

Bone conduction hearing aids

What is a bone conduction hearing aid?

A bone conduction hearing aid is designed for people who cannot wear a normal type of hearing aid. It does the same job as a conventional hearing aid - it helps you to hear but it works in a different way.

How does a conventional hearing aid work?

A conventional hearing aid makes sounds louder or amplifies sound and delivers it to the ear canal or external auditory canal (see diagram of ear at the end of this factsheet). The earmould, or hearing aid, generally fits the ear canal closely so that only sound from the hearing aid enters the ear. The amplified sounds are then heard normally through a process known as 'air conduction'.

When you hear normally sound passes along the ear canal to the eardrum making it vibrate. This is what is meant by 'air conduction'. These vibrations are passed to three small bones (ossicles) in the middle ear. The small bones in turn transmit the vibrations across the oval window to the cochlea and the fluid within it. Movement in this fluid bends tiny hair cells along the length of the cochlea, generating signals in the auditory nerve. The nerve signals pass to the brain, which interprets them as sound.

How does a bone conduction hearing aid work?

A bone conduction hearing aid works by conducting, or carrying, sound through the bone in your skull. This process is known as 'bone conduction'. You hear sounds when the vibrations of the sound are transmitted directly from the vibrating part of the bone conduction hearing aid through your skull to the cochlea, missing out the outer and middle ears. If you ever wear earplugs you will notice that your own voice still sounds fairly loud. This is because you hear it through bone conduction.

Hearing through bone conduction is not as efficient as hearing through air conduction. However, bone conduction hearing aids are an option for people who cannot use a conventional hearing aid.

Who is a bone conduction hearing aid suitable for?

A bone conduction hearing aid is suitable for

- Anyone who cannot wear conventional hearing aids or put them in their ear canal because of continual infections or eczema, or because part or all of their ear or ear canal is missing, or because the canal is unusually small.
- Some people with a conductive hearing loss. Conductive hearing loss occurs when sound is prevented from reaching the inner ear, usually because of a blockage or abnormality of the outer or middle ear (though a conventional hearing aid is best for many people with middle ear problems.)

Two main types of bone conduction hearing aid are available; the traditional bone conduction hearing aid and the implanted bone anchored hearing aid.

Traditional bone conduction hearing aid

What is a traditional bone conduction hearing aid?

A traditional bone conduction hearing aid consists of a body-worn aid and bone conductor or vibrator fitted to a headband. The headband holds the vibrating part tightly to your head so these aids can be uncomfortable to wear and can give you headaches and sore skin because of the pressure of the headband. However, it is possible to fit the bone conductor to the arm of a pair of specially strengthened spectacles instead of a headband.

Traditional bone conduction aids can also be used with a behind-the-ear hearing aid attached to the headband.

Who is it suitable for?

A traditional bone conduction hearing aid is suitable for adults and children who cannot wear a conventional hearing aid, whether this is temporarily or permanently.

How do you get one?

If you have an ear infection or if you have difficulty hearing you should see your GP (family doctor). If your GP thinks you have a physical problem that needs further investigation they will refer you to the Ear, Nose and Throat (ENT) department at a local hospital to get your ears checked. You may be advised to try a traditional bone conduction hearing aid. These are available from the NHS, except those that need to be fitted to spectacles.

If you prefer, you can buy a bone conduction hearing aid from a private hearing aid dispenser.

An alternative to traditional bone conduction aids is an implanted Bone-Anchored Hearing Aid.

Bone Anchored Hearing Aids

What is a Bone Anchored Hearing Aid?

A Bone Anchored Hearing Aid (BAHA) consists of a permanent titanium fixture, or implant, which is surgically inserted into the part of the skull bone that is behind the ear. It has a separate directional microphone and a detachable external sound processor.

Some BAHAs have extra features such as an extra microphone for your other ear and a separate telecoil with a 'T' switch so that you can use induction loops. A separate audio adapter gives you direct input from your television, hi-fi system or personal stereo.

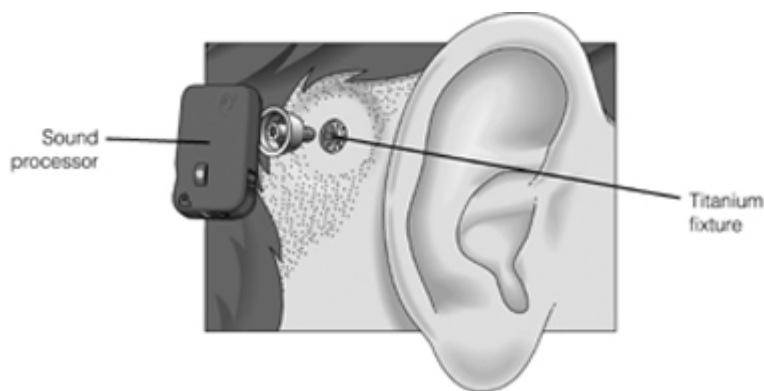


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Deaf Connexions produces a range of information sheets covering all aspects of hearing loss and deafness. If you would like further information contact :

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