In a retrospective study, 100 consecutive lumbar spine magnetic resonance imaging obtained in patients with chronic low back pain were reviewed in two sessions: First, readers viewed core sequences (sagittal T1-weighted image, STIR, and T2-weighted image, and axial T2-weighted image) with axial T1-weighted sequences, and second, readers viewed cores sequences alone. Readers recorded the presence of disc degeneration, nerve root compromise, facet joint arthritis, and stenosis at each lumbar spine level as well as the presence of filum terminale lipoma (LFT), spondylolisthesis, transitional vertebrae, and fractures. The McNemar, Wilcoxon signed-rank, and student T tests were utilized.

For 100 studies, 5 spine levels were evaluated (L1-L2 through L5-S1). There were cases of disc disease (444/500 bulges, 56/500 herniations), nerve root compromise (1/500 nerve enlargement, 36/500 contact only, 20/500 displacement or compression), facet arthritis (438/500), stenosis (58/500 central canal, 64/500 lateral recess, 137/500 neuroforaminal), 6/100 LFTs, and other abnormalities (58/500 spondylolisthesis, 10/100 transitional vertebrae, 10/500 fracture/spondylolysis). There was no difference in diagnostic performance between the interpretation sessions (with and without axial T1-weighted imaging) at any level ($p > 0.05$), although four small additional LFTs were identified with axial T1-weighted imaging availability.

There was no clinically significant difference in the interpretation of lumbar spine MRI viewed with and without axial T1-weighted imaging, suggesting that the axial T1-weighted sequence does not add diagnostic value to routine lumbar spine MRI [1]

[1]

Ghasemi A, Luna R, Kheterpal A, Debs P, Fayad L. Axial T1-weighted imaging of the lumbar spine: a redundancy or an asset? Skeletal Radiol. 2023 Dec 2. doi: 10.1007/s00256-023-04522-1. Epub ahead of print. PMID: 38040899.