Verbal fluency deficits in multiple sclerosis may reflect impaired language ability

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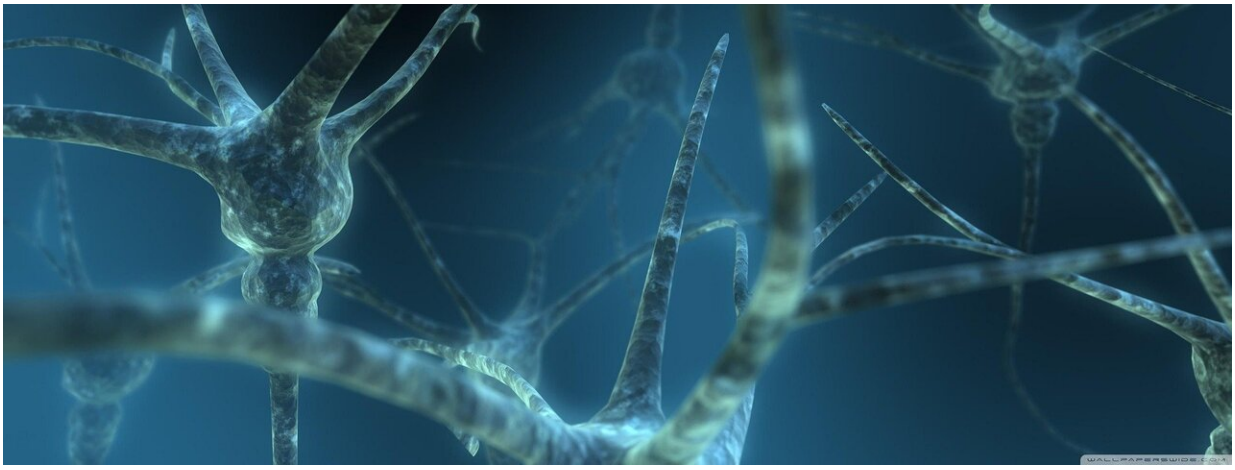

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Kessler Foundation researchers showed that people with multiple sclerosis (MS) experience subtle language impairments that standard neuropsychological tests may incorrectly attribute to impaired executive functions. The article, "The role of language ability in verbal fluency of individuals with multiple sclerosis" was published on February 16, 2021, in *Multiple Sclerosis and Related Disorders.*

The authors are Nancy D. Chiaravalloti, Ph.D., director of the Centers for Neuropsychology, Neuroscience, and Traumatic Brain Injury Research at Kessler Foundation, Lauren B. Strober, Ph.D., senior

research scientist at the Center for Neuropsychology and Neuroscience Research, and Amy L. Lebkuecher, MS, of Pennsylvania State University, formerly of Kessler Foundation. Drs. Chiaravalotti and Strober also have research faculty appointments at Rutgers New Jersey Medical School.

Assessing language ability in people with MS is a complicated endeavor, given the vast spectrum of individual clinical experiences within this population. Yet the ability to identify any form of language impairment, not just severe language disorder, is essential to fully understanding a patient's cognitive profile and providing optimal interventions.

While some early research suggested that language ability is largely intact in people with MS, newer studies indicate that milder language impairments may exist but are too subtle to be quantified by standard neuropsychological tests. As a result, verbal fluency deficits observed in MS are often attributed to impaired processing speed and executive functions rather than language ability. Because individuals with MS have been presumed to have intact language ability, more comprehensive tests are rarely performed, according to lead author Dr. Lebkuecher.

In this study, the Kessler research team challenged the assumption that impaired verbal fluency of individuals with MS solely reflects executive dysfunction. The team analyzed pre-existing data from 74 individuals with MS to evaluate the contribution of various cognitive factors to verbal fluency, including language ability, oral-motor speed, processing speed, and executive functions. They conducted linear multiple regression analyses with letter and category verbal fluency—which relate to a person's ability to produce words starting with a given letter or within a semantic category—as outcome variables.

The results showed that vocabulary and processing speed predicted letter fluency, while only vocabulary predicted category fluency. Although

further research is needed to better understand the relationship between verbal fluency and vocabulary and processing speed, the results suggest the observed verbal fluency deficits in MS may reflect both impaired language ability and processing speed.

"Our results indicate that language ability and domain-general factors were predictive of verbal fluency in individuals with MS," summarized Dr. Chiaravalloti. "Specifically, language ability played a significant role. This could indicate that verbal fluency deficits in MS reflect underlying language impairment," she added, "Our findings further demonstrate the need for more comprehensive examination of language in people with MS."

More information: Amy L. Lebkuecher et al, The role of language ability in verbal fluency of individuals with multiple sclerosis, *Multiple Sclerosis and Related Disorders* (2021). DOI: 10.1016/j.msard.2021.102846

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