

	Definition	Core Deficits	Common Traits	Overall Frequency	Comorbidity w/ Dyslexia
Dyslexia	Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.	<p>According to Dr. Berninger, the core deficit is Phonological Awareness (PA), which is the ability to perceive and track sounds and their order and syllables in words. Usually, there is also a weakness in Phonological Memory (PM), rote auditory memory that relies on the Working Memory's Phonological loop.</p> <p>According to Dr. Wolf, a subset of individuals has a double deficit with both PA and Rapid Automatic Naming (RAN) difficulties. RAN is the ability to name known items accurately and quickly.</p>	<ul style="list-style-type: none"> • Family history • Trouble with rhyming and syllable counting • Difficulty understanding that letters represent distinct sounds in words • Guesses at words based on first letter with over-reliance on context clues • Slow labored reading • Trouble with unfamiliar words • Skips or misreads grammar words such as of, for, from and suffixes • Difficulty naming days of week and months • Extreme difficulty learning foreign language • Need extra time to finish reading and writing assignments • Odd spelling with sounds out of order; add sounds in and leaves sounds out. Often leaves out medial sound in consonant blends 	<p>20%</p> <p>(80-90% of those with LD)</p> <p>Yale Center for Dyslexia & Creativity</p>	N/A
Dysgraphia	<p>Dysgraphia affects how easily individuals acquire written language and how well they use written language to express their thoughts.</p> <p>Dysgraphia is a Greek based word, with dys-meaning challenge, graph meaning writing of letters by hand. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting. Impaired handwriting can interfere with learning to spell words in writing and speed of writing text. Children with dysgraphia may have only impaired handwriting, only impaired spelling (without reading problems), or both impaired handwriting and impaired spelling.</p>	<p>According to Dr. Berninger, the core deficit is difficulty with Orthographic Coding, the ability to store written words in working memory while the letters in the word are analyzed. This is due to a weakness in the Visual Sketchpad of the Working Memory.</p> <p>A large subset of students also have graphomotor problems with difficulty planning sequential finger movements which hinder their ability to automate handwriting.</p>	<ul style="list-style-type: none"> • Family history • Weak visual imagery of words • Difficulty spelling sight words • Spells word several ways even when it is provided • Messy handwriting with improper sequencing in strokes to write letters and poor spacing • Improper pencil grip • Handwriting is effortful and labored • Difficulty organizing thoughts on paper interfering with written composition 		<p>70%</p> <p>Hendren et. Al, 2018</p>

	Definition	Traits	Overall Frequency	Comorbidity w/ Dyslexia
Attention Deficit Disorder	<p>According to the National Institute of Mental Health (ADD) is a brain disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. There are three characteristics. Inattention means a person wanders off task, lacks persistence and had difficulty staying focused. They are often disorganized. Hyperactive means a person needs to move about constantly and excessively fidgets or talks. Impulsivity means the person makes hasty decisions and actions without considering consequences and may have a desire for immediate gratification. Individuals with ADD have deficits in processing speed, verbal working memory, phonological short-term memory, naming speed, and central executive processes.</p>	<ul style="list-style-type: none"> • Makes careless mistakes • Difficulty sustaining attention in tasks • Does not seem to listen when spoken to • Fails to follow through or finish tasks • Difficulty organizing tasks and activities • Difficulty following directions • Avoids situations that require sustained mental energy • Loses things easily • Forgetful • Easily distracted by outside stimuli • Hard to sit still 	<p>13% of men 4.2% of women</p> <p>Healthline.com</p> <p>9.4% of children</p> <p>National Survey of Children’s Health, 2016</p>	<p>20–40% predominately inattentive type</p> <p>Hendren et. Al, 2018</p>
Dyscalculia	<p>DSM-5 defines Dyscalculia as a specific learning disorder, an impediment in mathematics, evidencing problems with: Number sense, memorization of arithmetic facts, accurate and fluent calculation and/or accurate math reasoning.</p> <p>Those with Dyscalculia may not be impaired in their comprehension of all quantitative skills. For those with Dyscalculia and Dyslexia, their math challenge often involves low-order visual sequencing and RAN which involve fast mapping and automaticity of symbols which makes it difficult for them to memorize and quickly recall math facts.</p>	<ul style="list-style-type: none"> • Doesn’t seem to understand the meaning of counting and the number line • Difficulty learning and recalling basic math facts • Trouble naming numbers and math symbols • Uses fingers to count instead of mental math • Struggles to recognize visual patterns • Trouble with place value, putting numbers in wrong column • Trouble reading clock, counting money and keeping score • Struggles with charts and graphs • Trouble with measuring 	<p>3-6%</p> <p>Gross-Tsur et al., 1996</p>	<p>40%</p> <p>Hendren et. Al, 2018</p>
Anxiety Disorders	<p>A mood disorder that causes frequent, intense, excessive and persistent worry and fear about everyday situations. Individuals with anxiety often experience repeated episodes of sudden feelings of intense anxiety and fear or terror.</p>	<ul style="list-style-type: none"> • Headaches or stomachaches • Hesitancy to enter new situations especially at school • Fear of failure or embarrassment • School avoidance • Meltdowns before school and after school • Difficulties with transitions • Inattention 	<p>18.1%</p> <p>Anxiety.org</p>	<p>20%</p> <p>Willcutt & Gaffney-Brown, 2004</p>

	Definition	Traits	Overall Frequency	Comorbidity w/ Dyslexia
<i>Depression</i>	A mood disorder that causes individuals to feel sad, discouraged, or irritable for weeks, months or even longer. Another sign is negative thinking focusing on problems and faults and being self-critical.	<ul style="list-style-type: none"> • Loss of energy and concentration • Difficulty sleeping • Loss of appetite • Loss of interest in activities or schoolwork they used to enjoy • Gives up easily • Withdrawal from friends and family 	5% men 10% women Anxiety & Depression Association of America	20% Willcutt & Gaffney-Brown, 2004
<i>Twice Exceptional</i>	Individuals who are highly gifted or talented in one or more areas who give evidence of one or more disabilities. Giftedness is often overshadowed by their disabilities AND talents allow them to compensate and mask/hide their learning deficits. May appear average on academic testing and challenges are often overlooked until adolescence or later, or are never identified at all.	<ul style="list-style-type: none"> • Highly creative, verbal, imaginative, curious, with strong problem-solving ability • Difficulty keeping up with course rigor, volume, and demands • Inconsistent academic performance • Frustration with school • difficulties with written expression • Labeled as lazy, unmotivated, and underachiever 	5% of population National Association of Gifted Children	10-30% of gifted children have an SLD National Association of Gifted Children

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- Anxiety.org - <https://www.anxiety.org/causes-and-symptoms-of-anxiety-in-children>
- Centers for Disease Control National Center on Birth Defects and Developmental Disabilities – <http://www.cdc.gov/ncbddd/adhd/data.html>
- DSM -5 is the fifth edition update to the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (APA, 2013)
- Healthline - [healthline.com](https://www.healthline.com)
- KidsHealth - <https://kidshealth.org/en/parents/understanding-depression.html>
- National Association of Gifted Children - <https://www.nagc.org/resources-publications/resources-parents/twice-exceptional-students>
- The National Numeracy Strategy (DfES, 2001)
- Yale Center for Dyslexia & Creativity - <https://dyslexia.yale.edu/dyslexia/signs-of-dyslexia/> and <https://dyslexia.yale.edu/dyslexia/dyslexia-faq/>