



**LEARNING
DISABILITIES**

VISUAL PERCEPTUAL/VISUAL MOTOR DEFICIT

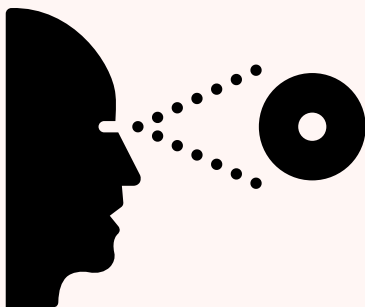
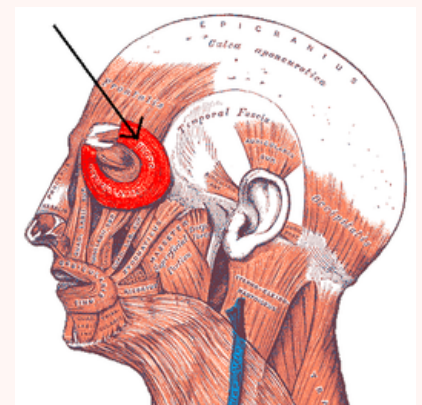
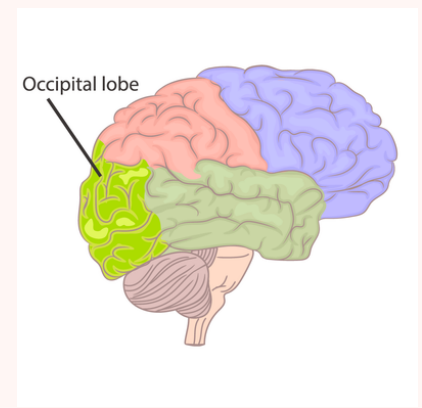
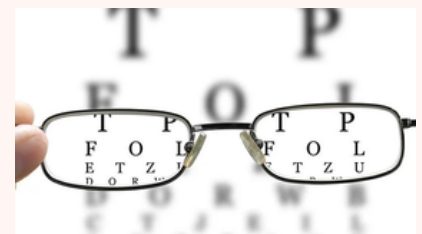
Youlan Li

Introduction:

Visual perceptual/motor deficits refer to an individual's capacity to comprehend and interpret visual information, resulting in challenges when it comes to reading, drawing, and copying, and can contribute to a diminished attention span. These challenges are frequently observed in children with dysgraphia (affecting their writing ability), nonverbal learning disorders, and specific visual impairments. This deficit significantly impacts an individual's visual ability and communication, which plays several key roles when connecting and communicating in interesting and efficient ways and strengthening the memory's connection to the information. This article will discuss the causes, effects, and strategies for addressing these deficit issues.

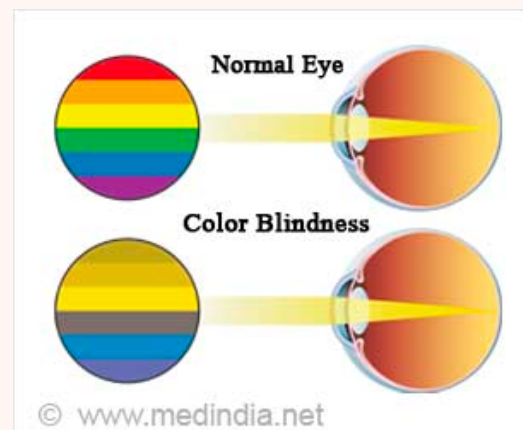
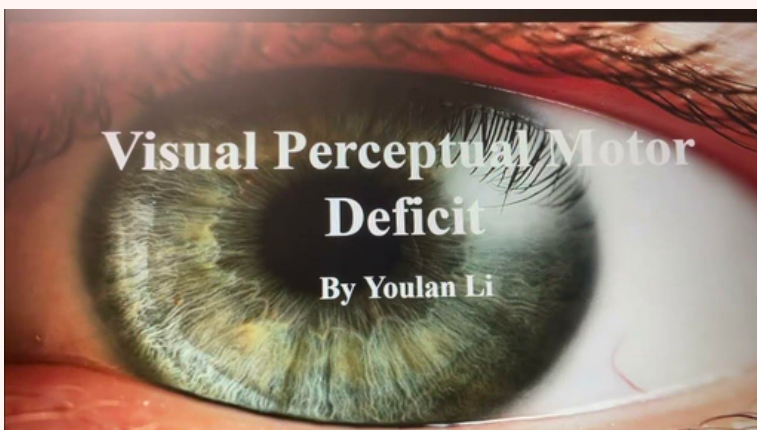
Causes, Types, and Impact of Visual Perceptual Deficit on Daily Lives:

Unlike the literary meaning of "Visual Perceptual Deficits," which means the individuals are unable to see at all, their problem lies in the brain's interpretation and processing of visual data. While some individuals have congenital visual perceptual deficits, others acquire them due to traumatic brain injuries (TBIs). However, this doesn't suggest that all TBI patients will necessarily develop visual perceptual deficits, it's more of a common occurrence. It's important to note that the location of the damaged area from TBI played a pivotal role in determining the occurrence of visual perceptual deficits. For instance, if the damaged area from traumatic brain injury is the occipital lobe which is at the back of the brain and mainly controls the vision system, then visual perceptual deficits are more likely to occur.



Vision relies not only on having 20/20 eyesight but also on the coordinated function of the six ocular muscles that control eye movement, enabling us to see clearly and engage with our surroundings. When these muscles cannot synchronize effectively, individuals may find it challenging to comprehend and interact with their environment, as their eyes struggle with basic motor functions.

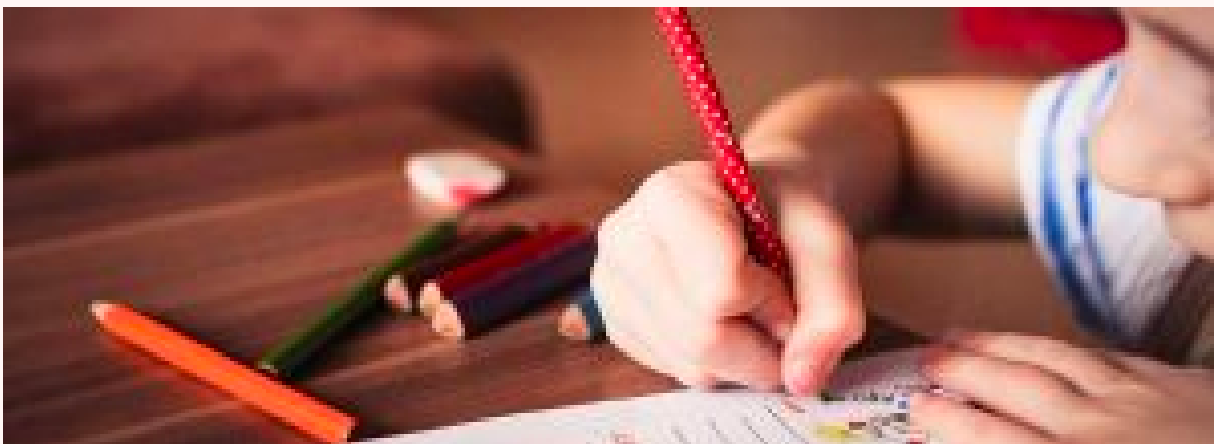
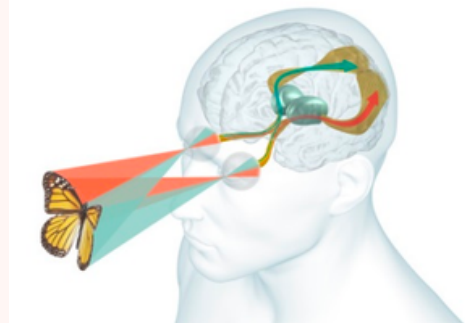
In addition, there are various key elements for a complete visual perception ranging from color perception, form constancy, depth perception, motion perception, and more. In consequence, there are different types of visual perceptual impairments due to various elements. The first one to introduce is color perception and people may experience color blindness only for certain colors. For example, they may surprisingly discover that their vision in shades of gray, or color looks less bright as before, which could make their lives harder due to similar shades. The second one is figure-ground perception, which is the ability to differentiate an object from its surroundings and background. People suffering from impairments of this element have difficulties in filtering out irrelevant surrounding items from the focused object. The last element of impairment to discuss is depth perception, which refers to the capacity to visually assess an object's distance by considering the spatial relationships between it and other objects. As a result, people could struggle with walking up and down stairs and stepping onto escalators.



Causes and Impact of Visual Motor Deficit on Daily Lives:

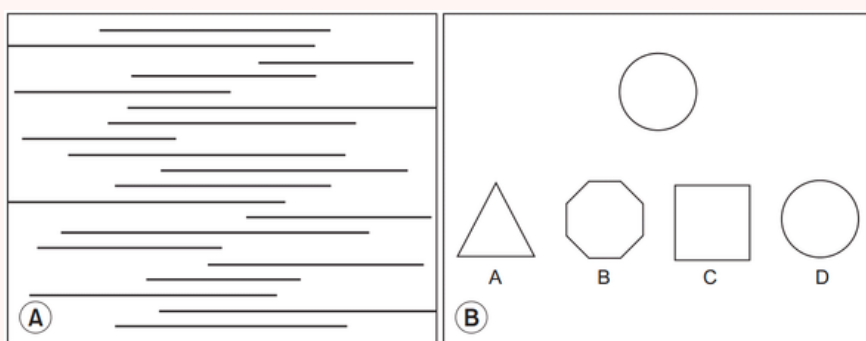
visual motor deficits pertain to the struggle to coordinate visual perception with motor skills (physical movements). Consequently, children may face hurdles in activities that necessitate seamless coordination between their eyes and hands, such as writing, drawing, or catching a ball. This challenge arises from an interruption in the fusion of the visual and motor systems, impacting the precision and fluidity of actions dependent on visual guidance. The visual motor deficit is closely associated with the visual perceptual deficit since visual perceptual impairments are linked to motor skills and physical performance. An example is motion perception, which refers to the ability to accurately assess motion and velocity. As a consequence, some tasks that people may suffer are knowing how fast to walk, judging the speed of ongoing traffic, playing sports, pouring drinks, and driving. Moreover, spatial awareness is also a big part of the overall visual perception. Individuals who lack spatial awareness struggle with judging the orientation, shape, and size of objects within their surroundings. They might underestimate the distance to an object, leading to misjudgments, or they could accidentally collide with items they perceive as farther away than they are.

The dysfunction of visual perception could provide wrong signals when people are reacting to certain visual perceptual signs, which makes tasks that require precise coordination, speed, and accuracy more challenging and potentially increases the risk of accidents or errors.



Assessment and Diagnosis:

One of the frequently employed assessments for visual perceptual motor issues by occupational therapists is the Motor Free Visual Perception Test (MVPT-4). Developed by Colarusso and Hammill in 2015, it's the sole evaluation designed to examine motor-free perceptual challenges across all age groups, spanning from 4 to 80 and beyond. Many healthcare professionals, including occupational therapists, rely on the MVPT-4 to both diagnose and eliminate potential visual perceptual limitations, as well as to direct intervention strategies.



Therapeutic Methods and Interventions:

There are a couple of tools that can be used to make people with visual perceptual motor deficits better. Firstly, by recovering, maintaining, or cultivating meaningful activities (occupations), a healthcare discipline called occupational therapy (OT) focuses on evaluating and intervening to support individuals or groups. For individuals with visual perceptual limitations, OT employs diverse techniques, including adaptive strategies such as pre-reading tactics and scanning, to amplify reading proficiency. What's more, an occupational therapist could aid the individual with managing and organizing daily life, work, and other basic activities, while at the same time, practicing those skills are also vital. The second therapeutic activity is figure-ground perception activities. Since this disorder more commonly occurs in childhood, the kids may have difficulties finding information on the blackboards. The caregiver of this activity organizes some simple activities such as finding laundry, sorting pasta or cereal, and matching cards by mixing several cards. Besides pediatric care and vision therapy, other assistive technologies could help in getting better with this disorder.

Conclusion:

In conclusion, visual perceptual motor deficits affect people's ability to comprehend and interpret visual information, thus having an impact on common daily life performances such as writing and driving. Recognizing and addressing these challenges, often through the support of healthcare professionals like occupational therapists, empowers individuals to enhance their quality of life and overcome these hurdles. With appropriate assessment, therapy, and assistive technologies, those with visual perceptual motor deficits can achieve greater independence and a more fulfilling daily experience.



References

Chamberlain, M. (2022, July 13). Visual Perception: What It Is and How to Test For It. OT Flourish. Retrieved October 11, 2023, from

<https://otflourish.com/visual-perception-what-it-is-and-how-to-test-for-it/>

Ezell, D. (n.d.). How To Use Visual Communication and Why It Matters.

TechSmith. Retrieved October 11, 2023, from

<https://www.techsmith.com/blog/why-visual-communication-matters/>

Visual Perceptual Motor Deficit. (n.d.). Integrated Learning Academy. Retrieved

October 11, 2023, from <https://integratedlearningacademy.com/visual-perceptual-motor-deficit/>

Visual Perceptual & Motor Deficit – Special Educational Needs | Whytecliff. (n.d.).

Whytecliff Agile Learning. Retrieved October 11, 2023, from

<https://www.walc.ca/visual-perceptual-visual-motor-deficit/>

Visual Processing Explained: Figure-Ground Perception. (n.d.). Brain Balance.

Retrieved October 11, 2023, from

<https://www.brainbalancecenters.com/blog/visual-processing-explained-visual-figure-ground-perception>

What are Visual Perceptual Deficits? | Processing Disorder. (n.d.). Bernstein

Center Visual Performance. Retrieved October 11, 2023, from

<https://www.bernsteincenterforvisualperformance.com/blog/what-are-visual-perceptual-deficits.html>



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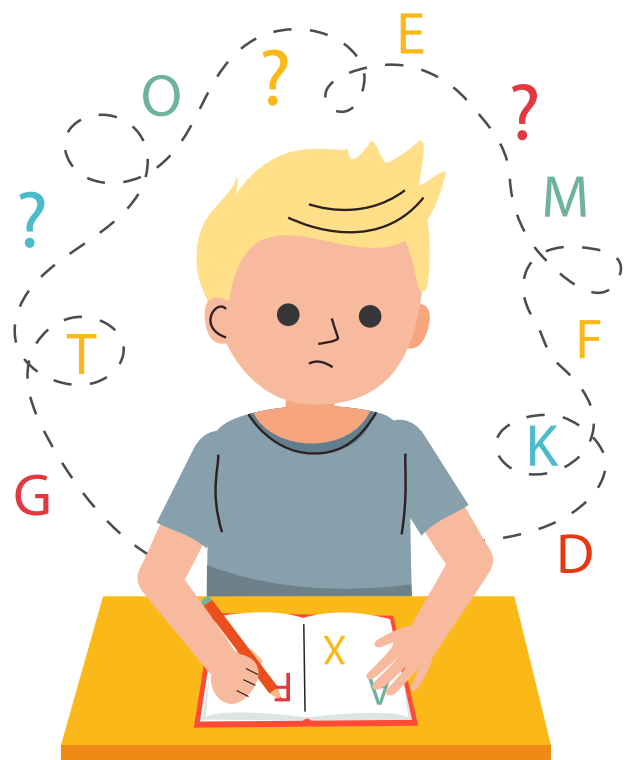


Introduction of Dysgraphia

Author: Kelsey Cheng

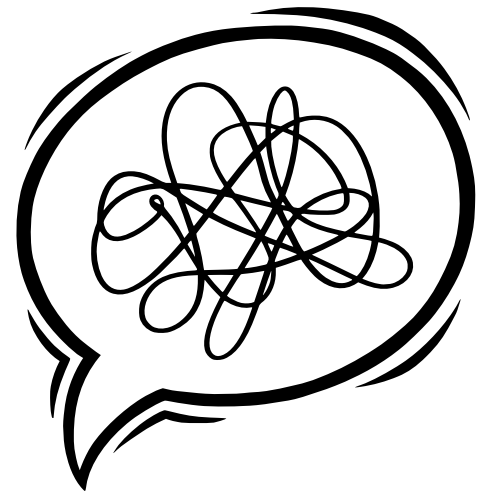
What is dysgraphia?

Many people often misunderstand Dysgraphia. For instance, in school, one might notice a classmate who writes in a peculiar manner, making it challenging to teach them. At this point, what might come to mind? Do you think they aren't putting in enough effort or not paying attention, or are their cognitive abilities inferior to others? In reality, none of these assumptions are accurate. It is likely that they were born with dysgraphia, a condition we need to pay attention to and understand. So, what exactly is dysgraphia? Dysgraphia is a developmental disorder that impacts an individual's ability to write. It is also known as "cerebral motor disorder," "handwriting difficulty," or "developmental book disorder." Importantly, dysgraphia is not the result of a physical defect, mental impairment, or severe visual or hearing impairment. Instead, it is linked to developmental issues in the nervous system that are responsible for coordinating cellular activity in an individual's brain. Dysgraphia usually becomes evident during childhood. In contrast to dyslexia, children with dysgraphia can read and understand text normally and can pronounce words correctly. Nevertheless, they frequently struggle with using the appropriate letters or strokes, organizing letters or strokes systematically, and producing legible handwriting. Additionally, they often find it challenging to achieve a normal writing speed. To be more specific, dysgraphia can be classified into two types:



Non-aphasia dysgraphia: Typically associated with movement disorders like ataxia, myotonia, chorea, and others. Lesions in the right hemisphere of the brain can lead to visual-spatial dysgraphia and non-aphasia dysgraphia, characterized by accurate strokes but incorrect sequencing. Some individuals with right hemiplegia may exhibit mirror writing when using their left hand. They write the words correctly but in the opposite direction, a phenomenon that may be related to visual spatial issues. Moreover, individuals with right hemiplegia who write with their left hand may produce untidy strokes or sloppy handwriting.

Aphasia acryptasia: This category encompasses word formation disorders and semantic grammar disorders. Individuals with word formation disorders write words that resemble Chinese characters but add or omit strokes, resulting in completely incorrect strokes. Numerous semantic and grammatical barriers lead to misnaming or grammatical errors in written sentences. Dysgraphia is connected to hand-eye coordination, spatial perception, and the ability to control fine motor movements. Furthermore, dysgraphia can negatively impact an individual's learning ability, academic performance, and social interactions.



Why do some people experience dysgraphia?

There are numerous factors that contribute to dysgraphia. Initially, dysgraphia can be hereditary, with approximately half of those affected sharing the condition with a close relative. Therefore, when there is a family member with dysgraphia, it is crucial to be vigilant regarding newborns. Secondly, neurodevelopmental issues can play a role. Some children experience problems with brain development, such as abnormal development of the cerebral cortex or prefrontal lobe, which affects hand-eye coordination and fine motor control. These issues can also impact skills like spatial perception and memory, making it difficult for children to accurately translate their thoughts into writing. Thirdly, other specific learning disabilities, such as dyslexia, can increase the risk of writing difficulties. Fourthly, psychological factors have an impact. Emotional issues like anxiety, low self-esteem, and negative emotional experiences can hinder writing abilities, making individuals anxious and nervous during the writing process. Lastly, cultural factors are significant, particularly when individuals are learning a second language. Different writing systems used in various languages and cultural environments can lead to additional dysgraphia among non-native speakers.



How can dysgraphia be addressed?

In dealing with dysgraphia, there are several essential steps. Firstly, it is crucial to understand and support individuals with dysgraphia when we encounter them. It is important to remember that dysgraphia does not indicate physical frailty or low intelligence. It is necessary to be as patient as possible, offering encouragement to make them feel supported and gradually build their confidence. If possible, raising awareness about this condition in society is also valuable, ensuring that more people are informed about it. Coordination with other social organizations can provide care and support to individuals with dysgraphia. For individuals grappling with dysgraphia, maintaining a positive attitude is crucial. If dysgraphia significantly impacts learning and daily life, it is essential not to hesitate to seek professional help from psychologists or education experts. Additionally, using assistive tools like voice input functions on mobile phones and computers can be beneficial. Taking writing classes to learn proper writing techniques and postures, gaining confidence through encouragement, and improving writing skills through practice are all valuable approaches. Exploring other forms of expression, such as oral communication, can also be beneficial. If dysgraphia leads to depression, seeking help and accepting guidance from family, friends, psychologists, and other professionals is essential, with an optimistic attitude being key to facing dysgraphia. Finally, in cases of severe dysgraphia, medication can be considered:

Stimulants: For example, methamphetamine (bupropion hydrochloride) is widely used to treat attention deficit hyperactivity disorder (ADHD). If an individual has ADHD along with dysgraphia, bupropion hydrochloride may improve attention and concentration, subsequently enhancing writing and handwriting skills.

Antidepressants: Certain antidepressants, such as Sertraline (Selective Serotonin Reuptake Inhibitors, SSRIs), are believed to alleviate anxiety and depression, helping to reduce stress and tension that may occur during writing.

Brain-active drugs: Some individuals with severe dysgraphia may find drugs like clonazepam and phenobarbital somewhat effective. However, these drugs are generally reserved for exceptional cases and should only be used under the supervision of a physician.



Work Cited

Dysgraphia: Symptoms, Causes, Treatment, Management (healthline.com)
Types of Dysgraphia - Symptoms and How to Help - Your Therapy Source
Dysgraphia: Symptoms, Causes, and Treatment / Psych Central
Dysgraphia: What it is, types, symptoms, testing, and more (medicalnewstoday.com)
Dysgraphia / Psychology Today

Auditory Processing Disorder

By Youlan Li



Introduction

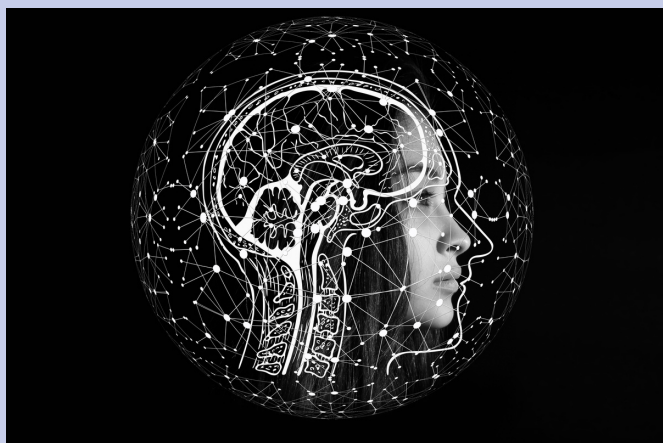
Auditory processing disorder (APD), also known as central auditory processing disorder (CAPD), impacts approximately 3% to 5% of school-aged children. Children with APD experience difficulties in comprehending auditory information in a manner distinct from their peers due to a lack of full coordination between their ears and brains. This interference affects the brain's ability to recognize and interpret sounds, particularly speech. By employing effective strategies, children affected by APD can achieve success both academically and in their overall lives. Timely identification of this condition is of paramount importance. Falling to diagnose and address APD in its early stages places a child at risk of encountering difficulties related to listening and learning, both at home and in the education environment.

Before diving into the details of APD, let's take a look at the auditory system. There are 2 parts in the auditory system: the peripheral and central auditory systems. A child may encounter hearing issues if the problem lies within the peripheral auditory system (outer, middle, inner ear), whereas challenges in understanding what they hear may arise when the problem is located within the central auditory system, involving the auditory pathway to the brain. In the case of APD, the problem is primarily understanding the speech.

Symptoms, Causes, and Types of Auditory Processing Disorder

APD has the potential to influence children's speech and impact their reading, writing, and spelling skills. They may exhibit challenges such as dropping word endings or confusing similar sounds. Furthermore, it may pose difficulties for them in engaging in conversations with others. They might experience trouble processing incoming information from others and responding promptly. Other common symptoms include a hard time following conversations, struggling to know where a sound came from, having difficulties listening to music, and remembering spoken instructions, especially those that have multiple steps. It's crucial to note that it's quite common to occasionally notice one or two warning signs of APD in the child. However, if the parent observes a persistent and prolonged pattern of these signs, it's advisable to seek an evaluation and diagnosis test by a pediatric audiologist.





Even though doctors and researchers may not have a clear idea of the exact causes of APD, some studies suggest that APD might be linked to a couple of factors. The first link is illness, as APD can develop after prolonged ear infections, meningitis, or exposure to lead poisoning. Additionally, individuals with nervous system disorders like multiple sclerosis may also experience the onset of APD. Other factors include premature birth or low weight, head injury, and genes since APD may run in families, which has some hereditary connections.

Usually, after the diagnosis of APD, determining the types of auditory processing disorders would be helpful for audiologists to have an effective and potentially successful strategy for the management and treatment of APD. There are some common terms to hear when discussing the child's APD with the audiologist, such as auditory discrimination, auditory figure-ground discrimination, auditory memory, and auditory sequencing. Auditory discrimination refers to the ability to detect, contrast, and differentiate individual and discrete sounds within words, a critical skill essential for reading. Similar to visual figure-ground discrimination, auditory figure-ground discrimination is the ability to pick out specific or certain sounds or words from a noisy background such as a crowd. Auditory memory can be further classified into long-term and short-term auditory memory. Long-term auditory memory pertains to the capacity to recollect auditory information encountered in the past, while short-term auditory memory involves the retrieval of recently heard information. Auditory sequencing, on the other hand, relates to the aptitude to comprehend and recall the order of spoken words.

Diagnosis, and Treatment of Auditory Processing Disorder

APD is relatively difficult to diagnose due to its overlapping symptoms and signs that other disorders may mimic. Not only APD, but other issues can limit children's ability to focus, understand, and recall. For instance, it commonly coexists and interacts with other disorders such as ADHD. However, there's one way to diagnose more accurately. As mentioned previously in the types of APD, pediatric audiologists are the only people who can diagnose APD, which involves some specific examinations and listening tests that will determine children's levels of affected abilities such as auditory figure-ground, auditory closure, dichotic listening, temporal processing, and binaural interaction. The majority of traditional APD assessments require a child to be a minimum of 7 years old. As a result, many children may not receive a diagnosis until they reach the first grade or later. However, modern electrophysiology tests, utilizing noninvasive electrodes to assess the body's response to speech, can offer preliminary insights into the state of the central auditory system in children under the age of 7.

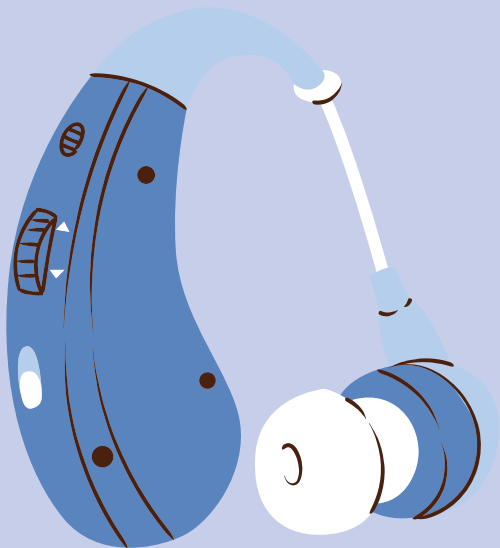


While there's no cure for APD, several supportive measures can make a significant difference. Typically, treatment focuses on enhancing listening skills and concentration through auditory training. This training can be conducted with a hearing specialist or independently online. In some cases, especially for schoolchildren with APD, strategies like wearing a wireless earpiece, connected to a small microphone worn by their teacher, can help reduce background noise.



Conclusion

To sum up, auditory processing disorder affects people's (usually children) ability to understand sounds, including spoken words. While APD presents unique challenges, it's essential to recognize that early identification and diagnosis are crucial. Audiologists employ specialized listening tests to highlight areas of concern, and with the advent of electrophysiology tests, insights into the central auditory system can be gained even before the age of seven. Although APD is not curable, effective strategies such as auditory training can significantly improve listening skills, offering hope and more support to individuals experiencing this condition.



References

Auditory processing disorder (APD). (n.d.). NHS. Retrieved October 28, 2023, from <https://www.nhs.uk/conditions/auditory-processing-disorder/>

Brand, C. (2022, March 24). Part 1 - Auditory Processing Disorder: What Every Parent Needs to Know. Sertoma Speech & Hearing Centers. Retrieved October 28, 2023, from <https://www.sertomacenter.org/blog/?id=part-1-auditory-processing-disorder>

Melinosky, C. (2023, May 12). Auditory Processing Disorder: Symptoms, Cause, and Treatment. WebMD. Retrieved October 28, 2023, from <https://www.webmd.com/brain/auditory-processing-disorder>

Riegner, T. L., & Inverso, D. (n.d.). Auditory Processing Disorder (for Parents) - Nemours KidsHealth. Kids Health. Retrieved October 28, 2023, from <https://kidshealth.org/en/parents/central-auditory.html>

