25 Breakthroughs in Georgia

NO. 22:

A five-minute test that predicts cognitive decline

The cruelty of Alzheimer's is well known to most Americans. The disease now affects 5.5 million people in the U.S., and someone is diagnosed at a rate of every 67 seconds.

Researchers are working hard to develop medicines that stop or slow the progression of Alzheimer's. But successful early intervention requires early diagnosis, which hasn't been easy to achieve.

Now, a simple test developed at **Emory University** can identify people at risk for cognitive decline. And a five-year, NIH-funded study found the test could predict Alzheimer's disease three to six years before symptoms appeared.

The test uses eye-tracking technology to determine how long a person stares at familiar and unfamiliar images that pass by in a series. It emerged from Dr. Stuart Zola's three decades of studying memory in monkeys. Zola found that monkeys with a damaged hippocampus area of the brain performed poorly at distinguishing familiar images from new ones. Since Alzheimer's disease begins with an abnormal hippocampus, Zola realized the same kind of test could predict cognitive decline in humans.

Unlike existing tests to identify Alzheimer's, such as PET scans and spinal fluid analysis, the Emory test is inexpensive and takes just five minutes to administer. A major pharmaceutical company used it to recruit participants in clinical trials for an early-intervention drug treatment.

The test is being further developed by **Neurotrack**, which licensed the technology in 2012. Additional studies are underway at Harvard, Brown and Stanford, as well as in Shanghai. By the end of 2016, the test may be available from physicians.

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