

# Functional Near Infrared Spectroscopy (fNIRS): An Emerging Neuroimaging Technology with Important Applications for the Study of Brain Disorders

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## Abstract

Functional near-infrared spectroscopy (fNIRS) is an emerging functional neuroimaging technology offering a relatively non-invasive, safe, portable, and low-cost method of indirect and direct monitoring of brain activity. Most exciting is its potential to allow more ecologically valid investigations that can translate laboratory work into more realistic everyday settings and clinical environments. Our aim is to acquaint clinicians and researchers with the unique and beneficial characteristics of fNIRS by reviewing its relative merits and limitations vis-à-vis other brain-imaging technologies such as functional magnetic resonance imaging (fMRI). We review cross-validation work between fMRI and fNIRS, and discuss possible reservations about its deployment in clinical research and practice. Finally, because there is no comprehensive review of applications of fNIRS to brain disorders, we also review findings from the few studies utilizing fNIRS to investigate neurocognitive processes associated with neurological (Alzheimer's disease, Parkinson's disease, epilepsy, traumatic brain injury) and psychiatric disorders (schizophrenia, mood disorders, anxiety disorders).

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