



# Neuropsychologic Testing and Multiple Sclerosis

What is the value of neuropsychologic testing for patients with MS when there are often no available treatments?

By Daniel Kantor, MD, FAAN, FANA



## Cognitive Deficits: A Conundrum

Although neurologists recognize that disability in patients with multiple sclerosis (MS) may extend beyond physical signs and symptoms to cognitive dysfunction, we are often frustrated by the seeming lack of treatment

options for cognitive symptoms. Cognitive rehabilitation has emerged as a valuable option, but there is a shortage of adequately trained professionals who can deliver this therapy. This shortage has fueled interest in computerized cognitive rehabilitation programs that can be accessed by patients regardless of their local resources. Training patients to improve a specific cognitive domain may improve that domain, but it is not always clear that such improvements affect patients' daily activities.

## New Study on Computerized Cognitive Rehabilitation

Researchers from the Kessler Foundation, New York University, and Rutgers conducted a pilot controlled randomized trial of a computerized cognitive training system.<sup>1</sup>

### Design

In this study, 21 people with MS who also had impairments in processing speed were randomly assigned to a treatment or no-treatment group. Patients were assessed by blinded evaluators prior to treatment and 1 week after a 5-week treatment with a computerized cognitive training system that was focused on processing speed.

### Neuropsychologic Testing

Subjects who underwent treatment had improved neuropsychologic test scores compared with control subjects who had no improvement. Of note, one-fourth of subjects who received training had scores improve from the impaired range to the nonimpaired range. Improvements in short-delay recall of words were among the improved areas in those who had cognitive training.

### Real-Life Results

Beyond improvement in neuropsychologic test scores, patients who were treated also had improved accuracy and speed on a number-finding task with a phone book and on locating and reading ingredients on a can of food.

### Implications

It seems that memory deficits may arise from damage to hippocampal neurocircuitry in some patients with MS. For others, MS-induced impaired processing speed may be the direct cause of learning and memory difficulties. These 2 different mechanisms could explain why treating and improving processing speed may improve memory in some people with MS.

This pilot study suggests computerized speed-of-processing training may improve not just neuropsychologic testing scores, but also real-life activities related to both processing speed and memory.

### Future Directions

Larger studies with posttreatment evaluations performed a longer time after the computerized training are needed. Our patients would also benefit from home-based training programs with novel measures of improvement in real-life daily functioning. ■

1. Chiaravalloti ND, Goverover Y, Costa SL, DeLuca J. A pilot study examining speed of processing training (SPT) to improve processing speed in persons with multiple sclerosis. *Front. Neurol.* 2018;9:685.

### Daniel Kantor, MD, FAAN, FANA

President Emeritus, Florida Society of Neurology  
 Founding President, Medical Partnership 4 MS (MP4MS)  
 Program Director, Neurology Residency  
 Florida Atlantic University  
 Boca Raton, Florida

Got a minute for MS? Share @KantorNeurology