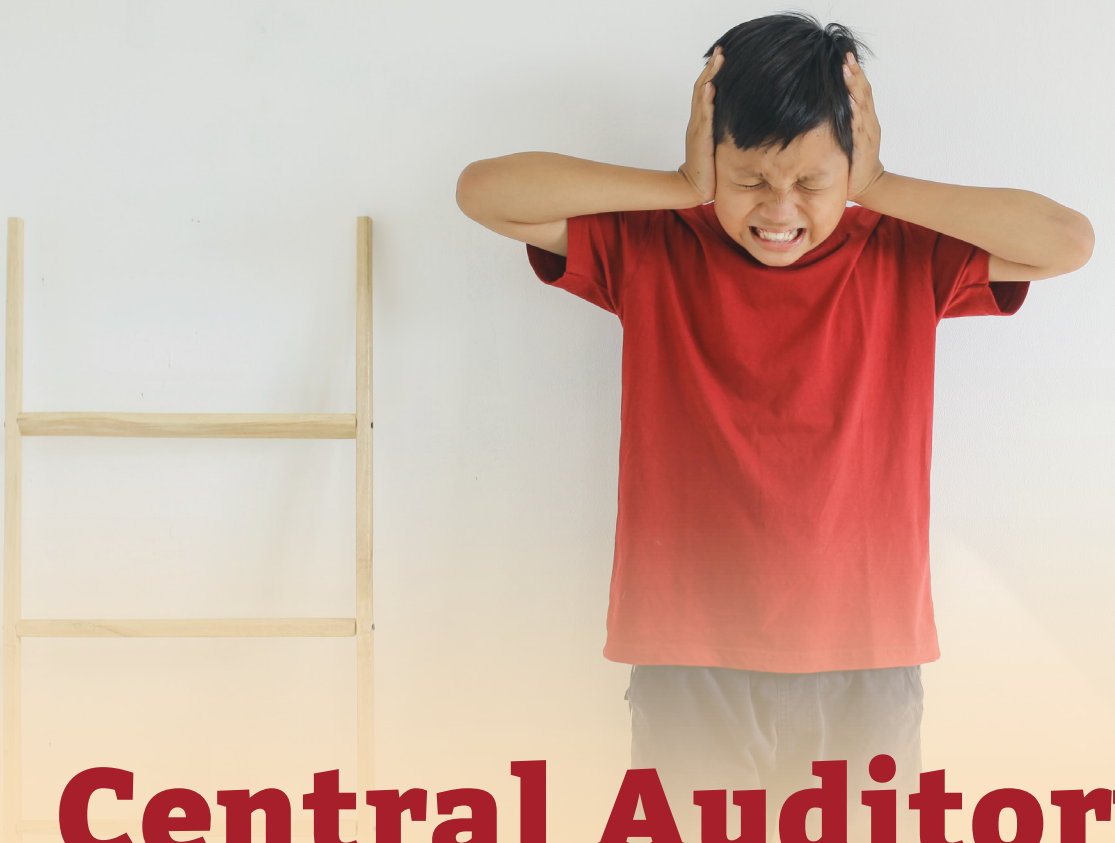


Central Auditory Processing Disorder

What Parents of Children with Autism Need to Know

Megan E. Locke, Au.D., and Hilary K. Wisdom, Au.D. | Able Kids Foundation

If your child has been diagnosed with autism or is suspected to be on the autism spectrum and struggles with sound sensitivity, has difficulty following directions, experiences emotional meltdowns in noisy environments or has persistent anxiety, you are likely familiar with the exhausting search for answers. While many of these challenges are attributed to autism alone, an additional, and often overlooked, condition may also be present: central auditory processing disorder (CAPD). Also known as auditory processing disorder, it is one of the most frequently overlooked diagnoses in the autism community.

What is CAPD?

The auditory system does much more than simply detect sound. It is also responsible for assigning meaning to what we hear and filtering out competing background noise. The auditory systems of some individuals perform all three tasks with ease. However, those with CAPD may be able to pass a standard hearing test yet still struggle to assign meaning to what's heard and filter out competing noises. This experience has been described as "auditory chaos" by those who live with the disorder.

It is important to note that a normal hearing test does not rule out CAPD. A child with the disorder may hear sounds perfectly well but struggle to understand speech in noisy environments, to follow verbal instructions, and to filter out competing background noise. What may appear to be inattention, defiance or emotional dysregulation could actually be the result of an overwhelmed auditory system.

Some of the causes of central auditory processing disorder can be genetic in nature or due to delayed maturation. Research also suggests that a key issue in the disorder lies in the asynchrony between the ears.

CAPD and Autism

While research consistently shows that CAPD commonly co-exists with autism, it remains widely overlooked. Many pediatricians, neuropsychologists, audiologists and other professionals are often unfamiliar with CAPD and do not screen for it.

A research study published by Dr. Eric Hazen and colleagues in 2014 found that abnormal responses to sensory stimuli, including auditory stimuli, occur at high rates in individuals with autism. In addition, Dr. Emre Ocak and colleagues found in a 2018 study that most children with autism have some degree of sensory dysfunction, and that central auditory processing difficulties may be among the most severely affected areas in the autism population. In fact, research has shown that CAPD has long been underestimated in the autism population and that greater focus on its presence and impact is long overdue.



Signs That an Evaluation May Be Warranted

When it comes to central auditory processing disorder, early diagnosis and support are important. The presence of any of the following challenges may be a sign that a formal CAPD evaluation is in order.

SOUND FEELS OVERWHELMING

One of the most commonly reported experiences in children with both autism and CAPD is sensitivity to sound, both loud and soft, along with difficulty filtering out competing background noise. Noisy places are often more overwhelming and exhausting, even fun settings such as birthday parties and family holidays. This sensitivity is often attributed solely to autism, but sound sensitivity in many children is better explained by CAPD. Recognizing the distinction matters for accessing the appropriate support.

MISHEARING

Children with CAPD frequently mishear what is being said. This can lead to miscommunication, frustration and the appearance of noncompliance. Words and phrases like "Huh", "What", "I forgot" and "You never said that!" are common indicators that a child has misinterpreted, or entirely missed, auditory information.

DIFFICULTY FOLLOWING MULTI-STEP DIRECTIONS

When a child cannot understand auditory information efficiently, it becomes difficult to retain and follow a series of verbal instructions. Mishearing one or two words can also impact understanding.

PERSISTENT CLASSROOM DIFFICULTIES

Difficulty following verbal instructions or staying on task may indicate an underlying auditory processing challenge, not simply inattention or a lack of effort.

SOCIAL AND EMOTIONAL EXHAUSTION

Group settings and noisy environments can be exhausting for children with CAPD. When auditory input becomes overwhelming, children may shut down or act out, not out of defiance but out of auditory overload. They may also prefer one-on-one interactions to group situations.

ANXIETY IN AUDITORY ENVIRONMENTS

Anxiety, meltdowns and emotional outbursts can all be responses to the exhaustion and confusion created by auditory overload. Many children develop anxiety around situations that they know will be loud or unpredictable. Individuals who try to escape overwhelming auditory input in a school setting may resort to such common behaviors as frequent trips to the nurse's office, school avoidance or resistance to extracurricular activities.

BEHAVIORAL CONCERNS

Behavior is communication. When children appear noncompliant, it often means they didn't fully understand what was asked, or they have simply run out of capacity. The "Spoon Theory" explains what can happen when you live with CAPD and the auditory demands in your environment are greater than what your system can handle. When you "run out of spoons," you have no energy to keep listening and concentrating. It is not an indication of laziness or lack of effort.

DIFFICULTY WITH CHANGES IN ROUTINE

CAPD can make disruptions to routine feel especially upsetting. Structure and predictability reduce the load of an already demanding auditory environment, thus making routine a genuine source of comfort and not just a preference.

The Right Diagnosis Matters

An accurate diagnosis is crucial. Incorrect labels can prevent access to support, information, validation and understanding. Individuals with CAPD who are not properly identified may also face unfair or even unrealistic expectations. A formal diagnosis indicates that the child's struggles are due to an inefficient auditory system and are not behavioral or intentional in nature.

Audiologists often receive minimal training in CAPD during their formal education and do not test for it during a traditional hearing test. It is important to seek out an audiologist that has received additional education and training in this specialty. The sensitivity and specificity of the test battery also matter. Assessments that are easy to pass can give false negatives. This causes children with CAPD to be overlooked and, as a result, to not receive proper understanding and support. In addition, a false sense of security with screeners means they should be used with caution.

Some parents have incorrectly been told their child needs to be eight or nine years old in order to have an evaluation. In fact, children can be evaluated at four years of age, provided they meet certain testing requirements. Nonverbal individuals, as well as those with selective mutism, can also be tested for the disorder.

Treatment

Appropriate identification and management of CAPD are key to effective treatment. Able Kids Foundation recognizes five approaches to managing the disorder. These approaches are outlined below.

Compensatory Strategies

Such strategies include, but are not limited to, preferential seating, quiet test environments, utilizing sound-attenuating devices like headphones or earplugs for concentration, and auditory breaks.

Auditory Therapy

Therapies may take months or years to complete, but there is a lack of evidence that they improve the central auditory nervous system.

Low-gain Hearing Aids

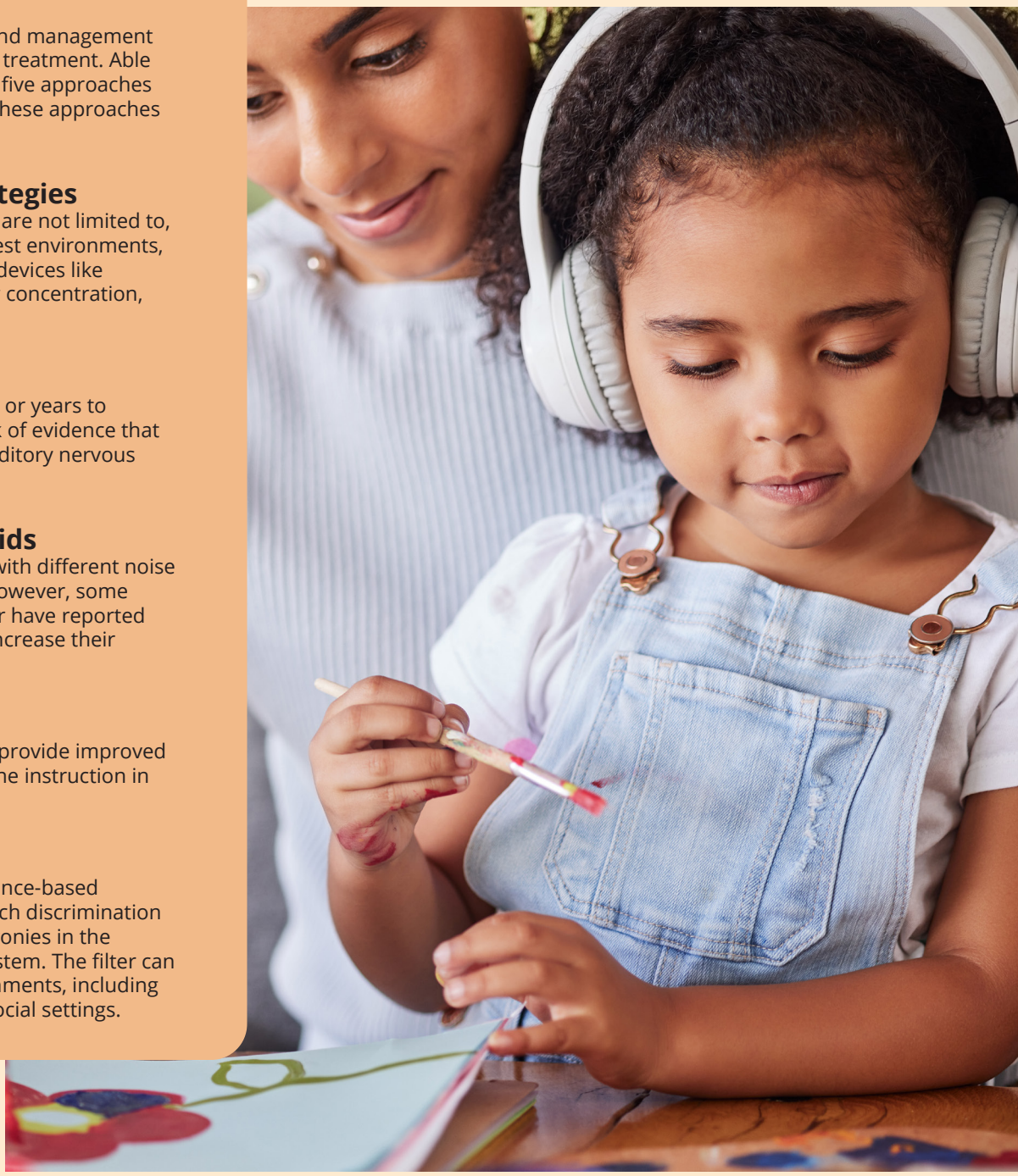
Hearing aids programmed with different noise algorithms are an option. However, some individuals with the disorder have reported that low-gain hearing aids increase their auditory overload.

FM Systems

FM systems for classrooms provide improved auditory input for one-on-one instruction in large lecture settings.

Passive Ear Filter

The passive filter is an evidence-based solution and improves speech discrimination by balancing timing asynchronies in the central auditory nervous system. The filter can be worn in different environments, including in one-on-one, group and social settings.



Conclusion

Central auditory processing disorder is common in the autism population, and there is signficant overlap in symptoms between the two conditions. You know your child better than anyone. If you feel something is being overlooked, it is always appropriate to advocate for a thorough CAPD evaluation. Those with auditory processing disorders are working harder simply to make sense of the sounds in their world. With an accurate diagnosis and the right support, individuals with CAPD can be better supported in their daily environments and experience greater confidence, connection and success.

References

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Megan E. Locke, Au.D., CCC/A

Dr. Megan Locke joined Able Kids Foundation in 2008 and currently serves as an audiologist and the Executive Director in Fort Collins, Colorado. She has devoted 19 of her 21 years in practice to the field of central auditory processing disorder (CAPD) and has evaluated over 3,000 individuals with this condition. Her passion for CAPD began at Central Michigan University where she received a Doctor of Audiology (Au.D.) degree. She has been an invited speaker at state, national, and international conferences as well as podcasts and webinars. Dr. Locke is accredited by the American Speech-Language-Hearing Association.

Hilary K. Wisdom, Au.D., F-AAA

Dr. Wisdom is experienced in all treatment options for CAPD. A native of Fort Collins, Dr. Wisdom returned home to focus on evidence based solutions for CAPD at Able Kids Foundation. Dr. Wisdom is a co-author on a recently published peer-reviewed article and presents at local and international conferences. Dr. Hilary Wisdom received her Doctor of Audiology (Au.D.) degree from Gallaudet University in Washington, D.C. which led her to University of North Carolina – Greensboro (UNC-G). Here she completed her residency year with a focus in CAPD and became certified in sound therapies. Dr. Wisdom is accredited by the American Board of Audiology (ABA) and a fellow of the American Academy of Audiology (AAA).

ABLE KIDS FOUNDATION

Founded in 2006, the Able Kids Foundation specializes in the diagnosis and management of central auditory processing disorder. Located in Fort Collins, Colorado, the Foundation's testing and management program has attracted individuals from 50 states and 32 countries ranging in age from 3 to 78 years old.

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