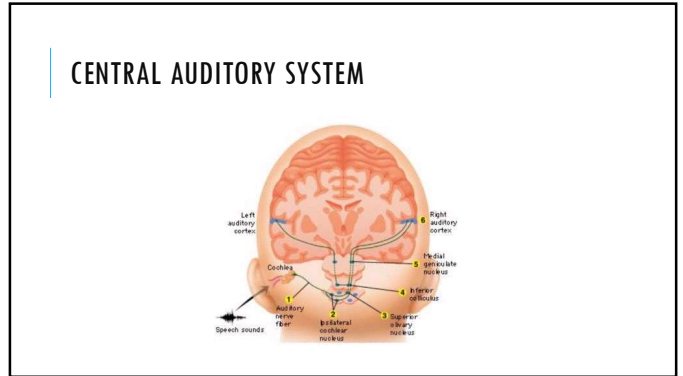
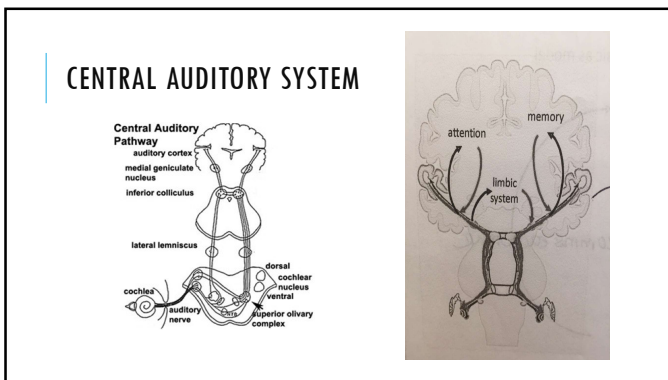


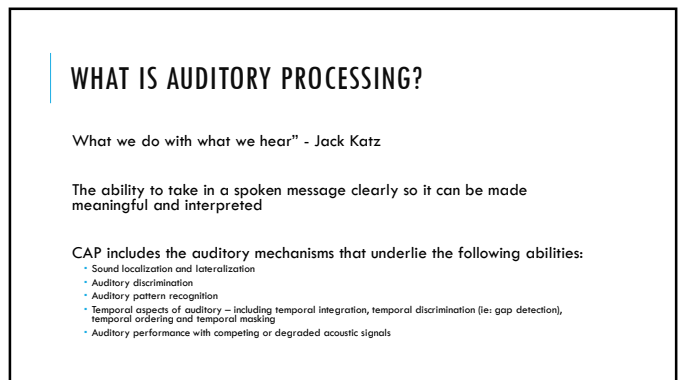
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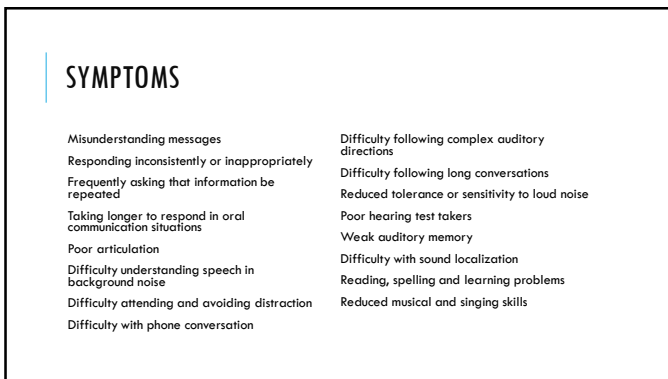
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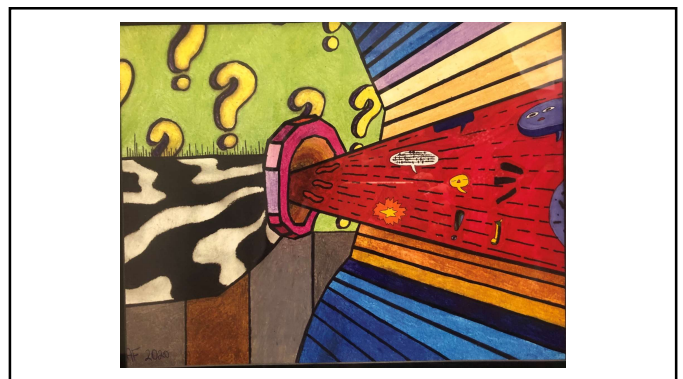
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6

## DIAGNOSTICS — BUFFALO MODEL

Case History

Buffalo Model Questionnaire – Revised  
(BMQ-R)

Diagnostic Hearing Evaluation / Immittance

3 powerful central auditory tests

- Staggered Spondaic Word (SSW)
- Phonemic Synthesis (PS)
- Speech-in-Noise

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## BUFFALO MODEL TEST BATTERY: STAGGERED SPONDAIC WORD TEST (SSW)

Most sensitive test in the battery

Binaural test with different spondee words going to each ear with the two middle words overlapping

Administration:

- 40 items
- Approximately 7.5 minutes to complete
- Norms for ages 5 to 69
- Counterbalanced

Number of Errors analysis (20 indicators of APD)

- Associated with all categories of the Buffalo Model
- Quantitative findings
- Qualitative findings

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## TEST BATTERY — MIDWEST EAR INSTITUTE

APD Screening Evaluation

- Auditory Skills Assessment
  - Speech Discrimination – speech in noise, mimicry
  - Phonological Awareness – blending, rhyming
  - Nonspeech Processing – patterning, ordering
- SCAN 3 C – screening
  - Auditory Figure Ground (+ 8 dB SNR)
  - Competing Words – Free Recall
- Phonemic Synthesis

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## TEST BATTERY — MIDWEST EAR INSTITUTE

APD Diagnostic Evaluation

- Staggered Spondaic Word (SSW) Test
- Phonemic Synthesis Test
- SCAN 3 (adult or child version)
  - Filtered Words
  - Competing Words (Directed Ear vs. Free Recall)
  - Competing Sentences
  - Auditory Figure Ground
  - Time Compressed Sentences
  - Random Gap Detection

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## SCORING TESTS

Quantitative Score

Qualitative Score

Ear Advantage findings

Patterns of test findings

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## BUFFALO MODEL

Decoding:

- Quickly and accurately processing speech at the phonemic level

Tolerance Fading Memory:

- Understanding speech in noise and short-term auditory memory

Organization:

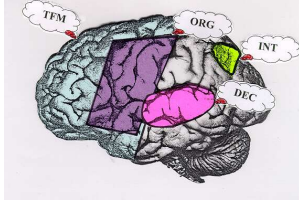
- Sequencing and organizing

Integration:

- Combining auditory information with information from other processing centers and modalities

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## ANATOMY OF THE BUFFALO MODEL



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## WHAT IS INTEGRATION?

Inability to bring together information

- E.g., auditory – visual integration

It is associated with severe reading, spelling, phonics and auditory / visual association problems

- E.g., Dyslexia

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## WHAT IS DYSLEXIA

Don't know how to read

Writes letters backwards

Low IQ / lack of intelligence

Best diagnosed by a reading specialist or psychologist

**Myth**

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Source: Made By Dyslexia. (January 24, 2019) Dyslexia Awareness Part 1: Module 1 – About Dyslexia. Retrieved from <https://www.youtube.com/watch?v=DgMDQez5QuA>

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## WHAT DID WE LEARN?

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## DYSLEXIA – INTERNATIONAL DYSLEXIA ASSOCIATION

"Dyslexia is a specific learning disability that is neurobiological 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.  
<https://Dyslexiaida.org/definition-of-Dyslexia/>

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## DYSLEXIA

### Language based disorder

- Phonological processing disorder is the principal cause
- Poor fine structure processing

### Spectrum of difficulties

- Not a visual disorder
- Not related to cognitive skills or intelligence
- Can be related to memory problems
- Difficulty multi tasking

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## DYSLEXIA

### Neurological in origin

Estimated that 20% of population is Dyslexic

- Strong inheritance
- More common in males
- Can be associated with other neurologic conditions like ADHD

Often undetected until 3rd grade, like APD

- Research shows that Structured Literacy therapy between ages 6-9 years old can change the outlook significantly
- Research suggests feelings of inferiority develop by age 10

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## DYSLEXIA — SIGNS AND SYMPTOMS

Does not associate letters with sounds

Poor articulation skills

Mispronunciation of words

Cannot sound out words

Complains that reading is hard

Slow to acquire reading skills

Trouble reading unfamiliar words – making wild guesses

Confuses words that sound alike – like tornado for volcano

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## DYSLEXIA — SIGNS AND SYMPTOMS

Mixed dominance for handedness

Trouble remembering dates, names, phone numbers

Difficulty remembering sight words

Poor spelling

Messy handwriting (dysgraphia)

Extreme difficulty learning a foreign language

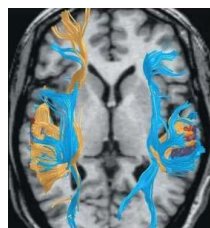
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## DYSLEXIC BRAIN DEVELOPMENT

### Greater Right Hemisphere Activation

- Lack of left hemisphere specialization for language
- More often use right hemisphere processing centers

With support, left hemisphere specialization can occur but at a slower rate and lesser degree



(From Leonard & Eckert, Assymetry and Dyslexia)

Finn et al. 2013

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## DYSLEXIC BRAIN DEVELOPMENT

### Greater spacing between cortical minicolumns

- Not as good at fine detail processing which is needed for phonological processing

Longer neural pathways (opposite of Autism with short connections)

- longer pathways have less synaptic connections
- Longer pathways can decrease the strength of signal transmission

When learning, Dyslexics may use one area tightly and not create superhighways normally seen when automaticity happens

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## PROCESSES UNDERLYING DYSLEXIA

Phonological processing: processing of basic sound units (phonemes) to create words

- Fine detail processing task
- Must be able to analyze and manipulate sounds – add and drop sounds
- 70-80% of individuals with Dyslexia have sound processing problems

GREAT Auditory Processing Skills are needed to get the correct sound information to the language center!

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## PROCESSES UNDERLYING DYSLEXIA

Automatic / procedural memory

- We must learn how to do certain tasks automatically – this is very challenging for persons with Dyslexia
  - 50% of Dyslexics have difficulty mastering any rule based or rote skill that should become automatic
  - Easily forget skills they may have already seemed to master

Better at declarative memory – memories that can be put into words

- Must use conscious compensation to talk them through simple tasks
  - Puts heavy load on working memory (especially auditory verbal working memory)

Source: Nicolson, R. & Fawcett, A. 2019.

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## PROCESSES UNDERLYING DYSLEXIA

Difficulties with procedural memory can lead to difficulty:

- Discriminating sounds
- Articulation
- Breaking Words into sounds
- Mastering rules of phonics and spelling
- Understanding syntax
- Memory of sequences – days, months, letters
- Memory of math facts
- Motor rules for forming letters and even spacing

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## COGNITIVE PROCESSES UNDERLYING DYSLEXIA

Rapid Automatized Naming (RAM) aka Naming Speed

- A measure of how quickly an individual can clearly speak the name of a set of familiar items.
  - A good measure of speed and accuracy needed for reading
  - Uses visual, language and attention skills like reading. These brain networks must be connected to read fluently

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## COGNITIVE PROCESSES UNDERLYING DYSLEXIA

Visual processing

- Fine detail processing task
- Decreased connectivity / longer pathways in the area
- Can have poor visual attention: helps your brain decide what to pay attention to and what to ignore
- Visual span: how many printed symbols you can take in at a single glance
  - Dyslexics have narrower visual spans
- Poor fixation can lead to blurring or blending of letters
- Small fonts, style of font, etc can make reading harder

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## COGNITIVE PROCESSES UNDERLYING DYSLEXIA

Working Memory

- Reading uses many skills that must be automatic – if the skills are not automatic, reliance on 'talking yourself' through a task will use too much working memory.
- Develops rapidly in teenage years and reaches maximum capacity by age 25 years old
- Key component of executive function skills: organizing, planning, implementation
  - May see difficulties with executive function due to limitations of working memory

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## COGNITIVE PROCESSES UNDERLYING DYSLEXIA

Processing Speed: The speed at which an individual can take in, process and respond to information.

- Dyslexics have slow processing due to longer pathways, poor signal transduction and poor automatic processing

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## ADVANTAGES OF DYSLEXIA

Improved 3D spatial reasoning and mechanical ability

- Can construct mental models of real or imaginary spaces
- Dyslexics play with legos or building projects at twice the rate of non-dyslexic peers

"Big Picture" processing

- Can perceive connections and relationships like analogies, metaphors, paradoxes, similarities, differences and missing pieces
- Can approach problems with different perspectives to find ways around problems

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## ADVANTAGES OF DYSLEXIA

Improved narrative memory – remembering stories and relationships

- Ability to remember past personal experiences in vivid detail and to use fragments of these memories to perform all sorts of cognitive tasks
- Can be helpful in customer service and sales (remembering details about clients)

Ability to perceive subtle patterns in complex and constantly shifting systems or data sets and to mentally simulate and predict the outcome of complex processes over time

- Use multidimensional modeling to sort through multiple and competing demands quickly and accurately

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## THE SCIENCE OF READING

Recent research in reading and brain science has led to development of new ways to teach reading

Moving away from whole language learning with emphasis on words and now focusing on phonics instruction

Effective instructional programs and materials emphasize the five essential components of effective reading instruction:

- phonemic awareness
- phonics
- fluency
- vocabulary
- comprehension

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## THE SCIENCE OF READING

Every state has now passed legislation requiring universal reading and Dyslexia screening for all students

- Both Kansas and Missouri screen children through 5<sup>th</sup> grade

States require training for teachers in effective strategies like the science of reading

Schools are required to adopt multi tiered systems of support and use explicit instruction for training

By changing instruction, more students will have support

Goal: to reduce racial and income-based disparities for those who cannot afford tutors or private therapy

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## SCREENING FOR DYSLEXIA

Why is screening important?

Dyslexia screening is required to assess these skills:

- Phonological awareness
- Rapid automatized naming: quickly retrieve information from phonological memory
- Alphabetic principle: associating letters with sounds
- Word reading: sight word recognition, ability to read fluently and accurately

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## SCREENING FOR DYSLEXIA

- DIBELS: Dynamic Indicators of Basic Early Literacy Skills
- 8<sup>th</sup> edition, University of Oregon Center on Teaching and Learning 2018
  - Goal: to identify at risk students to access instructional supports asap
  - Can be used to monitor progress monthly or quarterly throughout the year
  - Measures:
    - Letter Naming Fluency
    - Nonsense Word Fluency
    - Phonemic Segmentation Fluency
    - Word Reading Fluency
    - Oral Reading Fluency

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## ASSESSMENT FOR DYSLEXIA

- Who Diagnoses Dyslexia = Speech Language Pathologist
- Psychologists (School or private)
  - Neuropsychology
  - Reading specialists

Where is it evaluated? – schools, private practices

Obstacles for testing – borderline results, 'a label', no supports in place after diagnosis is made, \$\$\$\$

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## ASSESSMENT FOR DYSLEXIA

- Test Battery should assess the following:
- Phonological Awareness – awareness of sounds and sound structure
  - Phonological or Language-Based Memory – ability to recall sounds, syllables, words
  - Rapid Automatic Naming – speed of naming objects, colors, digits, or letters
  - Receptive Vocabulary – understanding of words heard
  - Phonics Skills – understanding of the symbol to the sound(s) relationship, either individually or in combination with other letters

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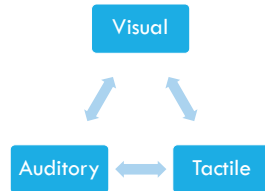
## ASSESSMENT FOR DYSLEXIA

- Test Battery should assess the following:
- Decoding – using sound symbol analysis to read Real Words and Nonsense Words
  - Oral Reading Fluency – ability to read accurately, at an appropriate pace
    - Single Words
    - Sentences and Paragraphs
  - Spelling
  - Writing
    - Sentence Level
    - Paragraph Level

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## WHAT IS STRUCTURED LITERACY?

Uses 3 pathways for learning



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## STRUCTURED LITERACY

- Many programs
- Orton Gillingham
  - Barton
  - Wilson
  - Sonday
  - Lindamood Bell
- Programs target the following:
- Phonemic Awareness
  - Direct and Explicit Phonics
  - Spelling
  - Fluency
  - Vocabulary

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## STRUCTURED LITERACY

**New material:**

- See the letter
- Hear the sound
- Repeat the sound aloud
- Trace or write the letter
- Read and spell words with the new sound or rule

**Review:**

- Reading sounds – students read sound cards (rapid naming) which helps make responses automatic – needed for reading fluency.
- Spell sounds – students write the sounds they hear (practicing multiple spellings of sounds and rules about spelling)
- Read words, phrases and sentences
- Spell words – students write words and sentences using the sounds and rules that were recently taught

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## STRUCTURED LITERACY

**Breakdown of Phonemic Awareness**

- Identification of Phonemes
- Discriminating, counting and repeating sounds
- Blending / segmenting
- Recognizing sounds and letter associations
- Deletion of Phonemes
- Addition of Phonemes
- Manipulation of Phonemes

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## STRUCTURED LITERACY

**Phonemic awareness and phonics**

- Must hear the sounds (phonemic training program)
- Need to know how to spell the sounds
- Need to know options for spelling of sounds

Sound	LONG VOWEL CHOICES				Low Frequency Choices			
	End of syllable	In the middle of word	End of word					
<b>ā</b>	a	a-e	ai	ay	ea	eigh	ei	ey
<b>ē</b>	e	ee	ea	y	e-e	ie	ei	ey
<b>ī</b>	i	i-e	igh	y	y-e	ie		
<b>ō</b>	o	o-e	oa	ow	ou	oe		
<b>ū</b>	u	u-e	ew		eu	ue		
<b>oo</b>	u	oo	u-e	ew	eu	ue	ui	ou

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## STRUCTURED LITERACY

**Explicitly teaches the following:**

- Letter sounds
- Six kinds of Syllables
- Syllable division rules
- High frequency sight words
- FSZL spelling rule
- Longer spelling after short vowel (k/ck, ch/tch, ge/dge)
- Prefix / suffix

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## READING

Phonemic Awareness

Phonics

Fluency

Vocabulary

Comprehension: teaching main idea, sequencing events, drawing influences

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## ACCOMMODATIONS FOR PERSONS WITH DYSLEXIA

All written material will be read by / reviewed with the classroom teacher

The teacher will provide frequent opportunities for review using multiple modes of review (auditory, tactile, visual, hands-on demonstration) during lessons

Teacher will provide frequent feedback during instruction

Allow additional processing time when new information is given prior to responding

Student will not be required to read aloud in class unless he or she volunteers to do so

**Device use:**

- Audio books - epic, book share
- Google classroom / Sharing work
- Text to speech, speech to text
- Auditory instructions

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## ACCOMMODATIONS FOR PERSONS WITH DYSLEXIA

- Spelling list will coordinate with phonemic awareness training
- Reduced spelling list
- Do not take off points for spelling errors
- Allow access to spell check
- Alphabet strip at workspace
- Multiplication chart at workspace

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## ACCOMMODATIONS FOR PERSONS WITH DYSLEXIA

### Assignments / Homework:

- Assignments will be graded on content only, deductions will not be taken for spelling
- Assignments will be compacted when class is missed due to intervention
- Proofreading assistance will be provided on long writing projects and test essays focusing on spelling, organization and punctuation prior to the essay being graded or posted for public viewing
- The teacher will review the student's assignment planner each day for accuracy
- The teacher will provide check in points on each assignment (star, highlighter, etc) to ensure student is on task and demonstrating understanding of the concepts

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## ACCOMMODATIONS FOR PERSONS WITH DYSLEXIA

### Assessments:

- Additional time will be allowed on all classroom and standardized tests, to time and 1/2.
- A reader will be provided on all classroom and standardized tests. Directions and questions will be read aloud.
- Student will complete notes and study guides with class. A completed set will also be provided.

### Behavior management

- Proximity control will be used to promote on task behavior during lessons.
- Multi step directions (3+ steps) will be broken down and confirmed.
- Preferential seating in the front 1/2 of the classroom, facing the point of instruction, away from distractions.

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## DYSLEXIA AND THE AUDITORY SYSTEM

### Spectrum of auditory difficulties

- Decoding
  - poor sound / letter recognition
  - poor sound blending
- Memory
- Hearing in noise
- Integration

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## DYSLEXIA AND THE AUDITORY SYSTEM

### Test Findings:

- Right ear advantages change – no left hemisphere dominance for language
- Integration challenges
  - Seen on Competing Words and / or Competing Sentences
- SSW
  - Large number of left competing errors
  - Type A pattern
  - + standard integration ratio
  - Extreme Delays

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## SSW – A POWERFUL TEST FOR INTEGRATION

### Type A Integration Bias:

- Large peak of errors for Column F or B
- To calculate:
  - Column F (or B) – X (the greatest of the remaining 7 columns)
  - Compare to norms – if positive, it overrides any Ear or Order Effects
- Can be masked if a lot of Decoding problems are present

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## SSW — A POWERFUL TEST FOR INTEGRATION

### Left Competing

- A word to the Left ear when one is presented simultaneously to the Right ear
- A large number of errors or a 'peak' in the left competing condition supports an integration problem

	Right Non-Competing	Right Competing	Left Competing	Left Non-Competing	Total Score
Total Errors	3	3	11	2	19
Age Norms	2	5	7	2	14
Interpretation	Abnormal	Normal	Abnormal	Normal	Abnormal
Category	DEC, TFM	DEC	TFM, INT	DEC	ALL

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## SSW — A POWERFUL TEST FOR INTEGRATION

### Extreme Delay (XX)

- XX (~> 2 times Delay time)

### Integration Delay (IX)

- IX (~> 2 times Delay time) but the answer is often correct without little struggle

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## SSW — MORE POWERFUL THAN EVER

### Standard Integration Ratio

- The SIR method compares the errors on all 40 LC words with the 40 RC words.
- If the LC errors are 1SD, or more, greater than the RC errors; it is a significant SIR finding.

Visit <https://www.igaps.org/apd-therapy> to get the excel spreadsheet for calculating SIR.

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## SSW — MORE POWERFUL THAN EVER

### Two-By-Three (2B3)

- If >2 of 9 measures on the tests are outside of normal limits by >3 SDs this yields a significant 2B3
- The 9 measures are:
  - SSW: 4 Conditions & Total scores
  - Phonemic Synthesis: Quantitative & Qualitative scores
  - Speech in Noise: RE & LE Noise scores

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## OUR DATA

Review of 368 evaluations from February 2020 to March 2023

108 patients were diagnosed with Dyslexia either before or after their initial evaluation.

29% of the patients we are seeing are Dyslexic

	Type A	Positive SIR	Abnormal LC	All 3 integration
Dyslexic Sample	31%	55%	70%	21%
Non-dyslexic Sample	18%	49%	70%	11%

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## APD THERAPY FOR DYSLEXICS — FIRST ROUND

Decoding = **Most Important Therapy for Dyslexics** = essential to ensuring accurate sound discrimination

- Phonemic Training Program
  - Purpose: To teach the sounds of English and make sure the auditory system has the correct engram of each sound
  - Goal: To improve the listener's ability to discriminate, identify, and recognize fine and / or rapidly changing acoustic features
- Phonemic Synthesis therapy
  - Synthesis: the ability to blend sounds together to form words
  - Goal: Improves phonemic discrimination, memory and analysis-synthesis

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## APD THERAPY FOR DYSLEXICS— FIRST ROUND

### Tolerance Fading Memory

- Words in Noise Training (WINT)
  - Purpose of training: to improve word recognition in noise. To reduce stress and improve confidence in noise.
- H and Friends (HaF), Just the Friends (JtF)
- Memory for Digits = Can be very challenging due to poor procedural learning
  - 3D, 4D, 5D, 6D      Try Modified Digit Memory
- Memory for Words
  - 3W, 4W, 5W      Try words with a relationship (colors, clothing, etc)
- Working Memory

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## APD THERAPY FOR DYSLEXICS — FIRST ROUND

### Organization

- Sequencing

### Integration - May not address in a first round

- Dichotic Offset Training
- Interactive Metronome
- CAPDOTs

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## BUFFALO MODEL THERAPY - INTEGRATION

### Dichotic Offset Training

- Uses 4 letters of the alphabet in the same format as SSW
- 2 letters are directed to the right ear and 2 to the left ear
- In a truly dichotic test, there is a zero millisecond offset for the competing letters
- In dichotic offset training, the offset begins with letters separated by 500ms, and then the offset is gradually reduced by 100ms or 50ms
- Goal: Listeners will learn to process auditory information more effectively, even as the dichotic challenge increases

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## APD THERAPY FOR DYSLEXICS - SECOND ROUND

### Decoding

- Phonemic Training Program
  - Modification: Have patient rapid name the sound
  - Have patient name spelling patterns related to that sound (similar to structured literacy)
- Phonemic Synthesis Therapy
  - Complete all 15 lessons of the program if not completed in round 1
  - Begin lessons with phonemic analysis
  - Add noise to traditional lessons

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## APD THERAPY FOR DYSLEXICS - SECOND ROUND

### Tolerance Fading Memory

- WINT
- H and Friends
- Apps:
  - Simon
  - Hear coach
  - Hear Builder auditory memory
  - I-angel sound

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## APD THERAPY FOR DYSLEXICS - SECOND ROUND

### Tolerance Fading Memory

- Short Term Memory Training
  - Complete standard procedure if possible
  - Modified digits, words with relationships (colors, clothing, etc)
- Introduce Strategies:
  - Chunking: pairing, clustering, grouping or association of different items into larger units
  - Verbal rehearsal: repeating words or numbers either vocally or sub vocally
  - Elaborative rehearsal: associating new information with prior knowledge, such as creating sentences or a story about the to be remembered words
  - Relational strategies: making the information being memorized more meaningful through mnemonics, imagery, or elaboration

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## APD THERAPY FOR DYSLEXICS - SECOND ROUND

### Integration:

- Dichotic Offset Training:
  - Complete all levels of offset: 500ms, 400ms, 300ms, 200ms, 150ms, 100ms, 50ms, 0ms
- Interactive Metronome
- CAPDOTs
- Simon
- Bop It

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## INTERACTIVE METRONOME

Assessment and training tool that measures and improves Neuro-timing in the following neural networks:

- Cognitive, communicative, sensory & memory

### How it works:

- Listener activates a trigger in time with a steady auditory beat while getting auditory and visual feedback for millisecond timing

### Outcomes:

- Results in better function in attention, processing speed, working memory, executive function, self regulation, language, reading comprehension, rate and fluency, math, upper extremity function, motor coordination, athletic performance.

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## INTERACTIVE METRONOME DEMONSTRATION



<https://www.interactivemetronome.com/what-is-im>

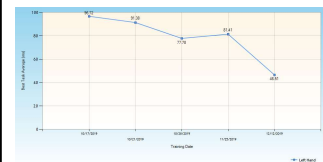
69

## INTERACTIVE METRONOME RESULTS



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## INTERACTIVE METRONOME RESULTS



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## CAPDOTS

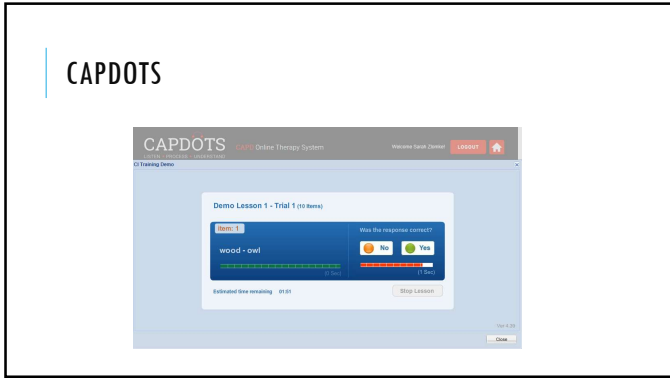
Online therapy program that provides intervention for dichotic listening deficits using a staggered dichotic listening paradigm

Goal: To improve the performance of the poorer ear allowing for improved interaural symmetry

### Procedure

- 15-30 minutes per day, 5 days per week, 8-12 weeks
- Student and assistant
- Can be carried out at home and school

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### CASE STUDY – PAST MODEL

**History**

- 7 year old

**Test Findings:**

- SSW
- Phonemic Synthesis
- SCAN

SSW	RNC	RC	LC	UNC	Total
Total Errors	15	21	29	17	82
Age Norms	3	9	16	4	28
Interpretation	Abnormal	Abnormal	Abnormal	Abnormal	Abnormal
	Order Effect	Qualifier			
Score	-12	13			
Age Norms	-9	0			
Interpretation	Abnormal	Abnormal			

SCAN	Standard Score	%tile rank	Interpretation
Filtered Words	10	50th	Normal
Auditory Figure Ground +8	8	25th	Normal
Competing Words-DE	1	0.1	Abnormal
Competing Sentences	4	2nd	Borderline
Composite Score	23	3rd	Borderline

Phonemic Synthesis	Quantitative	Qualitative
Score	15	8
Age Norms	17	15
Interpretation	Abnormal	Abnormal

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### CASE STUDY – PAST MODEL

**Therapy at age 8 year old**

- 12 sessions

**Re-evaluation at age 9 year old**

- 3rd to 14th percentile

SSW	RNC	RC	LC	UNC	Total
Total Errors	0	5	20	1	26
Age Norms	2	6	8	2	14
Interpretation	Normal	Normal	Abnormal	Normal	Abnormal
	SIR	Type A			
Score	+5.41	6			
Age Norms	<1.0	3			
Interpretation	Abnormal	Abnormal			

SCAN	Standard Score	%tile rank	Interpretation
Filtered Words	11	63rd	Normal
Auditory Figure Ground +8	8	25th	Normal
Competing Words-DE	6	9th	Borderline
Competing Sentences	6	9th	Borderline
Composite Score	31	14th	Borderline

Phonemic Synthesis	Quantitative	Qualitative
Score	23	23
Age Norms	18	16
Interpretation	Normal	Normal

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### CASE STUDY – PAST MODEL

**Re-Evaluation at age 16 year old**

- 11th grade
- IEP – language therapy
- Loves art and music
- Favorite subject: History

**Re-evaluation**

- Little improvement, continued integration problems

SSW	RNC	RC	LC	UNC	Total
Total Errors	0	4	15	2	21
Age Norms	1	2	4	1	6
Interpretation	Normal	Abnormal	Abnormal	Abnormal	Abnormal
	SIR	Type A			
Score	+6.58	5			
Age Norms	<1.0	3			
Interpretation	Abnormal	Abnormal			

SCAN	Standard Score	%tile rank	Interpretation
Filtered Words	10	50th	Normal
Auditory Figure Ground +10	8	25th	Normal
Competing Words-DE	4	2nd	Borderline
Competing Sentences	4	2nd	Borderline
Composite Score	26	5th	Borderline

Phonemic Synthesis	Quantitative	Qualitative
Score	19	19
Age Norms	23	22
Interpretation	Abnormal	Abnormal

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### CASE STUDY - CURRENT

**History – Age 10 (2019)**

- Fourth grade
- Recently diagnosed with Dyslexia

**Test Findings:**

SSW	RNC	RC	LC	UNC	Total
Total Errors	0	5	14	2	21
Age Norms	2	5	7	2	14
Interpretation	Normal	Normal	Abnormal	Normal	Abnormal
	Reversals	Ear Effect	Order Effect	Type A	SIR
Score	2	-5	9	7	3.43
Age Norms	2	-4	3	3	
Interpretation	Normal	Abnormal	Abnormal	Abnormal	Abnormal

SCAN	Standard Score	%tile rank	Interpretation
Filtered Words	8	25th	Normal
Auditory Figure Ground +8	7	16th	Normal
Competing Words-DE	4	2nd	Borderline
Competing Sentences	8	25th	Normal
Composite Score	27	7th	Borderline

Phonemic Synthesis	Quantitative	Qualitative
Score	22	16
Age Norms	21	20
Interpretation	Normal	Abnormal

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### APD CASE - CURRENT

**Therapy:**

- 14 sessions of Buffalo Model
- Receiving structured literacy therapy virtually

**Re-evaluation: Age 11 (2020)**

- Recommendations: CAPDOTS, continue structured literacy therapy

SSW	RNC	RC	LC	UNC	Total
Total Errors	0	4	13	2	19
Age Norms	1	3	6	2	12
Interpretation	Normal	Normal	Abnormal	Normal	Abnormal
	Reversals	Ear Effect	Order Effect	Type A	SIR
Score	2	-3	7	5	3.45
Age Norms	2	-7	4	3	
Interpretation	Normal	Abnormal	Abnormal	Abnormal	Abnormal

SCAN	Standard Score	%tile rank	Interpretation
Filtered Words	8	25th	Normal
Auditory Figure Ground +8	6	9th	Borderline
Competing Words-DE	7	16th	Normal
Competing Sentences	10	50th	Normal
Composite Score	31	14th	Borderline

Phonemic Synthesis	Quantitative	Qualitative
Score	24	23
Age Norms	21	21
Interpretation	Normal	Normal

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### APD CASE - CURRENT

Follow Up:

- 8<sup>th</sup> grade
- Never did CAPDOTs
- 3 hours per week – structured literacy therapy

Re-evaluation: Age 14 (2023)

- Recommendations: Continue with structured literacy

SSW	RNC	RC	LC	LNC	Total
Total Errors	0	2	2	1	5
Age Norms	1	2	4	1	6
Interpretation	Normal	Normal	Normal	Normal	Normal
	Reversals	Ear Effect	Order Effect	Type A	SIR
Score	0	-1	1	1	-1.39
Age Norms	1	-3	3	3	
Interpretation	Normal	Normal	Normal	Normal	Normal

SCAN	Standard Score	%ile rank	Interpretation
Filtered Words	8	25 <sup>th</sup>	Normal
Auditory Figure Ground +8	8	25 <sup>th</sup>	Normal
Competing Words-DE	7	16 <sup>th</sup>	Normal
Competing Sentences	12	75 <sup>th</sup>	Normal
Composite Score	35	25 <sup>th</sup>	Normal

Phonemic Synthesis	Score	
	Quantitative	Qualitative
Score	24	24
Age Norms	23	22
Interpretation	Normal	Normal

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Source: Made By Dyslexia. (January 24, 2019) Dyslexia Awareness Part 1: Module 1 – About Dyslexia. Retrieved from <https://www.youtube.com/watch?v=DqHDQeZ5QuA>

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### NOW WHAT HAVE YOU LEARNED?

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### KEY POINTS

- We know more about Dyslexia than ever before
- Dyslexia should ideally be diagnosed by SLP
- Structured Literacy therapy is the gold standard for Dyslexia
  - Needs to begin asap
  - Can be completed after APD therapy or while finishing up APD therapy
- As audiologists and speech pathologists specializing in APD, we need to be ready to make appropriate referrals

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### FUTURE DIRECTIONS

Introducing Kansas City Dyslexia Connections

- Education for SLP's and reading specialists with local CEU events
- Building a Dyslexia program through Saint Luke's Hospital to allow persons with and without insurance benefits to receive therapy for Dyslexia
- Creating a network of Dyslexia specialists to collaborate to better help our APD patients
- Getting services into schools so families don't have to plan for time outside of school or pay out of pocket

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