

Patient information from the BMJ Group

Athlete's foot

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Athlete's foot

Athlete's foot is an infection that can make the skin on your feet flaky and itchy. It isn't serious. But it's better to treat it sooner rather than later. Otherwise the infection might spread and become harder to treat.

We've brought together the best research about athlete's foot and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

What is athlete's foot?

Athlete's foot is caused by a fungus. The types of fungus that cause athlete's foot live in warm, damp places, such as around swimming pools and in changing areas and showers in gyms that are shared by many people.



Athlete's foot makes the skin between your toes flaky and itchy.

It may seem strange to have an **infection** caused by a fungus. But the types of fungus that cause athlete's foot are so tiny that you can't even see them. They're just another type of **micro-organism** (germ) that can cause an infection, like **bacteria** or **viruses**.

Lots of people get athlete's foot at some point because it's so easy to catch. ^[1] ^[3]

- If you often walk around barefoot, you may catch the infection from the floor.
- You can catch it if you touch the skin of someone who already has it.
- You can catch athlete's foot at home if someone in your family has it.

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- If your pets have the infection you may get it from them.

Your feet are the perfect place for this infection to grow, especially between your toes. Your feet are warm, often slightly damp, and full of **keratin**. Fungi feed on keratin, which is a **protein** found in nails, skin, and hair. ^[6]

Sometimes, the fungus spreads to your toenails or fingernails and infects them too. ^[3]
^[2] ^[4] It's much harder to get rid of an infection in your toenails or fingernails. That's why it's important to treat athlete's foot as soon as you know you have it. To find out more about the best way to deal with infections that have spread to your nails, see [Fungal nail infection](#).

If you have athlete's foot, bacteria may get under your skin. And this can make the infection worse and harder to treat. If this happens, your foot may hurt and smell bad. ^[6]

How do I know if I have athlete's foot?

If you've had athlete's foot before, you may be able to spot the symptoms. But if you're not sure, it's a good idea to check with your doctor. There are many skin problems that look like athlete's foot, but they need different treatments.

You should go to see your GP if:

- You're not sure what your skin problem is
- You've tried creams and powders for athlete's foot and they don't seem to work
- Your feet are very sore
- You think your nails may be affected.

When you go to see your GP, they will look at your feet and ask you about your symptoms. They may send a small piece of your skin to a laboratory to find out whether you have an infection caused by a fungus, and exactly what type of fungus is causing your infection. Your GP is more likely to do this if you've already used a treatment and it hasn't worked.

Your GP may also talk to you about what you can do to avoid getting athlete's foot again. To find out more, see [How to avoid getting athlete's foot](#).

Athlete's foot: why me?

Some people are more likely to get athlete's foot than others.

You're more likely to get athlete's foot if: ^[1] ^[2] ^[5]

- Your feet sweat a lot

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- You use shared changing areas (for example, at a gym or at school)
- You live in a place where you share showers or baths with lots of other people (such as student halls of residence)
- You have cuts on your feet, because cuts make it easier for the fungus to get into your skin and grow.

Adults are more likely than children to get athlete's foot. And men are more likely than women to get athlete's foot. ^[1] ^[3]

If you have **diabetes** you're more likely to get some types of **infection**, including those caused by a **fungus**, such as athlete's foot. ^[4] You're also more likely to get it if you have problems with your **immune system**. ^[4] So if you have **HIV** infection or **AIDS**, or if you're having treatment that weakens your immune system (**chemotherapy**, for example), you're more likely to get athlete's foot.

What are the symptoms of athlete's foot?

Athlete's foot can cause lots of different symptoms, but you probably won't get all of them. The longer you have athlete's foot, the worse your symptoms are likely to be. ^[2]

Some people with athlete's foot have no symptoms at all. These people never know they have the **infection**. But they can still pass it on to others. ^[1]

If you have athlete's foot, you may have the following symptoms. ^[2] ^[1] ^[3] ^[4]

- Itchy feeling in your feet and between your toes, especially between the two smallest ones.
- Stinging or burning between your toes.
- Thickened skin on your feet.
- Cracked or peeling skin.
- Blisters on your feet.
- Red patches of skin with a white, wet-looking surface.

If your athlete's foot gets worse, you may get other symptoms.

- The skin on the soles of your feet may get thick and look leathery and red. This means the infection has spread to the sole of your foot. ^[1] ^[7]

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- You may have a ring of scaly, reddish, raised skin on another part of your body, such as your leg. This is sometimes called **ringworm**, but it has nothing to do with worms.^[4] It's caused by the same types of fungus that give you athlete's foot. And it can be treated with the same medicine.
- You may have raised bumps or ridges on the soles of your feet.^[4] These can be very itchy.
- Your skin may get hot, red, and swollen. This could mean that you have a bacterial infection too.^[3] You'll need to take an **antibiotic** to treat this, otherwise it may spread.^[8] If you think you have a bacterial infection as well as athlete's foot, see your doctor.

How common is athlete's foot?

It's hard to say how many people get athlete's foot. Studies suggest that about 1 in 5 people have it. But many people treat themselves, so the records that doctors keep won't show everyone who has the **infection**. The real number of people affected could be much higher.

Adults are more likely than children to get athlete's foot.^[9] And men get it more often than women do, but we don't know why.^{[1] [3] [10]}

You're more likely to get athlete's foot in the winter, because you wear shoes that cover your feet.^[2] This may make them warm and sweaty. And the types of **fungus** that cause athlete's foot grow well in places that are warm and damp.

What treatments work for athlete's foot?

There are good treatments for athlete's foot. Even if you've had it for a long time you should still be able to get rid of the **infection**. But you may need to have treatment for several weeks.

In most of the studies that we found, people treated their athlete's foot for about four weeks. You may need to treat yours for longer if it's more severe. But it depends on what sort of treatment you use.

The drugs that doctors use to treat athlete's foot are called **antifungals**. This means they kill the **fungus** that's causing your athlete's foot.

Key points about treating athlete's foot

- It's important to treat athlete's foot. If you don't, the infection can spread and it will be harder to treat.
- Most treatments come as creams, gels, or lotions that you rub into your skin.
- You may have to treat your infection for some time, possibly for as long as six weeks.

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- Rub any cream, gel, or lotion into your skin really well so that your skin doesn't feel wet. Fungi like to grow in damp, wet places.
- If you have athlete's foot between your toes, sprays may be a better treatment.
- There are tablets and capsules you can take for fungal infections such as athlete's foot. Tablets or capsules don't work any better than creams or gels, and they may cause more side effects.

Which treatments work best for athlete's foot? We've looked at the best research and given a rating for each treatment according to how well it works.

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

Treatment Group 1

Treatments for athlete's foot

Treatments that work

- [Terbinafine cream, gel, or spray](#) : The brand name for terbinafine is Lamisil AT. You can get it on prescription from your doctor, or you can buy it over the counter at a pharmacy. [More...](#)
- [Azole creams and sprays](#) : These medicines (with brand names) include clotrimazole (Canesten), econazole (Ecostatin, Pevaryl), ketoconazole (Nizoral), and miconazole (Daktarin). You can buy most of them at a pharmacy. [More...](#)
- [Tolnaftate cream](#) : You can buy some products that contain tolnaftate from a pharmacy. One brand name is Mycil. [More...](#)
- [Undecenoates \(paint, cream, powder, and spray\)](#) : The brand name for the paint is Monphytol and the brand name for the cream, powder, and spray is Mycota. You can buy these over the counter at a pharmacy. [More...](#)
- [Azole tablets and capsules](#) : These drugs (plus brand names) include fluconazole (Diflucan) and itraconazole (Sporanox). You can only get these tablets and capsules with a prescription from your doctor. [More...](#)
- [Terbinafine tablets](#) : The brand name for these tablets is Lamisil. You can only get them with a prescription from your doctor. [More...](#)

Treatments that need further study

- [Improved foot hygiene](#) : You can improve your foot hygiene by washing and drying your feet carefully and by changing your socks every day. [More...](#)

What will happen to me?

Athlete's foot isn't serious. But if you don't treat it, your feet can become sore. And the infection may spread to your fingernails, your toenails, and other parts of your feet, as well as to other places on your body, such as your arms, your legs, or your chest. Treatment will make your feet feel better and get rid of the fungus that's causing your symptoms.

Athlete's foot can usually be cured. Even if you've had it for a long time, you should still be able to get rid of the infection completely. But it may come back.

It's especially important to treat it straight away if you have:

- Diabetes
- A weak immune system (for example, because you have HIV infection or because you're having chemotherapy).

If you have one of these conditions, you're more likely to get a bacterial infection as well as athlete's foot. This can cause more problems and is often harder to treat than athlete's foot on its own.

You'll probably need to have treatment for your athlete's foot for several weeks and possibly longer. If your skin is cracked or you have ulcers or blisters because of athlete's foot, it may take a long time to heal. ^[4]

You don't have to stop playing sports or wearing sports shoes if you have athlete's foot. But it's a good idea to always wear something on your feet to avoid spreading the infection to other people. It's worth carrying a pair of flip-flops in your gym bag and wearing them in the changing room and shower, and when you walk around the pool.

Treatments:

Terbinafine cream or spray

In this section

Terbinafine is a drug that kills fungi. Athlete's foot is caused by a fungus.

Terbinafine belongs to a group of drugs called allylamines. It comes as a cream or spray that you rub into your skin. It also comes as a tablet, which we discuss in [a separate section](#).

The brand name for terbinafine is LamisilAT. You can get terbinafine cream with a prescription from your doctor, or you can buy it over the counter at a pharmacy. You can also buy terbinafine spray over the counter.

You'll probably need to use terbinafine for one week. ^[11] There is also a form of terbinafine that is applied once, and forms a film over infected skin.

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Terbinafine cream seems to work well.

- About 7 in 10 people who use terbinafine cream have no signs of athlete's foot six weeks later ^[12] ^[13]
- Terbinafine cream may work slightly faster than [azole creams and sprays](#) (another treatment for athlete's foot) ^[12]
- Both treatments get rid of athlete's foot in most people.

Terbinafine seems to be safe. But some people have a mild skin reaction, such as a rash, or a burning or stinging sensation. ^[12] ^[14]

Azole creams and sprays

In this section

Azoles are medicines that kill [fungi](#). Athlete's foot is caused by a fungus.

A **topical azole** is an azole drug in a cream, lotion, spray, or powder that you put on your skin. There are several different topical azoles. We've listed some common ones (and their brand names) below.

- Clotrimazole (Canesten)
- Econazole (Ecostatin, Pevaryl)
- Ketoconazole (Nizoral, Daktarin Gold)
- Miconazole (Daktarin).

You can buy these over the counter at a pharmacy.

These treatments come as creams, powders, and sprays. You may have to use one of these treatments for between one week and six weeks to get rid of your athlete's foot. Most of the research has looked at creams and sprays, so we don't know how well powders work. ^[12] They may not work as well as creams. ^[11]

Some azole creams come combined with a medicine called hydrocortisone. This is a type of corticosteroid. Corticosteroids are often called steroids for short. They are not the same as the anabolic steroids used by some athletes and bodybuilders. They are similar to natural hormones produced in the body to deal with inflammation. Your doctor may suggest this combination treatment if your feet are sore and inflamed.

These treatments seem to work well.

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- About 3 in 4 people who use a topical azole treatment for four weeks to six weeks have no signs of athlete's foot six weeks later ^[12]
- All topical azoles seem to work just as well as one another ^[12]
- Both treatments get rid of athlete's foot in most people. ^[12]

The research we looked at didn't find that people got any serious side effects from using topical azoles.

But about 5 in every 100 people who use topical azoles get mild skin reactions around the area where they use the medicine. ^[15]

If this happens to you, your skin may sting, itch, and look red or scaly.

These reactions usually aren't bad enough to stop people using the medicine. And they go away when treatment stops.

Tolnaftate cream

In this section

Tolnaftate is a drug that stops infections caused by **fungi** from spreading. Athlete's foot is caused by a fungus.

You can buy tolnaftate over the counter at a pharmacy. One brand name is Mycil.

About 7 in 10 people who use tolnaftate will be cured of their athlete's foot. ^[16] ^[17]

We didn't find any research that talked about the side effects of tolnaftate. But we did find that there's a slight chance that your skin may be irritated by this medicine. ^[18]

Undecenoates (paint and cream)

In this section

Undecenoates get rid of athlete's foot and other **infections** caused by **fungi**. Undecenoates come as liquid that you paint on to your skin and as a cream, powder, and spray. Treatments that you apply to the skin like this are called topical treatments.

The brand name for the paint is Monphytol. The brand name for the cream, powder, and spray is Mycota. You can buy all of these from a pharmacy without a prescription.

About 7 in 10 people who use an undecenoate to treat athlete's foot get rid of the infection. ^[12]

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The studies we looked at found no evidence that undecenoates are harmful. But we do know that they sometimes cause skin irritation.

Azole tablets and capsules

In this section

Azoles are medicines that stop **infections** caused by **fungi**. Athlete's foot is caused by a fungus. Azole tablets and capsules are usually only prescribed if treatments that you rub on your skin haven't worked.

Don't confuse the azoles that you take as tablets or capsules with the azoles that you rub into or spray onto your skin. The types that you apply to your skin can be poisonous if you swallow them.

Some common azoles that you can take as tablets or capsules (and their brand names) are:

- Fluconazole (Diflucan)
- Itraconazole (Sporanox)

You need a prescription from your doctor for these treatments.

If you're pregnant, you shouldn't take tablets to treat athlete's foot.

Some of these drugs may also affect your heart if you take them with other drugs.^[19] Be sure to tell your GP if you've ever had heart problems.

It's important to tell your GP about any prescription medicine or over-the-counter medicine that you are taking.

If you take azole tablets for one week, you have slightly more than a 50 percent chance of getting rid of your athlete's foot.^[20]

All of the azoles that you take as tablets or capsules work as well as each other. No one azole is better than any other.^[20]

If you take these treatments, you're more likely to have a side effect than if you use a treatment that you rub into or spray onto your skin.^[20] The main problems with taking these treatments seem to be how they affect your digestive system. For example, you may get **diarrhoea** and indigestion. Taking fluconazole (an azole tablet) is less likely to cause these problems than taking [terbinafine tablets](#) (another type of tablet that's used to treat athlete's foot). If you take azole tablets or capsules you may also get rashes, headaches, and problems tasting things.

But these effects are often mild, and not many people get them. They usually go away when you stop taking the tablets.

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Sometimes people get more serious side effects from these drugs. These side effects are rare but it's important to know about them.

If you're taking itraconazole and have any of the symptoms listed below, you need to call your doctor straight away. ^[19]

Call your doctor if you:

- Feel unusually tired
- Lose your appetite
- Have a severe upset stomach
- Vomit
- Pass dark urine
- Notice that your skin or the whites of your eyes have turned yellow.

There have been reports of hearing loss (usually temporary) in people who have taken itraconazole tablets. Several of these reports also involved taking a drug called quinidine at the same time. Quinidine is used to treat abnormal heart rhythms and malaria. It is listed as one of the drugs that should not be taken at the same times as itraconazole. ^[21]

Itraconazole may cause heart failure. ^[19] If you have any of the symptoms listed below, you need to call your doctor straight away.

Call your doctor if you:

- Have trouble catching your breath
- Have a cough
- Feel weak
- Feel tired
- Feel confused
- Put on weight
- Get swelling in your legs or feet.

Terbinafine tablets

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In this section

Terbinafine belongs to a group of drugs called allylamines. Allylamines are drugs that get rid of infections caused by **fungi** . Athlete's foot is caused by a fungus.

Terbinafine is the only allylamine used as a tablet to treat athlete's foot. The brand name is Lamisil. You need a prescription from your doctor to get this medicine. Terbinafine is also available as a cream and spray, which we discuss in [a separate section](#) .

Terbinafine tablets are usually prescribed only if:

- Your athlete's foot is very sore and painful
- You've had athlete's foot for a long time
- Your nails are also affected.

Your doctor will probably recommend trying treatments you put on your skin before prescribing terbinafine tablets.

About 65 in 100 people who take terbinafine tablets for six weeks will be cured of their athlete's foot. ^[20]

About 1 in 5 people who take terbinafine tablets get some side effects. These are usually digestive problems, such as ^[22] ^[23]

- Stomach pain
- **Diarrhoea**
- Indigestion
- Wind
- Nausea.

Terbinafine is no more likely to cause these problems than other tablets used to treat athlete's foot. ^[20]

Terbinafine tablets can cause other, rare side effects, such as skin rashes and loss of appetite. ^[19] Before you decide to take this drug, you should talk to your doctor about these side effects.

Improved foot hygiene

In this section

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Your doctor may suggest you take extra care to keep your feet clean and dry to help get rid of your athlete's foot. Improving your foot hygiene and changing your socks or tights every day could also help prevent the infection coming back.

You can improve your foot hygiene by:

- Washing your feet and toes every day
- Drying the skin between your toes carefully.
- Changing your socks or tights every day
- Wearing cotton socks and leather or canvas shoes rather than socks and shoes made of synthetic materials that make your feet sweat
- Leaving your shoes and socks off at home.

You should also wash your towels often and not share them with anyone else. And if you have **diabetes**, don't walk barefoot.

We're not sure whether better foot hygiene alone can help get rid of athlete's foot. There hasn't been any research looking at this.

But in some studies where people have been given a dummy treatment (a **placebo**) instead of an actual drug, their athlete's foot has cleared up.^[16] Doctors think this may be because they take greater care about washing and drying their feet and changing their socks or tights.

Further informations:

How to avoid getting athlete's foot

There's a lot you can do reduce your chances of getting athlete's foot. Keeping your feet clean and dry is your best protection.

Here are some things you can try to prevent athlete's foot.^{[1] [2] [3] [4] [5] [6]}

- Take off your shoes at home and let your feet 'breathe'.
- Wear sandals when you can.
- If you have **diabetes**, you can let your feet air, but don't walk around barefoot or in open shoes.
- Always take off sweaty sports shoes when you have finished using them.

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- Put on clean socks every day. Washing socks kills the types of fungus that cause athlete's foot.
- Wear cotton, silk, or wool socks rather than synthetic (nylon) ones.
- Wear shoes made of leather or canvas. These let your feet breathe more than shoes made of synthetic materials.
- If your shoes are sweaty or wet, let them dry out before you put them on again.
- After you have a bath or shower, dry your feet carefully, especially between your toes.
- Never walk barefoot in public areas, such as changing rooms. Wear flip-flops, sandals, or shoes made to be worn while swimming.
- If you've had athlete's foot, spray the inside of your shoes with a spray to kill the fungus (called an antifungal).
- Never borrow other people's shoes.
- Never share towels with other people.
- Check your pets for patches of hair loss and ask your vet to do the same. If your pet is losing hair, it could be a sign of athlete's foot. You can catch athlete's foot from your pets, and if you don't treat them you can get the infection again.

Glossary:

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).

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.

infection

You get an infection when bacteria, a fungus, or a virus get into a part of your body where it shouldn't be. For example, an infection in your nose and airways causes the common cold. An infection in your skin can cause rashes such as athlete's foot. The organisms that cause infections are so tiny that you can't see them without a microscope.

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.

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keratin

Keratin is a kind of protein. It is used to make some parts of your body, including your hair, skin and nails.

proteins

A lot of your body's tissues are made out of proteins. Proteins can be made in your cells. Proteins are also part of the food you eat, particularly meat and dairy products. Your body breaks down the protein you eat into amino acids. Your cells then use these amino acids to build new proteins, which make up muscles, joints, hair and other parts of your body.

immune system

Your immune system is made up of the parts of your body that fight infection. When bacteria or viruses get into your body, it's your immune system that kills them. Antibodies and white blood cells are part of your immune system. They travel in your blood and attack bacteria, viruses and other things that could damage your body.

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.

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.

ringworm

A ringworm is a type of fungus that causes infections in your skin. Doctors call it 'tinea'. A ringworm infection in the foot is called 'athlete's foot'.

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.

diarrhoea

Diarrhoea is when you have loose, watery stools and you need to go to the toilet far more often than usual. Doctors say you have diarrhoea if you need to go to the toilet more than three times a day.

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.

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Athlete's foot

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