

# Researchers conduct deep brain stimulation in Alzheimer's patient

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(Medical Xpress)—Researchers at the University of Florida have performed deep brain stimulation on a patient with Alzheimer's disease as part of a clinical trial studying whether the treatment can slow progression of the disease.

Called the Advance Study, the multicenter clinical trial will evaluate whether using electrodes to stimulate a part of the brain called the fornix can slow [memory decline](#) and improve cognitive function in patients in the early stages of Alzheimer's disease. The trial is taking place at four sites across the United States, including UF.

"The goal of treating Alzheimer's disease with neuromodulation is to try to enhance what patients have and slow down memory loss and the process of the disease so they can have a few more years of good function," said Dr. Michael Okun, co-director of the UF Center for Movement Disorders and Neurorestoration and a site principal investigator for the study. "This is a potentially exciting symptomatic therapy."

Characterized by [memory loss](#) and a steady decline in [cognitive abilities](#), Alzheimer's disease affects as many as 5.1 million Americans, according to the National Institute on Aging.

[Deep brain stimulation](#) is used to treat a variety of conditions, including Parkinson's disease, dystonia and Tourette syndrome. In the procedure, researchers carefully place electrodes in specific regions of the brain.

When these electrodes are turned on, they send [electrical signals](#) that prompt a therapeutic response.

"In Alzheimer's patients there is a very slow loss of [brain function](#)," Okun said. "These slow changes that happen in the brain lead to the clinical symptoms. The idea is that we are going to try and modulate the circuits to see if we can improve some of the symptoms."

Researchers decided to test deep [brain stimulation](#) in the fornix—a part of the brain that connects the hippocampus to the hypothalamus—after the accidental discovery that stimulating that region of the brain provoked vivid memories in patients, Okun said.

The therapy is being tested at four sites: UF, Toronto Western Hospital, the Banner Alzheimer's Institute and Johns Hopkins University. Overall, 20 patients will be enrolled in the trial, although the electrodes will not be turned on in all the participants, Okun said.

"This is the best way for us to tell if there is a real response versus a placebo response," he said. "It's very tricky to measure memory and cognition."

Aside from testing the effectiveness of the therapy, researchers also are closely examining how stimulating the brain affects the course of Alzheimer's disease and whether it prompts changes in oxygen, in glucose levels and in blood flow.

"What we have seen so far is there are very interesting changes in blood flow," Okun said. "It's very early and it is hard to judge these things just on pictures but the pictures look very interesting. There is definitely something going on in the circuit."

Provided by University of Florida

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