

# Virtual combat game helps treat stress disorder

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An armoured vehicle of US Marines from 1st Battalion 8th, Bravo is seen during an operation not far from Shir Chazay in Musa Qala district of Helmand province, Afghanistan. US doctors are treating soldiers suffering from post-traumatic stress disorder by plunging them back into combat using a virtual reality game that simulates scenes from Iraq and Afghanistan.

US doctors are treating soldiers suffering from post-traumatic stress disorder (PTSD) by plunging them back into combat, using a virtual reality game that simulates battle scenes from Iraq and Afghanistan.

The therapeutic game, called Virtual Iraq or Virtual Afghanistan, was developed from the X-Box game Full Spectrum Warrior, a combat tactical simulation game launched with funding from the US Army.

Virtual Iraq or Afghanistan uses images delivered via a head-mounted display panel to plunge soldiers back into combat zones in Iraq or

Afghanistan and recreate the traumatic experiences they had while at war, the project's lead researcher Albert Rizzo of the University of Southern California said.

"At first blush, it seems counter-intuitive: why would you make somebody go through an approach where one of your goals is to make the patient feel a little bit anxious as they revisit their traumatic experiences?" Rizzo told reporters.

But researchers have found that by progressively raising a patient's feelings of anxiety up to a moderate level while simultaneously encouraging the patient to mentally process and talk about their traumatic experience, they can bring down anxiety levels and decrease PTSD symptoms.

Those symptoms include recurring nightmares and flashbacks, emotional numbing, avoidance of places that stir memories and manifestations like hyper-vigilance, which can be a protective mechanism in a wartime setting but is often disruptive when the soldier returns to civilian life.

The game uses visual, audio and even smell stimuli to realistically recreate what the soldiers would have experienced in Iraq and Afghanistan.

A sensor on the head-mounted monitor causes graphics to update each time the soldier turns his or her head, giving the illusion of being immersed in the environment.

The sound of a Humvee armored vehicle motor comes through as vibrations and virtual bomb explosions are felt in the distance. A smell machine pumps out scents reminiscent of Iraq or Afghanistan -- gunpowder, diesel fuel, burning rubber or spices.

Previously, therapists had to walk patients "through in imagination the things they're fearful of or have been traumatized by," said Rizzo.

But that had its inherent pitfalls, including that therapists had to trust that the patient was genuinely visualizing the situation.

"But some people aren't good at visualizing, and we know that one of the symptoms of PTSD is avoidance," said Rizzo.

Virtual reality therapy could also remove some of the stigma from seeking treatment for PTSD because the generation of soldiers fighting in Iraq and Afghanistan grew up playing video games and might be more open to seeking care for the mental disorder if it's delivered in a video game package.

An estimated 20 to 30 percent of soldiers who have fought in Iraq or Afghanistan come home with PTSD, according to US military estimates.

PTSD has been linked to a rise in the suicide rate among veterans, which claimed the lives of a record 309 servicemembers last year, up from 267 in 2008, according to Pentagon numbers.

Three randomized control trials of the virtual reality therapy games are currently underway, and a couple of other studies are testing the simulation game to see if it can be used as a tool to assess whether soldiers returning from war have PTSD.

In yet another study, 16 of 20 soldiers who were treated with the simulator game developed by Rizzo and others at USC's Institute for Creative Technology no longer met PTSD criteria at the end of therapy, which was developed in 2003 -- the year of the US-led invasion of Iraq.

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