



Texas School for the Blind & Visually Impaired

Outreach Programs

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The Importance of Auditory Training for Children who are Deafblind

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Abstract: This article discusses the importance of including auditory training in curriculum for students who are deafblind. It also offers some suggestions for activities and resources related to providing auditory training.

Key Words: deafblind, auditory training, auditory assessment, hearing aid, cochlear implant

Children who are deafblind need to develop skills in using auditory information. Children who are deafblind need to learn to use whatever residual hearing they may have for a variety of reasons including travel safety, identifying people, literacy, communication, and so forth. They also need to learn how to use adaptive devices and equipment such as cochlear implants, hearing aids, and voice output devices. Auditory skills development, just like visual skills development, requires well-thought-out instruction that is provided regularly and consistently throughout the child's school career. Learning to listen, a skill we all need help with, is a skill that is critical for these children.

Steps in Providing Auditory Training

For children with visual impairment or deafblindness the first step in auditory training is to provide access to as much auditory information as possible. If there is a hearing problem, this starts with the use of hearing aids or a cochlear implant. Key to the use of these devices is good behavioral audiological assessment. This is because the best hearing aid or implant fit can't be obtained without behavioral testing.

Any child who is unable to participate in pure tone conventional screening, may need the educational team to compile information about his functional use of hearing before going to the audiologist. Some of the same activities that teach listening can be used to check hearing. By including listening activities at a level appropriate to the child, the child will learn to respond better in more formal hearing assessment situations. The team that knows exactly what behaviors indicate a child with limited communication skills has heard something can be very helpful to the audiologist who may not know what to look for as a response.

The next step is getting consistent use of the device (implant, hearing aid) if the child needs one. A hearing aid or implant is of no help to the child if the child doesn't wear it regularly.

The third step (if the child has some type of device) is to establish a system of daily checks of the hearing aid or implant to make sure it is working properly. Wearing a broken device is an additional impairment to whatever residual hearing the child might otherwise have available to use.

It is important to understand that, even though a child consistently wears an appropriate device in good working condition, he may still not have the same access to auditory information as another child. Each child will have a unique blend of abilities in the areas of hearing, vision, thinking and communication. Some children can become very sophisticated users of a wide range of auditory information while other children may be able to learn to use some, but not as much, auditory information. However, any child will benefit from learning to use any and all auditory information they can.

After the hearing aid or implant, then what?

Auditory training does not end with putting on a hearing aid or implant. The child needs help to learn how to use the device and the information the device allows him to hear. The goal of auditory training is to help a student discriminate sound (in increasingly fine steps from gross sounds to speech) in order to gain meaning from the sounds he hears.

Goals at the highest level of auditory training focus on helping a child use speech. Using speech well requires a person to make very fine discriminations of pitch, loudness, and timing. When we hear a child give an appropriate verbal response to another person's spoken word or phrase (verbal stimulus), we know that he is making those fine discriminations. For most children the social benefits of responding to others' verbal communication is enough reinforcement that they learn quite naturally to make these discriminations and responses. For example, a baby eagerly says "bye-bye" again and again, just to trigger his grandmother's delight and keep her interacting when she announces it is time to go home.

Remember that auditory training is about helping a child make finer and finer discriminations. A gross discrimination is being able to recognize absolute quiet from a very loud sound. The sound is there or not there. A fine discrimination is the difference between the sound "s" like the first sound in "sun" and "f" like the first sound in "fun." Even people who are hearing have trouble hearing the difference between these sounds (especially over telephones!)

Moving from a gross discrimination like the presence or absence of sound, one step towards a finer discrimination would be to hear the difference between a loud sound and a quiet sound. The next step from there is to hear the difference between a loud sound, a medium sound, and a quiet sound.

Now, it is not just enough to be able to hear these differences. We want our children to recognize why these differences are important. We want our children to respond in a way that demonstrates that sounds have meaning. For example, a car horn honking is important to pay attention to; it signals danger. A loud knock at the door or the sound of a doorbell lets you know that someone is outside and wants to come in for a visit. The telephone ringing, the sound of the alarm clock ring, and many other sounds have meaning in our world. Think of other situations where the presence or absence of a sound means something; all of these sounds can be used in auditory training and can be tied to real-life, functional activities for the child.

Of course, it is not fair to ask a child to make discriminations or responses that are beyond their ability. It would be like asking someone without eyes to read print (braille might be ok!) or asking a 6-year-old to play basketball like Michael Jordan. That's why it is important to start with gross discriminations, utilizing sounds you know that the child really can hear. You want the child to have success at each step in learning to use his hearing. When listening becomes too difficult or aversive, the child is likely to shut down. Listening should be a rewarding experience for the child.

Fitting Auditory Training Into the Child's Day

It is important to do a quick check of a child's auditory skills every day to make sure his or her hearing aid, cochlear implant, or assistive listening device is working. Doing this type of activity when the student arrives at school can catch problems with technology, but it also serves as a good time to tune the child into listening for voice. A quick way to do this is to use the Ling Six Sound Test. The Six Sound Test is used to determine the student's ability to detect and/or discriminate speech sounds. The six sounds are used because they cover the speech range from low frequency to high frequency. The six sounds are "a" as in "baaaa", "u" as in moo, 'e' as in we, "sh" as in shoe, "s" as in sun, and "m" as in mom. This test is given live every day voiced by the adult with the student's own hearing aids, cochlear implant, and/or assistive listening device.

First, check the student's amplification as you normally would. Then, as the student wears the amplification, say the six sounds either from behind or in front with your mouth hidden from view. Ask the student to respond in some way to the sounds such as clapping, raising his/her hand, jumping up and down, etc. This is done to test for detection. If you ask the student to repeat the sound you can test discrimination. It is important to be consistent. Always say the sounds at the same volume and distance from the student. However, vary the order in which you say the sounds every day.

If, all of a sudden, you notice the child not responding as well as they have been, it may be that the child's amplification is not working or the child's hearing has changed. (As might happen if the child has an ear infection.)

It often works best to have a regularly scheduled time to work on auditory training, especially if you are introducing a new activity. Sometimes this can be scheduled as a small group activity or can be done with an individual child. It is easy to turn listening into a fun experience or a game. A child with very little hearing can sit on the floor near the door and listen for you to knock. He can open the door and pretend to be surprised to see you. She can put the baby doll in a bed "to sleep" and make the baby wake up when the alarm goes off. A group of children can dance to the music and freeze when it stops.

Practice, throughout the day, on listening skills learned in more formal lessons helps the child generalize the skills. For example, the student can listen for the teacher to call his or her name to come line up. For the child with very beginning discrimination skills, the student can listen for a drum sound (off/on environmental sounds). Another child might be asked to listen for his name as you target the skill of off/on awareness of voices. For the child a little farther along, you might ask her to discriminate between names that are very different in length and vowel/consonant structure such as "John" and "Latisha." Another student might be asked to discriminate between a normal voice and a whisper or between two very similar names such as "Bill" and "Will."

Letting the child play teacher and have the other children listen can also reinforce their interest in tuning into sounds.

Every lesson in school or every activity at home has potential for working on auditory skills. Have the child listen for a timer to go off to let you know that his oatmeal is ready. Ask the bus driver to honk his horn when he stops out front. Listen for the sound of Dad's truck when he comes home in the evening. (With the help of a cell phone you can even keep the wait short if he gives you a call when he is just down the street.)

Schools have bells and alarms of all kinds; practice listening for the bell to ring before you go to lunch. When the principal makes an announcement over the intercom, encourage the child who hears it first to alert his classmates. As you read "Three Billy Goats Gruff" have one child pretend to be the troll who hides under the bridge and listens for the sound of the goats tramping on the bridge. Have another child listen for the phrase, "Who's that tramping on my bridge?" before responding vocally. Point out sounds as you take a walk and tie them to the objects and events that make that sound such as a loud air conditioner, a noisy cart in the cafeteria, or the sound of a ball bouncing on the floor in the gym.

There is no limit to the number of activities that teach and reinforce listening skills. Every child with a visual impairment, even those without an identified hearing loss, needs to develop good auditory skills. These play a critical role in developing other skills related to literacy, problem solving, following directions, orientation and mobility, and socialization. The auditory channel is a critical sense for learning for a child with deafblindness.

A child may initially only be able to discriminate gross differences between sounds, but with a lot of auditory training he may learn to discriminate very slight sound differences, even with profound hearing losses. Without training, a child with a very mild hearing loss may have difficulty making sense of what he hears.

What Parents Should Discuss With Their Teams About Auditory Training

Both teachers of students with visual impairments and teachers of the deaf and hard of hearing know the importance of listening skills. If your son or daughter is visually impaired or deafblind you should think about how well the child is able to use hearing for learning. Many children should have auditory training goals included in the IEP. As parents, you may need to get some help in determining where to begin with your child.

Ask your team about how your child uses his hearing in the school setting. Observe situations at home or in the community where your child responds well to sounds or seems to have problems and share that information with your team. If he has not had a hearing check recently, you may want to consider having one done as soon as possible.

Resources

There are a number of great resources for teaching auditory training, if you and your team are ready to get started. Check with your school's speech therapist or teacher of the deaf and hard of hearing about materials they may have on hand to assess listening skills and ideas for auditory training activities. Here are a few resources that you may want to consider:

Curricula

- ASIPS _ Auditory Skills Instructional Planning SystemForeworksPost Office Box 82289Portland, OR 97282Phone: 503-653-2614
- CASLLS - Cottage Acquisition Scales for Listening, Language & SpeechSunshine Cottage103 Tuleta DriveSan Antonio, TX 78212Phone: 210-824-0579 ext. 244 or TTY/ 824-5563
- CHATS, the Miami Cochlear Implant, Auditory & Tactile Skills CurriculumIntelligent Hearing Systems7356 S.W. 48th StreetMiami, FL 33155Toll free: 800-447-9783Phone: 305-668-6102
- DASL II _ Developmental Approach to Successful Listening IICochlear Corporation400 Inverness Drive South, Suite 400Englewood Colorado 80112Toll free: 800-523-5798Phone: 303-790-9010
- SPICE _ Speech Perception Instructional Curriculum and EvaluationCID Publications4560 Clayton AvenueSt. Louis, MO 63110Toll free: 877-444-4574 (ext. 133)

Computer related

- **Visi-Pitch IIIKay Elemetrics Corp.2 Bridgewater LaneLincoln Park, NJ 07035Phone: 973-628-6200**
This device is only good for use with children who have useable vision. This is a device that provides visual feedback to sounds the child produces, but it can aid the child in paying attention to speech sounds.
- **Earobics Software (Home version and Specialist/Clinician versions)Cognitive Concepts990 Grove StreetEvanston, IL 60201Toll free: 888-328-8199**
This device is only good for use with children who have useable vision. This software has games and activities to work on higher level auditory training skills.
- **Reader RabbitRiverdeep - The Learning Company, Inc.399 Boylston StreetBoston, MA 02116Phone: 617-778-7600**
This device is only good for use with children who have useable vision. This software has games and activities to work on higher level auditory training skills.

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