

GRAY MATTERS: THE BRAIN-INJURED SOLDIER

Podcast – Part 1 /March 6, 2008

(Music in)

THE *PSYCHOLOGICAL* WOUNDS OF COMBAT HAVE ALWAYS BEEN ONE OF THE LINGERING CONSEQUENCES OF WAR. ‘SHELL SHOCK’ AND ‘BATTLE FATIGUE’ ARE AMONG TERMS USED TO DESCRIBE THE BEHAVIORS RESULTING FROM THE STRESS OF BATTLE.

THE LABEL *POST TRAUMATIC STRESS DISORDER* CAME TO THE FORE AFTER THE VIETNAM WAR. IT WAS A NEWLY NAMED DIAGNOSIS BACK THEN—BUT, OF COURSE, NOT A NEW CONDITION FOR THE VETERAN OF WARTIME.

Grafman: This has always been a phenomena — when people have gone to war and they are exposed to traumatic situations.

DR. JORDAN GRAFMAN IS A NEUROPSYCHOLOGIST WHO HAS BEEN WORKING WITH VETERANS STARTING WITH THE *VIETNAM HEAD INJURY STUDY* IN THE EARLY 1980S AT WALTER REED ARMY MEDICAL CENTER.

...seeing bodies blown apart, friends killed – that they clearly never experienced before and different people have different susceptibilities – but it has always been a part of war and conflict.

Music fades...

GRAFMAN IS NOW CHIEF OF COGNITIVE NEUROSCIENCE AT THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE AND IS A MEMBER OF THE DANA ALLIANCE FOR BRAIN INITIATIVES.

GRAFMAN SAW A HIGH INCIDENCE OF PTSD AMONG VIETNAM VETS WHO HAD EXPERIENCED DIRECT COMBAT.

In our hands it was about 40% -- but the range is probably anywhere between 15 to 40 and the incidence goes higher as soldiers experienced more trauma in the battlefield -- intrusive thoughts, the inability to function normally, and the persistence of those intrusive thoughts which don't respond to standard treatment for depression whether it be drug or therapy-related.

NOW, GRAFMAN'S FOCUS HAS EXPANDED TO INCLUDE TRAUMATIC BRAIN INJURY – WHAT HE CALLS THE SIGNATURE INJURY OF THE WAR IN IRAQ. AGAIN, THIS IS NOT A NEW CONDITION BUT IT'S NEWLY TIED TO THE LINGERING IMPACT OF ANOTHER WAR.

Body armor has become quite sophisticated and so that leads to this prominence of traumatic brain injury in two ways. A lot of the body is now very well protected and therefore the head tends to be relatively more, (and the brain), relatively more exposed. But in addition, partly because of the protective aspects of the helmet and the body armor as well, injuries that in Vietnam, for example, might have killed somebody, these days people are surviving because of the protective garments they're wearing.

GRAFMAN HAS BEEN STUDYING THE IMPACT OF BLAST INJURIES IN IRAQ AND AFGHANISTAN ON THE BRAIN – THOSE SUSTAINED BY SOLDIERS IN THE VICINITY OF A POWERFUL EXPLOSIVE DEVICE.

The physical force of the blast itself presumably can cause some change in brain function and can damage some of the tissues without any object penetrating the brain. So, if you're close enough --the force is strong enough -- something will happen in your brain that changes its function, and we don't know the details about that yet. There is a tremendous amount of studying going on to try to better understand this, both with animal models and by studying soldiers who've had this blast injury. But to date, we don't have a very good characterization of blast injury in U.S. forces who have served in Afghanistan and Iraq.

IT'S AS THOUGH THE BRAIN IS RATTLED INSIDE THE SKULL – RESULTING IN DAMAGE STILL UNKNOWN.

Rattled in some way, and we don't understand if the damage occurs directly to the brain, through for example, tearing of some of the fibers that connect different parts of the brain. Another possibility is that it might affect the vascular system in some way, and the force, or the wave, traveled to the brain through the vascular system and affect the arteries in the brain in some way, or weakened the blood-brain barrier. There are many possibilities for causing this damage, which would at least in many soldiers be relatively subtle, especially if they were at some distance from the blast itself. So it's very important we learn how to characterize this since this kind of explosive device has taken on popularity, particularity in countries like Iraq and Afghanistan where our soldiers are stationed.

GRAFMAN ESTIMATES THE INCIDENCE TO BE AS HIGH AS 20 OR 30% OF THOSE IN THE VICINITY OF A BLAST.

It's not that uncommon at least at one point during your tour that you will be in the range of a blast. And so it's very important we understand this better. And we are only talking about soldiers at this point— but in fact the civilian population can also be exposed to this in countries where these explosive devices are used. And so, as much as we can understand about the soldiers, it will have application for the treatment of civilians as well.

IN OUR NEXT PODCAST, DR. JORDAN GRAFMAN OF THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE WILL CONTINUE THIS CONVERSATION WITH A DISCUSSION OF NEW FINDINGS ON PTSD AND TRAUMATIC BRAIN INJURY -- FUNDING AND TREATMENT.

YOU'VE BEEN LISTENING TO A SPECIAL GRAY MATTERS PODCAST, FROM THE DANA ALLIANCE FOR BRAIN INITIATIVES.

