



# Bone Conduction Hearing Aids

Hearing through bone conduction is normally used where there is a significant conductive hearing loss or where it is not possible to use air conduction aids.

Bone conduction hearing aids are therefore used by much less than 1% of hearing aid users. Indeed bone conduction aids are very often used because there is no alternative and not because they are necessarily capable of giving the best performance.

It is generally accepted that bone conduction vibrators will excite both ears about equally no matter which side they are placed, however .

In essence the bone conduction hearing aid is identical to an air conduction aid apart from its output where a bone vibrator is used in place of an earphone. However, the use of a bone vibrator places a number of requirements on the design of the hearing aid and limits the type of aid that can be used to a body worn, spectacle, headband or bone anchored aid.

## The Bone Vibrator

The bone vibrator is mounted on a headband which must exert pressure on the head in order to maintain a good contact. A reduction in pressure is likely to produce a considerable falling off in the effectiveness of the device. The major problem with bone conduction hearing aids is keeping the vibrator applied without causing discomfort.

It is normally worn behind the ear on the hairless part of the skull known as the mastoid process. The effect may alter with quite small changes in position. They can be placed elsewhere on the head but there can be a significant reduction in the level of sound perceived. This may not be a problem if the conductive hearing loss is such that there is sufficient power in the hearing aid to counteract this loss without undue distortion.

Bone vibrators, like earphones, are designed with electrical characteristics to match the outputs of specific hearing aids, therefore care has to be taken as

to which particular bone vibrator is used. Manufacturers and suppliers will be able to recommend the appropriate vibrator.

## **Spectacle Hearing Aids**

Spectacles provide an ideal way for the bone vibrator to be held in place in an inconspicuous manner with the minimum discomfort. The most widely available type is where the vibrator is housed in the back of the curved part of the arm of the spectacles and the microphone, battery and amplifier in the rest of the side arm. In some cases an aid can then be worn on both sides and in others, particularly with the more powerful aids, the amplifier is housed in the second arm. Spectacle aids of this type are expensive and require the cooperation of an optician and the hearing aid supplier for fitting.

## **Bone Anchored Hearing Aid**

Traditional Bone Conduction Hearing Aids have a number of drawbacks. They can be uncomfortable and rather cumbersome. by the spring-loaded arm of a spectacle aid. Headaches and soreness of the skin caused by the pressure from the vibrator against the skull are common problems along with keeping the headband on the head and in the correct position.

The Bone Anchored Hearing Aid uses the principle of osseointegration (bonding with the bone) to overcome these problems by attaching the aid to a small titanium screw which is implanted behind the ear.

**Treacher Collins Family Support Group**  
**114 Vincent Road**  
**Norwich**  
**NR1 4HH**  
**(01603) 433736 voice, Minicom & fax**  
**mail@treachercollins.net www.treachercollins.net**  
Registered Charity: 1006300