CONQUERING THE FLUENCY PROBLEM IN DYSLEXIA

BY GEORGIE NORMAND, M.A.

Helping a dyslexic child or teen reach grade level reading fluency is the greatest challenge in dyslexia intervention. For almost a century, dyslexia interventions have been primarily focused on the known phonological deficit. A phonological deficit impairs a child's ability to recognize, break apart, or blend units of oral language – from words and their individual syllables to the individual sounds (phonemes) in words.

This impairment impacts both reading and spelling. This approach of focusing on the phonological deficit has helped dyslexic students become more accurate readers and spellers. It, unfortunately, has failed to bring many of them to grade level reading fluency. It is a problem that cannot be ignored because reading fluency is a key predictor of school outcomes, as well as future educational, social, and professional achievement.

Recent studies show us that dyslexia is much more complex in its neurobiological features. It is so much more than a phonological deficit. It is characterized by reduced connectivity and reduced neuroplasticity (the capacity to change), both of which impact learning to read, reading fluently, and retaining what is learned in tutoring sessions. There are also structural differences in the brain. None of these differences impact IQ – they simply mean that dyslexic children do not learn to read in the same way as other children.

CONTRIBUTING FACTORS

Much of what we know today about dyslexia and contributing factors to the fluency problem has been gleaned from neuroimaging studies, especially imaging studies carried out during reading-related tasks. Because of the complexity of connectivity within the brain, even what we know leaves us with more questions. But based on the latest neuroscience, there are several factors that appear to play a role in dyslexia-related fluency problems.

Patterns of Under-Activation and Over-Activation: In dyslexia, the most reading efficient areas of the brain in the left hemisphere are under-activated during reading, while less reading efficient areas are over-activated. It is as though the over-activated areas are trying to compensate for the lack of efficiency in the under-activated areas. These inefficiencies are at the heart of the fluency problem in dyslexia. They interfere with the processing speed required for fluent reading.

The reading circuit is made up of neural systems that support a wide range of processing activities needed to become a fluent reader. The various neural systems that are involved in reading are known to support oral language production, speech fluency, and articulation. (In fact, early language delay may be one of the earliest signs of future reading problems.) These systems also support working memory, attention, motor function, higher level comprehension, as well as visual and orthographic processing. (Orthographic processing relates to the visual aspect of reading, such as the child's knowledge of the alphabetic system and memory for specific visual and spelling systems. Orthographic processing supports spelling and fluent reading). Impairment in any of

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these systems can interfere with spelling, fluent reading, and reading comprehension.

Dysfunction in the Visual Word Form Area (VWFA): Neuroimaging studies have confirmed that dyslexic individuals have dysfunction and under-activation in an area of the reading network called the Visual Word Form Area (VWFA). This problem interferes with their ability to instantly recognize words they have encountered – even if they've been exposed to the word multiple times.

One of the most important influences on fluent reading is a child's level of visual and orthographic processing. As mentioned before, orthographic processing relates to the visual aspect of reading, such as the child's knowledge of the alphabetic system and memory for specific visual and spelling systems. Orthographic processing supports spelling and fluent reading. Studies suggest that the VWFA plays a major role in the memory for words and word patterns (often referred to as orthographic mapping).

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Although the English language is not 100% consistent in letter-sound correspondences, non-dyslexic children learn to decode words by first learning the sounds that each letter or group of letters make. They then learn to blend these sounds together when reading. Very early in this process, they find that it is no longer necessary to decode most words, because they instantly recognize those they have been exposed to multiple times. In a short period of time, a growing number of words become part of their "sight vocabulary" and are effortlessly retrieved as they read, helping them to become fluent readers. The ability to instantly recognize words from orthographic memory is called "automaticity" and it is the foundation for fluent reading.

The opposite is true for dyslexic children. They do not recognize words they've been exposed to many times. As a result, they continue to painfully decode most of the words in a sentence or paragraph, usually slowly, and not always accurately. They also make other types of errors when reading, that are not the same errors made by beginning readers without dyslexia. Explicit and systematic phonics instruction is essential in a dyslexia intervention, *but it is not sufficient to produce fluent reading.*

MEASURING THE INEFFICIENCIES

These fluency-related reading circuit inefficiencies show up in an assessment called RAN (*rapid automatized naming* or simply *rapid naming*). In a RAN assessment, the student is asked to name an array of familiar items (usually objects, colors, letters, and numbers that are arranged in a matrix), as fast as they can. We know that children who perform poorly in this assessment generally will read below grade level fluency norms. Future fluency problems can even be predicted in young preschool children through an abbreviated version of the RAN assessment.

RAN measures the efficiency of the entire reading network,

because RAN assessment represents a microcosm of the reading process. Reading is an extremely complex process, and naming speed tasks recruit the same brain network used for reading. Both reading and RAN tasks require instant visual recognition of symbols, retrieval of their label and meaning, and immediate articulation. Both tasks involve visual scanning, eye movements, and sequencing of multiple items. A recent study also suggests that RAN recruits a pathway involved in oral language production and reading.

Over 60% of dyslexic children have a deficit in both phonological skills and RAN. Dyslexic children with a RAN deficit will have difficulty developing fluency, even after they have conquered the phonological deficit.

"RECENT NEUROIMAGING STUDIES FOUND THAT FLUENCY WORK CAN SERVE AS A SHORTCUT TO READING SUCCESS. BY FOCUSING HEAVILY ON FLUENCY, STUDENTS CAN IMPROVE IN EVERY DIMENSION OF READING, INCLUDING COMPREHENSION."

IMPLICATIONS FOR DYSLEXIA INTERVENTION

We can no longer think of dyslexia as simply a phonological deficit needing a phonological skills solution. Unfortunately, most interventions continue to focus primarily on the phonological deficit. Recognizing that fluency work plays an important role in addressing reading circuit inefficiencies is the first step in achieving better intervention outcomes.

Reaching grade level fluency must be prioritized in dyslexia interventions. Recent neuroimaging studies clearly demonstrate that brain connectivity can be improved with an intensive fluency-based intervention. In fact, these studies found that fluency work can serve as a shortcut to reading success. By focusing heavily on fluency, students can improve in every dimension of reading, including comprehension. Importantly, these gains can be accomplished in far less time when compared to traditional phonologically focused dyslexia programs. This is good news, since we've grown far too accustomed to interventions that last years, while failing to bring students to grade level fluency. It's time to raise our expectations by giving fluency the focus it deserves in dyslexia intervention.

Where should we start? Fluency studies have found that providing opportunities to a dyslexic student to rise above their natural comfort level in reading and handwriting rate drives improvements in fluency. For example, timed repeated reading and handwriting tasks help them overcome the reduced connectivity and neuroplasticity that is further complicated by the inefficient operation of the VWFA. Handwriting fluency plays a major role in reading fluency development, so timed and repeated handwriting tasks should be given greater emphasis in dyslexia interventions.

How should these fluency tasks be positioned within a dyslexia intervention? They should be fully integrated throughout the program each time new phonological skills are introduced. Typically, if fluency receives any emphasis, it is viewed as a "supplement" positioned periodically, in the middle or at the end of an intervention. When it is not prioritized from the very beginning of an intervention, the student can remain in the intervention much longer than necessary, and still fail to reach grade level fluency norms.

Although there are many questions still unanswered about dyslexia, an increasing number of new studies are showing us how to achieve a breakthrough in the fluency problem. •

ABOUT THE AUTHOR:

Georgie Normand, M.A. holds a Master's degree in Reading Education and has spent many years working with students with dyslexia. She is the founder of Early Literacy Solutions and the author of the Orton-Gillingham based Fluency Builders Dyslexia Program (**www.earlyliteracysolutions.com**). Designed for parents, tutors, and teachers, the Fluency Builders program utilizes the latest neuroscience in dyslexia. These new studies found that dyslexia is not a one-size-fits-all learning disability. Georgie has also developed the Certified Dyslexia Practitioner Program, a professional learning program that trains teachers and tutors to identify and succeed with multiple dyslexia profiles. Contact her at **georgienormand@earlyliteracysolutions.com**

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