

ADDITUDE *Inside the ADHD mind*

ADHD & Symptom Tests > ADHD Comorbidities & Related Conditions > Learning Disabilities

DYSCALCULIA

What Is Dyscalculia? Math Learning Disability Overview

Dyscalculia is a learning disability that makes math challenging to process and understand. Symptoms range from difficulty with counting and basic mental math to trouble with telling time and direction. Learn more about this math learning disability, including potential causes and treatments here.

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Dyscalculia Definition

Dyscalculia is a math learning disability that impairs an individual's ability to learn number-related concepts, perform accurate math calculations, reason and problem solve, and perform other basic math skills.¹ Dyscalculia is sometimes called “number dyslexia” or “math dyslexia.”

[Dyscalculia](#) is present in about 11 percent of children with attention deficit hyperactivity disorder (ADHD or ADD).² Other learning disorders, including dyslexia and dysgraphia, are also common – up to 45 percent of children with [ADHD](#) have a learning disorder.³

Dyscalculia Overview

Individuals with dyscalculia have difficulties with all areas of mathematics — problems not explained by a lack of proper education, intellectual disabilities, or other conditions. The [learning disorder](#) complicates and derails everyday aspects of life involving mathematical concepts – like telling time, counting money, and performing mental calculations.

“Students and adults with dyscalculia find math puzzling, frustrating, and difficult to learn,” says Glynis Hannell, a family psychologist and author of *Dyscalculia: Action Plans for Successful Learning in Mathematics* ([#CommissionsEarned](#)). “Their brains need more teaching, more targeted learning experiences, and more practice to develop these networks.”

Dyscalculia frequently co-occurs with [dyslexia](#), a learning disability in reading; about half of children with dyscalculia also have dyslexia.⁴ While figures vary, the estimated prevalence of dyscalculia in school populations is 3 to 6 percent.⁵

[\[Take the Dyscalculia Symptom Test for Children\]](#)

[\[Think You Have Dyscalculia? Take This Screener for Dyscalculia in Adults\]](#)

Dyscalculia Symptoms

What are the signs of dyscalculia? Symptoms and indicators include^{6 7}:

- Difficulties with processing numbers and quantities, including:
 - Connecting a number to the quantity it represents (the number 2 to two apples)
 - Counting, backwards and forwards
 - Comparing two amounts
- Trouble with subitizing (recognize quantities without counting)
- Trouble recalling basic math facts (like multiplication tables)
- Difficulty linking numbers and symbols to amounts
- Trouble with mental math and problem-solving
- Difficulty making sense of money and estimating quantities
- Difficulty with telling time on an analog clock
- Poor visual and spatial orientation
- Difficulty immediately sorting out direction (right from left)
- Troubles with recognizing patterns and sequencing numbers

Finger-counting is typically linked to dyscalculia, but it is not an indicator of the condition outright. Persistent finger-counting, especially for easy, frequently repeated calculations, may indicate a problem.

Calculating errors alone are also not indicative of dyscalculia – variety, persistence, and frequency are key in determining if dyscalculia is present.

[Watch: Early Warning Signs of Dyscalculia]

Dyscalculia Causes

When considering dyscalculia, most people are actually thinking of developmental dyscalculia – difficulties in acquiring and performing basic math skills. Exact causes for this type of dyscalculia are unknown, though research points to issues in brain development and genetics (as the disability tends to run in families) as possible causes.⁸

Acquired dyscalculia, sometimes called acalculia, is the loss of skill in mathematical skills and concepts due to disturbances like brain injury and other cognitive impairments.⁹

Dyscalculia Diagnosis

Dyscalculia appears under the “specific learning disorder” (SLD) section in the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5).¹⁰ For an SLD diagnosis, an individual must meet these four criteria:

- Individuals with dyscalculia exhibit at least one of six outlined symptoms related to difficulties with learning and using academic skills. Difficulties with mastering number sense and mathematical reasoning are included in the list.
- The affected academic skills are below what is expected for the individual’s age, which also cause trouble with school, work, or daily life.
- The learning difficulties began in school, even if problems only became acute in adulthood.

- Other conditions and factors are ruled out, including intellectual disabilities and neurological disorder, psychosocial adversity, and lack of instruction.

Individuals whose learning difficulties are mostly math-based may be diagnosed with “SLD with impairment in mathematics,” an SLD subtype equivalent to dyscalculia.

Diagnostic evaluations for dyscalculia are typically carried out by school psychologists and neuropsychologists, though child psychiatrists and school health services and staff may play a role in evaluation. Adults who suspect they have dyscalculia may be referred to a neuropsychologist by their primary care provider.

There is no single test for dyscalculia. Clinicians evaluate for the disorder by reviewing academic records and performance in standardized tests, asking about family history, and learning more about how the patient’s difficulties manifest in school, work, and everyday life. They may also administer diagnostic assessments that test strengths and weaknesses in foundational mathematical skills. Tools like the PAL-II Diagnostic Assessment (DA), the KeyMath-3 DA, and the WIATT-III are commonly used when evaluating for dyscalculia.

Dyscalculia Treatment and Accommodations

Like other learning disabilities, dyscalculia has no cure and cannot be treated with medication. By the time most individuals are diagnosed, they have a shaky math foundation. The goals of treatment, therefore, are to fill in as many gaps as possible and to develop coping mechanisms that can be used throughout life. This is typically done through special instruction, accommodations, and other interventions.

Under the Individuals with Disabilities Education Act ([IDEA](#)), students with dyscalculia are eligible for special services in the classroom. Dyscalculia accommodations in the classroom may include¹¹:

- allowing more time on assignments and tests
- allowing the use of calculators
- adjusting the difficulty of the task
- separating complicated problems into smaller steps
- using posters to remind students to basic math concepts
- tutoring to target core, foundational skills
- providing supplemental information via
 - computer-based interactive lessons
 - hands-on projects

If left untreated, dyscalculia persists into adulthood, leaving many at a disadvantage when it comes to higher education and workplace success.¹² [Adults with dyscalculia](#), however, may be entitled to reasonable accommodations in their workplace under the Americans with Disabilities Act ([ADA](#)). They can also commit to brushing up on math skills on their own or with the help of a trained educational psychologist. Even the most basic improvements in math skills can have long-lasting impacts on day-to-day life.

[Read This Next: [Could It Be A Learning Disability?](#)]

Dyscalculia At a Glance

Comorbidity with ADHD	<ul style="list-style-type: none"> · Dyscalculia is present in about 11 percent of children with attention deficit hyperactivity disorder (ADHD or ADD).
Suggestive Symptoms	<ul style="list-style-type: none"> · Slow to develop counting and math problem-solving skills · Trouble understanding positive versus negative value · Difficult recalling number sequences · Difficulty computing problems · Problems with time concepts · Poor sense of direction · Difficulty completing mental math
Professional to See	Evaluation should be conducted by a school psychologist or special education professional. School supports may be provided by special education professionals and/or your child's classroom teacher.
Treatments & Medications	<ul style="list-style-type: none"> · There is no medication to treat learning disabilities · Your child may qualify for an IEP to receive special-education services including math supports
Recommended Resources	<ul style="list-style-type: none"> · LDAmerica.org · NCLD.org · LDOnline.org · WrightsLaw.com · <i>The Misunderstood Child, Fourth Edition: Understanding and Coping with Your Child's Learning Disabilities</i> (#CommissionsEarned) by Daniel Ansari, Ph.D.

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Sources

¹ American Psychiatric Association. (2018, November). What is Specific Learning Disorder?

<https://www.psychiatry.org/patients-families/specific-learning-disorder/what-is-specific-learning-disorder>

² Soares, N., & Patel, D. R. (2015). Dyscalculia. *International Journal of Child and Adolescent Health*.

<https://psycnet.apa.org/record/2015-29454-003>

³ DuPaul, G. J., Gormley, M. J., & Laracy, S. D. (2013). Comorbidity of LD and ADHD: implications of DSM-5 for assessment and treatment. *Journal of learning disabilities*, 46(1), 43–51. <https://doi.org/10.1177/0022219412464351>

⁴ Morsanyi, K., van Bers, B., McCormack, T., & McGourty, J. (2018). The prevalence of specific learning disorder in mathematics and comorbidity with other developmental disorders in primary school-age children. *British journal of psychology* (London, England : 1953), 109(4), 917–940. <https://doi.org/10.1111/bjop.12322>

⁵ Shalev, R.S., Auerbach, J., Manor, O. et al. Developmental dyscalculia: prevalence and prognosis. *European Child & Adolescent Psychiatry* 9, S58–S64 (2000). <https://doi.org/10.1007/s007870070009>

⁶ Haberstroh, S., & Schulte-Körne, G. (2019). The Diagnosis and Treatment of Dyscalculia. *Deutsches Arzteblatt international*, 116(7), 107–114. <https://doi.org/10.3238/arztebl.2019.0107>

⁷ Bird, Ronit. (2017). *The Dyscalculia Toolkit*. Sage Publications.

⁸ Szűcs, D., Goswami, U. (2013). Developmental dyscalculia: Fresh perspectives. *Trends in Neuroscience and Education*, 2(2), 33–37. <https://doi.org/10.1016/j.tine.2013.06.004>

⁹ Ardila, A., & Rosselli, M. (2019). Cognitive Rehabilitation of Acquired Calculation Disturbances. *Behavioural neurology*, 2019, 3151092. <https://doi.org/10.1155/2019/3151092>

¹⁰ American Psychiatric Association (2014). *Diagnostic and Statistical Manual of Mental Disorders*. DSM-V. Washington, DC: American Psychiatric Publishing

¹¹ N, Soares., Evans, T., & Patel, D. R. (2018). Specific learning disability in mathematics: a comprehensive review. *Translational pediatrics*, 7(1), 48–62. <https://doi.org/10.21037/tp.2017.08.03>

¹² Kaufmann, L., & von Aster, M. (2012). The diagnosis and management of dyscalculia. *Deutsches Arzteblatt international*, 109(45), 767–778. <https://doi.org/10.3238/arztebl.2012.0767>

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