CNS
CENTER FOR NEUROLOGICAL STUDIES

INNOVATION – DIAGNOSIS – HOPE

Help alter the future of brain injury and disease research – support the Center for Neurological Studies

The Center for Neurological Studies was founded in 2011 in Novi, Michigan, with the objective of advancing scientific research for neurovascular disease through advanced MRI techniques. These advanced imaging protocols provide a significant opportunity to improve the quality of life for people who suffer from traumatic brain injuries and neurologic disorders.

The CNS team includes experts in the research and application of new imaging techniques. From sports-related concussions to assaults, motor vehicle accidents, and military blast injuries, CNS is at the forefront of concussion studies, presenting work in high-visibility journals and scientific conferences.

The medical team at CNS has changed the landscape for people suffering with milder TBI. Traditional methods of imaging brain disorders may lack diagnostic specificity, which may lead to errors and delays in diagnosis while frequently missing critical treatment windows. Advanced MR imaging expands the range of tissue properties "visible" to a clinician, including the detection of important biomarkers and the imaging of tissue function.

Our mission at CNS is to provide unprecedented understanding of normal brain function and disease through the use of advanced MRI methods.

Stroke • Traumatic Brain Injury • MS • Parkinson's Disease. The Center for Neurological Studies is on the leading edge of understanding and diagnosing these debilitating conditions and you can help.

Your tax deductible contribution to CNS means you will help alter the future of medicine by supporting high probability, high impact diagnoses that may offer rare opportunities for cures for progressive and severely disabling neurological disease.

I thank you in advance for your support.

John D. Russell
Executive Director / CEO

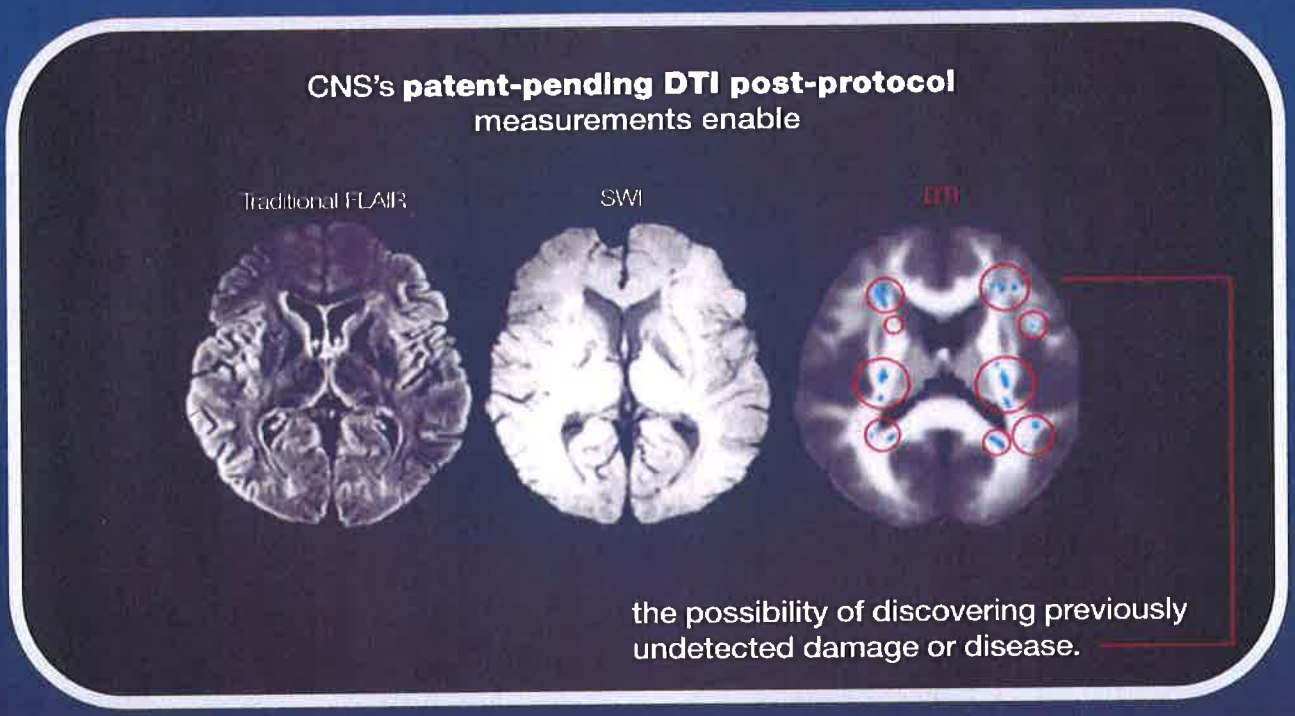
Business Office
43000 W. 9 Mile Rd - Suite 116
Novi, MI 48375
Phone: 248-277-3334
Fax: 248-277-3337

WSU Research Office
440 E. Ferry St - Suite 1
Detroit, MI 48202

South Center Office
23400 Michigan Ave - Suite 702
Dearborn, MI 48124
Phone: 313-228-0930
Fax: 313-228-0931

Diagnosis

Accurate diagnosis of brain injuries is critical. Without it, medical professionals cannot take steps to treat, comfort and heal patients. The Susceptibility-Weighted Imaging (SWI) is possible through the use of algorithms that differentiate the densities of adjacent tissues. While signal density forms the basis of all MRI scans, the SWI scan is 3-to-6 times more sensitive as it accounts for the susceptibility of all brain elements, including hemorrhages. SWI is clinically appropriate in the diagnosis of: TBI, Tumors, Stroke and Hemorrhage, MS, and Vascular Dementia.



Diffusion Tensor Imaging (DTI) is appropriate for imaging the brain's neural tracts for signs of injury or disorder. DTI works by measuring the diffusion of water through tissue. Measurements are isolated to identify the preferred direction of flow, which allows for the isolation of neural tracts from the brain's white matter. DTI is the most sensitive MR approach currently available and can be used to identify tract-specific lesions caused by injury. In one study, DTI scans found tumors, hemorrhages and obstructions in 63 of 179 patients that were undiscovered using traditional MRI scans.

Innovation

Advanced imaging with MRI has been put forth as "an equalizer" as it is able to detect the presence of different injury sub-types and thus, allows for grouping of research subjects on the basis of pathology to improve diagnostic accuracy. Our team will continue to develop and refine our already advanced methods of detecting TBI pathology while leveraging these capabilities to improve patient outcomes. Our methods include two core imaging strategies: Susceptibility Weighted Imaging (SWI) and Diffusion Tensor Imaging (DTI). As of March 13, 2013, CNS has a patent application pending involving a method to increase the reliability and clinical utility of DTI for brain injury in single subjects.

CNS is extremely fortunate to have Mark Haacke, PhD, as a board member and fellow collaborator. Dr. Haacke is recognized internationally as an expert in MR imaging. He received the Gold Medal Award from the International Society of Magnetic Resonance in Medicine. Dr. Haacke's academic training is in theoretical, high-energy physics, receiving his PhD in high-energy physics from the University of Toronto. His work ultimately culminated in the development of Susceptibility Weighted Imaging in early 2000, which is now a globally accepted technique for the detection of micro-bleeds. He is also affiliated with Wayne State University Medical School and Harper University Hospital, both in Detroit. Dr. Haacke, also has an unprecedented history of success with grant funding.

Testimonials

"After our football careers, so many of us retired pro players have had to rely on partnering with a healthcare professional for the many struggles we face. My relationship with CNS has been a lifesaver. Based on research conducted by CNS and Dr. Randall Benson, I was able to understand and be educated about my condition. I've told other retired pros, CNS's education and research can do the same for them and anyone else who's had problems with brain injury."

– John "Frenchy" Fuqua, retired NFL running back, Pittsburgh Steelers

"Our experience with CNS has been nothing less than exemplary. Our son was experiencing some symptoms, which could be attributed to abnormalities in the brain. The trust we have in CNS were cause to give any parent confidence. The research conducted by CNS is cutting edge and invaluable. The education provided is unique, founded in research and accurate.

"Thank you for the opportunity to share our very favorable experiences with the Center for Neurological Studies."

—James H. Held, Sr.

"I was seriously injured in a head-on car crash at 65 mph. I spent 12 days in a coma and broke my skull in multiple places, suffering three brain bleeds. My wife knew that I was not the same and had suffered a brain injury. I was in denial – until I saw the imaging and read the evaluation done by CNS. The education received by CNS's research enabled me to change my focus from denying any injury to moving on and doing everything I can to make my life more fulfilling. I regularly turn to the CNS website to stay updated on CNS's findings and educational support."

—CNS Research Subject

About CNS

The Center for Neurological Studies was founded in 2011 in Novi, Michigan, with the objective of advancing scientific research for neurovascular disease through functional MRI techniques. These advanced imaging protocols provide a significant opportunity to improve the quality of life for people who suffer from traumatic brain injuries.

The CNS Team

The CNS team includes experts in the research and application of new imaging techniques. From sports-related concussions to assaults, motor vehicle accidents and military blast injuries, CNS is at the forefront of concussion studies, presenting work in high-visibility journals and scientific conferences.

CNS has the potential to provide one of the most unique opportunities for drug development treatment protocols and patient life improvement for neurological disorders in the country. The CNS team will continue to develop and refine its already advanced methods of detecting TBI pathology, while leveraging these capabilities to improve patient outcomes.

Advanced MRI

The medical team at CNS has changed the landscape for people suffering with milder TBI. Traditional methods of imaging brain disorders may lack diagnostic specificity, which may lead to errors and delays in diagnosis while frequently missing critical treatment windows. Advanced MR imaging expands the range of tissue properties "visible" to a clinician, including the detection of important biomarkers and the imaging of tissue function.

Advanced imaging with MRI has been called the "equalizer" for its ability to detect the presence of different injury subtypes. Our methods include two core imaging strategies:

- Susceptibility-Weighted Imaging (SWI)
- Diffusion Tensor Imaging (DTI)

SWI is three- to six-times more sensitive than traditional MRI imaging (T2* GRE), revealing even the smallest hemorrhage.

DTI is even more sensitive than SWI. It allows the CNS team to identify other chronic, degenerative processes so that test results remain abnormal (continuing to show signs of disorders) despite functional recovery.

Our Mission

Our mission at CNS is to provide unprecedented understanding of normal brain function and disease through the use of advanced MRI methods.

As a CNS patient, we pledge the highest level of professional medical courtesy coupled with a team nationally regarded for its work with brain injury and neurological pathology.

Center for Neurological Studies
43000 W. 9 Mile Road, Suite 116
Novi, MI 48375

CNS South Clinic
23400 Michigan Ave., Suite 702
Dearborn, MI 48124

Research Office: Wayne State University
Medical Center
440 E. Ferry, Unit 1
Detroit, MI 48202

www.NeurologicStudies.com
Phone: 248.277.3334

Meet the CNS Medical Director

Randall Benson, MD

CNS Medical Director, Dr. Randall Benson, is a nationally regarded behavioral neurologist and imaging neuroscientist. Dr. Benson is recognized for developing new, more effective diagnoses for incapacitating brain disorders through the use of advanced, functional MRI methods. His work has led to an unprecedented understanding of brain function and disease.

Among his accomplishments:

- First dual Research Fellow in Behavioral Neurology and fMRI at Harvard Medical School
- Neurology residency at Boston University and the Veterans Administration
- Ten years, academic/clinical faculty neurologist, Wayne State University
- Board certified
- Testified before the US Congress on a National Football League-sponsored study on concussions
- Principal investigator or co-investigator on US National Institutes of Health and Department of Defense projects

CENTER FOR NEUROLOGICAL STUDIES
43000 W. 9 Mile Road, Suite 116
Novi, MI 48375

www.NeurologicStudies.com
Phone: 248.277.3334

HOPE
INNOVATION
DIAGNOSIS

for traumatic brain injury, stroke, epilepsy and other brain disorders

CNS

CENTER FOR NEUROLOGICAL STUDIES

HOPE
INNOVATION
DIAGNOSIS

Advanced MRI techniques, including DTI and SWI, for the detection of mild- to moderate-traumatic brain injury, stroke, epilepsy and other disorders

248.277.3334
www.NeurologicStudies.com

Novi • Dearborn • Detroit
Michigan