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Titel des Beitrags: Change in regional cartilage morphology and joint space width in osteoarthritis participants versus healthy controls: a multicentre study using 3.0 Tesla MRI and Lyon-Schuss radiography.

Abstract: Cartilage morphology displays sensitivity to change in osteoarthritis (OA) with quantitative MRI (qMRI). However, (sub)regional cartilage thickness change at 3.0 Tesla (T) has not been directly compared with radiographic progression of joint space narrowing in OA participants and non-arthritic controls. A total of 145 women were imaged at 7 clinical centres: 86 were non-obese and asymptomatic without radiographic OA and 55 were obese with symptomatic and radiographic OA (27 Kellgren-Lawrence grade (KLG)2 and 28 KLG3). Lyon-Schuss (LS) and fixed flexion (FF) radiographs were obtained at baseline, 12 and 24 months, and coronal spoiled gradient echo MRI sequences at 3.0 T at baseline, 6, 12 and 24 months. (Sub)regional, femorotibial cartilage thickness and minimum joint space width (mJSW) in the medial femorotibial compartment were measured and the standardised response means (SRMs) determined. At 6 months, qMRI demonstrated a -3.7% "annualised" change in cartilage thickness (SRM -0.33) in the central medial femorotibial compartment (cMFTC) of KLG3 subjects, but no change in
KLG2 subjects. The SRM for mJSW in 12-month LS/FF radiographs of KLG3 participants was -0.68/-0.13 and at 24 months was -0.62/-0.20. The SRM for cMFTC changes measured with qMRI was -0.32 (12 months; -2.0%) and -0.48 (24 months; -2.2%), respectively. qMRI and LS radiography detected significant change in KLG3 participants at high risk of progression, but not in KLG2 participants, and only small changes in controls. At 12 and 24 months, LS displayed greater, and FF less, sensitivity to change in KLG3 participants than qMRI.