



Presented by the National Center for Learning Disabilities in collaboration with the American Academy of Pediatrics and the National Association of Pediatric Nurse Practitioners, April 2013

## LD DEFINED

### SPECIFIC LEARNING DISABILITIES

Science has not yet provided us with a full understanding of learning disabilities. What is known is that it is a neurological disorder that affects how the brain receives, processes and responds to information. LD is a broad category that includes several different types of problems in areas such as listening, reading, writing, spelling, and math, as well as associated disorders in movement. Processing information in each of these areas depends upon a brain that is wired for speed and efficiency. When the flow of information is misrouted or delayed, or when one area in the brain is not working at full capacity, the result is a breakdown in learning.

Learning disabilities impact different learning and related skills in each individual. It is quite common for more than one of the disorders below to co-exist with another. A comprehensive evaluation can reveal one or more *specific* learning disability. The identification of the specific LD provides instructional guideposts. The three broad specific learning disabilities (in DSM terminology) are:

#### 1. **Dyslexia – Reading Disability**

- Dyslexia is a language-based processing disorder that can hinder reading, writing, spelling and verbal communication.
- Children and adults with dyslexia have a neurological disorder that causes their brains to process and interpret information differently.
- Children who present with these language-based disorders should first be evaluated to rule out hearing or vision deficiencies that could be impeding their language-based skill development.
- The most promising and revealing medical research about learning disabilities has been conducted in the area of dyslexia using the tools of modern neuroscience.

Should parents request more information, you may wish to print “What is Dyslexia?”

<http://www.nclld.org/types-learning-disabilities/dyslexia/what-is-dyslexia>

A Spanish version is available at: <http://www.nclld.org/es/types-learning-disabilities/dyslexia/what-is-dyslexia>

Discussion of dyslexia may lead to a debate about the effectiveness of a variety of vision-based diagnostic and treatment practices. In February of 2011, in a joint technical report published in the journal of the American Academy of Pediatrics, the AAP, American Academy of Ophthalmology, American Academy of Pediatric Ophthalmology and Strabismus, and American Association of Certified Orthoptists titled “Learning Disabilities, Dyslexia, and Vision” concluded that: *“Scientific evidence does not support the claims that visual training, muscle exercises, ocular pursuit-and-tracking exercises, behavioral/perceptual vision therapy, “training” glasses, prisms, and colored lenses and filters are effective direct or indirect treatments for learning disabilities. There is no valid*



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*evidence that children who participate in vision therapy are more responsive to educational instruction than children who do not participate. Pediatrics 2011;127:e818–e856”*

To read the AAP article in full: <http://pediatrics.aappublications.org/content/127/3/e818.full.html>

## 2. **Dysgraphia – Writing Disability**

- Dysgraphia is a learning disability that affects writing, which requires a complex set of motor and information processing skills.
- Dysgraphia can lead to problems with spelling, poor handwriting, and putting thoughts on paper.
- People with dysgraphia also might have trouble organizing letters, numbers, and words on a line or page.

Parents may find “10 Helpful Dysgraphia Resources” provides them with proactive steps they can take to help their children. <http://www.nclد.org/types-learning-disabilities/dysgraphia/helpful-writing-disability-resources>. A Spanish version is available at: <http://www.nclد.org/es/types-learning-disabilities/dysgraphia/what-is-dysgraphia>

## 3. **Dyscalculia – Learning Disability in Mathematics**

- Dyscalculia refers to a wide range of lifelong learning disabilities involving mathematics.
- There is no single type of math disability. Dyscalculia can vary from person to person, and it affects people differently at different stages of life.
- The research about dyscalculia is significantly behind the research in dyslexia.
- As in the area of reading, a learning disability in math, or dyscalculia, is not a prescription for failure.

“What is Dyscalculia?” is a brief but detailed article to extend parent knowledge and understanding. You may want to print it for parents who need more information. <http://www.nclد.org/types-learning-disabilities/dyscalculia/what-is-dyscalculia>. A Spanish version is available at: <http://www.nclد.org/es/types-learning-disabilities/dyscalculia/what-is-dyscalculia>

## 4. **Co-Existing Disorders**

The IDEA definition makes clear that the disorders above qualify a child for specialized educational intervention. Once a child qualifies for a disability under the IDEA, all areas of disability that affect a child’s education and participation in school must be addressed. Disability codes do not determine the types of services to which the child is entitled, even though schools often allocate resources on the basis of a disability code. Thus, the child should also receive services for co-existing disorders such as those that listed below, as long as the co-existing disorders also affect the child’s education and participation at school.

Co-existing disorders provide valuable insight into the individual needs of a child and the subsequent intervention planning. The most common of the co-existing disorders are:

- **Dyspraxia** is a disorder that affects motor skill development. Children with dyspraxia have trouble planning and completing motor tasks. This can vary from simple motor tasks, such as waving goodbye, to more complex tasks like brushing their teeth. Physical activities become hard to learn and remember; the individual will appear awkward or hesitant in motion. An occupational therapist



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can make a diagnosis of dyspraxia.

For additional information, parents may wish to read “What is Dyspraxia?”

<http://www.nclld.org/types-learning-disabilities/dyspraxia/what-is-dyspraxia>

- **Executive Functioning** includes planning, organizing, strategizing, time and space management, and remembering details. Schools often do not identify deficits in executive functioning, which are more typically identified by a neuropsychologist. Individuals with LD and problems with executive functioning have difficulty:
  - Planning
  - Keeping track of more than one thing at once
  - Finishing work on time
  - Organizing tasks or activities
  - Keeping track of time
  - In young adults, the negative impact of executive function disorders can be seen in career, home management, relationships, and lifestyle challenges

Executive Functions are explained in greater detail in this article. <http://www.nclld.org/types-learning-disabilities/executive-function-disorders/what-is-executive-function>. A Spanish version is available at: <http://www.nclld.org/es/types-learning-disabilities/executive-function-disorders/organization-crucial-executive-skill-child-ld>

- **Attention-Deficit/Hyperactivity Disorder (AD/HD)** is a neurobiological disorder that can affect children, adolescents and adults. Researchers are still studying the cause of AD/HD. Evidence points to levels of brain chemicals (neurotransmitters such as dopamine and serotonin) being out of balance. Attention deficit disorder (ADD) is not typically identified by schools because it is considered to be a medical diagnosis. The pediatric healthcare providers play an important role in the identification of AD/HD.
  - Although AD/HD is not a learning disability by itself, the two conditions often occur together. AD/HD is seen in approximately 20 to 30 percent of individuals who have LD.
  - AD/HD is characterized by inappropriate levels of hyperactivity, impulsivity and inattention or distractibility.
  - Unlike other learning disabilities, which are best treated with educational and behavioral approaches, AD/HD is most effectively treated with a combination of medication and educational and behavioral interventions.
  - It is important to note that adolescents with untreated AD/HD are at increased risk for depression, anxiety and substance abuse.
  - AD/HD is often tightly intertwined with difficulties in Executive Functions.

For further information about parenting a child with AD/HD, see <http://www.nclld.org/types-learning-disabilities/adhd-related-issues/adhd/tips-for-parenting-a-child-with-adhd>

- **Auditory Processing Disorders (often referred to as central auditory processing disorders or CAPD)** is an auditory processing disorder that can cause difficulty in distinguishing the difference between similar sounds, among other difficulties. Although auditory processing disorder is not

named as a learning disability under federal law, it can explain why some children may have trouble with learning and performance. Auditory processing disorders are not typically identified by schools, and have to be diagnosed by an audiologist with expertise in this area.

- Auditory processing disorders can occur without any kind of hearing loss; rather, they affect how the brain perceives and processes what it hears.
- Like all learning disabilities, auditory processing disorders can be a lifelong challenge.
- Auditory processing disorders may run in families.
- Auditory processing disorders can affect a person's ability to interact socially.
- There are different types of auditory processing disorders, each affecting different aspects of auditory information processing.

“Auditory Processing Disorders: By Age Group” provides additional information which you may wish to print for parents. <http://www.nclld.org/types-learning-disabilities/adhd-related-issues/auditory-processing-disorders/auditory-processing-disorder-by-age-group>

- **Visual Processing Disorder** is a visual processing disorder that can cause difficulty in seeing the difference between two similar letters, shapes or objects, or noticing the similarities and differences between certain colors, shapes, and patterns. Although visual processing disorder is not named as a learning disability under federal law, it can explain why a child may have trouble with learning and performance. Visual processing disorders can be identified by an occupational therapist and by a vision specialist. There are no specific diagnostic criteria for making this diagnosis.
  - Visual processing disorders affect how the brain perceives and processes what the eye sees.
  - These disorders can occur without impaired vision of any kind.
  - Like all learning disabilities, visual processing disorders can be a lifelong challenge.
  - People with visual processing disorders have problems with the way they interpret information, but what others will notice in people with these disorders is the behavior that happens after the difficulties occur.
  - There are several types of visual processing disorders, each affecting different aspects of visual information processing.

To provide more information to parents about visual processing disorders, you may wish to print this: <http://www.nclld.org/types-learning-disabilities/adhd-related-issues/visual-processing-disorders/visual-processing-disorders-by-age-group>

For an overall discussion of all learning disabilities, parents may find this article informative. <http://www.nclld.org/types-learning-disabilities/what-is-ld/what-are-learning-disabilities>. A Spanish version is available at: <http://www.nclld.org/es/types-learning-disabilities/what-is-ld/what-are-learning-disabilities>

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