Retinal Imaging Analysis and interpretation

The retinal images from each study are made available for remote interpretation by a medical physician, board-certified in ophthalmology. In some cases, a retinal specialist may be asked to interpret the study. Typically, the interpretive report is received by the Institute within 24 hours. In isolated cases retinal imaging data may be analyzed with artificial intelligence (AI). Your attending healthcare provider at CNI will correlate the findings with your state of health.

Referral for Specialty Consultation

In some cases abnormal retinal imaging results will require referral to the appropriate eye specialist. The Chicago Neuroscience Institute has developed relationships with some of the best ophthalmology and retinal experts in the Chicagoland area.

The Role of Retinal Imaging in Neurology

Nerves which do not receive adequate blood flow from small blood vessels will suffer damage or cell death that alters function. This includes nerves of the brain and spinal cord, as well as, nerves of the autonomic and peripheral nervous systems. Microvascular disease is a common contributing factor for chronic and degenerative neurological disorders in older people. The majority of adults over age 60 demonstrate small vessel compromise and related changes on brain MRI studies.

The retina shares many of the tissue characteristics and features of the brain. Small vessel disease in the eye often parallels abnormal brain MRI findings consistent with small vessel disease, such as, white matter lesions, atrophy and micro-strokes. Small blood vessel compromise in the brain increases the risk for cognitive impairment, poor balance, dementia, stroke, and movement disorders. Regular retinal screenings can lead to early detection and care of MVD, thus leading to better treatment outcomes and improved neurological health.

Director of the Institute David H. Durrant, BS, DC, PhD(c)

Dr. Durrant is the current Director of the Chicago Neuroscience Institute. After his doctoral training Dr. Durrant completed a residency and achieved board certification in neurology. He is pursuing a PhD in Health Services with emphasis on the application of molecular imaging in neurology. Dr. Durrant has maintained active Diplomate status with the American Chiropractic Board of Neurology. Dr. Durrant has attained prestigious Fellow status with American College of Spine Physicians and Fellow status with the International Academy of Clinical Neurology. He is the current President of the American Academy of Spine Physicians. Dr. Durrant has a longstanding interest in the area of neurology and sports medicine.

Professional Experience

- Board Certified Chiropractic Neurologist
- Director of Chicago Neuroscience Institute
- President of the American Academy of Spine Physicians
- Board Member of the International Spine Association
- Fellow of International Academy of Chiropractic Neurology
- Diplomate of the American Board of Chiropractic Neurology
- Author of a benchmark Neurology Textbook
- Prior Advisor to the Board of the Marine Military Academy
- Prior consultant to the Human Performance Lab at the Marine Military Academy
- Physician consultant to Elite and Olympic athletes

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Digital Retinal Screening

CNI
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"We must look for the subtle indicators of disease to make a difference".

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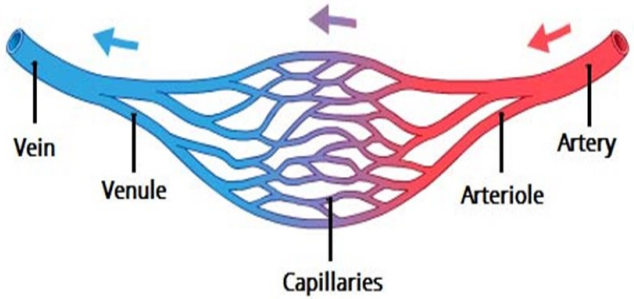
What is Microvascular Disease?

The circulatory system is comprised of large, medium, and small caliber blood vessels. Most diagnostic and therapeutic procedures focus on diseases of large vessels. The phrase microvascular disease (MVD) refers to disorders which compromise small blood vessels. Small blood vessel disease is harder to detect and more difficult to treat than large vessel disease; therefore, prevention, early detection and timely intervention is crucial.

The health and integrity of all bodily tissues is dependent on adequate large and small vessel blood flow. MVD can result in cell injury (ischemia) or cell death (infarct) in any tissue, even in the absence of large vessel disease.



Diagnosis of Microvascular Disease

The evaluation of small blood disease is both challenging and limited. The diagnosis is typically made if a patient has no significant large blood vessel disease, biomarkers for MVD, and vascular related signs and symptoms. Some individuals will suffer from coexistent large and small vessel disease.

Common diagnostic approaches for MVD include observation of small vessel changes in the skin, pulse oximetry, retinal imaging, magnetic resonance imaging (indirect method), microangiography imaging, and/or specialized pulse volume recordings. There are also numerous laboratory tests which can be used to evaluate biomarkers for vasculitis and to assess for disorders associated with MVD.

Causes of Microvascular Disease

The cause of microvascular disease is not completely understood. What is known is that many of the risk factors can be reduced or eliminated by lifestyle changes. Risk factors for microvascular disease include:

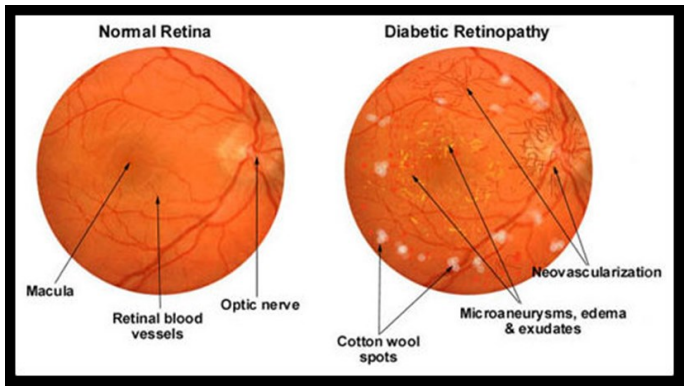
- aging
- atherosclerosis
- tobacco use (smoking)
- obesity
- diabetes
- high cholesterol
- sedentary lifestyle
- high blood pressure
- insulin resistance
- estrogen deficiency
- autoimmune disorder
- arteriosclerosis

Many diseases that affect the circulation and the brain manifest in the retina.

What is Digital Retinal Screening?

Digital retinal screening refers to the use of a special microscope and camera to image and photograph the back of the eye, an area referred to as the retina. The images reflect the health of numerous tissues including the optic nerve, macula, retina and small blood vessels.

Retinal imaging is used to diagnose systemic and eye conditions. The integrity of small blood vessels in the back of the eye often represents small vessel changes in other regions of the body including the brain. Retinal images also reveal abnormalities which may threaten normal vision.



Who Should Have a Digital Retinal Screening?

Individuals over 40 years of age should have periodic retinal screening, Individuals of any age who have known risk factors or who have one of the following conditions should have periodic digital retinal screenings.

- diabetes
- heart disease
- lung disease
- hypertension
- neuropathy
- autoimmune disease
- obesity
- glaucoma
- cognitive impairment
- stroke
- macular degeneration
- clotting disorders

Retinal Imaging System.

What to Expect During Your Retinal Examination

The attending healthcare provider will have you sit comfortably in front of the imaging system with your chin and forehead resting on a guide. The eye camera will be focused on one eye, then the other. There will be a brief flash when an image is taken, similar to flash photography. The entire retinal imaging procedure will take a few minutes..