





ESCAPING THE GRIP OF PTSD

BY MATTHEW C. WIENCKE

For many military veterans, and many civilians as well, the most difficult part of surviving serious trauma comes after the trauma itself. Matthew Friedman and Paula Schnurr, professors of psychiatry at Geisel, have helped advance the treatment of post-traumatic stress disorder through their research and their leadership of the National Center for PTSD, based in White River Junction, Vt.

The sun beat down on James “Moe” Armstrong, baking him and his patrol in 120-degree heat. Armstrong knew he could save the life of the man on the ground in front of him if he worked quickly. Just minutes earlier, he and the fellow members of his U.S. Marine patrol had been in a firefight with North Vietnamese soldiers. Two North Vietnamese soldiers had been killed, and now Armstrong—a medical corpsman with the Marines—was putting bandages on a third to try to save his life.

When he volunteered in 1965, Armstrong thought that serving in Vietnam would make him a new person and help fulfill his dream of becoming a writer. “I believed that military service and the war would temper my hyperactive mind,” he later wrote. “I would settle down and be ready to learn and grow. I would go to college. I wanted to be an officer in the Marine Corps.”

But the war proved to be a tough grind. He had been on more than 20 combat patrols and was in a state of constant exhaustion. And on the day he tried to save the North Vietnamese soldier, Armstrong lost his dreams of a new life.

Armstrong turned to his captain. “Sir, if we bring in the helicopters, we can save this man’s life,” he said. The captain replied, “Doc, you don’t seem to understand. . . . I don’t care if he lives or dies.”

At that moment, Armstrong later wrote, “I saw the people we had become while we were in Vietnam. I saw the piles of dead Vietcong soldiers stacked like cordwood. I had become a hardened soldier. My heart had become filled with hate. . . . The war no longer made sense to me.”

Armstrong’s mental and emotional state was also changing. “I was so hypervigilant that people and plants seemed to come alive in a way that I have never experienced since,” he wrote. “I had become broken, anxious, frightened. I was ‘mentally ill.’”

A military psychologist told Armstrong that he had “seen too much war,” and, in 1966, Armstrong was shipped back to the U.S. and admitted to a psychiatric hospital in San Francisco. Like many other veterans of the Vietnam War, Armstrong was at a loss when it came to dealing with these changes. “I didn’t know anything about mental illness,” he wrote. “I couldn’t believe this level of anxiety had happened to me.”

His worst memories, he says, aren’t of his time in Vietnam but rather of his hospital stay. He saw patients dragged into electroshock therapy as they begged not to go and returning “drooling spit and almost unable to talk.” After being discharged from the hospital, Armstrong lived on the streets and struggled with drugs and alcohol. He moved to Colombia in the 1970s in an effort to find peace, but instead he almost died from a liver infection. As he recovered from the illness and became sober, he finally decided that he had to find a way to pull himself forward and address his underlying mental health problems.

Identifying a syndrome

Unfortunately for Armstrong, and for many other veterans of the Vietnam War, there was little recognition at the time

HISTORY OF PTSD

C. 1000 B.C. An Egyptian soldier named Hori writes about feelings of fear before going into battle: “The hair on your head stands on end, your soul lies in your hand.”

480 B.C. According to Greek historian Herodotus, Spartan commander Leonidas dismisses his men from combat at the Battle of Thermopylae because they are too shaken from previous battles.

1003 A.D. The *Anglo Saxon Chronicle* describes a battle between the English and the Danes in which an English commander becomes so violently ill he cannot lead his soldiers.

The face of PTSD

A MAN TALKS CANDIDLY about sitting alone in a cabin with a shotgun and nearly taking his own life. With tears in his eyes he tells how treatment—and his children—saved him. He is one of the many faces of AboutFace, a website for veterans to learn more about PTSD. The site has video interviews with over 50 veterans talking openly about their experience with PTSD and how they got help. There is also advice from clinicians on treatment options.

The project was directed by Vicky Bippart, a documentary filmmaker who produced *7-Up America*, a series that chronicles the lives of Americans every seven years. Jessica Hamblen, deputy for education at the National Center for PTSD and a Geisel psychiatrist, was impressed with Bippart's work and recruited her for the AboutFace project.

Bippart wanted veterans to be comfortable telling their stories, so she filmed them at bed and breakfasts across the U.S., using neutral backdrops. Instead of sitting in front of the veteran, as in a standard interview, she and the veteran are sitting side by side facing a mirror that is set up in front of the camera lens, resulting in a more intimate feel with the veteran talking directly to the viewer.

People with PTSD "may avoid treatments for a variety of reasons," says Paula Schnurr, deputy director of the National Center for PTSD and a Geisel PTSD researcher. For some it is not recognizing the need, for others it is not wanting to admit they have a problem or "feeling that seeking treatment is a sign of weakness." For others it may be a lack of awareness that there are treatments that can help.

AboutFace seeks to change these modes of thinking. It covers a range of people with PTSD—men and women veterans from all different branches and wars—who "by telling their own stories, tell the stories of others," says Schnurr. The goal, she says, is to "help people see themselves, to connect and understand what has happened to themselves and what they can do about it—to understand that they can turn their life around with treatment."

AboutFace is also designed to show that PTSD is not a permanent chronic condition and to help therapists realize "there are treatments that can make people better," says Schnurr.

The National Center for PTSD has many helpful resources on their website including treatment options for PTSD, guides for returning from war, and advice for families and friends:

<http://www.ptsd.va.gov/public/index.asp>

More PTSD information from AboutFace:

<http://www.ptsd.va.gov/apps/AboutFace/info/about-ptsd.html>

Information on symptoms and treatments:

<http://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd/index.shtml>

of the condition now referred to as post-traumatic stress disorder (PTSD). The term wouldn't be coined until the mid-1970s, and PTSD wasn't added to the American Psychiatric Association's official classification of mental disorders until 1980, well after the Vietnam War had ended.

Matthew Friedman, a professor of psychiatry at Geisel, first began seeing Vietnam veterans experiencing problems similar to Armstrong's in the early 1970s, when he was a staff psychiatrist at the VA Medical Center in White River Junction, Vt. They were bombarded by horrific memories, which left them guilt-ridden, depressed, and suicidal. He and other psychiatrists soon realized the "post-Vietnam syndrome" they were seeing was ruining veterans' lives. "We didn't know what to do for them," Friedman later wrote.

Paula Schnurr, now a Geisel professor of psychiatry, took a different path into PTSD research. She was a doctoral student in experimental psychology at Dartmouth in the early 1980s, working with Stanley Rosenberg, a Dartmouth psychiatrist. Rosenberg was doing a longitudinal study on Dartmouth alumni from the Classes of 1967 and 1968 on how trauma from the Vietnam War had affected their later development. He asked both Schnurr and Friedman to join the project. Trauma exposure, especially in the military, was a very new field, so Schnurr was hooked.

Through the project and their own experiences in the VA, it was clear to Schnurr and Friedman that help was badly needed for the many veterans suffering from PTSD across the country. Yet even after 1980, when the disorder was added to the *Diagnostic and Statistical Manual of Mental Disorders*, most people did not see it as a significant problem. "Some people expressed concerns about the validity of the diagnosis and whether it was merely a reflection of pretraumatic problems being incorrectly attributed to a traumatic event," says Schnurr.

1678 Swiss military physicians are among the first to name the condition now known as PTSD. They call it "nostalgia."

1861-1865 During the American Civil War, military physicians diagnose a wide range of illnesses attributed to fear of battle and stress. Many of these cases are named "soldier's heart" or "exhausted heart." The first military hospital for the mentally ill is established in 1863 but closes soon after due to lack of government support. A system of soldiers' homes is then set up around the U.S.

1864 The U.S. assistant surgeon general states that suffering from war trauma is caused by "lack of discipline, confidence, and respect."

1905 Battle shock is recognized as a legitimate medical condition by the Russian Army.

Students work to prevent PTSD

MEDICAL AND GRADUATE STUDENTS have become involved in PTSD work as well. In 2012, Adina Fischer, an MD-PhD student at Geisel, created Geisel Disaster Relief, a collaboration of the Medical School, the National Center for PTSD, and Friends of Firefighters in New York City. She and three other Geisel students were trained by Patricia Watson, a psychiatrist at the National Center, in skills for psychological recovery—an evidence-based intervention that helps people cope more effectively in the aftermath of natural disasters. Fischer's group went to New York to spend time with survivors of Hurricane Sandy, coaching them in problem solving skills and encouraging behavior and activities that avoid a path to alcohol and substance abuse. One encounter stands out for Fischer: working with a retired New York fireman. "Having him share with me his struggles was very humbling," she says. "You realize these are some of the most resilient people in the world that literally put their lives in danger to save other people."



Left to right: George Bodzioc ('16), MD-PhD student Adina Fischer, three retired New York City firefighters, graduate student Marie Onakomaiya, and Jesus Iniguez ('16).

Friedman and Schnurr saw PTSD as a much bigger problem and a serious condition. Veterans needed treatment across the VA system. So, in 1989, they formed the National Center for PTSD. Friedman and Schnurr's primary goal was to help veterans with PTSD, but they also wanted to determine which treatments were most effective for PTSD and find the best ways to disseminate those treatments across the VA.

Studies on PTSD treatment were very few, but one set of treatments—cognitive behavioral therapy (CBT)—was promising. Two types of CBT—prolonged exposure therapy and cognitive processing therapy—were rated highly by clinicians in the civilian world. In the mid-1990s, Schnurr and Friedman launched their first large-scale study: 360 veterans with PTSD who received either exposure therapy (through trauma-focused group therapy) or a present-centered therapy that avoided a focus on past traumas. Although the groups fared equally well, it appeared that exposure therapy was better at treating avoidance and numbing (the felling of estrangement and emotional numbness) in individuals who received adequate treatment.

The goal of prolonged exposure therapy is to help the trauma survivor overcome fear. It works by exposing the patient to fear cues—objects, people, situations, and places that may remind the patient of past traumas but are actually safe, dispelling the notion that the world is completely unsafe. Patients also describe their memories repeatedly in therapy sessions. The therapist provides an audio recording, which the patient listens to over and over at home. This makes processing these memories easier, reduces fear associated with the memories, and builds the patients' confidence in their competence.

Cognitive processing therapy, although similar in some ways, takes a different approach. It was developed by psychologist Patricia Resick in the early 1990s during large studies of college sexual assault survivors. People who are traumatized often emerge with strongly held but erroneous beliefs: "I'm incompetent," "The world is unsafe," "I can't trust anyone." Patients are taught to challenge those beliefs. The focus, then, is on current thoughts and beliefs. But cognitive processing therapy—like exposure therapy—does examine past traumas. Patients write down a narrative of their traumatic experiences and read it over every night. The goal is to look for specific cognitive themes in an attempt to build a sense of self-esteem and self-worth.

1914-1918 The term "shell shock" is used to describe PTSD during WWI. It is believed that the impact of shells produces a concussion that disrupts the physiology of the brain.

1939-1945 The term "shell shock" changes to "combat exhaustion" during WWII and the U.S. Army adapts the slogan, "Every man has his breaking point."

1965 Military battalions are supplied with officers trained to treat psychological problems during the Vietnam War.

1980 The American Psychiatric Association adds PTSD to *DSM-III*.

Evaluating treatments

The results of Friedman and Schnurr's first trial, published in 2003, were significant enough to help put exposure therapy on the map. Yet some clinicians were skeptical and resistant to prolonged exposure and cognitive processing therapy. They felt the findings of Schnurr and others may not apply well to patients in real-world clinical practice. Another issue was that in 2003, very few clinicians in the VA system were trained in cognitive behavioral treatments.

To try to dispel these doubts, Schnurr and Friedman decided to do more studies with larger numbers of veterans. They wanted to show that cognitive behavioral therapies are effective in real clinical settings and that it was possible to disseminate them successfully across the VA.

There was also a larger challenge. "Many therapists, we found, had come to believe so firmly that if PTSD had become chronic, you couldn't get it to go away," says Schnurr, "that the goal of treatment was to help patients cope with symptoms." Schnurr and Friedman felt otherwise. From the early studies and Friedman's experience in the clinic, they knew the treatments were effective and could make people with PTSD well again. But they needed to show this on a large scale.

Their next study did exactly that. A massive undertaking employing hundreds of people, it showed the effectiveness of prolonged exposure therapy under "real world conditions," says Schnurr. Furthermore, it was the first randomized controlled trial of military women and PTSD. It enrolled 284 women veterans who had suffered sexual trauma, comparing prolonged exposure—where the patient works through a past trauma to overcome fear—with present-centered therapy (which differs from cognitive behavioral therapies and focuses strictly on current life problems). Women in the prolonged exposure group did better. They were more likely than those in the present-centered group to no longer show a diagnosis of PTSD (41 percent versus 28 percent). Also, the average time from experiencing trauma to receiving treatment was 23 years, showing that patients with chronic PTSD may truly benefit from prolonged exposure treatment. The study was published in the *Journal of the American Medical Association*.

The study also confirmed that prolonged exposure therapy could be implemented across the VA despite many physicians' lack of experience with it. Almost all the therapists in the study

were new to prolonged exposure, and the treatments were tested in VA clinics, veterans' centers, and an Army clinic.

Still, controversy remains around prolonged exposure. Some mental health experts believe exposure is essential to treat PTSD. Others say it is better to focus on the present and use cognitive restructuring therapy with very little exposure. This means looking at the "complicating overlay of emotions like shame, guilt, and anger," explains Claudia Zayfert, an associate professor of psychiatry at Geisel.

Zayfert prefers taking a middle ground, using a combination of exposure therapy and cognitive restructuring based on each individual patient. She believes that people who have experienced a lot of shame often will not be able to resolve these experiences through exposure therapy alone—they need cognitive restructuring therapy as well.

"On the whole, shame tends to be the more problematic emotion and harder to challenge in therapy," she says, particularly for people who have experienced intense shame for many years, such as women in their 40s who seek treatment to cope with childhood sexual abuse.

Working with such patients is intense work. It's as if the patient is "hanging from a cliff," says Zayfert, holding onto thoughts and habits that are not working. "What we're asking them to do is to let go and to go off the cliff. That's really scary to them," she says.

A strong relationship with the patient is essential, Zayfert says. The therapist has to persuade the patient that approaching frightening things will benefit them. She does this in different ways. "Some people are persuaded by 'you're the expert, tell me what to do.' Others by feeling that they trust you on some personal level. Others by information that you provide them. You want to harness all the tools you can to build their commitment to doing this work because it is very, very hard for them to do."

Schnurr is now the lead principal investigator on a long-term study that will compare cognitive processing therapy and prolonged exposure therapy. Two co-PIs on the study, Kate Chard (director of the PTSD Division and Trauma Recovery Center at the Cincinnati VA Medical Center) and Joseph Ruzek (a psychologist with the VA Palo Alto Health Care System) oversee national training initiatives for the two therapies.

Schnurr chose the two treatments because cognitive behavioral therapies, based on clinical trials over the past 15 years, "are the most effective approaches for treating PTSD," she says and "are

1984 The first study of prolonged exposure therapy, a form of cognitive behavioral therapy, is launched.

1989 The National Center for PTSD is founded at the White River VA Medical Center in White River Jct., Vt. Matthew Friedman, professor of psychiatry at Geisel, is named executive director.

1990-1992 Patricia Resick develops cognitive processing therapy as a treatment for PTSD in female sexual assault victims. The VA adapts the therapy for its own use in the early 2000s.

2000 First clinical practice guidelines for PTSD are published.



Moe Armstrong in Vietnam, where he served in the military from 1965 to 1966.

recommended around the world in every guideline. But we have almost no information about how the treatments compare with one another.” The main purpose of the study, then, is to determine which treatment has better outcomes. Studying such a large, diverse sample of veterans will also help the researchers see if one treatment is better suited for specific types of patients. For example, one of the treatments might be better for someone who experienced sexual trauma than for someone who experienced combat trauma. Or one may be better for a Vietnam veteran suffering from chronic PTSD than for a younger veteran of the wars in Iraq or Afghanistan. Matching individual patients to the best possible therapy “would be a really significant contribution to the field,” Schnurr says.

The study is the first large-scale comparative effectiveness trial of treatment for PTSD. It is sponsored by the VA’s Cooperative Studies Program (CSP) and is Schnurr’s third CSP award. Such awards are rare. According to the *American Journal of Medicine*, men are eight times more likely than women to receive a CSP award. The study will enroll 900 veterans at 17 sites across the country and 136 therapists. It started earlier this year and will finish in 2018.

Moving Forward

Moe Armstrong was among the veterans helped by cognitive behavioral therapy, although it was years before he finally received treatment. As he tried to put his life back together, he talked to as many people as he could about his mental illness in an effort to find some help. He wanted to go to school because he believed it could give him some continuity. He kept applying for education through vocational rehabilitation at the VA, but was told “people with mental illness are failures and nobody would pay for my education.” It took him four tries, but in 1984 he was finally accepted into a psychiatric rehabilitation program that supported education. He went on to earn two master’s degrees at the College of Santa Fe.

Being at school was “amazing,” he says. He started to rethink how he was living his life. “I found out from going to school, if I didn’t do well one semester I could come back and try again the next semester,” he says. “That sounds simple. But that was a big thing in my life. Because before if I thought I failed, I was out of the loop for a couple of years. I would not try again. I’d be depressed, discouraged.”

Armstrong finished his degrees and, in the early 1990s, found a therapist who, with a “gentle manner,” he says, helped him change his negative ways of thinking and rethink his future using cognitive therapy techniques. Therapy and school helped Armstrong improve relationships with his peers and build self-esteem. He is now working as a peer specialist on an inpatient psychiatry unit at the San Francisco VA Hospital and helping to train other veterans to become peer specialists at a VA medical center in Connecticut. His life is dedicated to “helping others get the same opportunities that I got,” he says. (In 2012, 47 years after his service in Vietnam, he received decorations, including a Navy Commendation Medal for his bravery in rescuing a fellow soldier under enemy fire.)

Working through PTSD is a difficult journey, but there is much more hope for trauma survivors now, thanks in part to the efforts of Schnurr, Friedman, Armstrong, and many others. As well as being a peer specialist at the San Francisco VA, Armstrong leads a veteran peer support group called “Vet to Vet” that provides free educational materials to veterans covering medical care, therapy treatment, housing options, supported employment, and vocational programs. Thousands of veterans use Vet to Vet across the country; the Los Angeles branch alone serves about 30,000 veterans a year.

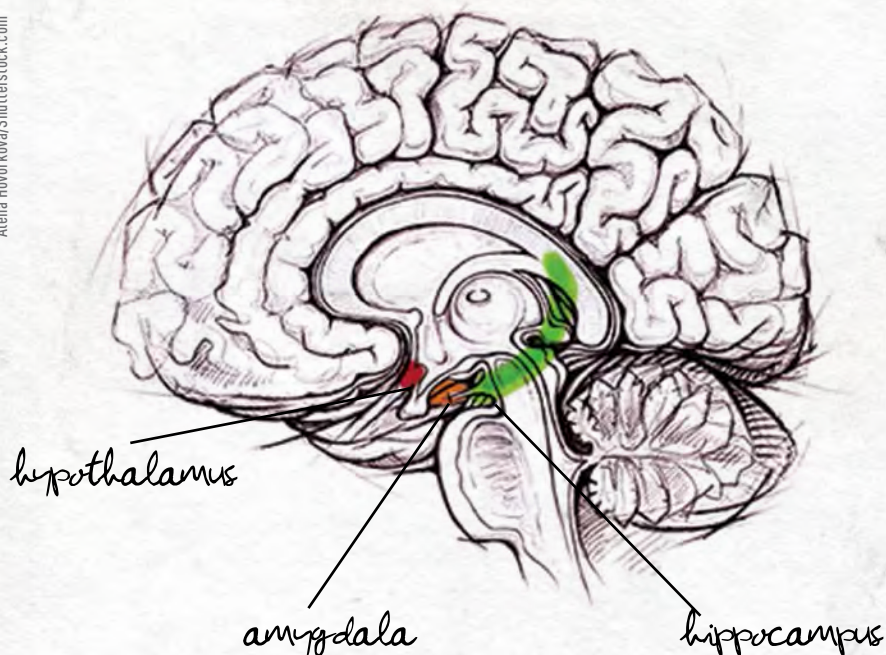
The therapists connected with the National Center for PTSD are working just as hard using proven treatments to help people. The center has a wealth of information for veterans, their families, and clinicians. “To me, the goal of treatment is not making patients better, it’s making them well,” says Schnurr. “We now have treatments that can make people with PTSD well.”

MATTHEW WIENCKE IS THE ASSOCIATE EDITOR OF *DARTMOUTH MEDICINE*.

2003 The National Center for PTSD publishes its first large-scale VA Cooperative Study on trauma-focused group therapy for veterans with PTSD.

2007 Landmark study is published in *JAMA* showing the effectiveness of prolonged exposure therapy (PE) in female veterans. The lead author is Paula Schnurr, deputy executive director of the National Center for PTSD.

2013 The third large-scale study of veterans and PTSD is launched by the National Center for PTSD. The study will involve 900 veterans and 17 VA centers across the U.S. The study will conclude in 2018.



PTSD: INSIDE THE BRAIN

WHAT IS PTSD?

Post-traumatic stress disorder (PTSD) is an anxiety disorder caused by experiencing or witnessing a major traumatic event or a series of smaller traumatic events. Examples of trauma include military combat, sexual or physical abuse, a terrorist attack, a serious accident, or a natural disaster. Symptoms include reliving the event, avoiding reminders of the event, numbness, and hyperarousal. People with PTSD often suffer from depression, anger, anxiety, loss of interest in work, cynicism, and memory loss. PTSD is a serious problem in the military—over 300,000 soldiers who have been deployed in the past six years have PTSD. But PTSD affects many civilians as well. About 7.7 million Americans have PTSD.

WHAT PARTS OF THE BRAIN ARE AFFECTED?

Three key areas of the brain are affected by PTSD: the hypothalamus, the hippocampus, and the amygdala.

The hypothalamus gathers data from all over the body and initiates the production of hormones that regulate the autonomic nervous system, blood pressure, body temperature, and other key functions.

The hippocampus works as an intricate memory databank. It forms, organizes, and stores memories. It also sets them in a space-time context and connects memories to emotions and senses.

The amygdala is involved in many of our emotions and motivations, especially those associated with survival, such as fear. It assesses stressful situations, checks memory and sensory data, and tells the body what action to take (fight or flight).

WHAT HAPPENS IN THE BRAIN DURING PTSD?

When a person is threatened, the amygdala becomes

more active, sensing that there is danger (or perceived danger) and keeping the body on alert. It receives signals from stress hormones (including glucocorticoids) and sends messages to the hypothalamus, which then initiates a rush of stress hormones—raising blood pressure, heart rate, and blood sugar and slowing down digestion.

People with PTSD have trouble regulating this response. Their amygdala may become more active even when there is no threat. "If you're in a dangerous situation, you want to be in an alert state. That's how we often respond to problems," says Geisel professor of psychiatry Matthew Friedman. "The problem for people with PTSD is that there's no off switch."

WHAT IS KNOWN ABOUT THE HIPPOCAMPUS AND PTSD?

In people with PTSD, the neuronal connectivity in the brain is altered so that the body stays on alert. The hippocampus is much less active than in people who do not have PTSD. It does not time-stamp memories as it should and it stores them as fragmented, tiny bits. A person with PTSD thus responds to these traumatic memories as if they were happening now. The person also has a hard time distinguishing safety signals from danger signals. He or she is "much more likely to misinterpret ambiguous or even safe stimuli as possibly dangerous," says Friedman.

It seems likely that PTSD leads to a smaller hippocampus (people with smaller hippocampi are also at higher risk for PTSD). Dendrites—branch-like structures of neurons in the hippocampus that transmit signals—are partially destroyed, causing the hippocampus to shrink. Many scientists think the future of medication for PTSD will focus on neurogenesis to repair damaged dendrites and increase the volume of the hippocampus, helping it to function better.

WHY ARE SOME PEOPLE MORE LIKELY TO DEVELOP PTSD THAN OTHERS?

There are many factors that can increase one's risk for PTSD. Young children—especially if trauma separates them from their families—are at higher risk. People aged 40 to 60 are as well, possibly because they may be dealing with both children and aging parents. The elderly are less at risk, especially if they are in good health, since they tend to have more experience with trauma. Life circumstances can also increase risk, such as coping with a mental health disorder, being a parent, or having financial difficulties. Gender comes into play as well. About 10 percent of women develop PTSD sometime in their lives compared to 5 percent of men. Scientists are not sure why this is. Some possible reasons (according to scientists and clinicians) are that women develop stronger fear responses compared to men, women often are more willing to acknowledge PTSD symptoms than are men, and more women than men are victims of sexual assault.

Scientists have also found structural differences in the brains of people with PTSD compared to those of people without the disorder. This leads to a chicken-and-egg question: Do these differences help cause PTSD or are they a result of PTSD? It may be a combination of both. Studies of Vietnam veterans with PTSD and their twin siblings showed that a small hippocampus increases one's risk for PTSD. On the other hand, excessive stress associated with PTSD and mediated by stress hormones and excitatory amino acids (which affect the central nervous system by acting as neurotransmitters) can damage brain cells and cause the hippocampus to shrink. So PTSD can also shrink the hippocampus and exacerbate symptoms.