



Understanding the Differences Between Auditory Processing, Speech and Language Disorders, and Reading Disorders

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INTRODUCTION

This document has been prepared to provide an overview of the differences among auditory processing disorders, communication disorders, and reading disorders to clarify the need for accommodations for students with communication and processing disorders. The document is organized by definition of the disorder, treatment options, and accommodations, followed by results of a study that differentiates between reading and language disorders.

A 2011 Government Accountability Office (GAO) study recommended that the Department of Justice develop a systematic approach to ensuring that all eligible students receive accommodations. GAO further recommended that the decision to allow for accommodations be based on the individual's history and the recommendations of teachers and service providers and not on a single measure of performance.

This document includes study highlights, a link to the full study, and specific examples of the impact that lack of accommodations has on individual student performance.

STUDENT ELIGIBILITY FOR SPECIAL EDUCATION

Students are sometimes determined to be eligible for services based solely on their communication disorders. Once identified as eligible, these students have access to all necessary services and supports. Because they receive such supports and services, additional testing may not be performed and a subsequent reading disorder may not be

revealed. Although not all students diagnosed with a communication disorder will develop a reading disorder, some may require accommodations to enable them to benefit from their education.

RECOMMENDATIONS

Based on the results of the GAO study, the impact on student performance for those students denied accommodations, and the differentiation between the needs of students with communication disorders and those with reading disorders, ASHA recommends that decisions about the need for accommodations be made by reviewing the student's history, the accommodations that have been provided to the student throughout his or her school years, and the recommendations of the student's educational team. As noted above, no single criterion should be used to determine eligibility for testing accommodations, and rules for accommodations should be applied consistently across disability categories.

DEFINITIONS

Auditory Processing Disorder

Auditory processing disorders (APD) are deficits in the information processing of audible signals not attributed to impaired peripheral hearing sensitivity or intellectual impairment. This information processing involves perceptual, cognitive, and linguistic functions that, with appropriate interaction, result in effective receptive communication of auditorily presented stimuli. Specifically, APD refers to limitations in the ongoing transmission, analysis, organization, transformation, elaboration, storage, retrieval, and use of information contained in audible

signals. APD may involve the listener's active and passive (e.g., conscious and unconscious, mediated and unmediated, controlled and automatic) ability to do the following: attend, discriminate, and identify acoustic signals; transform and continuously transmit information through both the peripheral and central nervous systems; filter, sort, and combine information at appropriate perceptual and conceptual levels; store and retrieve information efficiently; restore, organize, and use retrieved information; segment and decode acoustic stimuli using phonological, semantic, syntactic, and pragmatic knowledge; and attach meaning to a stream of acoustic signals through use of linguistic and nonlinguistic contexts.

Children with APD may exhibit a variety of listening and related complaints. They may have difficulty understanding speech in noisy environments, following directions, and discriminating (or telling the difference between) similar-sounding speech sounds. Sometimes they may behave as if a hearing loss is present, often asking for repetition or clarification. In school, children with APD may have difficulty with spelling, reading, and understanding information presented verbally in the classroom. Often their performance in classes that don't rely heavily on listening is much better, and they typically are able to complete a task independently once they know what is expected of them. APD may co-exist with attention deficit hyperactivity disorder (ADHD) or other disorders.

A multidisciplinary team approach is critical to fully assess and understand the cluster of problems exhibited by children with APD, but the actual diagnosis of APD is made by an audiologist, who administers a series of tests in a sound-treated room. These tests require listeners to attend to a variety of signals and to respond to them via repetition,

pushing a button, or in some other way. Other tests that measure the auditory system's physiologic responses to sound may also be administered. Most of the tests for APD require that a child be at least 7 or 8 years of age, because the variability in brain function is so marked in younger children that test interpretation may not be possible.

Key Points:

- APD is an auditory disorder that is not the result of higher-order, more global deficit, such as autism, mental retardation, attention deficits, or similar impairments.
- Not all learning, language, and communication deficits are due to APD.
- No matter how many symptoms of APD a child has, only careful and accurate diagnosis can determine if APD is, indeed, present.
- Although a multidisciplinary team approach is important in fully understanding the cluster of problems associated with APD, the diagnosis of APD can only be made by an audiologist.
- Treatment of APD is highly individualized. There is no one treatment approach that is appropriate for all children with APD.

Treatment

Treatment of APD generally focuses on three primary areas: changing the learning or communication environment, recruiting higher-order skills to help compensate for the disorder, and remediation of the auditory deficit itself. The primary purpose of environmental modifications is to improve access to auditorily presented information. Suggestions may include use of electronic

devices that assist listening, teacher-oriented suggestions to improve delivery of information, and other methods of altering the learning environment so that the child with APD can focus his or her attention on the message.

Accommodations

Environmental modifications include both bottom-up (e.g., enhancement of the signal and listening environment) and top-down (e.g., classroom, instructional, workplace, recreational, and home accommodations) management approaches designed to improve access to information presented in the classroom, at work, or in other communicative settings. Environmental accommodations to enhance the listening environment may include but are not limited to preferential seating for the individual with APD to improve access to the acoustic (and the visual) signal; use of visual aids; reduction of competing signals and reverberation time; use of assistive listening systems; and advising speakers to speak more slowly, pause more often, and emphasize key words. Specific suggestions may include support for focused listening (e.g., use of note takers, preview questions, organizers), redundancy (e.g., multisensory instruction, computer mediation), and use of written output (e.g., e-mail, mind maps)

There is no one treatment approach that is appropriate for all children with APD. The type, frequency, and intensity of therapy, like all aspects of APD intervention, should be highly individualized and programmed for the specific type of auditory disorder that is present.

For more information see:

www.asha.org/public/hearing/Understanding-Auditory-Processing-Disorders-in-Children/; and www.asha.org/policy/TR2005-00043.htm#sec1.6.

SPEECH AND LANGUAGE/ COMMUNICATION DISORDERS

Definitions

Receptive/Expressive Language Disorder

A *communication disorder* is an impairment in the ability to receive, send, process, and comprehend concepts or verbal, nonverbal, and graphic symbol systems. A communication disorder may be evident in the processes of hearing, language, and/or speech. A communication disorder may range in severity from mild to profound. It may be developmental or acquired.

Individuals may demonstrate one or any combination of communication disorders. A communication disorder may result in a primary disability, or it may be secondary to other disabilities.

- A *speech disorder* is an impairment of the articulation of speech sounds, fluency, and/or voice.
- An *articulation disorder* is the atypical production of speech sounds, characterized by substitutions, omissions, additions, or distortions that may interfere with intelligibility.
- A *fluency disorder* is an interruption in the flow of speaking characterized by atypical rate, rhythm, and repetitions in sounds, syllables, words, and phrases. This may be accompanied by excessive tension, struggle behavior, and secondary mannerisms.
- A *voice disorder* is characterized by the abnormal production and/or absences of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex.
- A *language disorder* is impaired comprehension and/or use of spoken, written, and/or other symbol systems. The disorder may involve (1) the

form of language (phonology, morphology, syntax), (2) the content of language (semantics), and/or (3) the function of language in communication (pragmatics) in any combination.

Form of Language

- *Phonology* is the sound system of a language and the rules that govern the sound combinations.
- *Morphology* is the system that governs the structure of words and the construction of word forms.
- *Syntax* is the system governing the order and combination of words to form sentences and the relationships among the elements within a sentence.

Content of Language

- *Semantics* is the system that governs the meanings of words and sentences.

Function of Language

- *Pragmatics* is the system that combines the above language components in functional and socially appropriate communication.

Communication Variations

- *Communication difference/dialect* is a variation of a symbol system used by a group of individuals that reflects and is determined by shared regional, social, or cultural/ethnic factors. A regional, social, or cultural/ethnic variation of a symbol system should not be considered a disorder of speech or language.

Treatment

Speech Sound Disorders

Treatment for speech sound disorders may focus on articulation production or

phonological/language-based intervention. Most treatment approaches focus on three phases: establishing target behaviors, generalization or carryover of sound production, and maintenance that involves stabilization of target behaviors and self-correction of errors. Further information on treatment for sound production disorders can be found on ASHA's Practice Portal at www.asha.org/PRPSpecificTopic.aspx?folderid=8589935321§ion=Treatment.

Language Disorders

The objective of language treatment is to increase the frequency and quality of language to age-appropriate levels. Speech-language pathologists play a critical and direct role in helping children with language disorders learn to speak, listen, read and write.

Treatment for young children may involve improving intelligibility, increasing phonological awareness, increasing vocabulary and social communication skills, and building emergent literacy skills.

The focus of language intervention for elementary school children with language difficulties is to help the child acquire the language skills needed to learn and succeed in a classroom environment. Interventions are curriculum based, so that goals address language needs within the context of the curriculum.

Interventions may also address literacy skills (e.g., improving decoding, reading comprehension, and narrative and expository writing), as well as metacognitive and metalinguistic skills (e.g., increasing awareness of rules and principles for use of various language forms, improving the ability to self-monitor and self-regulate) that are critical for the development of higher-level language skills.

Interventions for older students (adolescents) tend to focus on teaching ways to compensate for language deficits. Student involvement is important at this age to foster a feeling of collaboration and responsibility for developing and achieving intervention goals and to enable the student to learn self-advocacy skills for the classroom. Instructional strategies focus on teaching rules, techniques, and principles to facilitate acquisition and use of information across a broad range of situations and settings. Classroom assignments are often used to teach strategies for learning academic content.

Difficulties experienced by children and adolescents with language impairment can continue to impact functioning in post-secondary education and vocational settings. When compared with typically developing peers, fewer individuals with language impairment complete high school or receive an undergraduate degree (Johnson, Beitchman, & Brownlie, 2010). The data on educational and vocational outcomes for individuals with speech and language disorders highlight the need for continued support to facilitate a successful transition to young adulthood. A formal transition plan should be developed in high school and include career goals and educational needs, academic counseling (including discussion of requirements for admission to post-secondary schools), career counseling, opportunities to gain work experience, and community networking.

Goals for successful transitioning to post-secondary school or employment may include preparing a resume, completing a job or college application, effectively presenting skills and limitations during an interview, expressing concerns to authority figures about academic or job performance, and stating or restating a position to effectively

self-advocate in academic and employment settings.

Accommodations

Secondary school personnel can assist students with language disorders through the transition process by providing current documentation needed to access services (e.g., testing and academic accommodations in a post-secondary setting) and helping students identify and advocate for supports, accommodations, and assistive technologies as needed.

Individualized support for college-level students may include accommodations, such as extended time for tests and the use of assistive technology (e.g., to help with reading and writing tasks). Further information on treatment for expressive (spoken) language disorders can be found on ASHA's Practice Portal at www.asha.org/Practice-Portal/Clinical-Topics/Spoken-Language-Disorders/. Additional definitions of communication disorders can be accessed at www.asha.org/policy/RP1993-00208.htm.

READING DISORDER

Definitions

A *reading disorder* is a learning disorder that involves significant impairment of reading accuracy, speed, or comprehension to the extent that the impairment interferes with academic achievement or activities of daily life. People with reading disorders perform reading tasks well below the levels one would expect on the basis of their general intelligence, educational opportunities, and physical health. Reading disorders are most commonly called *dyslexia*. Dyslexia usually includes deficits in spelling and writing as well as reading.

A *reading disorder* is a learning disorder characterized by a significant disparity between an individual's general intelligence and his or her reading skills. *Learning disorders*, formerly called *academic skills disorders*, are disorders that account for difficulty learning and poor academic performance when low performance cannot be attributed to mental retardation, low intelligence, lack of learning opportunities, or such specific physical problems as vision or hearing deficits. Common learning disabilities include reading disorder (often called *dyslexia*), mathematics disorder, disorder of written expression, and some language processing disorders.

A reading disorder can cause severe problems in reading, and consequently in academic work, even in people with normal intelligence, educational opportunities, motivation to learn to read, and emotional self-control. *Reading disorder* is different from *slowness in learning* or *mental retardation*. In a reading disorder, there is a significant gap between the expected level of performance and actual achievement. Difficulties in reading can occur on many levels and a reading disorder may have several causes that manifest in different ways.

Common problems in people with a reading disorder include:

- slow reading speed,
- poor comprehension when reading material either aloud or silently,
- omission of words while reading,
- reversal of words or letters while reading,
- difficulty decoding syllables or single words and associating them with specific sounds (phonics),
- limited sight word vocabulary.

90% of children diagnosed with a reading disorder have other language deficits (www.minddisorders.com/Py-Z/Reading-disorder.html).

DIFFERENTIATING READING AND LANGUAGE DISORDERS

In a study by Hugh Catts, University of Kansas, published in the *Journal of Speech and Hearing Research* (1993), kindergarten students with speech-language impairments were given a battery of speech-language tests and measures of phonological awareness and rapid naming. In second grade they were given a test to measure written word recognition and reading comprehension. Researchers found that children with semantic (language) impairments were at a higher risk for a reading disability than were those with articulation and phonological disorders. Not all children with speech-language impairments requiring speech-language pathology services developed a reading disorder. Standardized testing and other reliable measures of semantic language and phonological awareness can help predict which students with speech-language impairments will develop a reading disorder. <http://jslhr.pubs.asha.org/article.aspx?articleid=1779577>

RESULTS OF 2011 GAO STUDY

The GAO study (www.gao.gov/products/GAO-12-40) requested by Representatives George Miller (D-CA), Pete Stark (D-CA), and Cathy McMorris Rodgers (R-WA), examined the process that testing companies use to render decisions regarding testing accommodations for students with disabilities, and how federal agencies (including the Department of Justice) enforce compliance with relevant federal disability laws and regulations, including the ADA. In its report, GAO recommended that the Department of Justice

develop a systematic approach to ensuring that all eligible students receive appropriate accommodations. The agency further recommended that the decision to allow accommodation requests should be based on individual disability history rather than diagnostic testing or other single criterion.

In other words, testing companies should rely on the unique experiences of the individual and the recommendations of teachers, clinicians, and other providers. In the case of individuals with speech-language impairments, accommodation decisions should be based on the history of accommodations for test taking and other activities and recommendations of the individual's IEP team and not on the arbitrary criterion of whether or not the individual also presents with a reading disorder.

We urge the Department of Justice to require testing companies to be ADA compliant when assessing the accommodation needs of all students who require accommodations, including students with speech and language disorders absent a reading disorder.

SCENARIOS

Below are specific scenarios, written by speech-language pathologists whose clients with APD and language disorders needed continued accommodations.

Student AB had been denied ACT accommodations (twice), the first time 3 years prior. Following the denials, I had to submit the attached letters to request additional time, because ACT would not recognize the diagnosis of Speech Language Impairment as grounds for accommodations. For students with a diagnosis of Specific Learning Disabilities (SLD), I did not need to send additional information; the SLD diagnosis alone was sufficient justification. Following graduation, AB attended Hesston

College, a 2-year college of the Mennonite Church in Kansas. He ran cross country for the college and studied youth ministry. He graduated with his associate degree in May 2014 with a 2.27 GPA. While in college, he received test accommodations of a separate location and extended time for testing. AB will be attending Greenville College in Illinois this fall in order to obtain his bachelor's degree.

His areas of deficit are in expressive and receptive language. His language deficits cause him to process written and verbal information much more slowly than does a typically functioning student. Receptively, AB has to reread information multiple times in order to comprehend what is being expressed or what a question is asking. He will take longer to understand a story, a question stem, or answer choices. He will then take longer to make a decision and choose the best answer, because he has to reason through the information and the related words in order to make that choice. AB will take longer to complete the writing portion of the ACT. He will need to process the directions and the writing prompt. He will then need time to formulate and organize his written response. AB is slow and inaccurate due to his word-finding deficit and will take longer to select the appropriate words to include in his written responses. AB requires extended time on each test and give authorization over multiple days. He needs these accommodations due to his receptive and expressive language deficits.

Student A had to take the ACT without accommodations. She did not have a reading disorder but had a language disorder. Her disorder caused her to need additional time to gather meaning from the text, although she was a fluent reader. She had receptive language and language memory deficits but was competent in analyzing word (prefixes,

suffixes, root words) and context clues, including sentence structure and related words, to improve her comprehension. She needed to read and reread passages for understanding. The reading comprehension portion of standardized academic assessments, such as the Woodcock-Johnson, is not timed. A student may take the time to think through the passage, questions, and answer choices. Student A used her skills and time to formulate or choose correct answers. All of this analysis took extra time, which student A was not given on the ACT. She graduated in May 2014 from Northern Illinois University (NIU), where she was admitted through a special program called Chances. She had been denied regular admission due to her ACT scores (14 and 15); she took the test twice with no accommodations. Student A did extremely well at NIU academically and with her involvement on campus activities. She graduated from the university in 4 years with a 3.14 GPA.

Students with communication disorders may be good readers and processors of information, given sufficient time. These are individuals who must work hard to process and comprehend information.

CONTACT INFORMATION

For more information on practice related issues, contact Deborah Dixon, ASHA's director of school services, at 301 296-5690 or by e-mail at ddixon@asha.org, or Janet Deppe, ASHA's director of state advocacy, at 301-296-5668 or by e-mail at jdeppe@asha.org.

For advocacy related issues contact Catherine D. Clarke, ASHA's director of education and regulatory advocacy, at 202- 624-5953 or by e-mail at cclarke@asha.org.