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Brain Tissue Loss in People with Alzheimer's disease and Mild Cognitive Impairment

People with Alzheimer's disease exhibit striking structural changes in the caudate nucleus, a brain structure typically associated with movement disorders such as Parkinson's disease, a new study has found.

The research was presented at Neuroscience 2010, the annual meeting of the Society for Neuroscience, held in San Diego.

"Our finding suggests that Alzheimer's disease produces broader damage in the brain than previously thought, including damage to areas not usually associated with the disease," said lead author Sarah Madsen, a graduate student working with Paul Thompson, PhD, of the University of California, Los Angeles.

For the study, Madsen and her colleagues analyzed the brains of 400 elderly participants. Of this group, 100 were healthy, 100 had diagnosed Alzheimer's disease, and 200 had mild cognitive impairment, a condition that sometimes serves as a precursor to Alzheimer's disease.

Compared with healthy individuals, the caudate nucleus was seven percent smaller in those with Alzheimer's disease and four percent smaller in those with mild cognitive impairment. It was also smaller in older and in overweight individuals.

"Our finding suggests a gradual progression of brain tissue loss in the caudate nucleus as dementia becomes more severe," said Madsen. "This brain area, which is associated with certain forms of learning and memory as well as motor control, is an important factor to consider when studying Alzheimer's disease and in predicting how the disease will progress?" she said.

Research was supported by the National Institutes of Health Roadmap for Medical Research and Alzheimer's Disease Neuroimaging Initiative, National Institute on Aging, National Heart, Lung, and Blood Institute, National Institute of Neurological Disorders and Stroke, National Institute of Biomedical Imaging and BioEngineering, and the Dana Foundation.

Editor's Note: This article is not intended to provide medical advice, diagnosis or treatment.