

# Fact Sheet: Traumatic Brain Injury

September 8, 2010

text size **A** **A** **A**

## What Is It? And How Does It Differ From A Concussion?

Traumatic brain injury, or TBI, is a sudden trauma to the brain caused by force. A severe TBI can leave a person almost incapable of functioning. But even a mild TBI — a concussion — can lead to a range of debilitating symptoms: headaches, balance problems, hearing problems, lack of self-control, mood changes, ringing in the ears, problems sleeping and memory loss. While most people recover from a mild TBI, it can take months, even years.

### NPR-ProPublica Investigation



#### Purple Hearts Elusive For Traumatic Brain Injuries

The Army routinely denies Purple Hearts to soldiers who sustain mild traumatic brain injuries.

- A History Of The Purple Heart  
Sep. 8, 2010

According to the [Centers for Disease Control and Prevention](#), "approximately 1.7 million people sustain a traumatic brain injury annually" in the U.S., and "the majority of TBIs each year are concussions or other forms of mild TBI." For some basics on the science behind TBIs, see NOVA Science Now's "[Brain Trauma](#)" video and website.

The brain injuries sustained by soldiers serving in Iraq and Afghanistan are most often caused by explosives. See ProPublica's [graphic](#) showing what

happens to the brain during and after a blast.

## How Many U.S. Soldiers Have TBI?

The exact number is [hard to pinpoint](#). The Pentagon says about 115,000 soldiers have mild TBI, while the RAND Corporation study, [Invisible Wounds of War](#), suggests the much higher number of 400,000 total TBIs, the majority of which are classified as mild.

## How Is TBI Diagnosed?

Diagnosing TBI can be hard. Symptoms of moderate to severe TBI can be obvious — extended loss of consciousness and severe neurological disorders — but diagnosing a mild TBI is trickier, especially during combat. Often soldiers don't even realize they have a mild brain injury after a blast. In some cases, combat medical records [are lost or destroyed in theater](#).

And NPR found that "the military's doctors and screening systems [routinely miss brain trauma in soldiers](#)."

The military uses two basic tests to diagnose the injury: The first, the Military Acute Concussion Evaluation, or MACE, is a survey taken immediately after an injury. NPR and ProPublica [found that](#) often soldiers learn to cheat on this test because they want to return to their platoon. The second, Automated Neuropsychological Assessment Metrics, or ANAM, "failed to catch nearly half of all soldiers who had suffered a concussion," according to a recent unpublished study obtained by NPR and ProPublica. Lt. Gen. Eric Schoomaker, the Army's top medical official, recently testified in Congress that results from the test are no better than a 'coin flip.'"

Another consideration in diagnosing TBI is its comorbidity with PTSD. In a [response](#) to NPR and ProPublica, Gen. Peter W. Chiarelli, the Army vice chief of staff, said it was a mistake to focus solely on TBIs, since many soldiers are also suffering from post-traumatic stress, or PTS[D], a debilitating

psychological wound that can be caused by the intense terror of being involved in a roadside blast. He said the military was diagnosing and treating soldiers suffering from both wounds.

See a [timeline](#) tracking the effort to diagnose and treat TBI.

### How Is TBI Treated?

Treatment varies widely. Although NPR and ProPublica found that [regular and consistent cognitive rehabilitation therapy](#) — techniques to compensate for decreases in mental function — benefited several veterans, this type of treatment is rarely available through military medical care. Many soldiers have sought rehabilitative treatment at private facilities. For each of the [three soldiers profiled](#) in FRONTLINE's *The Wounded Platoon*, the most common treatment given for their diagnosed TBI was pharmacological.

There is some hope that treatment in hyperbaric oxygen chambers might aid in recovery. A study on this therapy [gets underway](#) in 2011 and will be conducted at five U.S. bases by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury.

The most common way to prevent chronic TBI is to rest after receiving an injury to the head. The Pentagon recently released a [new policy](#) for the treatment of TBI, which includes a mandatory 24-hour rest period after a blast, and a complete neurological assessment for soldiers who have had three concussions. If a soldier with TBI is not taken out of theater to properly recover, any additional brain injuries can exacerbate the damage. Yet, as noted above, some soldiers may not realize they have TBI, or they brush off symptoms in order to rejoin their platoon.

*From NPR, ProPublica and Frontline reporting.*

## comments

Please note that all comments must adhere to the NPR.org [discussion rules](#) and [terms of use](#). See also the [Community FAQ](#).

You must be logged in to leave a comment. [Login / Register](#)



Post this comment to Facebook, too?

**submit**

NPR reserves the right to read on the air and/or publish on its Web site or in any medium now known or unknown the e-mails and letters that we receive. We may edit them for clarity or brevity and identify authors by name and location. For additional information, please consult our [Terms of Use](#).

Recent First



**maria mendez (calvary18)** wrote:

i totally agree with Wanda Fischer. my nephew was injured 5 years ago and is still in the VA (Bronx) nursing home. he suffered a severe TBI a ;quarter of brain removed and replaced with resin. he is now still not getting consistent therapy. can you please recommed me some places i can look into. id like to have him transfer to get the treatment he needs. thanks. calvary 18

Friday, September 10, 2010 11:03:04 AM

[Recommend \(0\)](#) ↑

[Report abuse](#)



**mark picot (Stevue)** wrote:

It may be as simple as an MRI of the temporal mandibular joint cartilage structure, in determining concussion susceptibility in soldiers prone to jaw related concussion. Cantu stated in testimony this is a way to receive a concussion. The Pentagon has approved a research program in the investigation of this patented protocol used in the NFL/NHL  
www.mahercor.com

Thursday, September 09, 2010 7:54:30 AM

[Recommend \(0\)](#) ↑

[Report abuse](#)



**mark wessling (mula)** wrote:

Yes TBI from enemy action should be awarded the Purple Heart.

Wednesday, September 08, 2010 10:37:57 PM

[Recommend \(1\)](#) ↑

[Report abuse](#)



**Wanda Fischer (wanda1948)** wrote:

Addendum: He is now driving, coaching youth soccer, working at a good job. He had his family's undying support, and he had one of the best TBI rehab teams in the country. His family needed support as well, and their own system of support was tested mightily during the rehabilitation process.

We need to ensure that these soldiers get the best rehabilitation that is available in this country. We have outstanding facilities out there, ready to serve them, so let's make sure that those services are available to them. It's expensive, but look at the price they have paid. One of the worst things about TBI is that you can look at a person and not know that he or she has a TBI--they look "normal." It's not like looking at a person with a visible disability, such as an amputation or a permanent limp or being in a wheelchair. But TBI is very real. My heart goes out to these young people and their families. It is like pushing a rock up a very steep hill. They need all the support we can give them.

Wednesday, September 08, 2010 10:36:15 PM

[Recommend \(2\)](#) ↑

[Report abuse](#)



**Wanda Fischer (wanda1948)** wrote:

I worked in a rehabilitation hospital for more than seven years. We had many TBI patients, and it was so sad in many ways, because most of them were young, once vibrant, once full of life, once looking forward to wonderful futures...And then their lives changed in an instant, a nanosecond, and it was all gone. The impact it has on their families is devastating as well (perhaps the family members should also receive Purple Hearts...). I did, however, witness what can only be described as a few miracles. One young man in particular was in a horrific car accident the day before he was scheduled to graduate from college. His parents were in the airport, waiting to fly 1500 miles to the graduation, when they got the call about the accident. They were advised to let him go--he was that close to death. The doctors had to remove part of his skull and then replace it later. But I watched the intensive work that the occupational and physical therapists did with him for months. Some days he was angry and lashed out. He could not control himself. He often sat in his wheelchair, wearing a football helmet, giving people glances that could only be described as angry and unsettling.

Slowly, thanks to the therapists, he came around.

Wednesday, September 08, 2010 10:23:40 PM

[Recommend \(3\)](#) ↑

[Report abuse](#)