subregions) was similar for coronal and sagittal scans. Only small changes were observed in the lateral femorotibial compartment (data not shown).

Conclusions: Surprisingly, the 1.5mm sagittal images displayed a similar rate and sensitivity to change in cartilage thickness over 2 years in the medial tibia, and a greater rate and sensitivity in weight-bearing medial femur than 1.0mm coronal images. Although partial volume effects are stronger in internal and external subregions in sagittal (and in anterior and posterior subregions in coronal) scans, the spatial pattern of cartilage loss was similar between both orientations.

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FAT-SUPPRESSED INTERMEDIATE WEIGHTED FAST SPIN ECHO AND DUAL ECHO STEADY STATE SEQUENCES FOR SEMIQUANTITATIVE ASSESSMENT OF FOCAL CARTILAGE DAMAGE AT 3 T MRI

F.W. Roemer1,2, C.K. Kwoh3,4, M. Hannon3, M.D. Crema1, C.E. Moore5, J.M. Jakicic3, S.M. Green3, A. Guermazi1
1Boston Univ. Sch. of Med., Boston, MA; 2Klinikum Augsburg, Augsburg, Germany; 3Univ. of Pittsburgh Sch. of Med., Pittsburgh, PA; 4VA Pittsburgh Hlth.care System, Pittsburgh, PA; 5Texas Woman’s Univ., Houston, TX

Purpose: Modern MRI systems offer a multitude of cartilage-dedicated sequences as possible options for quantitative assessment of cartilage morphometry in research and clinical settings. It is unknown, however, if there are differences among these dedicated sequences in their utility for semi-quantitative scoring of focal cartilage defects.

The aim of the study was to compare semi-quantitative assessment of focal cartilage damage using the 3D dual echo in steady state (DESS) and intermediate-weighted (IW) 2D turbo spin echo (TSE) fat suppressed (FS) sequences at 3 Tesla (T) MRI.

Methods: The Joints on Glucosamine (JOG) study included 177 subjects aged 35-65 (95 men and 82 women) with frequent knee pain. 3 T MRI of both knees was performed at baseline on a Siemens Trio system using the same pulse sequence protocol as in the Osteoarthritis Initiative (OAI): sagittal IW 2D TSE FS, sagittal 3D DESS with water excitation (WE), axial multiplanar reformations (MPR) of sagittal 3D DESS WE, coronal MPR of sagittal 3D DESS WE, coronal IW 2D TSE. Cartilage status was scored on a scale from 0-6 according to the Whole Organ Magnetic Resonance Imaging Score (WORMS) by one experienced musculoskeletal radiologist (FWR) taking into account all five sequences. A total of 245 superficial (WORMS 2.0 lesions) or full-thickness defects (WORMS 2.5 lesions) were detected. In an additional consensus reading by two MSK radiologists (FWR, AG), the lesions were evaluated side-by-side using only the sagittal 3D DESS WE and sagittal IW 2D TSE FS -sequences. Lesion conspicuity was graded from 0-3, hyper-and hypointensity signal changes adjacent to the defect were recorded as present or absent and the sequence that depicted the lesion with larger maximum diameter was recorded for each cartilage defect. Wilcoxon statistics were applied to determine differences between the sequences.

Results: 37 (17.5%) of the scorable lesions were located in the medial femorotibial (TF), 47 (22.8%) in the lateral TF and 126 (59.7%) in the patello-femoral compartment. 82.5% were superficial and 17.5% full-thickness defects. Conspicuity was superior for the IW-sequence (p<0.001), whereas the DESS-sequence revealed more associated signal changes (p<0.001). Comparing the DESS directly with the IW sequence, in 37 (17.5%) cases the DESS sequence showed the lesions as being larger; in 103 (48.8%) cases the IW showed the lesion as being larger; and in 71 cases (33.6%), both sequences depicted lesions as the same size (p<0.001).

Conclusions: The cartilage-dedicated DESS-sequence was inferior to the IW sequence in depicting the number and size of focal cartilage defects. More adjacent intrachondral signal changes were observed with the DESS, but the significance of this finding is unclear.

To increase detection of focal cartilage defects semi-quantitative assessment of should not only be performed on cartilage-dedicated sequences but also on conventional fat suppressed fast spin echo sequences. These findings might be especially relevant for future assessment of OAI image data as the sequence protocol and MRI system used in the JOG study was comparable to that used in the OAI.

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INTRA- AND PERIARTICULAR CYSTIC LESIONS IN KNEES WITH AND WITHOUT RADIOGRAPHIC OSTEOARTHRITIS AND LONGITUDINAL ASSESSMENT OVER SIX MONTHS USING 3 T MRI

F.W. Roemer1,2, C.K. Kwoh3,4, Z. Dhina1, M. Hannon3, C.E. Moore5, J.M. Jakicic3, S.M. Green3, A. Guermazi1
1Boston Univ. Sch. of Med., Boston, MA; 2Klinikum Augsburg, Augsburg, Germany; 3Univ. of Pittsburgh, Pittsburgh, PA; 4VA Pittsburgh Hlth. Care System, Pittsburgh, PA; 5Texas Woman’s Univ., Houston, TX

Purpose: Cystic lesions around the knee comprise a diverse group of entities, and are frequently encountered during routine magnetic resonance imaging (MRI) of the knee. These lesions are commonly found in osteoarthritic knees. MRI is the technique of choice in characterizing lesions around the knee, and is very useful to confirm the cystic nature of the lesion, to evaluate the anatomical relationship to the joint and surrounding tissues, and to identify associated intra-articular disorders.