

#### 438 ASSOCIATION BETWEEN DELAYED GADOLINIUM-ENHANCED MRI OF CARTILAGE AND JOINT SPACE NARROWING AND OSTEOPHYTES: A COHORT STUDY IN PATIENTS WITH PARTIAL MENISCECTOMY WITH 11 YEARS OF FOLLOW-UP

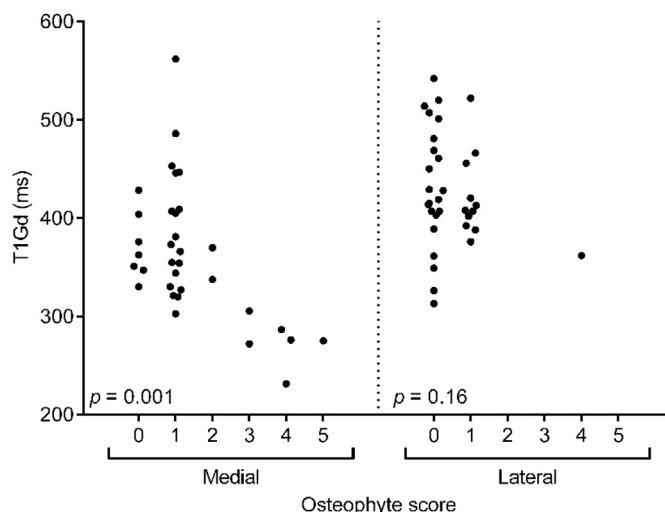
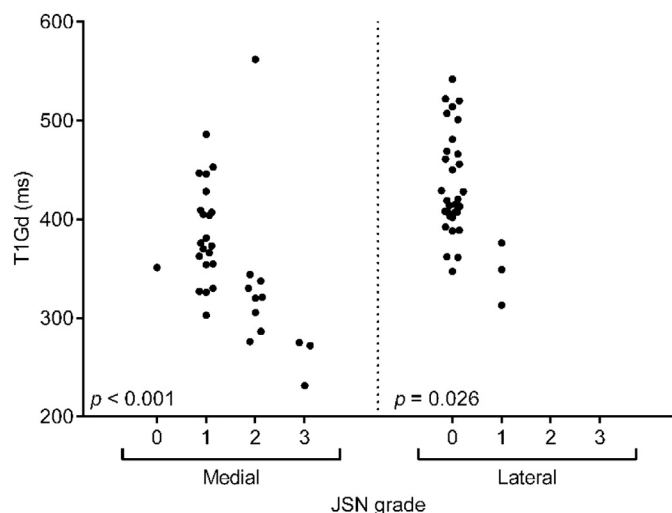
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**Purpose:** To examine the association between the relaxation time (T1Gd) of delayed gadolinium-enhanced MRI of cartilage (dGEMRIC) and grade of tibiofemoral joint space narrowing (JSN) and osteophytosis 11 years later, in a cohort of meniscectomized patients.

**Methods:** Patients (n = 45) aged 35–50 who had undergone an arthroscopic partial medial meniscectomy 1–6 years earlier, due to degenerative meniscal tear, were examined using dGEMRIC. These patients had no cartilage changes defined as deep clefts or visible bone at the time of arthroscopy. Eleven years later (12–16 years after surgery) 34 of these subjects (76%) were evaluated by weight-bearing knee radiography, and tibiofemoral joint changes were graded according to the Osteoarthritis Research Society International Atlas.

**Results:** Lower T1Gd in the medial compartment was associated with higher grade of medial JSN (grade 0, 351 ms; grade 1, 386 ms; grade 2, 342 ms; grade 3, 259 ms [p for trend <0.001]) and more osteophytosis (score 0, 371 ms; score 1, 389 ms; score 2, 354 ms; score 3, 289 ms; score 4, 265 ms; score 5, 275 ms [p for trend = 0.001]). Lower T1Gd in the lateral compartment was associated with higher grade of lateral JSN (grade 0, 436 ms; grade 1, 346 ms [p for trend = 0.026]).

**Conclusions:** The current study suggests that lower T1Gd measured with dGEMRIC of medial and lateral tibiofemoral cartilage is associated with higher grade of JSN 11 years later, and medially, also with more osteophytosis.



T1Gd (ms) vs grade of JSN for the medial and lateral compartments.

T1Gd (ms) vs osteophyte score for the medial and lateral compartments.

#### 439 QUANTITATIVE CARTILAGE IMAGING AND PATIENT-REPORTED OUTCOME MEASURES FOR FOUR COMMON FINDINGS OF FEMOROACETABULAR IMPINGEMENT

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**Purpose:** Femoroacetabular impingement (FAI) encompasses a spectrum of disorders, including cam and pincer morphology, which are thought to contribute to early and progressive osteoarthritis in the hip. Quantitative magnetic resonance imaging offers a non-invasive way to assess the cartilage health and structure, and these techniques have recently been applied in the hip. The purpose of this study was to test the correlation between radiographic findings commonly associated with FAI and quantitative cartilage imaging, labral abnormalities, and patient reported outcome measures. We hypothesized that evidence of cartilage and labral pathology would be present in patients with an alpha angle greater than 65 degrees, a center-edge angle (CEA) greater than 39 degrees, a positive crossover sign, or the presence of a herniation pit.

**Methods:** After IRB approval, three groups of subjects were recruited: (1) Control (22 subjects) - asymptomatic subjects with no radiographic evidence of degenerative changes; (2) Possible femoroacetabular impingement (15 subjects) - history of typical hip symptoms; (3) Early osteoarthritis (62 subjects) - radiographic Kellgren-Lawrence (KL) grades 1 to 3. Magnetic resonance imaging data was acquired on a 3 Tesla system (MR750, GE Healthcare, Waukesha, WI) using an eight-channel phased array cardiac coil. Coronal, axial-oblique and sagittal T<sub>2</sub>-weight fat-saturated, fluid-sensitive FSE sequences as well as a combined SPGR T<sub>1</sub>ρ/T<sub>2</sub> sequence were obtained. Two fellowship-trained musculoskeletal radiologists performed a morphologic evaluation of the hip joint. The alpha angle and the presence of herniation pits were defined from MR images. The CEA and crossover sign were assessed with radiographs.