

Controversial neurofeedback brain therapy may be the answer to PTSD

By Katie Drummond Monday, June 20, 2011

Military doctors struggling to treat post-traumatic stress disorder are quietly adding a new tool to their arsenal: A controversial brain-wave therapy they say can heal troubled veterans and even send once-broken troops back into combat.

Staff Sgt. Justin Roberts is one of hundreds of service members finding relief with the experimental remedy.

While working at a combat hospital in Iraq for more than two years, Roberts, now 32, was exposed to the grisliest of war's suffering. Every day he helped treat troops, captives and Iraqi civilians who suffered devastating wounds from gunfights, bombings and IED attacks.

"It was worse than what you'd imagine ... I have a hard time talking about it," he said.

"I'd sleep for two hours, and then go without sleep for two days," he said of his life after returning stateside in 2009. "I came back a zombie."

Roberts tried more than 20 prescription medications, none of which offered relief. But in January 2010, Maj. Michael Villanueva, from California's Camp Pendleton Marine Corps base, traveled to Texas with computer software, electrodes and video games — and ostensibly rebooted Sergeant Roberts' brain.

The treatment, called neurofeedback, consists of affixing EEG electrodes to the scalp, which can read the electrical output of the patient's brain. While the clinician monitors activity, the patient watches a video whose key elements — like an airplane in flight or flowers in bloom — respond to his or her brain activity.

Calm and focus are rewarded with on-screen stimuli, pleasant aromas and even vibrations from a handheld teddy bear.

"It made me closer to normal than I ever dreamed I'd be," Roberts said. "I'm the biggest believer in this treatment."

"It's in his voice, it's in his affect," Villanueva said of his patient's stunning progress.

Roberts is one of hundreds of service members and veterans — including 350 active-duty marines at Camp Pendleton alone — who have undergone neurofeedback treatment in the past two years. The procedure has been quietly embraced by some military leaders willing to try anything that might help the men and women returning from Iraq and Afghanistan with seemingly indelible mental scars.

And a handful of military doctors — including Villanueva — have even taken neurofeedback units into combat in Iraq and Afghanistan, where they use the technique on service members in the field.

Dr. Jerry Wesch, the officer in charge of the PTSD recovery program at Fort Hood —

where Roberts underwent treatment — was so astounded by neurofeedback’s results that he personally spent several thousand dollars to order neurofeedback equipment for the base.

“The results had our jaws dropping,” Wesch said. “I’d like to use this treatment on every soldier that comes through my door.”

The military has so far paid for a handful of neurofeedback units, which cost between \$5,000 and \$7,000 apiece. But the units have yet to become mainstays: Wesch has made slow progress trying to get the Pentagon to commit funds for additional neurofeedback equipment at Fort Hood.

Neurofeedback is purported to treat myriad health conditions, from debilitating ailments like PTSD and bipolar disorder to more benign problems like bed-wetting and sleepwalking. And advocates see the procedure as one that can help just about anyone, whether to boost sports performance or enhance creativity.

At the core of the treatment is the emerging science of brain plasticity, which suggests that the brain changes and adapts throughout life, rather than reaching stasis in adulthood. Practitioners of neurofeedback theorize that the brain, in seeing its own activity, will be spurred to repair its own defects and operate more optimally.

The military’s results using neurofeedback are hardly surprising to Siegfried Othmer, a physicist who abandoned a career in aerospace to become a neurofeedback clinician in 1989. It was Othmer who, in 2008, piqued the military’s interest during a speech on neurofeedback’s efficacy in treating PTSD.

“When the brain sees itself interacting with the world, it becomes interested in that. Likewise, when it sees the signal on-screen and realizes it’s in charge, it becomes interested,” Siegfried said. “You might not notice, but the brain takes notice.”

Siegfried and his wife, Sue, didn’t anticipate careers dedicated to a fringe medical practice. But in 1985, desperate to help their eldest son, Brian, who suffered from epilepsy, the pair tried neurofeedback.

“The results with our son were so striking for us, they reoriented our attention,” Sue told *The Daily*. “The field consisted of a very small number of clinicians. We looked around and said ‘we need to make this happen.’”

The Othmers now run the EEG Institute in suburban Los Angeles, where Siegfried is chief scientist and Sue is lead clinician. Though decorated in sunny pastels and laden with plush toys and picture books — children afflicted with ADHD and epilepsy still make up much of the patient roster — the institute’s focus is now largely oriented towards PTSD.

The medical community has yet to determine what causes PTSD, though the disorder is thought to alter the body’s stress hormones and disrupt healthy functioning of the nervous system.

Such uncertainty has, for years, impeded progress towards an effective cure: Troops

coming home today are offered a litany of pharmaceutical options, combined with talk therapy. But the efforts haven't stemmed suicides, which continue to increase and, in 2009, outpaced combat deaths.

And the Department of Veterans Affairs is still coping with thousands of ailing veterans from the Gulf and Vietnam Wars.

In a bid to raise awareness for neurofeedback's widespread potential, the Othmers started Homecoming 4 Veterans, a nonprofit that, through partnerships with clinicians nationwide, provides free neurofeedback to vets.

So far, the organization has treated several hundred former and returning soldiers, including Jean-Jacques Stehelin, who emerged from the Vietnam War with trauma that plagued him for four decades.

Refusing to admit he suffered from PTSD, Stehelin never sought help.

"I didn't think there was anything wrong with me. I just thought I was nuts," he said. "So I was drunk for 40 years. That's how I dealt with it."

Last year, Stehelin underwent 40 neurofeedback sessions at the EEG Institute. Though he still struggles with alcohol abuse and insomnia, he credits the treatment for his significant progress.

"I was waking up at 2 a.m. every night, for 40 years, in a panic," he said. "Now I still wake up sometimes, but it's not so bad. I have a cigarette, I listen to the ocean and I go back to sleep."

Despite such success stories, the technique is dismissed by most experts in neuroscience as little more than make-believe medicine.

"The practice has gotten ahead of the science," said Dr. Andrew Leuchter, a professor at UCLA's Semel Institute for Neuroscience and Human Behavior. "It wouldn't be surprising to me if much of the benefit of neurofeedback was attributable to the placebo response." Leuchter said the therapy hasn't been evaluated by robust studies that would validate the enthusiastic claims of its practitioners.

"The gold standard is to compare the active treatment with a sham, fake treatment — something that lacks the active ingredient," Leuchter said. "Unfortunately, those studies have not been done."

But while the Othmers welcome additional research, which they say will help usher neurofeedback into the mainstream, they're adamant that the practice will continue to grow without it.

"There's a clinical reality that lots of people are doing neurofeedback and getting good results," Sue Othmer said. "They aren't waiting for some authority figure to say it's okay ... Researchers aren't leading the charge." But some military doctors are.

Dr. Agustin Gomez, a 69-year-old Army psychiatrist who trained under Siegfried Othmer in 2006, suffered from PTSD after repeat deployments. He first tried neurofeedback on himself last year, and the results were so compelling that Gomez started to use neurofeedback on troops in Iraq and Afghanistan.

“My patients weren’t ready to go back to battle. They were a danger to themselves and their units,” he said. “In 10 sessions, they slept better, they were less irritable. And on top of that, they performed better.”

Military leaders weren’t happy with Gomez’s unconventional approach. Several times, he said, unit commanders overseas tried to intervene and prohibit him from using the treatment.

Still, Gomez notes that members of the military are slowly coming around. Eight bases and military hospitals, along with eight VA clinics, are now using neurofeedback in some capacity. Villanueva recently deployed to Afghanistan, neurofeedback equipment in tow, and Gomez is now treating troops at Georgia’s Fort Benning.

For Sue and Siegfried Othmer, successful PTSD treatment is also an opportunity. They hope to see neurofeedback get more credit from the public and the scientific community.

“The work with the military and with the veterans is a way to bring this to public attention,” Sue Othmer said. “If we do a great job, it will be seen and be noticed. That helps our larger cause.”

But it remains to be seen whether the cause the Othmers have championed for over two decades is anything more than a placebo effect.

For Leuchter, an answer to that question should precede widespread usage, especially among vulnerable military populations.

“I would be concerned ... if we were giving people a treatment that didn’t have robust established efficacy, and then were putting them back in harm’s way, in combat,” he said. “We might be putting them in a dangerous situation where they really didn’t have a robust recovery.”

Staff Sgt. Roberts, however, doesn’t care how neurofeedback works — only that it does.

Despite being told by doctors that he’d never be healthy enough to return to his former life as a police officer in Dallas, Roberts is back at work — and credits neurofeedback with the turnaround.

He only wishes he’d undergone the treatment earlier.

“From the first month people are in Iraq and Afghanistan, they should be hooked up to a neurofeedback system,” he said. “Imagine if they could come back home, get a pat on the back, and just go about the rest of their lives.”

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