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Exploring Dyslexia and Brain Energy

Researchers say they have been able to measure brain changes in dyslexic children who have been taught to read with a newly developed technique.

Using an imaging device known as a spectroscope, researchers at the University of Washington examined the children before they took part in the study and found that the dyslexic children used four times as much brain energy to process sounds as did children without the disorder. After about a year of training, they used just 1.8 times as much energy.

When children overcome part of their disability, "they also change in their brain-imaging parameters," said Dr. Todd L. Richards, a radiology professor who worked on the study with Dr. Virginia Berninger, a neuropsychologist.

Dyslexia, a reading disorder, is described as the most common learning disability, affecting 5 percent to 15 percent of children. It is sometimes described as a "wiring" problem in the brain, and the researchers say they have tried to develop training techniques to make the brain more efficient at processing language.

The findings are reported in the current issue of The Journal of Neuroradiology. Details of the technique will not be published until fall, but researchers said it was built on boys' interest in science and technology by linking reading instruction to hands-on activities.

The study involved 15 boys ages 10 to 13, 8 of whom were dyslexic, and all of whom had similar I.Q.'s.

After the training, the researchers said, all but one of the dyslexic boys could read age-appropriate material. But the researchers expect them to need continued training to keep the ground they gained.

BEHAVIOR

Of Rats, Cocaine and Addiction Mysteries

Cocaine is indisputably addictive, but while many fall into its hold, others simply dabble and move on. To date, predicting how a user will react to the drug has been anyone's guess.

A new study, however, suggests that one sign of the future addict is plunging headlong into cocaine use from the very beginning.

Researchers at Yale reached that conclusion after studying rats that were allowed to administer cocaine to themselves. They published their findings in the journal Neuropsychopharmacology.

Dr. David W. Self, an associate professor of psychology, said he and his colleagues had wanted to test two hypotheses about cocaine addiction: that it was more prevalent among animals inclined to seek novelty, or among those that are more sensitized to cocaine.

Neither turned out to be true, it appeared. Instead, the best predictor of addiction seemed to be the amount the rats took in an early part of the study, when they were allowed to dose themselves for 10 days.

All the rats in the study were then cut off from the drug, and their degree of addiction was measured by how frequently they returned to the cocaine dispensers.

The rats that used the most cocaine, about 35 percent of the group, were the most likely to show signs of strong addiction. Researchers suspect a possible biological basis for the differences.