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Life in Discovery

For Immediate Release:

What Celebrity Names Can Reveal about the Onset of Alzheimer's Disease



Michael Seidenberg, PhD

NORTH CHICAGO, IL – Research that is targeting the early diagnosis of Alzheimer disease has drawn national attention to the work of Michael Seidenberg, PhD, a faculty member at Rosalind Franklin University of Medicine and Science.

Dr. Seidenberg, a professor in the university's Department of Psychology, is the lead author of an article in the journal *Neurology* detailing a study that maps the brain activity of 69 healthy senior men and women, aged 65-85, including some at higher risk for Alzheimer's disease, as they distinguish between famous and unfamiliar names.

Participants were divided into three groups: those with no risk factors for Alzheimer's disease, those with a family history of the disease but no genetic risk factors and those who not only have relatives diagnosed with Alzheimer's, but who also carry the apolipoprotein $\epsilon 4$ gene, which studies have shown increases the risk of developing the disease.

Published in late August, the two-year study created a flurry of interest among national media outlets including online editions of *Time* and *Newsweek*, for its use of celebrity names in gauging how much effort brains expend in retrieving information stored in the brain areas associated with memory.

Researchers used functional magnetic resonance imaging, or fMRI, which offers a view of brain activity related to a specific task or neural region. While lying in the scanner, participants signaled recognition as they listened to a list of 60 names, half of them well known - people like Albert Einstein, Britney Spears, George Clooney and Marilyn Monroe – and half of them obscure or unfamiliar.

The results were compelling. The control group, which had no risk factors, exhibited increased brain activity when confronted with unfamiliar names. But it was the opposite for those at high risk. They showed higher levels of activation when recognizing famous names.

“Even though they are getting to the information as accurately as people with no risk factors, their brains are doing something differently,” Dr. Seidenberg said. “The way we’re beginning to view this is it’s a compensatory mechanism to allow them to perform the task. More activity reflects that different brain areas are contributing.”

That hypothesis will be tested by Dr. Seidenberg and his research partners, scientists from the Cleveland Clinic, Wayne State University and the Medical College of Wisconsin, when they study another group of subjects who will react to a new list of names. The research team will examine the changes in brain activity which has taken place since the original fMRI session.

Funded by the National Institutes of Health, the study is one of a series begun approximately seven years ago, according to Dr. Seidenberg. “We have hypothesized that you do get different patterns of activity on fMRI as you look at people at risk for developing dementia,” Dr. Seidenberg said. “Bringing this group back allows us to look at people who are becoming symptomatic – that are experiencing day-to-day memory problems – and see what happens over time to their brain activity.”

A future phase of the research will include a clinical drug trial in which at-risk subjects will take a medication which has been shown to have some success in alleviating symptoms of Alzheimer’s. Researchers will again administer fMRI to measure brain activity during a name recognition task.

This research is at the frontier of treatment for a disease that poses an increasing threat to the world’s aging population. The Alzheimer’s Association estimates that 5.3 million people in the U.S. and 35 million people worldwide are living with Alzheimer’s disease and dementia. According to the 2009 World Alzheimer Report, released by Alzheimer’s Disease International, the number of people with Alzheimer’s is expected to nearly double every 20 years, to 65.7 million in 2030 and 115.4 million in 2050.

“It’s a very important topic given the escalating costs both to society and the individual,” Dr. Seidenberg said. “We’ve learned so much in the last 10 years but we have a great deal still to learn. The advent of new technologies like fMRI has provided a new avenue to pursue the issue.”

Dr. Seidenberg hopes the “name game” will ultimately help delay the onset of Alzheimer’s by identifying people well before they manifest symptoms including confusion or memory loss.

“There’s the notion that people are in some pre-Alzheimer dementia state for several years before they actually become symptomatic in terms of overt memory problems,” Dr. Seidenberg said. “If we can get people before they become symptomatic using these techniques, we will be in a better position to successfully treat them and to delay the onset of the disease.”

A nationally respected researcher in clinical neuropsychology, Dr. Seidenberg teaches courses in brain behavior relationships and neuropsychological assessment. He notes the connection between the genetic component of his team’s research and British researcher Dr. Rosalind Franklin’s work to identify the double-helix structure of DNA, which ultimately revolutionized medical and genetics research. “Among the risk variables we’re looking at is people who have a certain genetic susceptibility,” Seidenberg said.

The scientist is pleased that his research is bringing enhanced national visibility to Rosalind Franklin University of Medicine and Science. “I feel very fortunate to be collaborating with other researchers from major institutions around the country on work that is really remarkable,” he said.

About Rosalind Franklin University of Medicine and Science

Rosalind Franklin University of Medicine and Science is a national leader in interprofessional medical and healthcare education, comprising the Chicago Medical School, College of Health Professions, Dr. William M. Scholl College of Podiatric Medicine and School of Graduate and Postdoctoral Studies.

There are more than 16,000 RFUMS degreed graduates in the United States and worldwide.