

What Causes Dyslexia?

Dyslexia results from a neurological difference; that is, a brain difference. You are born with it and therefore must learn different ways of processing language.

- People with dyslexia have a larger right hemisphere in their brains than those of other readers, up to 10% larger in some cases! That may be one reason people with dyslexia often have significant strengths in areas controlled by the right side of the brain, such as artistic, athletic, and mechanical gifts; 3-D visualization ability; musical talent; creative problem-solving skills; and intuitive people skills.
- Along with this unique brain architecture, people with dyslexia have often have unusual "wiring". Neurons are found in unusual places in the brain, and are not as neatly ordered as in non-dyslexic brains. If you think of the side of a sponge, the neurons in a dyslexic brain are nearer the top side of the sponge rather than being distributed evenly from top to bottom.
- You can also think of the brain's wiring being similar to the shape of a tree's branches. In a non-dyslexic brain, these branches (dendrites) are thick and intertwined - making it easier to transmit data quickly and efficiently along these pathways - but in a dyslexic brain, there are fewer branches and they are farther apart - slowing down data transmission and making it much harder to even transmit data correctly.
- In addition to unique brain architecture and unusual wiring, functional MRI studies have shown that dyslexics do not use the same part of their brain when reading as other people. Non-dyslexic readers consistently use the *left rear side* of their brain when they read. People with dyslexia store language in other locations such as the *right side* of the brain, which is one reason why it is often slightly larger. As a result, people with dyslexia are not using the most efficient part (left side) of their brain when they read. A different part of their brain has taken over that function, leading to slower and often more inaccurate or inconsistent reading ability. This doesn't mean that the brain is somehow slower; *in fact, a dyslexic brain often works about 5 times harder when reading than a non-dyslexic brain!*
- Finally, recent studies seem to identify a genetic cause for dyslexia. There are 3 specific genes that have been identified as a possible cause for dyslexia. If these studies prove true, genetic testing could be an option in the next decade or so.

Please note that much of the scientific references above come from the current research of Dr. Sally Shaywitz and Susan Barton.