COMPUTER PROGRAMS TO PROMOTE COGNITIVE FUNCTION IN PERSONS WITH MULTIPLE SCLEROSIS

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**Background:** Computer assisted cognitive rehabilitation programs (CACR) utilizing different software programs have proliferated yet little is known about user perceptions or preferences.

**Objective:** To explore three software programs used to promote cognitive function in persons with MS.

**Methods:** Evaluation data from a community-based intervention study combining group sessions and CACR homework using the web-based Neuropsychonline (NPO) program revealed participant criticisms (unpleasant audio/visual features, unsophisticated animation and limited performance feedback). An 8-week follow-up study was conducted to evaluate two other web-based CACR programs: Challenging Our Minds (COM) and Lumosity. Fourteen individuals with MS were recruited from the completed NPO study; most were college-educated White females, average age of 49 years, diagnosed with MS for over 10 years. Participants were randomly assigned to COM (N=5) or Lumosity (N=9), completed five neuropsychological tests and the Everyday Problems Test-R (EPT-R) prior to and following 8 weeks of computer training, and logged the number of sessions and time spent practicing on-line each week.

**Results:** The number of participants attaining the recommended number of minutes (1080) and sessions completed (24) was higher for Lumosity (78% minutes; 56% sessions) than COM (40% minutes; 20% sessions). Improvement on the neuropsych tests varied; yet 78% of those using Lumosity improved on the EPT-R compared to 20% of those using COM. Post-study evaluations of software usability had higher ratings for Lumosity than COM and recall of previous NPO practice.

**Conclusions:** Findings from this study indicate the participants completed more minutes of practice and more sessions with Lumosity than COM, showed greater improvement on a test of everyday neurocognitive functioning (EPT-R) with Lumosity than COM, and rated Lumosity higher on usability than COM or recall of NPO. Future studies should investigate the effects of CACR practice using high-usability web-based CACR programs in other populations with more diverse demographic and clinical characteristics.

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