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How are Hearing Aids Fitted & Evaluated Infants Or Children?

The process of fitting hearing aids to children is very different than it is for adults. Adults can tell their audiologist how well a hearing aid seems to work, if certain sounds are too loud, or if speech sounds garbled or unclear. Young children cannot do this. For this reason, it is important to find a pediatric audiologist with extensive experience in fitting hearing aids to children. Because a child's early years are particularly important for speech and language development, finding the best hearing aids for each child is very important.

Hearing aids must be fit individually for each child. No one hearing aid is appropriate for everyone. Some important factors that a pediatric audiologist will consider when selecting hearing aids are:

- Degree and shape of the hearing loss
- Durability and service of hearing aid models
- Compatibility with special amplification systems used in schools

Adult hearing aid users may sometimes choose to wear only one hearing aid. When fitting hearing aids on infants and children, pediatric audiologists will almost always recommend hearing aids for both ears. Two hearing aids are needed to support the child's learning of language and speech. Even if a child has different degrees of hearing loss in each ear, hearing aids for both ears usually will be recommended.

Probe Microphone Testing

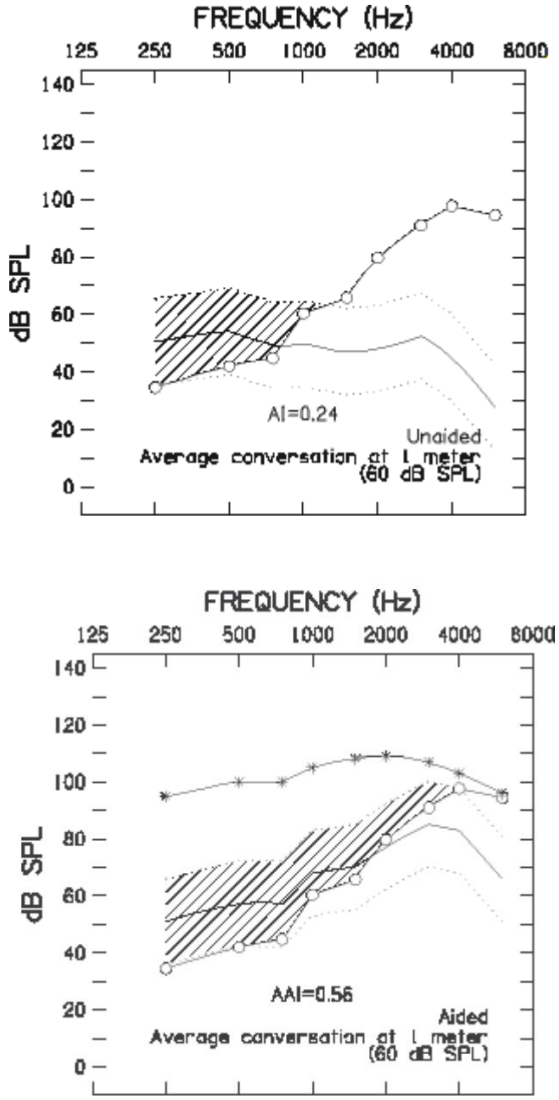
The best method of testing hearing aid benefit for young children is called probe microphone testing. During this test, a small, soft microphone is placed in the child's ear next to the earmold. This approach allows the audiologist to determine how much sound is being delivered to the child's ear. Because infants and young children have much smaller ear canals than adults, it is important to make these measures to avoid loudness discomfort and/or further damage to the child's hearing.

Real Ear-to-Coupler-Difference (RECD)

For very young children, a special probe microphone technique called Real Ear-to-Coupler-Difference (RECD) measurement can be used. The audiologist combines this information with the response of the hearing aid measured in a test box to find the best hearing aid and hearing aid settings without having to do repeated hearing aid testing on the child. If an audiologist uses RECD measures before fitting the hearing aid directly on the child, she/he can avoid the problem of too much sound from the hearing aid or inaccurate volume settings.

RECD testing is one of the most recent developments in hearing aid evaluation for infants and young children. It is considered state-of-the-art for pediatric audiologists. Research studies have shown that this type of testing is safe even with babies younger than 6 months.

The most important goal for infants and young children who wear hearing aids is making speech loud enough for the child to hear. Probe microphone measures enable the audiologist to determine how much of speech will be heard with different types of hearing aids. Audibility of speech can be used to compare aided and unaided hearing, different hearing aid settings, and different listening conditions.



The graphs above show how audible speech is for a child with a mild to severe sloping hearing loss without a hearing aid (top panel) and with a hearing aid (bottom panel). The circles show the child's hearing levels. The crosshatched areas show how much of speech is loud enough to hear at a distance of 1 meter. The asterisks (*) on the lower panel show the loudest level that this hearing aid can produce.