

# Rx with hyperbaric oxygen improved TBI and PTSD in vets

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Research led by Dr. Paul Harch, Associate Clinical Professor of Medicine at LSU Health Sciences Center New Orleans, has found that treatment with hyperbaric oxygen nearly three years after injury significantly improved function and quality of life for veterans with traumatic brain injury and post-traumatic stress disorder. The findings are available online now in the *Journal of Neurotrauma*.

Sixteen US veterans injured in Iraq who had been diagnosed with mild-moderate [traumatic brain injury](#)/post-concussion syndrome (TBI/PCS) or traumatic brain injury/post-concussion syndrome/post-traumatic distress disorder (TBI/PCS/PTSD) were enrolled in the pilot study. They completed a history and physical exam as well as a clinical interview by a neuropsychologist, psychometric testing, symptom and quality of life questionnaires, and baseline SPECT (Single-photon emission computed tomography) brain blood flow imaging prior to treatment. The veterans then underwent 40 treatments of low-dose hyperbaric [oxygen therapy](#) during 60-minute sessions over a 30-day period. They were retested within a week after treatment.

Post-treatment testing revealed significant improvements in symptoms, abnormal physical exam findings, cognitive testing, quality of life measurements, and SPECT scans. Results showed improvement in 92% of vets experiencing short-term memory problems, in 87% of those complaining of headache, in 93% of those with cognitive deficits, in 75% with sleep disruption, and in 93% with depression. They also saw improvements in irritability, mood swings, impulsivity, balance, motor

function, IQ, and blood flow in the brain, as well as a reduction in PTSD symptoms and suicidal thoughts. These findings were mirrored by a reciprocal reduction or elimination of psychoactive and narcotic prescription medication usage in 64% of those for whom they were prescribed.

"This study strongly suggests that both [post traumatic stress disorder](#) and the post concussion syndrome of [mild traumatic brain](#) injury are treatable nearly three years after injury," concludes Dr. Paul Harch, who is also Medical Director of the LSU Hyperbaric Medicine & Wound Care Department. "The magnitude of the improvements in memory, executive function, functional brain imaging, and quality of life, as well as reduction in concussion and PTSD symptoms cannot be explained with a placebo effect."

Blast-induced TBI and PTSD are diagnoses of particular concern in the United States because of the volume of affected servicemen and women from the conflicts in Iraq and Afghanistan. A 2008 Rand Report estimates that 300,000 (18.3%) of 1.64 million military service members who have deployed to these war zones have PTSD or major depression and 320,000 (19.5%) have experienced a TBI. Overall, approximately 546,000 have TBI, PCS, or PTSD and 82,000 have symptoms of all three.

Evidence-based treatment for PTSD exists, but problems with access to and quality of treatment have been problematic in the military setting. Treatment of the symptomatic manifestation of mild TBI, the PCS, is limited. Treatment consists of off-label use of FDA blackbox labeled psychoactive medications, counseling, stimulative, and adaptive strategies. There is no effective treatment for the combined diagnoses of PCS and PTSD.

The research team also included Drs. Keith Van Meter, Susan Andrews,

and Paul Staab at LSU Health Sciences Center, as well as researchers from The University of North Dakota School of Medicine and Health Sciences, University of California Irvine School of Medicine, and Georgetown University Medical Center. The research was supported by the Marine Corps Law Enforcement Foundation, the Semper Fi Fund, and the Coalition to Salute Americas Heroes, among others.

Further studies in Veterans are underway to confirm the present findings.

Provided by Louisiana State University Health Sciences Center

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