About The NeuroCognitive & Behavioral Institute

Established in 1994, The NeuroCognitive & Behavioral Institute (formerly The NeuroCognitive Institute) is committed to its scientist-practitioner model which requires its clinicians to remain actively involved in neuroscience research. Over the past two decades, NCBI has become one of the premiere centers in New Jersey for the diagnosis and treatment of cognitive and related neurobehavioral and neuropsychiatric disorders. The team consists of clinical and cognitive neuropsychologists, cognitive and behavioral neurologists, clinical psychologists, neuropsychiatrists, cognitive and speech and language therapists, as well as, behaviorists, psychotherapists and neuromodulation clinicians.

Locations

Morris County:
111 Howard Blvd., Suites 204-205, Mt. Arlington, NJ 07856 (Primary Location)

Somerset County:
2345 Lamington Road, Suite 110, Bedminster, NJ 07921

Essex County:
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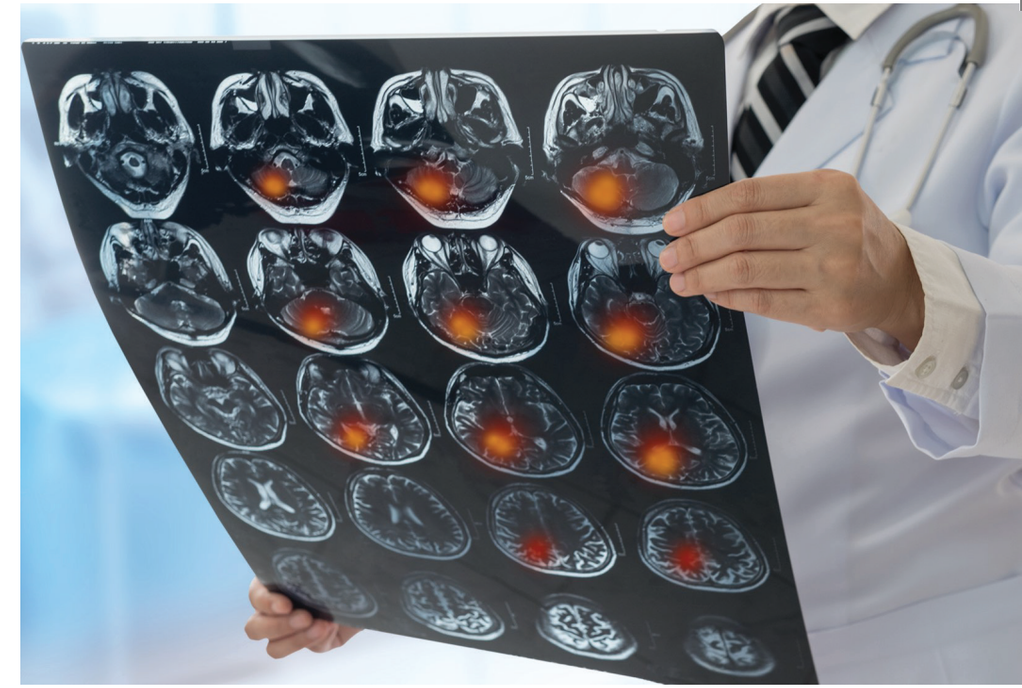
NCBI

THE NEUROCOGNITIVE & BEHAVIORAL INSTITUTE

Integrating Science with Practice

ADHD | Autism | Brain Injury | Cognitive Impairment | Mood and Behavioral Disorders



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Functional Brain Mapping and Neuromodulation Enhanced Cognitive Rehabilitation

We can use functional brain mapping results to identify treatment targets. – *Dr. Gerald Tramontano, Medical Director*

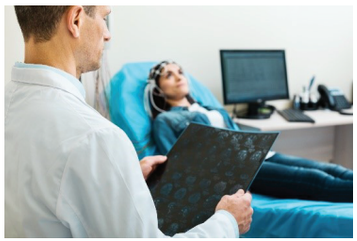
Functional Brain Mapping and Neuromodulation

Functional Assessment

Neuropsychological testing tells us how the patient's cortex is functioning. A neuropsychological test battery assesses various cognitive domains such as information processing speed, attention, learning, memory and executive systems. Emotional and behavioral assessments are also included. These tests are combined with a comprehensive medical history, neurological and psychiatric examination.

Neuroimaging

At NCBI, we use both electrical neuroimaging and fMRI brain mapping techniques collectively. The advantage of this approach is the enhanced capacity for the examiner to assess and visualize without delay changes in the brain while the patient completes various cognitive tests or during the resting state.



Functional brain mapping combines neuropsychological test results such as attention and executive functioning and various disorders such as OCD with brain mapping results to more accurately diagnosis a variety of cognitive, neurobehavioral and neuropsychiatric disorders.

Comparing a patient's functional brain mapping results to a normative database of age, education and gender matched healthy controls, assists in making accurate diagnoses to get closer to understanding the cause of the disorder and how best to treat it. For example, we can map various cortical networks in the brain, such as the attention, executive, language, mood or the pain network. If abnormalities are detected, we can identify the precise location within the network and determine if these deviations are due to cortical tone, connectivity and/or timing abnormalities or some other neurophysiological related cause.

In addition, to normative database comparisons, we can compare brain mapping results to various clinical databases to generate a Probability Index score for a variety of etiologies. For instance – we can assess the probability that the abnormalities are due to central nervous system disorders such as ADHD, Alzheimer's disease, Seizures, Traumatic Brain Injury or a Learning Disability.

Neuromodulation

Non-invasive neuromodulation treatment applications such as transcranial direct current stimulation (tDCS), rapid transcranial magnetic stimulation (rTMS), tACS, tRNS and EEG Neurofeedback can be used to treat clinically significant brain abnormalities detected on brain mapping. These interventions are used to treat cognitive and neuropsychiatric disorders, as well as, Epilepsy and Pain. Some of these interventions are available only through research and others have been FDA approved to treat certain disorders. Various neuromodulation interventions can also be used to enhance cognitive processes in individuals without cognitive or neuropsychiatric disorders.

Among these various neuromodulation applications, Neurofeedback currently has the widest range of clinical applications. Although Neurofeedback has been used as a clinical tool since the 1960s, brain mapping neurofeedback using localization software is a relatively recent development dating back to approximately 2008. This technology uses advancements made over the past 15 years mapping multiple brain circuits responsible for various human experiences; from basic functions such as sustaining wakefulness to complex functions such as decision making.

Clinically, sLORETA Neurofeedback and other forms of neuromodulation are rapidly growing around the globe as a treatment application to alter brain networks that are not functioning at their optimal levels.

At NCBI, once we modulate a cortical region or network, we then find rehabilitation interventions to further active that area of the brain. Our patients are then given 'homework' assignments to further strengthen the cortical regions we are modulating.

Brain mapping and neuromodulation interventions such as neurofeedback are clinical procedures and reimbursed by most 3rd party healthcare insurance carriers. NCBI participates in most healthcare plans including Medicare and Medicaid.

In non-clinical populations, brain mapping Neurofeedback and tDCS is also being used to enhance performance and cognitive functions such as reaction time and decision speed in individuals who are functioning in highly competitive environments.

For additional information on these and other recently developed diagnostic tests, treatment interventions and peak performance training please call the NeuroCognitive & Behavioral Institute and schedule a consultation.

One of Many Scientific References on Functional Brain Mapping and Neuromodulation

Functional Brain Mapping and the Endeavor to Understand the Working Brain: Signorelli and Chirchiglia (2013).

Mind Over Chatter: Plastic up-regulation of the fMRI salience network directly after EEG Neurofeedback. Neuroimage, 65, 324-335