Gist reasoning training can strengthen cognitive domains in individuals with MCI

Published on June 14, 2016 at 7:28 AM

New research from the Center for BrainHealth at The University of Texas at Dallas shows that strategy-based reasoning training can improve the cognitive performance for those with mild cognitive impairment (MCI), a preclinical stage of those at risk for Alzheimer's disease.

The study, in collaboration with the University of Illinois at Urbana-Champaign, was recently published online in the open-access journal *International Journal of Geriatric Psychiatry*.

"Changes in memory associated with MCI are often disconcerting, but cognitive challenges such as lapses in sound decision-making and judgment can have potentially worse consequences," said Dr. Sandra Bond Chapman, founder and chief director at the Center for BrainHealth and Dee Wyly Distinguished University Professor in the School of Behavioral and Brain Sciences. "Interventions that mitigate cognitive deterioration without causing side effects may provide an additive, safe option for individuals who are worried about brain and memory changes."

For the study, 50 adults ages 54-94 with amnestic MCI were randomly assigned to either a strategy-based, gist reasoning training group or a new-learning control group. Each group received two hour-long training sessions each week. The gist reasoning group received and practiced strategies on how to absorb and understand complex information, and the new-learning group used an educational approach to teach and discuss facts about how the brain works and what factors influence brain health.

Strategies in the gist reasoning training group focused on higher-level brain functions such as strategic attention -- the ability to block out distractions and irrelevant details and focus on what is important; integrated reasoning -- the ability to synthesize new information by extracting a memorable essence, pearl of wisdom, or take-home message; and innovation -- the ability to appreciate diverse perspectives, derive multiple interpretations and generate new ideas to solve problems.

Pre- and post-training assessments measured changes in cognitive functions between the two groups. The gist reasoning group improved in executive function (i.e., strategic attention to recall more important items over less-important ones) and memory span (i.e., how many details a person can hold in their memory after one exposure, such as a phone number). The new learning group improved in detail memory (i.e., a person's ability to remember details from contextual information). Those in the gist reasoning group also saw gains in concept abstraction, or an individual's ability to process and abstract relationships to find similarities (e.g., how are a car and a train alike).

"Our findings support the potential benefit of gist reasoning training as a way to strengthen cognitive domains that have implications for everyday functioning in individuals with MCI," said Dr. Raksha Mudar, study lead author and assistant professor at the University of Illinois at Urbana-Champaign. "We are excited about these preliminary findings, and we plan to study the long-term benefits and the brain changes associated with gist reasoning training in subsequent clinical trials."

"Extracting sense from written and spoken language is a key daily life challenge for anyone with brain impairment, and this study shows that gist reasoning training significantly enhances this ability in a group of MCI patients," said Dr. Ian Robertson, T. Boone Pickens Distinguished Scientist at the Center for BrainHealth and co-director of The Global Brain Health Initiative. "This is the first study of its kind and represents a very important development in the growing field of cognitive training for age-related cognitive and neurodegenerative disorders."

"Findings from this study, in addition to our previous Alzheimer's research, support the potential for cognitive training, and specifically gist reasoning training, to impact cognitive function for those with MCI," said Audette Rackley, head of special programs at the Center for BrainHealth. "We hope studies like ours will aid in the development of multidimensional treatment options for an ever-growing number of people with concerns about memory in the absence of dementia."

Source:
Center for BrainHealth
