

Understanding Central Auditory Processing Disorder (Child)



Central auditory processing disorder (CAPD) is a problem with listening. It may be from a problem with the way the brain processes sound (auditory) information. It causes a child to have trouble hearing and understanding speech and sounds.

How hearing works

The ears detect sound. The sound causes signals to pass along nerves to the brain. The part of the brain that controls hearing is called the central auditory system. It interprets the signals as sound. Then the brain mixes this information with signals from other parts of the brain.

This information is often very complex. The brain must ignore certain background sounds. At the same time, the brain highlights important sounds, such as the speech in a conversation. The process needs several parts of the brain to work together, so that you can pay attention to and understand the sound.

In some cases, part of this process goes wrong. Researchers think the problem happens between the sensory systems in the ear and the central auditory system in the brain. This can cause your child to have trouble interpreting certain kinds of sounds.

What causes CAPD?

Researchers are still trying to understand what causes CAPD. Having certain genes may increase your child's risk for CAPD. In some cases, a specific problem may cause it. This problem may be:

- Exposure to a toxic substance, such as lead
- Brain tumor
- Brain injury
- Repeated ear infections
- Autoimmune diseases, such as multiple sclerosis

In most cases, the cause of CAPD is not known. This may be because a problem with the central auditory system can't be found.

Signs of CAPD

A child with CAPD may show a variety of problems with listening. For example, you may notice that your child often asks what you mean. Or they may ask you to repeat what you've said. Children with CAPD may have problems with:

- Understanding speech in a noisy environment
- Following directions
- Maintaining their attention
- Understanding rapid speech
- Telling the difference between similar speech sounds
- Tell where a sound comes from (localize a sound)
- Paying attention in lecture classes

- Language, learning, and reading

Your child may not have all of these signs.

Diagnosing CAPD

Even if your child has signs of CAPD, they might not have CAPD. Many of these signs are similar to those of other disorders. A healthcare provider trained in hearing problems (audiologist) can diagnose CAPD. The provider uses signs, testing, and other information to figure out a child's hearing problem.

The audiologist may give a series of tests in a soundproof room. Your child will be asked to listen to a variety of sounds and then respond to them in some way. The tests might assess your child's:

- Basic hearing
- Use of sound in both ears
- Ability to tell where a sound comes from (localize a sound)
- Ability to tell the difference between sounds (sound discrimination)
- Ability to distinguish competing sounds
- Ability to make out poor-quality sounds

In some cases, an audiologist may give tests to measure the brain's response to sound. An example is the auditory brainstem response test. This uses electrodes placed on your child's head. They are connected to a computer, which records brain activity in response to sound. This test is also known as the brainstem auditory evoked response. It can assess the nerve pathways and help locate the problem. These kinds of tests are often not reliable in children under 7 years of age. This is often the earliest age that an audiologist will diagnose CAPD.

Other healthcare providers may also help assess your child. A speech-language pathologist (SLP) can help assess your child's language and speech issues. A psychologist can assess your child's mental and psychological health. Specialists, such as an ear nose and throat healthcare provider or a neurologist, may be able to help. And your child's teacher might have insights on learning problems.

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