Post-traumatic stress diagnosed using magnetism

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Courtesy Institute of Physics
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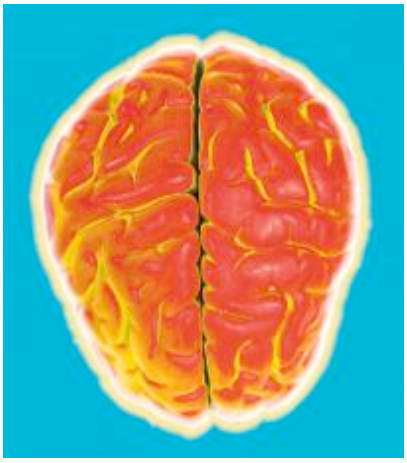
The thicket of anxiety, recurring nightmares and related problems that envelops some war veterans and other trauma survivors has been diagnosed using a physical test for the first time, researchers say.

The findings are being called a major advance in studying the condition—post-traumatic stress disorder (PTSD)—which in the past was detectable only through psychological screening.



U.S. war veterans were involved in clinical trials that scientists say appear to have diagnosed post-traumatic stress disorder using magnetoencephalography, a non-invasive measurement of magnetic fields in the brain. (Image courtesy U.S. NIH)

This severe anxiety disorder, enshrined in popular consciousness through films such as the *Rambo* series about a tormented Vietnam veteran, often stems from war but can result from any traumatic event. The disorder can manifest itself in flashbacks, recurring nightmares, anger or hypervigilance.

U.S. war veterans were involved in clinical trials that scientists say appear to have diagnosed the disorder using magnetoencephalography, a non-invasive measurement of magnetic fields in the brain. Conventional brain scans had failed to detect the disorder, said the researchers, whose work appeared Jan. 20 in the *Journal of Neural Engineering*.

The researchers from the Minneapolis Veteran Affairs Medical Center and the University of Minnesota, led by Apostolos P Georgopoulos and Brian Engdahl, worked with the 74 veterans who had served in World War II, Vietnam, Afghanistan or Iraq, and had been diagnosed with behavioural symptoms of PTSD. Also participating in the study were a group of people without the disorder.

With more than 90 percent accuracy, the researchers said, they were able to tell apart PTSD patients from healthy subjects using a "synchronous neural interactions test." This involves analysing the magnetic charges released when populations of brain cells connect or "couple." The ability to objectively diagnose PTSD is seen as a first step towards helping those afflicted with the disorder.

"The excellent results obtained offer major promise for the usefulness of the synchronous neural interactions test for differential diagnosis as well as for monitoring disease progression and for evaluating the effects of psychological and/or drug treatments," the researchers wrote.

This work follows success in detecting other brain diseases, such as Alzheimer's and multiple sclerosis, using the magnetic technique, scientists said. The method was invented by Georgopoulos and the latest research was funded by the U.S. Department of Veterans Affairs.