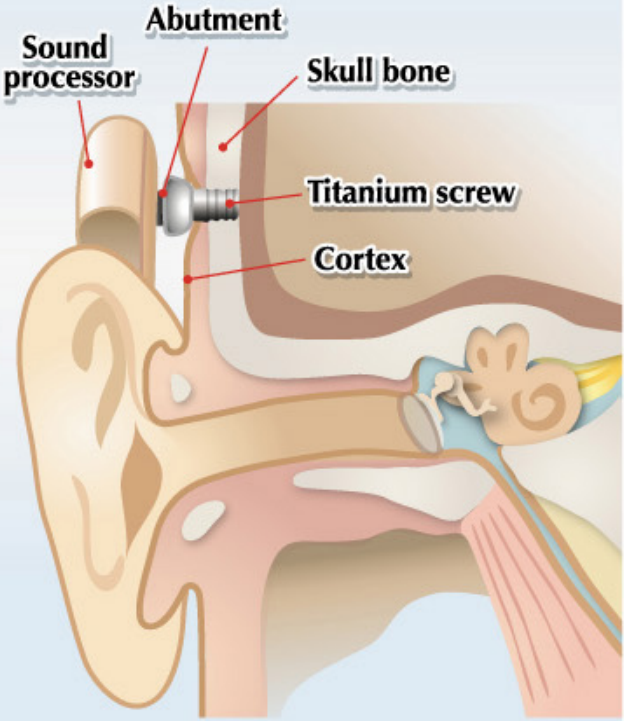
Education Bureau
The Government of the Hong Kong Special Administrative Region
AS-09E

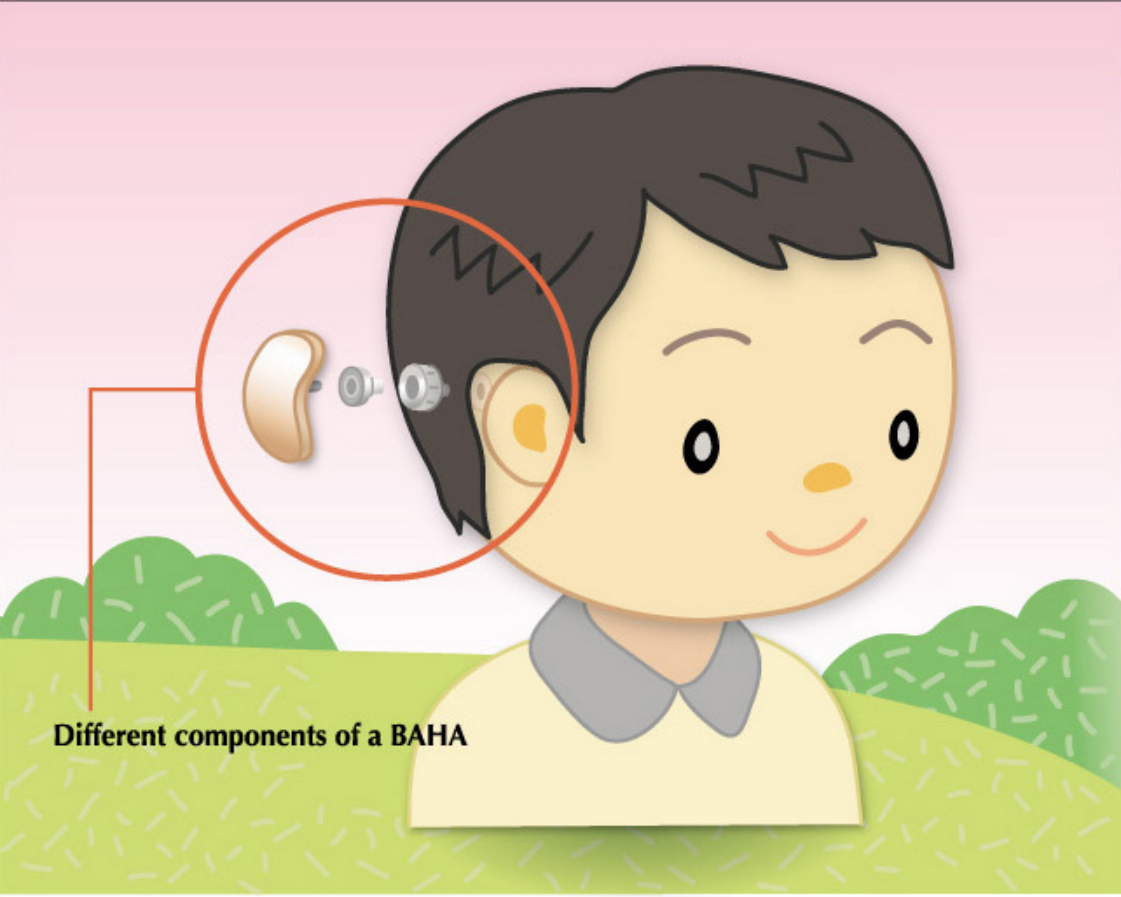
Bone Anchored Hearing Aids

What is a bone anchored hearing aid (BAHA)?

BAHA is a kind of bone conduction hearing aids. It is more suitable for children with chronic conductive or mixed hearing impairment.

As suggested by its name, BAHA is a device "anchored" to the skull "bone". But it is only a small titanium screw, not the whole device, that is surgically implanted in the temporal bone behind the ear. About three months after the surgery, the screw will firmly bond with the surrounding bone tissue and an abutment can be put on the screw for fitting of a sound processor.





Different components of a BAHA

What are the differences between a BAHA and a bone vibrator?

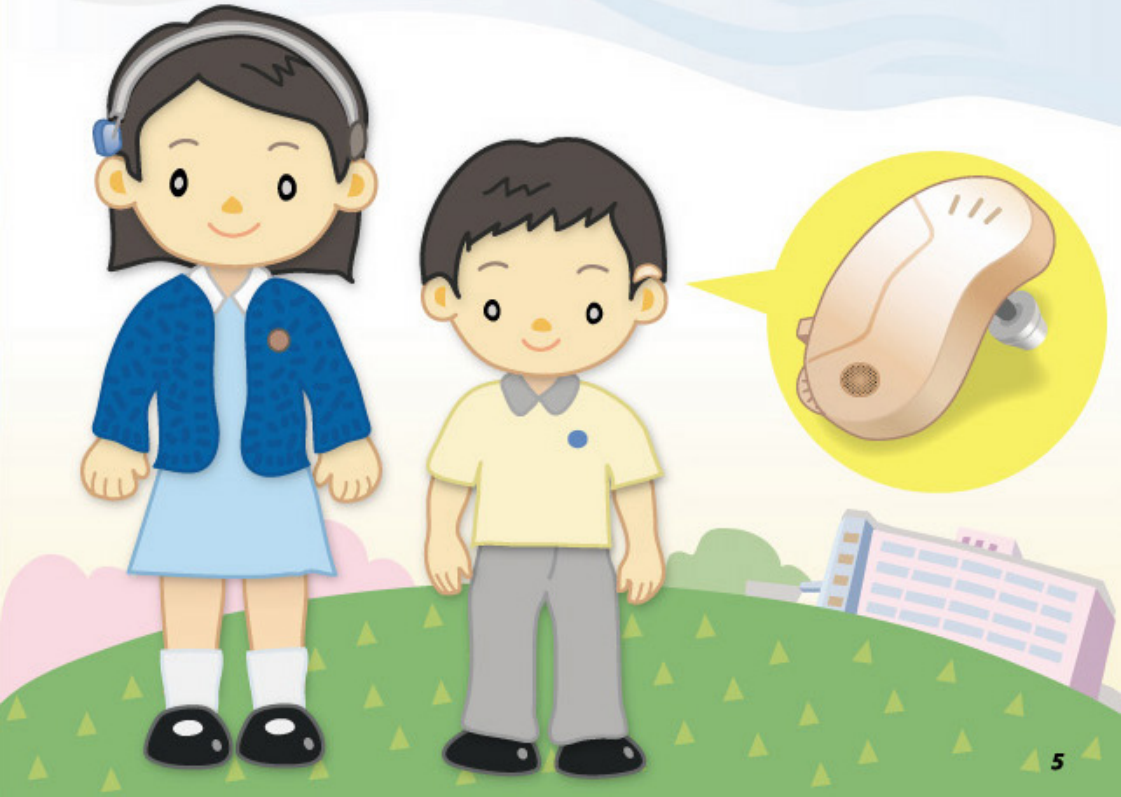
Compared with a conventional bone vibrator, BAHA, being headband free, has a better aesthetic appearance and saves the user from the "pressure" or discomfort caused by the headband. However, the skin around the abutment must always be kept clean and checked regularly to prevent problems such as granulation and inflammation. The differences between a bone vibrator and BAHA are listed in the following:

	BAHA	Bone Vibrator
		
Size and appearance	• Lighter • Headband free	• Bigger and heavier • Connected to a headband
Output / Acoustic fidelity	• High output. Sound reaches the skull bone directly via the screw, hence insulation effect of the cortex has no bearing on acoustic fidelity.	• High output, but very low acoustic fidelity for high-frequency sounds due to insulation effect of the cortex.
Price	• Higher	• Lower
Comfort	• No pain or discomfort caused	• Vibrator held tightly in place by a headband, causing pain and discomfort
Surgery	• Surgery is needed and should be recommended by doctors.	• No surgery needed.
Follow-up action	• Followed up by audiologists and otolaryngologists for checking the function of the hearing aid and examining the connection of the screw as well as the skin condition of the patient.	• Followed up by audiologists only

Who are suitable for BAHA?

Unlike other hearing aids where sound is transmitted by the conventional way of conduction, sound received by a BAHA is amplified by an amplifier and then transmitted directly to the cochlea by bone conduction via the abutment. Since sound is conducted bypassing the auditory canal, the tympanic membrane and the auditory ossicles, students with chronic external or middle ear problems such as bilateral atresia of external canals, chronic bilateral suppurative otitis externa or otitis media may consider using BAHA.

In general, children aged 5 or above whose skulls are thick enough for the implantation may undergo this surgery. However, pre-surgery assessment and recommendation must be obtained from otolaryngologists and audiologists. Parents should also have proper expectations of the efficacy of BAHA and understand thoroughly the procedures and possible risks of the surgery.



How to help hearing impaired students using BAHA?

- It takes about 3-4 months for the titanium screw to bond firmly with the skull bone after implantation. Parents and teachers should note that the students may go to school as usual during this period of osseointegration, but have to be careful in protecting the wound, especially from blows or bumps during PE classes or outdoor activities.
- Students should be reminded to keep the skin around the abutment clean to avoid inflammation.
- The BAHA should be kept free from blows or humid conditions as far as possible for it to function properly. It should be taken off before PE or swimming classes unless there are special needs.

- Radio wave generated by electronic devices such as computers or mobile phones may interfere with the BAHA. Parents and teachers should pay attention to the students' reaction when they approach these devices.

- Arrangements should be made to allow the students to sit near and face-to-face with the teacher. Teachers should look directly at the students, as far as possible, when speaking with them. They should not speak too fast or artificially slow, nor should they exaggerate lip movements.

- If the hearing impaired students do not understand what the teacher is saying, the teacher may explain his words with the help of physical objects or pictures, or rephrase his lines.

- Defective components or low battery level may cause sudden deterioration in reception capability. Teachers may help the students to change batteries or contact their parents if necessary.

- Any problem should be referred to the relevant specialists or audiologists as soon as possible.

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