

THE HUMAN BRAIN

Although it weighs about 3 pounds, the brain is one of the most complex parts of the body,¹ consisting of about 100 billion neurons and 100 trillion synapses (connections), controlling all the functions of the body.²

PARTNERSHIP

Abbott and the U.S. Department of Defense have announced a collaboration with the intent to develop portable blood tests to help evaluate potential concussions (also called traumatic brain injuries).⁶



TRAUMATIC

BRAIN INJURY A traumatic brain injury (TBI) is

caused by a bump, blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. TBIs are classified by the severity of injury, from mild to severe. A mild TBI is also called a concussion.³

SIDE EFFECTS OF TRAUMATIC BRAIN INJURIES

While research is still being conducted on the impact of TBIs, some side effects may include:

- Changes to memory and reasoning
- Loss of sensation (*i.e.*, smell, taste and touch)
- Problems with communication and emotional fluctuations⁴

EVALUATING BRAIN INJURIES

Detecting mild concussions can be difficult.⁵ Studies suggest that certain proteins, called biomarkers, leak into the bloodstream following a brain injury.^{6,7}

BRAIN BASICS Understanding Traumatic Brain Injury

How do you know if you should seek medical attention or if you should wait and see? When in doubt, always get prompt medical attention. To learn more about traumatic brain injury, please visit **www.abbott.com** and **www.brainline.org**.

REFERENCES

- 1 Brain basics: Know your brain. National Institutes of Health: National Institute of Neurological Disorders and Stroke. November 2012.
- Website: www.ninds.nih.gov/disorders/brain_basics/know_your_brain.htm. Accessed April 14, 2014
- 2 Zimmer C. 100 trillion connections. *Scientific American*. January 2011; 304: 58-63.
- 3 Injury prevention and control: Traumatic brain injury. Centers for Disease Control and Prevention. March 5, 2014
- Website: www.cdc.gov/traumaticbraininjury/. Accessed April 14, 2014.
- Injury prevention and control: Traumatic brain injury. What are the potential effects of TBI? Centers for Disease Control and Prevention. Website: www.cdc.gov/traumaticbraininjury/outcomes.html. Accessed April 14, 2014.
 Lee H, Wintermark M, Gean AD, et al. Focal lesions in acute mild traumatic brain injury and neurocognitive outcome: CT versus 3T MRI.
- 5 Lee H, Wintermark M, Gean AD, et al. Focal lesions in acute mild traumatic brain injury and neurocognitive outcome: CT versus 3T MRI. Journal of Neurotrauma. 2008;25:1049-1056.
- 6 Kochanek PM, Berger RP, Bayir HI, et al. Biomarkers of primary and evolving damage in traumatic and ischemic brain injury:

Diagnosis, prognosis, probing mechanisms and therapeutic decision making. *Current Opinion in Critical Care*. 2008; 14: 135-141.

7 Di Battista AP, Rhind S, Baker A. Application of blood-based biomarkers in human mild traumatic brain injury. Frontiers in Neurology. 2013; 4: 1-7.

