Diffusion Tensor Imaging A Practical Handbook

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Diffusion Tensor Imaging (DTI) Diffusion Tensor Imaging or DTI can be used in order to probe, in vivo, the intrinsic, three-dimensional diffusion properties of water within tissues. DTI has been applied in several studies to infer the microstructural characteristics of the brain (Pierpaoli et al., 1996; Virta et al., 1999), the heart (Holmes et al., 2000), and the spinal cord (Fenyes and Narayana, 1999).

Diffusion Tensor Imaging (DTI) – Applied Neuro MRI Lab ...
Diffusion tensor imaging is an MRI technique that can be used to assess the microstructure of the white matter and brain connectivity and produces images of neural tracts by measuring the direction of water motion in the tissue.

Diffusion Tensor Imaging - an overview | ScienceDirect Topics
Diffusion tensor imaging (DTI) is a magnetic resonance imaging technique that enables the measurement of the restricted diffusion of water in tissue in order to produce neural tract images instead of using this data solely for the purpose of assigning contrast or colors to pixels in a cross sectional image.

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Non-Gaussian diffusion imaging: a brief practical review ...
Diffusion Tensor Imaging (DTI) studies are increasingly popular among clinicians and researchers as they provide unique insights into brain network connectivity. However, in order to optimize the use of DTI, several technical and methodological aspects must be factored in.

A hitchhiker's guide to diffusion tensor imaging
Background and Purpose— We measured the temporal evolution of the T2 and diffusion tensor imaging parameters after transient and permanent cerebral middle cerebral artery occlusion (MCAo) in macaques, and compared it to standard histological analysis at the study end point. Methods— Stroke was created in adult male macaques by occluding a middle cerebral artery branch for 3 hours ...

Serial Diffusion Tensor MRI After Transient and Permanent ...
Diffusion imaging can be used to estimate the routes taken by fiber pathways connecting different regions of the living brain. This approach has already supplied novel insights into in vivo human brain anatomy.

Using Diffusion Imaging to Study Human Connectional ...
In the beginning of the 1990s, the diffusion tensor model was introduced to describe the degree of anisotropy and the structural orientation information quantitatively (15,16). This diffusion tensor imaging (DTI) approach provided a simple and elegant way to model this complex neuroanatomical information using only six parameters.

Diffusion Tensor Imaging and Beyond - PubMed Central (PMC)
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Diffusion Tensor Imaging: A Practical Handbook | Wim Van ...
A novel imaging software, diffusion tensor imaging (DTI), is able to display neural tract deficits that are undetectable by MRI. It does so by evaluating the fractional anisotropy (FA) of neurons.

Diagnostic confirmation of mild traumatic brain injury by ...
Neuroimaging plays a critical role in the setting in traumatic brain injury (TBI). Diffusion tensor imaging (DTI) is an advanced magnetic resonance imaging technique that is capable of providing rich information on the brain's neuroanatomic connectome. The purpose of this article is to systematicall ...

Diffusion Tensor Imaging of TBI: Potentials and Challenges
The development of diffusion-weighted magnetic resonance imaging, which is sensitive to microstructural changes not visible with conventional volumetric techniques, has led to a number of diffusion imaging studies in AD; these have largely focused on white matter changes.

Diffusion imaging changes in grey matter in Alzheimer's ...
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