



Language and Auditory Processing Disorders What's The Difference?

By Laura Cole, MS, CCC-SLP

Many parents are told, "Your child has processing problems" when referring to their child's ability to understand the meaning of sounds in their environment. But what does the term "processing" really mean? Processing encompasses a variety of auditory and language abilities and is not a simple discrete skill that is easily isolated and defined. It's a generic term used to describe a child's ability to respond to sound in his or her daily environment. Processing is broken down into two entities: auditory processing and language processing. The symptoms of auditory processing disorders and language processing disorders are often quite similar and overlap. These terms are often used interchangeably although they do not mean the same thing.

Auditory Processing

Auditory processing refers to the perception of an auditory stimuli and the brain activity that underlies this process, or more plainly stated, the ability to draw attention to the things we hear.

Auditory processing occurs in the following manner:

- Auditory signal is received by the central nervous system (CNS).
- Both ears work together to localize the source of the sound. This is referred to as binaural interaction.
- The brain analyzes the sounds and notes the differences in sounds. This is referred to as auditory discrimination.
- Both cerebral hemispheres work together to process the information obtained from both ears. This is referred to as dichotic listening.
- The brain gathers further information through the timing aspects of the auditory signals, through the perception of one vs. two targets and the sequential ordering of the stimuli. This is referred to as temporal processing.
- The brain attaches meaning to speech sounds. This is referred to as phonemic processing.

It is at this last level of auditory processing, the phonemic processing level, where the transition from auditory processing to language processing occurs.



Language Processing

Language processing refers to the process of applying meaning to the sounds that are heard. Language processing begins after perception of the acoustic signal, or after auditory processing, by attaching meaning at the signaling of the sound (phonemic processing). It begins at a very concrete level and develops in a hierarchy of cognitive complexity. Linguistic knowledge, which is obtained through language processing, is based on interpretation of words spoken, including voice inflection, intonation, and fluency. Language processing is also reflected in how the listener uses his knowledge to interpret the speaker's message.

Clinical Picture

The symptoms that a child displays if they have an auditory processing problem often overlap with those of a language processing problem.

Generally speaking, a child with an auditory processing problem is more likely to experience the following:

- Difficulty hearing in noisy environments
- "Mis-hears" information (e.g., "hot" for "hop") because of difficulty telling the difference between similar-sounding speech sounds
- Difficulty locating a sound, and often requests repetitions by saying, "huh?"
- Trouble following directions
- Doesn't appear to pay attention

A child who has a language processing disorder is more likely to experience the following:

- Problems following directions and understanding stories or basic concepts
- Difficulty "getting to the point" or answering questions with appropriate information (word retrieval problems)
- Mispronunciation of words that sound the same
- Use of slow or choppy speech
- Use of a monotone voice or a loud voice
- Doesn't know what to expect based on the information given
- Use of original "creative" words
- Difficulty naming objects or people
- Word retrieval problems
- Inconsistent learning skills
- Recognition of self-errors but without the ability to correct the error

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Consider, for example, Abby, a 7-year-old girl whose teacher reports that she frequently has difficulty following directions, especially when the classroom is noisy. She recently passed a hearing test. Abby frequently replies, “huh?” when her teacher asks her a question and after her teacher repeats the question, she often replies, “I don’t know.” Abby often mispronounces words or uses words that are combinations of two similar sounding words. Abby is doing well in her math and science units; however she struggles with spelling and reading. She is testing below grade level in both reading and spelling. Abby is beginning to show awareness of her difficulties and her teacher reports that she is showing behavior problems in class by acting out during center work and small group activities. Although she displays symptoms of a child with a “processing problem,” further testing is required to accurately determine if an auditory processing problem or a language processing problem (or both) is contributing to this difficulty.

Assessment

Children suspected of having language processing difficulties should be evaluated by a speech-language pathologist who diagnoses written, reading and verbal processing disorders and can screen for an auditory processing disorder prior to referring a child to an audiologist for complete testing. Only an audiologist can diagnose an auditory processing disorder. Assessment for an auditory processing disorder (may be referred to as a central auditory processing [CAP] disorder assessment) is conducted by an audiologist with supportive assessment by a speech pathologist. Most of the testing can be done with children who are at least 7-8 years of age and have normal hearing acuity, speech that is easily understood by an unfamiliar listener, and ability to wear earphones for at least one hour.

Intervention

Treatment of auditory processing disorders typically take a “bottom-up” approach, addressing the processing of the acoustic signal through environmental modifications and compensatory strategies to minimize the adverse effects of the processing deficit.

Language processing deficits are generally addressed through a “top-down” approach where compensatory strategies and building blocks are imposed “on top of” a basic language foundation. Therefore, careful observation and assessment through differential diagnosis is necessary in order to determine the most effective intervention approach.

Summary

Auditory and language processing occurs on a continuum beginning with the perception of sound, and then overlaps with the onset of language processing (attaching meaning to the processed sound and formulation of a response), which then leads to higher level linguistic functioning.

Language processing skills are the foundational skills related to following directions and comprehension of academic content presented both verbally and through written text. Characteristics of auditory processing disorders and language processing disorders overlap in their similarity of symptoms and observed behaviors because children demonstrate the same behavioral responses for different reasons. Differential diagnosis is imperative for a child who displays difficulty with auditory processing or language processing, as an accurate diagnosis is critical for effective intervention.

Sovereign Pediatric Therapy Welcomes

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Laura has over 17 years of clinical experience as a speech-language pathologist, the past 14 of which have been devoted exclusively to pediatric practice. She received her B.A. from Augustana College in 1992 and her M.S. in 1994 at Eastern Illinois University. Laura has extensive experience in assessment and treatment of speech-language delay and disorders and has particular interests in feeding and swallowing challenges, early language development, and sensory processing disorders.

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Alicia graduated from the University of the Pacific with a Master of Science Degree in Communicative Disorders and holds dual state licenses in California and Illinois in Speech-Language Pathology and a Clinical Rehabilitative Services Credential. Alicia has provided speech-language therapy services in a variety of settings including private practice, elementary and junior high schools, and pediatric hospitals in California and New York City.

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Amanda has worked with the staff from the Crystal Lake clinic as a therapeutic aid, gaining experience empowering children with a variety of abilities, prior to following her passion and obtaining her Master’s degree in occupational therapy from St. Ambrose University in Davenport, IA. Amanda has experience in therapeutic horseback riding for children with special needs.

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