

TRAUMATIC BRAIN INJURY & POST-TRAUMATIC STRESS DISORDER

The TBI and PTSD Alphabet Soup
of Brain Injury

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Dr. Christina Stasiuk

National Medical Director for Health
Disparities, Cigna

Together, all the way.®



What we'll discuss

- Why we are talking about TBI & PTSD
- Traumatic brain injuries (concussions)
- Post-traumatic stress disorder
- Who's doing what
- What you can do



<http://www.businessinsider.com/an-eod-technician-explains-what-life-is-really-like-in-the-field-2012-8#its-not-like-the-movies-1>

Why is this important?

It's complex

- 33% Physically disabled
- 19% Recovering from injury
- 33% TBI
- 20% PTSD (most non-combat)

Results in:

- Disability
- Unemployment

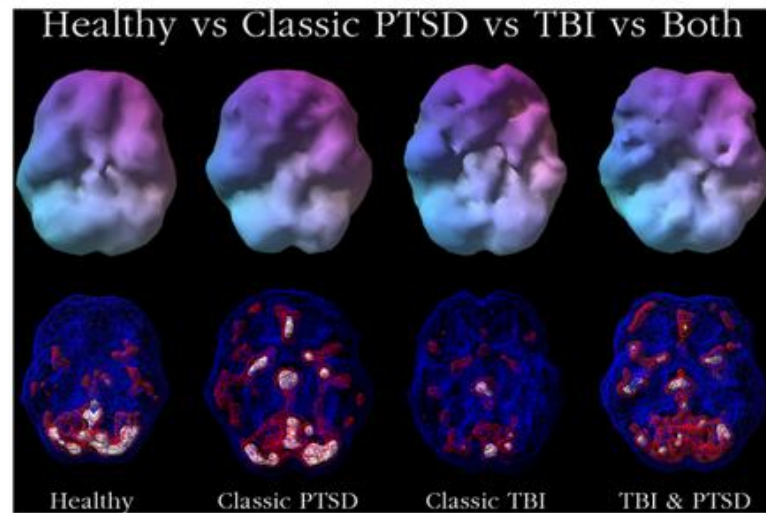


<https://www.dvidshub.net/image/1056689>

Let's call it what it is

- mTBI
- Signature injury
- Invisible wound
- Silent epidemic
- Concussion
- Brain damage

Fig 3. Brain SPECT Images of Healthy, PTSD, TBI and PTSD Co-morbid with TBI Perfusion Patterns.



Amen DG, Rajl CA, Willeumier K, Taylor D, Tarzwell R, et al. (2015) Functional Neuroimaging Distinguishes Posttraumatic Stress Disorder from Traumatic Brain Injury In Focused and Large Community Datasets. PLOS ONE 10(7): e0129659.
<https://doi.org/10.1371/journal.pone.0129659>
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0129659>

What's different for EOD technicians?



FIGURE 2.3 Potential consequences of blast exposure.

<https://www.vetshq.com/wp-content/blogs.dir/files/sites/11/2013/10/Vol-7-Long-Term-Consequences-of-Traumatic-Brain-Injury.pdf>

Blast impacts the whole body

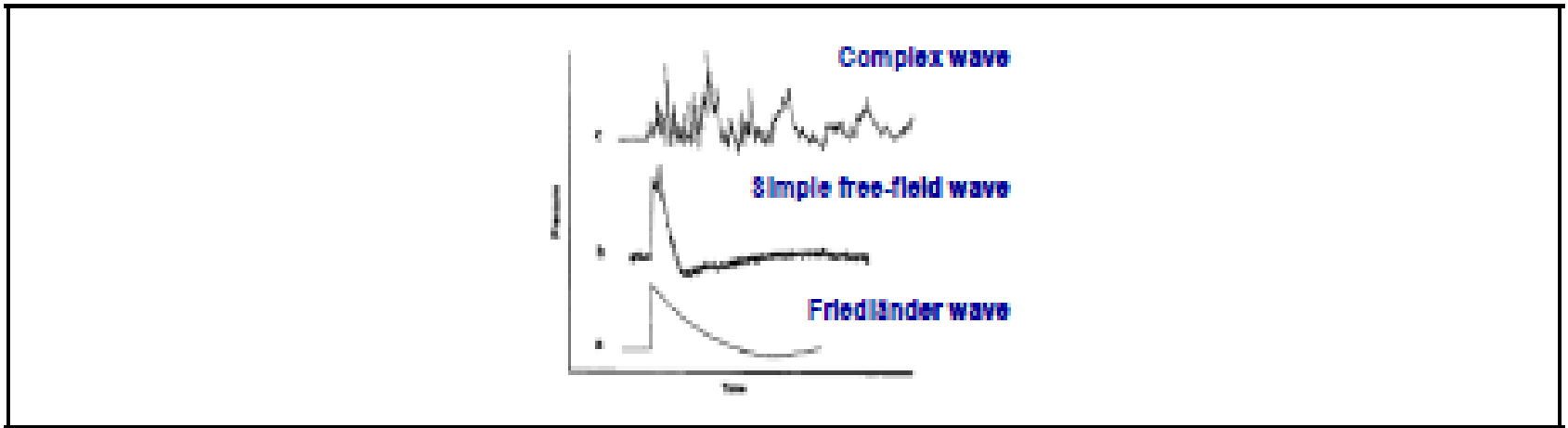


FIGURE 2.4 Explosion-induced shock waves: (a) idealized representation of pressure-time history of an explosion in air; (b) shock wave in open air; (c) complex shock-wave features in closed or urban environment.

SOURCE: Mayorga, 1997. Reprinted with permission from Elsevier Science, Ltd. 2008.

- <https://www.vetshq.com/wp-content/blogs.dir/files/sites/11/2013/10/Vol-7-Long-Term-Consequences-of-Traumatic-Brain-Injury.pdf>

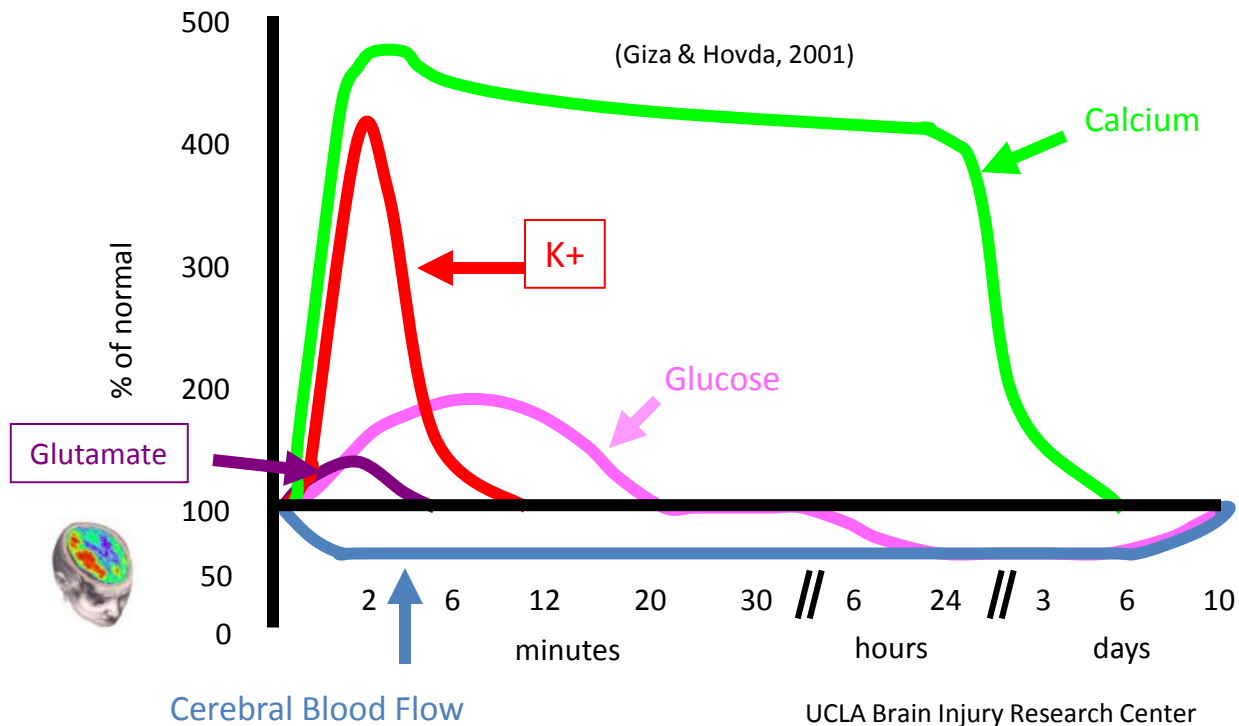
Knowledge check

A buddy has had several CT scans and MRIs and has been told that “Everything is normal.” Yet, he, his friends and family know something is not right.

Why can't anyone see anything?

- Nothing is wrong
- Traumatic brain injury is a metabolic dysfunction
- Traumatic brain injury is a structural injury
- Something else

What happens to the brain after head trauma?

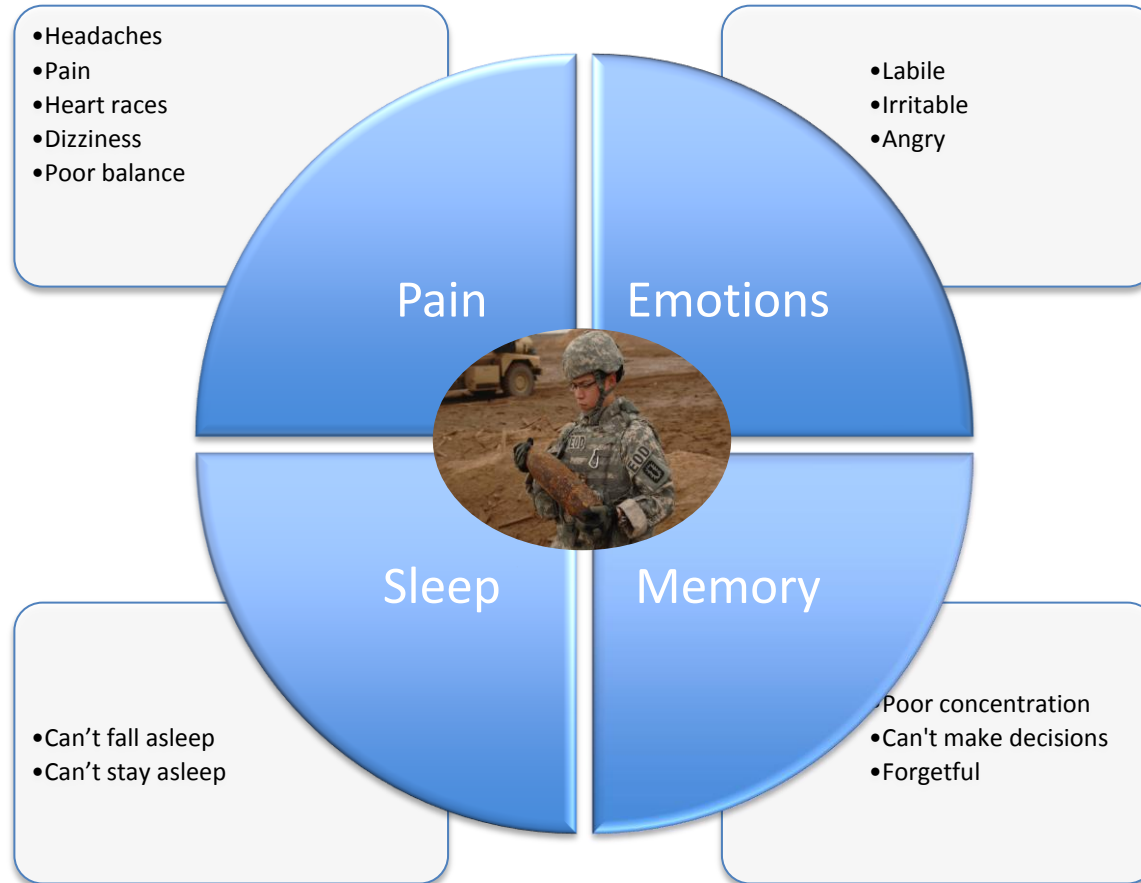


Sharing knowledge

What have you observed with Traumatic Brain Injury (TBI)?

- .
- .
- .
- .
- .
- .

Some symptoms of TBI



Differences by gender

Men

- TBI
- PTSD
- Substance abuse

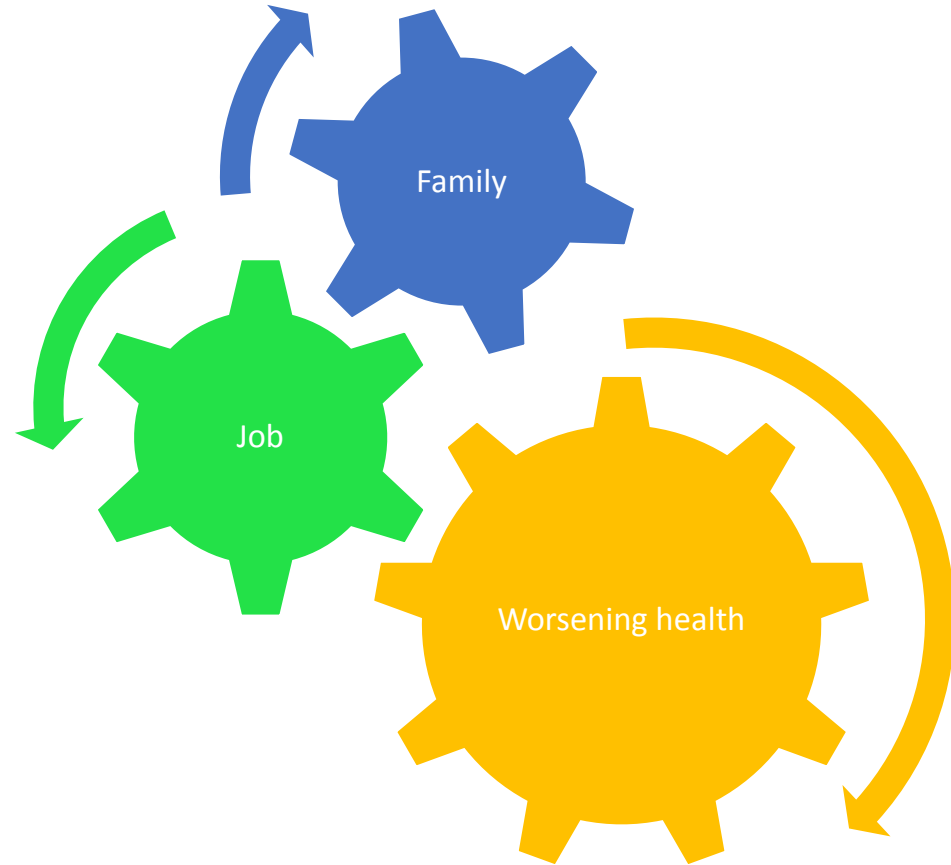
Women

- More severe symptoms
- Depression
- Anxiety

Blasts

- No differences except more severe symptoms in women

What happens over time?

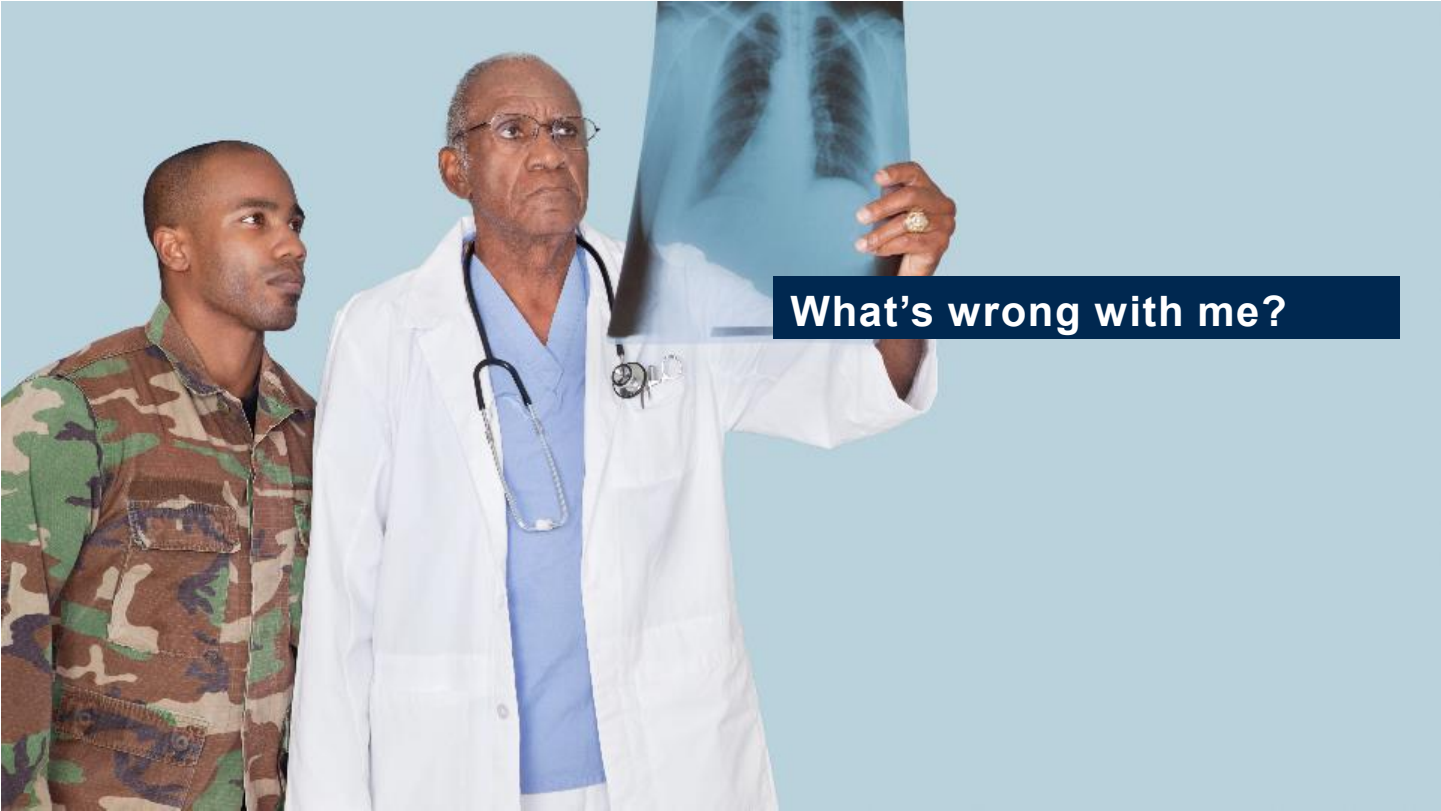


Source: <https://www.dvidshub.net/image/945650/eod-group-2-returns-home-after-leading-afghan-eod-mission>

It does get better

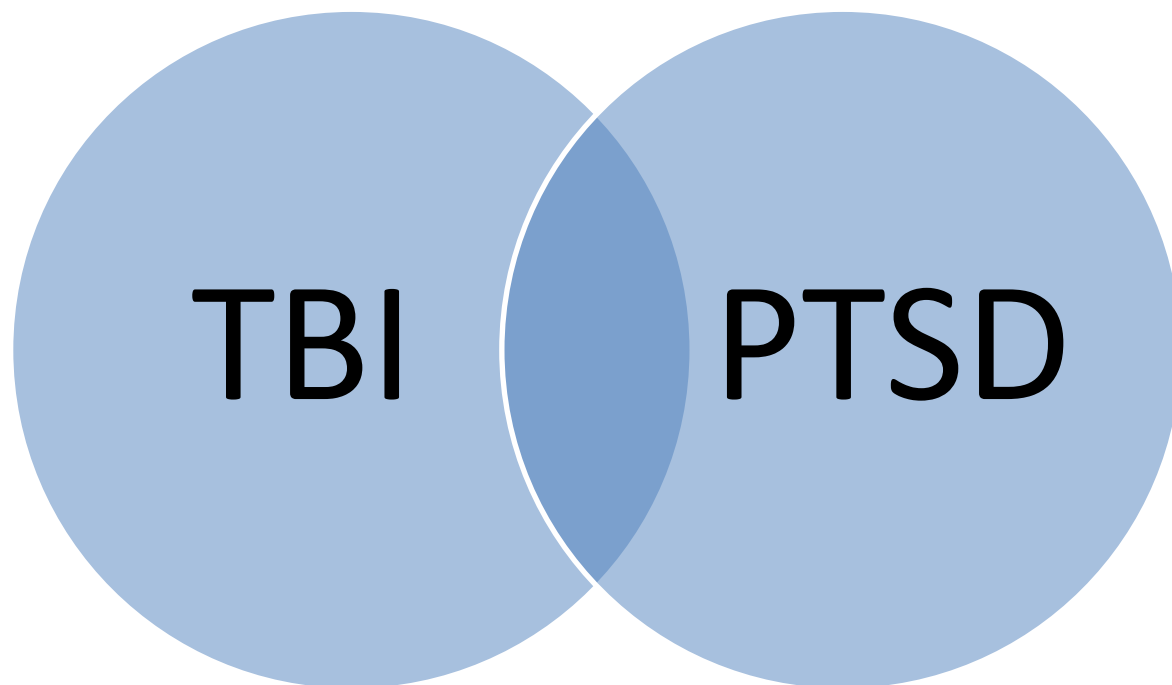


Source: Return to Adventure, 2012



What's wrong with me?

Blunt trauma in the military is different



Diagnostic criteria for PTSD

Review articles in the New England Journal of Medicine

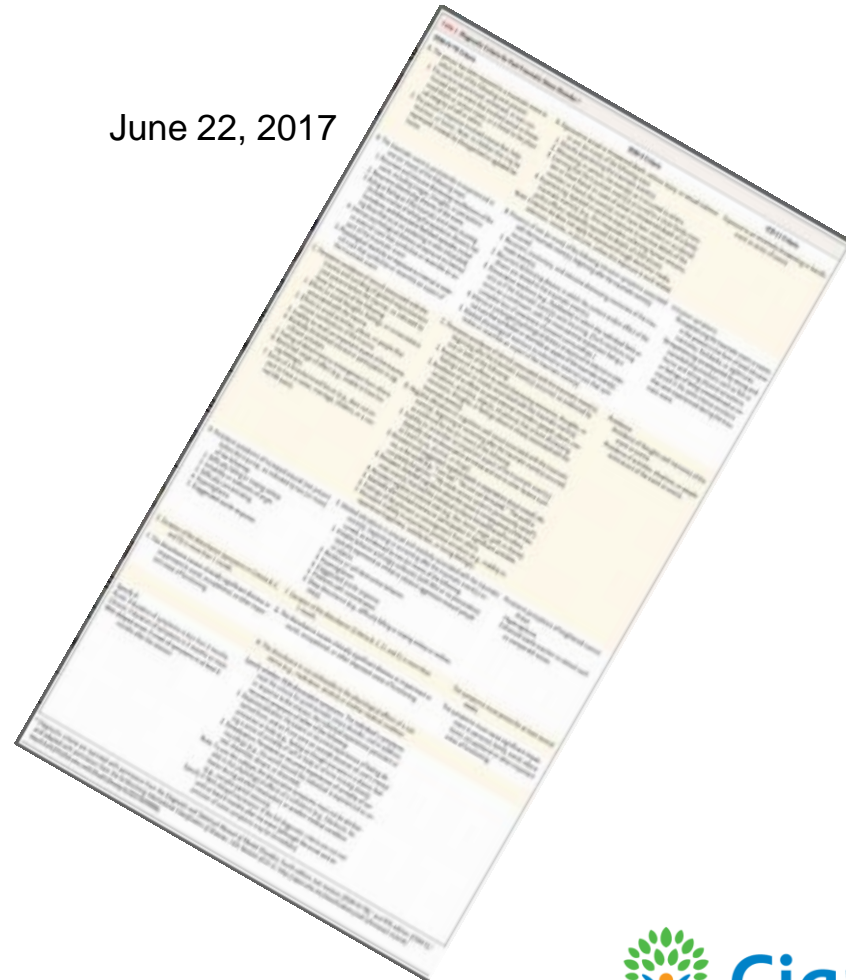
January 10, 2002

June 22, 2017

TABLE 1. DIAGNOSTIC CRITERIA FOR PTSD.*

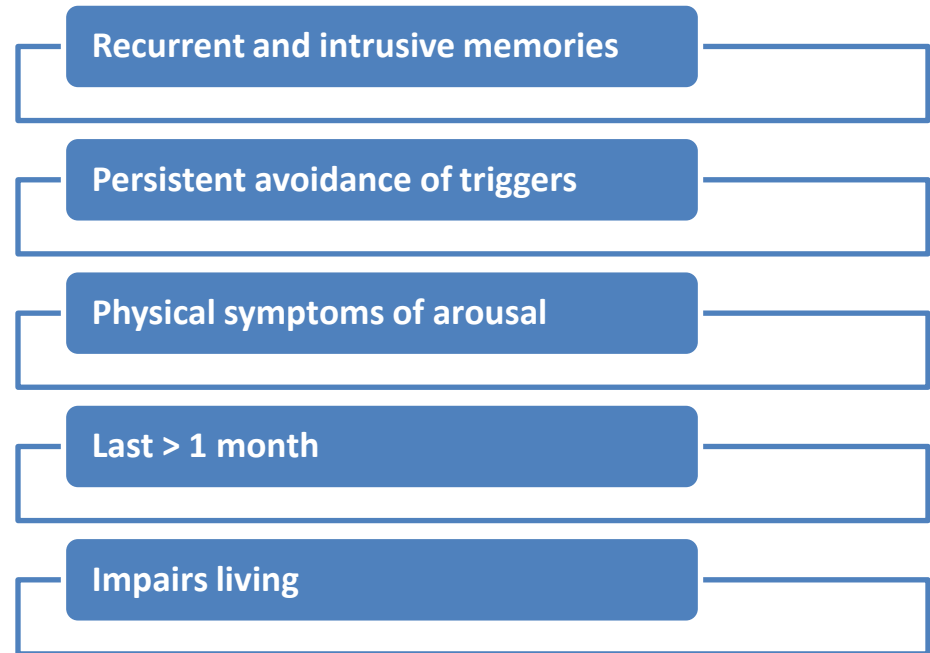
A person must have been exposed to a traumatic event:
 The event involved a perceived or actual threat to the person's own life or physical integrity or that of another, such as a physical or sexual assault, rape, a serious accident, a natural disaster, combat, being taken hostage, torture, displacement as a refugee, sudden unexpected death of a loved one, and witnessing a traumatic event.
 The person's response to the event involved fear, helplessness, or horror.
 The person persistently reexperiences the event in at least one of several ways:
 The person has intrusive recollections of the event.
 The person has nightmares.
 The person has flashbacks, which are particularly vivid memories that occur while he or she is awake and make him or her act or feel as though the event was recurring.
 The person has intense psychological distress in response to reminders of the traumatic event.
 The person has intense physiological reactions in response to reminders of the event (including palpitations, sweating, difficulty breathing, and other panic responses).
 The person avoids reminders of the event and has generalized numbness of feeling, as indicated by the presence of at least three of the following:
 The person actively avoids pursuits, people, and places that remind him or her of the event.
 The person avoids thinking of or talking about the event.
 The person is unable to recall aspects of the event.
 The person has lost interest in or participates less in activities.
 The person has felt detached or estranged from other people since the event.
 The person has a restricted range of emotions or a feeling of numbness.
 The person feels as though his or her life has been foreshortened or as though there is no need to plan for the future, with respect to his or her career, getting married, or having children.
 The person has symptoms of increased arousal, as evidenced by the presence of at least two of the following:
 The person has difficulty falling or staying asleep (sometimes related to fear of having nightmares).
 The person is irritable and has feelings of outbursts of anger.
 The person has difficulty concentrating.
 The person has become more vigilant and concerned about safety.
 The person has exaggerated startle reactions in response to sounds or movements.
 The three types of symptoms must be present together for at least one month.
 The disorder must cause clinically significant distress or impairment in social, occupational, or other areas of functioning.

*There are three subtypes of PTSD. Acute PTSD refers to symptoms that last less than three months. Chronic PTSD refers to symptoms that last three months or longer. Delayed-onset PTSD refers to symptoms that begin at least six months after a traumatic event. Adapted from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition.²



How is post-traumatic stress disorder defined?

Exposure to
extreme stressor
or traumatic
event
which resulted in
fear, helplessness
or horror
AND



True or false?

PTSD in military members manifests immediately after a traumatic event?

True or False

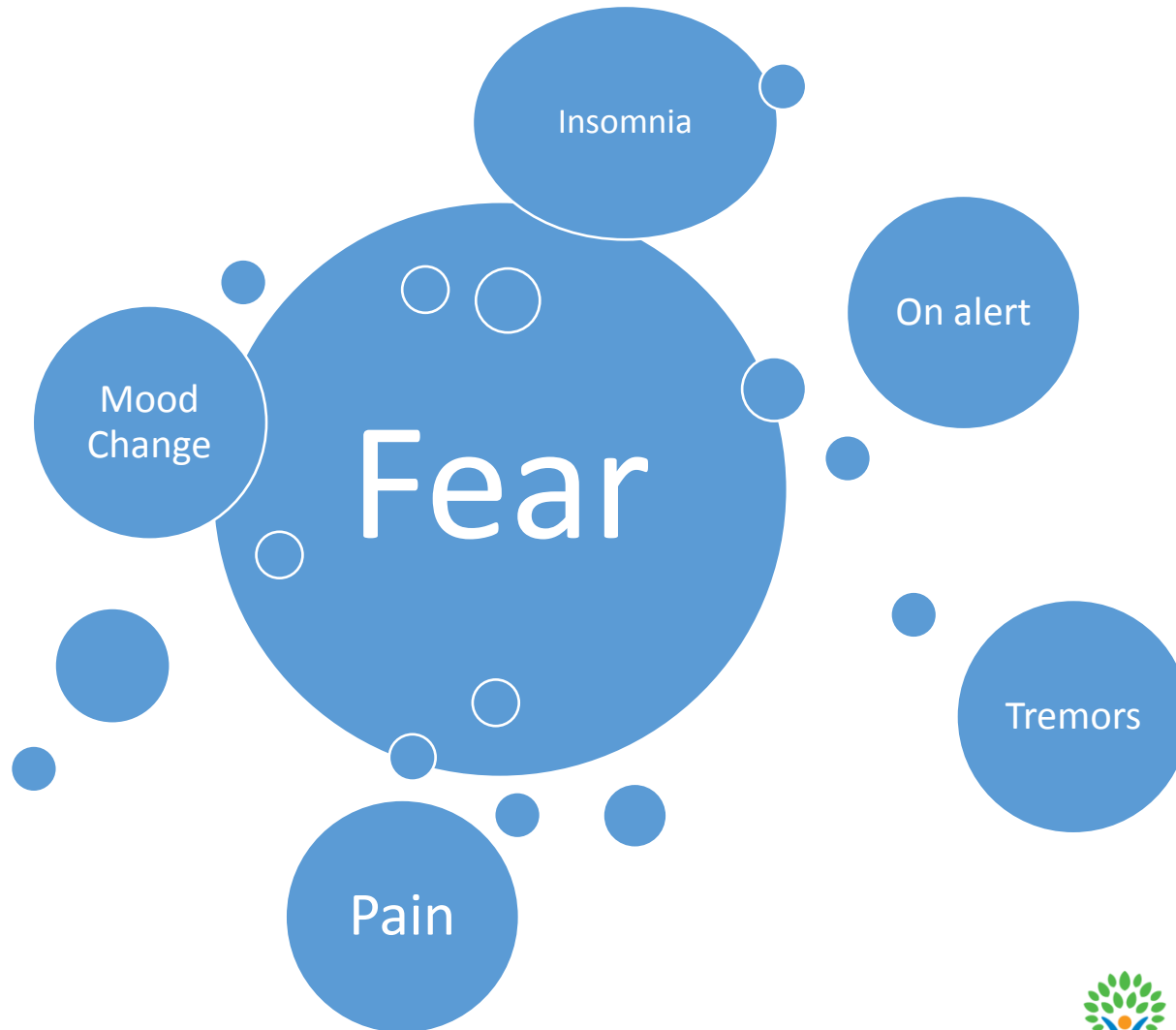
PTSD is different in the military

- Delayed appearance
- Severity fluctuates
- Impacted by other injuries
- TBI

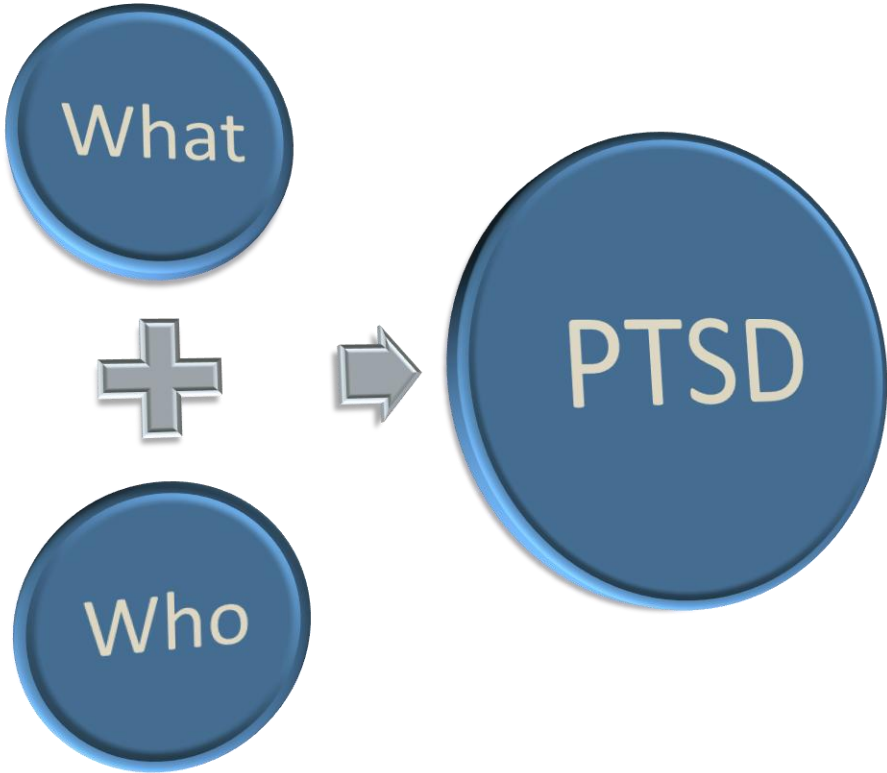


Photo: US Navy Photographers Mate 1st Class Ted Banks

How does PTSD manifest?



Factors resulting in PTSD



How can it be diagnosed?

PC-PTSD – 5

- Primary Care PTSD Screen (PC-PTSD-5)
 - 5 questions
 - If 3 are positive, refer for full assessment

PCL

- PTSD Checklist (PCL) 17 items
 - Can also monitor treatment response
 - Scoring: Not at all/ A little bit/ Moderately/ Quite a bit/ Extremely
 - Score of 38/80 or higher indicates probable PTSD in veterans
 - Versions of PCL-5
 - PCL-C for civilians
 - PCL-M for military
 - PCL-S of non-military

PC-PTSD – 5

Simple yes or no questions

Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic. For example:

- a serious accident or fire
- a physical or sexual assault or abuse
- an earthquake or flood
- a war
- seeing someone be killed or seriously injured
- having a loved one die through homicide or suicide.

Have you ever experienced this kind of event?

YES / NO

If no, screen total = 0. Please stop here.

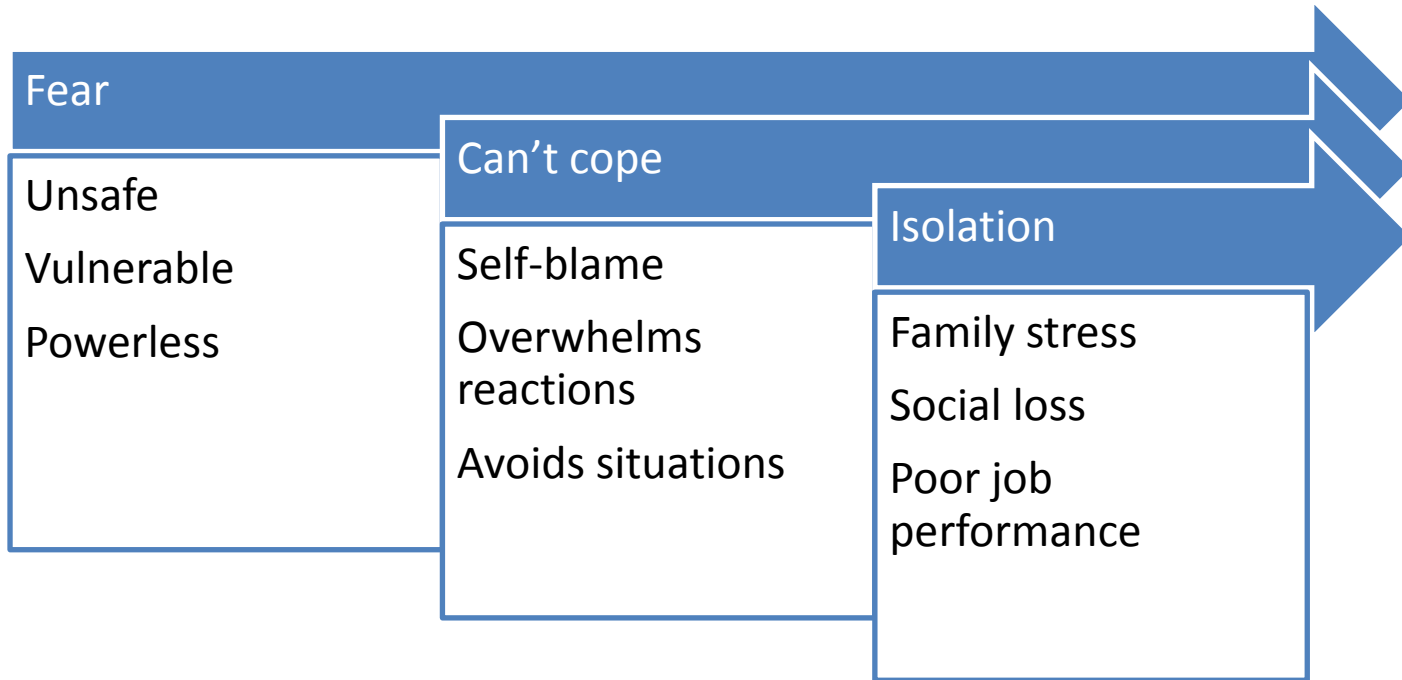
PC-PTSD – 5

YES or NO?

In the past month, have you...

- Had nightmares about the event(s) or thought about the event(s) when you did not want to?
- Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?
- Been constantly on guard, watchful, or easily startled?
- Felt numb or detached from people, activities, or your surroundings?
- Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?

Chronic PTSD



Treatment goals

Need to stabilize, stop self-destruction, address loneliness and despair.



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What are treatment options?

- Counseling
- Trauma-focused therapy
 - Exposure therapy
 - Cognitive therapy
- Medications
- Innovative treatments



Source:<https://www.dvidshub.net/image/3482112/army-reserve-hosts-inaugural-well-being-event>

What's next?

Working on better

- Prognostic tools
- Diagnostic tests
- Treatment modalities



Who else is working on this?



Cigna's approach



BRINGING WOUNDED BOMB TECHS TOGETHER



What can you do?

- Be a peer – Ask!
- Refer to a reputable center with a team approach
- Partner with organizations
- Work with researchers



<https://www.dvidshub.net/image/3480649/runners-al-udeid-run-5k-memory-fallen-eod-service-members>

Thank you



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