# Researchers determine that brain reserve independently protects against cognitive decline in MS

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U.S. and Italian researchers have determined that brain reserve, as well as cognitive reserve, independently protects against cognitive decline in multiple sclerosis (MS). Their article, "Brain reserve and cognitive reserve in multiple sclerosis: What you've got and how you use it", was published in *Neurology* on June 11, 2013 (*Neurology* 2013;80:2186-2193). Authors James Sumowski, PhD, Victoria Leavitt, PhD, and John DeLuca, PhD, are with Kessler Foundation in West Orange, NJ. Maria Rocca, MD, Gianna Riccitelli, PhD, Giancarlo Comi, MD, and Massimo Filippi, MD, are with San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy.

"Our research interests focus on why many people with MS suffer cognitive impairment, while others with MS withstand considerable disease progression without cognitive decline," said Dr. DeLuca, VP for Research & Training at Kessler Foundation. "With our colleagues in Milan, we explore factors associated with lack of cognitive decline despite marked changes on imaging studies." In this study, 62 patients with MS (41 relapsing-remitting MS, 21 secondary progressive MS) had MRIs to estimate brain reserve and disease burden. Early-life cognitive leisure was measured as a source of cognitive reserve. Cognitive status was measured with tasks of cognitive efficiency and memory.

Dr. Sumowski, principal author/investigator, commented on the importance of the study, saying, "We demonstrated for the first time that

larger maximal lifetime brain growth (which is heritable) and early life mental stimulation (e.g., reading, games, hobbies) independently and differentially protect against cognitive decline in MS. That is, genetics and life experience independently protect against cognitive decline in persons with MS." Foundation scientists have previously documented the protective effect of intellectual enrichment in MS.

**More information:** Sumowski JF, Wylie GR, Chiaravalloti N, DeLuca J. Intellectual enrichment lessens the effect of brain atrophy on learning and memory in multiple sclerosis. *Neurology*. 2010 Jun 15;74(24):1942-5.

Sumowski JF, Wylie GR, Leavitt VM, Chiaravalloti ND, DeLuca J. Default network activity is a sensitive and specific biomarker of memory in multiple sclerosis. *Mult Scler.* 2013 Feb;19(2):199-208.

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