

# Military experiment seeks to predict PTSD

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This Sept. 29, 2009 photo shows U.S. Lance Cpl. Chad Phillips, 20, of Geneseo, N.Y., getting his neck measured while taking psychological tests at the Marine Corps Air Ground Combat Center in Twentynine Palms, Calif. The U.S. government is testing hundreds of Marines and soldiers before they ship out, in search of clues that might help predict who is most susceptible to post-traumatic stress disorder. (AP Photo/Jae C. Hong)

(AP) -- Two days before shipping off to war, Marine Pfc. Jesse Sheets sat inside a trailer in the Mojave Desert, his gaze fixed on a computer that flashed a rhythmic pulse of contrasting images.

Smiling kids embracing a soldier. A dog sniffing blood oozing from a corpse. Movie star Cameron Diaz posing sideways in a midriff top. Troops cowering for safety during an ambush.

A doctor tracked his stress levels and counted the number of times he blinked. Electrode wires dangled from his left eye and right pinky

finger.

Sheets is part of a military experiment to try to predict who's most at risk for [post-traumatic stress disorder](#). Understanding underlying triggers might help reduce the burden of those who return psychologically wounded - if they can get early help.

PTSD is a crippling condition that can emerge after a terrifying event - car accident, sexual assault, terrorist attack or combat. It's thought to affect as many as one in five [veterans](#) returning from Afghanistan and Iraq.

Military doctors have been mystified as to why certain warfighters exposed to bombings and bloodshed develop paralyzing stress symptoms while others who witness the same trauma shake it off.

Studies on veterans and civilians point to some clues. Childhood abuse, history of mental illness and severity of trauma seem to raise a person's risk. Having a social net and a coping strategy appear to offer some protection.

However, none of the factors explored so far are reliable predictors.

"Right now, we can't determine with certainty who will and who won't develop PTSD," said Paula Schnurr, deputy executive director of the Department of Veterans Affairs' National Center for Posttraumatic Stress Disorder. "Perhaps with better measures, we can get closer."

Earlier this year, a quarterly publication from the national PTSD center found that studies to date have looked at only "a narrow band of the potential risk and resilience predictors" and that more work beyond surveys was needed.

New PTSD studies are using technology to try to get at the answer. Select Marine and Army units are undergoing a battery of physical and mental tests before deployment including genetic testing, brain imaging and stress exams. They are followed in war zones and upon return.

There's an urgency to detect early signs. Since the 2001 terrorist attacks, more than 1.8 million U.S. troops have fought in Afghanistan or Iraq. The Obama administration is weighing whether to increase forces in Afghanistan where violence has escalated in recent months.

Previously called shell shock, combat fatigue and post-Vietnam syndrome, PTSD was officially recognized as a mental disorder in 1980. Sufferers experience flashbacks, nightmares, sudden outbursts and social withdrawal and are sometimes haunted years after the trauma.

The ongoing wars have given scientists fresh opportunities to follow service members.

One autumn morning, a throng of Marines squeezed into a trailer at the Marine Corps Air Ground Combat Center in Southern California before deploying to Afghanistan. They belonged to the 3rd Battalion, 4th Marine Regiment - nicknamed the "Thundering Third."

"We're doing this not to make you better prepared to go do what you have to do in Afghanistan. We're not doing this to make your health any better," said Dr. William Nash, a retired Navy psychiatrist and study co-investigator. "We're doing this so that we can learn more about how to protect Marines from stress injuries like PTSD."

Nash asked how many have heard of PTSD. A half dozen raised their hands.

Who wants PTSD? "Right, nobody," he answered rhetorically.

The trailer soon buzzed like a factory, with Marines rotating from one test station to another in an assembly line. They donated blood, urine and saliva samples so researchers can search for genetic biomarkers that might play a role.

Groundbreaking research published last year on adult survivors of child abuse suggests that specific variations of a gene increased their chances of developing PTSD. Scientists believe there may be many other gene variants that contribute to PTSD risk.

Marines also underwent a blink test to gauge their startle response and neuropsychological screening. They filled out questionnaires and were interviewed by psychiatrists with a checklist to diagnose PTSD.

The work is funded by the Marine Corps, Veterans Affairs and Navy Medicine. Last year, about 1,000 Marines were recruited before leaving for Iraq.

This latest batch of 673 Marines who were tested during a two-week period in the fall headed to Afghanistan where they're sure to see more intense fighting. They will be followed up in the field by Navy corpsmen with special "stress first-aid" training to read early signals.

Researchers recently did six-month follow-up testing on some Marines who returned from Iraq. It will take time to analyze the results, said the study's lead investigator, Dr. Dewleen Baker of the VA San Diego Healthcare System.

Cmdr. Bryan Schumacher, the 1st Marine Division's top doctor, said the purpose of studying PTSD triggers is not to bar someone from service. If it turns out that something can be done to prevent it, those vulnerable could get special training to reduce their risk, he said.

Similar research is ongoing 1,300 miles away at the University of Texas at Austin where scientists have collected detailed health data from 178 soldiers from nearby Fort Hood who recently came back from Iraq. The base was the scene of a massacre on Nov. 5 when an Army psychiatrist opened fire, killing 13 people and wounding dozens more.

The shooting has not affected the research, which enrolled first-time deployed soldiers. Unlike the Marines, the soldiers filled out monthly questionnaires online while in combat that tracked their experiences such as whether they saw a roadside bomb go off or knew of a wounded buddy.

Before deployment, soldiers submitted a DNA sample, had an MRI scan of their brain and inhaled carbon dioxide as part of a stress reaction test.

Early results suggest soldiers who reacted more strongly to the CO<sub>2</sub> test and who were exposed to more stress in the field showed greater PTSD symptoms, said chief researcher Michael Telch, of UT Austin's Laboratory for the Study of Anxiety Disorders.

The decision to volunteer in the Marine experiment was personal for Lance Cpl. Jacob Kylo. His grandfather fought in Korea and Vietnam and two uncles served in Operation Desert Storm. They spoke less afterward and would get irritated easily.

Kylo said his uncles were diagnosed with PTSD and suspects his grandfather had it too.

"I've seen it before and it's not the most pleasant thing," said the 20-year-old from Seattle, who previously served in Iraq.

Melvin Carter, a 27-year-old Marine sergeant who had done three tours in Iraq, noticed buddies who were once laid-back turn angry after

coming home. The Oakland, Calif., native copes with stress by laughing and cracking jokes.

Navy corpsman Benjamin Reinhardt was recently trained to look for signs of PTSD in 20 Marines attached to a mortar platoon. He likened his job to a school nurse. Marines confide in him about their innermost struggles. He thinks he can spot when someone is not himself.

"I tend to be reasonably observant with people's personalities. I can see changes," said the 21-year-old from upstate New York.

He added: "I hope none of us become PTSD casualties."

Sheets, a 22-year-old private first class from Newark, Del., has never seen combat before. Before joining the Marines, Sheets dabbled with college and was working a dead-end job hauling trash.

He enlisted after being inspired by a sermon from his pastor. While in infantry school, he met a sergeant who suffered from PTSD. He's not exactly sure what it is, but has heard horror stories.

"A guy comes home from war and he's freaking out. He's beating his wife. He's drinking. He's doing everything he can. He'll go off and he'll hate the Marine Corps," Sheets said. "And it's just like, OK, is that going to be me when I come home?"

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