

How children hear – What is auditory processing?

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To listen effectively in the classroom, children not only need to be able to hear their teachers well, but they also need specialized skills, such as the ability to listen over background noise and the ability to localize — to know where sounds are coming from. For some children (*and adults*) with auditory processing disorders, it is extremely difficult to understand speech in noisy environments.

As a result, they may struggle with following directions or discriminating between similar speech sounds. Many people are surprised to learn that these skills are not mature until kids are in their mid-teenage years. Children really do hear differently than adults, and some individuals truly struggle with very weak auditory skills, which are different from their peers'. These challenges can often lead to struggles

with reading, reading comprehension and/or spelling. Following auditory directions in a classroom can also be very difficult for those with an auditory processing disorder.

For some, these challenges can be attributed to attention deficit disorder or autism, but for others, these troubles are truly auditory in nature and are not the result of other challenges. Often, parents or teachers will say that their student with auditory processing challenges performs much better with visual tasks or in classes where they do not have to rely on their listening skills as much. For this reason, it is important to bear in mind that when a child is assessed for auditory processing concerns, the whole child must be considered, using testing and observations from parents and professionals who know the child well.

In order for the student to be successful, the skill of auditory processing requires several different sub-skills. Assessing these skills individually is accomplished by asking the student to perform a variety of tasks, such as repeating words that are fuzzy and hard to hear, repeating words heard in a noisy environment, and listening to two different stimuli presented to each ear at the same time. This battery of testing shows the child's strengths and weaknesses, as compared with other children of the same age. With this information, a therapy plan can be developed that is based on the child's specific auditory weaknesses.

There are always three possibilities to consider when developing a plan to support a child with auditory processing deficit:

1. **modifying the learning environment**
2. **remediating the auditory challenges directly**
3. **teaching the child compensation skills (metacognitive skills)**

For example, some classrooms are quiet, but many others are noisy, with high ceilings and many reflective (*noisy*) surfaces. Tricks can be employed to modify the learning environment. These might include placing felt or tennis balls on the bottoms of chairs. Such modifications can make a classroom quieter quickly, and cheaply.

To remediate the auditory challenge directly, equipment such as an FM system can be used. This raises the teacher's voice slightly above the background noise of the classroom. Such techniques, frankly, benefit everyone, including the teacher, who no longer has to use his or her "*teacher voice*" to be heard.

Finally, children can be taught compensation skills through therapy. Direct therapy may be computer-based, or may involve specific instruction with a therapist, or both. Which of these options is best, or which combination, is determined based on the needs of the child and what can best be facilitated by each family and school.

Empowering children to accommodate themselves is also important. They need to understand how they hear so they can ask for better seating, for example. Actually, for some children, learning that they don't always hear it right is a relief! Once they know this, they can learn how to ask questions to see if what they heard makes sense. Children can learn to problem-solve and discover what they need to be successful in the classroom.

The diagnostic evaluation required to effectively assess a student's auditory function takes about two hours in a clinical setting. It begins with an interview-style discussion between an audiologist, a parent and the student. This is followed by a hearing test to rule out hearing loss as a potential cause for why a child isn't hearing very well. Lastly, there is a battery of tests that are used to determine any deficits in the child's listening skills. Over the course of the following weeks, this information is synthesized into a written report that is shared with the parents, school and pediatrician.