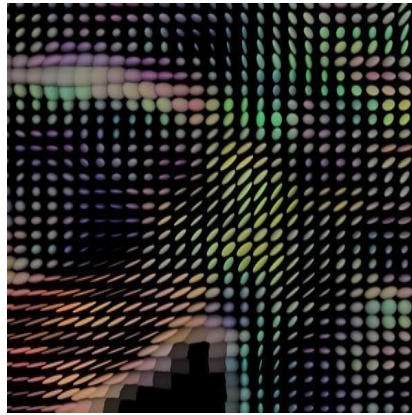




## DTI Helps Clinicians Better Predict mTBI Outcomes



According to a new study published in the *Journal of Neurotrauma*, Diffusion Tensor Imaging (DTI), a specialised magnetic resonance imaging (MRI) technique that detects microstructural changes in brain tissue, can help physicians better predict the likelihood of poor clinical outcomes following mild traumatic brain injury as compared to other conventional imaging techniques such as a CT scan.

During the study, DTI for white matter injury was used in 76 adult mild traumatic brain injury patients at the semi-acute stage ( $11.2 \pm 3.3$  days). Both the whole-brain voxel-wise and region-of-interest (ROI) approaches were used. In order to evaluate the clinical relevance of DTI, the study team evaluated correlations between three- and six-month outcomes and imaging, demographic/socioeconomic, and clinical predictors. In the study, DTI demonstrated utility in an inclusive group of patients with heterogeneous backgrounds and also in patients without substance abuse or neuropsychiatric history.

An estimated 75 percent of the 1.7 million patients in the US seek medical attention for mild traumatic brain injury (mTBI). mTBI refers to a non-penetrating head trauma that results in confusion, disorientation, loss of consciousness, post-traumatic amnesia and transient focal neurological signs or seizure. In order to provide optimal care to patients who experience an acute head injury, it is important to predict which of these patients are likely to suffer ongoing dysfunction three to six months down the road.

The results from this study have been presented by Esther Yuh and co-authors from the University of California, San Francisco, Erasmus MC-University Medical Centre (Rotterdam, The Netherlands), Mount Sinai School of Medicine (New York, NY), Seton Brain and Spine Institute (Austin, TX), University of Pittsburgh Medical Centre (PA), University of Texas (Austin), Antwerp University Hospital (Edegem, Belgium), and University of Cambridge Addenbrooke's Hospital (Cambridge, UK). It is the first published study that compares DTI to conventional imaging. The findings show that there were significant differences between the white matter of mTBI patients who had positive versus negative findings on the CT scan and MRI evaluation.

According to John T. Povlishock, PhD, Professor, Medical College of Virginia Campus of Virginia Commonwealth University, Richmond and the Editor-in-Chief of the *Journal of Neurotrauma*, "This exceptionally well done study addresses an issue of continuing controversy and confusion. The authors make an extremely important observation that MRI studies, including DTI parameters, are integral in informing prognosis after mild TBI. When taken together with the other publications from the TRACK-TBI Study Group, these findings should

prove invaluable in assessing the occurrence of mild TBI and informing patient outcome."

Source: Eurekalert!

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