading to other nails. And use an antifungal powder in your shoes.
- If you have athlete's foot, get it treated and check everyone in your family. Make sure they are treated if they have it. The fungus that causes athlete's foot can spread to your nails. If you've had athlete's foot, spray the inside of your shoes with an antifungal spray so you don't catch it again.
- Check your pets to see if they have bare patches of skin. If they've lost hair, they could have the same fungus that causes athlete's foot. Ask your vet for advice. You can catch athlete's foot from pets. And the same fungus can give you a nail infection.

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## Tips for keeping your nails healthy

- Keep your toenails short and cut them straight across.
- File down any thick areas.
- Never use the same scissors, files, or nail clippers on infected and uninfected nails. If you do, the infection may spread.
- Wear rubber gloves when you do work that will make your hands wet, especially if your hands are going to be wet for a long time.
- Don't pick at the skin around your nails. This can give the infection an easy way in.
- Don't use nail polish or artificial nails if you have a fungal nail infection. It may make your infection worse.

### Glossary:

#### **fungus**

A fungus is an organism that is sometimes considered to be a type of plant. A fungus lives by feeding on other organisms. The mushrooms we eat in salads are fungi, but so are candida and cryptococcus, which can cause infections in people's bodies.

#### **organism**

An organism is anything that is alive. It can be a plant, an animal or tiny things that you can't see without a microscope, such as bacteria.

#### **bacteria**

Bacteria are tiny organisms. There are lots of different types. Some are harmful and can cause disease. But some bacteria live in your body without causing any harm.

#### **viruses**

Viruses are microbes (tiny organisms) that need the cells of humans or other animals to exist. They use the machinery of cells to reproduce. Then they spread to other cells in the body.

#### **diabetes**

Diabetes is a condition that causes too much sugar (glucose) to circulate in the blood. It happens when the body stops making a hormone called insulin (type 1 diabetes) or when insulin stops working (type 2 diabetes).

#### **AIDS**

AIDS stands for acquired immunodeficiency syndrome. People who are infected with the human immunodeficiency virus (HIV) get AIDS when the virus has destroyed most of their immune system. When people have AIDS, their body isn't able to fight infections. So even common infections, such as colds, can cause serious problems.

#### **chemotherapy**

The use of chemicals or drugs to treat or prevent disease, usually cancer.

#### **HIV**

HIV stands for human immunodeficiency virus. It's the virus that causes AIDS. It makes you ill by damaging cells called CD4 cells. Your body needs these cells to fight infections. You can get HIV by sharing needles for injecting drugs, or by having sex without a condom with someone who has the virus.

#### **liver**

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

#### **heart failure**

When the heart loses its ability to push enough blood through the blood vessels, it is called heart failure.

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## systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

## randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

## placebo

A placebo is a 'pretend' or dummy treatment that contains no active substances. A placebo is often given to half the people taking part in medical research trials, for comparison with the 'real' treatment. It is made to look and taste identical to the drug treatment being tested, so that people in the studies do not know if they are getting the placebo or the 'real' treatment. Researchers often talk about the 'placebo effect'. This is where patients feel better after having a placebo treatment because they expect to feel better. Tests may indicate that they actually are better. In the same way, people can also get side effects after having a placebo treatment. Drug treatments can also have a 'placebo effect'. This is why, to get a true picture of how well a drug works, it is important to compare it against a placebo treatment.

## antibiotics

These medicines are used to help your immune system fight infection. There are a number of different types of antibiotics that work in different ways to get rid of bacteria, parasites, and other infectious agents. Antibiotics do not work against viruses.

## local anaesthetic

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

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