

Photo: Roy Kaltschmidt



VA research on TRAUMATIC BRAIN INJURY

Traumatic brain injury (TBI) is common among war Veterans. Often the result of exposure to blasts, it has been called a “signature injury” of modern combat.

ABOUT TRAUMATIC BRAIN INJURY

- TBI can result from a blow or jolt to the head, such as from an explosion, or from an object penetrating the head.
- TBI can cause changes in consciousness that range from becoming confused to slipping into a coma. The person may also lose memory of the time immediately before or after the event.
- TBI symptoms can include headaches, irritability, poor sleep, memory problems, slower thinking, and depression. These symptoms can persist long-term
- In one recent [survey](#) of Iraq and Afghanistan Veterans, nearly 11 percent of women and 20 percent of men screened positive for TBI related to their deployment.
- Most military-related TBIs are considered mild, but even these can involve long-term health effects that significantly impact quality of life.

VA RESEARCH ON TRAUMATIC BRAIN INJURY: OVERVIEW

- Among the goals of VA researchers working in this field are to shed light on brain changes resulting from TBIs, to improve the ways VA screens Veterans for the injury and diagnoses the condition,

and to develop drugs to treat brain injury or limit its seriousness when it first occurs.

- VA researchers are designing better ways to monitor how well treatments work, and developing new ways to support and educate family members of Veterans with TBI.
- VA’s [Translational Research Center for TBI and Stress Disorders](#) in Boston studies the impact on Veterans of TBI and PTSD.
- VA’s [Brain Rehabilitation Resource Center](#) in Gainesville, Fla., develops and tests treatments to improve or restore motor, thinking, and emotional impairments caused by brain disease or injury.
- VA’s [Traumatic Brain Injury Center of Excellence](#) in Houston focuses on mild TBI.
- VA’s [War Related Illness and Injury Study Center](#) develops and provides post-deployment health expertise to Veterans and their health care providers through clinical programs, research, education, and risk communication.
- VA’s [Polytrauma System of Care](#) is a network of specialized rehabilitation programs dedicated to serving Veterans and service members with TBI and multiple complex, severe injuries, called polytrauma.

- The [Defense and Veterans Brain Injury Center \(DVBIC\)](#) serves active-duty military, their beneficiaries, and Veterans with TBI through state-of-the-art clinical care, innovative research and educational programs, and support for force health protection services.

SELECTED MILESTONES AND MAJOR EVENTS

- 2008** – VA sponsors an international conference on TBI and expands VA research in this area
- 2012** – VA researchers associate TBI with [chronic traumatic encephalopathy](#), a degenerative disease
- 2012** – VA begins a study to determine whether TBI and PTSD increase Alzheimer’s risk as Veterans age
- 2013** – As part of the government’s [National Research Action Plan](#), VA and DoD fund the establishment of [new research consortia](#) on TBI and PTSD

RECENT STUDIES: SELECTED HIGHLIGHTS

- **Veterans exposed to blasts from bombs, grenades, and other devices** may still have brain damage even if they have no symptoms of TBI, according to a study by researchers at VA’s Mid-Atlantic Mental Illness Research Education and

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TRAUMATIC BRAIN INJURY



Clinical Center (MIRECC) in Durham, N.C., and Duke University. The results of the study suggest that a lack of symptoms of TBI after a blast may not indicate the extent of brain damage caused by the blast. ([Journal of Head Trauma Rehabilitation](#), March 4, 2014)

• **TBI patients have a slightly increased rate of stroke compared to other patients.** Investigators at the Ann Arbor VA Medical Center hypothesize that because TBI can cause bleeding in the brain, it may increase the risk for stroke. ([Neurology](#), July 2, 2013)

• **Older Veterans with a TBI diagnosis have a 60-percent greater risk of developing dementia** over a nine-year period than other older Veterans. The results of this study by investigators with VA and the University of California, San Francisco, raise concern about the potential long-term consequences of TBI. ([Neurology](#), July 22, 2014)

• **Whether TBI and PTSD increase Alzheimer's risk as Veterans age is the subject of an ongoing study.** The study, called DOD-ADNI, is funded by the Department of Defense (DoD). Its lead investigator is Dr. Michael Weiner, a VA investigator in San Francisco

who heads the [Alzheimer's Disease Neuroimaging Initiative](#) (ADNI). ([Clinicaltrials.gov](#))

• **In contrast to more severe TBI, mild TBI is difficult to identify and treat.**

Despite being called mild, up to 20 percent of those with this injury will suffer from post-concussion syndrome, a complicated mix of troublesome symptoms and problems. The Defense and Veterans Brain Injury Center has developed a structured interview doctors can use to better identify mild TBI in patients. ([Journal of Neurotrauma](#), Sept. 29, 2014, epub ahead of print)

• **An artificial communication link inserted in the brain can restore functions lost as a result of TBI,** according to a team of researchers from the Louis Stokes VA Medical Center in Cleveland, the University of Kansas, and Case Western University. The team fitted a tiny device containing a chip into the brains of rats whose motor skills had been impaired as a result of TBI. The device allowed the rats to recover nearly all the function they had lost. ([Proceedings of the National Academy of Sciences of the United States of America](#), Dec. 24, 2013)

• **Treating Veterans and family members in a group to learn about mild TBI,** to solve problems, and to establish life goals was found to be highly acceptable to group members in a study by investigators from the Durham (N.C.) VA Medical Center. The therapy shows both Veterans and their family members that they are not alone, and helps integrate the family into patient care. ([Psychiatric Services](#), June 2013)

For more information on VA studies on traumatic brain injury and other key topics relating to Veterans' health, please visit www.research.va.gov/topics

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