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Crystal clue in army brain injury

A colour-changing crystal attached to a soldier's uniform could help doctors decide if they need treatment for a brain injury, researchers say.



Soldiers in Iraq are at risk of bomb blast injuries

The crystal reveals the intensity of a bomb blast the wearer has been exposed to, helping doctors treat injuries that might not be immediately apparent.

Shockwaves from bomb blasts can cause brain damage not visible on MRI scans, New Scientist magazine reports.

US researchers recently presented the research at a neurotrauma conference.

MRI scans pick up structural damage, such as bleeds on the brain, excess fluid or skull fractures.

But a shockwave, such as that caused by a bomb can cause damage on a cellular level, with microscopic tears in the brain.

This would not be picked up on a scan but like any brain injury can cause long-term problems with symptoms such as headaches, behaviour change and memory loss.

Professor Shu Yang, from the University of Pennsylvania in Philadelphia, developed the device from a crystalline material which changes colour depending on its structure.

When a shock wave hits the material, which would be in the form of a thin film, like a small sticker, the crystals would change shape and thus colour.

The researchers now need to determine how the colour changes correlate with the degree of neurological damage suffered.

If all goes to plan, doctors will be able to get a measure of the intensity of the blast, which in turn will help them gauge the severity of the brain injury and what treatment to provide.

Force

"Depending on the damage, you'll have different colour intensities," said Professor Yang.

"Based on that information we can extract how much force the soldier has received."

Luke Griggs, spokesman from the brain injury association, Headway, said: "We welcome any new initiatives that may help doctors to diagnose and treat brain injuries sustained by soldiers.

"However, the practical benefits of this research may not be seen for many years, if at all.

"In the meantime, it is vital that every effort is made to accurately diagnose and treat brain injuries sustained from bomb blasts.

He added that brain injury can be very difficult to diagnose as there may not be physical signs.

"Many injuries fail to show up on MRI scans and yet the damage can be real and very serious."

“ Many injuries fail to show up on MRI scans and yet the damage can be real and very serious ”

Luke Griggs, Headway

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