

Neuronavigation with diffusion tensor imaging

A study of Sang et al., from the Department of Neurosurgery, Xiangya Hospital, Central South University, [Changsha, China](#), confirmed that the application of [neuronavigation](#) based on [DTI](#) with or without the [BOLD](#) signal in adult [glioma](#) surgery can improve postoperative quality of life and lengthen the survival time of patients, especially in cases involving the [brainstem](#) and the [eloquent](#) subregion ¹⁾.

[Diffusion tensor imaging](#) (DTI) attempts to aid in the preservation of subcortical networks by providing a framework for localizing tracts in relation to the surgical target. DTI takes advantage of the anisotropic diffusion of water along white matter fiber bundles, which can be assessed with magnetic resonance imaging (MRI). Postprocessing platforms are used to map the tracts, which can then be integrated into [neuronavigation](#). This permits the [neurosurgeon](#) to ascertain the location and orientation of major [white matter tracts](#) for preoperative and intraoperative decision making.

¹⁾

Sang S, Wanggou S, Wang Z, Lin X, Jiang N, Ye N. Clinical long-term follow-up evaluation of functional neuronavigation in adult cerebral gliomas. World Neurosurg. 2018 Jul 24. pii: S1878-8750(18)31605-X. doi: 10.1016/j.wneu.2018.07.127. [Epub ahead of print] PubMed PMID: 30053568.

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