

## Patient information from the BMJ Group

# Herpes simplex eye infection

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## Herpes simplex eye infection

Herpes simplex eye infection can make your eye look red and feel uncomfortable. The infection will probably go away in a couple of weeks. But there's a chance it could cause more serious problems that might damage your eyesight, so it's important to see a doctor.

We've brought together the best research about herpes simplex eye infection 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 herpes simplex eye infection?

Herpes simplex is a virus that can infect your eye. The infection will probably go away within a couple of weeks. But there's a chance it could cause more serious problems that might damage your eyesight.

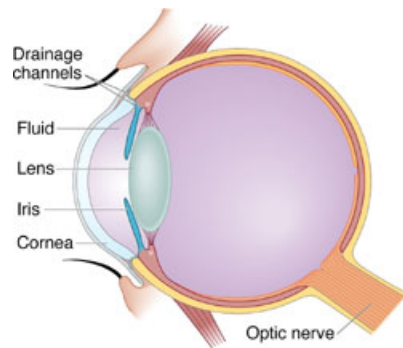
Lots of people carry the herpes simplex **virus** in their body. Usually it doesn't cause problems. But if the virus **infects** your eye it can be uncomfortable. And it could damage your eyesight.

There are two types of herpes simplex virus:

- In most people, herpes eye infection is caused by **herpes simplex type 1**. This is the same virus that causes cold sores on your lips. You catch it from other people through their saliva (for example, if you kiss someone who has the virus).
- In some people, herpes eye infection is caused by **herpes simplex type 2**. This virus more commonly causes genital herpes. That is, it causes blisters or sores on your genitals.

More than half of all people get infected with the herpes simplex virus at some point in their lives. For most, it happens when they're a child.<sup>[1]</sup> The herpes simplex virus usually lives inside the nerve cells of the body without causing any problems. But from time to time it may flare up and cause cold sores around your lips and mouth. Or it can travel down the nerves to the eye and cause a flare-up of herpes infection there. To understand how herpes simplex eye infection can affect you, it helps to know about the different parts of the eye.

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Herpes simplex eye infection can affect the part of your eye that's called the cornea.

The front of the eye is called the **cornea**. The cornea is clear like a window and shaped like a dome. It's very thin: less than 1 millimetre thick. It covers the **iris** (the coloured part of the eye) and the **pupil** (the black hole in the middle of the iris). The cornea protects the rest of the eye and helps you focus.

The cornea is made of layers of cells. The top layer is called the **epithelium**. Underneath the epithelium is the **stroma**, which is the thickest layer. It's made up of thousands of tiny fibres.

Herpes simplex eye infection usually affects the eye's cornea.

- Sometimes it affects the top layer of the cornea (the epithelium). Your doctor may be able to see an **ulcer** in this layer, where the infection has damaged the tissue.
- Occasionally it affects the middle layer of the cornea (the stroma). This is more serious.
- But in some people the infection affects only the eyelid or the outside of the eye (the conjunctiva).

You're more likely to get a flare-up of the herpes simplex virus: <sup>[2]</sup>

- In sunny weather
- If you're feeling stressed or run-down
- During your **menstrual period**, if you're a woman
- If you've been unwell.

We don't know why some people get herpes eye infection but others don't.

### What are the symptoms of herpes simplex eye infection?

Some people don't get any symptoms, especially the first time they have a herpes simplex eye infection. But it's important to go to the doctor if you do have symptoms. There is a small chance that herpes simplex eye infection can damage your eyesight.

Symptoms you might get include: <sup>[3]</sup>

- A swollen eyelid, perhaps with a rash across it
- Redness in the eye
- Pain or discomfort in the eye
- Pain when looking into bright light
- Watering eyes
- Blurred eyesight.

If you have any of these symptoms, you should see your doctor. If you don't get treatment, there's a chance **herpes simplex** might damage your eyesight.

If your doctor thinks that your symptoms are because of herpes, he or she will probably refer you to a specialist eye doctor called an **ophthalmologist**.

The doctor will examine your eye with a microscope and a lamp that shines light into your eyes. You may have drops of dye put into your eye. This helps the doctor see any problems in the eye.

### How common is herpes simplex eye infection?

It's quite unusual to get herpes eye infection.

**Herpes simplex eye infection** happens to only 1 in 1,000 to 2 in 1,000 people. Each year, 8 people in 100,000 get a herpes eye infection for the first time. <sup>[4]</sup>

Herpes eye infection can happen at any age. Most people get it for the first time in their 30s. You're slightly more likely to get it if you're a man. <sup>[4]</sup>

### What treatments work for herpes simplex eye infection?

If you've got a herpes simplex eye infection, your eye is infected with the herpes simplex virus. The infection will probably go away in a couple of weeks. But there's a chance it could cause more serious problems that might damage your eyesight, so it's important to see a doctor.

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There are some good treatments for herpes simplex eye infection. What treatment you use depends on which part of your eye is affected. (To read more about the different parts of the eye affected by herpes simplex, see [What is herpes simplex eye infection?](#)) There are also treatments that may help stop you getting another herpes eye infection.

You can use this information to talk to your doctor and decide what treatments are right for you.

### Key points about treating herpes simplex eye infections

- If your infection affects the top layer of the cornea (the epithelium), antiviral eye ointment should help your eye to heal faster.<sup>[9]</sup>
- If your infection affects the middle layer of the cornea (the stroma), antiviral eye ointment plus steroid eye-drops will work best to heal the eye.<sup>[10]</sup>
- Taking antiviral tablets for a year may help stop you getting another herpes eye infection.<sup>[11]</sup>

Because different types of infections need different treatments, we've divided up our treatment information into the following sections.

- [Treatments for infection of the top layer of the cornea](#)
- [Treatments for infection of the middle layer of the cornea](#)
- [Treatments to stop the infection coming back](#)

### Treatment Group 1

#### Treatments for infection of the top layer of the cornea

Some people with herpes eye infection of the top layer of their cornea get better in a couple of weeks, even without treatment. But your doctor will probably suggest you do have treatment. This is to stop the infection spreading.

#### Key points about treating an infection of the top layer of the cornea

- Antiviral eye ointment works well to heal the eye.
- Cleaning the surface of the eye before starting to use eye ointment may speed up healing.

We've looked at the best research and given a rating for each treatment according to how well it works. You can use this information to talk to your doctor and decide which treatment is right for you.

### Treatments for infection of the top layer of the cornea

#### Treatments that work

- [Antiviral eye ointment](#)

#### Treatments that need further study

- [Eye cleaning](#)

### Treatment Group 2

#### Treatments for infection of the middle layer of the cornea

If you've got an infection of the middle layer of the cornea (the stroma), it's important to get treatment. The infection could damage your cornea and affect your sight.

#### Key points about treating an infection of the middle layer of the cornea

- Antiviral eye ointment plus steroid eye-drops work well to heal the eye.
- Taking antiviral tablets as well as using eye-drops is unlikely to help.

We've looked at the best research and given a rating for each treatment according to how well it works. You can use this information to talk to your doctor and decide which treatment is right for you.

#### Treatments for infection of the middle layer of the cornea

##### Treatments that work

- [Antiviral eye ointment plus steroid eye-drops](#)

##### Treatments that are unlikely to work

- [Antiviral tablets plus eye-drops](#)

### Treatment Group 3

#### Treatments to stop the infection coming back

Once you've had a herpes eye infection, you are more likely to get another. And having repeated infections makes you more likely to get an infection that damages your eyesight. So you may want to try treatments to stop the infection coming back.

#### Key points about treatments to stop the infection coming back

- Taking antiviral tablets for a year may help stop the infection coming back.

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- Taking antiviral tablets for a shorter time probably won't help.
- We don't know whether it helps to take antiviral tablets after having an operation to repair your eye.

We've looked at the best research and given a rating for each treatment according to how well it works. You can use this information to talk to your doctor and decide which treatment is right for you.

### Treatments to stop the infection coming back

#### Treatments that work

- [Taking antiviral tablets long term](#)

#### Treatments that are unlikely to work

- [Taking antiviral tablets for a short time](#)

### What will happen to me?

Your infection will probably go away in a couple of weeks. But there's a chance it could cause more serious problems that might damage your eyesight.

It can be frightening to think about your eyesight being affected. But the chances of this happening are quite small. In one study of people with herpes eye infection, less than 1 in 10 found their sight was affected over a period of 30 years. <sup>[5]</sup>

How your herpes infection affects you may partly depend on:

- If you've had the infection before
- Which part of your eye is infected (see below).

Your eyesight is unlikely to be affected the first time you have a herpes eye infection. But if you've had one or more attacks, there is a risk you'll have another attack in future. In one study, about 4 in 10 people who had one herpes eye infection had at least one more during the next five years. <sup>[6]</sup> And the more attacks you have, the more likely you are to get a serious infection that could damage your eye. <sup>[5]</sup>

Herpes eye infection mostly occurs in the eye's **cornea**.

- Sometimes the infection affects the top layer of the cornea (the **epithelium**). It may cause an **ulcer** here. More than 9 in 10 people who have an ulcer find that it heals within two weeks with treatment. <sup>[7]</sup>

## Herpes simplex eye infection

- Sometimes the infection affects the middle layer of the cornea (the **stroma**). This is more serious, and it could damage your eyesight.
- About 1 in 4 people who've had an infection of the top layer of their cornea go on to get an infection of the middle layer of their cornea. <sup>[6]</sup>
- In some people, the infection affects only the eyelid or the outside of the eye (the **conjunctiva**). This infection usually goes away in a couple of weeks, even without treatment.

There are good treatments that can heal your eye. Having treatment may stop your eyesight getting damaged. To learn more, see [What treatments work for herpes simplex eye infection?](#)

If your cornea has been badly damaged and you can't see properly, you may need to have an operation. The operation to repair a damaged cornea is called a [corneal graft operation](#). Herpes eye infection is one of the main reasons why this operation is done. <sup>[8]</sup>

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## Treatments:

### Antiviral eye ointment

In this section

There's some good evidence that antiviral eye ointment can heal your eye.

Antiviral eye ointment is designed to kill the **virus** that's causing the **infection**. You'll probably be prescribed a treatment called aciclovir (brand name Zovirax). It comes as an ointment that's specially designed to go in your eye.

One summary of the research (a **systematic review**) showed that antiviral eye ointment worked better than dummy ( **placebo** ) ointment. The research included more than 400 people with small areas of infection called **ulcers** on the surface of their eye's **cornea**. The ulcers were more likely to have healed after 14 days if people used antiviral eye ointment. <sup>[12]</sup>

The research also compared different types of antiviral eye ointment. It found that they all worked more or less the same. But idoxuridine seemed to work more slowly than the other eye ointment. Idoxuridine is not used in the UK.

The research did not mention whether antiviral eye ointment can be harmful. But you may find that when you use eye ointment your eyes: <sup>[13]</sup>

- Water more than usual
- Feel itchy and uncomfortable.

### Eye cleaning

In this section

Some doctors wipe away the **infected** tissue from the **cornea** before starting treatment with eye ointment. This is sometimes called **debridement**. But we don't know how well this works. There hasn't been enough research to be certain.

You'll be given a **local anaesthetic** first, to numb your eye so you won't feel pain during the cleaning. Then your doctor will use a cotton-tipped tool to gently wipe away the thin layer of damaged, infected tissue from your eye.

Eye cleaning may help your eye to heal faster if it's done before you start using antiviral eye ointment. But it doesn't seem to work well on its own.

We found one summary of the research (a **systematic review**) that looked at eye cleaning. It showed that having eye cleaning on its own didn't work any better than not having treatment. <sup>[12]</sup>

The research also compared having eye cleaning, having antiviral eye ointment, and having both treatments. It showed that: <sup>[12]</sup>

- After seven days, people who had both treatments were most likely to be cured
- After 14 days, people who only had eye ointment were as likely to be cured as people who had both treatments
- People who had just eye cleaning were the least likely to be cured after 14 days.

We don't know if eye cleaning can be harmful. There hasn't been enough research to say for certain.

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### Antiviral eye ointment plus steroid eye-drops

In this section

There's some evidence that using antiviral ointment and steroid eye-drops together can help to heal your eye. But this treatment can have side effects.

Antiviral eye ointment is designed to kill the **virus** that's causing the **infection**. You'll probably be prescribed a treatment called aciclovir (brand name Zovirax). It comes as an ointment that's specially designed to go in your eye.

Steroid eye-drops act on your **immune system**. This medicine is similar to the chemicals made by your body to fight **inflammation**. These steroids are called **corticosteroids**. This is a different kind of steroid from the anabolic steroids that some body builders use. Using steroid eye-drops along with the antiviral ointment can help your eye to heal faster.



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There are many different types of steroid eye-drops. In the study we looked at, doctors used a type of steroid called prednisolone.<sup>[14]</sup> This good-quality study (a randomised controlled trial ) included 106 people. It compared people using just antiviral eye ointment with people using antiviral eye ointment and prednisolone eye-drops.<sup>[14]</sup> The study found that:

- People who used both treatments got better faster. Their eyes were healed after an average of 26 days
- But for people who used only antiviral ointment it took an average of 72 days for their eyes to heal.

Steroid eye-drops have side effects. They can make the herpes virus infection more likely to spread to the top layer of the cornea (the epithelium ). So you might get an ulcer there. This happened to 1 in 10 people in the study we looked at.<sup>[14]</sup>

You'll need to get your eye checked regularly while you're using these eye-drops.

About 1 in 10 people in the study also got side effects from using the antiviral eye ointment. These included redness and soreness of the eyes.<sup>[14]</sup>

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### Antiviral tablets plus eye-drops

In this section

Taking antiviral tablets while also using antiviral eye-drops and steroid eye-drops is unlikely to help your eye to heal.

Antiviral tablets are designed to kill the virus that's causing the infection. Some people take antiviral tablets if they can't use antiviral eye ointment because of side effects.

There's no evidence to show that it helps to take antiviral tablets as well as using eye-drops.

We found one good-quality study (a randomised controlled trial ) that looked at 104 people who had an infection in the middle layer of the cornea (the stroma ). All the people were given antiviral eye ointment and steroid eye-drops. And about half were given antiviral tablets as well. The study showed that taking antiviral tablets while using the drops and ointment did not make any difference to people's chances of getting better.<sup>[15]</sup>

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### Taking antiviral tablets long term

In this section

There's good evidence that taking antiviral tablets for a year can reduce the chance of your herpes eye infection coming back.

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Antiviral tablets are designed to kill the **virus** that's causing the infection. They can't get rid of the virus altogether, but they may stop repeated flare-ups of the eye infection.

There are different types of antiviral tablets. Two studies we looked at both used tablets containing a medicine called aciclovir (brand name Zovirax).

The first, good-quality study (a **randomised controlled trial**) included more than 700 people. It found that people who took antiviral tablets for a year were less likely to have another attack of herpes eye infection while they took the medicine: <sup>[16]</sup>

- Less than 2 in 10 people who took antiviral tablets for a year had another attack
- More than 3 in 10 people who took dummy ( **placebo** ) tablets had another attack.

In the second study, just over 1 in 10 people who took antiviral tablets had another attack of herpes eye infection in the following year. Among those who took dummy tablets nearly 4 in 10 had another attack. <sup>[17]</sup>

Some people taking the antiviral tablets got an upset stomach. But the same number of people taking the dummy tablets also got an upset stomach. So it's hard to know if the antiviral tablets really caused the problem. <sup>[16]</sup> You might also get headaches and feel tired when you take these tablets. <sup>[18]</sup>

Taking antiviral tablets long term may also be helpful if you've had an operation called a **corneal graft**, which repairs your damaged **cornea**. The repair can come undone if you get another attack of herpes eye infection.

So, researchers have looked at whether taking antiviral tablets long term can stop people getting another infection after a repair operation. We found one small study of 22 people. <sup>[19]</sup> In the 18 months following their operation:

- No one taking the antiviral tablets got a herpes eye infection
- Almost half of people not taking the tablets got a herpes eye infection.

But the study was small and there were some problems with the way it was carried out. So we can't rely on it completely.

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## Taking antiviral tablets for a short time

In this section

Taking antiviral tablets for three weeks or less probably won't stop you getting another attack of herpes simplex eye infection.

We found one study of nearly 300 people who'd had an attack of herpes simplex eye infection. <sup>[20]</sup> The study showed that taking antiviral tablets for three weeks didn't make

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any difference. Six months after treatment, people who'd taken the antiviral tablets were just as likely to have had another attack of herpes simplex eye infection as those who hadn't taken the tablets. <sup>[20]</sup>

### Further informations:

#### Corneal graft operation

In a corneal graft operation, your surgeon cuts away the damaged part of your cornea and replaces it with a piece of cornea from a donated eye.

The operation is done in hospital. You may have a general anaesthetic, so you're asleep during the operation. But some surgeons use just a local anaesthetic to numb the eye. The operation takes about an hour. The surgeon cuts through your cornea and removes the damaged part. Then a patch of cornea from a donor is carefully sewn in place.

When you wake up, your eye will be covered with an eye pad and a patch to protect it. You may feel some pain or sickness from the anaesthetic. You can ask your nurse for medicine to make you feel better.

If you've had a general anaesthetic, you'll probably go home the next day. Otherwise you may go home on the same day.

You won't need to wear the eye patch during the day. But you'll probably need to wear it at night for a couple of weeks, so that you don't scratch your eye in your sleep.

You won't be able to see perfectly well at first. It takes a while for the eye to recover from the operation. But you should be able to see better after a few months. The stitches will be taken out 18 months after the operation.

There are two main risks with a corneal graft operation:

- Your body may 'reject' the patch of donor cornea, because it doesn't recognise it as being from your body
- You may get another infection.

You'll be given eye ointment to cut the chances of either of these things happening to you. You may need to use the ointment for about six months.

Seek medical help straight away after a corneal graft operation if:

- You have redness or pain in the eye
- Your eyesight gets worse.

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## Glossary:

### 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.

### 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.

### cornea

The cornea is a thin, clear film, which covers the front of your eye and helps you focus.

### iris

The iris is the coloured part of your eye.

### pupil

The pupil is the hole in the centre of your eye that lets light in.

### epithelium

The epithelium is the top layer (the surface) of your eye's cornea.

### stroma

The stroma is the middle layer of your eye's cornea.

### ulcer

An ulcer is an open sore. Ulcers can happen in many parts of your body, such as in your stomach, and the skin of your legs, mouth, or genitals.

### conjunctiva

The conjunctiva is a thin lining that covers your eye and the inside of your eyelids.

### menstrual cycle

The menstrual cycle is the regular monthly process that causes an egg to be released from the ovaries so that a woman can get pregnant. The menstrual cycle causes her period, the bleeding that happens if she does not get pregnant.

### herpes simplex

Herpes simplex is a virus that causes a blistering skin rash. There are two different types of herpes simplex virus (HSV). HSV1 causes cold sores in your mouth. It's usually spread through saliva or through direct skin contact (like kissing). HSV2 causes a rash in your genital area. It is spread by rubbing during intimate contact (like having sex or sexual foreplay).

### ophthalmologist

An ophthalmologist is a doctor who specialises in treating people's eyes.

### general anaesthetic

You may have a type of medicine called a general anaesthetic when you have surgery. It is given to make you unconscious so you don't feel pain when you have surgery.

### 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.

### 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'.

### 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.

### 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.

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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.

## **debridement**

Debridement is the way in which a doctor or nurse cleans away the damaged surface of your wound or ulcer.

## **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.

## **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.

## **corticosteroids**

Corticosteroids are substances that your body makes naturally. But they can also be made in a laboratory to treat certain conditions. Corticosteroids have many different effects, including helping the body to use sugar and to control the amount of fluid it retains. They also reduce inflammation in the body, which is why they are sometimes used to treat diseases like asthma. (Asthma is caused by inflammation in the tubes that carry air in the lungs.)

## **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.

## **randomised controlled trials**

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