

Appendix A

Description of the Memory, Attention and Problem Solving Skill in MS (MAPSS-MS)

Intervention

Group Component The content and process aspects of the group component of the *MAPSS-MS* intervention were informed by the research team's prior health promotion intervention for women with MS.¹⁷ The intent of the earlier efficacy-based wellness intervention was to engage individuals in assessing their present health behaviors, setting meaningful goals for change, and addressing the barriers, resources, and skills necessary to improve health behaviors and, consequently, quality of life. In this study, we used the same process and strategies to assist participants to acquire knowledge regarding specific MS-related cognitive impairments, to assess and acknowledge their cognitive concerns, to build the skills necessary to implement compensatory self-management strategies for cognitive difficulties, and set goals for integrating new cognitive skills into their everyday lives.

The group program consisted of weekly two-hour classes over an eight-week period that presented information, guided participants in self-assessment of cognitive problems, resources and barriers to cognitive functioning and enhanced self-efficacy for use of strategies to maximize cognitive functioning. Program content, originally developed for the *Wellness for Women with MS* curriculum¹⁷, was adapted specifically for issues related to cognitive function in men and women with MS. Topics for the weekly sessions included:

- ❖ Maximizing Cognitive Functioning with MS and Orientation to the Computer Training

- ❖ Attention and Processing Speed
- ❖ Memory and Language
- ❖ Visuospatial Skills and Executive Functioning
- ❖ Lifestyle Adjustments to Maximize Cognitive Health
- ❖ Stress Management and Dealing with Depression
- ❖ Engaging in Exercise and Physical Activity
- ❖ Maximizing Cognitive Functioning with MS-Pulling it All Together

Each class session followed the same basic outline: 1) introduction/revisiting content for prior class and answering questions; 2) process discussion regarding goals and achievement - use of strategies to build efficacy or compensatory strategies and rewards for small accomplishment; 3) practicing cognitive strategies in class and computer training - how can this be used in daily activities; 4) self-assessment and content on weekly topic; 5) closure - prescribe computer training assignments for the upcoming week. At each session, the facilitator reviewed with participants their progress on the computer exercises prescribed in the previous session, explored cognitive strategies and performance difficulties, and prescribed the therapy exercise assignments for the upcoming week. Participants received notebooks with outlines of class of class content, homework assignment, and goal-setting activities. Copies of the modular program guide are available from the first author without charge.

Computer-Assisted Cognitive Rehabilitation Protocol: The computer training used in this study was developed by Bracy and Colleagues²¹ at the Neuroscience Center of Indianapolis. The Neuroscience Center maintains a secure subscription-based website (www.neuropsychonline.com) with programs that run directly in standard web browsers.

The principal investigator subscribed to the website service for a fee for each participant and received unlimited access for each participant. The delivery of the computer exercises over the Internet allows the participant to log in from their home and complete the exercises from any computer with Internet access. During the first group session laptops and wireless Internet were available so that participants could log on and work through a sample exercise. Each participant received specific written instructions on how to log in to the program at home and the facilitator of the intervention was available by email and phone to assist participants if they had questions about the program. Each participant was asked to complete a minimum of 45 minutes of training three times per week. The researchers were able to electronically monitor the skills practiced and the success at various levels. Participants completed a written log of the time they practiced each day and any comments they had about the exercises.

The facilitator prescribed practice on four neuropsychonline tracks (attention, executive skill, memory, and problem solving). The four tracks address the most common problems experienced by persons with MS. The tasks are arranged so that the most basic cognitive skills (attention) are addressed first. As the user progresses, the tasks become more complex and challenging. Each task in each track is in a game-like format. For example, the attention track included exercises in simple auditory and visual reactions to fixed and random points and divided auditory and visual attention. Within the important memory skills track, the exercises included sequenced recall, reversed sequenced recall, color match, trail trace, sequenced blocks, and recall for objects and location. ¹⁵ During the first four weeks of the *MAPSS-MS* intervention the participant only had access to one specific prescribed module each week. During weeks five through eight, the participant

could practice on any of the tracks but was asked to maintain a minimum practice of three times per week and a total of at least 135 minutes.