Ear problems and treatments

ACTION ON HEARING LOSS

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"I knew from a young age that I couldn't hear as well as I was supposed to – sometimes my Reception class teacher would think I was misbehaving when I didn't follow her instructions, but I simply couldn't hear what she was saying.

I had two operations to insert grommets (ventilation tubes) in my ears, when I was eight and 10, to drain a build-up of fluid from the middle part of my ears and help prevent ear infections. The second operation eventually worked and, for the first time in my life, I could hear sounds clearly – the difference was amazing."

Tori Jeffery, West Yorkshire

This leaflet tells you about the common ear conditions that can cause hearing loss or balance problems (or both) – and the treatments available. If you're at all worried about your hearing or balance, see your GP.

Contents

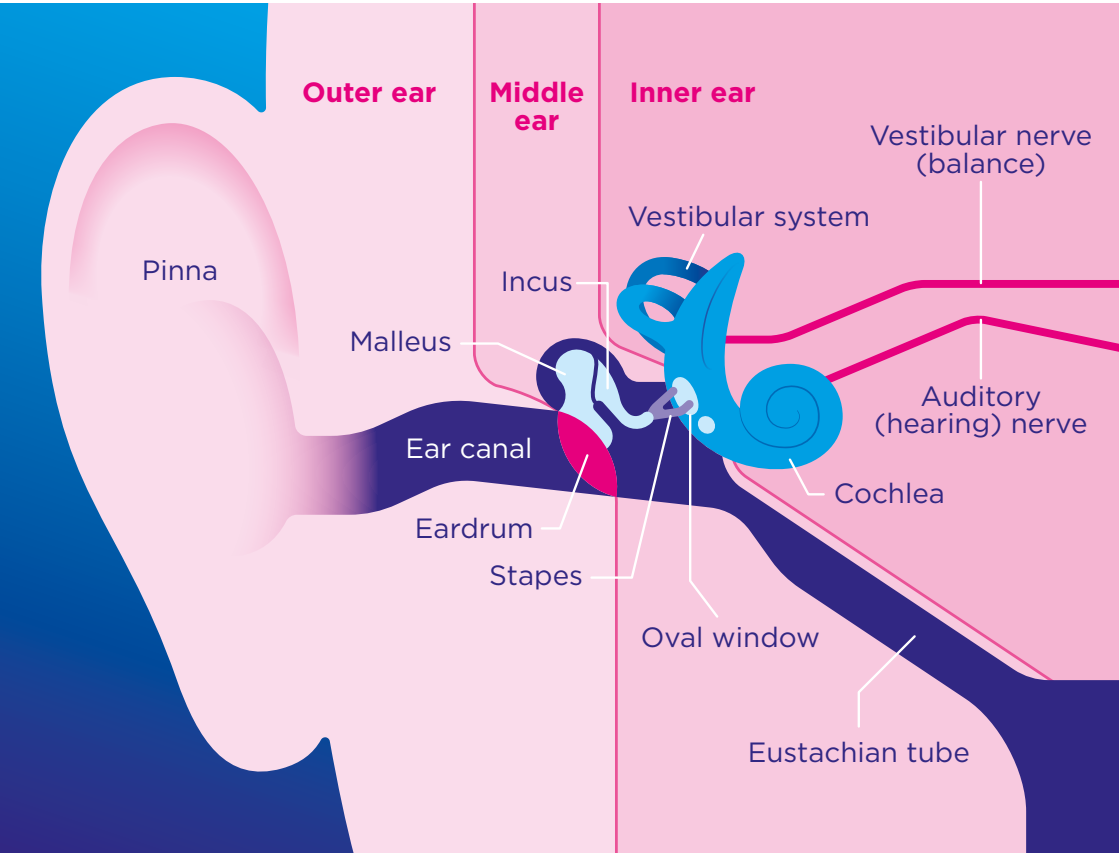
Please let our Information Line know if you'd like this leaflet in large print, braille or audio (see back page for contact details).

How our ears work

Our ears are our organs of hearing and balance. As you can see from the illustration below, they have three parts: the **outer**, **middle** and **inner ear**.

Outer ear

The outer ear consists of the **pinna**, which is the part you can see on the side of your head, and the **external ear canal**. Sound waves (vibrations) are gathered by the pinna and travel down the external ear canal until they reach the **eardrum**, causing it to vibrate.



Middle ear

The middle ear is an air-filled space behind the eardrum that contains a chain of tiny bones called the **ossicles** (the **malleus**, **incus** and **stapes**). These bones stretch from the eardrum to the **cochlea** (your hearing organ in the inner ear). When the eardrum vibrates, it causes the ossicles to move backwards and forwards. This movement passes the sound waves through to the inner ear. The middle ear is also connected to the space at the back of the nose by a small passage called the Eustachian tube. When you swallow, yawn or blow your nose, the Eustachian tube opens and allows air into the middle ear.

Inner ear

The inner ear has two parts:

- the **cochlea**, responsible for hearing
- the **vestibular system**, responsible for balance.

The **cochlea** is a fluid-filled chamber that looks a bit like a snail shell. It contains thousands of tiny sensory cells known as hair cells. When sound waves enter the cochlea, the hair cells trigger electrical signals in the hearing nerve. The hearing nerve sends these signals to the brain, which recognises them as different sounds – for example, people talking or footsteps.

The **vestibular system** is also filled with fluid. It has three small chambers, called semi-circular canals, which contain sensory hair cells similar to those in the cochlea. When you move your head, the fluid inside these chambers moves. In response to this movement, the sensory cells create electrical signals that are sent to the brain. The brain uses this information to create a detailed idea of your body movement and head position. Together with your vision and the sensors in your joints, this helps you keep your balance.

Different types of hearing loss

There are two main types of hearing loss:

1. **Conductive hearing loss**

   This occurs when sound waves can't pass freely to the inner ear. It's usually caused by a blockage or problem in the outer or middle ear. Sounds become quieter and are sometimes muffled. Depending on its cause, conductive hearing loss can be either temporary or permanent.

2. **Sensorineural hearing loss**

   This is the result of damage to the cochlea within the inner ear or the hearing nerve (or both). Sensorineural hearing loss is permanent and can't be cured, at least at the present time. It changes your ability to hear quiet sounds and reduces the quality of the sounds that you hear, making it difficult to understand speech.

It's also possible to have both types of hearing loss – this is known as **mixed hearing loss**.

Outer ear conditions

Excess ear wax

Ear wax is a normal, oily substance produced by the glands in the skin of the outer half of the ear canal. It's antiseptic and helps to protect and clean the ear. Ear wax usually comes out of the ear by itself, helped by the movement of the jaw.

However, if you have too much ear wax in your ear canal, you may need to have it removed if:

- you have hearing loss, tinnitus, earache or vertigo (a sensation of spinning)
- the wax is blocking the ear canal, preventing a doctor or nurse from examining it or taking an impression of it for a hearing aid earmould
- you use hearing aids and the wax is affecting how they work.

How is ear wax removed?

Your GP may prescribe ear drops to loosen the wax and see if it works its way out of your ear by itself. If the wax doesn't clear, you may need to have it removed through irrigation. This is usually done by a nurse, using a device called an irrigator to wash the wax out of the ear with warm water. If this method isn't suitable – for example, if you have a perforated (torn) eardrum (see page 13) – a specialist can lift or suck the wax out of the ear using special instruments.

See your GP if you think you have a build-up of ear wax. Don't try to remove wax from your ears yourself. Never push cotton buds, fingers or anything else into your ears – you could push wax deep into the ear and may damage the eardrum.

See our factsheet *Ear wax*.

Otitis externa

The medical term for inflammation (redness and swelling) of the outer ear canal is otitis externa. The symptoms can include ear pain, liquid discharge and some degree of temporary hearing loss.

The condition can be caused by:

- bacterial or fungal infections
- skin conditions such as eczema or psoriasis (broken skin is more likely to become inflamed)
- allergies – for example, antibiotic ear drops or hair products may irritate your ear canal.

You're more at risk of developing an infection if you:

- damage your ear canal – for example, by using cotton buds, scratching or putting other objects in your ear
- have too much moisture in your ear due to swimming (particularly in dirty water), sweating or being in a humid environment.

How is otitis externa treated?

See your GP if you have any of the symptoms of otitis externa, because it tends to last for several weeks if it isn't treated.

Your GP can usually prescribe medicated ear drops to help speed up the healing process. If necessary, they may prescribe painkillers, or antibiotic tablets or capsules if the infection is severe.

To prevent complications and your symptoms worsening, avoid getting your affected ear wet. You can remove any discharge or debris from your ear by gently swabbing your outer ear with cotton wool, but be careful not to damage it, and don't put anything inside your ear.

With treatment, otitis externa should clear up within 7–10 days. If it doesn't, go back to your GP.

Exostosis

Exostosis is a condition that develops when repeated exposure to cold water causes abnormal bone growths in the ear canal.

People who swim or surf a lot in cold water often get this condition. With continued exposure to cold wind and water, exostosis will worsen over time. If the swellings narrow the ear canal too much, wax and water can get trapped in the ear, which can cause infection and hearing loss.

How is exostosis treated?

You may be able to prevent the swellings from growing bigger if you avoid exposure to cold water – either by not swimming or surfing or by using earplugs when you do.

If exostosis is causing ear infections, your GP may prescribe antibiotic ear drops to treat them. If this fails to treat the infections, or the swellings are causing hearing loss, you may be offered surgery to remove the swellings. It may take several weeks for your ear canal to heal. You'll need to keep your ear as dry as possible during this time.

Middle ear conditions

Otitis media

Otitis media is an infection of the middle ear. It's caused when a bacterial or viral infection spreads from the nose or throat into the middle ear. Anyone can get middle ear infections, but they're most common in young children.

The infection causes inflammation and a build-up of fluid in the middle ear, which makes the eardrum bulge outwards, resulting in earache. The fluid can also cause a slight hearing loss, as the ossicles (the tiny bones in the ear) are unable to move freely and pass sound waves to the inner ear.

Sometimes, the eardrum can tear, with a sudden discharge of pus and blood into the outer ear canal. This may relieve the pain and pressure. See page 13 for more information on perforated eardrums.

How is otitis media treated?

Most cases of otitis media clear up within a few days to a week without the need for treatment. But we recommend you get advice from a GP because, although rare, complications from a middle ear infection can be serious. Your GP may prescribe a painkiller or an anti-inflammatory to treat the pain and fever.

If there's no improvement after several days, or if you're very unwell, you may be prescribed antibiotics. If so, you must take the entire course, unless your doctor tells you otherwise.

Glue ear

Glue ear, also known as otitis media with effusion (OME), is more common in young children, where it often occurs after otitis media, but it can also affect adults. After the infection has been treated, fluid remains in the middle ear and fails to drain back down the Eustachian tube, but with no obvious signs of inflammation or ear infection. This can cause temporary hearing loss. If this persists in a young child, you may notice more obvious signs of hearing loss, changes in their behaviour and a delay in speech development.

How is glue ear treated?

In most cases, glue ear clears up naturally within three months. If you or your child has glue ear and it doesn't get better, an ear, nose and throat (ENT) surgeon may recommend an operation where a tiny ventilation tube, called a grommet, is inserted temporarily into the eardrum. This allows air into the middle ear and enables the fluid to drain back down the Eustachian tube.

Hearing aids may be recommended if surgery isn't suitable because of other health problems, or if there is another reason to avoid inserting grommets – for example, if grommets haven't worked in the past and glue ear keeps coming back.

See our factsheet *Glue ear*.

Chronic suppurative otitis media (CSOM)

CSOM is middle ear inflammation with recurring fluid discharge that usually occurs as the result of repeated episodes of otitis media. The eardrum can fail to heal, leaving a permanent perforation (hole). In rare cases, repeated infections can also lead to an abnormal skin growth in the middle ear, called a cholesteatoma, which causes a smelly discharge and can cause permanent damage and hearing loss if left untreated.

How is CSOM treated?

If you have CSOM, your GP will refer you to an ENT specialist for treatment. If you have a cholesteatoma, you'll need an operation to remove the abnormal skin growth and prevent it from causing damage to the middle ear and even the inner ear. The surgeon will then try to rebuild the damaged middle ear, graft the eardrum and, if possible, restore your hearing.

Damaged ossicles

Serious infections and head injuries can damage the ossicles (tiny bones) in the middle ear, causing hearing loss. Occasionally, babies are born with misshapen ossicles.

What treatment is available?

Depending on the type and extent of damage to the ossicles, you may be offered hearing aids (including bone conduction hearing aids) to help overcome the hearing loss. In some cases, damaged ossicles can be repaired or replaced with artificial bone. How much your hearing will improve after surgery depends on how severe the damage has been to the ossicles and middle ear, and what type of artificial bone is needed to repair the damage.

Otosclerosis

Otosclerosis is a condition that affects the stapes, one of the tiny bones (ossicles) in the middle ear (see illustration, page 4). Abnormal bone growth around the stapes causes it to gradually fuse with the surrounding bone. This causes hearing loss, because the ossicles are no longer able to pass sound waves into the inner ear efficiently. Eventually, the stapes becomes fixed in place and is unable to move at all. This can cause severe hearing loss.

In most cases, otosclerosis just affects the stapes. However, in rare cases, the cochlea and the hair cells within it are also affected – this can make the hearing loss worse.

Most people with otosclerosis develop it in their late 20s or their 30s. Women are twice as likely to be affected by it as men, and the condition can worsen during pregnancy.

How is otosclerosis treated?

Hearing aids are very useful if you have otosclerosis, but they won't stop your hearing loss from worsening. It's likely that you'll be able to have an operation called a stapedectomy, where a surgeon replaces the stapes with an artificial bone made from metal or plastic, so that sound can travel to the inner ear. This operation has a high success rate.

See our factsheet *Otosclerosis.*

Perforated eardrum

A perforated eardrum (a hole or tear in the eardrum) can be caused by:

- serious middle ear infections, such as untreated otitis media (see page 9)
- injury to the eardrum, caused by, for example, a severe blow to the ear or poking something, like a cotton bud, in your ear
- a sudden loud noise, such as an explosion, accompanied by a pressure change
- rapid changes in air pressure, such as when changing altitude in an aeroplane or when scuba diving.

A perforated eardrum may cause a sudden hearing loss and give you earache. You may also experience tinnitus (ringing or buzzing in your ear(s) or head). The symptoms are usually only temporary and your hearing will return once your eardrum has healed.

It's important not to get water or any other liquid in your ear while your eardrum is perforated, as this can cause an infection in the middle ear.

How is a perforated eardrum treated?

You should see your GP if you think you have a perforated eardrum. A perforated eardrum normally heals on its own within two months, but your GP can check if you have an ear infection, and prescribe an antibiotic if needed. For more serious damage, usually following repeated episodes of otitis media, you might need an operation called a myringoplasty, where a tissue graft is used to seal up the hole.

Inner ear conditions

Sensorineural hearing loss

Sensorineural hearing loss is caused by damage to the tiny sound-sensing hair cells within the cochlea or damage to the hearing nerve (or both). This damage is permanent and so is the hearing loss.

Sensorineural hearing loss can happen naturally as part of the ageing process. But there are many other things that cause sensorineural hearing loss, or add to it, including:

- regular and prolonged exposure to loud sounds and/or sudden very loud sounds such as blasts
- medicines used to treat serious diseases, such as certain cancer drugs and some powerful antibiotics
- certain infectious diseases, including mumps and meningitis
- complications at birth
- non-cancerous tumours on the hearing nerve (see our factsheet *Acoustic neuroma*)
- some disorders such as Ménière's disease and Usher syndrome
- genetics.

How is sensorineural hearing loss treated?

People with sensorineural hearing loss usually find hearing aids very helpful. If you think you have hearing loss, see your GP, who can refer you to a hearing specialist for a full hearing assessment (see our leaflet *How's your hearing?*).

Cochlear implants may be an option for people who have become profoundly deaf and find hearing aids aren't much help, or for children who are born deaf (see our factsheet *Cochlear implants*).

There's also lots of new technology and products to help make life easier if you are deaf or have hearing loss, and you may find learning to lipread helpful (see our leaflets *Products to help with hearing loss and tinnitus* and *Learning to lipread*).

Protect your ears

Exposure to loud noise can damage your hearing without you realising it until years later. By law, if you work somewhere very noisy, you must be given earplugs or earmuffs to protect your hearing. It's also a good idea to use hearing protection when you go to concerts, nightclubs and other noisy places, and if you shoot guns for sport or use noisy power tools.

See our factsheet *Noise exposure*.

Balance problems

Dizziness is a term used to describe feeling off-balance, light-headed or faint, or like the world around you is spinning (known as vertigo). It's usually short-lived, but some people have long-lasting dizziness and balance problems. Most often, these symptoms are caused by a problem in the inner ear – in which case, there's almost always a treatment to help.

Other health conditions can also cause balance problems, so make sure you see your GP so they can investigate the cause.

Viral and bacterial infections

A common cause of sudden dizziness is a simple viral infection, such as the common cold, spreading to your inner ear (labyrinthitis) or the balance nerve (vestibular neuronitis). Bacterial infection from the middle ear or the bloodstream can also spread to the inner ear and result in dizziness. Although your immune system may get rid of the infection quite quickly, your balance organ (the vestibular system, see page 6) may still be affected. You may feel dizzy until your body can readjust to deal with this.

In most cases, the dizziness will go away within a few weeks with no treatment, although you might need to rest in bed if you have severe symptoms. Your GP may prescribe medication to treat your dizziness if it is severely affecting you. You should avoid driving, using tools or machinery, or working at a height when you're feeling dizzy.

If problems with your balance persist, your GP may refer you to an ENT specialist for some specialised tests and may give you vestibular rehabilitation physiotherapy, which includes head and balance exercises.

Migraine

A migraine is a severe headache with symptoms that may include a throbbing pain, nausea, vomiting, sensitivity to light and, in some cases, dizziness. There are effective treatments for migraines, and ways to stop them developing. Speak to your GP to find out more.

Benign paroxysmal positional vertigo (BPPV)

This is an inner ear disorder that can cause short but severe spells of vertigo (a spinning sensation). The vertigo is especially triggered when your head is in certain positions – for example, if you tip your head backwards or when you first lie down in bed.

The symptoms of BPPV may be unpleasant, but the underlying cause isn't serious. It's thought that BPPV is caused when small calcium crystals are dislodged and float around in the fluid in the semi-circular canals of the vestibular system.

The episodes of dizziness may stop by themselves within a few weeks, but you should visit your GP if they don't, or if they get worse. Your GP may carry out a test known as the Dix-Hallpike to confirm the presence of BPPV and which ear is affected. If they are unable to do this themselves, they may refer you to an ENT specialist.

If BPPV is confirmed, a simple treatment called the Epley manoeuvre can be done straight away to treat it. This manoeuvre is designed to put the dislodged crystals back to where they should be. In some cases, it can take a couple of attempts over a few weeks to completely treat the condition.

Ménière's disease

Ménière's disease is a rare condition that affects the inner ear, involving episodes of vertigo, fluctuating hearing loss and tinnitus. Its cause is unknown but it may be linked to changes in the pressure of the fluid in the inner ear.

Ménière's disease leads to sudden attacks of severe vertigo that can last from 20 minutes to 24 hours. With an attack, you'll usually have a feeling of ear 'fullness' followed by nausea and vomiting, as well as hearing loss and tinnitus (see below), and, possibly, sensitivity to sound (hyperacusis). However, the symptoms of Ménière's disease, and their severity, vary greatly from person to person. Repeated episodes can cause some degree of permanent hearing loss.

You can reduce or control the symptoms of Ménière's disease through medication. Rarely, you might need some type of surgical intervention.

See our factsheets *Dizziness and balance problems* and *Ménière's disease.*

Tinnitus

Tinnitus is the word for noises that some people hear in their ear(s) or head – such as buzzing, ringing, whistling or hissing – that don't have an external source. The cause of tinnitus isn't completely understood, but it can be linked to:

- hearing loss (but hearing loss and tinnitus can occur independently)
- exposure to loud noise
- emotional stress
- injuries to the ear or head
- some ear conditions (including excess ear wax).

In most cases, tinnitus improves over time. But if it persists and you find it troublesome, see your GP. There's not yet a cure for tinnitus, but there are different therapies that can help you to manage it effectively. Research to find a cure for tinnitus is ongoing.

See our leaflet *Understanding tinnitus*.

Further information and support

Action on Hearing Loss has a wide range of information on deafness, tinnitus and hearing loss. Visit **actiononhearingloss.org.uk**, see our factsheets and leaflets at **actiononhearingloss.org.uk/publications** or get in touch with our Information Line for free, confidential information (see back page for contact details).

Information you can trust

The Information Standard certifies us as producers of high-quality, evidence-based information. For a list of references for this leaflet, please email **references@hearingloss.org.uk**

Dr Rudrapathy Palaniappan, Consultant in Audiovestibular Medicine at the Royal National Throat, Nose and Ear Hospital, reviewed the original version of this leaflet, published in January 2016. Our Biomedical Research team reviewed the information in this leaflet in June 2018 to make sure it is based on the most up-to-date evidence and research.

Did you find this information helpful?

Please tell us what you think of this leaflet. Did you find it useful? Could we improve it? Please email us at **reviewpanel@hearingloss.org.uk** And if you'd like to join our Readers' Panel, to help us create and review information for our website and publications, please let us know.

Action on Hearing Loss (formerly RNID) is the largest UK charity helping people who are confronting deafness, tinnitus and hearing loss.

We give support and care, develop technology and treatments, and campaign for equality. We rely on donations to continue our vital work.

To find out more, visit **actiononhearingloss.org.uk**

Questions about deafness, tinnitus or hearing loss?
Contact our free, confidential Information Line:

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