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Making Sense of Sensory Processing Disorders and Hearing Loss

Our bodies and brains act as filtering systems for things that are happening around us — the information picked up by our senses — so we don't become overloaded by attempting to process too much at once. If we were totally aware of every single bit of information our senses gave us, processing everything would be nearly impossible due to the finite resources our brains offers us. Yet for some individuals, this is their reality. It's called sensory processing disorder (SPD), and it results in an overload of sensory data that their minds are unable to interpret correctly.

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Sensory processing disorders affect both children and adults, causing a misinterpretation of everyday sensory information that others take for granted, including senses related to movement and positioning. Though the disorder can affect any number of senses — or all of them at once — it can be particularly daunting when it affects the auditory region of the brain in individuals who already suffer from hearing loss. The severity and nature of the disorder is based on the unique effects it has on the individual; no two people experience the same exact symptoms.

When a sensory processing disorder affects the auditory region of the brain, it is referred to as **auditory processing disorder (APD)**. When affected by this, individuals have difficulty catching subtle differences between sounds and words. Confusing one word for another usually results in a misunderstanding between the speaker and the listener, regardless of which is the affected individual. Listening to complex information or listening in a noisy environment will usually lead to misinterpretation during conversation. Sometimes all sounds are perceived as equal, creating a different kind of difficulty communicating and responding to verbal instruction; this typically means an acute sensitivity to background noises.

Generally speaking, **there are two forms of APD: hypersensitivity and hyposensitivity**. Hearing is considered hypersensitive when the individual is too sensitive to noise, and it's considered hyposensitive when the individual's hearing is dampened. Suffering from hypersensitivity, also referred to as auditory defensiveness, can result in:

- Distraction by sounds that others do not notice
- Fear of or sensitivity to loud noises, like a flushing toilet, a vacuum, a hair dryer, or a barking dog
- Being startled or distracted by unexpected sounds and background noises
- Frequently asking for quiet
- Basing feelings about a person on the way their voice sounds

Conversely, suffering from hyposensitivity, also referred to as under-registering sounds, can result in:

- No response to verbal cues or to the person's name being called
- Listening to excessively loud music or TV
- Making noise for the sake of hearing noises
- Difficulty understanding or remembering what is said
- Being oblivious to some sounds
- Confusion about where sounds are coming from
- Talking through tasks and instructions as they perform them
- Repeating directions

Usually, the brain consciously processes about 30 percent of sounds and filters out the remaining noises. In the case of APD, processing is thrown off by a wider margin, either increasing or decreasing in an amount that makes it difficult to combine activities (such as walking and talking, or talking when there's background noise) or to constantly shift from one activity to the next. **In children APD can create emotional disorders that continue to affect them as adults, stemming from an inability to make sense of the world.** Social skills tend to develop more slowly, as making friends is more difficult due to an individual's seemingly strange behavior.

Prevalence of the disease is unknown, but males are thought to be twice as likely to be affected by the disorder as females. **APD may result from ear infections, head injuries, or neurodevelopment delays that affect the way the brain processes information.** Because the cause of the disease can be difficult to detect, it can be particularly difficult to diagnose the disorder. Children with symptoms of APD typically show no signs of neurological disease; the diagnosis is made on the basis of the child's performance during auditory tests.

There is no surefire cure for APD, but there are a variety of treatment methods that can greatly alleviate symptoms and help the sufferer to lead a normal life. Treatment is typically individualized and specific to the unique problems the patient faces. It is easier to manage for adults who experienced its onset early in life, and who learned coping strategies in childhood. No single therapy is effective for any two children, so appropriate treatment should be provided after a careful diagnosis by an audiologist. The focus lies in three primary areas:

1. Changing the learning or communication environment
2. Using new skills to compensate for the disorder
3. Attempting to identify and, if possible, solve the auditory deficit itself

Initially, environmental changes are important because they allow the child to focus his or her attention on the message. Some strategies consist of strengthening the central resources they can use to overcome the auditory disorder, and teaching children with APD to take responsibility for their listening success or failure by being an active participant and using problem-solving techniques. With early intervention, children with APD can learn to become involved in their listening and communication success — rather than remain victims of their own unfortunate impairment. ■