

Brain and cognitive reserve protect long-term against cognitive decline

April 30 2014

Multiple sclerosis researchers have found that brain reserve and cognitive reserve confer a long-term protective effect against cognitive decline. The study has been published in *Neurology*.

James Sumowski, PhD, lead author of the article, and John DeLuca, PhD, are at Kessler Foundation. Co-authors are from the Manhattan Memory Center, New York, NY, the San Raffaele Scientific Institute, Milan, Italy, and the University of Belgrade, Serbia. *Neurology* is the official journal of the American Academy of Neurology. Dr. Sumowski presented this research at the 2014 AAN conference in Philadelphia.

"Our research aims to answer these questions," explained Dr. DeLuca. "Why do some people with MS experience disabling symptoms of [cognitive decline](#), while others maintain their [cognitive abilities](#) despite neuroimaging evidence of significant disease progression? Can the theories of brain reserve and [cognitive reserve](#) explain this dichotomy? Can we identify predictors of cognitive decline?"

In this study, memory, cognitive efficiency, vocabulary (a measure of intellectual enrichment/cognitive reserve), brain volume (a measure of brain reserve), and disease progression on MRI, were evaluated in 40 patients with MS at baseline and at 4.5-year followup. After controlling for [disease progression](#), scientists looked at the impact of brain volume and intellectual enrichment on cognitive decline.

Results supported the protective effects of brain reserve and cognitive

reserve," noted Dr. Sumowski. "Patients with greater intellectual enrichment experienced lesser degrees of cognitive decline. Those with greater brain reserve showed a protective effect for cognitive efficiency. This study not only confirms these protective effects of brain and cognitive reserve, it shows that these beneficial effects persist for years."

More information: Sumowski JF, Leavitt VM. Body Temperature Is Elevated and Linked to Fatigue in Relapsing-Remitting Multiple Sclerosis, Even Without Heat Exposure. Arch Phys Med Rehabil. 2014 Feb 20.

Sumowski JF, Coyne J, Cohen A, Deluca J. Retrieval practice improves memory in survivors of severe traumatic brain injury. Arch Phys Med Rehabil. 2014 Feb;95(2):397-400

Sumowski JF, Chiaravalloti N, Krch D, Paxton J, Deluca J. Education attenuates the negative impact of traumatic brain injury on cognitive status. Arch Phys Med Rehabil. 2013 Dec;94(12):2562-4.

Provided by Kessler Foundation

Citation: Brain and cognitive reserve protect long-term against cognitive decline (2014, April 30) retrieved 17 December 2022 from

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