Bone anchored hearing systems: 2011

What is a bone anchored hearing system?

A bone anchored hearing system (commonly known as a BAHA), is effectively a middle ear “bypass”. It comes in three parts:

- **The implant** – is a tiny titanium screw implanted into the skull – it provides an anchor for the abutment and the sound processor
- **An abutment** – is attached to the implant into which the sound processor will then attach.
- **The sound processor** – acts as the middle ear – converting the sound waves into vibrations, passed through the implant to the bone, and from there to the working inner ears.
- **For young children, a softband is available** – the sound processor is placed on an elasticated softband which can be worn from a few weeks old.

**Evidence tells us...**

- Improved speech reception thresholds 1,2,10,17
- Consistently high levels of satisfaction reported 1,7,8
- Provides improvements in hearing in noise and difficult situations for children 2 and adults 3,18 with unilateral loss
- Enhanced participation in various everyday situations 1,7,8
- Significant improvement in quality of life (QoL) for older (60+) users 4 and children 14
- Improved behaviour in children with severe behaviour difficulties 5
- Can be surgically fitted from the age of 4 and shows clear benefit for the vast majority 4
- Significantly improved scores on GHABP 9,12 and APHAB 11
- High percentage (92%) 9 of users report improvements in QoL 10,15,16
- Low rate of complications 15,16

- Recommended by Surgeons and professionals in the field 1-18

**Did you know?**

- There are about 10,000 BAHA users in the UK
- They are suitable for those who cannot be aided by the usual air conduction hearing aids
- Increasing numbers of children are considered – and can be fitted by around four years of age when the bones of the skull are mature
- Increasing numbers of young children are receiving soft-bands – from a few weeks old
- Bilateral systems are becoming available
- A BAHA can be used with FM systems and accessories
- A BAHA can be used for single-sided deafness, where it will transmit the sound to the good hearing ear.
- There are around 100 centres in the UK, so there is always expertise in your local area.
- The sound processor is a state of the art hearing device with fully automatic signal processing and adaptive directional microphones.

The images shown above are courtesy of Cochlear™ Bone Anchored Solutions, the manufacturer of the Cochlear™ Baha® system.
Considering a bone-anchored hearing system?

Usually the middle ear, the ear drum and small bones behind it, convert sound waves carried along the ear canal into vibrations. These are then passed to the inner ear to be converted into electrical stimuli, and carried to the brain to be recognised as sound. Where there is deterioration of the middle ear parts, or the external parts leading to the middle ear, this part of the process of hearing can be significantly reduced or lost, leading to a “conductive hearing loss”. In some cases, the inner ear may be working well, but sufficient vibrations cannot reach the cochlea. In these cases, a Baha may be of significant benefit.

A person can be fitted with a Baha if they can benefit from bone conducted sound, but have difficulty in benefiting from an air conduction hearing aid.

They may be those who:

- Are born with genetic and congenital syndromes which affect the development of the skull bones and the inner and outer ears
- Have chronic ear disease such as chronic secretory otitis media – “glue ear”, with cholesteatoma and any degenerative disease of the middle ear parts
- Have had trauma which has damaged the middle ear parts
- Have single-sided deafness due to disruption of the hearing nerve or cochlea function, for example acoustic neuroma, or infections which have destroyed the hearing nerve or cochlea function

There are various sound processors available for different levels of hearing loss.

Living with a Baha

It takes practice to get used to attaching the sound processor, but this becomes straightforward, and the wearer usually comments that they don’t “feel” it.

Wearers can:

- Swim, bathe and shower
- Perm and colour their hair
- Play sport, although they may have to remove the sound processor
- Enter hair, swimming
- Use “baby wipes” to clean the area
- Ensure that any signs of infection are reported and treated immediately

However, care must be taken with the abutment, with care becoming part of the wearer’s daily routine:

Daily routine:

- Checking the site daily, to check hair has not become caught round it
- Keep chemicals away from the site
- Use clean water to flush site after shower, washing hair, swimming
- Use cotton buds, or very soft brush to clean the site
- Use “baby wipes” to clean the area

Thinking about a Baha?

Don’t delay referral…

If as a parent, adult or professional, you think a referral should be made for a Baha, what should you do?

If you think a Baha should be considered, then contact your local ENT Consultant or Audiology service to obtain a referral – there are many centres in the UK and there will be one near you – see map on next page.

A careful assessment will be made and there will be an opportunity to discuss the options available. Make sure you ask about outcomes at the centre, devices used and long term care provided. As well as the professionals, it will be important to meet Baha users and their families. There are independent groups who advocate for Baha who are happy to share their experiences.

The images on these pages are courtesy of Cochlear™ Bone Anchored Solutions, the manufacturer of the Cochlear™ Baha® system.
New technology

Bone conduction hearing systems are constantly being updated. Stay up-to-date by looking on the web. The Ear Foundation’s website provides regularly updated information and a forum on which you can ask questions on any topic to do with direct bone conduction.

www.earfoundation.org.uk/BAHA

References


It’s been life changing for us. Joshua’s speech is the absolute biggest difference. Without Baha he wouldn’t be where he is today. He is very good at concentrating in class and he follows the exact learning curve as the rest of his classmates.

Joshua’s mum, Lesley.