

PTSD Treatment Program
Safe Treatment Center for Women's
Psychological Issues. Request Info.
www.HollywoodPavilion.com

Post Traumatic Stress Disorder
Signs, Symptoms & Treatments. Get Free
Health Information Online.
www.healthline.com

Brain Imaging Software
Provides interpretations of scans. Take a
closer look at the results.
www.Syntermed.com/NeuroQ

V V

Ads by Google

Brain scans could someday help diagnose PTSD

Published Monday April 6th, 2009

Scans show heightened activity in brains of soldiers with post-traumatic stress

D2

TORONTO - New research is shining a light on differences in the brains of soldiers with post-traumatic stress disorder when compared to soldiers who return from combat without the condition.



The Associated Press

Canadian soldiers with the International Security Assistance Force (ISAF) stand outside the provincial council office following suicide attacks in Kandahar province, south of Kabul. New research shows that brain scans could one day be used to help diagnose post-traumatic stress disorder in soldiers.

[ENLARGE PHOTO](#)

The work could some day lead to the use of brain scans to help diagnose PTSD, to tailor treatment or even identify people who might be at risk of developing the problem if they're exposed to violence in a war zone, experts say.

Dr. Florin Dolcos, an assistant professor of psychiatry and neuroscience at the University of Alberta, travelled to Italy to present the research Friday at the World Psychiatric Association congress in Florence.

The experiments were conducted in North Carolina by a team led by Dr. Rajendra Morey of Duke University. Morey is also director of the neuroimaging lab at Durham Veterans Administration Medical Center.

Forty-two U.S. soldiers who had returned from Iraq and Afghanistan took part in the study, including 22 soldiers who had developed post-traumatic stress disorder and 20 who had not.

They had functional magnetic resonance imaging scans while performing memory tasks, interrupted by distractions. They looked at photos of three similar faces. After a delay they were shown a photo of a single face, and had to push a button indicating whether they had seen the face in the previous batch of three or whether it was new.

However, the soldiers were interrupted by random photos showing either combat scenes or neutral scenes, such as people in a marketplace or at an office. The test was repeated 40 times.

"We found a couple of major results," Duclos said in an interview from Rome.

The first involved the area of the brain known as the dorsal lateral prefrontal cortex.

"In the region that allows us to stay focused on a task, we've seen increased sensitivity of the soldiers with PTSD in response to not only the combat pictures but also to the neutral non-combat pictures," he said.

The PTSD group did more poorly in identifying whether the final faces were new or old -- whether the photos that distracted them were neutral or depicting war scenes.

"And this is consistent with the hypervigilance symptoms that are associated with PTSD that might make these people be very sensitive to detecting anything that could be relevant for survival."

Besides hypervigilance, symptoms of PTSD include reliving or re-experiencing the traumatic event, hyperarousal and avoidance of certain stimuli.

Morey said the other finding involved the dorsal medial prefrontal cortex, a region of the brain that has to do with thinking about one's self. It lit up significantly in the PTSD group when the combat photos were shown, but not so much in the brains of the other soldiers.

"We call it self-referential processing, reflecting on the self or the part of the brain that processes how information that is being received is relevant to your own life or your own experience," he said from Durham.

"And that part of the brain was most strongly differentiated between the PTSD group and the non-PTSD group."

Norman Shields, a psychologist at the National Centre for Operational Stress Injuries at Ste. Anne's Hospital near Montreal, said that any move toward the use of fMRIs can provide clinicians with more information than they get from self reports and interviews with patients.

"To establish a diagnosis right now, we rely quite heavily on a number of different things -- not just self-reported symptoms, but also having to rule out other factors, and sometimes that means physical, biological or medical factors as well," he said.

"But I think in the case of this type of study, and I think studies like it, the use of functional magnetic resonance imaging brings a different perspective to what's going on. It's more than what you actually see in front of you at times, let's say in a clinical interview."

Functional MRIs can also look at potential impacts on the brain of interventions to help patients, he said. Treatments or interventions for PTSD condition include pharmacotherapy or medication and cognitive behaviour therapy, he said.

Besides possibilities in diagnosis, Dolcos also sees potential for studying brains to determine whether there might be pre-existing individual differences that make some people more susceptible to developing PTSD.

And it could become a military recruiting tool, he suggested.

"The development of the PTSD symptoms might eventually be avoided if some of the people could be identified as not qualified for or resilient enough to be exposed to something that could lead more likely to PTSD as a result of exposure to trauma, like in the case of a war."