Childhood Disorders

Overcoming Dyslexia: A New and Complete Science-Based Program for Reading Problems at Any Level, *by Sally Shaywitz, M.D. New York, Alfred A. Knopf, 2003, 416 pp., $25.95; $15.00 (paper published 2004 by Vintage).*

Developmental dyslexia, a condition that leads to severe reading difficulties despite adequate intelligence and education, continues to be a puzzling disorder. *Overcoming Dyslexia* is a good introduction to the science of reading, its underlying brain circuitry, and the dysfunction in brain pathways that leads to the disorder. Before explaining the reading process itself, Shaywitz provides a concise history of the disorder (alternatively known as reading disability). Her account appropriately champions the work of the visionary late-19th-century physician James Hinshelwood, who believed physicians should play a key role in diagnosing and helping poor readers. Like Hinshelwood, Shaywitz belongs to a group of forward-thinking clinicians who have made the effort to master the fields of medicine and special education, in the process strengthening the ties and complementary contributions of such seemingly unrelated disciplines.

Reading is built on two key processes—decoding and comprehension. The language system is a hierarchical structure made up of four increasingly complex parts: phonology, semantics, syntax, and discourse. Phonology is the ability to construct and untangle a word based on its elemental parts. A glitch in phonology, the most basic skill set in the language system, prevents dyslexic readers from decoding words effectively. There is agreement that a deficit in phonological skills is implicated in dyslexia, but Shaywitz makes this component of the reading process the centerpiece of her explanation of the disorder. Automated word retrieval, vocabulary, and memory are also considered important factors in the development of reading fluency; however, the contribution of each of these other factors to the etiology of developmental dyslexia is still debated by researchers.

The reader is given a brief tour of the parts of the brain important to language processing. In general, there are three neural pathways on the left side of the brain that can be accessed in the reading process. Skilled readers rely mainly on the word form area in the occipitotemporal region of the cortex to recognize words they have seen before instantly. By contrast, beginning readers decode new words using the other two pathways, located in the parietotemporal and frontal regions. Shaywitz's seminal functional magnetic resonance imaging studies have revealed that dyslexic readers show less activity in the automated word form area and greater activity in the two slower analytical pathways than readers without dyslexia. Additionally, it seems that dyslexic readers access part of the right frontal region, an area not normally used by fluent readers, in the reading process.

Although these discoveries will likely benefit future generations of struggling readers, Shaywitz seems overly optimistic about their impact on today's dyslexic readers: "In an era when we can image the brain as an individual reads and literally see the brain at work, it is unacceptable to have children and adults struggling to read when they could benefit from what modern neuroscience has taught us about reading and dyslexia" (p. 6). Shaywitz lists many research-based reading interventions that can benefit all readers; however, her prescription for struggling readers is disappointingly unscientific. In fact, many of her recommendations are based on the findings of the National Reading Panel, which convened from 1997 to 2000 to determine the efficacy of reading instruction developed over the previous 30 years. The National Institute of Child Health and Human Development chose Shaywitz and 13 other well-respected educators to serve on the National Reading Panel. She explains that, for dyslexic readers, "the instruction must be relentless and amplified in every way possible so that it penetrates and takes hold" (p. 256). It appears that science has simply confirmed what parents have always known: struggling readers must work harder than their peers.

When it comes to identifying dyslexic readers, Shaywitz refreshingly focuses on the patient history instead of relying on standardized testing: "As in other conditions in medicine, the history is the most critical component and is afforded the most respect" (p. 132). Traditionally, school administrators, making special education decisions based exclusively on IQ and reading test scores, have underdiagnosed dyslexia, allowing affected students to fall farther behind their fluently reading classmates. Shaywitz's attention to the history and her "sea of strengths" approach to helping struggling readers reveal her effectiveness as a caring clinician. Dyslexia impairs the ability to read fluently, but every struggling child has strengths that must be nurtured and encouraged by educators, parents, and clinicians. Furthermore, the significant adults in the life of a struggling reader need to communicate regularly and effectively to provide much-needed support and encouragement. Shaywitz especially champions the role of the "patient, persevering, and positive 'activist' parent" (p. 173).

The "sea of strengths" of *Overcoming Dyslexia* is grounded in the book's ability to empower parents by clearly explaining the reading process, delivering practical advice on managing relationships with schools, and providing a list of effective resources and reading programs. The book is geared toward a sophisticated lay readership, is written in a concise and clear way, and has a hopeful tone—perhaps too much so, as some of the book's assertions seem overly ambitious. For example, it may be prematurely definitive to claim, "We now know exactly where and how dyslexia manifests itself in the brain" (p. 4). The opening chapters in particular may give the parents of struggling readers unrealistic expectations. These limitations notwithstanding, Shaywitz is a welcome addition to the growing list of physicians looking to take a more prominent role in the field of education. Although science and medicine are not yet quite ready to deliver on some of her book's promises, the advances in the century-old history of dyslexia have been truly remarkable. Sally Shaywitz continues to be a key figure within this robust educational and scientific tradition.

ERIC ARZUBI, B.S.
ANDRÉS MARTIN, M.D., M.P.H.
New Haven, Conn.