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The Role of Neuropsychology in Neurosurgical Care: A Review of the Literature

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Abstract

In this review article, the authors describe the invaluable role that neuropsychology plays in neurosurgical care for a broad range of pathologies. As our understanding of cognitive and behavioral implications of diseases and surgical management of the brain has deepened, so has the need to preserve the quality of life for patients undergoing surgery to optimize well-being and overall survival. This article recounts the history of neuropsychology, details tools and techniques used by neuropsychologists including the neuropsychological assessment, fMRI, tractography, and awake surgery, and discusses the practical applications of neuropsychological evaluation in tumor surgery, epilepsy, deep brain modulation, and beyond.

Keywords: Awake surgery; Epilepsy; Functional MRI; Movement disorders; Neuro-oncology; Neuropsychological assessment; Neurosurgery; Tractography.

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