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Welcome to High Field & Open MRI

The purpose of this newsletter is to familiarize you and your office with **High Field & Open MRI**, our staff and services. The more you know about our center, the better you will be able to prepare your patients for their MRI exam. Our entire staff is here to provide you and your patients with timely scheduling, a great quality scan, a professional, thorough report, and prompt results. Most important to us is that your patient is treated with respect and compassion from the time they enter our facility until the time they leave.

Now let us tell you a little about **High Field & Open MRI** and why we are different from every other MRI center you've ever referred a patient to in the past.

HIGH FIELD & OPEN MRI... You might think it's a strange name for a MRI center, but our name reflects "what" we are. High Field refers to the magnetic strength of the scanner. MRI scanners commonly 1.5 Tesla or above, are considered high in field strength. **High Field & Open MRI**, formerly Open MRI, offers both the state of the art GE Signa with Excite, 1.5 Tesla Wide Open Short Bore Magnet and the GE Profile Open Scanner at both our Shelbyville Road and Dixie Highway locations.

Some benefits of the GE Signa 1.5T with Excite are faster scan times and clearer images. The open design of our GE Profile scanner makes it ideal for extremely claustrophobic and larger patients.

When patients come to **High Field & Open MRI**, they may be extremely nervous and anxious about their study. Many are also in pain. Our staff has been hired with the special needs of our patients in mind and have been specifically trained to deal with the emotional and physical needs of these individuals. We are so committed to patient comfort that we even use **Tempur-Pedic** pads rather than traditional pads on all our scanner tables!



We are here to be of service to you and your patients and we sincerely appreciate your referrals. If you have any questions regarding **High Field & Open MRI**, or would like to schedule an appointment, please call us at **(502) 429-6500** or visit our web site at **www.openmriky.com**

Our Radiologist



Peter A. Rothschild, M.D. is co-founder, along with his brother Edward A. Rothschild, II, M.D., and Medical Director of High Field & Open MRI in Louisville, Kentucky. Dr. Rothschild helped develop the world's first open MRI scanner while he was medical director of the Radiology Imaging Laboratory at the University of California, San Francisco, from 1988-1991. Since 1988, he has practiced exclusively in the area of MRI. Dr. Rothschild pioneered many of the clinical aspects of open MRI, edited the first and only medical textbook on the subject and has authored numerous medical journal articles about various aspects of MRI. He has served as chairman of several national physicians' and technologists' courses on MRI, and lectures on a national and international level on the subject of MRI. Dr. Rothschild earned his M.D. degree at the **University of Louisville School of Medicine**, completed his Diagnostic Radiology residency at Indiana University Hospitals, and is certified by the American Board of Diagnostic Radiology. He is on the medical advisory board for General Electric Medical Systems and Bracco Diagnostic.

Peter A. Rothschild, M.D.



High Field & Open MRI is the First and Only Center in Louisville to offer Lumbar Compression using the DynaWell® L-Spine Compression Device

How does it work?

Lumbar spine scanning requires more planning than conventional chest and body scanning. The positioning of the patient and selection of an appropriate technique to fit the clinical indications are essential. In this respect, the DynaWell® L-Spine Compression Device is a helpful diagnostic tool for any MRI scanner.

Why?

Quite simply, the DynaWell® L-Spine Compression Device offers a comfortable, easy-to-use diagnostic technique that enhances the data acquired by the scanner. Problems that would ordinarily remain undetected when the patient's spine is relaxed are now visible.

How does it work in practice?

As with an ordinary MRI scan, the patient is asked to lie down on a flat table. However, with The DynaWell® L-Spine Compression Device, the similarity ends there. The patient wears the DynaWell vest over his/her shoulders and upper

chest. The straps on the vest are tightened over the patient's chest and the patient's feet are placed against the foot-plate of the compression device. Two adjustable cords on opposite sides of the vest are attached to the medical compression device. By tightening the cords to a desired and measured load (up to 50% of



body weight), it is possible to compress the spinal cord in a way that is similar to that of upright posture.

The DynaWell® L-Spine Compression Device helps patients remain motionless and distributes the pressure across the chest rather than the shoulders. Thus, with a loaded scan, problems are often more visible than with an unloaded scan.

The DynaWell® L-Spine Compression Device is easy to use and addresses the

widely recognized need to simulate the upright position in patient examinations of the lower back. It provides enhanced cross-sectional and longitudinal images of the patient's back that often reveal problems not otherwise visible.

The DynaWell® L-Spine Compression Device is comfortable and may allow for earlier and more valid diagnosis, allowing doctors to treat their patient's spinal disorder and help them return to a pain free lifestyle. Fundamental to the design of The DynaWell® L-Spine Compression Device is the idea of achieving a high level of patient comfort, while enabling enhanced imaging of the lower back.

How do I schedule this test?

The DynaWell® L-Spine Compression Device is available at both our Dixie Highway and Shelbyville Road facilities. To schedule, simply call (502) 429-6500 and request the L-Spine MRI to be performed with compression.

State-of-the-Art MRI System Installed at High Field & Open MRI

Last summer, **High Field & Open MRI** introduced its new, state-of-the-art magnetic resonance imaging (MRI) upgrade that is being described as a breakthrough tool for the diagnosis of disease.

The new system—known as Signa® Infinity with EXCITE™—is from GE Medical Systems, one of the world's leading MRI manufacturers. Capable of acquiring diagnostic information significantly faster than other MRI systems, the EXCITE scanner will enable our radiologists at **High Field & Open MRI** to improve the diagnosis of a wide range of conditions, including vascular disease; stroke; abdominal and brain disorders; and musculoskeletal conditions in the knee, shoulder and other joints.

Benefits of this technology include reduced length of MRI exams while improving the quality of the anatomical information. It will also make MRI exams more comfortable for patients, especially those who have difficulty holding their breath during certain procedures.

MRI utilizes computers and magnetic fields, rather than radiation, to provide safe and non-invasive images of the human anatomy. It is estimated that more than 20 million MRI exams are performed each year in the United States.

**Evening
and
Weekend Hours**



High Field & Open MRI is open every weeknight and Saturday for the convenience of your patients.

For an appointment, please call us at

(502) 429-6500

Common MRI Terms

AXIAL - a plane, slice or section made by cutting the body or part of it at right angles to the long axis. If the body or part is upright, the cut would be parallel to the horizon. **B** or **B₀** - a conventional symbol for the constant magnetic field produced by the large magnet in the MR scanner. **B₁** - the conventional symbol used for identifying the radio frequency (RF) magnetic field.

CORONAL - a plane, slice or section made by cutting across the body from side to side and therefore parallel to the coronal suture of the skull.

FAT SATURATION (FAT-SAT) - A specialized technique that selectively saturates fat protons prior to acquiring data as in standard sequences, so that they produce negligible signal. The pre-saturation pulse is applied prior to each slice selection. This technique requires a very homogeneous magnetic field and very precise frequency calibration.

GADOLINIUM (GAD) - gadolinium is a non-toxic paramagnetic contrast enhancement agent utilized in MR imaging. When injected during the scan, gadolinium will tend to change signal intensities by shortening T1 in its surroundings.

MAGNETIC RESONANCE - the absorption or emission of energy by atomic nuclei in an external magnetic field after the application of RF excitation pulses using frequencies which satisfy the conditions of the Larmor equation.

MAGNETIC RESONANCE ANGIOGRAPHY (MRA) - MR image visualization of selected vascular structures, such as the Circle Of Willis or the carotid arteries.

REPETITION TIME (TR) - the amount of time that exists between successive pulse sequences applied to the same slice. It is delineated by initiating the first RF pulse of the sequence then repeating the same RF pulse at a time *t*. Variations in the value of TR have an important effect on the control of image contrast characteristics. Short values of TR (< 1000 ms) are common in images exhibiting T1 contrast, and long values of TR (> 1500 ms) are common in images exhibiting T2 contrast. TR is also a major factor in total scan time.

SAGGITAL - a plane, slice or section of the body cutting from front to back through the saggital suture of the skull, and continued down through the body in the same direction, dividing it into two parts, then turning one half to view it from its cut surface.

SIGNAL-TO-NOISE RATIO (S/N, SNR) - The ratio between the amplitude of the received signal and background noise, which tends to obscure that signal. SNR, and hence image quality, can be improved by such factors as increasing the number of excitations, increasing the field of view, increasing slice thickness, etc. SNR also depends on the electrical properties of the patient being studied and the type of receiving coil used.

T1 WEIGHTED - an image created typically by using short TE and TR times whose contrast and brightness are predominately determined by T1 signals.

T2 - spin-spin or transverse relaxation time. The time constant for loss of phase coherence among spins oriented at an angle to the static magnetic field due to interactions between the spins. Results in a loss of transverse magnetization and the MRI signal.

T2 WEIGHTED - an image created typically by using longer TE and TR times whose contrast and brightness are predominately determined by T2 signals. **TAU (τ)** - the interpulse times (time between the 90° and 180° pulse, and between the 180° pulse and the echo) used in a spin echo pulse sequence. **TE (Echo Time)** - represents the time in milliseconds between the application of the 90° pulse and the peak of the echo signal in Spin Echo and Inversion Recovery pulse sequences.

TESLA (T) - the preferred unit of magnetic flux density. One tesla is equal to 10,000 gauss. The Tesla unit value is defined as a field strength of 1 Weber per meter², where 1 Weber represents 1 x 10⁸ (100,000,000) flux lines.



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HIGH FIELD & OPEN MRI

wants to hear from you. Please make any comments, suggestions,
or recommendations on how we can better serve you.

Detach and fax suggestions to (502) 429-0770