

Can Brain Scans of Young Children Predict Reading Problems?

This is the VOA Special English Education Report.

Dyslexia is a problem that interferes with the ability to recognize words and connect sounds with letters when people read. People with this learning disorder may also have problems when they write. Dyslexia is not related to eyesight or intelligence. The problem involves areas of the brain that process language.

Brain scientists are studying whether they can predict which young children may struggle with reading, in order to provide early help. John Gabrieli at the Massachusetts Institute of Technology is leading a study of five-year-olds in about twenty schools in the Boston area.

JOHN GABRIELI: "We partner with schools that have kindergartens. And in this study what we do is, for all the children whose parents permit them to participate, we give them a brief set of paper-and-pencil tests to look at which children appear to be at some risk for struggling to read."



AP

A 9-year-old boy with dyslexia in an MRI machine in 2004. Scientists now want to know whether brain images can identify younger children who might develop future reading problems.

So far, fifty of the kindergarteners have been examined in a machine that shows brain activity. The goal is to study five hundred children using fMRI, or functional magnetic resonance imaging. The scanner uses a high-energy magnetic field and radio waves to "look" inside the body.

Written tests are not always able to identify dyslexia or other problems. Professor Gabrieli says children can differ a lot in their abilities from day to day. He says brain scans may offer a more scientific way to identify problems. And with reading problems, he says, early identification is important.

JOHN GABRIELI: "All the literature is that for intervention, behavioral programs, educational programs that help children overcome reading difficulties, the younger the child, the more effective they are."

Reading problems are not usually identified until a child is in the third or fourth grade. The longer the wait before children are recognized as poor readers, he says, the less these interventions can help. And, as Professor Gabrieli points out, poor reading can make education a struggle.

JOHN GABRIELI: "Reading is -- everything. Even math and science have textbooks."

During the brain imaging, the children are given tasks related to reading. They work with letters and sounds of language. The brain scans measure the extent to which certain parts of the brain become active while the children do the work. The neuroscientists say they are pleased with early results from the study, but have a lot more work to do.

The children get to take home the pictures of their brain in action. Professor Gabrieli says children who do not want to have a brain scan do not have to.

JOHN GABRIELI: "I can tell you that the ones who do want to do it have an excellent experience. Almost all, the vast majority, ask when they can do it again. We treat the entire experience as a game. When they go into the scanner, we tell them it is like going into a space rocket."

And that's the VOA Special English Education Report, written by Jerilyn Watson. I'm Steve Ember.