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Rethinking Traumatic Brain Injury: The Non-Traumatic Brain Injury Syndrome.

By Mark L. Gordon, MD. Millennium-TBI Project

The benchmark findings that constitute a mild traumatic brain injury (mTBI), as laid out by the Department of Defense and Veteran's Administration, are so rigorous that they unfortunately exclude the majority of individuals who actually sustained a mild traumatic brain injury.

As put forth by the DoD/VA, a mild TBI can be: any period of loss of consciousness; any loss of memory for events immediately before or after the accident; any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused); and any focal neurological deficit (weakness, movement disorders, sensory symptoms and blackouts) that may or may not be transient, but where the severity of the injury does not exceed the following: **A)** loss of consciousness of approximately 30 minutes or less; **B)** after 30 minutes, an initial Glasgow Coma Scale of 13-15; and **C)** post-traumatic amnesia not greater than 24 hours.

The issue here is that we are looking for one single, major injury that abides by these criteria and disregard the fact that multiple minor, not mild, traumas can create the same underlying causes for the changes that we see with one injury. Still, one dollar is made up of ten dimes.

Over our lifetime, we are exposed to many apparently, inconsequential physical and non-physical traumas which in many instances can precipitate future symptoms. The clear physical traumas such as; blunt head trauma, motor vehicle accident, slip and fall, fall from a bicycle, roller-skates or skateboarding accidents can be minor or mild forms of head trauma while the non-physical traumas can be stress, medication, drugs, alcohol, surgery, immunizations, or even chemotherapy. Regardless, in time the accumulative effects of anyone of these physical and/or non-physical traumas can create within the brain the underlying inflammatory environment that produces symptoms. Unfortunately, the association between these traumas and symptoms are lost due to perceived insignificance of a trauma that does not cause any of the elements put forth by the current definition of traumatic brain injury. The common solution for this scenario has always been polypharmacy.

In our practice of Neuroendocrinology, we assess the hormones produced by the brain (neurosteroids) and those produced by glands throughout the body (neuroactive steroids) as reflections of our brain's health after trauma. We have assessed clients that have denied ever having had a TBI as well as those who have had head trauma but dismiss it as not having any influence on them.

Nonetheless, the Millennium-TBI Biomarker panel tells a more accurate story. One client at 18 years of age was T-boned in his car, causing his head to snap to the left shattering the driver's-side window but without loss of consciousness, confusion, or amnesia. Years later, at age 41, he developed testosterone deficiency. He was experiencing mood issues, cognitive decline and loss of libido. The Male Clinic that initially drew his blood included a luteinizing hormones (LH) level along with a traditional testosterone panel consisting of total and free testosterone, DHT and Estradiol levels. His results showed both a LOW



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LH and LOW Testosterone level. What this means is that the brain (pituitary gland) was not producing LH to stimulate the testes to make testosterone. This is a clear indication of hormonal dysfunction arising out of his trauma at age 18, that would have been ignored based upon the failed TBI criteria.

Another case involving an Army Medic, JC, who was deployed in Afghanistan. JC would walk behind an Abrams tank, as cover, and on occasion would experience the blast wave each time the tank discharged a round. He was also around the blast waves of other munitions but admits to never receiving a scratch while he was deployed. About 18 months later he developed treatment resistant depression and was on a number of medications prior to seeing us. In his mid-twenties, he had a level of testosterone of an 80 year old (LH and Testosterone both low) and a pattern on his thyroid function tests (TSH, Free-T4, Free-T3, reverse T3, and TSH-index) that suggesting trauma to the brain's thyroid regulatory system from the Hypothalamus to Pituitary gland.

On both these cases, CT and MRI scans were normal.

In the past 16 years of assessing all forms of traumatic and non-traumatic brain injuries or concussions, psychiatric illnesses were commonplace as noted in these patients' medical records. In the past few decades, the medical literature relevant to traumatic brain injury has slowly shifted to include the association of inflammation as a precipitating factor to neuropsychiatric illnesses. It appears that inflammation alters the chemistry of the brain which affects the neurocircuitry that regulates mood, personality, cognition, sleep, heart rate, temperature, blood-pressure, headaches, and bodily functions.

The Millennium Health Centers, Inc. provides through its Neuro-Regenerative Centers, assessment and treatment of both traumatic brain injury and non-traumatic brain injury symptoms which may include; depression, anxiety, lost libido, insomnia, migraines, obsessive compulsive disorders, bipolar disorder, cognitive disorders, Parkinson's, and dementia conditions.

Access some of the science at: <https://tbihelpnow.org/the-science>