



**AT LAST, RADIATION-FREE DIAGNOSIS
AND MONITORING OF SCOLIOSIS.**

And the end of breast cancer induced by
overexposure to spine X-Rays.

FONAR

A UNIQUE APPLICATION OF THE FONAR DYNAMIC™ UPRIGHT® MRI

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AT LAST, RADIATION-FREE DIAGNOSIS AND MONITORING OF SCOLIOSIS

AND THE END OF BREAST CANCER INDUCED BY OVEREXPOSURE TO SPINE X-RAYS

Announcing An Invaluable Application Of The Unique Fonar Dynamic™ Upright® MRI

At last, radiologists and surgeons can perform diagnosis and treatment monitoring of scoliosis patients without exposing them to repeated doses of X-ray radiation.

The Fonar Dynamic™ Upright® MRI allows imaging of the spine upright and fully weight-loaded – and sees, not only the curvature of the vertebrae, but the soft tissue, including the nerves and discs.

National Cancer Institute Report Shows 70% higher risk of breast cancer¹

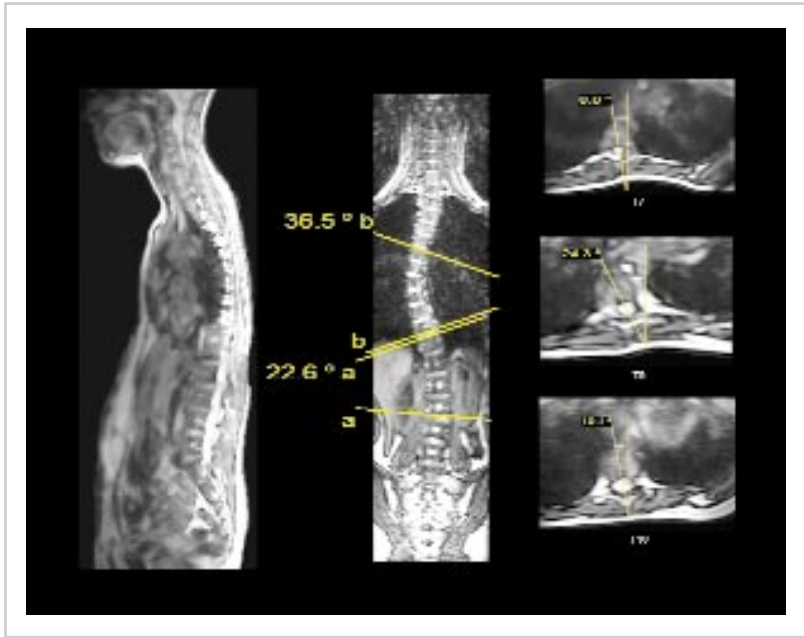
The NCI reports, “Researchers have found that women with scoliosis, or abnormal curvature of the spine, who were exposed to multiple diagnostic X-rays during childhood and adolescence may be at increased risk of dying of breast cancer. . . . The 5,466 women in the study, who received an average of 24.7 X-rays, were found to have a 70% higher risk of breast cancer than women in the general population.”

“These findings provide yet another indication that radiation exposure, especially in childhood, is associated with increased breast cancer risk later in life, and that the amount of risk is proportional to the radiation dose,” said Michele M. Doody, M. S. , from The National Cancer Institute’s Radiation Epidemiology Branch and the principal investigator of the study.

The report goes on to say that “although radiation exposures to breast tissue are much lower today than during the time period covered by this study, they are not insignificant.”

Scoliosis occurs in approximately 2 percent of girls (3 million American women).





Upright Scan of Scoliosis Patient with the Fonar Dynamic™ Upright® MRI.

A Life-Saving And More Revealing Alternative

The Fonar Dynamic™ Upright® MRI provides a life-saving and more revealing way to evaluate and monitor scoliosis. With X-ray, a patient has a PA and lateral radiograph two or three times a year. With the Fonar Dynamic™ Upright MRI®, a scoliosis examination is completed in 5 to 10 minutes. The images provide coronal, sagittal and axial views of the spine – with no radiation. The 3-plane visualizations are achieved by 3-D acquisition with curved multi-planar reconstruction. Both the Cobb angles and the angular rotation of the vertebrae are measured.

Time and Cost The Same As For X-Ray

The protocol for radiation-free monitoring of scoliosis by the Fonar Dynamic™ Upright® MRI can be performed in the same amount of time and at the same cost as X-ray monitoring. It is imperative that every hospital and practice performing scoliosis examinations consider providing their patients with the radiation-free choice that is finally available because of the unique benefits of the Fonar Dynamic™ Upright® MRI.



Positional Imaging: One Side of the Fonar Dynamic™ Upright® MRI Removed for Photography.

For the scanner nearest you, for additional information or to purchase a Fonar Dynamic™ Upright® MRI, call and ask to speak to a sales representative at 1-888-NEEDMRI (1-888-633-3674).

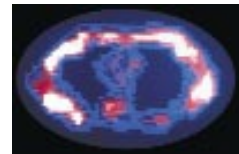
Fonar Heritage

The Inventor of MR Scanning
Timeline, Inventor Contributions



The world's first MR scanner, (Downstate Medical Center, 1977) Smithsonian Institution, Permanent Collection

- **1969** Original Idea for MR Scanner (Grant Application to Health Research Council of the City of New York)^{1*}
- **1969** Realizes Need for a Compelling Application to Justify Building Human Scanner. Decides on Cancer Detection^{1,2}
- **1970** Key Discovery Makes the MRI Possible³ Discovery of the marked T1 and T2 signal differences among the normal tissues and also between the normal tissue and cancer tissue. Discovery enables soft-tissue detail previously absent from medical imaging, and early cancer detection; used today to detect cancers worldwide. "NMR developed into a laboratory spectroscopic technique capable of examining the molecular structure of compounds, until Damadian's ground-breaking discovery in 1971." (MRI From Picture to Proton, Cambridge University Press, 2003)
- **March 1971** First Article Published (*Science*)⁴
- **Spring 1971** First Ever Scanning Method Proposed (*Downstate Reporter*)^{5,6,7}
- **March 1972** First MR Patent Filed (3D Serial Voxel Scanning Method). Patent Issued 1974.⁸
- **1976** The Struggle Begins – Expert Declares, "Any further discussion of scanning the human body by MR (NMR) is visionary nonsense."
- **1976** Construction of First Human MR Scanner Commences
- **1977** Construction Completed: First Human Scan Achieved: Thoracic MRI Image at T-8^{9,10,11,12}



- **1980** Fonar Installs First Commercial MRI; Initiates MRI Industry¹³
- **1997** Patent Upheld by High Court on U. S. Patents and the U. S. Supreme Court (1.1 Million Pages of Documentary Evidence Scrutinized and Argued; No Prior Art)¹⁴

*Documents at www.fonar.com

Special Offer for Physicians. Free book about the discovery of the MRI: *A Machine Called Indomitable* by Sonny Kleinfeld, Reporter for The New York Times, Times Books. Call Fonar to order: 631-694-2929.

"This book is the account of the development of NMR technology and a profile of one man, Dr. Raymond Damadian, who dreamed of NMR as a weapon against cancer and struggled almost obsessively against great odds to build the first human scanner Indomitable." – *Library Journal*

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DISCOVER THE POWER OF UPRIGHT™ IMAGING

¹⁴"Breast Cancer Mortality After Diagnostic Radiography: Findings from the U.S. Scoliosis Cohort Study," Michele Morin Doody, John E. Lonstein, Marilyn Stovall, David G. Hacker, Nicolas Luckyanov, and Charles E. Land, *Spine*, Aug. 15, 2000, Vol. 25, No. 16.

THE **RADIATION-FREE** MANAGEMENT OF SCOLIOSIS IS JUST ONE OF THE MANY UNIQUE DIAGNOSTIC ADVANTAGES OF THE FONAR DYNAMIC™ UPRIGHT® MRI.



FOR THE SCANNER NEAREST YOU, FOR ADDITIONAL INFORMATION OR TO PURCHASE A FONAR DYNAMIC™ UPRIGHT® MRI, CALL AND ASK TO SPEAK TO A SALES REPRESENTATIVE AT 1-888-NEEDMRI (1-888-633-3674).

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