Hand and Wrist

MRI Protocols of the ESSR Arthritis Subcommittee



Recommendations of the ESSR Arthritis Subcommittee for the Use of Magnetic Resonance Imaging in Musculoskeletal Rheumatic Diseases. Semin Musculoskelet Radiol 2015;19:396–411

Acronyms



Cor= coronal

FOV= field of view

FS= fat suppressed

PD= proton density

Sag= sagittal

STIR= short tau inversion recovery

TE= echo time (ms)

TIRM= turbo inversion recovery magnitude

TR= repetition time (ms)

MRI scan

- Patient head first, prone with arm up (e.g., Superman position)
- Wrist/hand at the centre of the bore to ensure field homogeneity
- Coils: dedicated wrist/hand coil
- Immobilisation: tape hand to maintain position



Localizer wrist



Axial plane : from 3-4 cm proximal to the radiocarpal joint to 2 cm distal to the carpometacarpal joint

Coronal plane: skin to skin traversing the joint anteriorly to posteriorly to include the same field of view as the axial images

Sagittal plane: skin to skin perpendicular to the coronal

Localizer Hand



Axial plane: from 2 cm proximal to the most proximal joint to 2 cm distally to the most distal joint of interest

Coronal plane: skin to skin traversing the joint anteriorly to posteriorly to include the same field of view as the axial images

Sagittal plane: skin to skin perpendicular to the coronal plane, to include the same field of view as the axial images

Recommended sequences - Wrist



Recommended sequences - Hand



MRI protocols

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Recommended Sequences	FOV (cm)	Slice thickness (mm)	TR (ms)	TE (ms)	Matrix
Cor STIR or T2 FS	8-10	3/3D#	1800	25	320x240
Cor T1	8-10	3/3D#	400	15	320x240
Ax PD FS or STIR or T2FS	8-10	3/3D#	3500	40	320x240/320x450
Ax T1	8-10	3/3D#	400	15	320x240/320x450
Sag PD FS	8-10	3/3D#	3500	40	320x240/320x450
CE T1 FS*	8-10	3/3D#	400	15	320x240/320x450

#3D sequences are performed to allow the evaluation of small (< 3mm) and/or oblique structures

*if optimal assessment of synovitis/osteitis is needed

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