



BROUGHT TO YOU BY AN EDUCATIONAL GRANT FROM

## Radiologists you know... Experience you trust.



David M. Leifer, M.D.



Travis A. Van Meter, M.D.



Michelle C. Walters, D.O.



Suzanne M. Stonim, M.D.



J. Douglas Wilson, M.D.



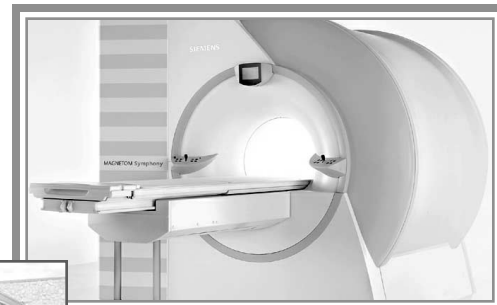
Brian Crowhurst, D.O.

ADVANCED

Imaging

www.airradiology.com

- High Field MRI
- MR Angiography
- Multi-Detector Row CT
- Digital Mammography
- Ultrasound
- Bone Density
- 100+ Interventional Procedures
- Fast Reporting
- ACR Accredited
- Compassionate & Dedicated Staff



1750 North Hampton Rd. DeSoto, TX 75115

FOR SCHEDULING CALL

**214-420-5400**

FAX: 214-420-5401 or 5403

# MRUpdate<sup>®</sup>

EDUCATION FOR MEDICAL PROFESSIONALS

## MR Imaging of the Degenerative Knee

By Garry E. Gold, M.D.

Osteoarthritis is an important cause of disability in our society, affecting millions and resulting in loss of time at work and limitations on activity.<sup>1-5</sup> Osteoarthritis is primarily a disease of articular cartilage, either from distant injury or degeneration.<sup>6-8</sup> However, many other changes are seen in the other tissues about the knee.<sup>9,10</sup> Imaging offers a noninvasive means of assessing the degree of damage to the knee joint and the effectiveness of therapy or behavior modification.

Many imaging methods are available to assess the degenerative knee. Conventional radiography can be used to detect gross loss of cartilage and other soft tissues evident as narrowing of the distance between the bony components of the joint,<sup>11</sup> but it does not image soft tissue directly. Secondary changes such as osteophyte formation can be seen, but conventional radiography is insensitive to early chondral and meniscal damage. Fractures, as in the case of an osteochondral defect, can be detected with limited sensitivity, but chondral defects or cartilage delamination cannot be seen. Arthrography, alone or combined with conventional radiography, CT scanning, or MR imaging, is mildly invasive and provides information limited to the contour of the cartilage surface.<sup>12</sup>

MR imaging, with its excellent soft-tissue

contrast, is the best technique available for assessment of articular cartilage in osteoarthritis.<sup>13-17</sup> Imaging regions of cartilage dam-

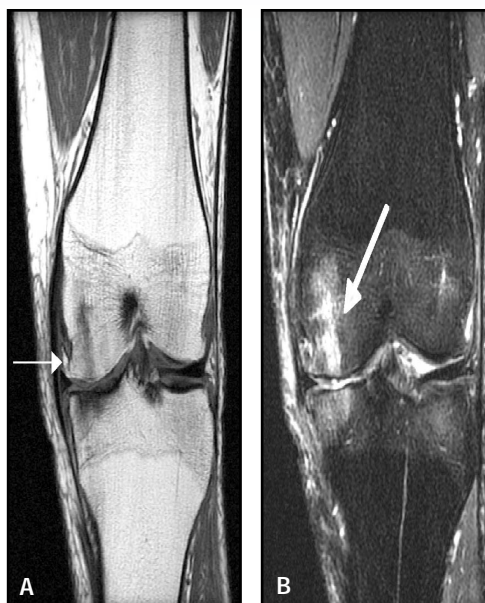


Figure 1. A: Coronal T1-weighted spin-echo image of the knee in a patient with medial compartment osteoarthritis. Osteophyte is seen off the medial femoral condyle (arrow). B: Coronal T2-weighted fast spin-echo image with fat suppression shows extensive marrow edema associated with the medial compartment osteoarthritis. Extrusion of the medial meniscus is also seen.

## MAGNETIC RESONANCE UPDATE

KEY POINTS

- Describes the changes seen in the knee joint with osteoarthritis.
- Selects appropriate MRI techniques for imaging the degenerative knee.
- Reviews indications for MRI of the degenerative knee.
- Lists the types of cartilage damage encountered on MRI.

*Dr. Gold is an associate professor of radiology at Stanford University in Stanford, CA.*

*Dr. Gold has no significant financial arrangement or affiliation with any manufacturer of any pharmaceutical or medical device and is not affiliated in any manner with any provider of any commercial medical or healthcare professional service.*



DEGENERATIVE KNEE