

Specific Learning Disorder

DSM-5-TR 315.00, 315.1, 315.2 | ICD-10-CM F81.0, F81.2, F81.81

Persistent difficulty acquiring reading, writing, or math skills well below age expectation despite adequate instruction and intervention.

PREVALENCE

5-15% of school-age children

TYPICAL ONSET

Early school-age years

SEX RATIO

~2:1 male:female (referred)

MOST COMMON TYPE

Reading (~80% of cases)

CLINICAL PICTURE

- Reading impairment presents as slow, effortful, inaccurate decoding, weak spelling, and poor comprehension of material just read aloud.
- Written expression problems include disorganized paragraphs, sparse output, and grammar errors far out of proportion to spoken language.
- Math impairment shows as poor number sense, finger counting past the early grades, and difficulty with multistep word problems.
- Effort is high but output is low; homework takes far longer than for peers and completion depends heavily on adult scaffolding.
- Avoidance, somatic complaints on school mornings, and disruptive behavior frequently mask the underlying academic skill deficit.
- Adults compensate with dictation, memorized routines, and career choices that quietly avoid the affected skill altogether.

DIAGNOSTIC CRITERIA AT A GLANCE

- Requires at least one of six academic symptoms persisting despite targeted intervention for a minimum of six months.
- Affected skills must be quantifiably below age expectation on individually administered standardized achievement testing.
- Difficulties begin during the school years but may not fully manifest until demands exceed limited compensatory capacity.
- Deficits cannot be better explained by intellectual disability, uncorrected sensory impairment, psychosocial adversity, or inadequate instruction.
- Specify impairment in reading, written expression, or mathematics, with severity rated as mild, moderate, or severe.

NEUROBIOLOGY & PHYSIOLOGY

- Dyslexia involves underactivation of the left occipitotemporal visual word form area and left temporoparietal reading circuits.
- Compensatory right-hemisphere and inferior frontal recruitment produces slow but sometimes accurate reading in treated adults.
- Heritability is **40-60%**; candidate loci including DYX1C1, KIAA0319, and DCDC2 affect cortical neuronal migration.
- Phonological processing deficit is the core neurocognitive impairment in reading disorder and is independent of general intelligence.
- Dyscalculia is linked to intraparietal sulcus dysfunction affecting the approximate number system and magnitude representation.
- Effective intensive reading intervention normalizes activation within left posterior reading systems on functional imaging.

PSYCHOLOGICAL MECHANISMS

- Rapid automatized naming and phonological awareness deficits predict reading failure before formal reading instruction even begins.
- Working memory limits make decoding so effortful that few cognitive resources remain available for extracting meaning from text.
- Repeated public failure damages academic self-concept and produces test anxiety and learned avoidance of the affected domain.
- Attributing failure to fixed low ability rather than to a specific skill deficit undermines persistence, effort, and help seeking.
- Explicit, systematic, cumulative instruction outperforms discovery learning because implicit pattern extraction is impaired.

DIFFERENTIAL & COMORBIDITY

- Rule out inadequate instruction, absenteeism, limited English proficiency, uncorrected vision or hearing loss, and intellectual disability.
- ADHD** co-occurs in 20-40%; inattention degrades performance broadly, whereas learning disorder deficits are domain specific.
- Developmental language disorder frequently precedes and coexists with reading impairment and predicts a poorer long-term outcome.
- Anxiety, depression, and disruptive behavior are common secondary complications, typically emerging by middle school years.
- Untreated learning disorder raises rates of school dropout, unemployment, and juvenile justice involvement in adolescence.

Treatment EVIDENCE-BASED MANAGEMENT

PHARMACOLOGIC

- No medication treats specific learning disorder; explicit instruction is the treatment and the only evidence-based core intervention.
- Treat co-occurring **ADHD** with stimulants, which raise academic productivity and seat time but do not remediate the skill deficit.
- Address comorbid anxiety or depression with SSRIs and therapy when symptoms impair participation in remediation and schooling.
- Avoid unproven interventions such as colored lenses, vision therapy, and supplements marketed as treatments for dyslexia.
- Reassess sleep, iron status, and thyroid function when academic decline is abrupt rather than lifelong and gradual.

PSYCHOTHERAPY

- Structured literacy based on **Orton-Gillingham** principles delivers explicit phonics, phonemic awareness, fluency, vocabulary, and comprehension.
- Intensive small-group intervention of 30-45 minutes daily for 20 or more weeks yields the largest reading gains, and earlier is better.
- Math intervention uses concrete-representational-abstract sequencing, schema-based word problem instruction, and fact fluency practice.
- Self-Regulated Strategy Development** teaches planning, drafting, and revising for written expression with strong effect sizes.
- CBT** addresses secondary anxiety and academic self-concept but never substitutes for direct skill remediation.

ADJUNCT & SUPPORTIVE

- Curriculum-based measurement with progress monitoring every 2-4 weeks guides intensity within a multi-tier system of supports.
- An IEP under specific learning disability or a 504 plan provides extended time, text-to-speech, scribing, and calculator access.
- Assistive technology including audiobooks, speech-to-text, word prediction, and spellcheck preserves access to grade-level content.
- Comprehensive evaluation should include cognitive, achievement, phonological, and language measures alongside school performance data.
- Parent literacy coaching, daily reading practice, and deliberate preservation of nonacademic strengths protect motivation and self-esteem.

CLINICAL PEARLS

- Response to well-delivered instruction, not IQ-achievement discrepancy, defines the diagnosis.
- Screen phonological awareness in Kindergarten; waiting for failure costs years.
- Accommodations grant access; only explicit instruction builds the missing skill.

References

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.).

<https://doi.org/10.1176/appi.books.9780890425787>

Eunice Kennedy Shriver National Institute of Child Health and Human Development. (n.d.). *Learning disabilities*. U.S. Department of Health and Human Services. <https://www.nichd.nih.gov/health/topics/learningdisabilities>

Handler, S. M., & Fierston, W. M. (2011). Learning disabilities, dyslexia, and vision. *Pediatrics*, 127(3), e818-e856. <https://doi.org/10.1542/peds.2010-3670>

Peterson, R. L., & Pennington, B. F. (2012). Developmental dyslexia. *The Lancet*, 379(9830), 1997-2007. [https://doi.org/10.1016/S0140-6736\(12\)60198-6](https://doi.org/10.1016/S0140-6736(12)60198-6)

Sadock, B. J., Sadock, V. A., & Ruiz, P. (2021). *Kaplan & Sadock's synopsis of psychiatry* (12th ed.). Wolters Kluwer.

Shaywitz, S. E., & Shaywitz, J. (2020). *Overcoming dyslexia* (2nd ed.). Alfred A. Knopf.

NOTE

References are formatted in APA 7th edition style with hanging indents. Diagnostic terminology, criteria structure, and coding follow the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.; APA, 2022); criteria are paraphrased for instructional use and are not reproduced verbatim. Verify all citations against the original sources before use in academic work, and confirm medication dosing against current prescribing information.