

Study: New Effective Way to Address Mild Traumatic Brain Injury via Telehealth

SAN FRANCISCO, CA, July 27, 2021 (GLOBE NEWSWIRE) -- A study conducted at five military and Veterans' hospitals has identified the first effective and highly-scalable intervention to address cognitive deficits that can persist for years after a mild Traumatic Brain Injury — typically from concussion or blast exposure. The intervention studied was the computerized brain training app [BrainHQ](#), made by [Posit Science](#), which was administered via telehealth in the study. The peer-reviewed study results were published in [Brain: A Journal of Neurology](#).

More than 413,000 members of the US military have been diagnosed with a Traumatic Brain Injury. Of these, more than 82% are classified as mild TBI (mTBI), often called the “signature injury” of recent conflicts. In many cases, servicemembers can experience a full recovery from mTBI – but for those who do not, cognitive consequences can persist for years, with life-altering results.

Current best practices for treatment of persistent cognitive deficits following mTBI focus on in-person, customized cognitive rehabilitation, which can be helpful, but is costly, time-consuming, requires travel for treatment, and relies on the craft and expertise of the healthcare provider.

The Department of Defense (DoD) funded the BRAVE Study to determine whether a computerized, brain-training intervention based on the science of brain plasticity could be broadly and remotely applied and could produce significant improvements in persistent cognitive deficits across a diverse mTBI population. No computerized cognitive training has previously been shown effective in a gold-standard trial.

BRAVE enrolled 83 participants with a history of mTBI and diagnosed with cognitive impairment. Typically, participants had been deployed to combat areas, and, on average, had cognitive issues that had persisted for more than seven years after their most recent mTBI. Their average age was 33, and 81% were male. Before training, they tested, on average, about two standard deviations below normal on the ANAM (a test used by the military to screen for cognitive impairment).

The participants were randomized into a treatment group (BrainHQ) and an active control group (computer games). Both activities were plausibly expected to have some positive impact due to their demands on cognitive realms, such as attention, memory, and reasoning. Each group self-administered training over the internet in their own homes with weekly telephone supervision from trained coaches and were asked to train for one hour per day, five days per week, over twelve weeks. Comprehensive cognitive assessments were performed before training, after training, and after a twelve-week (no-training) follow-up period.

The study was conducted through a nationwide network of five military and Veterans' medical centers (NICoE/Walter Reed National Military Medical Center in Bethesda; Schofield Barracks/Tripler Army Medical Center in Honolulu; Baylor/Michael E. DeBakey VA Medical

Center in Houston; Yale/VA Connecticut Healthcare System in West Haven; and Harvard/VA Boston Healthcare System in Boston); with Posit Science in San Francisco as the study coordination center.

Researchers found the BrainHQ group showed a statistically and clinically significant improvement on overall cognitive function (compared to the computer games group), and this benefit persisted for at least twelve weeks after training completed. Cognitive function improvements were 3.9 times larger in the BrainHQ group than the control (as measured immediately following training) and grew to 4.9 times larger (when measured again twelve weeks after training ended).

On average, participants in the BrainHQ group improved on the cognitive performance composite measure by 24 percentile ranks – as though they went from the 50th percentile to the 74th percentile.

While results on the primary cognitive measure were significant, analysis of functional and self-report measures did not show significant between group differences. However, on many measures both groups showed improvement, suggesting general benefits of cognitive engagement and study inclusion.

"When this study was selected for funding, we were hoping it would help troops impacted by mTBI," said Colonel (Ret.) Dallas Hack, a physician who led most of the DoD's research in battlefield trauma when the study began. "These results exceed my fondest expectations. The broad applicability, modest cost, and self-directed nature of the intervention mean it could be scaled very quickly."

"These are long-awaited and important results," said [Dr. Henry Mahncke](#), CEO of Posit Science. "This study provides strong evidence that this intervention could be deployed on a massive scale through military and Veterans' health facilities to meet our nation's obligation to address persistent real (but often invisible) life-altering challenges for wounded servicemembers and Veterans - even those in remote locations."

BrainHQ has been [used in many military and Veterans' facilities](#) for cognitive rehabilitation, under supervision of healthcare professionals. With the release of these results, Posit Science (maker of BrainHQ) has indicated it intends to work with clinicians, payors, patient advocacy groups, legislators and administrators to make this intervention widely available, as quickly as possible.

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