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Orthopaedics

OtisMed® Imaging Technique: **Quick Reference**

1.5T MRI SAGITTAL

OtisMed
Innovation in Motion®

GE FRFSE-XL Sagittal PD	
Time of Scan (TOS)	3-5 minutes
Imaging Options	TRF, Fast, FR, Zip 512 DO NOT USE NPW!!!
Gradient Mode	Whole
Frequency Direction	S-I
Phase Correct	ON
TE (Echo Time)	24
TR (Repetition Time)	3000 (range 2800 – 3200)
ETL (Echo Train Length)	9
NEX	1
Bandwidth	31.25
FOV	16cm (ABSOLUTE VALUE ~ DO NOT CHANGE)
Phase FOV	0 .80 or 0.90 (If large knee use full PFOV)
Slice Thickness	2mm (~50 slices to cover all of the bone, both medial condyle and fibula)
Spacing	0 (Interleaved)
Matrix	256 × 256
Acquisitions	2 – 3

3 PLANE LOCATOR:

Use a 24cm FOV for the 3 Plane locators.

- 4mm skip 1 mm
- Matrix 256 × 224 1 NEX
- 9 slices – Axial
- 9 slices – Coronal
- 5 slices – Sagittal

Philips Achieva 1.5 TSE Sagittal PD	
Time of Scan (TOS)	~ 4 minutes
Imaging Options	Recon 512, 100% Sampling, Asymmetric
Fold Over Direction	AP
TE (Echo Time)	8-13 (Default Echo Spacing between 8-13 seen on info page of scanner)
TR (Repetition Time)	~3000 (range 2800 – 3200)
TSF	8
Watershift	Minimum
Packages	2 – 3 (4 for larger knees)
FOV	160 FH 160 AP 100LR
RFOV	80% to 90% (If large knee use full RFOV)
Slice Thickness	2mm (~50 slices to cover all of bone, both medial condyle and fibula)
Gap	0 or Interleave
Voxel Size	256 × 256 or (FH- - 0.3300 AP - 0.4624)
Recon Matrix	512
Recon Voxel Size	0.3125
NSA	1

If using an older version software try the following:

- Fold Over Suppression – OFF (Make sure phase is A-P direction)

3 PLANE LOCATOR:

You may use large FOV for initial transverse locator. Use a 24cm FOV for 3 Plane Locator/Scout scans. Follow with a high resolution 3 Plane Locator/Survey using the following suggested parameters (Approximate Time: 1-2 minutes)

- 4mm skip 1mm
- Matrix 384 × 224 1 NSA
- 9 slices – Axial
- 9 slices – Coronal
- 5 slices – Sagittal

Toshiba 1.5 PD FSE Sagittal	
Pulse Sequence	PD FSE SAGITTAL
Obtain High Res 3 Plane Loc:	You may use large FOV for initial transverse locator. Follow with a high resolution 3 Plane Locator/Survey using a 24cm FOV using the following suggested parameters (Approximate Time: 2 minutes) • 4mm skip 1mm • Matrix 256 × 224 1 NEX • 11 slices – Axial • 11 slices – Coronal • 9 slices – Sagittal DO NOT ANGLE LOCS!!!
Imaging Technique:	FSE+15_slt_2mm
Echo Train Spacing (FSE only)	15
Echo Train Length (FSE only)	3
TR (Repetition Time)	~ 3200 (range 3000 - 3600)
TE (Echo Time)	~ 30
Slice Thickness	2
Slice Gap	0
Plane/PE Axis	SG/AP
No Wrap	None
PE Matrix	256 × 256
FOV	16 × 16 (ABSOLUTE VALUE ~ DO NOT CHANGE)
Spatial Preset	None
Imaging Flip Angle	90
Flop Angle	160 (Equal to Tailored RF)
Number of Slices	~ 50
Acquisition Order	Forward
Interleaving	Interleave
Number of Acquisitions (NAQ)	1
Resolution	.62 × .62
Number of Coverages	2
Total Acquisition Time	~ 4 minutes
Filters (Open Recon Tab)	GA00 : Weak
Reconstruction	PE/RO Fine (aka Zip 512) Instructions: To choose PE & RO Fine go to “Sequence Editor”, choose “Open”, choose “Reconstruction” select PE & RO Fine which equals Zip 512.

Toshiba 1.5 PD FSE Sagittal (Continued)

Notes

To use different images in large window for correct alignment without losing the angle do the following:

- Go to Scan Plan
- Click on “Options”
- Turn “Default Cross” OFF - this holds oblique angle when switching scan planes in main viewer window.

Siemens	
Time of Scan (TOS) min.	~ 4 min
Routine: Slice Group	1
Slices	~ 50
Distance Factor	0
Phase Direction	A to P
Phase Oversampling	50 %
FOV (cm)	160mm (ABSOLUTE VALUE ~ DO NOT CHANGE)
FOV Phase	100
Slice Thickness (mm)	2
TR (Repetition Time)*	2400 (Complete rest of settings and return to Routine Tab and set this value) TR Range 2000-3000 for double concatenation
TE (Echo Time)*	34 (Complete rest of settings and return to Routine Tab and set this value)
Average (NSA)	1
Concatenations	2 or 3
Contrast	Flip Angle = 150 Fat Suppression = None
Resolution (All Filters Off Except)	Elliptical Filter = ON Base Resolution = 256 Phase Resolution = 100 Interpolation box = Checked (Gives reconstruction of 512 matrix)
Geometry	Multi-Slice Mode = Interleaved Series = Interleaved
Sequence: Part 1	Bandwidth = 195 (201) Average Mode = Short-Term
Part 2	Turbo Factor = 7 Pulse Type = Normal Gradient = Fast
Matrix	256 × 256
Misc Tab	ISO

Short Bore Scanners – Select Distortion Correction both pre and post processing for Sagittal scan in Knee Coil as well as all Body/Spine Coil Imaging.

Short Bore Scanners – Select ISO for Sagittal scan in Knee Coil as well as all Body/Spine Coil Imaging.

Siemens 1.5 Scanner - 3 Plane Locator

- Set-up using the first axial locator placing graphics box on slice showing condyles
- Do NOT angle slice planes to knee joint
- Run scan as a higher resolution scan using suggested scan parameters below
- Do not oblique the scan slices to the knee joint. They must be run as true Axial, Sagittal, and Coronal
- Approximate Time: 2 minutes

Slice Group	3 (Axial, Sagittal, Coronal)
Slices	9 (Axial) 5 (Sagittal) 9 (Coronal)
FOV	240mm
TE/TR	As set as default with your scanner
Slice Thickness	4mm 1 skip (25% distance factor)
Averages	2
Resolution	256 × 224

Notes:

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NL10-BR-OM-2539 Rev. 1
11/11

Printed in USA