

## THIS IS STUDY GUIDE 2 OF COURSE 5K



### Finding Balance

## 3. Service Members' Experiences at War

War is the best and the worst that humanity has to offer. It has periods of satisfaction and heroism, and periods of the most grotesque and unimaginable experiences. The trick for the war vet is to be able to negotiate that experience.

—Steve Robinson, Desert Storm Veteran

No matter how many words this chapter might contain, or how carefully they were chosen, they would not be enough to convey the experience of war. The single most important tool for the civilian preparing to help veterans is a sense of humility, an appreciation for the enormity of what we cannot know if we have never experienced combat. And our most important task is to listen.

This chapter 3 has five sections:

- Resilience and Vulnerability in the War Zone
- Service Members' Experiences in Iraq and Afghanistan
- Positive Experiences in the Theater of War
- Military Care for War-Zone Stress
- Challenges in Demobilization, Homecoming, and Reintegration

## Resilience and Vulnerability in the War Zone

Although Service Members enter the military with varying levels of vulnerability to stress and trauma, a number of factors in the military experience also contribute to the likelihood that they will develop post-deployment stress injuries and substance use disorders. “While studies of combat veterans in the Second World War have shown that every man had his ‘breaking point,’ some ‘broke’ more easily than others. Only a small minority of exceptional people appear to be relatively invulnerable in extreme situations” (Herman, 1992, p. 58).

**Pre-Deployment Experiences:** In the *Iraq War Clinician Guide*, the Department of Veterans Affairs (VA, 2004) identified a number of pre-deployment factors that can contribute to increased vulnerability to stress, including:

- Worry and uncertainty
- Routine changes in deployment orders
- Multiple revisions of deadlines and locations
- Worrying about themselves and family members
- Struggling to make all arrangements
- Extra stress on single parents, reserve forces, and military members not previously deployed (VA, 2004)

In general, the level and quality of pre-deployment training is one important predictor of post-deployment stress. The Armed Forces have mobilized to address some of these issues. For example, the Army has developed an extensive resilience training called “Battlemind.” Battlemind is defined as “a Soldier’s inner strength to face adversity, fear, and hardship during combat with confidence and resolution. It is the will to persevere and win.” Its objectives are “to develop those factors that contribute to the Soldier’s will and spirit to fight and win in combat, thereby reducing combat stress reactions” (WRAIR, 2005).

**Resilience Factors During Deployment:** Perhaps the most important resilience factor, cited in many governmental and non-governmental reports, is cohesion, bonding, and buddy-based support within the military Unit (VA, 2004; MHAT, 2006; Scaer et al., 2008; Lighthall, 2008).

This resonates with what we know about the way human beings develop resiliency to stress. As you may have read in the chapter on “Resilience and Vulnerability to Traumatic Stress,” attunement and bonding with the primary caregiver is often cited as the most important factor in developing children’s ability to balance their stress reactions (through the work of the orbitofrontal cortex and the anterior cingulate gyrus).

Strong, positive, and non-shaming leadership within the Unit, leadership by non-commissioned officers, “R&R,” and mid-tour leaves have also been identified as important protective factors (MHAT, 2006).

**Risk Factors During Deployment:** The military has cited a number of factors as being pivotal to the risk of post-deployment stress effects, including the severity of exposure to combat and the degree of life threat or perceived life threat (VA, 2004). Investigators in the MHAT IV Survey found that “Deployment length was related to higher rates of mental health problems and marital problems” (MHAT, 2006, p. 3). Overall, risk factors identified in MHAT IV survey included:

- Combat exposure
- Deployment concerns
- Branch of service
- Multiple deployments
- Deployment length
- Pre-existing behavioral health issues
- Anger
- Marital concerns

Just as Unit cohesion serves as a strong resilience factor, so can the loss of cohesion serve as a risk factor. Service members may but lose combat relationships due to the death of close buddies, medical evacuation, emergency leave, and changes in task organization and FOB (Forward Operating Base) locations (WRAIR, 2005). Veterans who have served as National Guard and Reserve troops have often had lower levels of Unit cohesion. Though these troops represent about 28 percent of the U.S. armed forces in Iraq and Afghanistan, VA figures indicate that more than half of the veterans who have suicided after returning home served in the National Guard or the Reserves (Hefling, 2008). The intensity of combat experiences also affects the risk of developing post-deployment stress effects (Lineberry et al., 2006).

**The Experience of Killing:** Feelings of responsibility and guilt may worsen some veterans’ post-combat stress effects (Kubany et al., 1995). In one study of Vietnam veterans (Hiley-Young et al., 1995), investigators found that participation in war-zone violence predicted post-military violence to self, spouse, or others. Another analysis of Vietnam War veterans found that those who reported that they had killed in combat tended to have higher PTSD scores than those who had not, and scores were even higher for those who said they were directly involved in atrocities (MacNair, 2002). And a study of suicide attempts among Vietnam combat veterans found that, of the five factors significantly related to suicide attempts (guilt about combat actions, survivor guilt, depression, anxiety, and severe PTSD), guilt about actions in combat was the most significant predictor of suicide attempts and preoccupation with suicide (Hendin and Haas, 1992).

**Coping Styles in the War Zone:** Herman (1992) cited a number of characteristics associated with greater resistance to traumatic stress, including high sociability, thoughtful and active coping styles, and a strong perception of ability to control one's destiny. She also noted that, in survivors of war and disaster, people who escape through cooperation with others (a response that is largely influenced by the chemical serotonin) tend also to escape trauma and post-trauma effects.

On the other hand, more severe post-trauma responses tend to appear among people who freeze and dissociate (influenced by cortisol, acetylcholine, endorphins, and GABA)—and in those who react in a “Rambo” fashion by jumping into isolated, impulsive action (influenced by adrenaline, norepinephrine, and dopamine). In their study of Vietnam veterans, and in their review of multiple studies of people who had lived through war and disaster, van der Kolk and Fisler (1995) also found that people who had higher levels of dissociative symptoms during these experiences tended to have higher incidence of posttraumatic stress disorder (PTSD).

Charney (2005) and Southwick studied 750 Vietnam veterans who had developed neither PTSD nor depression after being held as prisoners of war for a period of six to eight years, during which time they were tortured and/or kept in solitary confinement. The investigators identified ten elements that they considered critical characteristics of resilience: optimism, altruism, a moral compass, spirituality, humor, having a role model, social supports, facing fear, having a mission, and training (Charney, 2005 quoted in Rosenbaum and Covino, 2005)

**Cultural and Gender Factors in Vulnerability:** Although these factors have yet to be explored in depth, some information is available. For example, data from Vietnam veterans indicate that Service Members of color were more likely to suffer PTSD but less likely to seek or receive services for it (Hutchinson and Banks-Williams, 2006).

The experts disagree on the role of gender in vulnerability to PTSD. Some studies (e.g., Breslau et al., 1999) have found women more likely to develop PTSD from exposure to trauma, even after controlling for history of previous exposure to trauma. However, the Army's Mental Health Advisory Team IV studies of female OIF/OEF Soldiers showed no differences in ability to cope with the stressors and challenges of combat, but did show that women had unique or unmet mental health needs different from those of male Soldiers (MHAT, 2006). According to SoRelle (2004), PTSD among female veterans may be underreported within the military system, with many seeking services in the community rather than in military facilities, and the incidence of PTSD in women returning from Iraq and Afghanistan may be on the rise (SoRelle, 2004).

## Service Members' Experiences in Iraq and Afghanistan

The consideration of Service Members' experiences in the theater of war is a far more complex process than one would assume. These experiences are many and varied, depending on a number of factors that might include:

- When they were deployed (with the likelihood of lower exposure to violence among many Service Members who were not deployed until after the troop Surge that began in 2007 was well underway)
- Where they were deployed (with relative peace in some areas and higher levels of violence in others)
- Strength of bonding and leadership within their Units (with stronger bonding and more motivational leadership cited as protective factors for combat stress and post-deployment stress effects)
- How many tours of duty they served, how long those tours lasted, and the length of time between tours (with multiple tours, longer tours, and shorter "reset" time cited as major risk factors for post-deployment effects)
- Their roles in the war zone (from combat to nation building)
- How often those roles took them "outside the wire" that surrounds the relative safety of the forward operating base (FOB)
- Where they happened to be when the mortar sailed in or the improvised explosive device (IED) exploded
- How much time they spent in situations of threat and helplessness, situations in which there truly was no way to predict, control, or take action against enemy attacks

**Urban Warfare:** Henderson (2006) noted that technological advances now make it possible to fight 24 hours a day, leaving no built-in "down-time" to decompress and return stress systems to balance. He also cited the special nature of urban warfare, which:

- Tends to go on for long periods of time, with no clear front line
- Increases the chance of accidentally killing the wrong people
- Brings attacks in out of anywhere, at any time, from anyone
- Uses up supplies at a faster rate, straining supply lines and leading to shortages
- Makes it difficult to enforce even clear rules of engagement
- Does not leave time to grieve losses
- Makes it more likely that one will accidentally inflict casualties on civilians

In the words of Padin-Rivera (2006), “Much of the violence has no uniform. Any civilians can be dangerous. Everything is a possible weapon” (Padin-Rivera, 2006, p. 10).

**Conditions in the War Zone:** The Department of Veterans Affairs (2004) provided a comprehensive list of conditions under which Service Members operate, including the following.

Chronic high levels of discomfort:

- Intense heat
- Austere living conditions, unpleasant living quarters
- Heavy physical demands
- Sleep deprivation
- Periods of intense violence followed by unpredictable periods of relative inactivity
- Lack of enjoyable food, lack of privacy
- Cultural difficulties, boredom, inadequate equipment, long workdays
- Separation from loved ones
- Concerns about life at home (family, job, relationships, significant events)
- Sexual or gender harassment
- Racial or cultural prejudice, discrimination, or harassment

Disruption and confusion:

- Operational plans that change constantly
- Unclear knowledge of enemy capabilities
- Equipment that breaks down
- Uncertain supply lines
- Rules of engagement that change regularly as political and tactical requirements change
- The need to make split decisions
- Disruption of the environment

The realities of combat:

- Physical injury
- Threat of death or injury
- Witnessing the death, wounding, and disfigurement of friends, enemies, and civilians (including children)
- The sights, sounds, and smells of dying men, women, and children
- Handling or removing the remains of civilians, enemy combatants, US and allied service members, and animals
- Working with prisoners of war
- Seeing devastated communities and homeless refugees

The realities of an insurgency war:

- Terrorist activities and guerilla warfare (e.g., car bombs, IEDs, mortar attacks) lead to chronic strain and anxiety
- Insurgency may lead Service Members to question the purpose, importance, and need for such sacrifices
- Anyone might be carrying a firearm, explosive, or remote detonation device
- If a vehicle challenges a roadblock or security checkpoint, delay may lead a to loss of friendly forces, but a premature response may kill innocent civilians
- Friendly-fire events are among the most tragic and the most difficult to reconstruct in autobiographical memory, leading to lower levels of integration and greater potential for unchecked activity in procedural memory

Stress system responses to these conditions, including:

- Intense emotion and sensory exposure
- Heightened levels of arousal
- Intrusive recollections
- Symptoms of dissociation
- Fear, rage, or helplessness
- Attempts to avoid emotion (VA, 2004)

**Sleep Deprivation and Fatigue:** When the Army's Mental Health Advisory Team's 2006 report was written, "...a considerable number of Soldiers and Marines [were] conducting combat operations every day of the week, 10-12 hours per day seven days a week for months on end. At no time in our military history have Soldiers or Marines been required to serve on the front line in any war for a period of 6-7 months, let alone years, without a significant break in order to recover from the physical, psychological, and emotional demands that ensue from combat" (MHAT, 2006, p. 76). Many of those Soldiers and Marines may now be among the veterans seeking help today.

One Iraq war veteran interviewee reported experiencing a lack of restorative sleep, sometimes for days, weeks, or months, with perhaps one hour's shallow sleep each night. Contributors to sleep deprivation can include constant mortar attacks, sleeping (or attempting to sleep) in a truck, "24/7" military duties, and sleeping on high alert (Armstrong, Best, and Domenici, 2006). Sleep deprivation reduces blood flow to the brain, increasing the likelihood of a number of neurological challenges, including depression (Amen, 2008).

According to Scaer and colleagues (2008), the physical fatigue associated with carrying large quantities of supplies and protective gear can also add to the risk of post-deployment stress effects. Carrying 80-100 pounds of body armor and gear often leads to chronic contraction of anterior (front) core muscles (e.g., the psoas muscles that extend from the lower spine over the pelvis and hip—the very muscles involved in the dissociative "freeze" response). This may play a role in storing trauma in the body's procedural memory (Scaer et al., 2008).



The need for rapid redeployment also tends to compound both the fatigue and the risk. According to the Mental Health Advisory Team, “We know from findings from the Walter Reed Army Institute of Research (WRAIR) Land Combat Study that the mental health status of Soldiers has not ‘re-set’ after returning from combat duty in Iraq and before they are applied again to Iraq” (MHAT, 2006, p. 77).

**Military Sexual Trauma:** The *Iraq War Clinicians Guide* describes military sexual trauma as including both sexual harassment and sexual assault in military settings. It can happen to either gender, and the perpetrator can be of the opposite or the same gender. It generally occurs within the Unit, a closed community in which there is little privacy and the victim and perpetrator must meet on a regular basis (VA, 2004). According to Lighthall (2008), military sexual trauma can have devastating effects throughout the Unit and throughout Service Members’ stress systems, because it shatters the Unit cohesion that is so essential to survival and resilience (Lighthall, 2008).

**Effects of the Surge:** Given the relative decrease in violence during the troop Surge that began in Iraq in Summer, 2007 (Farrell and Oppel, 2008), one might hope that the level of post-deployment stress effects would have decreased as well during that time. OIF veterans interviewed have expressed both their hope and their doubts that this is true, given that:

- Lower levels of violence can reduce the intense levels of the post-deployment stress responses that tend to follow the worst periods of combat.
- Even though the incidence of violence has decreased, the potential for violence still exists, and it is this potential that activates constant hyperarousal of stress and survival systems.
- Post-deployment stress effects are not “healed” by later reductions in violence or threat, but can remain in the body for years until they are addressed with effective therapy and/or re-balancing measures.

The *Iraq War Clinician Guide* also notes that even light or minimal exposure to violence can engender post-deployment effects: “... clinicians need to be careful not to minimize reports of light or minimal exposure to combat. They should bear in mind that in civilian life, for example, a person could suffer from chronic PTSD as a result of a single, isolated life-threat experience (such as a physical assault or motor vehicle accident)” (VA, 2004, p. 25).



## Positive Experiences in the Theater of War

As honest as they are about the harsh conditions at war, many returning veterans also grow frustrated with the American public's lack of knowledge of the significant positive experiences in the theater of war.

- The development of strong familial ties among buddies and within the Unit is the most important strength cited, one that many Service Members believe civilians may never fully understand, because the circumstances in which it develops are so far beyond civilian experience.
- They also note the prevalent sense of humor—much of it a form of “gallows humor” that might seem offensive to some civilians but serves an important role in many service members’ efforts to cope with the hardship of war.
- Many service members and veterans mention the strong sense of meaning and purpose they found in their work in the war zone, and especially in their ability to protect their buddies. Many find that they miss this sense of meaning and purpose deeply and intensely when they return home.
- And many cite as positive experiences the thrill of danger and the “rush” of adrenaline and dopamine when they survive under fire.

And by no means is all duty “in country” related to combat. In an insurgency war in a new and developing democracy, a Service Member’s role might combine the traditional combat roles of guard and soldier with those of military trainer, “beat cop,” diplomat, relief worker, outreach worker, and community organizer. Mixed in with their memories of battle, many veterans also carry strong and healing memories of playing with children, organizing medical care, rebuilding communities, and the many other humanitarian roles they were able to assume.

Dehghanpisheh and Thomas (2008) wrote of the significant strengths and skills gained by young officers in the Iraq war. “They’ve learned, often on their own, operating with unprecedented independence, the intricacies of Muslim Cultures faced with ineffective central governments, they have acted as mayors, mediators, cops, civil engineers, usually in appalling surroundings” (Dehghanpisheh and Thomas, 2008, p. 30).

## Military Care for War-Zone Stress

According to the Department of Veterans Affairs (2004), the Military’s guiding principle in responding to symptoms of war-zone stress is captured in the acronym, PIES: proximity, immediacy, expectancy, and simplicity. Interventions are as brief as possible

and take place as close to the Unit and as soon as possible. The first-tier response to an apparent challenge occurs within the Unit and includes rest; nourishment; and opportunities to discuss one's experiences with medical personnel, chaplains, etc.

The military has developed five echelons of care for Service Members with combat stress effects:

- Echelon I: Intervention by the medical assets within the combat unit
- Echelon II: Care at the Brigade and Division level, by the farthest-forward (toward the place where the Unit is stationed) Combat Stress Control Teams
- Echelon III: Forward deployed Combat Support Hospitals in the Corps Support Area (If the Service Member is not expected to respond to treatment there within seven days, he or she is usually evacuated out of theater. More than 90 percent of Service Members are treated and returned to duty.)
- Echelon IV: Hospital facilities generally outside the combat zone (e.g., in Germany or Spain)
- Echelon V: Continental U.S. Military and VA medical centers.

At each echelon, the Service Member is evaluated for return to duty. With each level of evacuation, the Service Member is more removed from the Unit and tends to be more apprehensive about being re-exposed and less likely to return to combat duty (VA, 2004).

## Challenges in Demobilization, Homecoming, and Reintegration

To much of the civilian world, it might seem as if the return home is the solution to all the Service Member's problems. But coming home has its own challenges. As one Iraq War veteran interviewee said, "You never really come home."

**Losses and Isolation:** Whatever their bodies' stress reactions might be, many returning veterans are also living with the loss of military jobs, careers, and relationships with coworkers (Padin-Rivera, 2006). Hutchinson and Banks-Williams (2006) noted a number of losses, including:

- Profound disappointment at being separated from the military, especially if their separation was due to administrative action or their inability to complete their missions or commitment to the military

- Loss of military structure and lifestyle
- Loss of the military career, problems finding a good job, changes in roles and responsibilities in the family, physical and/or psychiatric injuries, the quality of their reception from civilians, disappointment at the loss of idealized images of the family, and “social isolation due to ambivalence regarding the mission” (p. 68).

### **Sense of Alienation:**

Homecoming for this generation of veterans does not hold the cruelty that many Vietnam veterans experienced at the hands of some civilians. However, the nation’s current widespread support of service members is accompanied by mixed views of the war in Iraq. This sometimes makes it difficult for veterans to know whom to talk to about their experiences, and how people will react (Padin-Rivera, 2006). Hutchinson and Banks-Williams (2006) noted a number of other ways in which this sense of alienation appears:

- Many returning veterans fear negative judgment from loved ones.
- Nearly a fifth of all Soldiers deployed to Iraq reported marital concerns or problems.

### **A Chaplain’s Experience Coming Home**

- For 18 months, I was surrounded by men with guns. When I came home, I felt vulnerable without them, even in church.
- For 18 months, I suffered the indignities and depravities of military life in a combat environment with a core of friends. When I came home I felt lonely without them, even when surrounded by family or other friends.
- For 18 months, I kept a constant watch on my surroundings and the people all around me. When I returned home, I could not break the habit but remained hypervigilant outside the walls of my home.
- For 18 months, I studied every piece of garbage or discarded junk along the road. When I came home, I couldn’t stop. Riding in the passenger seat always made me nervous when someone would drive over a piece of trash.
- For 18 months as a leader of soldiers, I had to keep my emotions in check. When I came home, people told me I was distant and withdrawn.
- For 18 months, I shared common goals and values with others upon whom I depended literally for my life. When I came home, I found dishonesty, hypocrisy and malevolence in people who claimed to be my friends and share common values.
- For 18 months, I had no choice about what to wear, what to eat, what to do or when to sleep. When I came home, I was overwhelmed by choices, sometimes to the point that I was unable to make decisions.
- For 18 months, I dealt with issues that were literally life and death, ones eternal in their scope. When I returned home, I found people worried about matters of no consequence at all.

—Douglas A. Etter, CH (LTC) 28 ID “Panther 39”

**Reprinted, with permission, from “A Chaplain’s Reflections on Combat Experience Offers Insights into Returning Veterans’ Needs,” in *Resource Links*, 6(1), Northeast ATTC.**

- Civilians sometimes ask Service Members and veterans if they have killed or seen others killed. “On some level, the media sensationalizes the war experience without reporting the day-to-day experiences and concerns that soldiers may have. Being part of human destruction as either warrior or witness is a devastating, emotionally compromising experience. The soldier may experience an inquiry like this as a retraumatizing event” (p. 69).
- “One soldier indicated that he expected the country to rally around the troops and support the mission. He expected the ‘World War II spirit.’ Instead the response was the ‘Vietnam rejection’” (p. 68).

**Bringing the Injuries Home:** The sophistication of military medical units and personnel has saved the lives of countless Service Members who would have perished in earlier wars. Traumatic brain injuries (TBI) (addressed in greater detail in Post-Deployment Stress Effects) can change personalities and relationships and bring about considerable alienation back home. And many serious injuries are claiming limbs and facial features. “Disfigurement is a physical loss that often can have far-reaching psychological, social, and emotional aftereffects” (Padin-Rivera, 2006, p. 13).

Hutchinson and Banks-Williams also note the special challenges of coming home with only the invisible wounds left by combat stress injuries:

- Guilt at having no visible wounds is a common reaction, including dismissal of or shame about any psychiatric wounds they might carry.
- “Physical damage suggests strength, fearlessness, sacrifice, and honor. Mental damage may suggest weakness and dishonor” (p. 68).
- Guilt at having survived when others did not can make it all the more difficult to express or seek help for the symptoms of their post-deployment stress effects.

**Common Thoughts Among Returning Veterans:** In *Courage After Fire: Coping Strategies for Troops Returning from Iraq and Afghanistan and Their Families*, Armstrong, Best, and Domenici (2006) catalogued a number of beliefs and automatic thoughts that many veterans reported after returning home. These are reprinted verbatim below:

Common views on self-worth (p. 136):

- I don’t deserve love from my family any more
- I’m incompetent because I didn’t save my buddies
- I failed at war
- I am a bad person for the things I did at war
- I’m not worthy of anybody’s care
- I’m weak for asking for help
- I’m useless, now that I have a physical disability
- If I told you what I did when I served, you would hate me

About relationships (p. 137):

- I can't relate to my civilian friends anymore
- I'd rather be by myself than with my family
- I feel like an outsider even in my own home
- I think something is wrong with me because I don't have any feelings for people I used to care for
- Others will die on me like my military friends, so why should I bother getting close?

About meaning and purpose (p. 138):

- Nothing matters, now that I'm home
- My responsibilities here are nothing compared to those I had in the military
- I don't have any purpose or motivation for living
- I'm not sure the war was worth it
- What is going on here in the US is trivial compared to what's going on in Iraq
- The only satisfaction I get these days is following the news so I can hear how my buddies are doing
- Civilian life is boring and meaningless

About spirituality and faith (pp. 138-139):

- I no longer have faith that God exists
- My higher power betrayed me
- I'm too bad to be loved by a higher power
- How could there be a God, given what I've seen?
- God can't protect anybody
- God isn't fair



## Finding Balance

# 4. Post-deployment Stress Effects

The brain in trauma has lost its ability to distinguish past from present, and as a result it cannot adapt to the future. This confusion of time further immobilizes the trauma victim, who still remains immobilized by a thwarted freeze discharge. Procedural memory is bombarded by environmental and internal cues that represent old, unresolved threat. Declarative memory is assaulted by intrusive thoughts, memories, and dreams that repetitively warn the person of potential danger. Furthermore, the constant activation of brain circuitry related to threat alters and suppresses structure and function in the verbal and thinking brain. Trauma indeed is a state of imprisonment.

—Robert Scaer (*The Trauma Spectrum: Hidden Wounds and Human Resiliency*, p. 58)

This chapter addresses some of the ways in which the human stress and survival system responds to life in the war zone, and its effects on men and women who have served in Iraq and Afghanistan.

The roots of post-deployment stress effects are physical, powerful, and automatic. The systems that react to stress and threat live in all of us. These reactions live on a continuum, from mild to severe, with many resilience and vulnerability factors placing us at different points on that continuum. We can recognize some of these factors, but others we may never know.

In Service Members' reactions to the stress of deployment, none of their vulnerability factors has anything to do with how smart they are, how strong or brave they are, how committed they are to their mission, or how much they love their country. Unfortunately, this is something that many Service Members and veterans do not know—or may know intellectually but still doubt on deeper levels.

We all have within us the strength to overcome many of the effects of traumatic stress, and to learn to manage the others. And we have within our reach all the resources we need to learn how to do this. The first step is to gain a basic understanding of these effects.

This chapter addresses:

- The Biology of War-Zone Stress Effects
- The Onset of War-Zone Stress Effects
  - DSM-IV Diagnostic Criteria for Acute Stress Disorder
  - DSMIV Diagnostic Criteria for Posttraumatic Stress Disorder
- The Variety of War-Zone Stress Effects
- Posttraumatic Stress Disorder
- Substance Use Disorders
- Depressive Disorders
- Complex PTSD or DESNOS
- Somatic Effects
- Co-Occurring Traumatic Brain Injuries

## The Biology of War-Zone Stress Effects

In *Odysseus in America: Combat Trauma and the Trials of Homecoming*, Jonathan Shay wrote that “The symptoms caused by psychological injury that the American Psychiatric Association calls PTSD in its *Diagnostic and Statistical Manual of Mental Disorders* (DSM) can be understood in one clear and simple concept: persistence of *valid adaptations to danger* into a time of safety afterward” (Shay, 2002, p. 149).

In the war zone, the Service Member’s body and brain adapt to danger, remaining on high alert night and day, even when no attack is taking place. As more than one veteran has said in interviews and presentations, “Even when it’s safe, it’s not safe.” The amygdala is in its element, issuing a standing order for the body’s stress systems to pump out sympathetic (“fight or flight”) and parasympathetic (“shut down, numb out, freeze”) chemicals.

Both “real-time” experience and the frequent triggering of the amygdala’s stored fragments of intense memory set off or “kindle” powerful sympathetic chemical reactions, which burn the message of threat into the brain, over and over again. The more intense this process grows, the more it can seal the amygdala’s emotional memory fragments—sights, sounds, smells, feelings—into the unconscious. And the



more anxiety and insomnia this produces, the stronger the urges may be to seek sedation in alcohol, depressants, or marijuana.

On the parasympathetic side, these chemicals can:

- Shut down and “numb off” important emotions
- Create a sense of unreality, separation, and alienation
- Keep the hippocampus from storing conscious memories of intense experiences, including traumatic events
- Create patterns of avoiding any thoughts, feelings, or situations that might set off the chemical stress responses
- Create an overpowering desire for substances that will provide any sort of stimulation or mood elevation

However, at least one parasympathetic chemical, gamma-aminobutyric acid (GABA), may protect people from developing chronic PTSD and help them recover from trauma (Vaiva et al., 2006).

Many service members and veterans have used the metaphor of having “one foot on the gas and the other on the brake.” This makes perfect sense in light of the amygdala’s tendency to trigger and sustain overloads of both the sympathetic and the parasympathetic chemicals.

Of course, these basic survival-related processes and chemical reactions by no means constitute the whole picture. Researchers will probably never even be able to describe, much less to quantify, the role of the many other overwhelmingly powerful emotions of war—exhilaration, satisfaction, love of comrades, love of the mission, empathy, rage, grief, and guilt, to name a few.

To what extent these emotions may “feed into” the human stress system cannot be measured as long as everything is happening all at once, with threats to the organism’s survival living in the same body as the natural and intense responses of the mind, the heart, and the spirit. For example, if you were collecting human remains from a roadside blast, how would your anger, grief, and other emotions mix in with your body’s natural revulsion to death—and the role of this experience in triggering the amygdala’s survival responses? And how would your experience change if your body had developed a lifelong habit of pumping high levels of sympathetic “fight-or-flight” chemicals, numbing parasympathetic chemicals, or both?

A number of things—bonding within the Unit, inspiring leadership, opportunities to talk about experiences, trips away from the war zone where they can “rest and reset”—can in some cases help slow down some of the runaway chemical processes. But intense experiences, vulnerable stress systems, and the many powerful effects of long-term exposure to the war zone can still overwhelm all these mitigating factors.

## The Onset of War-Zone Stress Effects

Depending on their experiences and their bodies' responses to stress, some Service Members begin to experience symptoms of anxiety, depression, acute stress reactions, and/or acute stress disorder (ASD) in the theater of war. ASD appears within four weeks of traumatic experience and includes clinically significant distress or the impairment of one's ability to pursue necessary tasks. If the ASD symptoms do not resolve within a four-week period, they meet the criteria for a diagnosis of posttraumatic stress disorder (PTSD).

And depending largely on levels of shame and stigma toward combat stress reactions—stigma embraced by the Service Member and/or the Unit—they may or may not speak of, or even admit to themselves, their acute stress reactions. If they do speak or show their symptoms, they set in motion the multi-level military responses to these symptoms described under “Care for War-Zone Stress in the Theatre of War.” If they do not receive help, their risk of developing posttraumatic stress disorder (PTSD) is increased (VA, 2004).

In other Service Members, as long as they remain in the war zone, the constant rush of stress chemicals creates a sort of false equilibrium—a bit like the forces in the old cartoon that kept the Road Runner afloat until he realized he had run off the cliff and the earth was a long way below him. This relentless state of “hypervigilance” may continue to burden and compromise the Service Member's stress systems more and more, but in some cases it may also delay formation of acute and post-trauma symptoms. For those who choose to “self-medicate” these symptoms, alcohol is also readily available in Iraq, though a standing order prohibits the use of any alcohol or illegal drugs in deployed environments (VA, 2004).

It is after they leave the war zone—with no more constant surge of stress chemicals to “keep them afloat”—that many Service Members and veterans first experience their worst combat stress injuries or post-traumatic stress effects. Depending on their chemical reactions to stress, their experiences in and after the war zone, and the levels of support around them, it might take weeks, months, or even years for the symptoms of post-deployment effects to surface. There may not be enough time between deployments for these symptoms to emerge, or the symptoms may emerge among people who are about to be redeployed. Depending on symptom severity and manageability, and on many decision-making processes, redeployment may or may not take place.

If the diagnosis is PTSD and symptoms last less than three months, it is considered “acute” PTSD. If it lasts three months or more, it is considered “chronic.” If symptoms do not begin until at least six months after the experience of trauma, PTSD is considered to have “delayed onset” (APA, 1994).

In the *Iraq War Clinician Guide*, the Department of Veterans Affairs wrote:

“The chronic phase of adjustment to war is well-known to VA clinicians; it is the burden of war manifested across the life-span. It is important to note that psychosocial adaptation to war, over time, is not linear and continuous. For example, most soldiers are not debilitated in the immediate impact of days, but they are nevertheless at risk for chronic mental health problems implicated by experiences during battle. Also, although ASD is an excellent predictor for chronic PTSD, it is not a necessary precondition for chronic impairment—there is sufficient evidence to support the notion of delayed PTSD. Furthermore, the majority of people who develop PTSD did not meet the full diagnostic criteria for ASD beforehand. It is also important to appreciate that psychosocial and psychiatric disturbance implicated by war-zone exposure waxes and wanes across the life-span (e.g., relative to life-demands, exposure to critical reminders of war experiences, etc.)” (VA, 2004, pp. 23-24).

## The Variety of War-Zone Stress Effects

In public and professional discussions, there is a strong temptation to categorize all post-deployment stress effects as posttraumatic stress disorder (PTSD), or to consider diagnosable PTSD the only clinical challenge worth discussing. Both of these temptations are dangerous, because they:

- Apply diagnostic labels in some situations that would be better served by individual human descriptions of individual human experience
- Increase the stigma by over-pathologizing reactions that may be milder, or may simply be different
- Minimize the importance of serious conditions such as anxiety disorders and depressive disorders
- Ignore a number of other serious conditions, such as complex PTSD or DESNOS (Disorders of Extreme Stress Not Otherwise Specified), that deserve attention and treatment
- Ignore the synergistic effects of combining post-deployment stress responses with other physical injuries, especially traumatic brain injuries (TBI) and the mild TBI so often caused by blast concussion

## DSM-IV Diagnostic Criteria for Acute Stress Disorder

- A. The person has been exposed to a traumatic event in which both of the following were present:
- (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
  - (2) the person's response involved intense fear, helplessness, or horror. **Note:** In children, this may be expressed instead by disorganized or agitated behavior.
- B. Either while experiencing or after experiencing the distressing event, the individual has three (or more) of the following dissociative symptoms:
- (1) a subjective sense of numbing, detachment, or absence of emotional responsiveness
  - (2) a reduction in awareness of his or her surroundings (e.g., "being in a daze")
  - (3) derealization
  - (4) depersonalization
  - (5) dissociative amnesia (i.e., inability to recall an important aspect of the trauma)
- C. The traumatic event is persistently reexperienced in at least one of the following ways: recurrent images, thoughts, dreams, illusions, flashback episodes, or a sense of reliving the experience; or distress on exposure to reminders of the traumatic event.
- D. Marked avoidance of stimuli that arouse recollections of the trauma (e.g., thoughts, feelings, conversations, activities, places, people).
- E. Marked symptoms of anxiety or increased arousal (e.g., difficulty sleeping, irritability, poor concentration, hypervigilance, exaggerated startle response, motor restlessness).
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or in: the individual's ability to pursue some necessary task, such as obtaining necessary assistance or mobilizing personal resources by telling family members about the traumatic experience.
- E. The disturbance lasts for a minimum of 2 days and a maximum of 4 weeks and occurs within 4 weeks of the traumatic event.
- F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition, is not better accounted for by Brief Psychotic Disorder, and is not merely an exacerbation of a preexisting Axis I or Axis II disorder.

**Source:** American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Washington, DC: American Psychiatric Association.

“Even among those veterans who will need psychological services post-deployment, ASD and PTSD represent only two of a myriad of psychological presentations that are likely. Veterans of the Iraq war are likely to have been exposed to a wide variety of war-zone related stressors that can impact psychological functioning in a number of ways” (VA, 2004, p. 32).

This chapter cannot do justice to the array of combat stress injuries and effects, but a number of conditions deserve at least brief mention as direct effects of the chemical processes discussed in the chapter on resilience and vulnerability to stress. These include:

- Posttraumatic stress disorder
- Substance use disorders (SUD), including substance abuse and substance dependence
- Depressive disorders
- Complex PTSD, Developmental Trauma, or DESNOS
- Somatic effects of stress and trauma
- Traumatic brain injuries

What is the role of emotion in post-deployment stress effects? Opinions range from the traditional misconception that these disorders are merely “emotional problems” to a dismissal of the emotional experience in favor of the mechanics of the body’s survival systems. Certainly the post-deployment physical processes and chemical reactions in the brain are fueling and adding great force to the natural human emotions that people bring home from the war zone.

It may also be necessary to acknowledge that the emotions themselves interact with those physical processes in ways that we do not have the means to map out or measure. For example, some studies of Vietnam veterans have associated higher levels of guilt with stronger PTSD symptoms and suicidal tendencies (Hendin and Haas, 1992; Kubany et al., 2005; Henning and Frueh, 1997). Perhaps the best one can hope to do is to respect all the roles of body, mind, and spirit—and all the things about them that we do not know.

And our most important task—as always—is to keep in mind the strengths, resources, and resiliencies of the individual human beings who struggle with these effects, and the reality of recovery and a return to balance.

## Posttraumatic Stress Disorder

When we remember the brain's and body's chemical reactions to stress and threat, the symptoms of PTSD make perfect sense:

- Hyperarousal, hypervigilance, irritability, difficulty concentrating, and difficulty sleeping are all natural functions of a sympathetic stress system that has learned to stay on alert and in “overdrive,” even when there is no immediate sign of threat (LeDoux, 1996).
- Exaggerated startle responses, the “kindling” of strong emotional reactions under minimal stress, inappropriate anger, and rage all seem absolutely necessary to an amygdala that considers itself always in danger and responsible for protection against all threats, seen and unseen (LeDoux, 1996).
- Intrusive memories, nightmares, and flashbacks (experiencing the traumatic event as if it is happening now) are the amygdala's unconscious memory fragments jumping to the surface. At first they may be triggered by sights, sounds, smells, emotions, etc. that remind the primitive amygdala of its own “memory bites.” But over time, they may not need any outside triggers, as the stress system itself becomes a trigger (van der Kolk, 1994).
- Loss of conscious memory of intense past experiences, and problems forming new memories in the present, are natural results of the ways in which the dissociative parasympathetic chemicals (particularly cortisol and endorphins) interfere with the ability of the hippocampus to store and retrieve conscious memories (van der Kolk, 1994).
- The senses of numbing, detachment, shutting down, boredom, loss of hope, loss of energy, and loss of motivation are also functions of the high levels of parasympathetic “slow down, numb out” chemicals (van der Kolk and Fisler, 1995).
- Avoidance of things that remind one of the trauma is both a function of the high levels of parasympathetic chemicals and a logical response to the fact that these things are likely to trigger challenging sympathetic chemical reactions (van der Kolk and Fisler, 1995).

Commonly reported sleep disturbances among people with PTSD include trouble falling asleep, restless sleep, thrashing around, frequent awakening (with trouble falling back asleep), short duration of sleep, daytime fatigue, night terrors (screaming or shaking during sleep), and nightmares and anxiety dreams. Level of combat exposure has also been associated with the frequency of nightmares and mildly associated with difficulty falling asleep (Pillar, Malhotra, and Lavie, 2000).

## DSM-IV Diagnostic Criteria for Posttraumatic Stress Disorder

- A. The person has been exposed to a traumatic event in which both of the following were present:
  - (3) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
  - (4) the person's response involved intense fear, helplessness, or horror. **Note:** In children, this may be expressed instead by disorganized or agitated behavior.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
  - (6) recurrent and intrusive distressing recollection of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed
  - (7) recurrent distressing dreams of the event. **Note:** In children, these may be frightening dreams without recognizable content.
  - (8) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). **Note:** In young children, trauma-specific reenactment may occur
  - (9) Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
  - (10) Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
  - (1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
  - (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
  - (3) inability to recall an important aspect of the trauma
  - (4) markedly diminished interest or participation in significant activities
  - (5) feeling of detachment or estrangement from others
  - (6) restricted range of affect (e.g., unable to have loving feelings)
  - (7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
- D. Persistent symptoms of increased arousal (not present before the trauma, as indicated by two (or more) of the following):
  - (1) difficulty falling or staying asleep
  - (2) irritability or outbursts of anger
  - (3) difficulty concentrating
  - (4) hypervigilance
  - (5) exaggerated startle response
- E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

**Source:** American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association.



These effects are all products of learning processes that were associated with survival, and so have become “hard wired” into the brain. The orbitofrontal cortex can learn to calm, soothe, reason with, and “turn off” some of these functions—and can learn to understand, accept, and manage the rest (Siegal, 1999). But it is not simply a question of realizing one is wrong and making a decision not to have these symptoms. It takes work, support, and time to “re-program” the stress systems.

## Substance Use Disorders

In a study of veterans presenting with “mental health issues,” Danforth (2007) found that more than 60 percent may also have substance use disorders (SUD) (substance abuse or substance dependence).

People with co-occurring SUDs and PTSD tend to have been exposed to more severe trauma and may have more serious PTSD symptoms in several categories (e.g., avoidance, arousal, sleep problems) (Saladin et al., 1995). The presence of PTSD also makes recovery from SUDs more difficult (VA, 2004; Driessen et al., 2008). For example, people with PTSD who are also dependent on alcohol or cocaine are far more likely to use those substances in unpleasant situations than are people who have PTSD alone, and people with cocaine dependence and PTSD are more likely to use even under pleasant situations (Waldrop et al., 2007).

The use or abuse of alcohol or other drugs may in many cases seem like a logical way to self-medicate the pain of post-deployment stress effects, if appropriate professional services are unavailable, or if professionally prescribed medications bring unacceptable side effects (Lighthall, 2008). Alcohol is also easily accessible in Iraq (VA, 2004) and a time-honored element of the military tradition.

Even if Service Members refrained from drinking alcohol or using drugs in the war zone, they may return to previous drinking or drug-use patterns after their return to the United States, to cope with stress-related problems or manage traumatic stress reactions. The presence of PTSD may also complicate their efforts to recover from substance-related problems (VA, 2004).

On a Public Broadcasting Service special called “The Soldier’s Heart,” one veteran described his substance use as a way of continuing the (parasympathetic) numbing process that had begun during deployment in Iraq. “Two months after coming back, it all started hitting me. Being numb over there, you come home, you can’t be numb anymore. So you numb yourself with something.”

Substance use and abuse are in many ways misguided attempts to balance the brain's chemistry (Scaer et al., 2008; Gaty, 2008a). Given the variety in the body's chemical reactions to stress and trauma, it makes sense that different people would choose different substances. For example:

- Alcohol, tranquilizers, sedatives, and marijuana all serve to slow down a body and brain left sleepless and “in overdrive” by an overload of sympathetic stress chemicals.
- Cocaine, methamphetamine, caffeine, and compulsive gambling are often attractive to people whose bodies have overreacted with the numbing, deadening, depressing parasympathetic chemicals, because all these drugs increase levels of adrenaline and dopamine.
- People whose bodies responded to the war zone with high levels of dopamine may feel particularly “let down” after they leave the field of battle, and gravitate toward chemicals and activities that increase dopamine levels.
- People whose bodies responded to war-zone experiences with high levels of the natural opioid pain killers called endorphins may be drawn to heroin and prescription pain relievers when their natural chemicals subside after demobilization.
- The severity of many Service Members' and veterans' injuries has also led to the prescription of opioid pain relievers, with the high risk and reality of dependence that often follows this use.

The tendency of stress and trauma to decrease the availability of serotonin in the brain further complicates these circumstances. Not only do lower levels of serotonin contribute to depression (Neumeister, Young, and Stastny, 2004) and PTSD (Lee et al., 2005; Zalsman et al., 2006; Barr et al., 2004; Gelernter, Pakstis, and Kidd, 1995), but they also might make it more difficult to control impulses, including the impulse to drink or use drugs.

One complicating factor is the presence of traumatic brain and spinal cord injuries in so many veterans. Good and colleagues (2008) found that young men who have been socialized with strong masculine ideas and values—as many young male Service Members tend to be—have special challenges if they receive these or other serious injuries. They become more vulnerable to a number of risk-taking behaviors, including the misuse of alcohol, and less likely to seek or accept help (Good et al., 2008).

The presence of a traumatic brain injury can provide further complication. Depending on the location and severity of the injury, it can increase impulsivity and/or decrease tolerance toward alcohol and other drugs (Rehabilitation Institute of Chicago, 1993).

## Depressive Disorders

Depression is a common post-deployment stress effect, and one that often accompanies other post-traumatic effects and substance use disorders. Of the people treated for posttraumatic stress disorder (PTSD), 48% receive a co-occurring diagnosis of depression (Shumake and Gonzalez-Lima, 2003).

Like PTSD and SUDs, depression also reflects challenges in many of the brain structures (e.g., orbitofrontal cortex, anterior cingulate gyrus, insular cortex, hippocampus, amygdala) and chemicals (e.g., dopamine, serotonin, norepinephrine, cortisol) that work to regulate stress responses. There are three types of major depression (APA, 1994):

- *Melancholic Depression* includes a loss of pleasure in most or all activities (called “anhedonia”), an inability to respond to pleasurable stimuli, sadness deeper than that of grief or loss, trouble with sleep, and weight loss. Low levels of dopamine often contribute to the loss of pleasure in melancholic depression.
- *Atypical Depression* is, ironically, the most common type, and includes weight gain or increased appetite, excessive sleep, a feeling of leaden paralysis, and hypersensitivity to perceived rejection by others. High levels of cortisol contribute to the weight gain, increased appetite, and loss of energy in atypical depression. Unlike people with melancholic depression, people with atypical depression can feel pleasure.
- *Depression With Psychotic Features* also includes delusions or (less often) hallucinations that may be consistent with the major themes of the depression.

The larger category of depressive disorders includes both the unipolar depressive disorders (depressive episodes only) and bipolar disorders that involve both depressive episodes and manic episodes (with elevated, or irritable mood, sleeplessness, compulsive speech, distractibility, agitation, etc.).

A number of features of depression make sense as effects of prolonged or intense stress, including:

- Difficulty regulating moods, often due to lower levels of serotonin (Neumeister, Young, and Stastny, 2004)
- Difficulty experiencing pleasure, often due to lower levels of dopamine (Schumake and Gonzalez-Lima, 2003)
- In some women and some people with atypical depression, more extreme responses to stress (e.g., weight gain, prolonged sleep, unstable emotions), possibly due to higher levels of cortisol (Schumake and Gonzalez-Lima, 2003)

- Longer processing of negative and stressful experiences in the prefrontal cortex (Davidson, Pizzagalli, Nitschke, and Putnam, 2002)
- A failure of the anterior cingulate gyrus to call on the prefrontal cortex and other regions for help in resolving the conflicts it perceives in the brain (Davidson, Pizzagalli, Nitschke, and Putnam, 2002)
- Heightened perception of danger and unpleasant experiences, and greater access to unpleasant memories, in the amygdala (Davidson, Pizzagalli, Nitschke, and Putnam, 2002)
- Levels of emotion that are out of context with the outside world, often due to problems with the perception and memory of positive and negative experiences in the hippocampus (Davidson, Pizzagalli, Nitschke, and Putnam, 2002)

### Complex PTSD, Developmental Trauma, or DESNOS

Experts in the fields of trauma and human development have identified clusters of symptoms that some call “complex trauma” (Herman, 1992) or “disorders of extreme stress not otherwise specified” (DESNOS) (Ford, 1999; Luxenberg, Spinazzola, and van der Kolk, 2001). These disorders include symptoms that extend beyond the diagnosis of PTSD into a category that includes complex, interrelated problems that interfere with the fundamental ability to trust (van der Kolk and Pelcovitz, 1999).

Ford (1999) described the concept of DESNOS as one that offers a framework for understanding and a clinical framework for assessing several effects often experienced by survivors of extreme trauma:

- Extreme difficulty regulating feelings and impulses (e.g., rage, suicidality, self-destructiveness, uncontrolled sexual activity)
- Dissociative symptoms that cause so many problems as to qualify for the term “pathological”
- Somatic or physical symptoms
- Alexithymia (difficulty understanding, processing, or expressing emotions)
- “...fundamentally altered beliefs concerning self and relationships” (Ford, 1999, p. 3).

According to Ford and Kidd, DESNOS develops when extreme trauma “compromises the fundamental sense of self and relational trust at critical developmental periods.” In studying a sample of veterans in treatment for chronic posttraumatic stress disorder, Ford and Kidd found that a history of early childhood trauma was “prevalent and highly correlated with Disorders of Extreme Stress Not Otherwise Specified” (Ford and Kidd,

1998, p. 743). They also found that veterans who were survivors of childhood trauma tended to have stronger intrusive PTSD symptoms; more problems controlling emotions (rage, shame) and impulses (self-harm, risk taking); more difficulty with relationships (intimacy, trust, assertive communication), self-efficacy, and self-esteem; and pathological dissociation (Ford and Kidd, 1998).

Those who are familiar with the diagnosis of “borderline personality disorder” (APA, 1994) will recognize many elements of that diagnosis in this condition. In many circles, the terms “complex trauma” and “DESNOS” have replaced “borderline,” though the official name of the diagnosis has not changed.

In a world that also includes the full spectrum of childhood and developmental experiences, an understanding of the ways in which severe traumatic experiences interact with developmental factors is essential for understanding post-deployment stress effects. This is not to say that veterans who develop DESNOS after service actually had these disorders before service due to their childhood experiences. No matter what the level of vulnerability might be, the disorder begins when the disorder begins, and that might even be long after deployment and years of conventional PTSD symptoms. But an understanding of DESNOS is an important element in shaping treatment responses for people who present with these more complex challenges.

## Somatic Effects

It is difficult to believe that the stress system itself would be the only portion of the body to bear the impact of war-zone trauma. Researchers are finding a number of somatic effects—seemingly unrelated diseases and symptoms—that seem to occur more frequently in people who have been exposed to traumatic stress. In one study, female veterans who screened positive for PTSD also reported more physical health challenges, including obesity, smoking, irritable bowel syndrome, fibromyalgia, chronic pelvic pain, polycystic ovarian disease, asthma, cervical cancer, and stroke (SoRelle, 2004).

Some veterans, after spending months or years in a constant high-adrenaline fight-or-flight state, find their bodies exhausted and unable to summon enough adrenaline to feel excited or respond appropriately to present-day stress. Hypoadrenia is the name for a mild or partial form of Addison’s disease, which includes an underproduction of adrenaline and an overproduction of cortisol, after the adrenal gland has been overused in response to stress and threat. Some effects of this condition include lack of energy and motivation, low levels of both adrenaline and cortisol, hypoglycemia, weakness, confusion, insomnia, dizziness. People with moderate levels of hypoadrenia might become adrenaline junkies, taking risks in order to get any arousal (Tattersall, 1999).

Scaer (2005) divides the somatic effects of trauma into five categories, based on the physical characteristics of the body's response to stress and trauma:

- **Diseases of abnormal autonomic regulation**, the results of having the sympathetic and parasympathetic chemicals surge and clash during hyperarousal, dissociation, and the freeze response. These include diseases of fatigue and weakness (e.g., fibromyalgia and chronic fatigue syndrome), diseases that reflect hyperactive digestive processes (e.g., irritable bowel syndrome, gastroesophageal reflux disease), mitral valve prolapse, and migraine headaches (which have sympathetic and parasympathetic phases, first constricting then dilating the blood vessels in the head and the brain)
- **Syndromes of procedural memory**, in which numbness, spasms, clumsiness, pain, tics, tremors, twitches, dizziness, or other somatic symptoms are often misinterpreted as “psychosomatic” problems, but they actually represent physical changes in the brain areas that stored the traumatic experience in procedural memory
- **Diseases of somatic dissociation**, which may be characterized by pain, numbness, tingling, or a feeling of “differentness” in a region or regions of the body that may have received inadequate blood flow and oxygen during traumatic experiences
- **Disorders of endocrine and immune system regulation** (e.g., hyperthyroidism—chronic overactivity of the thyroid gland—increased vulnerability to diabetes, and increased vulnerability to autoimmune diseases such as lupus or multiple sclerosis), direct results of the involvement of these systems in the body's sympathetic and parasympathetic responses to stress and threat
- **Disorders of cognition and sleep**, including attention deficit/hyperactivity disorder (which is characterized by impaired control by the prefrontal cortex and tends to appear more often in people who have been exposed to trauma), sleep-disordered breathing, sleep apnea, and increased vulnerability to narcolepsy (a complex disorder that disturbs night-time sleep and compels sleep during the day)

One cluster of somatic symptoms is captured under the term “somatoform dissociation,” which refers to the condition traditionally labeled “conversion disorder” or “conversion hysteria.” Its symptoms include a lack of awareness or control of movement or sensation. van der Hart and colleagues (2000) describe somatoform dissociation as “a lack of the normal integration of sensorimotor components of experience, e.g., hearing, seeing, feeling speaking, moving, etc.” (van der Hart et al., 2000, p. 33).



## Co-Occurring Traumatic Brain Injuries

Advanced forms of body armor and better immediate care are saving many lives that would have been lost in earlier conflicts. However, if a Service Member is anywhere near an explosion (e.g., in the vehicle behind the vehicle that was destroyed by the blast), even body armor cannot provide much protection against “blast overpressure,” the wave of noise and change in air pressure that follows an explosion. Blast overpressure often damages the auditory system and other organs (particularly hollow organs such as the lungs and digestive system) (Zitnay, 2007).

The consistency of the brain is similar to that of soft butter, and the skull has many ridges (Amen, 2008). The impact of the head against the helmet, and the brain against the skull, can be very damaging. For the Service Member who is busy comparing his lot with that of his buddies who died in the blast, the injury may go unreported and untreated (Lighthall, 2008). In 2005, there were an average of 30 IED attacks a day in Iraq (Zitnay, 2007), and the number is increasing in Afghanistan.

About 75 percent of brain injuries are mild, and 25 percent moderate to severe (Zitnay, 2007). According to former Army Psychiatric Nurse Alison Lighthall, it is likely that the clinician treating veterans will see quite a few who have traumatic brain injuries (TBI) or mild TBI and are unaware of these injuries—or confuse their symptoms with those of PTSD (Lighthall, 2008). Even mild TBI is strongly associated with PTSD and physical health problems 3-4 months after Service Members return home, though TBI may not be the primary driver of PTSD (Hoge et al., 2008).

“Postconcussion syndrome” (PCS) is a term used to describe a collection of somatic, behavioral, memory, and affective symptoms, a syndrome most often associated with mild TBI. However, one study would indicate that postconcussion syndrome is linked with post-trauma effects as often as it is linked with TBI. In that study, PCS was diagnosed in 43 percent of TBI patients, and in 44 percent of controls who had experienced trauma but no brain injury” (Meares et al., 2007).

Given the violence with which many Service Members’ heads hit their helmets if they are anywhere near an exploding IED, it is not surprising that the experience of concussion—combined with exposure to the general carnage that can follow an IED blast—is often in itself traumatic. Many of the symptoms associated with postconcussion syndrome are also identical to symptoms of PTSD. Symptoms of TBI (Tanielian and Jaycox, 2008) may include:

- Constant headache
- Confusion
- Light headedness or dizziness
- Changes in mood or behavior



## Traumatic Brain Injury: Effects and Suggestions

**Attention:** Effects include difficulties in maintaining attention, shifting attention from one activity to another, suppressing one's own preoccupations, and screening out distractions.

*Suggestions:* Keep sessions short and focused. Cue people when they seem stuck on prior topics or have lost the topic. Gradually lengthen the amount of time as abilities permit. Make eye contact frequently to maintain attention. Make learning fun. Make sure the environment has few distractions.

**Memory:** Short-term memory problems are common among people with brain injuries. Holding onto several pieces of information while thinking through each item may be difficult. Other common problems include remembering to complete tasks at specific times and recalling recent experiences. The memory of pre-traumatic events is often intact after the initial stages of rehabilitation.

*Suggestions:* Preview and review information. Use consistent terminology and presentation format. Present material in a way that makes previously presented information easy to recall. Speak concisely. Include in each session some material that was covered in the previous session. Use overheads and flip charts. Print rather than write. Use pictures and symbols for non-readers. Ask participants to use "memory books" or other notebooks during sessions. Point out information they might want to record. Help participants make note cards or signs to cue thoughts and actions. These signs can be placed in conspicuous spots in their rooms. Participants can choose the phrases to be used, then design and make the signs. Make audiotapes or videotapes of sessions for participants.

**Language:** Often people with brain injuries lose the ability to express ideas or to understand others. Many cannot quickly find the words to express themselves. They may have lost the ability to speak, or may speak in a disorganized fashion. People with cognitive disabilities are often uncomfortable speaking or reading in front of groups.

*Suggestions:* Speak slowly and clearly, but do not exaggerate inflection. Use concrete terms. Teach the meaning of new words before using them. Use age-appropriate words: Treat adults like adults. Encourage people to ask questions. If you are not sure they understand, ask questions to check comprehension. When you ask questions, begin with those that require short answers. Create an atmosphere where people are comfortable refusing to comment or read aloud. Be patient and encouraging when they need time to express their point. Do not pretend to understand if you cannot follow a person's comment. If you think you understand, ask "Do I have this right?" and paraphrase what they have said.

**Reasoning and Judgment:** Brain injury often reduces the ability to make inferences. Thinking may be concrete, so that idioms and humor are interpreted incorrectly. This may lead to confusion and misinterpretation. Impulsivity may limit the ability to work on problems. People may find it difficult to picture the consequences of their acts. They will need help in distinguishing appropriate from inappropriate behavior, and some basis for reflecting on the propriety of what they have said or done.

*Suggestions:* Use simple, concrete terms. Avoid idioms and subtleties. Be clear and direct. Use problem-solving exercises that reflect the situations in which participants encounter "cues" for drinking or drug use. Role-play exercises and discussion of scenarios can be helpful. Avoid confronting people with brain injuries about their substance use, particularly in groups. Build decision-making skills by identifying and weighing short- and long-term consequences of actions. Encourage people to postpone decisions until they have more facts. Reply to their assertions in a concrete, non-judgmental way. Encourage people to read instructions and use cue-cards to strengthen reasoning skills. For example:

- Stop and think.
- What is the problem?
- What can I do to solve the problem?
- Which is the best solution?

**Emotions:** Emotional problems after brain injury can include irritability, frustration, dependence on others, insensitivity, inflexibility, anxiety when confronted, lack of awareness of one's impact on others, overreacting to stress, and heightened emotionality.

*Suggestions:* Try to understand what the person may be experiencing. Keep a non-threatening, non-judgmental attitude and approach. Be positive in giving directions. Make sure non-verbal messages do not contradict verbal messages. Meet resistance with empathy and reflection, rather than confrontation.

**This material is reprinted from *Alcohol and Other Drug Abuse Prevention for People With Traumatic Brain and Spinal Cord Injuries*. Published by the Rehabilitation Institute of Chicago and the Illinois Prevention Resource Center, 1993.**

- Repeated nausea or vomiting
- Problems with seeing or hearing

One challenge in diagnosis is that traditional scanning equipment (e.g., MRIs and CT scans) does not always capture the data needed to explain the deficits that people with TBI—particularly those with mild TBI—experience. However, in two studies, investigators found that, using even older machines such as quantitative MRI and diffusion tensor imaging (DTI) tractography equipment, they were able to capture vital information that traditional CTs and MRIs would not have caught (Levine et al., 2008; Wilde et al., 2008).

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**This is the end of Study Guide 2, Course 5K. You must pass both quizzes for this course, and also complete and submit the Feedback Form, before you can download your certificate.**

**If you wish to know more on this subject, you may wish to enroll in Course 5L, which is Part 2 of the Federally funded publication 'Finding Balance After the War Zone - Considerations in the Treatment of Post-Deployment Stress Effects'.  
Course 5L focuses upon the following:**

**Chapter 5. Preparing to Work With Service Members and Veterans**

**Chapter 6. Important Considerations in Treatment Delivery**

**Chapter 7. Choosing Trauma Treatment Practices**

**Chapter 8. Ideas for Recovery, Re-Balancing, and Self-Care**

**NOTE: There are references which you may wish to consult beginning on the next page, and also some internet URLs for good resource materials on the last page.**

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## Finding Balance

# References and Other Resources

The following pages contain:

- A list of References
- A beginning list of books beyond these references that might be useful to people who want more information on veterans, post-deployment stress effects, the neuroscience of stress and trauma, or the treatment of trauma
- A few web-based resources that offer more information on these subjects

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### A Few Resource Web Sites

For information and free HTML texts of scholarly articles on trauma and post-trauma effects, David Baldwin's Trauma Pages is a valuable resource.

The VA's National Center for Posttraumatic Stress Disorder has a wide range of materials for clinicians, veterans, and families on its web site, <http://www.ncptsd.va.gov/ncmain/index.jsp>. (This site also has materials relevant to disasters and other sources of extreme stress.)

You can download a PDF file of the Second Edition of the VA's *Iraq War Clinician Guide* (VA, 2004) at [http://www.psychceu.com/war/iraq\\_clinician\\_guide\\_v2.pdf](http://www.psychceu.com/war/iraq_clinician_guide_v2.pdf)

You can download the Rand Corporation report, *Invisible Wounds of War* (Tanielian and Jaycox, 2008) and accompanying materials for veterans and families at <http://www.rand.org/multi/military/veterans/>

You can download the Expert Consensus Guidelines on the Treatment of PTSD from the *Journal of Clinical Psychiatry* (Foa, Davidson, and Frances, 1999) from <http://www.psychguides.com/ptsdgl.pdf>

You can get ongoing information and news updates by subscribing to *PTSD Combat: Winning the War Within*, the free e-journal at <http://www.ptsdcombat.blogspot.com/>.

Alison Lighthall's "Hand 2 Hand Contact" web site has a number of valuable resources and links, at <http://www.hand2handcontact.org/>