

## Patient information from the BMJ Group

# Ear infection, outer ear

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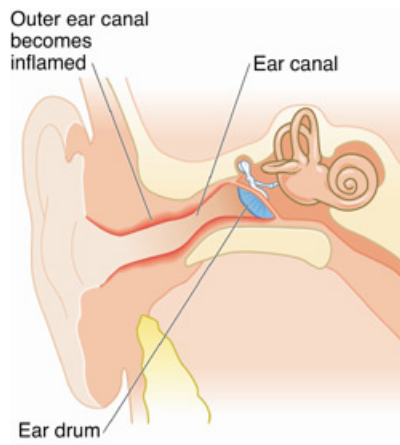
## Ear infection, outer ear

An outer ear infection can be quite painful. It can happen in adults or children. You're most likely to get an outer ear infection if you go swimming a lot. It's sometimes called 'swimmer's ear'. Most outer ear infections clear up in 10 days with treatment. There are things you can do to reduce your chances of getting another infection.

We've brought together the best research about outer ear 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 is an outer ear infection?

If your ear hurts and feels 'full' or itchy, you might have an outer ear infection. This means that the skin of your outer ear canal (the tube that leads from the bit of the ear you can see, down to your eardrum) has become inflamed and swollen.



Most outer ear infections can be quickly treated.

Doctors call outer ear infection **otitis externa**.

Most outer ear infections are caused by **bacteria**. But this type of ear infection can also be caused by a **fungus**.

Sometimes the ear gets inflamed without any infection, especially if you've got a skin condition such as **eczema**.

## Ear infection, outer ear

Some of the reasons why your outer ear can get infected are: <sup>[1]</sup>

- Water enters your ear canal (for example, when you go swimming)
- The ear canal gets damp (for example, if the weather is hot and humid or if you sweat a lot)
- The skin of the ear canal gets damaged (for example, if you put a finger or cotton bud inside your ear or you wear a hearing aid)
- You've got eczema or some other skin problem in your ear.

Most people get an **acute** infection. This means the symptoms come on quickly and can be treated quickly too. In some people, the infection becomes **chronic**. This means the pain goes away but the **inflammation** lasts for weeks or months.

A chronic ear infection can make it difficult for you to hear properly. <sup>[2]</sup>

Young children often get earache from an infection of the middle ear. Doctors call this **otitis media**. Middle ear infection is treated differently from outer ear infection. To read more, see [Ear infection](#) .

### What are the symptoms of an outer ear infection?

Pain is the main symptom of an acute outer ear infection. If the infection lasts for a long time (it becomes chronic) you may also get itchiness and a feeling of 'fullness' in your ear. These symptoms can stop you hearing properly.

If you've got an **acute outer ear infection**, it means that your symptoms come on quickly, over a day or two. The first symptom is usually pain, which is often constant and severe. <sup>[2]</sup> But it can be mild to start with.

Besides having pain, you may find that: <sup>[1]</sup>

- Your ear feels 'full', as if it is blocked with something
- The skin inside your ear canal is itchy
- Sounds are a bit muffled
- There's some watery fluid coming out of your ear.

Sometimes the first symptom you get may be the 'full' feeling or itchiness. This does not mean you're definitely getting an infection. But if the ear canal is damaged (for example, by you rubbing inside it with a finger) you may get a mild pain when you press the outside of the ear, then bad pain and swelling. <sup>[1]</sup>

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If you've got a **chronic outer ear infection**, it means you've probably had an acute outer ear infection that has not completely gone away. Your ear remains **inflamed** for weeks or months, even though there is no pain. The itchiness and swelling inside the ear that you get with a chronic outer ear infection may make it hard for you to hear. <sup>[2]</sup>



Your doctor may use an otoscope to look inside your ear.

If you've got a painful, itchy ear, your doctor will look into your ear with an instrument called an **otoscope**, to see if you have an outer ear infection. They will also be able to tell if you have an infection of the middle ear.

Young children often get earache from infections of the middle ear. Doctors call this **otitis media**. Middle ear infections are treated differently from outer ear infections. To find out more, see [Ear infection](#).

Your doctor won't wait to find out what's causing the inflammation, because it's important to start treatment straight away. But if the first treatment you are given doesn't work, they might need to find out exactly what's causing the infection before trying another treatment.

### How common are outer ear infections?

Outer ear infections are quite common. Almost anyone can get an outer ear infection. About 1 in 10 people get it at some point in their life.

Outer ear infection is common all over the world and in people of all ages. But more adults get it than children.

You're more likely to get an outer ear infection if you go swimming regularly. <sup>[3]</sup>

### What treatments work for an outer ear infection?

The best treatments for an outer ear infection are ear drops, which you squeeze into your ear. Your doctor may suggest other treatments as well, but we don't know how well they work.

Read [How to use ear drops](#).

### Key points about treating outer ear infection

- Ear drops cure outer ear infection in most people within a short time.
- There are several types of ear drops. The ones that research has shown are likely to work contain **antibiotics**, **corticosteroids**, or **aluminium acetate**.
- Taking antibiotic tablets as well as using ear drops doesn't work any better than using just ear drops. <sup>[7]</sup>
- If your pain has not gone away after 10 days you should go back to the doctor.

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

### Treatment Group 1

#### Treatments for an outer ear infection

##### Treatments that are likely to work

- [Antibiotic ear drops](#)
- [Corticosteroid ear drops](#)
- [Aluminium acetate ear drops](#)

##### Treatments that need further study

- [Acetic acid ear drops or spray](#)
- [Antifungal ear drops](#)
- [Ear cleaning by your doctor](#)
- [Antibiotic tablets](#)

### What will happen to me?

The good news is that most outer ear infections can be cured quickly.

Most people find that the pain is much better after three days. Most people also find that all the symptoms are gone after 10 days if they've had treatment. <sup>[4]</sup>

Usually people with an outer ear infection are treated by their GP. Your GP will look into your ear with an otoscope and probably prescribe you some ear drops. They will tell you to come back if the pain gets worse or if you still have symptoms after 10 days.

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Your GP may send you to see a doctor who specialises in treating ear, nose, and throat diseases (an ENT consultant). This is more likely if you've got a bad infection. The specialist is also likely to give you ear drops.

Your doctor might also take a sample of pus from your ear to send to the laboratory. This is to check which type of bacteria is causing the infection. But this will probably only happen if your ear infection does not go away with the ear drops.

Some people get a **chronic infection**. This means that the infection does not go away completely. If you've got a chronic ear infection, the swelling caused by the inflammation may make your ear canal too narrow. This can make it difficult for you to hear.<sup>[2]</sup> **But it's rare to get long-term hearing problems** from an outer ear infection.<sup>[2]</sup>

If your infection does become chronic, or if your ear is quite swollen, you may need different treatment.

- Your doctor may clean out your ear canal and put a 'wick' (a piece of gauze or sponge soaked in medicine) down your ear canal.
- This will help the medicine get to the bottom of your ear canal, close to your eardrum.
- You may need to have the wick in your ear for a few days and keep it moist with ear drops.<sup>[5]</sup>

We don't know what happens to people who don't have treatment. Some outer ear infections go away without treatment, but this can take months.<sup>[2]</sup> Most people do have treatment because this makes the pain go away more quickly.<sup>[6]</sup> If you don't have treatment, your infection might become chronic.<sup>[2]</sup>

Some people get repeated outer ear infections. We don't know why this happens. But if you swim a lot and have had one ear infection, you are quite likely to get another one.

Most outer ear infections are not serious and can be treated successfully. **Rarely**, an outer ear infection can affect the bones in the skull and cause more serious problems. If this happens, it's an emergency and you will be sent to hospital straight away.<sup>[1]</sup> Serious infection mainly occurs in older people who have diabetes.

There are things you can do to help your ear infection get better and to stop it coming back. See [Self-help for an outer ear infection](#).

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## Treatments:

### Antibiotic ear drops

In this section

## Ear infection, outer ear

There are lots of different types of antibiotic ear drops. They work by killing the bacteria (germs) that are causing the infection. Antibiotic ear drops often contain another medicine called a corticosteroid. This helps to calm down the swelling in your ear canal. You will need a prescription from your doctor for these treatments. Brand names of some of the common ones are:

- Betnesol-N
- Locorten-Vioform
- Gentisone HC.

One small, good-quality study (a randomised controlled trial) compared 20 people who used combined antibiotic and corticosteroid ear drops with 20 people who used dummy (placebo) ear drops.<sup>[8]</sup> The study found:

- That 11 of the 20 people who used antibiotic and corticosteroid ear drops were better within one month
- That 2 of the 20 people using the dummy (placebo) drops were better within one month.<sup>[8]</sup>

Lots of studies have looked at the various types of antibiotic ear drops. In most cases, there was not much difference between the various types.<sup>[9]</sup> If you try one type of ear drops and it doesn't work, your doctor may suggest you try another type.

Some people who use antibiotic ear drops get headaches, pain in their ears, or itchiness.<sup>[10]</sup> But these symptoms can be caused by the ear infection as well. So it's hard to know if they are because of the ear drops.

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## Corticosteroid ear drops

In this section

Ear drops that contain corticosteroids may calm down the swelling in your ear canal and stop the pain. You may also hear corticosteroids referred to simply as 'steroids'. However, these are not the same as the anabolic steroids used by some athletes and bodybuilders.

These ear drops may be all you need, especially if you've got eczema in your ear. Eczema can cause your ear to become inflamed and swollen, even though you don't have an infection. You will need a prescription from your doctor for these treatments.

One good-quality study of 60 people showed that people who used ear drops containing a corticosteroid called budesonide were more likely to be cured after 10 days than people who used dummy (placebo) ear drops.<sup>[11]</sup>

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But we don't know if corticosteroid ear drops work better than [antibiotic ear drops](#) , because we didn't find any good research on this.

Budesonide is not available as ear drops in the UK. But there are other corticosteroids that are used on their own in ear drops and are available in the UK: betamethasone (brand name Betnesol) and prednisolone (Predsol).

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### Aluminium acetate ear drops

In this section

Aluminium acetate drops dry out the ear canal. This may be enough to cure the inflammation and reduce the swelling.

One good-quality study of 126 people found that people using aluminium acetate ear drops were just as likely to be cured within 14 days as people using [antibiotic ear drops](#) .<sup>[12]</sup>

But these drops are very rarely used in the UK. They are not widely available.

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### Acetic acid ear drops or spray

In this section

Acetic acid is the main chemical in vinegar. It may kill the germs causing your outer ear infection because it is acidic. You can buy an acetic acid spray from a pharmacy. The brand name is EarCalm. But we don't know how well it works in outer ear infections, because there hasn't been much good research on it. It's not suitable for children younger than 12.

Two good-quality studies found that acetic acid ear drops did not seem to work as well as combined [antibiotic](#) and [corticosteroid ear drops](#) .<sup>[13]</sup> <sup>[14]</sup> In one study, the people using acetic acid ear drops had pain for longer. They also had a higher chance of getting another infection within six weeks, compared with the people using the combined antibiotic and corticosteroid ear drops.<sup>[15]</sup>

Some people find that acetic acid stings their ear canal.<sup>[4]</sup>

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### Antifungal ear drops

In this section

Most outer ear infections are caused by bacteria, but 1 in 10 infections may be caused by **fungi** such as [Candida](#) (the yeast that causes thrush).<sup>[4]</sup>

If your doctor thinks this is the case, they may give you antifungal ear drops such as clotrimazole (brand name Canesten). But we don't know how well these work, because there hasn't been any good-quality research on them.

### Ear cleaning by your doctor

In this section

When you have an outer ear infection, you may get a build-up of bits of skin, pus, and wax in the ear canal. This could stop the ear drops getting right down the ear canal. If that happens, your doctor may carefully clean out your ear canal by mopping the ear canal with dry cotton swabs or using a suction device.<sup>[4]</sup> Some GPs will do this in their surgery and others will refer you to a special clinic to have it done. Don't try to do this yourself. You could damage your ear.

Doctors agree that this type of cleaning can help clear up an outer ear infection.<sup>[5]</sup> But we haven't found any good research to show whether or not this works.

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### Antibiotic tablets

In this section

Antibiotic tablets kill the bacteria (germs) that cause infection. But doctors don't usually prescribe them for outer ear infection. We don't know whether they work for these infections, because there hasn't been much research.

We found one study of 105 people that looked at what happened when people using [antibiotic ear drops](#) also took antibiotic tablets.<sup>[7]</sup> The people taking the tablets didn't get better any quicker than the people using just the antibiotic ear drops.<sup>[7]</sup>

Antibiotics can have side effects, including [diarrhoea](#) and vomiting.<sup>[5]</sup>

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### Further informations:

#### Self-help for an outer ear infection

Outer ear infections can be painful. But there are some things you can try to:

- Make yourself **more comfortable**
- Make sure the **infection goes away**
- Help **stop the infection coming back.**

We have not weighed up the evidence for these in the same way as for the other treatments (see Our Method), but you may find this information helpful.

To help ease the pain, you can:<sup>[4]</sup>



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- Lie with a warm flannel or heat pad over your ear
- Take painkillers such as paracetamol or ibuprofen (you can buy these from a pharmacy).

If the pain is really bad and these painkillers don't help, your doctor may prescribe stronger painkillers such as codeine.

Outer ear infections usually start because the ear canal gets wet or damaged. So if your outer ear is infected, it may help to try to **keep the ear canal dry** and to **avoid any further damage**.

- Don't go swimming for a week to 10 days. If you swim regularly or in competitions, ask your doctor when you can go swimming again.
- Don't get your ears wet. Take baths instead of showers or wear a shower cap to cover your ears.
- Don't scratch the ear, even though the infection may be making it itchy.
- Don't clean your ear yourself with cotton buds or anything else. The ear canal is sensitive during an infection and you may cause further damage.

Your doctor may advise you that your chances of getting more infections will be reduced if you do the following.

- Wear a tightly fitting swimming cap over your ears or use ear plugs when you go swimming.
- Tip your head to get rid of any water that gets into your ear canal accidentally. But don't dig into your ear with a towel or anything else.
- Avoid getting shampoo or soap in your ears in the shower. You may want to put cotton wool smeared with petroleum jelly into your ears to protect them in the shower.
- Don't use cotton buds, fingernails, or anything else to clean your ears. Ears clean themselves very well, whereas you may damage the ear canal and cause another infection.

### How to use ear drops

You will probably need to put three to four drops of the medicine in your ears at a time. You will need to do this two to four times a day for seven days, depending on the type of ear drops. Make sure your doctor or pharmacist tells you how often to use them.

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It is easiest to put ear drops in while lying down, preferably with help from someone else. After lying down:

- Turn your head to one side, with the infected ear uppermost
- Squeeze the correct number of drops carefully into the ear canal
- Stay with your head turned on one side for one or two minutes so that the drops can be absorbed properly
- Gently press the flap at the front of the ear to help the drops go right down the ear canal.

### Glossary:

#### **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.

#### **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.

#### **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.

#### **eczema**

Eczema is a very itchy rash. It may be dark and bumpy and release fluid. Scratching makes it worse. You can get eczema anywhere on your body, but it is most common on the wrists, the insides of the elbows and the backs of the knees. If you have asthma or allergies you are more likely to get eczema than someone who doesn't have these conditions.

#### **inflammation**

Inflammation is when your skin or some other part of your body becomes red, swollen, hot, and sore. Inflammation happens because your body is trying to protect you from germs, from something that's in your body and could harm you (like a splinter) or from things that cause allergies (these things are called allergens). Inflammation is one of the ways in which your body heals an infection or an injury.

#### **otoscope**

An otoscope is a tool your doctor uses to look into your ear.

#### **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).

#### **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.

#### **steroids**

Steroids are a type of chemical. Your body naturally produces steroids, which play a part in many of its processes. For example, steroids are involved in how your immune system, reproductive system and metabolism work. Steroids can also be given as medicines and are used for a number of different conditions: including asthma, rheumatoid arthritis and eczema. Corticosteroids are not the same as the steroids used by some body builders and athletes. Those steroids are called 'anabolic steroids'.

#### **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.

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## 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.

## 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.

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