Traumatic Brain Injury in Active Duty Service Members and Veterans: Incidence, Effects, and Resources

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Overview

1. Defense and Veterans Brain Injury Center
2. TBI basics and prevalence in military/veterans
3. Prevention
4. Treatment for military and veterans
5. Resources and more information
Traumatic Brain Injury (TBI) Center of Excellence for the Defense Health Agency

Established by congress in 1992, post-first Persian Gulf War

Mission: Optimize TBI care for active duty military, veterans, and the general public through

- Research
- Education
- Clinical Affairs
DVBIC Covers ALL DoD and VA Sites

“Medically Ready Force...Ready Medical Force”

Source: Health.mil
Step 1 to Improving Care - Get It!

“Medically Ready Force...Ready Medical Force”
A traumatically induced structural injury or physiological disruption of brain function, as a result of an external force, that is indicated by new onset or worsening of at least one of the following clinical signs immediately following the event:
TBI Diagnostic Criteria:
At Least One of the Following

• Any period of **loss of** or a decreased level of consciousness (LOC)

• Any **alteration of consciousness (AOC)** at the time of the injury (confusion, disorientation, slowed thinking, etc.)

• Any loss of memory for events immediately before or after the injury (**post-traumatic amnesia, or PTA**)
What is Concussion?

Concussion = Mild Traumatic Brain Injury (mTBI)
## TBI Severity

<table>
<thead>
<tr>
<th>Severity</th>
<th>GCS</th>
<th>AOC</th>
<th>LOC</th>
<th>PTA</th>
<th>CT Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>13-15</td>
<td>≤ 24 hours</td>
<td>0-30 min</td>
<td>≤ 24 hours</td>
<td>Negative</td>
</tr>
<tr>
<td>Moderate</td>
<td>9-12</td>
<td>&gt; 24 hours</td>
<td>&gt; 30 min to &lt; 24 hours</td>
<td>&gt; 24 hours to &lt; 7 days</td>
<td>Negative or positive</td>
</tr>
<tr>
<td>Severe</td>
<td>3-8</td>
<td>&gt; 24 hours</td>
<td>≥ 24 hours</td>
<td>≥ 7 days</td>
<td>Negative or positive</td>
</tr>
</tbody>
</table>
Common Symptoms of Mild TBI

**Physical**
- Headache
- Sleep disturbances
- Dizziness
- Balance problems
- Nausea and/or vomiting
- Fatigue
- Visual disturbances (blurred vision, double vision)
- Sensitivity to light or noise
- Ringing in ears

**Cognitive (Thinking)**
- Slowed thinking
- Poor concentration
- Memory loss
- Confusion
- Difficulty making decisions
- Difficulty finding words

**Emotional**
- Anxiety
- Feeling depressed
- Irritability
- Mood swings

Source: DVBIC
Know the Symptoms

PROTECT YOUR STRONGEST WEAPON

Concussion
Know the symptoms

- Headaches and/or Vomiting
- Ears Ringing
- Amnesia, Altered/Loss of Consciousness
- Double Vision and/or Dizziness
- Something Feels Wrong or Is Not Right

If you or a buddy experiences symptoms of a CONCUSSION, get checked out.

Events That Require a Medical Evaluation for Possible Concussion

- Being in a vehicle blast event, collision or rollover
- Being within 50 meters of a blast (inside or outside)
- A direct blow to the head – Including non-combat head injuries in-theater
- Someone says – or you feel – you may have lost consciousness
- Exposure to more than one blast event

Source: DVBIC
To get the most up-to-date totals use this link: dvbic.dcoe.mil/dod-world-numbers-tbi
# TBI Numbers by Service

<table>
<thead>
<tr>
<th>Service</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army</td>
<td>225,144</td>
</tr>
<tr>
<td>Marines</td>
<td>54,373</td>
</tr>
<tr>
<td>Air Force</td>
<td>52,282</td>
</tr>
<tr>
<td>Navy</td>
<td>52,148</td>
</tr>
<tr>
<td><strong>TOTAL (2000-Q1 2018)</strong></td>
<td><strong>383,947</strong></td>
</tr>
</tbody>
</table>

To get the most up-to-date totals use this link: [dvbic.dcoe.mil/dod-world-numbers-tbi](http://dvbic.dcoe.mil/dod-world-numbers-tbi)
Rates of TBI-ED Visits, By Mechanism of Injury, 2006-2014

Data Table

Source: Healthcare Cost and Utilization Project's (HCUP) Nationwide Emergency Department Sample. *Age-adjusted to the 2000 U.S. standard population. †Includes falls of undetermined intent to maintain consistency with past data releases. ‡E-codes specify that the injury was unintentional but do not specify the actual mechanism of injury. §§Includes TBIs in which the intent was not determined as well as those due to legal intervention or war. Includes TBIs in which no mechanism was specified in the record. Does not include falls of undetermined intent.
Expectations for Recovery

About 90% of concussions heal within days or weeks when you follow a progressive return to activity guided by a healthcare professional.

Source: DVBIC
PTSD vs TBI

Overlapping Symptoms

Possible Symptoms of TBI
- headaches
- dizziness/balance problems
- nausea
- sensitivity to light and sound
- vision changes
- impulsivity

Possible Symptoms of PTSD
- on high alert
- startled easily
- fearfulness
- flashbacks
- nightmares
- guilty feelings
- avoidance
- numbness
- self-destructive behavior

Source: DVBIC

"Medically Ready Force...Ready Medical Force"
Recovery Complications: Multiple Concussions

- Symptoms may be more severe with each additional concussion
- Each additional concussion may take longer to resolve
Prevention

- 2 pronged approach:
  - Prevent the causal event from happening
  - Take steps to lessen the impact if event occurs
Prevention: Review of Causal Events

- Top 4 events:
  - Falls
  - Struck by or against an object
  - Motor vehicle accidents
  - Assault
If An Injury Occurs

- See a health care professional ASAP after an injury.
  - Concussion screening tool similar to MACE 2
- Rest, rest, rest!
  - 24 hour rest prescribed even if no diagnosis
  - Remember, most people recover fully and quickly.
- Resume normal activities gradually under the advice of your health care provider.
- Take precautions to prevent another injury.
1. Primary Care
   • Most patients recover fully under primary care

2. Naval Medical Center San Diego
   • Same services as Intrepid Spirit at Camp Pendleton and NICoE
   • Fast Track program

3. NMCSD may refer to Intensive Outpatient Program at Intrepid Spirit Camp Pendleton (aka ACHIEVE)
   • Main differences-TAD & group sessions
“VA Polytrauma/TBI System of Care is an integrated network of specialized rehabilitation programs dedicated to serving Veterans and Service Members with both combat and civilian related TBI and polytrauma.” (Source: Linda Picon, DVBIC VA Senior Consultant)

- 5 polytrauma rehab centers (DVBIC VA Sites)
- 23 national rehabilitation programs
- Full range of inpatient and outpatient programs
- TBI managed as a chronic condition
- Treatment location determined by closest to home + necessary expertise
- VA Liaisons assigned to MTFs [https://www.oefoif.va.gov/valiaisons.asp](https://www.oefoif.va.gov/valiaisons.asp)
Vet Centers

- Community-based counseling centers
  - Social and psychological services
  - Professional readjustment counseling
  - Individual, group, marriage, and family counseling
  - Referrals
  - Staff are prepared to discuss the tragedies of war, loss, grief and transition after trauma

- Who qualifies:
  - Combat veterans, active duty service members, including National Guard and Reserve components, and their families
Vet Center Statistics

- 298,576 Veterans, active duty service members and their families received readjustment counseling
- 300 Vet Centers
- 1.9 millions visits in 2018
World's leading research and educational center of excellence on PTSD and traumatic stress

PTSD is a mental health problem that some people develop after experiencing or witnessing a life-threatening event, like combat, a natural disaster, a car accident, or sexual assault

Symptoms can be upsetting memories, feel on edge, or have trouble sleeping after this type of event. If symptoms last more than a few months, it may be PTSD

There are effective treatments

www.ptsd.va.gov for more information and treatment comparison chart

“Medically Ready Force...Ready Medical Force”
Family Resources - DVBIC Website

"Medically Ready Force...Ready Medical Force"
DVBIC handouts educate families and caregivers of patients with TBI. They describe the common signs and symptoms and stages of recovery that are available.

https://dvbic.dcoe.mil

Source: DVBIC
What is A Head for the Future

- DVBIC educational initiative launched in March 2015
- Signs, symptoms and treatment of TBIs **diagnosed in non-deployed settings**
- Importance of **preventing brain injuries** at home
- [https://dvbic.dcoe.mil/aheadforthefuture](https://dvbic.dcoe.mil/aheadforthefuture)

Source: A Head for the Future
March Is Brain Injury Awareness Month

"Medically Ready Force...Ready Medical Force"

Source: DVBIC
More Information

- Defense and Veterans Brain Injury Center
  - https://dobic.dcoe.mil/

- Air Force Center of Excellence for Medical Multimedia (CEMM)
  - https://www.cemmlibrary.org/category/traumatic-brain-injury
  - https://tbi.cemmlibrary.org/Interactive-Brain/Interactive-Brain

- CDC
  - https://www.cdc.gov/traumaticbraininjury/index.html
Thank You!