

# Dynamics of brain volume loss vary with MS progression

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(HealthDay)—Brain volume loss (BVL) has nonlinear dynamics and

limited reproducibility as a marker of therapeutic response in multiple sclerosis (MS), according to a study published online July 2 in *JAMA Neurology*.

Magí Andorra, from the University of Barcelona in Spain, and colleagues enrolled a cohort of 140 patients who had clinically isolated syndrome or MS. Participants underwent a series of annual [magnetic resonance imaging](#) (MRI) scans. Short-term repeatability of the MRI measurements and annual BVL were assessed using images from two cohorts of healthy volunteers (34 and 20 participants, respectively).

The researchers found that patients underwent four MRI scans with a median interscan period of 364 days. The [healthy volunteers](#) underwent two MRI scans with a median of 24.5 and 384.5 days for the short- and long-term MRI follow-up, respectively. In the first five years after MS onset, the BVL rates were higher, with a direct correlation with steroids and inverse association with age at onset of MS. For whole-brain volume loss, the reproducibility of Jacobian Integration (JI) and Functional Magnetic Resonance Imaging of the Brain Software Library (FSL) was similar; JI gave more precise, less biased estimates than FSL for specific brain regions.

"The proposed BVL threshold of less than 0.4 percent per year as a marker of therapeutic efficiency should be reconsidered because of the different dynamics of BVL as MS progresses," the authors write.

Several authors disclosed financial ties to the pharmaceutical industry.

**More information:** [Abstract/Full Text](#)

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