

# Pituitary insufficiency is prevalent after blast concussion in military veterans

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A study in military veterans finds that explosive blast-related concussions frequently result in hormone changes leading to problems such as sleep disturbances, fatigue, depression and poor quality of life. The research, to be presented Saturday at the Endocrine Society's 98th annual meeting in Boston, evaluated hormone levels in 41 male veterans who had been deployed to Iraq or Afghanistan.

"Some of these hormone deficiencies, which mimic some symptoms of post-traumatic stress disorder, may be treated successfully with hormone replacement if correctly diagnosed," said the study's leader, Charles Wilkinson, PhD, a researcher with the Veterans Affairs (VA) Puget Sound Health Care System, Seattle.

Wilkinson wants to raise awareness of this hormonal problem in light of the high frequency of head injuries from improvised explosive devices in modern warfare. Concussion, also called mild traumatic brain injury (TBI), represents 80 percent of TBI diagnoses among U.S. military service members, according to government estimates in 2010.

"Although studies in civilians indicate a 25 to 50 percent prevalence of hormonal deficiencies resulting from brain injuries, surprisingly there are limited data on their prevalence and symptoms in military [veterans](#)," Wilkinson said.

In this Department of Veterans Affairs-funded study, the researchers took blood samples from 27 veterans with one or more blast concussions

sustained at least one year earlier and from 14 previously deployed veterans with no history of blast exposure. They measured 11 hormones in the blood related to the pituitary systems. The pituitary gland, located at the base of the brain, is called the master gland because it affects almost all parts of the body.

They found that 12, or 44 percent, of blast-concussed veterans had irregular hormone levels indicating an underactive pituitary gland—also known as hypopituitarism. In contrast, only one (7 percent) of the 14 study participants without blast injuries had abnormal hormone levels, he said.

To try to relate specific hormone problems with particular symptoms, the researchers administered questionnaires and tests about sleep, fatigue, depression, social isolation, memory, PTSD and quality of life.

Wilkinson said he was surprised that on every test, participants who had mild TBI and hypopituitarism had more problems than did participants with mild TBI but no hypopituitarism and those with no blast exposure. Veterans with mild TBI with hormonal abnormalities had significantly poorer overall sleep quality, more depressive symptoms and were more easily fatigued than were veterans with mild TBI and normal [hormone levels](#), he noted.

"The value of screening for hormonal abnormalities after concussions, particularly in the presence of chronic symptoms, is currently a matter of debate," Wilkinson said. "Yet, if the possibility of hormone deficiencies in our veterans is not considered, appropriate treatment may not occur."

Co-author Elizabeth Colasurdo from VA Puget Sound Health Care will present the study results.

Provided by The Endocrine Society

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