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Mild TBI Linked to Eye Movement Impairment

Bethesda, Md. – Mild traumatic brain injuries (TBI) could be linked to eye movement impairment, even beyond the acute stage of injury, according to researchers at the Uniformed Services University of the Health Sciences (USU). These findings, released online in the *Journal of Neuropsychiatry and Clinical Neurosciences*, indicate a potentially more effective way to identify long-term chronic effects on those with mild TBI.

In this USU-funded study, researchers, led by Mark Ettenhofer, Ph.D., assistant professor in USU's Department of Medical and Clinical Psychology, examined saccadic (rapid eye movement) impairments among 27 participants with remote mild TBI and 54 healthy controls. A newly-developed computerized tool assessed visual attention and neuromotor performance, using saccadic and manual (button-press) responses to target stimuli. Those who had a history of multiple mild TBIs, or high levels of neurobehavioral symptoms, were most likely to have saccadic eye movement impairment.

Researchers compared this 15-minute eye movement test with a two-hour battery of conventional neuropsychological measures. Their findings suggest saccadic impairment could help reveal chronic effects of mild TBI that traditional methods are unable to detect. This study is among the first to demonstrate eye movement measures may detect impairment among mild TBI patients who appear unimpaired using conventional assessment tools. Follow-on research is currently underway to evaluate this technology within a larger group of TBI patients and controls.

“The tests that are typically used to assess brain injury can be impacted by non-neurological factors, such as test-taking effort, mood, or pre-injury ability,” said Ettenhofer. “Most of these tests rely on our hands or our vocal systems, to press a button, write an answer, or speak a response. However, our eyes offer a much more direct pathway to the brain. By using eye movements, we may be able to cut through a lot of this ‘noise’ and separate those who fully recover after injury from those who experience more chronic problems.”

In addition to Dr. Ettenhofer, this study was authored by Army Capt. (Dr.) David Barry, a clinical psychology resident at Madigan Army Medical Center in Tacoma, Wash., and recent Ph.D. graduate of the USU Department of Medical and Clinical Psychology.

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About the Uniformed Services University of the Health Sciences

The Uniformed Services University of the Health Sciences, founded by an act of Congress in 1972, is the nation's federal health sciences university and the academic heart of the Military Health System. USU students are primarily active duty uniformed officers in the Army, Navy, Air Force and Public Health Service who receive specialized education in tropical and infectious diseases, TBI and PTSD, disaster response and humanitarian assistance, global health, and acute trauma care. A large percentage of the university's more than 5,200 physician and 1,000 advanced practice nursing alumni are supporting operations around the world, offering their leadership and expertise. USU also has graduate programs in biomedical sciences and public health committed to excellence in research, and in oral biology. The University's research program covers a wide range of clinical and other topics important to both the military and public health. For more information about USU and its programs, visit www.usuhs.edu.