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# Self-reported declines in cognition may be linked to changes in brain connectivity

WAYNE STATE UNIVERSITY - OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Research News

DETROIT - Jessica Damoiseaux, Ph.D., an associate professor with the Institute of Gerontology at Wayne State University, recently published the results of a three-year study of cognitive changes in older adults. The team followed 69 primarily African American females, ages 50 to 85, who complained that their cognitive ability was worsening though clinical assessments showed no impairments. Three magnetic resonance imaging scans (MRIs) at 18-month intervals showed significant changes in functional connectivity in two areas of the brain.

"An older adult's perceived cognitive decline could be an important precursor to dementia," Damoiseaux said.

"Brain alterations that underlie the experience of decline could reflect the progression of incipient dementia and may emerge before cognitive assessment is sensitive enough to detect a deficit."

The resulting paper, "Longitudinal change in hippocampal and dorsal anterior insulae functional connectivity in subjective cognitive decline," appeared in the May 31 issue of *Alzheimer's Research & Therapy*. Damoiseaux conducted the study with graduate student Raymond Viviano, Ph.D., who is first author.

Subjective cognitive decline, defined as a perceived worsening of cognitive ability not noted on clinical assessment, may be an early indicator of dementia. Previous cross-sectional research has demonstrated aberrant brain functional connectivity in subjective cognitive decline, but longitudinal evaluation has been limited.

Viviano and Damoiseaux's three-year study found that persons reporting more subjective cognitive decline showed a larger decrease in connectivity between components of the default mode network and a larger increase in connectivity between salience and default mode network components. The functional connectivity changed in the absence of a change in cognitive performance.



**IMAGE:** A RESEARCH TEAM IN WAYNE STATE'S INSTITUTE OF GERONTOLOGY RECENTLY PUBLISHED A PAPER THAT SHOWS SELF-REPORTED DECLINES IN COGNITION MAY BE LINKED TO CHANGES IN FUNCTIONAL CONNECTIVITY IN TWO AREAS... [view more >](#)

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Since these brain changes occurred without concomitant cognitive changes, they could indicate that brain changes underlie the perception of decline. These changes could be a sensitive marker for nascent dementia months or years before assessments detect any cognitive deficit.

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### About the Institute of Gerontology

The Institute of Gerontology researches aging, trains students, and informs professionals, caregivers and older adults on aging ([iog.wayne.edu](http://iog.wayne.edu)). It is part of the Division of Research at Wayne State University.

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