Understanding and Recognizing Dyslexia
Definition of Dyslexia:

- 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 growth of vocabulary and background knowledge.

Adopted by the IDA Board of Directors, Nov. 12, 2002. This Definition is also used by the National Institute of Child Health and Human Development (NICHD).
Specific Learning Disability
IDEA 2004

“The term ‘specific learning disability’ means a disorder in one or more of the basic processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write spell or do mathematical calculations.

Such terms includes conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.”
Civil Rights and Dyslexia

Section 504

- Section 504 prohibits discrimination on the basis of disability in programs or activities that receive federal financial assistance from the U.S. Department of Education.

- To be protected under Section 504, a student must be determined to:
  1) have a physical or mental impairment that substantially limits one or more major life activities;
  2) have a record of such an impairment, or
  3) be regarded as having such an impairment.

- Section 504 requires that school districts provide a free and appropriate public education (FAPE) to qualified students in their jurisdictions who have a physical or mental impairment that substantially limits one or more major life activities.

Colker, Shaywitz, Shaywitz, Simon: Comments on Proposed DSM-5 Criteria for Specific Learning Disorder from a Legal and Medical/Scientific Perspective, Yale Center for Dyslexia and Creativity. 2012
DSM-5 and Dyslexia
Specific Learning Disorders

- DSM-5 considers SLD to be a type of Neurodevelopmental Disorder that impedes the ability to learn or use specific academic skills (e.g., reading, writing, or arithmetic), which are the foundation for other academic learning.

- The learning difficulties are ‘unexpected’ in that other aspects of development seem to be fine.

- Dyslexia, dysgraphia, dyscalculia may be used to specify the nature of their SLD, according to individual preference. The aim of the requirement to use specifiers to characterize the range of academic skills affected by dyslexia is to increase awareness that ‘dyslexia’ typically encompasses far more difficulties than those related to decoding and spelling words.

Dyslexia

“Islands of weakness in a sea of strengths”

- Problems in accuracy and rate of oral reading of words and text and pseudo words and/or spelling

- Skills above discrepant from Verbal Comprehension Index (Verbal IQ) and below population mean.

- Language (except for phonology) is a relative strength that can mask severe problems in working memory that are invisible without assessment.
Myths About Dyslexia

- Dyslexics see backwards or up-side down and therefore are likely to reverse letters and numbers.
- Boys are more likely to be dyslexic than girls.
- Dyslexia stems from poor parenting or laziness.
- Kids will grow out of it.
- They will learn to read when they are ready.
- There is no such thing as dyslexia.
Dyslexia Statistics

- 15-20% of the population have a language-based learning disability.

- Of the students with specific learning disabilities receiving special education services, 70-80% have deficits in reading.

- Dyslexia is the most common cause of reading, writing and spelling difficulties.

- Dyslexia affects males and females nearly equally, and people from different ethnic and socio-economic backgrounds as well.

- 74% of the children who are poor readers in 3rd grade remain poor readers in the 9th grade. Often they can't read well as adults either.
Achievement Gap in Reading Is Present as Early as First Grade and Persists through Adolescence

Life with Dyslexia - Outcomes

- Only 52% of students identified with LDs will actually graduate with a high school diploma.

- Learning disabled students drop out of high school at more than twice the rate of their non-disabled peers.

- Up to 60% of adolescents who receive treatment for substance abuse have learning disabilities.

- 62% of learning disabled students were unemployed one year after high school graduation.

- 31% of adolescents with LDs will be arrested within five years of leaving high school.

National Center for Education Statistics, Literacy Behind Prison Walls, 1994
JFA Associates, The Impact of Ignoring Dyslexia and Reading Disabilities in the Criminal Justice System: What We Know and Need to Know, 2004
The Biological Basis of Dyslexia

- Reading Problems Run in Families

“Dyslexia is strongly (54% to 75%) heritable, occurring in up to 68% of identical twins and 50% of individuals who have a parent or sibling with dyslexia.”  (Gabrieli, 2009)
Dyslexia Occurs as a Continuum

“Reading ability and reading disability occur along a continuum; reading disability is represented within the lower tail of a normal bell-shaped distribution of reading ability.”

(American Academy of Pediatrics, 2011)
Reading Differences are in the Brain

Converging evidence indicates three important systems in reading, all primarily in the left hemisphere.
Neural Signature for Dyslexia: Inefficient Posterior Reading Systems

Non-impaired

Dyslexic

© Sally Shaywitz, M.D., Overcoming Dyslexia

The Role of Language and Culture


The Perfect Storm - difficulties

- Phonologic processing
- Executive function
- Attention
- Rapid naming
- Auditory memory
- Sensorimotor functioning
Reading May Not Be The Only Problem

- Writing, Speaking, SPELLING, Math
- Memory, Processing Speed, Sequencing
- Organization
- Social Skills
Watch For Co-morbidities

- ADD/ADHD
- Executive Function Disorders
- Anxiety Disorders
- Major Depression
- Bipolar Disorder
- Tourettes
Secondary Emotional Difficulties

- Anxiety
- Anger
- Self Image
- Frustration
- Depression
- Family Problems
- Substance Abuse
Watch for Talents and Gifts

- Art
- Music
- Athletics
- Dance
- Empathy
- Humor
- Out of the Box Thinking
Dyslexia Not Tied to IQ

Non-impaired: IQ-Reading Linked

Dyslexia: IQ-Reading Diverge

Based on Ferrer et al., 2010
Video Clip:
Journey Into Dyslexia
Reflection Time

Dyslexic Artist: Vince Low
Video Clip: *It’s Never Too Late*
Meet Sandy and Mike
Big Ideas in Reading

- Phonemic Awareness
- Alphabetic Principle
- Accuracy and Fluency
- Vocabulary
- Comprehension

Report of the National Reading Panel, *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction*, NICHD 2000.
Typical Reading Development

Phonological Skill Development

Early phonological awareness
- Rhyming, alliteration, first sounds

Basic phonemic awareness
- Blending and segmentation

Advanced phonemic awareness
- Phonemic proficiency

Word-Reading Development

Letters and sounds
- Requires simple phonology to learn sounds

Phonic decoding
- Requires letter sounds and blending (alphabetic principle)

Orthographic mapping
- Requires letter-sound skills and advanced phonological awareness

Word Reading
(and all its subskills) + Linguistic Comprehension =

Reading Comprehension
## Types of Readers

<table>
<thead>
<tr>
<th>Typical Reader</th>
<th>Hyperlexic</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strong Word Reading</td>
<td>• Strong Word Reading</td>
</tr>
<tr>
<td>• Strong Language Comprehension</td>
<td>• Weak Language</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dyslexic</th>
<th>Mixed Reading Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Weak Word Reading</td>
<td>• Weak Word Reading</td>
</tr>
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</tr>
</tbody>
</table>
Successful Readers

- Rely primarily on the letters in the word rather than context or pictures to identify familiar and unfamiliar words.
- Process virtually every letter.
- Use letter-sound correspondences to identify words.
- Have a reliable strategy for decoding words.
- Read words for a sufficient number of times for words to become automatic.

From: [www.reading.uoregon.edu](http://www.reading.uoregon.edu)
IDEA Institute for the Development of Educational Achievement 2002-2004
Dyslexic Readers

- Lack knowledge of the ways in which sounds map to print
- May read single-syllable words, but have difficulty decoding longer, multisyllabic words
- May omit or substitute words such as a, the, and, of
- Have difficulty breaking words into syllable parts
- Often do not use word analysis strategies to break words into parts
- Difficulty retaining sight words

Battacharya & Ehri, 2004, Nagy, Berninger, & Abbott, 2006; Boardman et al., 2008
Preschool Warning Signs

- Delayed speech- Mixing sounds in multi-syllabic words
- Inability to rhyme by age 4
- Can’t master tying shoes
- Confusion of left versus right
- Difficulty naming the names of the letters in the alphabet or their sounds; difficulty writing the alphabet in order
- Unusual pencil grip
Dyslexia in the Classroom Elementary Years

- Terrible spelling
- Letter or number reversal continuing past the 1st grade
- Difficulty sounding out nonsense words
- Extreme difficulty learning cursive
- Often can’t remember sight words or homonyms
- Strong oral language comprehension
- Slow, choppy, inaccurate reading
- Difficulty remembering the sequence of the days of the week, months of the year.
Dyslexia in the Classroom
Elementary Years Continued

- Trouble with automatic recall of math facts
- Trouble knowing the value of coins
- Difficulty telling time on a clock with hands
- Left versus right
- Extremely messy desk
- Dreads going to school
- Dysgraphia
- A family member with a history of reading, writing, and spelling difficulties
Sound to Symbol Sample

End of 1st grade
Sound to Symbol Notices

- Reversals of letters and/or numbers
- Self-corrections
- Common confusions or difficulties: b-d, g-j, m-n, p-q, sh-ch, f-th
In Reading, You May Notice:

- Cannot easily read high frequency sight words
- Guesses based on similar shape: wait for went, dog for big
- Looks at first letter or two and guesses: sun for says, them for there, wait for went
- May read a word correctly on one page, but miss it on the next
- Directionality confusion: b-d, b-p, p-q,
- Cannot sound out nonsense words
Spelling Sample

3rd grader
First my friends came over.

Then we played Minecraft on my PS3.

We played Minecraft for 2 hours, then we

stop playing and went outside and for

10 minutes. Then we went back

on Minecraft 4 hours. My friends

name is Aiden.

"I don't usually spell my friend's name."

Significant difference between verbal discussion
of this topic and his ability to write about it.
Spelling Sample

5th grader

<table>
<thead>
<tr>
<th>Spelling Sample</th>
<th>Correct Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>cushion</td>
<td>一般ly</td>
</tr>
<tr>
<td>plentiful</td>
<td>custom</td>
</tr>
<tr>
<td>Taleiier</td>
<td>tailor</td>
</tr>
<tr>
<td>emphasis</td>
<td>emphasize</td>
</tr>
<tr>
<td>gracious</td>
<td>dignity</td>
</tr>
<tr>
<td>terris</td>
<td>terrace</td>
</tr>
<tr>
<td>applause</td>
<td>applause</td>
</tr>
<tr>
<td>jungle</td>
<td>queasy</td>
</tr>
<tr>
<td>preshose</td>
<td>precious</td>
</tr>
<tr>
<td>prophitible</td>
<td>profitable</td>
</tr>
<tr>
<td>routine</td>
<td>obedient</td>
</tr>
<tr>
<td>ambition</td>
<td>competition</td>
</tr>
<tr>
<td>merchant</td>
<td></td>
</tr>
</tbody>
</table>
Fred was my dog. He was a husky and he was old. Fred would play with me and bring me my binky when I was crying. He also [ae] eat my cousins chikins.
In Writing and Spelling, You May Notice:

- Capitalization issues
- Punctuation not there or used incorrectly
- Spelling issues
  - Cannot retain spelling words week to week
  - Misspells high frequency sight words
  - Consonant sounds left out, inserted, or just wrong
  - Vowel sounds wrong
  - Writes words or syllables without any vowels
  - Silent E confusion
  - Spells the same word differently each time it is written
  - Homonym confusion
  - Does not apply suffix spelling rules
  - Simple word choice
  - Common confusions: b-d, p-q, g-j, m-n
  - Reversals after 1st grade
- Discrepancy between written and oral expression
Adolescents and Adults with Dyslexia

- Are slow readers – hard to read technical stuff
- Terrible spellers
- Can’t prove their intelligence on paper
- Trouble learning a foreign language
- Still have trouble with left and right
- Still may confuse b and d
- Difficulty reading printed music
### Spelling Sample

<table>
<thead>
<tr>
<th>20 year old</th>
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</table>

<table>
<thead>
<tr>
<th>Cushion</th>
<th>Cushion</th>
</tr>
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<tr>
<td>generally</td>
<td>plentiful</td>
</tr>
<tr>
<td>custom</td>
<td>plentiful</td>
</tr>
<tr>
<td>tailor</td>
<td>tailor</td>
</tr>
<tr>
<td>emphasize</td>
<td>emphasize</td>
</tr>
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<td>gracious</td>
<td>gracious</td>
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<tr>
<td>dignity</td>
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</tr>
<tr>
<td>terrace</td>
<td>terrace</td>
</tr>
<tr>
<td>applause</td>
<td>applause</td>
</tr>
<tr>
<td>image</td>
<td>queasy</td>
</tr>
<tr>
<td>query</td>
<td>interfere</td>
</tr>
<tr>
<td>prejudice</td>
<td>precious</td>
</tr>
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Remember

Differences Between Typical & Dyslexic Readers Occur as Early as First Grade

Reflection Time

Dyslexic Artist: Vince Low
Video Clip: 
It’s Never Too Late
Part 2
Oregon Dyslexia Laws 2015

The goals:

- Ensure current teachers know the warning signs of dyslexia
- Ensure University teacher preparation programs offer coursework on dyslexia
- Ensure school districts screen for the risk factors of dyslexia in the earliest grades
- Ensure ODE has a dyslexia specialist on staff
“Standards for approval of an educator preparation program for early childhood education, elementary education, special education, or reading must require instruction that is consistent with the knowledge and practice standards of an international dyslexia association on dyslexia.”

Knowledge and Practice Standards for Teachers of Reading

International Dyslexia Association®
Early identification and appropriate instructional planning are critical to student outcomes. At least 70% of students who do not learn to read by age 9 will struggle to catch up to their typically developing peers.

“The best solution to the problem of reading failure is to allocate resources for early identification and prevention.”

J. K. Torgeson, 2000
The initial screeners required by SB 612 in kindergarten and/or 1st grade will not be sufficient to identify students with dyslexia.

These screeners can, however, accurately identify those students who are at risk for reading difficulties, including dyslexia.

**Early intervention benefits the acquisition of reading skills for students who are at risk for reading difficulties regardless of the cause.**

Monitoring a child’s response to high quality reading instruction may be the best way to identify students with severe dyslexia, followed by additional screening and formal evaluation if needed.

(Torgesen et al., 2007), Oregon Department of Education SB 612: Plan for Universal Screening for Risk Factors of Dyslexia
Screening for Risk factors of Dyslexia

- The most predictive measure of reading difficulties is letter sound knowledge in kindergarten. By the middle of 1st grade, it is word reading.

- At a minimum, districts are required to screen kindergarten students or grade 1 students using measures of 1) phonological awareness, 2) letter-sound correspondences, and 3) rapid naming.

- It is critical to provide intervention as quickly as possible to those students who are at risk for reading difficulties.

- Oregon plan focuses on the provision of a multi-tier system of supports (MTSS) to prevent reading failure.
Screening for Risk factors of Dyslexia Continued

- Systems for universal screening must (a) have strong predictive validity, classification accuracy, and norm-referenced scoring; (b) include measures of phonological awareness, letter-sound correspondences, and rapid naming at least once per year; and (c) include progress monitoring measures aligned with the universal screeners.

- ODE will provide a list of approved systems for universal screening.

- Districts may select one of the approved systems or apply to select an alternative universal screening system that meets the criteria.

- Examples of universal screening systems with these characteristics that are currently administered in Oregon districts include AIMSweb, DIBELLS 6th Edition, DIBELS Next, and easyCBM.
Components of a Comprehensive Evaluation

- **History** (school, family and developmental)

- **Cognitive Assessment** (a comprehensive assessment of cognitive abilities, including phonemic awareness, verbal reasoning / vocabulary, short-term / working memory, long-term memory, fluid reasoning, speed of processing and rapid automatic naming)

- **Academic Achievement** (performance and achievement assessment including methods, integrity, and results)
Early Intervention Matters

Altering the brain circuits for reading through intervention: A magnetic source imaging study.
By Simos, Panagiotis G.; Fletcher, Jack M.; Sarkari, Shirin; Billingsley, Rebecca L.; Denton, Carolyn; Papanicolaou, Andrew C.
Overcoming Dyslexia

A student with dyslexia needs to be taught by a well prepared teacher with a program that:

- Provides **systematic, explicit, and intensive** instruction in phonemic awareness, phonics, fluency, vocabulary and reading comprehension.
- Is simultaneously **Multi-Modal (Multisensory)**
Treatment for Dyslexia

Dyslexia treatment has two components:

- Educational treatment of core problems with reading and spelling.
- Treatment of any concurrent psychological disorders.
Intervention

- A program of structured literacy can help activate the neural pathways in the automatic word form area of the brain.

- The goal is to help students read with the superhighway of their brain, not the long windy road.
Effective Reading Instruction Changes the Brain

“Such improvements are much more likely to occur in children who are beginning to read (ages 6 to 8) than in older children…” (Gabrielli, 2009)
Teach Together From the Beginning

- Language
- Reading (Decoding and Comprehension)
- Writing
- Spelling
IDA Knowledge & Practice Standards for Teachers of Reading

Knowledge Components:
A. Foundation Concepts about Oral & Written Language
B. Knowledge of the Structure of Language
C. Knowledge of Dyslexia & other Learning Disorders

D. Interpretation & Administration of Assessments for Planning Instruction

E. Structured Language Teaching in:
   - Phonology
   - Phonics & Word Recognition - Fluency
   - Vocabulary
   - Text Comprehension
   - Handwriting, Spelling & Written Expression
What is Structured Literacy?

- Speech sound system (phonology)
- Writing system (orthography)
- Structure of sentences (syntax)
- Meaningful word parts (morphology)
- Meaning (semantics)

International Dyslexia Association Suzanne Carreker Webinar 2017
https://dyslexiaida.org/idas-free-webinar-series/
Effective Intervention Programs

Orton Gillingham
Lindamood - Bell LIPS
Slingerland
Alphabetic Phonics
Project Read
Wilson
Language!
Barton Reading & Spelling System
There are others....

or.dyslexiaida.org
dyslexiaida.org
Accommodations and Modifications

- More Time
- Graphic Organizers
- Alternative Formats to Demonstrate Knowledge
- Step by Step Instruction
- Reduced Homework
- Peer Mediated Learning
- Clarify Directions
- Memory Aids
- Flexible Learning Environment (UDL)
- Calculator/Math Facts Charts
- Technology Tools

[Links]
dyslexiaida.org
www.ldonline
Assistive Technology

- **Reading**
  - Audio-texts
    - Bookshare
    - Learning Ally
  - Text to Speech
    - Voice Dream
    - Siri
    - Dragon
    - C-Pen Reader
    - Prizmo
Assistive Technology Continued

- **Writing**
  - Co-Writer
  - Grammarly
  - Read Write Gold
  - Easy Spelling Aid

- **Notetaking**
  - Notability
  - Livescribe Smart Pen
  - Snap Type

- **Organization**
  - Inspiration
  - Snap Type
Video Clip:
*It’s Never Too Late*
Part 3
References

- Henry, Marcia K. *Unlocking Literacy, Effective Decoding and Spelling Instruction*, 2nd Ed 2010
References Continued

- Moats, Louisa C. *Speech to Print, Language Essentials for Teachers*, 2nd Ed 2010
Web Resources

- International Dyslexia Association (IDA) dyslexiaida.org
- Oregon Branch (IDA Oregon) or.dyslexiaida.org
- National Center for Learning Disabilities (NCLD) www.ncld.org
- Learning Disabilities Association of America (LDA) www.ldaamerica.org
- Learning Ally, www.learningally.org
- Florida Center for Reading Research www.fcrr.org
- Oregon Dept. of Education www.oregon.gov/ode/students-and-family/SpecialEducation/RegPrograms_BestPractice/Pages/Dyslexia.aspx
- The Center for Effective Reading Instruction (IDA Knowledge and Practice Standards) https://effectivereading.org
Web Resources Continued

Webinars

https://www.youtube.com/user/idachannel

- Louisa Moats, *IDA's Knowledge and Practice Standards: How They Can Improve Reading Instruction for All Students*

- Patricia Mathes, *Overcoming Dyslexia: What Does It Take?*

Videos

- “Journey into Dyslexia.” HBO. Produced by Alan and Susan Raymond, 2011.

- “It’s Never Too Late.” Leslie, Jeremiah, Mears Pam EdD.
The Oregon Branch of the International Dyslexia Association is pleased to present a forum for information to benefit its constituents. It is IDA's policy to not recommend or endorse any specific program, product, institution, company, or instructional material, noting that there are a number of such that present the critical components of instruction as defined by IDA's Knowledge and Practice Standards for Teachers of Reading. Any program, product, institution, company, or instructional material carrying the IDA Accredited seal meets the IDA Standards.
Every dyslexic person has a story of the ONE person who made all the difference. The ONE who helped them see they were more than their test scores and believed they were capable of greatness regardless of their learning challenges. This ONE person changed everything for this ONE child.

Will You Be The ONE?