

Dyslexia 2020

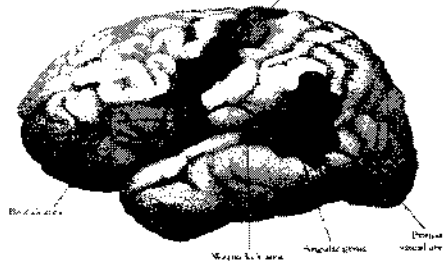
Brian Stone, PhD, Licensed Psychologist

NIH 2002 Dyslexia: difficult word recognition due to sound-phonological-language deficit
Smart child w/ trouble reading! (Kilpatrick, 2015)

Dyslexia = DSM-5 315.00 SLD w/ impairment in reading ICD-10 R48.0 =
"language learning disorder = reading disorder = SLD in reading"

Pattern examined by measuring:

- 1) Language-Vocabulary
- 2) 2D/Quantitative Patterns
- 3) 3D/Visual-Spatial-hands-on
- 4) Automatic "processing"
- 5) Different aspects of reading



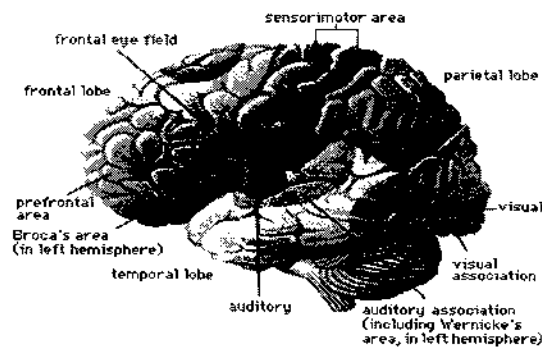
Dyslexia

Strengths

hands-on, visual-spatial, 3D,
visual memory, patterns
Karolyi, 2012, Schneps, 2011

Weaknesses

Auditory memory, Sound-language
bla-bla-rote memory Retrieval Speed
from brain filing cabinets interferes with
phonological & phonics! Boets et al., 2014,
Gabrieli, 2012, Richards et al., 2015

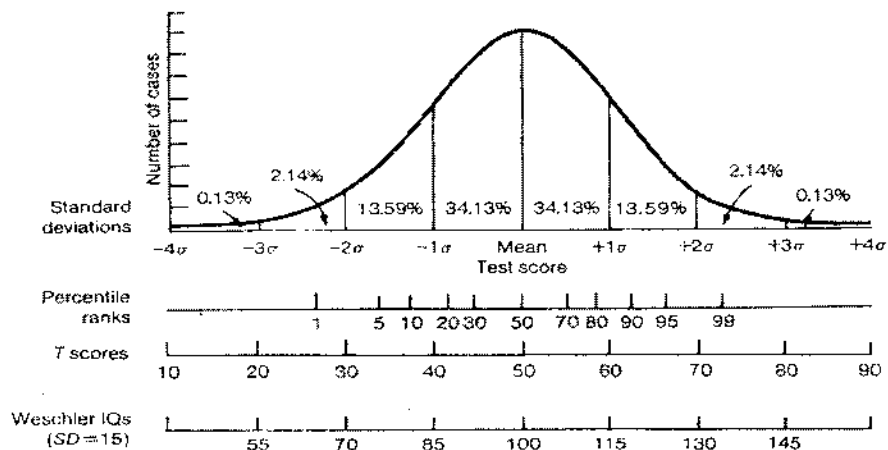


**life-long inherited preset brain pattern, but reading & writing can improve!
Testing predicts accurately even 80 years into the future!**

Accurate Ability Pattern

Low Processing: auditory memory, rapid language retrieval (filing cabinets)

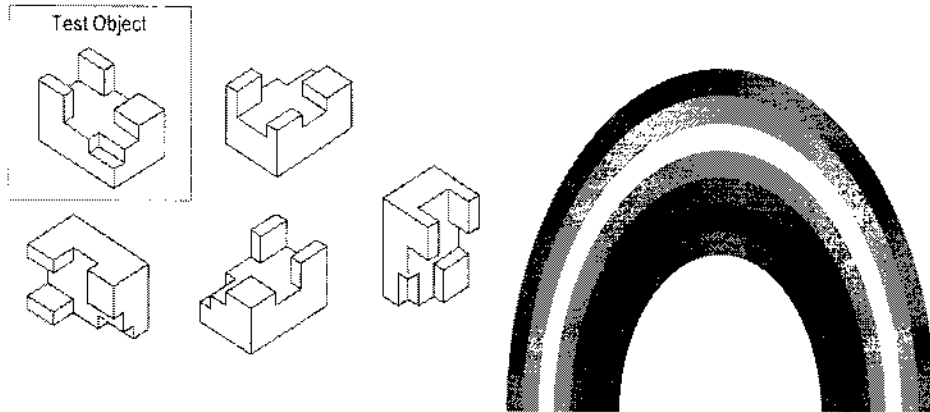
High Ability/Thinking: hands-on, visual-spatial 3D patterns



THIS 1 CRAZY TRICK IDENTIFIES DYSLLEXIA WITHOUT TESTS

1. Smart, but doesn't like to read
2. Rather listen to you read – better comprehension that way
3. Why would you read when you can PLAY?!?
4. Favorite class: PE, Art, recess, lunch!
5. Math/science > reading/language arts
6. Leaves out short words gets longer words right
7. Gets the hard stuff, makes processing glitches on basics
8. Creates end-runs/efficient nonverbal algorithms
9. Soundisms: "Pico de Mayo" "coconut" (walnut) river, inVENTory
10. Has to reread to get meaning
11. Takes longer & longer (or tries to rush through)
12. Learns word – next day as if he never saw it before
13. Can that blond haired boy come over & play again?
14. Is this kid trying to make me mad or is this real?
15. Holds pencil funny, but you can't make him change
16. Reads breathes as breaths, could as cloud
17. Can't hold verbal directions, but holds a ton of visual info
18. Better on assignments than on tests
19. Needs more time on tests
20. Remembers words to songs, but not address/phone #

SPATIAL ABILITY



Can hold lots of visual info but not much sound info

Direct, explicit, multisensory teaching:
phonemes (sounds), phonics/language rules,
applied to connected text, taught by ***well-trained***
teacher, 1:1/small grp, young age (Kilpatrick, 2015,
Nicolson & Fawcett, 2008, Shaywitz, 2005, Stone, 2009, Torgeson, 2008)

NOT gimmicks like juggling, colored lenses, fish
oil, CogMed, Bal-A-Vis-X, “brain balance,”
computer training, worksheets, word searches...



“Processing” *NOT high-level ability*

Auditory Memory say these #'s, words, etc.

Phonological rhyme, say cat without /k/, say cat but change /k/ to /b/ (sometimes timed)

Rapid Naming name these as fast as you can

Measure different parts of READING:

nonsense words (main phonics)

real words (some low frequency rules)

fluency timed, timed vs. untimed phonics, comprehension, oral accuracy 1st time through

Good instruction brings up

- 1) Phonological
 - 2) Main phonics rules
 - 3) Lower frequency rules
 - 4) Comprehension, Fluency, Writing
- Pokorni et al., 2004, Stone, 2006 & 2009, Torgeson, 2003

Research-based effective reading-writing programs

FCRR.org interdys.org nrrf.org

Dehaene, 2009, Meyler et al, 2008, Shaywitz, Lyon & Shaywitz, 2006

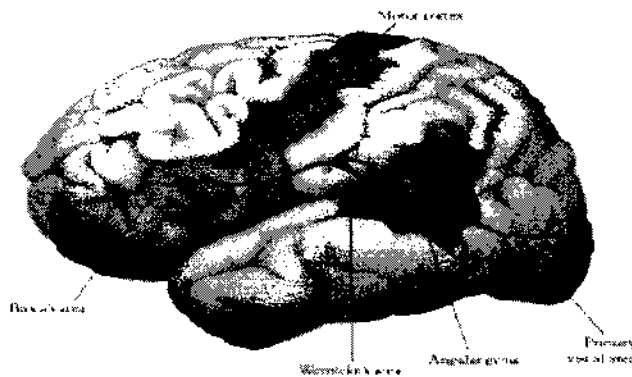
Diagnosis: Accommodations, Education, self-understanding, research awareness, technology

Law: Section 504, ADA, IDEA wrightslaw.com

Dyslexic brains overuse right frontal/less myelination left temporal: dyslexic brains literally work *harder* to read.

(Plomin & Asbury, 2014, Dehaene, 2009, Plomin, 2018, Meyler, Marcel Just et al., 2008, Richards et al., 2015)

The better at something we are, the less of our brain we use!



DYSLEXIA MYTHS^a

See backwards? No. M

Reversals: Dehaene developmental/face recognition d/b/p/q

Reversals an artifact of dyslexia, can happen to all till ^yage 7 +

Is it because the eyes don't focus or work ^ttogether?

Nope, all eyes jump around & focus a few letters apart ^h

You can even read with 1 eye! Difficult reading isolated ^swords – so "tracking" does not apply! "Convergence insufficiency" pffff!

American Academy of Pediatrics 2011 policy against vision therapy for learning disorders: <http://pediatrics.aappublications.org/content/127/3/e818>

Outgrow it? (repeat/delay KG?)

NO – It's *life-long pattern!*

Reading & writing can come up more w/ early good help.

Wait to test till 4th grade?

Don't need to wait till they fail!

**More boys? Not at moderate levels, BUT Males
more extreme on almost all characteristics (!) so
more males at profound end ☺**



Dyslexia in all countries?

**Yes, but doesn't get in the way as much in transparent
main-rule-only languages like Italian, Finnish, or Turkish**

Right side & left side of brain not communicating?

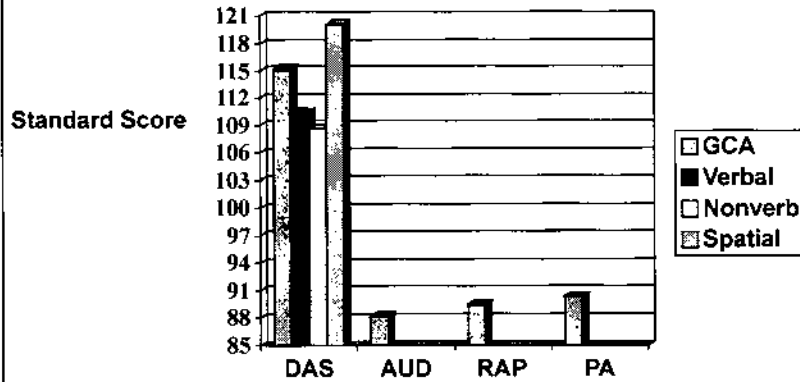
NOPE!! blood goes to both sides of our brain☺

7 or 8 subtypes?

**NOPE!! Just a few processing areas: Auditory/phonological
&/or rapid naming-fluency &/or orthographic (2D symbol)**

Stone (2006) 221 moderate to severe dyslexics before treatment

DAS = Ability (GCA = ability, Verbal, 2D Nonverb, & Spatial), Aud = Auditory Memory, RAP = CTOPP Rapid Naming, PA = Sound (Phonological) Awareness

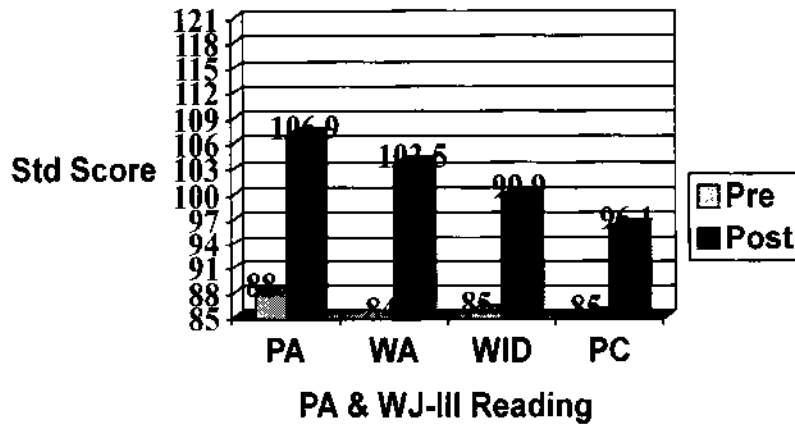


DAS Ability (Verb, 2D, Spatial), Auditory Memory, Rapid Naming, Phonological Awareness

Stone (2009) 44 Bright Dyslexics Pre & Post Alphabetic Phonics

PA = Sound (Phonolog) Awareness, WA = Word Attack (nonsense words), WID = Word ID, PC = Passage Comprehension

Pre-Post Treatment



PA & WJ-III Reading

- Students who qualify for special education as SLD in reading ARE dyslexic. Dyslexia = SLD in Reading = Language Learning Disorder = Reading Disorder. Dyslexic Students who don't qualify for an IEP can receive Section 504 Accommodations! The reason SLD in Reading should also be called dyslexia-dysgraphia is because much relevant research calls it that!

- US Dept. of Education's 10/23/2015 *Dear Colleague* letter establishes dyslexia as a valid concern for all schools - & encourages educators to learn more about dyslexia because they'll always have dyslexic students (at least 10% of their students).
- <https://www2.ed.gov/policy/speced/guid/idea/memosdcltrs/guidance-on-dyslexia-10-2015.pdf>
- **Dyslexia is difficulty reading words fluently & accurately – it typically involves difficulty with auditory-sound &/or rapid processing-retrieval of specific sounds, symbols, & words. Many US schools teach phonological skills so well that those are wired in, but processing deficits remain.**