

Patient information from the BMJ Group

Glue ear

In this section

[What is it?](#)

[What are the symptoms?](#)

[How is it diagnosed?](#)

[How common is it?](#)

[What treatments work?](#)

[What will happen?](#)

[Questions to ask](#)

Glue ear

After an ear infection or a cold, some children get fluid trapped inside their ear. This can stop them hearing properly. This condition is often called glue ear.

We've brought together the best research on glue ear and weighed up the evidence about how to treat it. You can use our information to talk to your doctor about what treatments are best for your child.

Glue ear often follows an ear infection. To learn more, see our articles on [Ear infection](#)

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What is glue ear?

Does your child pay less attention or seem more withdrawn than normal? Or has he or she become fidgety or unruly? If so, your child could be having hearing problems because of fluid trapped inside the ear.



Children can seem withdrawn if they are having problems hearing.

There are lots of names for this condition. You may hear it called otitis media with effusion or OME. More commonly it's known as glue ear.

Glue ear

The condition is difficult to spot, although it often follows an ear infection or a cold. It doesn't cause obvious symptoms such as pain or fever. And you can't see the fluid because it doesn't come out of the ear.

Glue ear is very common among young children, especially between the ages of 1 year and 3 years old. But older children and adults can get it too. About 80 in 100 children have had glue ear by the time they are 4 years old.^[1]

The good news about glue ear is that it often clears up on its own within a few months. But in some children, it can drag on or come back, so the child's hearing is affected for long periods. If your child is learning to talk, glue ear may delay his or her speech. And if your child can't hear properly, it can affect his or her behaviour and cause problems at school.^[2] If this happens, it's important to get treatment.

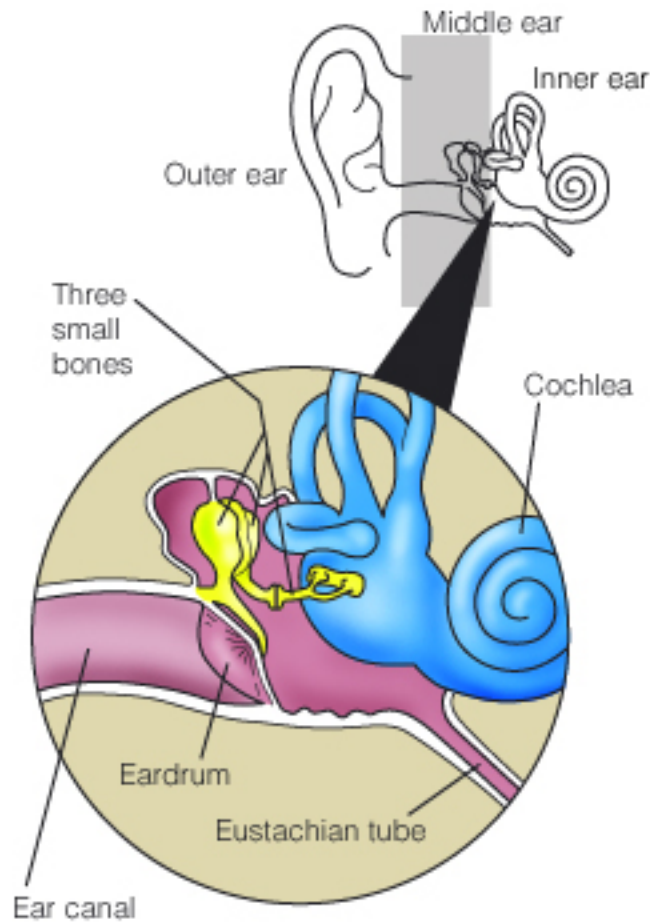
Key points for parents about glue ear

- Glue ear is very common in young children. It's the most common cause of poor hearing in children.
- Glue ear is difficult to spot because it doesn't have any obvious symptoms. But it often follows an ear infection or a cold.
- Many children with glue ear get better on their own, usually within a few months.
- Some children get glue ear for long periods and some keep on getting it. This can affect hearing and learning to speak. If this happens, it's important to get treatment.
- The main treatment for glue ear is surgery to put in grommets.

The ears and how they work

To understand what happens when your child gets glue ear, it's helpful to know a little about how the ears work.^[3]

Glue ear



Small bones within the middle ear carry sound to the inner ear.

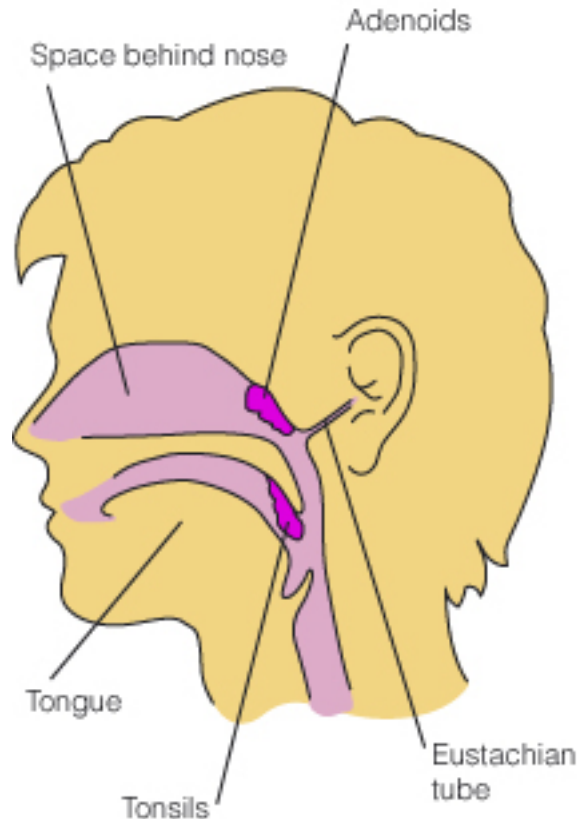
- Your **outer ear** is the part you can see. It 'catches' sounds.
- The hole in the middle of your outer ear is the entrance to your **ear canal**. It carries sounds into your ear.
- Stretched across the end of your ear canal is your **eardrum**. This thin tissue moves when sounds reach it and the sounds are passed on.
- Behind your eardrum is your **middle ear**. It's usually filled with air, although it also makes a thin, watery fluid. It has three **tiny bones** that move when sounds reach them.
- The bones carry sounds to your **inner ear**. Here, nerves pick up the sounds and send signals to your brain. (Your inner ear also helps you keep your balance.)
- Your **brain** translates these signals and recognises them as sounds.
- Your **eustachian tube** connects your middle ear to the back of your nose (just above the roof of your mouth). It keeps the air pressure on both sides of the eardrum equal.

Glue ear

This tube is closed most of the time. But when you swallow or yawn, it opens briefly. This lets air flow into the tube, so that the air pressure inside your middle ear and outside your head is the same.

- Your eustachian tube also lets any fluid in your middle ear drain off down your throat. This helps to remove any germs that get into your middle ear.

The adenoids and tonsils



If your child's adenoids or tonsils become enlarged, they can cause problems with the eustachian tubes.

Your child's **adenoids** are at the back of his or her nose, near the opening of the eustachian tubes. The adenoids are made of special tissue that helps your child's body fight infection. When most children are around three years old, their adenoids start to shrink. Eventually, children's adenoids disappear altogether.

In some young children the adenoids can get infected. This can stop the eustachian tubes from working properly and may be part of the reason why a child gets glue ear.

Your **tonsils** are two small mounds at the back of your throat. Like the adenoids, they are made of special tissue that helps your body fight infection. Sometimes your tonsils can become inflamed and swollen. But doctors don't think that having inflamed tonsils causes children to get glue ear.

What happens with glue ear?

A child gets glue ear when a thick, sticky fluid builds up inside his or her ear.^[4]

- Normally the middle ear is filled with air. But when you have glue ear, this area fills with fluid. The fluid is a bit like the catarrh that can get stuck in your throat.
- The fluid can stop the eardrum and the three small bones from moving freely, so they can't carry sounds to the inner ear.
- This may mean your child can't hear properly.
- Your child may get fluid inside one or both ears. About 40 in 100 children with glue ear have it in both ears.
- In many children glue ear clears up after a short period. But in some children the fluid doesn't go away. About 4 in 5 children still have glue ear after a month, and over half still have glue ear after three months.^[1] About 1 in 20 children still have glue ear after a year.^[5]
- Between 3 and 4 in every 10 children who get glue ear once will keep on getting it.

What causes glue ear?

Doctors don't know exactly why glue ear happens. But there are some things that seem to be linked to glue ear.

- Glue ear often follows an [ear infection](#) or another infection (such as a cold or flu).^[2] So it may be that germs from the infection get into the middle ear and cause swelling (inflammation). If this happens, the fluid becomes thicker and stickier than usual.
- Ear infections are common in young children. Over two-thirds of children have had an ear infection by the time they are three years old.^[6] Children usually recover from the infection within days but the fluid can stay trapped in their middle ear.
- Doctors also think that glue ear may happen because of the eustachian tubes not working properly. The tube may not open as it normally does.^[1]
- In young children, the eustachian tubes are far smaller than those of adults. So they can easily swell and get blocked by fluid. The tubes are also more horizontal, making it easier for germs to travel along them.
- If your child has had an infection, his or her adenoids can become infected. They stop the eustachian tubes working properly and make glue ear worse.

Glue ear: why my child?

Some things make it more likely that a child will get glue ear. These are called the risk factors for glue ear. The most common risk factor is being very young. Glue ear happens most often in children under 2. Children tend to grow out of this condition as they get older. ^[7]

Other risk factors for glue ear in young children include:

- Going to nursery
- Being given formula milk (rather than breast milk) as a baby
- Having parents who smoke
- Coming from a large family
- Having a lot of infections at a young age.

To learn more, see [Risk factors for glue ear](#) .

Even if your child has a higher chance than normal of getting glue ear, there are things you can do to [keep your child's ears healthy](#) .

What are the symptoms of glue ear?

One of the main problems with glue ear is that there aren't any obvious symptoms.

Unlike an [ear infection](#) , glue ear doesn't cause symptoms like pain, **fever** , or pus coming out of the ear.

Poor hearing is the most common symptom. It happens because the fluid that is trapped in the middle ear surrounds the eardrum and small bones. This stops them from moving freely to carry sound to the inner ear.

Hearing loss is often easy to miss. But it's important to be aware of signs that a child cannot hear properly. You may notice that your child: ^[15] ^[16]

- Seems not to listen to you
- Has the television on at high volume
- Has problems hearing if he or she can't see the person speaking
- Doesn't pay attention
- Is overactive

Glue ear

- Asks, "what did you say?" more often
- Speaks more loudly, or talks less
- Says words incorrectly or speaks less clearly
- Falls behind friends in his or her use of new words and speech patterns.

Poor hearing can have other causes, but glue ear is the most common form of hearing loss among children. See your GP if you think your child can't hear properly.

It's hard to know exactly how much your child's hearing may be affected by glue ear. It varies from child to child. Most children with glue ear have what doctors call mild hearing loss. To learn more, see [Hearing loss with glue ear](#) .

When the glue ear clears up, your child's hearing will go back to normal.

If your child is having problems hearing because of glue ear, there are things you can do to make sure he or she can hear you and others. To learn more, see [How to make sure your child hears you](#) .

A change in your child's behaviour may be the first thing you or your child's carer or teacher notices. Not being able to hear properly can make your child feel cut off and frustrated. This is especially true if he or she is too young to tell you about the problem.

A child with glue ear may be: ^[17]

- Restless
- Fidgety
- Often disobedient
- Unable to follow instructions at school
- Doing less well at school than usual
- Unable to concentrate for long
- Unable to get on with other children.

Of course, all young children have these sorts of problems from time to time. So you may find it hard to say whether your child's behaviour is normal. Glue ear is common at ages when children are growing rapidly and going through changes in mood and behaviour anyway. But having glue ear can make behaviour problems worse.

Glue ear

In one study, more than half of pre-school children who'd had glue ear for at least three months had problems with their behaviour.^[17] These problems were much less common in children who didn't have glue ear.

There are a few other things that you can look for. Older children (and adults too) may complain that their ears feel 'blocked' or 'plugged up'. Some children with glue ear may have a runny nose all the time. Occasionally children with glue ear have a mild earache. But earache is far more common with an [ear infection](#). Glue ear isn't an infection. The fluid which is trapped inside the ear doesn't usually contain germs.^[15]

Sometimes the fluid build-up in the middle ear may mean a child has problems with his or her balance. This may result in clumsiness and falling over more often.^[2]

How do doctors diagnose glue ear?

Glue ear can be difficult for your doctor to diagnose.

There are no obvious symptoms of glue ear. This is because glue ear is not an [ear infection](#) and the fluid which is trapped inside the ear doesn't usually contain germs. So your child is unlikely to get pain or a high temperature.

But if you suspect your child cannot hear properly and may have glue ear, you should take him or her to your GP.

Questions your doctor may ask

Your GP will probably want to know:

- Whether you have noticed signs of hearing loss in your child
- Whether there have been changes in your child's behaviour at home or school
- Whether he or she has had symptoms that could indicate a recent infection such as pain in the ear or fever (many children get glue ear after an ear infection)
- Whether he or she has had any colds or catarrh recently.

Your doctor will also want to speak to your child to find out if he or she has any problems hearing.

Examining your child's ears

Your doctor will look inside your child's ears using a tool called an **otoscope**, which is like a microscope. This allows the doctor to look for signs of fluid inside the ear. He or she will check to see if your child's eardrum looks dull (a healthy eardrum looks shiny). He or she will also check for any air bubbles or fluid behind the eardrum. However this test does not always detect glue ear. Even if the eardrum looks normal, your child could still have glue ear.

Glue ear

Your doctor may also carry out a test called a tympanometry (a test that measures how much the eardrum moves), so they can know for certain if your child has glue ear.^[2]

For more information about this test, see [More about tests for glue ear](#) .

There is also a special type of otoscopy, called **pneumatic otoscopy**, to see how well each eardrum is working. The test changes the pressure inside the ear canal and lets the doctor see if the eardrum responds by moving. If the eardrum is not moving much, this suggests there is fluid inside the ear.

Pneumatic otoscopy is accurate when done by a doctor who is specially trained in this test.^[26] But in the NHS you cannot always get this test. Most doctors do not use it.

Seeing a specialist

If your child has glue ear for a long time, or it keeps coming back, your GP may decide he or she should see a specialist to find out more and to see if he or she needs treatment. A specialist can carry out more tests to find out for certain if your child has glue ear and to find out how bad the hearing loss is. Your child may either be referred to a specialist hearing clinic or the ear, nose, and throat (ENT) department of a hospital.

To learn more, see [More about tests for glue ear](#) .

How common is glue ear?

Glue ear is very common in children, especially between the ages of one year old and three years old.

- About 4 in 5 children have had glue ear by the time they are four years old.^[1]
- Glue ear remains common among children up to the age of six years old. After that, most children grow out of it.^[19]
- Glue ear is the most common cause of poor hearing in children.^[1] It causes long-lasting hearing problems in about 1 in 20 five year olds.^[19]
- Adults sometimes get glue ear after illnesses such as flu, colds, or throat infections, or after air travel. But this doesn't happen often.^[20]
- Most children get glue ear in the winter, when colds are more common.^[1]

Some children are more likely than others to get glue ear because they have certain risk factors. For more information, see [Risk factors for glue ear](#) .

What treatments work for glue ear?

The good news about glue ear is that in many children it clears up without needing treatment, usually within a few weeks or months.

Doctors normally suggest a period of 'watchful waiting' for glue ear, to see if it gets better by itself.

But if your child has glue ear for a long time and it is clearly affecting his or her hearing, your child may need treatment. The main treatment for glue ear is [surgery to put in grommets](#) .

In the UK doctors tend not to use any drug treatments for glue ear.

Key points about treating glue ear

- Your doctor will probably suggest watchful waiting for glue ear. Watchful waiting is when your doctor regularly checks on your child rather than recommending a treatment straight away.
- Getting your child to blow up a special balloon with his or her nose may open the tubes leading from their middle ear to the back of their throat (the eustachian tubes) and improve their hearing. But your child needs to keep doing this. Young children may find the balloon hard to use.
- If your child's glue ear does not go away, or if it keeps coming back, your doctor may suggest an operation to put in grommets. Grommets are not a cure for glue ear. But they may improve your child's hearing until he or she grows out of it.
- Antibiotics may help clear up your child's glue ear but they probably won't improve his or her hearing. Antibiotics may cause side effects.
- Antihistamines and decongestants are unlikely to help clear up glue ear or improve hearing. And these medicines may cause side effects.

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 glue ear

Treatments that work, but whose harms may outweigh benefits

- [Grommet surgery](#) : During this surgery, a doctor puts a small tube in one or both of your child's ears to let air into the middle ear and improve his or her hearing. [More...](#)

Glue ear

- [Grommet and adenoid surgery](#) : During this surgery, a doctor puts a small tube in one or both of your child's ears to let air into the middle ear and improve his or her hearing. Sometimes the surgeon will also suggest removing the child's adenoids. [More...](#)
- [Steroid syrups or tablets](#) : Corticosteroids are drugs that can reduce swelling (they are not the same as anabolic steroids - the performance enhancing steroids used by some athletes). Examples of steroid syrups or tablets include dexamethasone and prednisone. Steroid syrups or tablets are not usually recommended for children with glue ear. [More...](#)
- [Antibiotics](#) : Antibiotics are drugs that kill germs called bacteria. Examples of antibiotics (followed by brand names) include amoxicillin (Amoxil), amoxicillin-clavulanate (Augmentin), cefaclor (Distaclor), cefixime (Suprax), and erythromycin (Erythroped). [More...](#)

Treatments that need further study

- [Nasal balloon](#) : Your child blows hard through each of his or her nostrils into a special balloon several times a day to clear the fluid. Otovent is the name of the balloon made for this. [More...](#)

Treatments that are unlikely to work

- [Drugs that break up mucus](#) : Doctors call these mucolytics. An example (with brand name) is mecysteine (Visclair). [More...](#)
- [Steroid nasal sprays](#) : Steroids are drugs that can reduce swelling. This may help unblock the eustachian tubes (the tubes leading from the middle ear to the back of the throat) and allow the fluid to drain. Some steroids come as sprays that you put into your child's nose. Examples of steroid sprays (followed by brand names) include beclometasone (Beconase), fluticasone (Flixonase spray), mometasone (Nasonex), and triamcinolone (Nasacort). [More...](#)

Treatments that are likely to be ineffective or harmful

- [Antihistamines and decongestants](#) : Antihistamines are drugs that can reduce the symptoms of an allergy. Decongestants are drugs that are normally used to relieve a stuffy nose. [More...](#)

Other treatments

- [Other treatments](#) : Vaccination against infection with pneumococcus has been found to have a small effect in preventing glue ear in babies. But it doesn't seem to work for older children. [More...](#)

What will happen to my child?

If your child has glue ear, there is a good chance that he or she will get better without any treatment.

About 4 in 10 children with glue ear get better without treatment within three months.^[1]

But in some children, especially younger ones, glue ear lasts much longer. Between 1 and 2 in every 20 children who have glue ear have it for a year or more.^[5]

Even if glue ear does clear up, it may come back. Between 3 in 10 to 4 in 10 children who get glue ear once keep getting it again. And the younger your child is the first time he or she has an [ear infection](#), the more likely he or she is to have more ear infections followed by glue ear.^[12]

Researchers don't know why children who have ear problems early in life are more likely to have these troubles come back. It may be that these children are having problems with their **eustachian tubes** (the tubes leading from the middle ears to the back of the nose). Or it may be that they have a problem with their **immune system** (the parts of the body that fight infection).^[12]

How will glue ear affect my child?

It's hard to say how your child will be affected by glue ear in the long term. If the fluid clears up after a few weeks or months, your child's hearing will go back to normal, and he or she will probably not be affected at all.

But if the glue ear drags on or comes back a lot, it may affect how your child develops. Having glue ear many times during the first few years of life could affect:^[1]

- How soon your child talks
- How well he or she uses language
- How he or she behaves
- How well he or she does at school.

This is because a child with glue ear may not be able to hear properly. The fluid stops the eardrum and the small bones in the middle ear from moving freely, so they can't carry sounds to the inner ear properly. Your child's hearing loss will probably be worse if both his or her ears are affected.^[1]

To learn to talk and use language, your child needs to hear people speaking. If your child can't hear properly at an age when he or she is learning to talk, it could slow the development of his or her speech and language.^[1] One large study of children aged 10 and under found that glue ear was linked to delays in learning how to use language.^[21]

Glue ear

There may be other problems too. If your child can't hear the teacher, it may affect how well he or she does in nursery or school. And if your child can't hear properly at school or at home, he or she will feel frustrated and may start to misbehave.

But doctors and researchers are still unsure about all of this. They don't know just how long a child has to have glue ear, or how much hearing loss it has to cause, for speech and language to be affected. ^[22]

And the amount of hearing loss caused by glue ear varies. Usually the hearing loss is mild. ^[1] But your child's hearing may change from day to day.

Also, it's not clear how glue ear affects a child's use of language. Some studies have found that children who have repeated bouts of glue ear get lower scores in language tests. But in other studies, having glue ear for a long time didn't make any difference to how well children used language. So it may be that some children have more problems from glue ear than others. ^[6]

What your doctor may do

Doctors usually recommend a period of three to six months of watchful waiting to see if glue ear clears up on its own. ^[23] (Watchful waiting is when your doctor regularly checks on your child rather than recommending a treatment.) If the glue ear doesn't clear up and your child has a loss of hearing in both ears, then your GP may refer your child to a specialist to see if he or she needs treatment.

But if your child is under four years old, your doctor may immediately refer him or her to a specialist for a hearing test.

If your child has glue ear, it's wise to keep an eye on him or her to make sure that the condition clears up quickly. If you think it isn't clearing up, or if it keeps coming back, take your child to the doctor. It's also a good idea to ask your child's teacher to keep an eye on your child. ^[21]

If your child has a disability like **Down's syndrome** or a **cleft palate** then even a short period of hearing loss from glue ear can be a serious problem. Your GP will probably make sure that your child sees a specialist straight away.

The National Institute for Health and Care Excellence (NICE), the government body that advises doctors about treatments, has published guidance on when a child with glue ear should be referred to a specialist. NICE says that a child who has glue ear which does not clear up should be referred if: ^[24]

- There is a bad-smelling discharge which may suggest a serious complication called cholesteatoma. Your child should be seen urgently by a specialist.
- The child has poor hearing which might indicate he or she has additional problems to glue ear (your child should be seen urgently)

Glue ear

- Your child has proven hearing loss plus difficulties with speech, language, learning, or behaviour (your child should be seen soon)
- Your child has proven hearing loss plus a second disability such as [Down's syndrome](#) (your child should be seen soon)
- Your child has proven hearing loss plus frequent bouts of acute ear infection (your child should be seen soon)
- Your child has had persistent hearing loss for three months or more.

Once glue ear clears up, your child's ears and hearing should return to normal. But in a few children, this condition can cause further problems. For more information, see [Complications of glue ear](#) .

There are several steps you can take to help keep your child's ears free of fluid and infection. For more information, see [How to help keep your child's ears healthy](#) .

As children get older, glue ear normally goes away completely. In most children, problems with glue ear don't normally carry on after six years of age. ^[6]

Questions to ask your doctor

If your child has been diagnosed with glue ear, you may want to talk to your doctor to find out more.

Here are some questions that you might want to ask.

- How do you know my child has glue ear?
- What tests has he or she had, and what do the results mean?
- Why does my child have glue ear?
- Is his or her hearing affected? If so, by how much?
- Is my child at risk in any way?
- What are the best treatments for my child?
- What are the pros and cons of each treatment?
- Why is having no treatment an option for glue ear?
- What else can I do to help my child?
- Can I do anything to stop my child from getting glue ear again?

Treatments:

Nasal balloon

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 nasal balloons?](#)

This information is for parents of children who have glue ear. It tells you about nasal balloons, a treatment used for glue ear. It is based on the best and most up-to-date research.

Does it work?

It can do, if used properly. Getting your child to blow up a special balloon with his or her nose is likely to help get rid of glue ear and possibly improve your child's hearing. But some children, particularly younger children, may find this is hard to do. And your child has to use the balloon regularly to keep their ears free from fluid. Some children find the balloon fun to use, so it's worth trying.

What is it?

The name of this device is Otovent. It can be prescribed by your doctor or you can buy it from a pharmacy. It comes with five balloons, each of which can be used a few times.

The balloon is attached to a small tube. Your child puts the tube in one nostril. He or she then blows up the balloon through that nostril, keeping the other nostril closed with a finger, and keeping his or her mouth shut. Your child then stops blowing and breathes normally, and the air goes out of the balloon. He or she then does it again, using the other nostril.

Your child normally has to do this three times a day.^[28] You will need to change the balloon regularly to make sure that your child has a stretchy one. You can also use party balloons that fit on the tube as replacements, as long as they are not too hard for your child to blow up.

Your child may find it hard to use the nasal balloon or may not want to keep on using it. In one study, 42 children were treated with the balloon but more than half didn't use it the right way, and five weren't able to use it at all.^[28] Among children aged three years to 10 years, about 1 in 10 weren't able to use the balloon.

If your child uses a nasal balloon, it's important that they use it as often as your doctor recommends. In one study, the balloon helped only children who used it at least two-thirds of the number of times recommended.^[28]

How can it help?

Children with glue ear who use the balloon regularly are more than three times as likely to hear better than children not using it. ^[29] And children using the nasal balloon are more likely to improve within three months than children who don't use a balloon. ^[29]

Once your child stops using the balloon, glue ear may come back. ^[28]

We don't know if inflating other things through your nostril will work as well. And there's no research to tell us if breathing out hard through your nostrils with your mouth closed helps clear glue ear.

How does it work?

The aim of using the nasal balloon is to drain the fluid from your child's middle ear. When your child stops blowing up the balloon and breathes normally, the air goes out of the balloon and rushes back up your child's nostril and into his or her **eustachian tube**. The eustachian tube is the passageway that runs from the middle ear to the back of the nose. It is this tube that becomes blocked by fluid. The air pressure (from the air rushing out of the balloon) forces open the eustachian tube, so that the blockage clears, and the fluid drains down the back of your child's nose and throat. This leaves his or her middle ear free of fluid, so the eardrum and bones can move easily again, and your child can hear normally.

Can it be harmful?

None of the children in the studies we looked at had any serious side effects from blowing up the nasal balloon. But some children with severe glue ear find using the nasal balloon painful. ^[28]

In theory, blowing up a balloon and then letting the air out could damage your child's lungs. Or a bubble of air could get into a blood vessel and block it. The treatment could also force infected fluid from your child's nose or throat into the middle ear, possibly leading to an acute ear infection. But these problems have not been seen in any studies. ^[28]

How good is the research on nasal balloons?

There's some good evidence that nasal balloons can help children with glue ear. We found two summaries of the research (systematic reviews) that looked at children with glue ear. ^[29] ^[30] Children who used a specially made nasal balloon were more likely to get better than children who didn't have treatment.

Children who used nasal balloons improved after two weeks to three months. Their hearing got better and their eardrums moved more freely.

However, some of the research on nasal balloons isn't of a good quality. We need more research before we can say for certain whether this treatment works.

Grommet surgery

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 surgery to put in grommets \(without taking out the adenoids\)?](#)

This information is for parents of children who have glue ear. It tells you about surgery to put in grommets (without taking out the adenoids), a treatment used for glue ear. It is based on the best and most up-to-date research.

Does it work?

An operation to put in grommets can help some children with glue ear, especially if they have glue ear that does not clear up (**chronic glue ear**). The operation can help to clear the fluid and improve your child's hearing. But some children get better on their own, without an operation. And surgery can cause side effects. So, doctors usually advise that children wait for a while before having grommets put in. This is called **watchful waiting**.

What is it?

During the grommet operation, a surgeon puts a small metal or plastic tube called a grommet in one of your child's ears or, more commonly, both ears. The surgeon first makes a small hole in your child's eardrum and drains away the fluid. Then the surgeon puts the tube in the hole. The tube lets air reach the middle ear and keeps it healthy.

It's normal for grommets to fall out after six to 12 months. When this happens, your child may need another operation to put the tubes in again if he or she has not grown out of glue ear. One study found that about half of all children with grommets need another operation within five years.^[31] But the chances of needing another operation get smaller as your child gets older.

If your doctor has suggested your child has this operation, you may wish to read more about it. To learn more, see Grommets.

In younger children and in children whose parents smoke, glue ear takes longer to clear after surgery.^[17]

How can it help?

Putting in grommets may improve your child's hearing. But how much children are helped by this operation varies a lot.^[1]

Six months to nine months after the operation, the average improvement was about 4.2 decibels (decibels are used to measure hearing and the volume of sound).^[1] We're not sure how much difference that would make to a child's day-to-day life.

Glue ear

A year after surgery there was no difference in hearing between children who'd had surgery and children who didn't. ^[1] That's because the children who hadn't had surgery got better on their own, and caught up with the children who'd had surgery.

If your child can't hear well, it may cause problems with his or her behaviour, or how well they learn to talk and use language. However, grommets don't seem to help children behave better or learn to use language more quickly. ^[1] Again, this may be because glue ear often clears up on its own, so the children who haven't had grommets soon catch up with children who have.

Grommets can help children with glue ear that is lasting a long time to get better more quickly. ^[32]

How does it work?

The surgeon makes a small hole in the eardrum and uses a suction device to drain the fluid in the middle ear. The surgeon then places the grommet in the hole in the eardrum. Putting a grommet in the eardrum allows air to flow in and out of your child's middle ear. This helps to balance the pressure in the middle ear and stops fluid building up. With the fluid gone, the eardrum and the small bones can move properly, so your child may be able to hear better.

Can it be harmful?

Like any surgery, putting grommets in carries a risk of other problems (doctors call these problems complications). It's important that you weigh up the risk of complications against the possible benefits of surgery when considering this treatment for your child.

Some complications that could happen after surgery are having a discharge and having problems with the eardrum.

Discharge

Some children get oozing from their ear (a **discharge**) for a while after their operation. In studies, between 2 in 100 and 49 in 100 children got a discharge. ^[1]

Your child can still go swimming if they have grommets fitted. Swimming is unlikely to cause ear infections or discharges for children with grommets, especially if they don't dive. ^[33] There's no evidence that protecting ears with ear plugs, ear drops, or a swimming cap helps prevent ear infections if your child has grommets. ^[33] Although, if your child is a keen swimmer or diver, some doctors do suggest earplugs. Some experts say that if children have grommets they shouldn't put their heads under soapy water (for example, in the bath). ^[34]

Problems with the eardrum

Putting grommets in has been linked to some small changes in the eardrum. The eardrum is the thin, delicate tissue stretched across the end of the ear canal. It moves when sound

Glue ear

reaches it. After surgery, your child's eardrum may become hard (around 4 in 10 children who have grommets get hard eardrums).^[1]

One small study found that hardening of the eardrum didn't cause loss of hearing or any other problems.^[35]

There is also a small risk of:

- Scar tissue: Your child may get scar tissue where the hole is made for the tube to go in the eardrum.^[2]
- A hole in the eardrum: After the grommet is removed or falls out, your child may have a hole in his or her eardrum that doesn't heal quickly.^[2] If they have to, doctors can close this with a small operation later on. But it's best to wait to see if the hole heals on its own.

How good is the research on surgery to put in grommets (without taking out the adenoids)?

There's some evidence that surgery to put in grommet can help children with glue ear. We found a large summary of the research (a systematic review) on grommets for glue ear.^[1] It looked at 10 good-quality studies. Having grommets put in helped children's hearing in the short term, but the benefits went away in time. After five years, children who didn't have the operation could hear just as well as children who'd had the operation.

The operation also reduced the amount of time the children had fluid in their ear by about a third.

However, having grommets put in didn't make any difference to how well children used or understood language.

Grommet and adenoid surgery

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 surgery to put in grommets and take out the adenoids?](#)

This information is for parents of children who have glue ear. It tells you about surgery to put in grommets and take out the adenoids, a treatment used for glue ear. It is based on the best and most up-to-date research.

Does it work?

If your child has glue ear that lasts a long time, surgeons may recommend having an operation to put in grommets and an operation to remove your child's adenoids at the same time, rather than just having an operation to put in grommets.

An operation to put in grommets and take out the adenoids can help some children with glue ear. It can clear the fluid and improve his or her hearing in the short term. But, some children get better on their own, without having an operation. Also, surgery can cause side effects.

What is it?

Surgery to put grommets in

During this operation, a surgeon puts a small metal or plastic tube called a grommet in your child's ear or, more commonly, both ears. The surgeon first makes a small hole in your child's eardrum and drains away the fluid. Then the surgeon puts the tube in the hole. The tube lets air reach the middle ear and keeps it healthy.

It's normal for grommets to fall out after six to 12 months. Your doctor may then test your child's hearing to find out whether he or she needs another operation. Your child may get this operation if he or she has not grown out of glue ear. One study found that about half of all children with grommets need another operation within five years.^[31] But the chances of needing another operation get smaller as your child gets older.

We've prepared some extra information for parents considering grommets for their children. To learn more, see [Grommets](#).

Surgery to take adenoids out

The adenoids are two swellings at the back of your child's nose. They are part of the [immune system](#) (the body's system for fighting infections).

When children are under three years old, their adenoids help protect them against [infection](#). Adenoids trap germs that would otherwise be breathed in. But, in some children, the adenoids themselves may become infected. This can make glue ear worse. Normally, as children get older, their adenoids get smaller and eventually disappear.

If your child is over three years old, your surgeon may wish to find out if your child still has adenoids. The surgeon may suggest that your child's adenoids should be taken out at the same time as grommets are put in.

Taking out the adenoids is a bigger operation than just putting in grommets. But it's still normally done as same day surgery. This means that your child can usually go home the same day as the operation.

We've prepared some extra information for parents considering having their children's adenoids out. To learn more, see [Adenoidectomy](#).

Surgery to take tonsils out

Your tonsils are two small, soft mounds that sit on either side of the back of your throat. They are made of special tissue that helps fight infection.

Doctors are recommended not to use this operation to treat glue ear. But, if your child keeps on getting **tonsillitis** (throat infections), your doctor might recommend taking out his or her tonsils, sometimes at the same time as putting in grommets and taking out the adenoids.

We've prepared some extra information for parents considering having their children's tonsils out. To learn more, see Tonsillectomy.

In younger children and in children whose parents smoke, glue ear takes longer to clear after surgery, whichever kind of surgery a child has. ^[17]

How can it help?

If your child has glue ear for several years, your doctor may suggest an operation to take out the adenoids as well as putting in grommets.

A big summary of research (a **systematic review**) of more than 2,700 children who had their adenoids removed at the same time as having a grommet put in found their symptoms improved more than children who just had grommets fitted. ^[36]

Around 40 children in every 100 who had both operations at the same time no longer had glue ear six months after the operation, compared with 17 in every 100 who only had a grommet put in. And after 12 months, 48 out of 100 children who had both operations were free of glue ear, compared with 20 in 100 who only had a grommet put in.

Guidelines from the National Institute for Health and Care Excellence (NICE), which advises doctors about treatments, say it is not usually necessary to take out the adenoids as well as put in grommets. But NICE says it is worth doing if a child often has symptoms such as cough, sore throat, and a runny nose that won't go away. ^[2]

If your child has their adenoids out as well, their hearing may improve more than if they just had grommets, but only by a little. ^{[36] [37]}

To learn more about just having grommets put in, see [Surgery to put in grommets](#) .

How does it work?

The surgeon makes a small hole in the eardrum and uses a suction device to drain the fluid in the middle ear. The surgeon then places the grommet in the hole in the eardrum. Putting a grommet in the eardrum allows air to flow in and out of your child's middle ear. This helps to balance the pressure in the middle ear and stops fluid building up. With the fluid gone, the eardrum and the small bones can move properly, so your child may be able to hear better.

Glue ear

If your child's adenoids get infected, they can stop the **eustachian tubes** from working properly and make glue ear worse. The eustachian tubes run from each of the middle ears to the back of the nose. If the tubes get blocked, fluid gets trapped in your child's middle ears and causes poor hearing. Taking out your child's adenoids may help unblock the eustachian tubes, so the fluid that has collected can drain off through the nose and throat.

Can it be harmful?

Like any surgery, putting grommets in and taking the adenoids out carries a risk of other problems (doctors call these complications). It's important that you weigh up the risk of complications against the possible benefits when considering surgery for your child.

Discharge

Some children get oozing from their ear (a discharge) for a while after their operation. In studies, between 2 in 100 and 49 in 100 children got a discharge. ^[1]

Your child can still go swimming if they have grommets fitted. Swimming is unlikely to cause ear infections for children with grommets, especially if they don't dive. ^[38] There's no evidence that protecting ears with ear plugs, ear drops, or a swimming cap helps prevent ear infections if your child has grommets. ^[38] Although, if your child is a keen swimmer or diver, some doctors do suggest earplugs. Some experts say that if children have grommets they shouldn't put their heads under soapy water (for example, in the bath). ^[34]

Problems with the eardrum

Putting grommets in has been linked to some small changes in the eardrum. The eardrum is the thin, delicate tissue stretched across the end of the ear canal. It moves when sound reaches it. After surgery, your child's eardrum may become hard. About 4 in 10 children who have grommets get hard eardrums. ^[1]

One small study found that hardening of the eardrum didn't cause loss of hearing or any other problems. ^[27]

The surgery also carries a small risk of the following problems.

- Scar tissue: Your child may get scar tissue where the hole is made for the tube to go in the eardrum. ^[2]
- A hole in the eardrum: After the grommet is removed or falls out, your child may have a hole in his or her eardrum that doesn't heal quickly. ^[2] If they have to, doctors can close this with a small operation later on. But it's best to wait to see if the hole heals on its own.

Glue ear

- Bleeding: Having your child's adenoids taken out carries a small risk of bleeding (haemorrhage) from the throat area. About 5 in 1,000 to 9 in 1,000 children who have an operation to remove their adenoids will have bleeding that requires emergency treatment. ^[39]
- Death: All surgery carries some risk of death. In the case of surgery to take out the adenoids, the risk is tiny. We do not have any figures on removing the adenoids alone. But of the operations done to remove adenoids and tonsils together, between 1 in 15,000 and 1 in 25,000 result in death. ^[39]

How good is the research on surgery to put in grommets and take out the adenoids?

We found one large summary of the research (a **systematic review**). ^[22] It found that having grommets put in and having the adenoids removed helped children with glue ear. Children could hear better six months after their operation. But after a year, there wasn't a big difference between children who'd had the operation and children who hadn't. Having grommets put in and taking the adenoids out didn't improve people's hearing any more than having grommets on their own. ^[22]

A more recent review found that children who had grommets put in and their adenoids removed worked better than grommets on their own. More children who had both operations were clear of glue ear after six and twelve months than children who only had grommets put in. There was some benefit from having both operations on children's hearing, but the effects on hearing were very small. ^[36]

Steroid syrups or tablets

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on steroid syrups or tablets?](#)

This information is for parents of children who have glue ear. It tells you about steroid syrups or pills, a treatment sometimes used for glue ear. It is based on the best and most up-to-date research.

Do they work?

We're not sure. Steroid syrups and tablets may help clear up glue ear, either alone or taken with antibiotics. But these drugs can have serious side effects, so they're not often used for glue ear.

What are they?

The steroids used to treat glue ear are corticosteroids. Corticosteroids are often used to reduce inflammation. They aren't the same as the steroids used by bodybuilders.

Doctors call steroids that you take by mouth oral steroids. They come as tablets or syrups. Some examples are:

- dexamethasone
- prednisolone.

Doctors tend not to use steroids for children with glue ear. But some doctors may prescribe steroids for children with glue ear that doesn't clear up on its own. They prescribe the steroids either with or without antibiotics. ^[40]

How can they help?

Your child may be more likely to get rid of glue ear within two weeks if he or she takes a steroid. In studies, 19 in every 100 children who took steroid tablets or syrup got rid of glue ear after two weeks, compared to fewer than 5 in every 100 who took a dummy (placebo) tablet or syrup. ^[41] But we don't know how long the effects lasted, because the studies only looked at short-term results lasting a month.

Giving your child both antibiotics and steroid syrup or tablets may help clear glue ear faster than giving just antibiotics. But there is no evidence that this will help your child's hearing in the long term. ^[42]

How do they work?

Steroids block the release of chemicals that cause inflammation. If steroids are taken as syrups or tablets, they are digested by the stomach and travel in the bloodstream. Once they reach the lining of the middle ear, they should reduce inflammation. This should stop your child's middle ear making so much fluid.

Can they be harmful?

The problem with steroids taken as syrups or tablets is that they can have serious side effects if your child takes them for a long time. More serious side effects of steroids include being at risk of infections, such as chickenpox , or growing more slowly than normal. ^[43] ^[44]

However, it's unlikely that your child would be given steroids for glue ear for a long period. So he or she is unlikely to get the side effects that happen with longer use. And no side effects were mentioned in the studies we looked at. But even taking steroids for a short period can have side effects in children, including: ^[45]

- Changes in behaviour, such as becoming overly active (hyperactive)

Glue ear

- Changes in mood. These can be serious. For example, some children think about suicide, but this is rare
- Increased appetite
- Weight gain
- Agitation
- Sleeplessness.

Your doctor should explain the benefits and risks of steroids before your child starts taking them. If your child gets any worrying symptoms while they're taking steroids, take them to see a doctor straight away.

How good is the research on steroid syrups or tablets?

We found one big summary of research (a [systematic review](#)) looking at steroids for glue ear. It covered more than 900 children, in 12 studies. It showed that children taking steroids were more likely to get rid of glue ear after one month, both with and without antibiotics. ^[41]

But most of the studies were done among children being treated in hospital. This suggests they had very bad glue ear. We don't know if the results would have been different among children who don't need hospital treatment.

Steroid nasal sprays

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on steroid nasal sprays?](#)

This information is for parents of children who have glue ear. It tells you about steroid nasal sprays, a treatment sometimes used for glue ear. It is based on the best and most up-to-date research.

Do they work?

We don't know. One study showed that, when used with [antibiotics](#) , steroid nasal sprays may clear fluid in your child's ear more quickly than antibiotics alone or no treatment at all. ^[40] However, other research suggests that steroid sprays don't help children with glue ear.

What are they?

The steroids used to treat glue ear are corticosteroids. Corticosteroids are often used to reduce inflammation. They aren't the same as the steroids used by bodybuilders.

Steroid nasal sprays are called topical steroids. The word 'topical' means the steroids are applied directly to the part of your body that needs to be treated.

Steroid nasal sprays for children are available only with a prescription from your doctor. They are not normally used for the treatment of glue ear in the UK, but some doctors may prescribe them. Examples of steroid nasal sprays (and their brand names) are:

- beclometasone (Beconase)
- budesonide (Rhinocort)
- flunisolide (Syntaris)
- fluticasone (Flixonase)
- mometasone (Nasonex)
- triamcinolone (Nasacort).

Most of these sprays are suitable for children who are six years old and over. Steroid nasal sprays are not recommended for children under four years old, although doctors can still prescribe them.

Guidelines for doctors don't recommend steroids as a treatment for glue ear in children. ^[46] But some doctors do prescribe them, either alone or with antibiotics, for children with glue ear that doesn't go away. Steroid nasal sprays may have fewer side effects than [steroid syrups or tablets](#). ^[42]

How can they help?

We don't know if they can help.

- One small study found that steroid nasal sprays worked no better than a dummy treatment (a placebo). ^[47] The spray used in this study was dexamethasone.
- A study looking at 217 children found that steroid sprays didn't help. ^[48] About 41 in 100 children were cured after a month if they used a steroid spray. But 45 in 100 children using a spray without any medicine (a placebo) also recovered. More than half of children had recovered after three months whether they used a steroid spray or not.

Glue ear

- Another study found that treating glue ear with both antibiotics and a steroid nasal spray cleared glue ear faster than treating it with antibiotics alone, or using no treatment at all.^[40] The spray used in the study was beclometasone (Beconase).

How do they work?

Steroids reduce inflammation. Inflammation is one of the ways the body responds to an injury. It can cause swelling, pain, redness, or warmth. Steroids stop inflammation by stopping the body making certain chemicals in response to damage or disease. One of the main chemicals that steroids block is prostaglandin, which causes swelling.

Steroid nasal sprays help prevent and reduce swelling in the lining of the nose, the back of the nose (called the **nasal pharynx**), and the **sinuses** (the air-filled spaces in the bones around the nose). The theory is that by reducing swelling, these sprays will also help clear your child's **eustachian tubes**. These run from each of the middle ears to the back of the nose. It is these tubes that become blocked by fluid.

Can they be harmful?

[Steroid syrups or tablets](#) (oral steroids) can cause problems if used in high doses over a long time. Once in the bloodstream, oral steroids can affect other parts of your child's body and have serious side effects. But researchers think steroids sprayed into the nose are safer. This is because less of the drug gets into the bloodstream.^[42]

But the Committee on the Safety of Medicines, the body that decides whether treatments are safe, says that if you use high doses of these sprays over a long time there is a risk of more severe side effects. The Committee says that the dose you take should be the lowest needed to keep your symptoms under control.^[49]

One study found that using steroid nasal sprays can cause stinging and nosebleeds in children. It didn't report any other side effects.^[42] Other possible side effects are irritation of the nose and throat, headaches, and smell and taste disturbances.

How good is the research on steroid nasal sprays?

Most studies of steroids for glue ear have looked at the effects of steroid syrups or tablets (oral steroids). There isn't a lot of evidence about steroid nasal sprays in children with glue ear.

We found one good study (a [randomised controlled trial](#)) that looked at the effect of spraying steroids up the nose once a day in more than 200 children with glue ear. The study found that the steroid spray did not work to relieve symptoms any better than a dummy (placebo) spray that did not contain steroids.^[50]

Another small but high-quality study looked at 45 children with glue ear.^[47] The children were given either a steroid nasal spray or a dummy treatment. There was no difference in the children's glue ear after three weeks of treatment.

But another small study looked at 59 children between 3 and 11 with glue ear.^[40] Children who took antibiotics and used a steroid spray did better than children who just took antibiotics.

More studies of steroid nasal sprays need to be done before they can be recommended for treating glue ear in children.

Antibiotics

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

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

This information is for parents of children who have glue ear. It tells you about antibiotics, a treatment sometimes used for glue ear. It is based on the best and most up-to-date research.

Do they work?

Yes. Antibiotics may help your child recover from glue ear. But antibiotics often cause side effects.

What are they?

Antibiotics are drugs that kill germs called **bacteria**. Bacteria can cause illnesses.

There are many different types of antibiotics, and each type works in a slightly different way. Some common antibiotics (with brand names) are amoxicillin (Amoxil), co-amoxiclav (Augmentin), clarithromycin (Klaricid), and erythromycin (Erythroped).

Most doctors are now careful not to prescribe antibiotics unless they think the treatment is really necessary. This is because antibiotics won't work as well in the future if they are used too much. This problem is called **antibiotic resistance**. If your child gets an infection with bacteria that resist antibiotics, you may have to try several antibiotics to find one that works.

Doctors do not usually recommend antibiotics as a treatment for glue ear.

How can they help?

Taking antibiotics for three or four months can help clear glue ear. But they won't necessarily improve hearing.

A review of the evidence showed that children who had been given antibiotics continuously for four weeks or three months were about one-third more likely to no longer have glue ear at the end of treatment than children who didn't take antibiotics. But the children who took antibiotics didn't have a big improvement in hearing.^[51]

How do they work?

About 1 in 3 children with glue ear have germs (bacteria) in the middle ear. Antibiotics kill bacteria. If your child has bacteria in the middle ear, antibiotics might help. Researchers think that getting rid of the bacteria might help clear up the fluid in the middle ear. ^[51]

Can they be harmful?

Side effects are common with antibiotics. But they are usually mild. The most common are diarrhoea, queasiness, and vomiting. Studies have found that these problems affect between 2 in 100 and 32 in 100 children who take antibiotics. Amoxicillin is a very common cause of diarrhoea. Other common side effects are skin rashes and skin reactions. ^[52]

Antibiotics can also have more serious side effects, although these are rare. Serious side effects include:

- Damage to the liver (although this happens mostly in adults)
- Damage to the kidneys
- Breathing problems
- Blood problems
- Nerve problems.

To find out more, see [Side effects of antibiotics](#) .

Most doctors are careful not to prescribe antibiotics unless they think your child really needs them. This is because antibiotics may not work as well in the future if they are used too much. Bacteria can become resistant to them. ^[53]

How good is the research on antibiotics?

We found two large summaries of the research on antibiotics (systematic reviews). ^[54]
^[51]

The first found that antibiotics did not prevent glue ear in children with an ear infection. It looked at information on 1,328 children collected from five good studies (randomised controlled trials). It found similar levels of fluid build-up in the middle ear in children with ear infection who were given either antibiotics or a dummy treatment (a placebo).

The second review looked at information on 3,027 children collected from 23 good studies. It found that children who had taken antibiotics continuously for four weeks or three months were most likely to see improvements. Over four weeks or three months, a number of children would have got better, with or without treatment. But 3 in 10 more children who had been treated with antibiotics for this length of time no longer had glue

ear at the end of treatment. The children who took antibiotics only had a very small improvement in hearing. Because of the side effects and risks of using antibiotics, the reviewers said that they could not recommend antibiotics for glue ear.

Drugs that break up mucus

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on drugs that break up mucus?](#)

This information is for parents of children who have glue ear. It tells you about drugs that break up mucus, a treatment sometimes used for glue ear. It is based on the best and most up-to-date research.

Do they work?

No. There is no evidence that drugs that break up mucus can help clear glue ear.

What are they?

Doctors call these drugs mucolytics. They dissolve or break up mucus (also called phlegm). Mucolytics are normally used to treat coughs that produce phlegm as well as chest conditions that create too much mucus, such as [cystic fibrosis](#). You can take mucolytics as a spray that you breathe into your lungs or as a syrup that you swallow.

Mucolytic drugs are available in the UK, but they are not usually used as a treatment for glue ear. These drugs (and their brand name) are carbocisteine and mecysteine (Visclair).

How can they help?

Drugs that break up mucus don't help to clear glue ear. ^[55]

How do they work?

Glue ear happens when the lining of your child's middle ear makes too much fluid, or mucus, and this mucus becomes trapped in the ear. The idea behind using mucolytics is that they might break up this mucus. The problem is that mucolytics are swallowed or inhaled into the lungs. This means that the drugs will not reach the fluid in your child's middle ear.

Can they be harmful?

The studies we looked at didn't report on side effects.

How good is the research on drugs that break up mucus?

We found one summary of the research (a [systematic review](#)) on drugs that break up mucus. ^[55] It looked at 428 children with glue ear.

Children who took drugs to break up mucus got better slightly quicker than children who took a dummy treatment (a [placebo](#)) or had no treatment at all. ^[55] But the difference wasn't big enough to be certain it didn't happen by chance.

Three smaller studies (randomised controlled trials) also looked at drugs that break up mucus. ^[56] ^[57] ^[58] But they all had very different results, so we can't say for certain how well these drugs work.

Antihistamines and decongestants

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on antihistamines and decongestants?](#)

This information is for parents of children who have glue ear. It tells you about antihistamines and decongestants, a treatment sometimes used for glue ear. It is based on the best and most up-to-date research.

Do they work?

No. Decongestants, used alone or together with antihistamines, don't help get rid of glue ear. ^[59] And they can cause side effects.

Some researchers have thought that antihistamines and decongestants might work for children who have glue ear that may be linked to an [allergy](#) . ^[12] But there isn't enough research to tell us one way or the other.

What are they?

Antihistamines are drugs that are normally used to relieve the symptoms of allergies such as hay fever. An allergic reaction happens when your body's [immune system](#) (the system that fights infection) overreacts to something that is normally harmless, such as pollen. Some common antihistamine medicines for children include (with their brand names): cetirizine (Benadryl Allergy), loratidine (Claritin Allergy Syrup), and chlorphenamine (Piriton syrup).

Decongestants are drugs that reduce or relieve congestion. Congestion is the blocked feeling you get with a cold. Decongestants come as pills or as sprays or drops you put in your nose.

Glue ear

Antihistamines and decongestants have both been used for many years to treat glue ear. ^[12] ^[60] But guidelines for doctors do not recommend them. ^[61]

How can they help?

They don't help. Studies have found that antihistamines and decongestants don't work for glue ear. ^[59]

There's not enough research to show whether they work in children whose glue ear may be linked to an allergy.

How do they work?

The theory is that antihistamines and decongestants might help unblock the **eustachian tubes**. These are the passageways from the middle ear to the back of the nose. One or both of these tubes become blocked in children with glue ear.

But in practice, antihistamines and decongestants don't work. ^[59]

Can they be harmful?

About 1 in 10 people who take antihistamines or decongestants, or both, suffer from: ^[59]

- Irritability
- Sleepiness
- Dizziness
- Upset stomach

An antihistamine called promethazine can cause dangerous breathing problems in very young children. ^[62] It isn't recommended for children under 2. ^[63]

How good is the research on antihistamines and decongestants?

We found one big summary of the research (called a **systematic review**) that looked at 16 studies of 1,880 children younger than 18 years old. ^[59] The review found no benefits in using antihistamines or decongestants (or both combined), but some harms.

Other treatments

In this section
[Do they work?](#)
[What are they?](#)

This information is for parents of children who have glue ear. It tells you about other treatments for glue ear.

Do they work?

We haven't looked at the research on these treatments in the same way as others on our site. But you might want to know something about them.

What are they?

Vaccination against infection with pneumococcus

One of the vaccines that is used to prevent pneumonia caused by pneumococcal bacteria has a small effect in preventing acute otitis media when given to babies. But it appears to have no benefit in older children who have already had an episode of glue ear. ^[64]

Other treatments

The National Institute for Health and Care Excellence (NICE), the government body that makes recommendations about treatments to doctors, lists treatments for glue ear that it does not recommend. There is no good evidence that these treatments work in glue ear.

NICE says there is no good evidence to recommend homeopathy, cranial osteopathy, acupuncture, changes to diet, treatments to stimulate the immune system, and massage.

Further informations:

Risk factors for glue ear

Several things put your child at higher risk of glue ear. ^[7] ^[8] ^[9] ^[10]

- Being very young: Glue ear happens most often in children under 2, especially in those between the ages of six months and 18 months. Children tend to grow out of this condition as they get older, although the rate peaks again between five years old and six years old when children start going to school. ^[7]
- Going to nursery: Children who go to nursery are more likely to get [ear infections](#) and glue ear. ^[7] This is probably because your child may catch infections from other children, and some infections can lead to glue ear. However, research has not shown whether taking children out of nursery helps prevent this condition. ^[7]
- Being given formula milk as a baby: Breastfeeding, even for a short time, seems to protect babies against glue ear for several years. Researchers think breast milk helps strengthen a baby's immune system (the parts of the body that protect against infection). ^[11]

Glue ear

- Being near secondhand smoke: Children with parents who smoke are more likely to get ear infections as well as glue ear. Children who have at least one parent who smokes are about 50 percent more likely than other children to get ear infections, and 40 percent more likely to get fluid in the ear. ^[9]
- Getting lots of infections: Glue ear is more likely to affect children who get lots of ear infections, coughs, and colds. ^{[7] [11]}
- Being in a large family: Having many brothers and sisters increases the risk of glue ear. ^{[7] [10]}
- Having a family history of glue ear: A tendency to get glue ear can be passed on through families. If a close relative has had ongoing problems with glue ear, your child is more likely to get the condition. ^[7]
- Being a boy: Glue ear is more common in boys than in girls. ^[7]
- Having a cleft palate or a similar condition: Glue ear is more likely to affect children with abnormalities in the structure of their face, such as a cleft palate. The condition is also more common among children with Down's syndrome and other genetic disorders. ^[12]
- Living in poverty: Glue ear is more likely to affect children from poorer families. ^[7] ^[11] Researchers don't know why, but it may be linked to crowded living conditions, poor sanitation, poor medical care, or poor diet. ^[12]
- Allergic rhinitis: Children who have an allergy to house dust mites or pets (allergic rhinitis) may be more likely to develop glue ear, particularly if they also have inflamed adenoids. ^[13]
- Inflamed adenoids: Children with inflamed adenoids are at increased risk of glue ear, particularly if they also have allergic rhinitis (see above). The adenoids are tissues at the back of the throat which are involved in the body's response to infection. ^[13]

How to help keep your child's ears healthy

If your child gets a lot of ear infections or has had glue ear in the past, you can take steps to reduce the risk that it will happen again. There hasn't been much research to show for certain that these steps help, but they are worth considering.

Glue ear

- If you're pregnant or you've just had a baby, consider breastfeeding your newborn (or giving him or her breast milk in a bottle), even for just a few weeks. Breast milk rather than formula milk seems to protect a child against [ear infections](#) and glue ear in the years to come. ^[10]
- Don't smoke near your child, and make sure no one else does. Exposing your child to cigarette smoke will put him or her at higher risk for both ear infections and glue ear. ^[9] And being in a smoky atmosphere may mean your child's ears take longer to clear of fluid after [surgery to put in grommets](#) . ^[14]
- Be on the lookout for problems if your child gets an ear infection or a cold. If your child has an ear infection, ask your doctor if antibiotics are necessary (antibiotics are drugs that kill germs called bacteria). If antibiotics are used too much, bacteria can grow resistant to them. This means the ear infection may come back. And children who get lots of ear infections are more likely to get glue ear.

Hearing loss with glue ear

It's hard to know how much your child's hearing will be affected by glue ear. Some children have a lot of hearing loss, while others have only mild loss. ^[7]

Doctors often use the word decibel (dB) when talking about hearing loss. Decibels are used to indicate the loudness of a sound as well as the severity of a hearing loss. Studies have shown that with glue ear, the loss of hearing can range from 0 dB to 60 dB. ^[7]

- The average loss is between about 20 and 30 dB. ^[7] This is normally called **mild hearing loss**. If your child has mild hearing loss, he or she may not hear or may hear only faintly the soft sounds at the beginnings or ends of words, such as the 's' in 'sun' and 't' in 'tin'. He or she may also have problems hearing words spoken quietly, such as 'and'. ^[18]
- Some children with fluid in the ear have a hearing loss of 30 dB to 40 dB. ^[7] Doctors usually think of this as **moderate hearing loss**. If your child has moderate hearing loss, he or she may have trouble hearing most speech sounds as well as short, softly spoken words and word endings. ^[18] A normal conversation may sound like a soft whisper.
- As a rule of thumb, if your child keeps having a hearing loss of more than 25 dB, it is considered important. Your child may need treatment. However, even smaller hearing losses (20 dB or 15 dB) could cause problems for some children.

Glue ear

- If your child has glue ear, his or her hearing may change from day to day. Your child may even have periods of normal hearing.
- Children who have fluid in only one ear will be able to hear better than those who have fluid in both ears, because the healthy ear hears normally. If your child has fluid in only one ear, your doctor will probably not recommend treatment.
- How long your child has hearing loss depends on how long his or her ears are filled with fluid. Once the fluid has cleared, with or without treatment, his or her hearing will go back to normal. But if your child has glue ear constantly, or if it keeps coming back, they could spend much of the first two years of their life not being able to hear properly.

It's important to remember that hearing loss in a child can sometimes have other causes. For example, the inner ear can become inflamed because of an ear infection or an injury. Inflammation is one of the ways the body responds to injury. It can cause swelling, pain, redness, and warmth. Inflammation in the ear can lead to hearing loss because it affects the nerves that carry messages to the brain. If you are concerned about other causes of hearing loss, discuss them with your doctor.

How to make sure your child hears you

If your child is having problems hearing because of glue ear, there are things you can do to improve how you communicate with him or her. ^[8]

- When you talk, attract your child's attention by calling his or her name, or by touching him or her.
- Talk face to face, sitting or bending to your child's eye-level if possible.
- Reduce background noise. For example, turn off the television or radio while you talk.
- Keep your sentences short and simple.

At nursery or school:

- Tell the teacher that your child has glue ear and may have problems hearing
- Ask if your child can sit close to the teacher.

Ear infections

Acute ear infection

An acute ear infection is a sudden and usually brief infection of the middle ear. Doctors call it **acute otitis media** or **purulent otitis media**.

Unlike glue ear, an acute ear infection generally causes ear pain or earache and may also cause a fever. These symptoms happen because parts of your child's ear are infected with bacteria or a virus (both are types of germs). This leads to the inside of your child's ear becoming inflamed. Children with an acute ear infection also have infected fluid and mucus trapped inside their ear.

Signs that your child might have an acute ear infection include: ^[25]

- Fever
- Vomiting
- Crying more than usual
- Pulling on the ears
- Fluid draining out of the ears
- Trouble sleeping
- Trouble keeping his or her balance
- Trouble hearing (not responding to quiet sounds).

An acute ear infection should last for only a few days. To find out more, see [Ear infection](#).

Chronic ear infection

A chronic ear infection is an infection or inflammation of the middle ear that doesn't go away properly. (Inflammation is one of the ways your body responds to injury. It can lead to swelling, pain, redness, and warmth.) A chronic ear infection tends to cause mild ear pain or discomfort, and it can feel like pressure in the ear. If your child has this condition, he or she may have pus coming out of the ear and some loss of hearing.

Mastoiditis

Mastoiditis is an ear infection that has spread into the **mastoid bone**. This is the bone that you can feel behind your ear. Mastoiditis sometimes causes severe pain, swelling, and tenderness behind the ear, but some children have no symptoms. This condition is

Glue ear

a serious problem that can follow an ear infection, but it is rare. If your child is not responding to treatment for an ear infection or stays unwell, it is possible that he or she has mastoiditis. You should see a doctor urgently.

Complications of glue ear

Hardening of the eardrum

Hardening of the eardrum is common with glue ear. It affects about half of all children with the condition. The eardrum is the thin layer of tissue stretched across the far end of the ear canal. It vibrates when sound waves reach it. Glue ear can make the eardrum harder over time. But doctors don't think this is cause for concern. The eardrum still works perfectly well, and your child's hearing won't be noticeably affected.

Acute ear infection

If the fluid in the ear doesn't drain away, it can lead to an **acute ear infection**. In this condition, your child's ear is infected with **bacteria**, and he or she has ear pain and a fever. Having glue ear increases the chance of your child getting acute ear infections.
^[5]

To learn more, see [Ear infection](#).

Problems with balance

Glue ear can also cause changes in your child's inner ear. These changes can lead to problems with balance, which may make your child clumsy. This problem may continue after the fluid has gone away. Researchers don't know what the risk of this problem is or why it happens.

More about tests for glue ear

Audiometry

Audiometry is used to test your child's hearing. Children sit in a soundproof room and are asked to indicate whether they can hear sounds at different volumes and pitches. If your child is under four years old, he or she may have a special test that uses pictures or toys along with the sounds.
^[5] ^[27]

Tympanometry

This test can be done at your GPs or in hospital. It measures how well the eardrum reacts to sound. It correctly diagnoses glue ear in more than 8 in 10 children with the condition.
^[5] The doctor will place a soft rubber probe with an airtight outer seal in your child's ear.

Glue ear

An attached machine then varies the pressure inside your child's ear canal and measures the effect on the eardrum. The results of the test show the amount and thickness of any fluid in your child's ear. This test works best in children older than seven months. ^[27]

Glossary:

fever

If you have a fever, your body temperature is above 37 degrees Celsius (98.6 degrees Fahrenheit). With a fever you often get other symptoms, such as shivering, headache or sweating. A fever is usually caused by an infection.

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.

cleft palate

Babies who are born with a cleft palate have a hole in the roof of their mouth. Surgeons usually correct the problem during the first year of a child's life.

Down's syndrome

Down's syndrome affects some people from birth. It causes learning difficulties, and it also makes some physical problems more likely. It is caused by an extra chromosome. Chromosomes are found in all our cells, and contain genes, which tell cells how to grow and behave.

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.

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.

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.

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.

tonsillitis

Tonsillitis is when your tonsils become inflamed. It happens when your tonsils get infected with viruses or bacteria. Tonsillitis causes a number of symptoms, including a sore throat, pain when you swallow and a high temperature.

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.

chickenpox

Chickenpox is a common childhood illness caused by a virus. It usually leads to a fever, tiredness and an itchy rash. The virus can easily spread from person to person, and people usually get it about two weeks after they were near someone with the illness. About two days before the rash starts, you can give the virus to others. Chickenpox clears up on its own in most children, but adults and

Glue ear

some children may get complications such as pneumonia, kidney problems or heart problems. In the UK, people aren't usually immunised against chickenpox unless they have an immune disease (or another disease that would make infection dangerous for them).

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.

cystic fibrosis

Cystic fibrosis is a disease people are born with that gives them problems with their lungs and bowels. The main results are breathing and digestive problems.

allergy

If you have an allergy to something (such as pollen or a medicine), your body always overreacts to it. The reaction happens because your immune system (your body's system for fighting infection) is too sensitive to it.

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