NEURALIGN USA

LXD RESEARCH
ESSA
Level 1
Evidence
Small Sample

Building Neural Connections for Reading Success

A Neuro-Cognitive Approach to Dyslexia Intervention

Neuralign combines cutting-edge neuroscience with structured literacy to help learners with dyslexia unlock their reading potential. By targeting the brain's core cognitive processes, it builds decoding, fluency, and comprehension skills. This whitepaper highlights the science, design, and proven impact behind Neuralign's approach.

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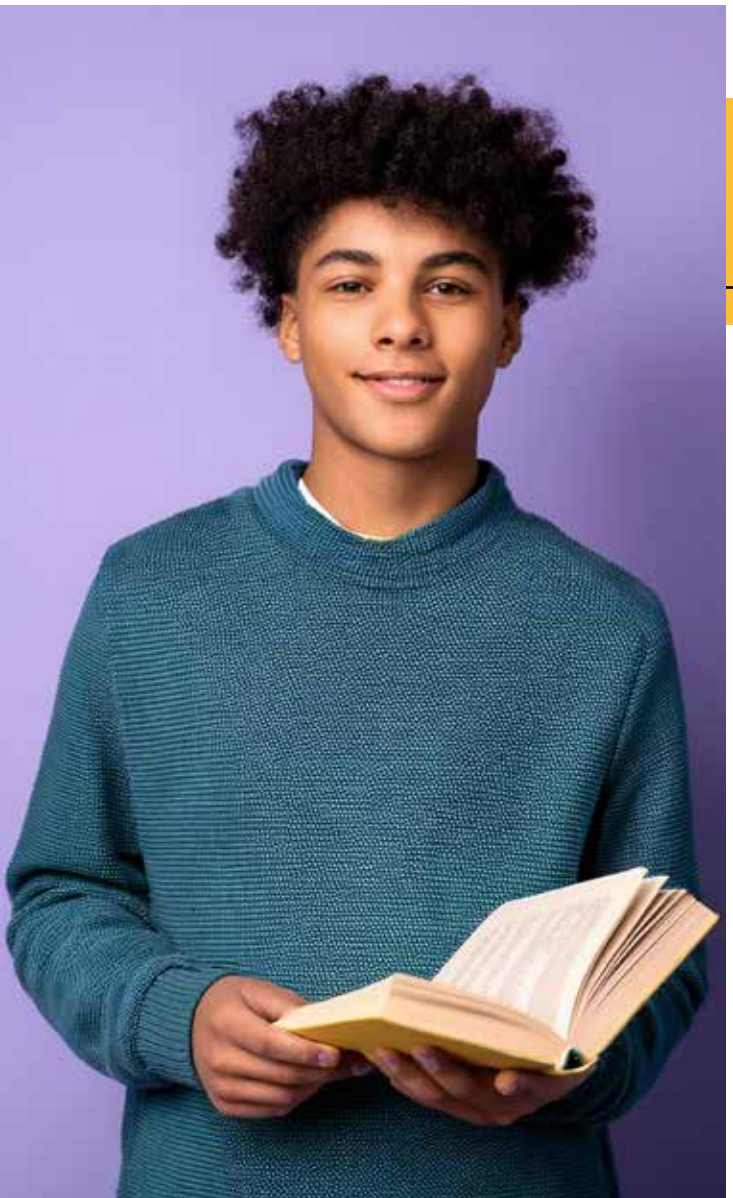
EXECUTIVE
Summary:

Neuralign is a research and evidence based intervention for dyslexia and other learning disabilities that uses interactive, game-based activities to strengthen the cognitive and motor skills foundational to reading. It's grounded in principles of neuroplasticity, cognitive load theory, and automaticity development, helping the brain build more efficient pathways for processing language.

By targeting underlying skills such as auditory processing, working memory, visual processing, and motor coordination, Neuralign is a foundational program that prepares the brain to learn to read more effectively. It's designed for struggling readers of all ages and works alongside any good reading curriculum to boost outcomes.



Introduction:

Reading is a complex cognitive activity that requires the integration of multiple brain systems, including language processing, memory, and visual-auditory coordination. For learners with dyslexia, these processes can be underdeveloped or inefficient, leading to persistent challenges in decoding, fluency, and comprehension.

Neuralign was developed in response to a clear need: an intervention that targets the root causes of reading resistance, that is grounded in neuroscience, evidence-based literacy practices, and an understanding of brain plasticity — the brain's remarkable ability to reorganize itself through targeted, repeated stimulation.

Theoretical Framework:

Brain Plasticity

Neuroplasticity allows the brain to form new neural connections and strengthen existing ones. In the context of reading, targeted cognitive exercises can build new neural pathways involved in phonological processing, working memory, and symbol-sound mapping, improving reading efficiency and accuracy.

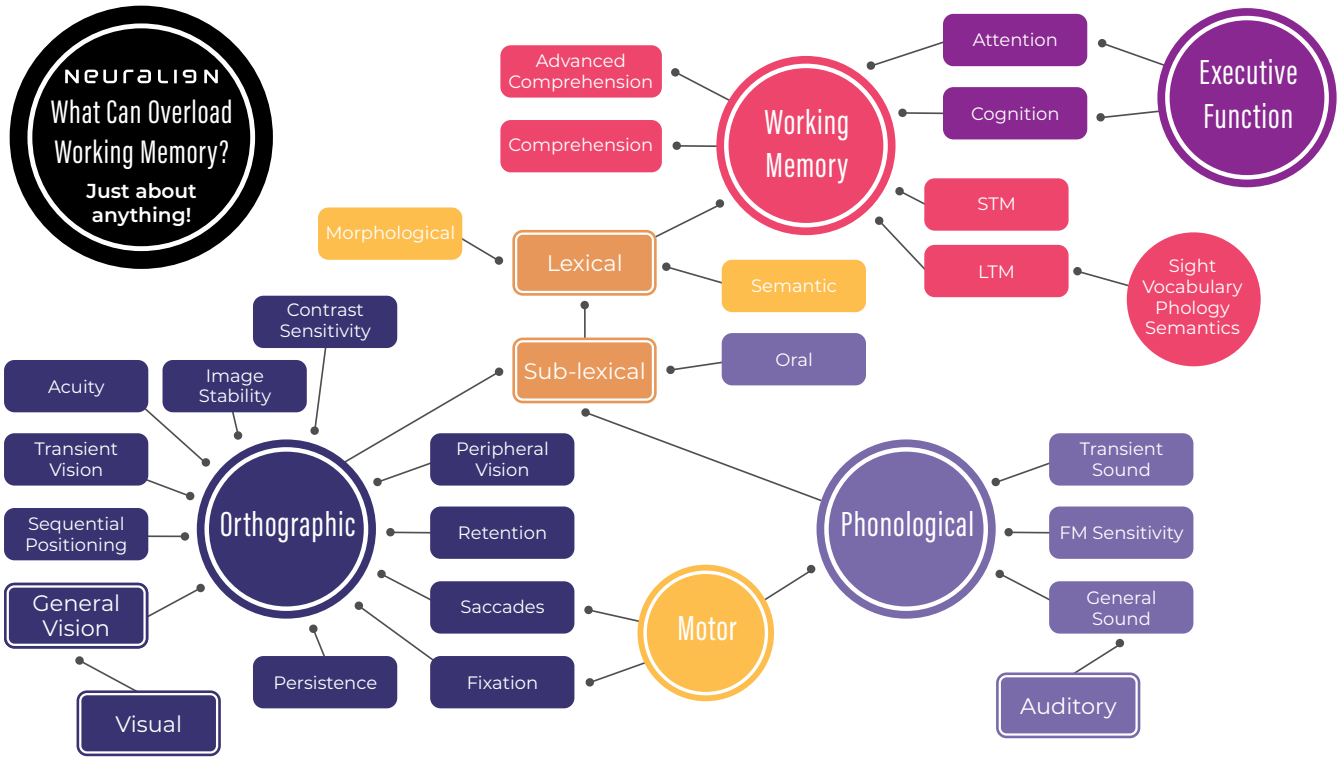
Cognitive Processes Targeted:

Phonological Processing: The ability to recognize and manipulate the sounds of language.

Working Memory: Holding and manipulating sounds and words in the mind while decoding.

Visual-Auditory Integration: the brain's ability to coordinate what we see with what we hear, allowing learners to connect letters and words with their corresponding sounds for accurate reading and comprehension.

Processing Speed & Automaticity: Developing rapid, accurate retrieval of learned patterns to enable fluent reading.

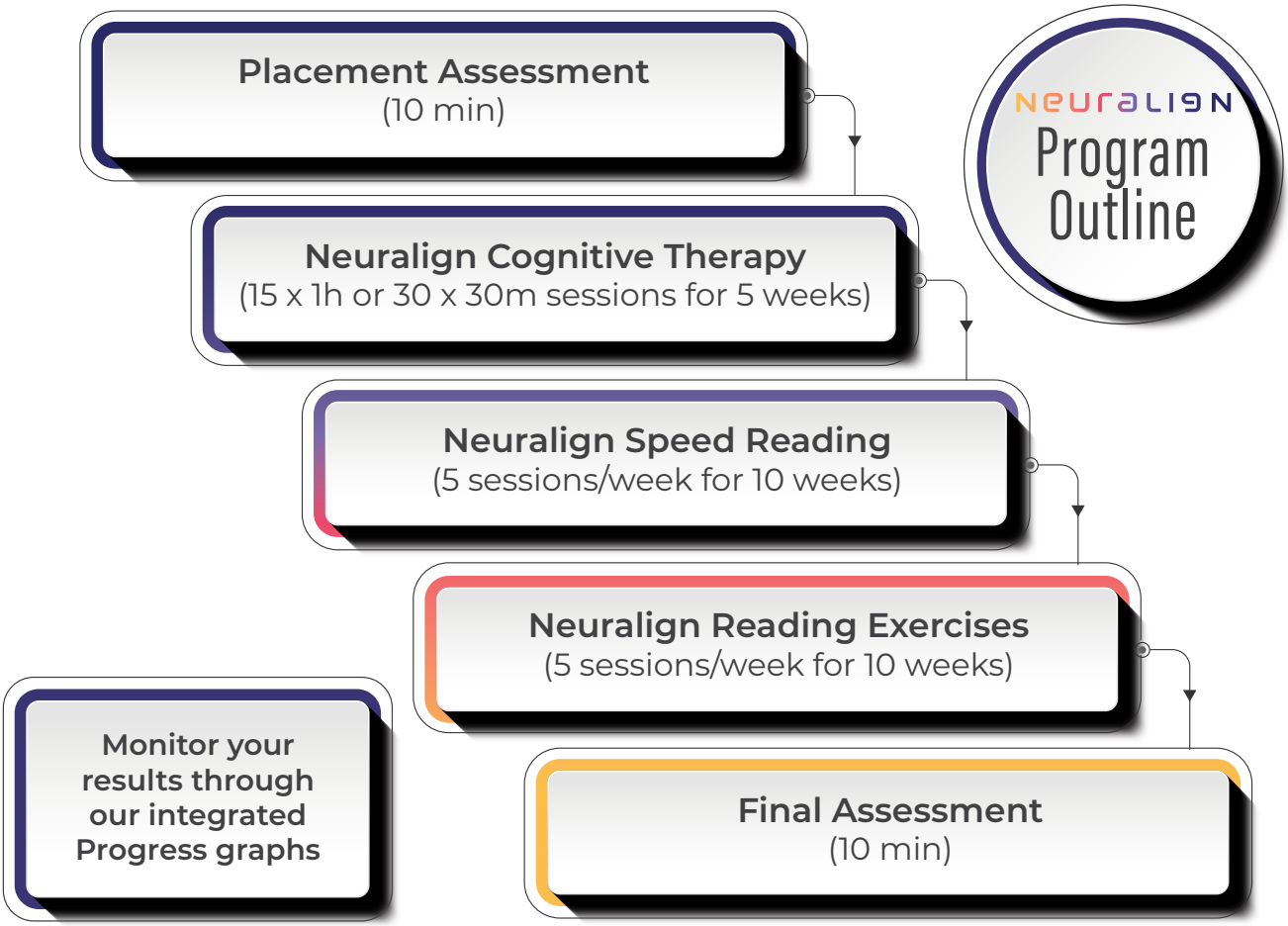


Program Design:

Tailored Learning: Neuralign assesses each child's skill level and places them at the most appropriate starting point for their abilities, ensuring tasks are challenging yet achievable.

Sequenced Skill-Building: Sessions progress from foundational skills like phonemic awareness with moderate visual feild stimulation, and gradually adds complexity and difficutly throughout the sessions through incresed auditory and visual complexity, complex word structures, sentence fluency, and comprehension strategies.

Gamification: Engaging visual environments, rewards, and interactive challenges motivate learners and encourage consistent participation.



Logic Model

Theory of Change:

Inputs:

- Evidence-based neuro-cognitive curriculum.
- Tailored technology platform.
- Trained educators/clinicians.

Activities:

- Daily 30 minute targeted cognitive exercises.

Outputs:

- Completion of tailored modules.
- Increased accuracy and fluency scores in-platform.

Short-Term Outcomes:

Improved phonological awareness, working memory, and decoding skills.

Long-Term Outcomes:

Sustained reading fluency, comprehension, and learner confidence.

Measuring Impact

Pre/Post Standardized Assessments: Administered to select cohorts before and after intervention to quantify reading skill gains.

Progress Tracking: Automated, detailed reports monitor accuracy, fluency, and cognitive skill growth over time.

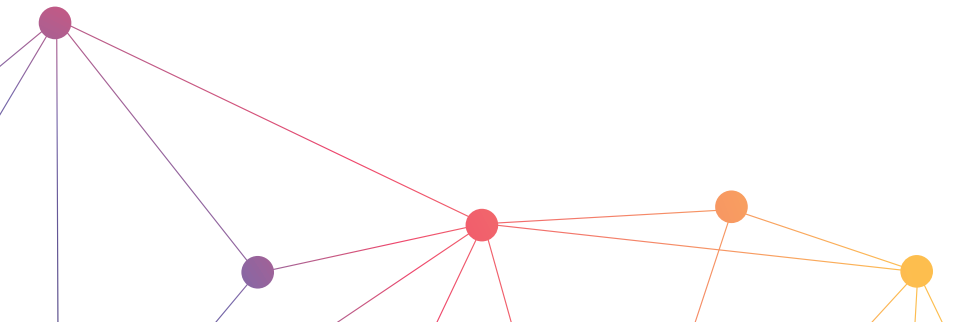
Case Studies: Individual learner profiles highlight qualitative success stories and engagement patterns.

Independent Research: Neuralign's approach is supported by studies conducted in partnership with leading educational institutions.

Results to Date:

Neuralign has helped thousands of struggling readers make meaningful gains in reading fluency, comprehension, and confidence. Internal pilot cohorts taking pre- and post-standardized tests have consistently achieved gains of over two grade levels, showing significant improvement in both **Word Attack** and **Passage Comprehension** skills.

A study conducted by the Center for Applied Cognitive Research and the Department of Psychology at Carleton University found that students with dyslexia improved their reading skills by an average of 50% over 10 weeks of the Neuralign program. Many users begin to see improvements within weeks, including better focus, faster decoding, and greater reading stamina.



Future
Research Goals:

Looking ahead, Neuralign is committed to advancing the evidence base for our program through rigorous, multi-stage research initiatives. In partnership with **CHEO's Core Innovation team**, we will be conducting a comprehensive series of studies designed to deepen understanding of the program's impact on neurocognitive and literacy outcomes.

This research agenda will integrate neuroimaging and standardized assessment methodologies to provide both quantitative and qualitative insights. Specifically, we will:

- Leverage EEG and fMRI measures to capture changes in neural activation patterns associated with reading, attention, and executive functioning.
- Administer standardized assessments pre-intervention, post-intervention, and at six-month follow-up to evaluate both immediate gains and the durability of outcomes over time.
- Adopt a staged research design, beginning with smaller controlled cohorts and progressing toward larger, longitudinal studies to ensure replicability and scalability.

Through this work, we aim to strengthen the scientific foundation for Neuralign, demonstrate measurable cognitive and academic gains, and inform future refinements to maximize learner impact.

Conclusion:

Neuralign represents a new approach to reading intervention, one that bridges neuroscience and literacy research to create lasting impact for learners with dyslexia.

By focusing on brain plasticity and the cognitive processes behind reading, Neuralign equips learners not only to read better, but to think, remember, and process language more effectively.

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“I love this intervention because it deals with the underlying causes of learning difficulties… As visual and spoken language processing improve, the ability to listen and communicate also improve.”

Maria De Ionno, Psychologist, Brain Solution Plus, Australia

Appendix A: Selected References

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