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VITAL SIGNS

Patterns: Dyslexia as Different as Day and Night

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A dyslexic in Hong Kong is not the same as a dyslexic in Chicago.

Both may find it harder to make their way through even fairly simple written material than other people to do.

But a new study finds that their brain mechanics as they try to read may be as different as Chinese is from English.

The report, which appeared last week in The Proceedings of the National Academy of Sciences, found that changes in the brain that may contribute to dyslexia are different for English speakers and Chinese speakers.

The difference may be explained by the fact that English is an alphabetic language, the researchers said. A reader sees a letter and associates it with a sound. Chinese characters, on the other hand, correspond to syllables and require much more memorization.

When the researchers used functional M.R.I. machines to look at the workings of the brain in Chinese- and English-speaking dyslexics, they found that in the English speakers there was weak reading activity in the temporoparietal and occipitotemporal regions. In the Chinese, differences were found in the left middle frontal gyrus region.

“The fact that Chinese and Western dyslexics show structural abnormalities in different brain regions suggests that dyslexia may even be two different brain disorders in two cultures,” the researchers wrote.