A COMPREHENSIVE LOOK AT DYSLEXIA AND OTHER RELATED DISORDERS

What is dyslexia?

I. "Dyslexia" means a specific learning disability that is:
   (a) Neurobiological in origin;

   (b) Characterized by difficulties with accurate or fluent word recognition and by poor spelling and decoding abilities that typically result from a deficit in the phonological component of language; and

   (c) Often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction, and may include secondary consequences such as reading comprehension problems and reduced reading experience that can impede growth of vocabulary and background knowledge.

   *NH RSA 200:58*

Breaking the definition down, it means:

(a) **Neurobiological in origin:**
There is a brain basis for dyslexia. fMRIs have provided evidence that the areas of the brain used for reading are not as activated in individuals whose reading is not progressing as expected. Dyslexia often has a strong hereditary link, so scientists have been able to study fMRIs of individuals at-risk for dyslexia prior to the onset of reading instruction. A similar pattern of brain functioning can be observed even prior to reading instruction beginning. Effective intervention can develop the systems in the brain used for reading so that they function in a way similar to those of typically developing readers.

(b) **Characterized by difficulties with accurate or fluent word recognition and by poor spelling and decoding abilities that typically result from a deficit in the phonological component of language:**
Phonological processing contributes to an individual’s ability to segment the sounds of our language while spelling, as well as blending the sounds associated with letters while reading. Fluent word recognition develops from repeated accurate practice with reading. Development of fluent reading skills is hampered by difficulties with phonological processing.

(c) **Often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction, and may include secondary consequences such**
as reading comprehension problems and reduced reading experience that can impede growth of vocabulary and background knowledge:

Children who have average to above average cognitive abilities may still have difficulty acquiring reading skills. Their intellectual profile may not have any areas in the below average range. In addition, despite evidence-based classroom instruction, they may still struggle to learn to read at an expected rate. The resulting lack of experience reading directly impacts their word knowledge, background knowledge, and reading comprehension.

Related Disorders

Several disorders may co-occur with dyslexia. NH’s RSA 200:58-62 calls for attention to dyslexia and related disorders such as dysgraphia, dysphasia, phonological processing disorder, and reading fluency disorder. In order to fully support our struggling students, it is important to understand these learning disorders. In this next section, we will concentrate on dysgraphia. There is far less research available about dysgraphia as compared to dyslexia, and more work is needed to develop our understanding of dysgraphia, how to screen for it, and what interventions to provide.

What is dysgraphia?

Dysgraphia is a learning disorder that may be related to dyslexia. Dysgraphia means: dys (impaired) + graphia (handwriting)

Dysgraphia is a specific learning disorder with impairment in written expression resulting from:

• Fine motor difficulties
• Visual Spatial difficulties
• Handwriting trouble

Students with Dysgraphia have “writing skills (that) are substantially below those expected given the person’s chronological age, measured intelligence, and age-appropriate education.” (Black, 2014)

Breaking the definition down, it means:

Children with dysgraphia may have difficulty with both orthographic coding (spelling) and planning sequential finger movements, but do not have a primary developmental motor disorder. Research to date has shown orthographic coding (the ability to store unfamiliar written words in working memory and create permanent memory of written words) in working memory is related to handwriting.

Dysgraphia is thought to be the result of impairment in the cerebellar region or due to impairment in the cortico-cerebellar loop. The cerebral cortex is the gray matter covering the brain’s hemispheres. The cerebellum helps “program” handwriting to automaticity as it receives information processed through the cortex. Handwriting involves sequential movements coordinated through the visual and motor systems.
and involves coordination among all four lobes of the brain. Unlike dyslexia, dysgraphia has not been found to have a familial link.

References:


Not all students at-risk for dyslexia and dysgraphia have the same profile inclusive of all characteristics. Some students may exhibit more than others. Difficulty in areas that are developmentally appropriate would not necessarily be an indicator of dyslexia or dysgraphia. These characteristics would appear beyond a normal period of skill acquisition.

Characteristics of dyslexia tend to appear at certain grade levels. Writing is comprised of a cluster of skills. Characteristics of dysgraphia tend to appear when there are skill deficiencies in one or more of the groups. Students at-risk for dyslexia and dysgraphia may exhibit some or all of the characteristics. There are many traits to dyslexia and dysgraphia; therefore, profiles for at-risk students are unique to each individual.

Dyslexia

**Kindergarten and First Grade:**
- Difficulty in rhyming
- Difficulty breaking words into smaller parts (syllables) (e.g., “baseball can be separated into “base” “ball” or “number” can be separated into “num” “ber”)
- Difficulty identifying and manipulating sounds in syllables (e.g., “pen” sounded out as /p/ /e/ /n/)
- Difficulty rearranging letters to create another word (e.g., “lap” to “pal” or “was” to “saw”)
- Difficulty remembering the names of letters and recalling their corresponding sounds
- Difficulty decoding single words
- Difficulty reading single words in isolation
- Spelling words the way they sound (phonetically) or difficulty remembering sequences in sight words seen often in print (e.g., “sed” for “said”)
- Confusion with spatial orientation (e.g., up/down, over/under, right/left)

**Second and Third Grade:**
- Difficulty recognizing common sight words (e.g., “to,” “said,” “been”)
- Difficulty decoding one syllable words
- Difficulty recalling the correct sounds for letters and letter patterns in reading
- Confusion with visually similar letters/numerals (e.g., 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 (e.g., “after” spelled
“eftr”)
● Difficulty reading fluently (e.g., slow, inaccurate, and/or without expression)
● Reliance on picture clues, story theme, or guessing at words
● Difficulty remembering spelling words over time and applying spelling rules
● Difficulty remembering sight words

**Dysgraphia**

**Visual-Spatial Challenges:**
● Trouble with shape discrimination and letter spacing
● Writes letters that go in all directions, and letters and words that run together on the page
● Hard time writing on a line and in the margins
● Copies text slowly

**Fine Motor Challenges:**
● Trouble holding a pencil correctly, tracing, cutting, tying shoes, doing puzzles
● Unable to use scissors well or color inside the lines
● Holds wrist, arm, or body in an awkward position while writing
● Gets a tired or cramped hand when writing
● Illegible handwriting

**Language Processing Challenges:**
● Trouble writing ideas on paper quickly
● Loses train of thought
● Difficulty following directions
● Difficulty understanding rules of games
● Erases often

**Spelling Challenge:**
● Difficulty remembering spelling rules
● Difficulty identifying misspelled words
● Lack of logical and sequential progression in spelling words
● Erratic structure and spelling errors
● Saying words out loud while writing

**Grammar and Usage Challenges:**
● Irregular and inappropriate use of punctuation and capitalization, or lack thereof
● Inconsistent use of proper verb tenses
● Doesn’t write in complete sentences, but writes in a list format
● Writes run-on sentences

**Poor Organization of Written Language:**
• Poor grammar and sentence structure
• Disorganized expression, even at the sentence level
• One sentence constituting a paragraph
• Assumes others know the content
• Writes vague descriptions
• Is better at conveying ideas orally than in writing

References:


Stress causes our bodies to release hormones that are meant to aid our survival mechanisms. Chronic stress, however, exposes our bodies to these hormones repeatedly, which can cause health problems. Stress and anxiety are often a daily part of the academic life of a student with dyslexia and can become chronic. For example, a child with reading difficulty, such as dyslexia, is directed by a teacher to read aloud in class. The child may be afraid that others will laugh at him or her. It is embarrassing for any of us to make mistakes in front of others, particularly peer groups, yet it is a situation these children with dyslexia face often. If our body’s chemistry gets out of balance from a stressful situation, we can mentally shut down (Schultz, 2014). Those same hormones that help us deal with a stressful situation make it hard for us to concentrate on learning.

These feelings of anxiety, fear, and frustration can manifest themselves in observable behaviors. If teachers and parents understand the root cause of such behaviors, it changes the perspective of how adults in their lives view these behaviors. Some behaviors a child with dyslexia may exhibit in a classroom include:

• Hesitancy to enter a new situation, such as working with a new group of students, because of the fear of failure or fear of embarrassment;
• Resisting completing academic tasks, perhaps by “forgetting” to complete homework, avoiding doing classwork that involves reading or writing, or by using behavior to take the class off track;
• Exhibiting anger because of frustration due to frequent failure;
• Poor self-image resulting in feelings of inferiority, powerlessness, or stupidity;
• Hesitancy to volunteer to answer questions in class or participate in discussions;
• Developing a perspective that the world is a negative place which can lead to symptoms of depression that can manifest itself as apathy or lethargy.

Educators contribute to the feelings of success and achievement their students’ experience. Recognizing that children learn to read at varied paces creates an individualized approach. Early intervention can prevent the onset of negative emotions in response to academic situations. By helping a child with dyslexia or at-risk for dyslexia achieve academic success early, a host of related problems can be avoided. These individuals can learn skills and strategies that best support them in rigorous academic activities. It is healthier emotionally for the individual and prepares him or her to become a positive contributor to society.
Educators can provide a safe learning environment while maintaining high expectations for learning (Dweck, 2006). If educators become knowledgeable about dyslexia and other related disorders, they can help their students understand why reading and writing tasks are difficult while also acknowledging strengths in intelligence and other academic areas. Responses to a student’s struggles can impact their willingness to persist and take risks. When a student makes a mistake, an artful teacher can consider the thought process that led to the error and create a teachable moment without diminishing the student’s self-image. Sometimes a child’s mistake can be amusing or frustrating to us as educators. It is important to make sure our body language and tone of voice are calm, non-reactive, and supportive when handling errors, whether we are working individually or with an entire class.

Teachers and parents can help create an environment in which a child with dyslexia can feel more successful in some very practical ways. Some of these include:

• Helping the child with dyslexia find the areas in which he or she can be successful;
• Encouraging the child by assuring him or her that teachers and parents will provide the support needed for him or her to be successful;
• Complimenting the child for putting forth good effort, even when the product is not what he or she had hoped;
  ○ For example, say, “I noticed you really thought that project through,” rather than critiquing the spelling or handwriting.
• Finding ways to relate the child’s strengths with academic activities;
  ○ For example, if he or she is a good artist, incorporate art into academic learning, or when learning landforms, have the child draw them and provide labels.
• Finding ways in which the child can help others in areas of strength.
  ○ For example, if he or she is strong in math, have them be a peer tutor or help a younger student.

The Social Connection

Social interactions are complex. Many children with dyslexia have a hard time sequencing and have difficulties with auditory memory or processing. Complex interactions with a larger social group involve a series of conversational points that may be hard for children with dyslexia to process, remember, and respond to. It is important to note that every child with characteristics of dyslexia has different patterns of strengths and weaknesses. The descriptions above are included to help educators determine what might be contributing to the difficulties a specific child is experiencing.

Teachers can help decrease the stress and anxiety that children with dyslexia experience. In the classroom environment, teachers can:

• Provide a series of smaller, achievable assignments;
• Listen to the student’s feelings. Help them name the feeling or emotion he or she is experiencing;
• Let the student know that he or she will not be required to read out loud in class;
• Whenever possible, let the child know in advance that you will be calling on him or her and state what you will be asking; and
• Call on the student when asking questions the student can answer.

References:


