

## Attention-Deficit/Hyperactivity Disorder (AD/HD) and Dyslexia

AD/HD and dyslexia are distinct conditions that frequently overlap, thereby causing some confusion about the nature of these two conditions. AD/HD is one of the most common developmental problems, affecting 3–5% of the school population. It is characterized by inattention, distractibility, hyperactivity and impulsivity. It is estimated that 30% of those with dyslexia have coexisting AD/HD. Coexisting means the two conditions, AD/HD and dyslexia, can occur together, but they do not cause each other. Dyslexia is a language-based learning disability characterized by difficulties with accurate and fluent word recognition, spelling, and reading decoding. People with dyslexia have problems discriminating sounds within a word or phonemes, a key factor in their reading and spelling difficulties. (See IDA fact sheets “Definition of Dyslexia” and “Dyslexia Basics.”)

### How are AD/HD and dyslexia diagnosed?

AD/HD and dyslexia are diagnosed differently. An evaluation for AD/HD is carried out by a physician or a psychologist. This evaluation should include the following:

1. complete medical and family history
2. physical examination
3. interviews with parents and child
4. behavior rating scales completed by parents and teachers
5. observation of the child
6. psychological tests to measure intellectual potential, social and emotional adjustment, as well as to assess for the presence of learning disabilities, such as dyslexia.

Although AD/HD has been given numerous names since it was first identified in 1902, the Diagnostic and Statistical Manual, 4<sup>th</sup> Edition

(DSM-IV) identified three primary subtypes. These subtypes are

1. *AD/HD predominantly inattentive type* is characterized by distractibility and difficulty sustaining mental effort and attention.
2. *AD/HD predominantly hyperactive-impulsive type* is characterized by fidgeting with hands and feet, squirming in one’s chair, acting as if driven by a motor, interrupting and intruding upon others.
3. *AD/HD combined type* meets both sets of inattention and hyperactive/impulsive criteria.

Dyslexia is diagnosed through a psycho-educational evaluation. (See IDA fact sheet: “Testing and Evaluation.”)

### Is AD/HD overdiagnosed?

The American Medical Association and the Centers for Disease Control and Prevention have concluded that AD/HD is not overdiagnosed; however, increased awareness has resulted in an increase in the number of individuals diagnosed with AD/HD. Girls and gifted children are actually underdiagnosed or may be diagnosed late. Girls often have *AD/HD predominantly inattentive type* where the essential feature is inattention. This subtype of AD/HD can easily be overlooked because the more obvious characteristics of hyperactivity and impulsivity are not present. Gifted children may be identified late because their strong intellectual abilities help them to compensate for these weaknesses in attention.

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### **Can individuals inherit AD/HD and dyslexia?**

Both AD/HD and dyslexia run in families. Genetics play a role in about half of the children diagnosed with AD/HD. For the other half, research has yet to identify a cause. Regarding dyslexia, about one third of the children born to a dyslexic parent will also likely be dyslexic.

### **Are there characteristics that individuals with AD/HD and dyslexia have in common?**

Dyslexic children and children with AD/HD have some similar characteristics. Dyslexic children, like children with AD/HD, may have difficulty paying attention because reading is so demanding that it causes them to fatigue easily, limiting the ability to sustain concentration. People with dyslexia and those with AD/HD both have difficulty with reading. The dyslexic person's reading is typically dysfluent, with major problems with accuracy, misreading both large and small words. The person with AD/HD may also be a dysfluent reader, but his or her reading is not characterized by misreading words. The AD/HD reader may skip over punctuation, leave off endings, and lose his or her place. The dysfluency of both the ADHD person and the dyslexic reader may negatively impact comprehension. Both may avoid reading and derive little pleasure from it. Both the person with dyslexia and the person with AD/HD typically have trouble with writing. The typical dyslexic writer has significant problems with spelling, grammar, proofreading, and organization. The AD/HD writer often has difficulty with organization and proofreading. Both the dyslexic writer and the AD/HD writer may have handwriting difficulties.

Individuals with dyslexia and AD/HD may be underachieving in school even though they are often bright and motivated. The goal for them, as it is for all children, is to meet their potential. It is critical that children with these disorders be

carefully evaluated because treatment for one disorder is different from the other. Inaccurate diagnosis can lead to inappropriate intervention and a delay in timely, effective intervention.

### **Have neurological studies shown functional and/or anatomical differences in the brains of people with AD/HD as compared to dyslexia?**

The scientific community has been attempting to define the exact changes in the human brain that lead to AD/HD and dyslexia. There have been pathologic studies of a few brains from people with dyslexia after they died. While some changes in the brain have been found between the brains of people with dyslexia and people who do not have dyslexia, no consistent pattern has emerged that allows the exact "dyslexic center" to be determined. More promising techniques have been developed, which can be performed in living persons. These include imaging studies, as well as physiologic studies. Once again, interesting leads have been found, but none has given us a definitive answer regarding the underlying mechanisms of these disorders. It should also be mentioned that these tests are research tools. There are currently no biologic tests routinely available that allow an objective diagnosis of dyslexia or AD/HD.

### **What is the outlook for children with dyslexia and AD/HD?**

If dyslexia and AD/HD are identified and treated early, children with these disorders are more likely to learn to overcome their difficulties while maintaining a positive self-image. Even though children with dyslexia do not outgrow their disability, they can learn to adapt and improve their weak skills. With proper remediation and needed accommodations, students with dyslexia can go on to be very successful students in colleges and universities, as well as in professional and adult life. After puberty, about 40–50% of children with AD/HD will improve

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and develop enough coping skills so that their symptoms no longer have a negative impact on their quality of life; however, the other 50–60% will continue to exhibit symptoms of AD/HD through adolescence and adulthood that will negatively affect their lives. It is important to remember that many students with AD/HD with appropriate support and accommodations can be very successful with higher level academic work and in their professional lives. It is never too late to diagnose these disorders. It is not uncommon for a gifted person in college or graduate school to be diagnosed with dyslexia or AD/HD. Such individuals can learn to develop their personal strengths and become not only successful students, but happy and productive adults, as well.

### References

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- Tridas, E. Q. (2007). From ABC to ADHD: What parents should know about dyslexia and attention problems. Baltimore: The International Dyslexia Association.

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