

**SMART RECOVERY** The SMART program uses real-life experiences, articles, and videos to teach participants how to block out irrelevant details, summarize information, and think creatively.

## NEUROLOGY NEWS

### Brain Boost

For people who have persistent symptoms after a traumatic brain injury, a cognitive training program may help.

BY GINA SHAW



**A** new therapy for people with traumatic brain injury (TBI) shows promise for improving cognitive function, reducing depression and stress, and boosting blood flow to important areas of the brain, according to a small study by researchers at the Center for BrainHealth at the University of Texas in Dallas published online last May in *Neuropsychological Rehabilitation*.

A group of 60 men and women between the ages of 19 and 65 who had sustained at least one TBI were randomly assigned to receive either an educational, information-based program about how the brain works or a brain training program called Strategic Memory Advanced Reasoning Training (SMART). SMART teaches participants how to block out irrelevant details, break down and summarize information, and think more creatively.

All of the participants were rated as having a mild TBI; 47 were civilians and 13 were veterans. More than two-thirds had sustained the injury at least 10 years earlier, so the researchers didn't have specifics on their concussion history. All had persistent symptoms such as depression and anxiety. Both programs involved 18 hours of training during 12 group sessions over 12 weeks.

The group of 31 patients who received the cognitive training improved their scores on a memory test by more than 30 percent, and their "complex abstraction" scores—their ability to understand big ideas and take-home messages—improved by more than 20 percent. They also reported a 60 percent reduction in symptoms of depression and a 40 percent reduction in symptoms related to posttraumatic stress disorder. In addition, brain imaging showed enhanced blood flow to areas of the brain linked to abstract thinking, cognitive performance, and emotional regulation of stress.

#### ROOM FOR MORE IMPROVEMENT

"This study suggests that plasticity exists in the brain of someone with a TBI, even well over a year after the injury," says Scott E. Hirsch, MD, an assistant professor of neurology, psychiatry, and child and adolescent psychiatry at the New York University

School of Medicine. "The common thinking has been that you can't make significant gains after the one-year mark, and we tend to want to give up after a certain period of time, especially because it's expensive to do this kind of treatment. But this study shows that it's worth doing, and if we spent more time, energy, and money, these people could perhaps do even better."

#### MIND THE CAVEATS

The study has its limitations, notes Jack Tsao, MD, DPhil, FAAN, former director of TBI Programs for the US Navy Bureau of Medicine and Surgery and a professor of neurology at the University of Tennessee Health Science Center in Memphis. "It's a small group, first of all, and we don't have information about what these patients' actual TBI history was, which is critical to understanding if this program has the potential to help the subset of people who have a mild TBI and don't fully recover."

It's possible that depression and posttraumatic stress disorder, which also improved with the cognitive training, might have been the underlying explanation for why at least some of the patients in the study didn't perform so well on the first set of memory and abstract reasoning tests, Dr. Tsao adds. "In the cognitive training intervention you're paying more attention to people, which could improve depressive symptoms. And if you're less depressed and stressed, your cognition could improve and that could explain changes in brain blood flow."

#### A HOPEFUL THERAPY

But while it's too early to generalize, Dr. Tsao says cognitive training has potential. "I'm cautiously optimistic that this particular method of cognitive rehabilitation might help somebody who has not made a full recovery, but you'd need to talk to your doctor to see if this is the right intervention for you."

If further studies support the benefits of cognitive training for people with TBI, Dr. Hirsch says it would be ideal to create a standardized program that any hospital could offer. "The goal would be to make something like this accessible to everyone. In the meantime, this study definitely offers us a lot of hope—and that's a driving force for recovery."