

## Dyslexia

### What is dyslexia?

Dyslexia is a type of specific learning disability and students with dyslexia may have difficulty with several skills including oral language, reading, spelling, writing, organization and math. The National Institutes of Health (NIH), the International Dyslexia Association (IDA), and others have adopted and support the following definition:

*Dyslexia is a specific learning disability that is neurological 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 the growth of vocabulary and background knowledge.*

For information on the criteria for identifying students with a specific learning disability for the purpose of receiving specially designed instruction, please refer to the Montana Administrative Rules (ARM) 10.16.3019 Criteria for Identification of Student as Having Specific Learning Disability.

### What are some of the concerns related to dyslexia?

**Difficulties with reading comprehension and fluency.** Comprehension is the primary goal of literacy instruction. Fluency is the part of the reading process that leads to effective and efficient reading.

**Little interest in elective independent reading.** The stress of early and persistent reading difficulties seriously affects the amount of time children elect to read. In addition to directly affecting the development of reading fluency, these practice differences have a significant impact on the development of other critical skills such as vocabulary, reading comprehension, and conceptual knowledge.

**Decreased interest in school.** Motivation and interest in school can be adversely affected by repeated failure in reading activities within the classroom. It is not surprising that children with reading difficulties become disinterested in school when reading activities assume such an integral part of the learning process.

**Reduced academic success.** Children who read well in the early grades experience more academic success in later years of schooling, and those who struggle with reading fall behind and generally stay behind when it comes to overall academic achievement.

**Lower Self-esteem.** Children with dyslexia are highly vulnerable to feelings of low self-esteem. They grow to distrust their intelligence and their confidence. They begin to feel inferior as they continually self-assess against the reading progress of their grade-level peers.

**Feelings of anxiety, anger, and depression.** Children with dyslexia may become fearful of environments where repeated failure is experienced. As a result of reading difficulties, these children often develop varying degrees of anxiety, anger, frustration, and depression. These conditions can lower a child's ability to fully engage in the learning process and may limit their ability to fully attend to classroom instruction.

**Delays in social and emotional development.** Children with dyslexia are at risk of failure, not only academically, but also socially and emotionally. The frustration of prolonged failure on a range of reading tasks results in feelings of insecurity and lack of confidence. This can lead to profound effects upon social skills, friendship patterns, acceptance, and adjustment.

### **Are there other conditions that can be associated with dyslexia?**

In addition to the aforementioned characteristics, it is important to be aware of additional concerns or associated conditions that may occur along with the disability of dyslexia.

- **Attention Deficit Hyperactivity Disorder (ADHD):** ADHD is a problem with inattentiveness, over-activity, impulsivity, or a combination of these.
- **Emotional Disturbance:** Students with dyslexia may exhibit emotional and behavioral issues related to pronounced deficits in social skills, self-concept, academic achievement, management of emotions, and social information processing.
- **Speech and Language Impairment:** Students with dyslexia may have significant difficulties with syntax, phonological and morphological skills, as well as associated deficits in semantics and pragmatics. There is a close relationship between oral language and written language. Often poor academic performance is the result of the interplay between language deficits (both oral and written) and academic deficits.
- **Dysgraphia:** Dysgraphia expresses itself primarily through writing or typing, although in some cases it may also affect eye–hand coordination, direction- or sequence- oriented processes such as tying knots or carrying out a repetitive task.
- **Dyscalculia:** Children with dyscalculia have difficulty with math computation and application processes. Some signs of dyscalculia may be difficulty understanding math concepts; completing word problems; performing math operations; recognizing patterns and sequencing; organizing information; or simply number recognition. Dyslexia and dyscalculia can co- exist or they can exist independently of one another.
- **Central Auditory Processing Disorder:** Auditory processing disorder affects the ability to process information taken in through hearing. Children with auditory processing disorder often have trouble recognizing the difference between letters like b and d and sounding out new words. They may struggle to understand what people are saying. Reading can also be difficult because one aspect of reading involves connecting sounds with letters.

- **Visual Processing Disorder:** Visual processing disorder refers to a reduced ability to make sense of information taken in through the eyes. This is different from problems involving sight or sharpness of vision. Difficulties with visual processing affect how visual information is interpreted or processed in the brain. A child with visual processing problems may have 20/20 vision, but may have difficulties discriminating foreground from background, forms, size, movement, direction, and position in space. The child may be unable to synthesize and analyze visually presented information accurately or fast enough.
- **Executive Function Skill Deficit:** Executive function describes a set of cognitive abilities that control and regulate higher-order thinking ability and behaviors. It is necessary for goal-directed behavior and includes the ability to initiate and stop actions; monitor and change behavior as needed; and plan future behavior when faced with novel tasks and situations. Executive function allows one to anticipate outcomes and adapt to changing situations.

### **Are writing letters and words backwards the most prominent signs of dyslexia?**

No. Writing letters and words backwards may occur in any child prior to 2<sup>nd</sup> grade or the age of eight or nine. Dyslexia does not cause children to see letters, numbers, and words backwards or inverted. However, some children with dyslexia may confuse letters, misread words, or have difficulty forming letters as a result of the lack of phonological skills.

### **If given enough time, will children outgrow dyslexia?**

There is no evidence that indicates that dyslexia can be outgrown. Children with reading problems show a continued persistent deficit rather than merely learning to read later than their peers. Evidence indicates that without early effective intervention and reading instruction, children with dyslexia continue to experience reading problems into adolescence and adulthood. However, with effective reading instruction students with dyslexia are able to learn to read.

### **Is dyslexia more prevalent in boys than in girls?**

Longitudinal research shows that girls and boys are equally affected by dyslexia.

### **Can an individual with dyslexia ever learn to read?**

Yes. The critical factor is the early identification of reading difficulties and the implementation of systemic, explicit and intense instruction. With provision of intensive instruction, even older children with dyslexia can become accurate, albeit slower readers.

### **How prevalent is dyslexia?**

The National Center for Learning Disabilities projects that one in five (or 15-20 percent of any given population) has a specific learning disability. Of students identified with specific learning disabilities, 70-80 percent have deficits in reading. The International Dyslexia Association (IDA) further notes that the most common type of reading, writing, and/or spelling disability is dyslexia.

### **Is there a single test to determine if an individual has dyslexia?**

No, there is no single test for dyslexia. A comprehensive evaluation must be administered to support the conclusion of dyslexia. Areas of assessment may include phonological processing, oral language, alphabet knowledge, decoding, word recognition, reading fluency, reading comprehension, spelling, written expression, and cognitive functioning.

**Is Dyslexia a general “catch-all” term?**

No. Dyslexia is a specific term for a learning disability that is neurological in origin and is specific to print language. The research-based definition of dyslexia recognized by the International Dyslexia Association (IDA) and supported by the National Institutes of Health (NIH) provides clear delineation of the characteristics of dyslexia.

**Is dyslexia caused by poor teaching and exposure to the whole word method of reading instruction?**

No. Poor instruction does not cause dyslexia, but it can exacerbate reading difficulties experienced by children with dyslexia.

**Is dyslexia a condition that only medical professionals can diagnose?**

No. Though dyslexia may be diagnosed by a physician, it becomes an educational issue when it significantly impacts the student’s achievement. Even if dyslexia is diagnosed by the child’s physician, the school district is required to conduct a comprehensive evaluation to determine if the child is eligible for special education and related services. A comprehensive evaluation may include information from medical professionals as part of the process, but the majority of assessments and tests are administered by educators who are trained in and knowledgeable of the instruments and procedures for identifying characteristics of dyslexia. To be eligible for special education services under the Individuals with Disabilities Education Act (IDEA), the assessment results must demonstrate that the disability has a significant impact on the child’s learning.

**Does a diagnosis of dyslexia automatically qualify a child for special education and related services?**

No. The determination of a child’s eligibility for special education and related services is made by an evaluation team which includes school district staff and the parents. This team must conduct a comprehensive evaluation and determine if the child meets the eligibility criteria for a disability, and because of that condition, the child needs specially designed instruction in order to benefit from the education services provided. It is possible, and is often the case, that a child who has dyslexia does not demonstrate a need for specialized instruction and, therefore, does not qualify for special education.

**Can dyslexia be diagnosed prior to 3<sup>rd</sup> grade?**

Yes. Early intervention is critical to the success of a student with dyslexia. Assessments of phonemic awareness; letter knowledge and speed of naming; and sound-symbol association can be completed as early as kindergarten. Success, or lack thereof, in these specific skill areas often predicts reading ability in the first and second grades.

### **Is dyslexia caused by brain damage?**

The exact causes of dyslexia are not completely clear. However, brain imaging studies show significant differences in the way the brain of the child with dyslexia develops and functions. The neurological differences associated with dyslexia are genetic rather than the result of brain injury, damage, or disease.

### **What are the common indicators associated with dyslexia?**

If the following behaviors are unexpected for an individual's age, educational level, or cognitive ability, they may be risk factors associated with dyslexia. While most individuals likely relate to some of these characteristics, it does not mean that the individual has dyslexia. A student with dyslexia exhibits several of these behaviors that persist over time and have significant impact on his/her learning.

#### Preschool

At this stage, students are developing the oral language base necessary for learning to read. Signs that may indicate possible difficulties with reading skill acquisition include:

- Delays in learning to talk
- Difficulty in rhyming (i.e., “boo – moo – too,” “cat – mat – pat,” etc.)
- Poor auditory memory for nursery rhymes, chants, finger plays, songs, etc.
- Difficulty in adding/expanding vocabulary
- Inability to recall the right word (word retrieval) when speaking
- Persistent ‘baby talk’
- Trouble learning the names of letters and numerals
- Difficulty remembering and ordering the letters in his/ her name
- Does not participate or enjoy following along when books are read aloud
- Difficulty following simple one-step directions

Parents are encouraged to contact the school district if several of these signs are noted in the early literacy development of their child.

#### Kindergarten and First Grade

At this stage, most children are developing basic word recognition skills through the use of word attack strategies and contextual cues. Students with dyslexia will show some of the following characteristics:

- Difficulty remembering the names and shape of letters
- Difficulty recalling their letters and their corresponding sound
- Difficulty identifying and manipulating sounds in syllables (i.e., “pal” sounded out as /p/ /a/ /l/; rearranging those letters to create another word, “lap” sounded out /l/ /a/ /p/; etc.)
- Difficulty breaking words into smaller parts called syllables (i.e., “bathroom” into “bath” – “room,” or “pumpkin” into “pump” - “kin,” etc.)
- Difficulty using the decoding process to sound out and read single words in isolation
- Difficulty spelling words phonetically (e.g., the way they sound) or remembering letter sequences in very common words seen often in print (i.e., “sed” for “said,” etc.)
- Mispronunciation of words (i.e., “pusgetti” for “spaghetti,” or “mawn lower” for “lawn mower,” etc.)
- Crayon and pencil grip tends to be awkward, tight, or fist-like
- Difficulty with spatial orientation (i.e., up/down, over/under; before/after; around/through, etc.)
- Difficulty acquiring new vocabulary and using age-appropriate grammar

## Second and Third Grade

For a child with dyslexia, many of the previously described behaviors may continue to be problematic in addition to the following:

- Difficulty recognizing common sight words (i.e., “to,” “said,” “the,” “been,” etc.)
- Difficulty decoding one syllable words
- Difficulty recalling the correct sounds for letters and letter patterns in reading
- Confusion with visually similar letters/numerals (i.e., b/d/p; w/m; h/n; f/t; 6/9)
- Difficulty connecting speech sounds with appropriate letter or letter combinations and omitting letters in words for spelling (i.e., “after” spelled “eftr,” or “always” spelled “aways,” etc.)
- Confusion of auditorily similar letters (d/t; b/p; f/v)
- Reads slowly with many word inaccuracies (i.e., reads “saw” for “was,” reads “go” for “gone,” etc.)
- Reading and spelling errors that involve difficulties with sequencing and monitoring sound/symbol correspondence such as omissions (trip/tip), additions (sip/slip), substitutions (rib/fib) and transpositions (stop/spot)
- Tends to read without expression
- Does not observe punctuation when orally reading (i.e., a period at the end of a sentence means a brief stop; a comma in a sentence means a slight pause; etc.)
- Difficulty decoding unfamiliar words in sentences using knowledge of phonics
- Reliance on picture clues, story theme, and guessing at words
- Difficulty with skills in writing (i.e., correct formation of letters/numerals; spelling, handwriting, written expression, etc.)
- Difficulty putting ideas on paper
- Omission of grammatical endings in reading and/or writing (-s, -ed, -ing, etc.)
- Difficulty remembering spelling words over time and applying spelling rules

## Fourth through Sixth Grade

At this stage, children progressing in the normal range will have mastered basic reading skills and are expected to learn new information from their group and independent reading activities. Students with dyslexia will continue to have significant difficulties with developing word recognition skills and may experience difficulty coping with more advanced expectations for reading to succeed in the grade-level curriculum. Many of the previously described behaviors may continue to be problematic along with the following:

- Frequent misreading of common sight words (i.e., where, there, what, then, when, etc.)
- Difficulty reading aloud (e.g., fear of reading aloud in the presence of peers or others)
- Avoidance of reading for pleasure
- Acquisition of higher-level vocabulary reduced due to reluctance to read independently for enjoyment
- Difficulty understanding concepts and relationships
- Difficulty reading and spelling multisyllabic words, often omitting entire syllables as well as making single sound errors
- Difficulty with reading comprehension and learning new information from text due to underlying word recognition problems
- Use of less complicated/descriptive words in writing because of the spelling challenge larger words present (i.e., uses “big” rather than “enormous,” uses “bad” rather than “horrible,” etc.)
- If oral language problems exist affecting vocabulary knowledge and grammar, difficulties in comprehension of text may be evident
- Comprehension relies more on listening ability than reading ability
- Spelling and punctuation are weak
- Difficulty organizing writing elements
- Lack of awareness of word structures (prefixes, roots, suffixes)
- In reading, when challenged by an unfamiliar work, chooses to skip it in context or takes so much time phonetically decoding the word that reading comprehension is sacrificed

## Middle and High School

Students in this age range are expected to analyze and synthesize information in written form as well as acquire factual information. Although many individuals with dyslexia may have compensated for some of their difficulties with reading, others many continue to have problems with automaticity and word identification. Many of the previously described behaviors continue to be problematic along with the following:

- Reads so slowly that meaning is lost
- Persistent phonological weakness
- Continued difficulty with word recognition which significantly affects acquisition of knowledge and ability to analyze written material
- Spelling and writing continue to be affected

- Difficulty keeping up with assignments due to increased expectations and volume of reading and written assignments
- Frustration with the amount of time required and energy expended for reading
- Difficulty with written assignments
- Continued avoidance of independent reading activities that expand knowledge, understanding, and vocabulary
- Extreme difficulty learning a foreign language
- Tends to procrastinate in tasks related to reading and/or writing
- Difficulty with note taking in class
- Exhibits difficulty outlining and/or summarizing

### **What types of supplementary aids and services may be effective for students with disabilities, including dyslexia?**

Supplementary aids and services are changes made to instructional materials, instruction, and modes of student performance (i.e., timing, presentation, response mode, and setting). These changes provide equitable access to the general education curriculum and are designed to counter the effects of a student's disability without reducing learning goals, expectations for achievement and curricular content.

Examples of supplementary aids and services:

- **Use a recording device.** The recording device can be an excellent aid in overcoming issues related to reading disabilities. Directions, stories, and specific lessons can be recorded. The student then has opportunity to replay the device to clarify understanding of directions and/or concepts. Another possibility is to use recorded readings that allow the student to read printed words simultaneously along with the recording to increase word recognition; automaticity and fluency; and comprehension.
- **Simplify and clarify directions – both oral and written.** Succinct and sequential bullet points or providing a visual list along with the oral directions can help organize information into manageable bits of information. Underlining or highlighting the significant parts of the directions is another technique that may assist with a student's understanding.
- **Chunk assignments into smaller, more manageable tasks.** For students who become overly anxious or discouraged when they hear or see large assignments involving reading, the teacher may provide discreet portions of the assignment in sequence in isolation.
- **Reduce redundant tasks.** If an assignment is designed for repetitive practice of a specific skill, the teacher may reduce the number of items a student with dyslexia must complete.
- **Block extraneous stimuli.** If a worksheet or assignment looms too large and the student becomes overwhelmed, a blank sheet of paper may be used to cover sections of the page not being worked on at that immediate time. Line markers may also be used to assist a student with reading text and windows may be used to display individual tasks such as word decoding and math problems.



- **Highlight essential information.** If an adolescent can read a regular textbook, but has difficulty finding essential information, the teacher may highlight information.
- **Provide additional practice activities.** Some materials do not provide enough practice for students with learning problems to acquire mastery on selected skills. Additional practice exercises may include instructional games; peer-teaching activities; self-correcting materials; tutor and one-on-one supports; computer software programs; etc.
- **Provide a glossary in content areas.** At the secondary level, the specific language of the content areas requires careful reading. Students often benefit from a glossary of content-related terms.
- **Develop reading guides.** A reading guide provides the student with a road map of what is written and features periodic questions to help him or her focus on relevant content. It helps the reader understand the main ideas and sort out the numerous details related to main ideas. A reading guide can be developed paragraph-by- paragraph, page-by-page, or section-by-section.
- **Use explicit teaching practices.** Teachers can include explicit teaching steps within their lessons (i.e., present an advanced organizer, demonstrate the skill, provide guided practice, offer corrective feedback, set up independent practice, monitor practice, and review).
- **Repeat directions.** Students who have difficulty following directions are often helped by asking them to repeat the directions in their own words. The student can repeat the directions to a peer when the teacher is unavailable.
- **Maintain daily routines.** Many students benefit from routines that are practiced consistently day in and day out. Predictable structure helps students with disabilities know and understand expectations.
- **Provide a copy of lecture notes.** The teacher can give a copy of lecture notes to students who have difficulty taking notes during direct instruction.
- **Provide students with a graphic organizer.** An outline, chart, web, or specific format can be used to help students organize important information. This strategy helps a student listen for key information and note the relationships among concepts and related information.
- **Use step-by-step instruction.** New or difficult information must be presented in small and sequential steps. This helps students who have limited prior knowledge of a subject and who need direct and explicit instruction.
- **Use multisensory instructional practices.** Most students thrive in an instructional environment where most of the senses are incorporated in the learning process. Examples of multisensory teaching approaches include verbal paired with visual displays (e.g., on an overhead or handout), verbal paired with tactile activity, tactile paired with visual information, etc.

- **Display key points in writing.** Prior to teaching a concept or skill, the teacher may wish to visually post new vocabulary words, key points, or concepts. This creates a static model for children to use as they assimilate new information.
- **Use balanced teaching strategies.** Efforts must be made to balance teaching activities with oral and visual presentation and student participatory activity. Another consideration for instructional balance would be to include all types of groupings: large, small, individual, homogeneous, and heterogeneous groups.
- **Encourage mnemonic strategies use.** Mnemonic strategies can be used to help students remember key points or steps in a learning process.
- **Deepen learning through planned reviews.** Planned reviews of previous learning help students connect new information with prior learning. Reviews are critical in ensuring that learning shifts from short to long-term memory.
- **Altered response mode.** For students who have difficulty with fine motor tasks such as handwriting, the response mode could be altered to oral response, underlining, selecting from multiple choice items, sorting, or simple marking.
- **Priority seating.** Students with learning problems can benefit by seating close to the teacher or to the presentation area away from distracting sounds, materials, or objects.
- **Encourage use of assignment books or calendars.** These assists help students organize important information in writing. Students can write and track due dates; test dates; timelines for projects and special assignments; and daily assignments and special instructions.
- **Use cues to denote important items.** Asterisks or bullets can denote information that is critical to upcoming assessments or evaluations. This helps students spend time appropriately during study for tests or assignments.
- **Design hierarchical worksheets.** Worksheets can be designed with problems arranged in progression from easiest to hardest. Early success often encourages students to continue to work toward the more challenging content.
- **Use instructional aids.** Students can be provided with letter and number lines to help them form symbols correctly. Number lines, counters, and calculators also help students compute once they understand mathematical operations and concepts.
- **Display work samples.** Samples of completed anchor assignments can be displayed to help students understand the standard expectations and to plan their assignments accordingly.
- **Encourage peer-mediated learning.** Students of different ability levels can be paired to review notes; clarify directions or instructions; study for an assignment or test; read aloud to each other; write collaborative stories; or conduct laboratory experiments.

- **Encourage note sharing.** For the student who struggles with note taking, lecture notes from a peer may be shared. This will allow students with note taking issues to focus more on the lesson content rather than worry about his or her efficiency to take notes and keep up with instructional pacing.
- **Allow time.** Students who process information at a slower rate than peers can be provided additional work time to complete assignments. Teachers must be sensitive to the need for additional time for specific activities for those students with disabilities.
- **Allow assignment substitutions.** A teacher who allows assignment substitution is one who individualizes according to the student's strengths. The student is allowed to demonstrate his or her knowledge, skills, and abilities in the area of strength rather than the area of deficit.

### **As a parent, what can I do to help my child?**

As a parent, you are your child's best education advocate—until they are old enough and informed enough to speak for him or herself. No one knows your child better than you. You know his or her strengths and challenges, and you can help identify and advocate for the resources your child needs to succeed.

- **Study.** Read. Find and attend workshops or meetings. Communicate with other parents whose children have learning and attention issues. You'll soon become familiar with the many ways that you and your child's school (teachers) can forge a positive relationship in the best interest of your child.
- **Build relationships.** Get to know your child's teacher(s) as well as the specialists within the school setting (i.e., school psychologist, speech pathologist, etc.). Positive relationships help keep the lines of communication open and there is less chance of misunderstanding when everyone communicates openly and honestly.
- **Ask questions.** When there is confusion, ask appropriate clarifying questions. A good strategy is to write questions down to keep a record of discussions.
- **Stay calm.** Remember that your child's teacher(s) and the school staff are there to help and support you and first and foremost, your child.
- **No one knows your child as you do.** It's important to be a good listener and to be receptive to the school staff's thoughts and ideas, but you are your child's first teacher and you have important insights into your child's learning.
- **Talk to your child about his/her disability.** Understanding what your child is experiencing in school is critical to being an effective advocate. Asking your child questions will also help him or her to understand what it is he/she needs. In this way, you are helping your child learn to advocate for him/herself.
- **Get to know the educational language.** As you become adept at this language, you will feel more confident in your relationship with those who work daily with your child.

- **Attend meetings regularly.** Individualized education program (IEP) meetings and parent-teacher conferences afford opportunities to get feedback and updates on your child's progress.