

# People with MS-related memory and attention problems have signs of extensive brain damage

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People with multiple sclerosis (MS) who have cognitive problems, or problems with memory, attention, and concentration, have more damage to areas of the brain involved in cognitive processes than people with MS who do not have cognitive problems, according to a study published in the March 6, 2013, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

The study used a type of MRI brain scan called [diffusion tensor imaging](#) along with regular MRI scans to compare brain measurements in 20 people with MS who had related [cognitive problems](#), 35 people with MS who did not have cognitive problems and 30 healthy participants.

The diffusion tensor images showed that, compared to the healthy [control participants](#), 49 percent of the investigated brain [white matter](#) had impaired integrity in those with MS and no cognitive problems, while impaired integrity was evident in 76 percent of the investigated white matter of those with MS and related cognitive problems. In the people with MS-related cognitive problems, the extra white matter dysfunction was particularly seen in areas important for cognitive skills, such as the thalamus.

"This state-of-the-art imaging technology confirms that [cognitive symptoms](#) in MS have a biological basis," said study author Hanneke E. Hulst, MSc, of VU University Medical Center in Amsterdam, the

Netherlands. "The consequence of this discovery is that imaging can now be used to capture a wider spectrum of changes in the brains of people with MS, and will therefore help determine more accurately whether new treatments are helping with all aspects of the disease."

Cognitive problems are common in MS, affecting up to 65 percent of people with the disease.

Provided by American Academy of Neurology

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