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Abstract

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Project Title: CORE--NEUROIMAGING

Abstract: Introduction to the Neuroimaging Core Neuroimaging methodologies allow regional brain structure and function to be assessed non-invasively in humans. In the context of cognitive rehabilitation, neuroimaging methods should be useful in elucidating the regional distribution and pathophysiology of brain injury, as a surrogate marker for categorizing brain injured patients with neuropsychiatric symptoms, and for monitoring regional brain function during therapy. Although the application of neuroimaging methods to rehabilitation research is in its infancy, existing studies clearly demonstrate sensitivity to regional brain dysfunction and a capability for visualizing alterations in regional brain activation in response to pharmacological or physical interventions. The Neuroimaging Core (NC) for the Cognitive Rehabilitation Research Network (CRRN) will focus on magnetic resonance methods, since these methods are completely non-invasive and provide a tremendous breath of tissue contrast. Because MRI scanners are now available in almost every medical center, imaging methods and markers developed by the NC could be rapidly disseminated to other sites. The NC will be located at the University of Pennsylvania which has extensive facilities within the Departments of Neurology, Radiology, and the Center for Cognitive Neuroscience for magnetic resonance neuroimaging. These facilities include research MRI scanners operating at 1.5 Tesla and 4.0 Tesla and several computer labs equipped for image analysis. The primary purpose of the NC will be to provide support for functional neuroimaging experiments proposed in the Scientific Projects, as well as support for collaborative projects which will develop with outside institutions and investigators. In addition, since the use and significance of functional MRI in the presence of neuropathology has not been extensively examined, the NC will also carry out Core research which will focus on the validation of clinical functional MRI methods used for the CRRN.

Thesaurus Terms:

bioimaging /biomedical imaging, biomedical facility, brain scanning, functional magnetic resonance imaging

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