

SENSORY PROCESSING- AUDITORY SYSTEM

EDUCATIONAL HANDOUT



What is the auditory system?

When sound reaches our ears, it is sent to our brain for analysis. In order to understand the nature of the sound, our brain asks a few questions. Is the sound indicating something important, such as a fire alarm? Or is it a calming sound, like classical music? By answering these questions, our brain generates a response to the sound

The inner ear has two key parts that work together to do important things. One part, called the cochlea, helps us understand and interpret the sounds we hear. The other part, called the vestibule, helps move the sound to our brain so we can process what we hear and respond appropriately. Our sense of hearing also helps us with our balance and coordination when we move.



What is a healthy auditory system?

Children with a healthy auditory system can naturally respond to sounds, like looking when they hear their name. They can understand and follow instructions from their parent. Children with a healthy auditory system can differentiate between important and unimportant sounds, like ignoring a friend tapping their pencil and paying attention to their teacher's instructions.

Having a healthy auditory system helps children become aware of their surroundings, allows them to react appropriately to sounds, and develop motor planning skills. A functional auditory system is crucial for children in developing communication, social skills, and listening skills.



Problems with the Auditory System

Our brain helps us process the sounds we hear to understand them. However, there are times when auditory information can be misinterpreted, leading to difficulties. For instance, the directions "Line up for lunch" and "Line up in front of John for lunchtime" convey very different meanings. If a child doesn't hear all of the directions, they might not respond correctly.

The following are the common examples of difficulties with the auditory system:

Hyposensitivity

Children register common and uncommon sounds, such as alarms and their names, around them less or none compared to children their age. They may notice less sound in their environment, even at a lower volume level. They may also appear not to hear sounds around them by not responding to the sounds, such as turning their heads or looking toward the direction of a loud noise or if their name is called.



Hypersensitivity

Children feel overwhelmed by different sounds, which can cause them to become scared, distracted, or startled. These sounds can be environmental, ranging from common to uncommon, with varying pitches and volumes, such as sirens, vacuums, pencil tapping, or even the sound of someone chewing food. When children hear these sounds, they may respond by running away, becoming agitated, screaming or crying, or covering their ears.



Signs of Problems with the Auditory System

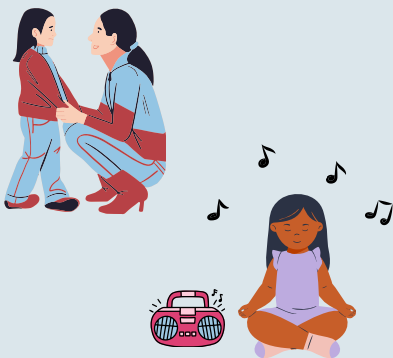
The following are examples of signs that a child may exhibit that can be seen as them having problems with their auditory system:

- Overreacting to loud and/or unexpected sounds
- Increasing the volume of the television or tablet to a high level
- Feeling uncomfortable when in noisy public places
- Making noises, such as with their mouths or hands, without purpose
- Not responding to their name
- Being easily distracted by background noise
- Difficulty maintaining attention



Tools and Activities to Help Your Child

- Create a structured environment
- Use rugs to help decrease echoes from sounds, such as toys, footsteps, and voice
- Use calming and soft sounds, such as music, in the background
- Tell the child in advance if a loud noise may happen
- Create a safe, quiet area for the child to retreat to if they become overwhelmed by noise
- Have the child play with instruments
- Teach the child how to use their body to make sounds, such as clapping and stomping
- Introduce songs for learning, such as alphabet song
- Introduce songs that incorporate physical exercise or the use of one's own body to make sounds, such as "If You're Happy and You Know It"



For more information or concerns about your child's sensory processing needs, please consult your child's occupational therapist or contact your pediatrician. You may also refer to www.aota.org for additional information.

References

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