Can mental activity protect against memory problems in MS?

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A new study shows that a mentally active lifestyle may protect against the memory and learning problems that often occur in multiple sclerosis (MS). The study is published in the June 15, 2010, print issue of *Neurology*.

"Many people with MS struggle with learning and memory problems. This study shows that a mentally active lifestyle might reduce the harmful effects of brain damage on learning and memory. That is, learning and memory ability remained quite good in people with enriching lifestyles, even if they had a lot of brain damage (brain atrophy on brain scans). In contrast, persons with lesser mentally active lifestyles were more likely to suffer learning and memory problems, even at milder levels of brain damage," said study author James Sumowski, PhD, with the Kessler Foundation Research Center in West Orange, New Jersey.

The study involved 44 people around the age of 45 who had MS for an average of 11 years. The study authors measured lifetime enrichment with word knowledge, typically acquired through activities that involve reading and education.

The study found that those with a mentally active lifestyle had good scores on the tests of learning and memory even if they had higher amounts of brain damage. For example, on a test of verbal learning and memory, participants were given up to 15 tries to learn a list of 10 words, and were then asked to recall the list after 30 minutes. Among

people with mentally active lifestyles, learning and recall was similar in those with lower and higher amounts of brain damage (recall decline of about one percent: 9.6 words to 9.5 words).

In contrast, among persons with less intellectually enriching lifestyles, learning was slower and recall was lower after 30 minutes among those with higher amounts of brain damage compared to those with lower amounts of damage (recall decline of about 16 percent: 9.6 words to 8.0 words).

"The findings suggest that enriching activities may build a person's 'cognitive reserve,' which can be thought of as a buffer against disease-related memory impairment. Differences in cognitive reserve among persons with MS may explain why some persons suffer memory problems early in the disease, while others do not develop memory problems until much later, if at all," said Sumowski.

"These results open up a whole new area of inquiry in MS that could have a significant impact," said Peter A. Arnett, PhD, of Penn State University in University Park, Pa., who wrote an editorial accompanying the study. "There's the potential that people could improve their cognitive reserve to reduce or prevent cognitive problems later."

Arnett said the possibility is particularly appealing because people typically live with MS for many years, and cognitive problems are common. "More research is needed before any firm recommendations can be made, but it seems reasonable to encourage people with MS to get involved in activities that might improve their cognitive reserve, such as mentally stimulating activities like crossword puzzles and word games, regular exercise, and social relationships."

"These findings are similar to research on cognitive reserve in aging and Alzheimer's disease," Sumowski said. "Studies on aging have also shown

that engagement in specific cognitive leisure activities, such as reading books or playing games, also protects against the effects of Alzheimer's disease. More research is needed to investigate the contribution of specific leisure activities to cognitive reserve in people with MS."

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