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Baha Softband for paediatric fitting.

The Baha Softband is a comfortable alternative over conventional bone conductors, while providing infants and toddlers the amplification they need for language development. This month we review how to fit the Baha Softband and how to select the correct sound processor.

Benefits over conventional bone conductors

The Baha Softband is more comfortable for infants and toddlers than a traditional bone conduction aid on a headband⁽¹⁾. It is easy to adjust the pressure against the head and easy to shift the position of the sound processor. Studies have shown that long-term use of bone vibrators worn on headbands may cause skin ulceration and in severe cases a physical depression at the point of contact⁽²⁾.

The Baha Softband can be fitted bilaterally, which may give the child access to binaural benefits such as summation and improved localisation.

Counselling the parents

Parents of a child with a hearing impairment will have many questions and concerns regarding their child's hearing loss. Important points to cover in counselling are:

- Hearing loss and how it will affect their child's development.
- Why Baha may be the best solution for their child.
- How to help their child achieve the best possible results, especially in speech and language development.
- The Baha treatment process - both short- and long-term.

Fitting the Baha Softband

There are a number of points to cover in a Softband fitting:

- Selecting the sound processor - To provide sufficient compensation for the child's hearing loss, the skin's attenuation of the signal has to be considered. There are also several features that can be beneficial for children such as automatic



feedback control and ability to connect to FM systems.

- Adjusting the Baha Softband - To achieve a correct fit, one good rule of thumb is to place your finger under the Softband as you tighten it. This will prevent over tightening which may result in discomfort. Increasing the volume is a more effective method to increase the signal strength⁽³⁾. Overtightening increases the signal strength only marginally⁽³⁾.
- Adjusting the volume - In a Baha Softband fitting, it is important to provide sufficient amplification. A volume setting between 2 and 3 has been shown to provide sufficient amplification in most cases⁽³⁾. For the initial fitting, volume levels above 2 may startle the child, which could create an aversion to the Softband.
- Instructing parents - Tell them how to fit the Baha Softband correctly, how to care for the sound processor, and how to change the processor's location on the head to avoid discomfort.

When to implant

An implanted Baha always provides better amplification, especially in the higher frequencies. With this in mind there will be a time when implantation needs to take place. One way of determining the time, is to monitor the child's speech development and when the rate of development decreases below the normal level (as illustrated in Figure

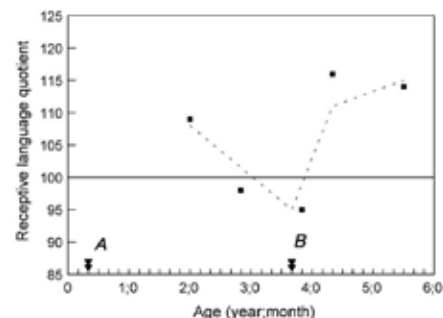


Figure 2. Language development versus calendar age. 100 is the normal language quotient. Point A corresponds to the age of the child when fitted with a Baha Softband. Point B corresponds to the date of Baha implantation. Graph from article by CVM Verhagen et al.⁽⁴⁾

2.), implantation should be considered⁽⁴⁾.

The parents, the audiologist and the surgeon should agree on the timing of the surgery, and it is also important that the child has sufficient bone thickness.

More information about implantation in children can be found in the Baha Surgery Guide (E81093). NOTE: In the USA the FDA allows implantation from the age of 5 years.

Summary

The Baha Softband may provide excellent amplification for children from a very early age. Bilateral application may be considered for children with binaural hearing loss.



Articles

Recent articles are summarized below.

The Baha Softband. A new treatment for young children with bilateral congenital aural atresia⁽⁴⁾.

This study reviewed the benefits of a Baha Softband fitting on 12 children with bilateral congenital aural atresia. The children in the study were compared to a reference group of 8 children using a conventional bone conductor.

KEY STATEMENTS:

- Children should use the Baha Softband until their temporal bone is mature enough for implantation of a Baha.
- Conventional bone conduction hearing aids are not popular with the children because of the tight-fitting steel head band. The Baha with the Softband avoids most of the drawbacks of the conventional bone conduction hearing aids.
- According to the survey data, children wear their Baha Softband daily, and most children wear it the entire day. Baha Softband users have little or no complaints of pressure points caused by the processor.

Q What settings on the gain and tone trimmers would you recommend in fitting a Baha sound processor? I have heard that they are adjusted to provide the optimal sound at the factory setting and that any further adjustments may cause problems.

A The factory settings may not be the optimal setting for every client. The sound processor should always be adjusted to suit the client's hearing loss. The need for amplification will vary greatly between patients due to several factors:

- Type of hearing loss - A client with a conductive loss will require significantly less amplification than a client with a mixed loss. In general, one can say that the larger the sensorineural component, the greater the need for amplification.

Subjective benefit after Baha system application in patients with congenital unilateral conductive hearing impairment⁽⁵⁾. This study evaluated the subjective benefits of a Baha fitting for 20 patients (10 adults and 10 children) with unilateral congenital conductive hearing loss.

KEY STATEMENTS:

- In children with a congenital unilateral conductive hearing loss, treatment with Baha should be considered once speech and language development is delayed. It's particularly important to monitor the development of children with a severe unilateral conductive hearing loss.
- The adults in the study expressed clear preference for the Baha in specific listening situations such as conversations, meetings, and attending the theatre.
- The Glasgow Children's Benefit Inventory (GCBI) showed patient satisfaction and great improvement in learning abilities with a mean score of +60.
- Before a decision is made to implant a Baha, we consider it important for adults and children to have a Baha trial period with a Baha Softband or headband.

- Transcranial attenuation - In single-sided deafness, the attenuation of the signal as it is sent to the cochlea of the good ear varies from client to client.
- Skull thickness - The thickness of the client's skull will affect the transmission of the signal.
- Position of implant - An implant positioned farther away from the cochlea will require more gain.

The goal of the adjustment should be that the client has the volume set at around 2 in most settings. This will enable them to adjust the volume both up and down in different environments.

Remember, a hearing loss is always unique and this should be reflected in the Baha sound processor's settings.

According to the survey data, children wear their Baha Softband daily, and most children wear it the entire day. Baha Softband users have little or no complaints of pressure points caused by the processor⁽⁴⁾.

Baha in children and adolescents with unilateral or bilateral conductive hearing loss: A study of outcome⁽⁶⁾.

This study reviewed the audiological and subjective results of 22 Baha fittings for children with unilateral (UHL) or bilateral (BHL) conductive hearing loss.

KEY STATEMENTS:

- Children with UHL or BHL displayed problems with localization and hearing in noise which is why treatment is important. Fitting of Baha provides high client satisfaction in this user group.
- All children with BHL were highly satisfied with their hearing performance using both unilateral and bilateral Bahas.
- To evaluate benefits, a 3-month trial of Baha on the Baha Softband, either unilaterally or bilaterally, may be of value to children with UHL and BHL.

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