

# Anisotropic

## Anisotropy

Diffusion of water in the brain [white matter](#) has been shown to be anisotropic: Water mobility is lower when measured perpendicular to the [fiber](#) direction rather than parallel to it. This feature was used to produce images of the myelin fiber orientation. Coronal and sagittal MR diffusion images were obtained in volunteers using an echo-planar imaging sequence sensitized to molecular diffusion in perpendicular directions. Color-coded images of myelin orientation were then generated by combining these images together. The orientation of the white matter tracts was found to be in excellent agreement with known anatomy. Myelin fiber orientation mapping may offer a new perspective to evaluate white matter disorders.

Convention for color-coding tracts on [DTI](#) images:

- blue: superior-inferior tracts
- red: mediolateral (horizontal) tracts
- green: anterior-posterior tracts <sup>1)</sup>.

<sup>1)</sup>

Douek P, Turner R, Pekar J, Patronas N, Le Bihan D. MR color mapping of myelin fiber orientation. J Comput Assist Tomogr. 1991 Nov-Dec;15(6):923-9. PubMed PMID: 1939769.

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