

Our friendly helpline team is waiting
to answer your call or email.

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www.actiononhearingloss.org.uk

ACTION ON
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LOSS

Cochlear implants

THE FACTS

Cochlear implants

This factsheet is part of our **Ears and ear problems** range. You will find it useful if you are deaf and want to find out about cochlear implants. We use the term 'deaf' throughout to refer to all types of hearing loss.

It is very important that you get good advice when making the decision whether to have a cochlear implant. This factsheet only provides brief information about cochlear implants. Your ear nose and throat (ENT) consultant and staff at one of the UK's cochlear implant centres will be able to give you more information and answer your questions.

If you would like this factsheet on audio tape, in Braille or in large print, please contact our helpline – see front page for contact details.

You should read this factsheet to find out:

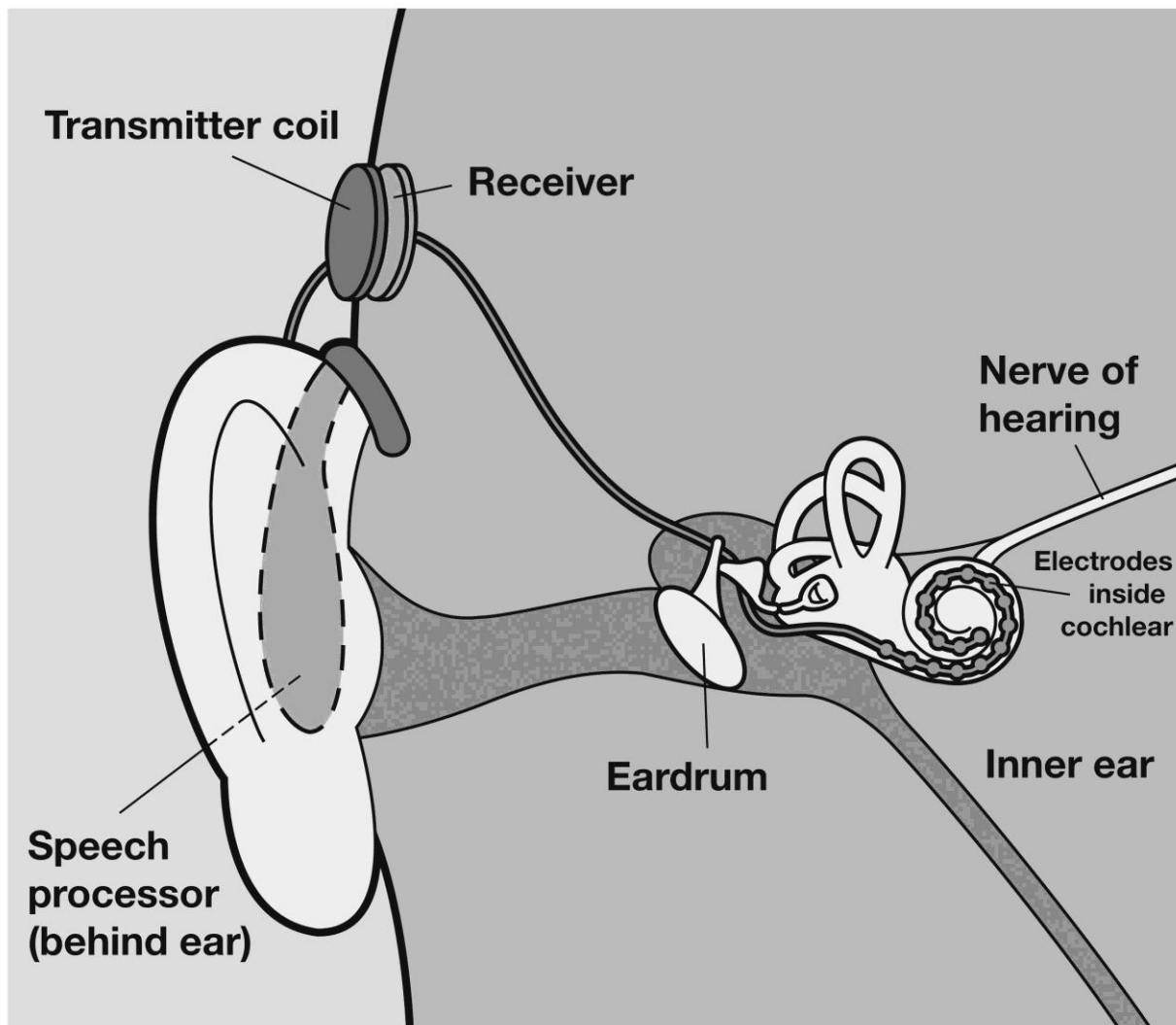
- What is a cochlear implant?
- Is a cochlear implant suitable for everyone who is severely or profoundly deaf?
- How does a cochlear implant work?
- How much does a cochlear implant improve hearing?
- How do you get a cochlear implant?
- How is the cochlear implant fitted?
- What happens after the implant is fitted?
- Where to get further information.

Implants for children

We have only given brief information about implants for children in this factsheet. If you are deciding whether a cochlear implant is right for your child, you can read our booklet **Children with cochlear implants: a parental perspective**, available from the helpline (see front page). You can also contact the National Deaf Children's Society (NDCS) for more detailed information (see page 8 for contact details).

What is a cochlear implant?

A cochlear implant is a small, electronic device that gives a sensation of hearing if you are profoundly deaf.



- **The external parts.** The external parts consist of a microphone, a speech processor and a transmitter coil. The microphone picks up sounds from around you and converts them into electrical signals. The signal is then passed to the processor, which processes and adjusts the signal to suit your needs and sends it to the transmitter coil that is placed flat against the skin slightly behind your ear. This coil transmits the signal to the internal parts. The microphone and processor can be positioned either behind the ear (in a device that looks very much like a hearing aid) or in a small box that can be worn on the body.
- **The internal parts.** The internal parts are surgically implanted and include a receiver with a magnet in the middle that is positioned under the skin behind and above your ear, and a set of electrodes, which is placed inside the cochlea (inner ear). The magnet is there to hold the external transmitter directly over the implanted receiver. The receiver picks up the signal from the transmitter coil on the outside of the skin and sends it to the electrodes inside the cochlea. The electrodes take over the job of the damaged cells in the cochlea and send electrical signals along the nerve of hearing to the brain. Your brain learns to recognise these signals as sounds.

Is a cochlear implant suitable for everyone who is severely or profoundly deaf?

No. There are a number of conditions you must meet for a cochlear implant to be suitable for you.

A cochlear implant may be suitable if you became profoundly deaf after you developed spoken language. For an implant to work, your hearing nerve must function well even though your cochlea is damaged.

Cochlear implants are suitable for many children who are born deaf, enabling them to develop spoken language, a wide range of social relationships and helping them reach their potential in education. They benefit most if they are given a cochlear implant as early as possible in life. But if you are an adult who has been deaf from birth, or before learning to speak or understand language, a cochlear implant may not help you. This is because it is better to have some memory of sound in order to make sense of the signals provided by the implant. However, some adults who were born deaf or who became deaf at a young age can gain considerable benefit from a cochlear implant, provided they have used hearing aids in the past and are keen to hear.

You will probably get more benefit from your implant if you receive it soon after becoming deaf. However, your age is not important when your doctors are deciding whether an implant will be suitable for you. It is important that you are in good health and able to undergo a major operation.

A cochlear implant will also not be suitable if you:

- get sufficient benefit from modern high-powered hearing aids with well-fitting earmoulds, and
- can follow speech quite well without lipreading.

If you have an implant, you will need plenty of support from your family, friends, and professionals, especially as you learn to use it.

How does a cochlear implant work?

When someone is profoundly deaf, it is usually because most of the hair cells in the cochlea have stopped working. The cochlear implant works by stimulating the hearing nerves in the inner ear directly, sending a sensation of sound to the brain.

How much does a cochlear implant improve hearing?

There are tests that will show whether an implant is possible for you and could work, but unfortunately, it is difficult to predict before the operation exactly how successful the implant will be.

A cochlear implant can help people in different ways. Some people will always need to watch faces and lipread as well as listen. Others will learn to understand speech without lipreading. Some find

their hearing so improved they are able to have conversations over the telephone.

Bilateral implantation (which means having two implants, one in each ear) may help with hearing in noisy situations and working out where sound is coming from. Sometimes the combination of cochlear implant in one ear and hearing aid in the other is also very successful. Your audiologist will discuss these options with you.

How do you get a cochlear implant?

If you have severe or profound hearing loss, you will be referred by your GP to your local audiology or ENT clinic, where you will be fitted with hearing aids for a trial period of a few months, if you have not already been using them. See our leaflet about getting hearing aids. If hearing aids don't help, then a consultant (doctor or clinical scientist) can refer you on to a specialist centre for assessment for a cochlear implant, if this is what you want. A thorough assessment programme will take place before discussing with you whether to go ahead with a cochlear implant.

The tests are complex and take some time. But they are important because they show whether the operation is possible and whether an implant is likely to be the best option for you. Often only one implant is given, although in some cases it may be possible to provide two, if both ears are suitable. This usually depends on whether your local Primary Care Trust (PCT) or health authority is willing and able to pay for two.

What happens at the cochlear implant assessment?

You will be given a number of different tests. These will check, among other things, your:

- general health
- ears and hearing
- lipreading and communication skills
- inner ear, using CT (computerised tomography) and/ or MRI (magnetic resonance imaging) scans
- balance and vision.

Who makes the decision about whether a cochlear implant is suitable?

When the cochlear implant specialists have the results of all these tests, they discuss with you whether they think you will benefit from a cochlear implant.

They will make sure that your expectations are realistic and, if you wish, can put you in touch with people who have opted for or against a cochlear implant so that you can learn from their experience. They can help you decide whether an implant is the best option for you. There is no pressure to have an operation if you do not want one.

Some people may get on better with hearing aids than a cochlear implant, or decide that it's not for them at the present time.

Waiting times

Once you have decided to have a cochlear implant, the waiting time for the operation can vary from one month to a year or more. This depends on which health authority, health board or PCT will be paying for your implant, and how many people are on the waiting list. The waiting list tends to be shorter for children, who are often given higher priority.

How is the cochlear implant fitted?

The process has two stages: fitting the implant and fitting the speech processor.

Fitting the implant

A cochlear implant is inserted under general anaesthetic, so you won't feel anything while the operation is taking place. The operation itself takes about three hours and you will usually have to stay in hospital for a day or two.

If you decide to go ahead you will have more appointments with your team. Before the operation the doctors and ENT surgeon will explain about the operation and answer your questions.

An audiologist will discuss which cochlear implant you will have and how it will be set up to give you the best results.

Are there any risks to having the operation?

All operations carry risks and your hospital doctor will tell you about the particular risks of having a cochlear implant.

Possible side effects:

- You may feel dizzy for a while after the operation.
- You may develop tinnitus, or your tinnitus may become worse.

If tinnitus is a problem for you, it is important to get advice from the team at the implant centre. However, most people with a cochlear implant find that their tinnitus is reduced or less noticeable.

Possible but rare side effects:

- There is a small risk of permanent damage to the balance organ in the ear that is operated on.
- There is also a slight risk of damage to your facial nerve, but this is extremely rare.
- People with cochlear implants may be at a slightly increased risk of picking up bacterial meningitis. So your doctor will recommend that you have a meningitis vaccination before you

have the implant. Once you have a cochlear implant your doctor should also treat any middle ear infections promptly.

If you have previously had meningitis, there is a chance that the cochlea has filled up with bony growth. This may make an operation difficult but will usually have been discovered beforehand from the scans during your assessment.

Fitting the speech processor

You will be asked to visit the hospital again four to six weeks after the operation. The audiologist will:

- connect the speech processor to a computer and switch on the electrodes
- 'tune' the speech processor to meet your individual needs, depending on how your hearing nerves respond to the electrical signals.

When the cochlear implant is 'switched on' for the first time, people often report that conversations sound quite different from what they can remember. However, speech begins to sound more natural quite quickly after 'switch-on'. All sounds will be adjusted so that they are not too loud.

Remember, it will take time to learn to listen with your cochlear implant. A speech and language or hearing therapist at the centre should help you with this. It is important to understand that sound through a cochlear implant is not the same as natural sound or sound through a hearing aid and that it may take some time to learn to adjust to it and use it.

What happens after the implant is fitted?

You will need to visit the implant centre regularly so your audiologist can check or alter the settings of your implant, especially during the first year after the operation. After that, you will probably need an appointment once a year to monitor your progress. This continues for the rest of your life. Your implant centre will support you if any other problems arise, and provide spares and replacements if your implant develops any faults.

Failure of the internal part of the cochlear implant is rare but does occasionally happen. In this case, the old implant would need to be removed under general anaesthetic and another implant put in, if possible. In some cases it is not possible to re-implant in the same ear.

Living with a cochlear implant

- It will not be possible to take part in any contact sports, such as rugby or boxing, due to the risk of head injury. It will be important to use head protection for certain other sports activities.
- The speech processor has to be taken off in the swimming pool and bath, and in some other situations where it could be damaged.

Where can I get further information?

New research into cochlear implants appears regularly. Before you decide whether a cochlear implant is right for you or your child, collect as much up-to-date information as possible.

British Cochlear Implant Group

Represents cochlear implant centres and other specialist medical practitioners and provides information for professionals, people with cochlear implants, potential patients and their families.

www.bciq.org.uk

The Ear Foundation

Supporting people with cochlear implants, their families and concerned professionals.

Marjorie Sherman House, 83 Sherwin Road, Lenton, Nottingham NG7 2FB

Telephone 0115 942 1985

Fax 0115 924 9054

info@earfoundation.org.uk

www.earfoundation.org.uk

National Cochlear Implant Users Association (NCIUA)

NCIUA is a forum for cochlear implant users and their families.

www.nciua.org.uk

The National Deaf Children's Society (NDCS)

Supports deaf children and young people and their families to overcome the challenges of deafness.

15 Dufferin Street, London EC1Y 8UR

Tel/ textphone 0808 800 8880 Fax 0207 251 5020

helpline@ndcs.org.uk

www.ndcs.org.uk

The National Association of Deafened People (NADP)

Offers support for deafened people and their families.

PO Box 50, Amersham HP6 6XB

Telephone 0845 055 9663

Mobile (SMS only) 07527 211 348

Fax 01305 262591

enquiries@nadp.org.uk

www.nadp.org.uk

Further information from Action on Hearing Loss

Our helpline offers a wide range of information on many aspects of hearing loss. You can contact us for further copies of this factsheet and our full range of factsheets and leaflets – see the cover page for contact details.

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