

# Carlisle Barracks providing treatment for traumatic brain injuries

## Photo illustration:

**(First illustration) Primary blast injury: An explosion generates a blast wave traveling faster than sound and creating a surge of high pressure followed by a vacuum. (Second illustration) Secondary Blast Injury: Shrapnel and debris propelled by the blast can strike a soldier's head, causing either a closed-head injury through blunt force or a penetrating head injury that damages brain tissue. (Third illustration) Tertiary Blast Injury: The kinetic energy generated and released by an explosion can accelerate a soldier's body through the air and into the ground or nearby solid object. Once the body stops, the brain continues to move in the direction of the force, hitting the interior of the skull and then bouncing back into the opposite side, causing a coup-contrecoup injury. *Graphic by Al Granberg***

**Staff Sgt. Corey Baltos, USAWC public affairs**

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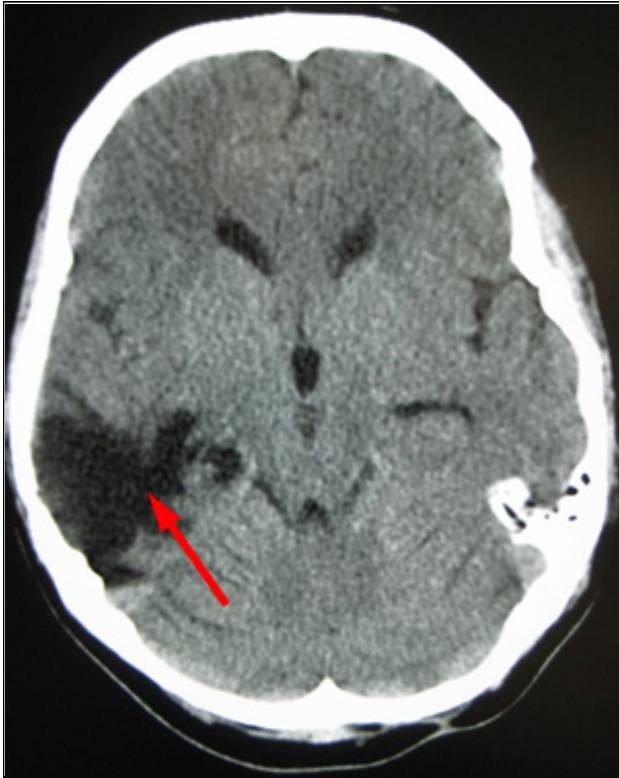
March 30, 2011- Traumatic brain injuries have been called the “signature wound” of the wars in Iraq and Afghanistan. Improvements in medicine and armor have allowed more Soldiers to survive bomb blasts that would have killed them in the past.

However, the explosions are leaving some with lingering wounds. Those suffering mild traumatic brain injuries are especially difficult to detect because they frequently leave behind no obvious signs of trauma. Although most Soldiers with mild TBI in theater will be asymptomatic by the time they redeploy, 20-40% may have residual symptoms, according to Paul Ciechoski, a physician’s assistant who works with TBI patients at Dunham Behavioral Health Clinic.

Those who seek help will find it in the newly expanded Army programs for TBI screening, identification, treatment, and rehabilitation services at each Army Medical Treatment Facility. Carlisle Barracks is one of 40 centers nationwide that is fully validated to diagnose and treat TBI. The expansion of these facilities is largely because Soldiers, family members and civilian employees have,

through the **Army Family Action Plan**, asked the Army to expand treatment for TBI patients.

Thanks to better programs, more military personnel are being better diagnosed. Between 2000 and 2010 there were nearly 115,000 reported cases of TBI in the Army, and unknown numbers never reported. Nearly 31,000 brain injuries were reported last year alone and more people are getting treatment for mild or moderate injuries.



**A CT scan of the head after a traumatic brain injury. The arrow shows a damaged, empty space.**

Unlike previous wars when the enemy used traditional weapons, the weapon of choice among insurgents is an improvised explosive device. The explosion can cause a brain injury when the skull hits another object, or when the blast creates a concussive shock wave, or when the brain is rocked back and forth inside of the skull.

When an IED is detonated, the shock wave creates a high-pressure front that compresses the air around it.

This is followed by a sudden onset of negative pressure. This sudden change in air pressure delivers kinetic energy through the body which can cause metabolic changes in the brain structure that control things like balance, blood pressure and speech.

“Immediately after the blast the basic fight or flight reflexes take over as the brain tries desperately to right itself,” said Dr. James Kelly, a neurologist and director of the National Intrepid Center of Excellence. “Once the residual effects of the metabolic changes that occurred during the blast wear off and the brain’s metabolism has slowed down then the effects of the injury can begin to show.”

To combat this, the Army requires all Soldiers be screened for TBI upon returning from theater and again, three to six months after returning home.

“Until very recently many mild TBIs were not being diagnosed until months after the incident, if at all” said Ciechoski.

“As recently as a few years ago, the prevailing thought was you’re not bleeding, you’re not bruised, you

didn't hit your head, you're fine," said Marsha Charlesa psychometrist at Dunham Clinic. "However, even if the IED or the accident didn't cause you to hit your head against another object, your brain can still be injured if it is jostled or hits because the skull."

Another problem with TBI is that the effects are cumulative.

"A Soldier might not think much of one mild TBI," said Ciechoski. "Many Soldiers have walked away from a blast, thinking, 'All I have is a mild headache, I am fine'. But each subsequent injury, especially if it happens before the brain has had a chance to heal, can compound the problems."

"Some people are also more susceptible to multiple TBI," said Charles. "If you have had head injuries in the past from playing sports, for example, you are more likely to experience a greater severity of symptoms and require more time to recuperate after a subsequent TBI."

TBI caused by blunt trauma to the head usually results in a concussion. Signs and symptoms of a concussion are: headache, dizziness, nausea or vomiting, ringing in the ears, fatigue, vision problems, balance problems, sleep problems and increased sensitivity to light

A neuro-psychiatric brain injury can be caused by rapid deceleration of a vehicle, or from a concussive blast wave from an IED. Some of the signs are: depression, anxiety, irritability, impulsiveness, aggressiveness, apathy, and lack of normal inhibition

Other symptoms, such as difficulty in concentrating, memory problems and difficulty in planning may take months or years to develop.

Taking care of the problem when a concussive event takes place will minimize the risk of severe problems later on. The military has now recognized that the victim of a mild TBI needs to rest their brain completely, so now these Soldiers are taken out of combat so they can heal.

"Since last summer the Army is requiring all Soldiers who have suffered a concussion to be put on 24 hours of no physical activity, the second head injury requires seven days of no physical activity and the third requires evaluation by a neurologist in theater," said Ciechoski. "However, 'no physical activity' does not mean go back to your hootch and play video games or watch movies or do any of the other activities that Soldiers do to kill time. You do nothing. The brain needs to rest, in order to heal, and it can't if you are using it to entertain yourself."

"At Carlisle Barracks our TBI treatment program mostly sees people with mild brain injuries and a few military personnel with moderate injuries who may be assigned to a Community Based Warrior Transition Unit," said Ginger Wilson-Gines, the Chief of Behavioral Health at the Dunham Health

Clinic.

“Many of our patients are self-referred. They realize that something is not quite right and they may be experiencing some neuro-psychiatric symptoms that do not necessarily relate to their previous blasts exposure. However, our doctors are trained to spot cluster symptoms of possible head injuries and then will refer them to us,” said Wilson-Gines.

“Many Soldiers have been hesitant about being screened because they still feel there is a stigma about any non-visible injury,” said Ciechoski. “However, you know yourself, you know when something isn’t right. Leaders should know their Soldiers well enough to know when something isn’t quite right.”

When a patient comes in for a TBI screening they are first seen by a medical provider who assesses the symptoms, then the patient may be referred to a neuropsychologist for further assessment. At Dunham, they would be seen by a psychometrist who administers cognitive tests to assess memory, reasoning and other brain related areas. Each treatment is individually developed, based on the injury and its extent.

If you think you may have a TBI call (717) 245-4602 to schedule a screening appointment or see your primary care physician.

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