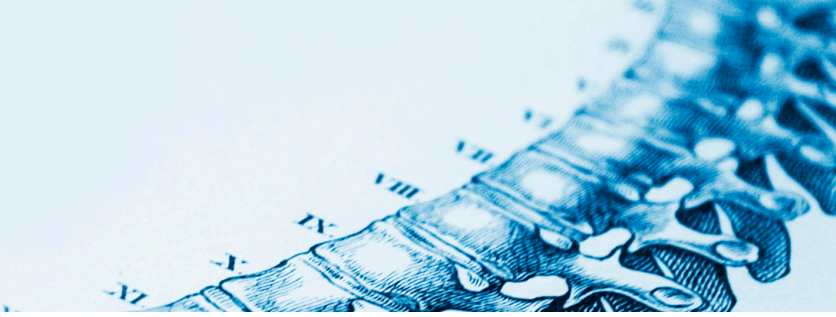
Important Considerations
when ordering an MRI



This supplemental resource describes the important considerations for ordering an MRI. The first page is intended to help the rheumatologist understand what specifics to consider including in their MRI order.
The second page may be shared with radiologist colleagues to provide them with a more detailed supplemental reference about positioning and scoring requirements for performing MRIs for potential AS and nr-axSpA patients.

MRI Order Components	Sample MRI Order
Indication for exam	• Lumbar and sacroiliac pain and stiffness • X-ray negative • Spondyloarthropathy suspected
Location	Sacroiliac Joint
Contrast/no contrast	No contrast
Contraindication to contrast	Not Applicable

It is important to establish a partnership with your patient's radiologist

- Communicate suspected diagnosis and relevant patient medical history
- Review location and angle for viewing SI joint
- Discuss sequences for diagnosis and scoring
- Recommend precautions for safety and patient comfort

See next page for information on sequences
Consider sharing the following page with radiologist colleagues

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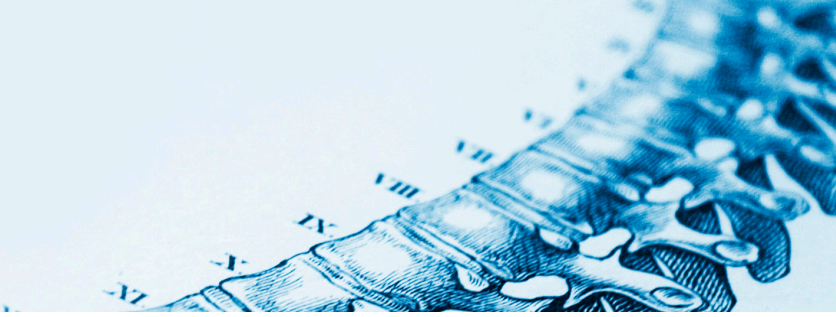

Positioning, Coils, and Scouts

- Patient lies supine, as straight as possible
- Use anterior and posterior coils
- Scout images in 3 planes, axial scout to include hip joints; repeat axial if necessary
- True sagittal scout is needed in addition to 3 plane scout

Location and Angles

- Coronal-oblique or tilted coronal orientation: rotate stack so it is parallel to the longitudinal axis of the sacrum between S1&S3

Sequences for Diagnosis and Scoring

Sequences for Scoring: parameters for imaging at 1.5T

- **T1 TSE and Short Tau Inversion Recovery (STIR) (or equivalent)**
- **Common parameters:**
  - 15 slices, 4 mm thick, 10% gap or 20 slices, 3 mm thick, 10% gap
  - FOV 280 mm, square (to include iliac crests)
  - Phase encode left/right (can be anterior/posterior whichever produces less artifact)
  - NSA 1, Oversampling 100%
- **T1 TSE - TR 400-500ms (2 concatenations), TE 10-15ms, ETL 3, Matrix frequency 512, phase 256**
- **STIR - TR 3500+ms, TI 155-180ms, TE 50+ms, ETL 7, Matrix frequency 384, phase 256**

Sequences for Diagnosis and Scoring

Sequences for Diagnosis: parameters for 1.5T (may require adjustment for 3T)

- **Semi-axial or tilted axial orientation: stack rotated so that it is perpendicular (90°) to the semi-coronal sequence**
- **Axial sequence: True axial" T2 TSE + FS (with spectral presaturation of fat) – 25 slices, 4 mm thick with 10% gap, TR 3000+ms, TE 80+ms, FOV 280 mm, ETL 7-13, Matrix frequency 448, phase 256**
- **Erosion specific sequences – requires good resolution**
  - **A semi-coronal high resolution T1 weighted sequence with fat saturation, either 2D or 3D is recommended. There are 3 common ways to do this:**
    a) Spin echo T1 with fat saturation (T1FS) – available on all MRI systems, or
    b) Spin echo T1 Dixon – to include the water only reconstruction, or
    c) 3D gradient echo T1 FS sequence – such as: Siemens VIBE, Philips THRIVE, General Electric FAME/LAVA, Toshiba 3D QUICK

  Suggest:
  - Semi-coronal, 180-220mm FoV, square, with optimization of parameters according to sequence and MRI platform.
  - 3D gradient echo T1 FS sequence works very well at 3T but T1FS is reliable and widely available.

Lambert RGW, Maksymowych WP. SpondyloArthritis Research Consortium of Canada (SPARCC) Magnetic Resonance Imaging of the Sacroiliac Joints Acquisition Protocol. https://www.carearthritis.com/docs/MRI_SI_Joint-SPARCC_MRI_acquisition_protocol_v5.1-2019_06_25.pdf

For most up to date information on MRI ordering visit: http://www.carearthritis.com/