Austin Radiological Association

CT Dual Energy Protocols

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HI_Res Lower Extremity Gout (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Gout evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Ankle, Foot and Toes

Setup:

- BB marker will be placed on the patient's right foot or ankle and documented in tech notes
- PA Scout from above/below through above/below anatomy of interest
- Lateral Scout from above/below through above/below anatomy of interest

DFOV: To include bilateral Feet, Ankle and/or Toes

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial
- Recon 2 is a Bone axial
- Recon 3 is for Gout evaluation (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- Gout Axial Bone (3d lab)
- Gout Coronal Bone (3d lab)
- Gout Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q34f medium smooth	Q34f medium smooth
WW	Osteo	Osteo
SAFIRE	2	2
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5
Recon 4		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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HI_Res Upper Extremity Gout (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Gout evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Hand, Wrist and Fingers ****For elbows-scan affected side only****

Setup:

- BB marker will be placed on the patient's right foot or ankle and documented in tech notes
- PA Scout from above/below through above/below anatomy of interest
- Lateral Scout from above/below through above/below anatomy of interest

DFOV: To include bilateral Hands, Wrists or Fingers ****For elbows- affected side only****

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial
- Recon 2 is a Bone axial
- Recon 3 is for Gout evaluation (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- Gout Axial Bone (3d lab)
- Gout Coronal Bone (3d lab)
- Gout Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q34f medium smooth	Q34f medium smooth
WW	Osteo	Osteo
SAFIRE	2	2
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5
Recon 4		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

HI_Res Lower Extremity Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Foot, Ankle and Toes

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused ~10-15cm; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

HI_Res Upper Extremity Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Hand, Wrist, Elbow and Fingers

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused ~10-15cm; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

Routine Lower Extremity Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Femur, Knee and Tib/Fib

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

Routine Upper Extremity Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Forearm and Humerus

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	0.5	0.5
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30f medium smooth	I30f medium smooth
WW	Extremity	Extremity
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I70f very sharp ASA	I70f very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	D50f sharp	D50f sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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Hip_Pelvis Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position. Turn feet inward so pointing towards each other. (Please note reason for protocol changes)

Used for evaluation of the following: Hip and Pelvis

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above the iliac crest through the symphysis pubis

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above the iliac crest through proximal femur (include entire fracture/prosthesis)

Reconstructions:

- Recon 1 is a ST axial
- Recon 2 is for Bone axial
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)
- Recon 4 is for Bilateral Axial Bone
- Recon 5 if for Bilateral Coronal Bone

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- 140 kV Bilateral Axial Bone
- 140 kV Bilateral Coronal Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Spine	Spine
SAFIRE	2	2
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I70h very sharp ASA	I70h very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	D60s sharp	D60s sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

Shoulder Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position; Humerus supported to lie parallel to table with palm supinated; Scan obtained during breath hold with opposite shoulder raised above head (Please note reason for protocol changes)

Used for evaluation of the following: Shoulder

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: 18cm for Routine Shoulder

Scan Parameters: Exam consists of two helical acquisitions; Scan from above the clavicle through anatomy of interest

Reconstructions:

- Recon 1 is a Bone axial dataset
- Recon 2 is for ST evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone/ST (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	600	142
kVp	80	140
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Spine	Spine
SAFIRE	2	2
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I70h very sharp ASA	I70h very sharp ASA
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	D60s sharp	D60s sharp
WW	Osteo	Osteo
SAFIRE	0	0
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

Spine Dual Energy (Definition AS) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: PT supine, arms down for cervical evaluation and arms raised above head for thoracic/lumbar evaluation (Please note reason for protocol changes)

Used for evaluation of the following: Cervical, Thoracic and Lumbar Spine

Contrast: At the discretion of the Radiologist inject 100ml omni350 @ 2ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: 12cm for Cervical; 17cm for Thoracic and Lumbar; Appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Adjust mAs to be appropriate for hardware; Adjust to 1x1 for cervical

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 140 kV Axial ST
- 140 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone/ST (3d lab)
- MAR Obliques as needed (3d lab)

Acquisition	80kV	140kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	64 x 0.6	64 x 0.6
Pitch	0.5	0.5
Eff mAs (care dose)	700	165
kVp	80	140
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Spine	Spine
SAFIRE	2	2
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I70h very sharp ASA	I70h very sharp ASA
WW	Cranial Bone	Cranial Bone
SAFIRE	2	2
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Cranial Bone	Cranial Bone
SAFIRE	1	1
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.6	0.6

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HI_Res Lower Extremity Gout (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Gout evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Ankle, Foot and Toes

Setup:

- BB marker will be placed on the patient's right foot or ankle and documented in tech notes
- PA Scout from above/below through above/below anatomy of interest
- Lateral Scout from above/below through above/below anatomy of interest

DFOV: To include bilateral Feet, Ankle and/or Toes

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a Bone axial
- Recon 2 is a ST axial
- Recon 3 is for Gout evaluation (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- Gout Axial Bone (3d lab)
- Gout Coronal Bone (3d lab)
- Gout Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 0.6	32 x 0.6
Pitch	0.75	0.75
Eff mAs (care dose)	400	134
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Extremity	Extremity
SAFIRE	2	2
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	1.0	1.0
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

HI_Res Upper Extremity Gout (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Gout evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Hand, Wrist and Fingers ****For elbows-scan affected side only****

Setup:

- BB marker will be placed on the patient's right foot or ankle and documented in tech notes
- PA Scout from above/below through above/below anatomy of interest
- Lateral Scout from above/below through above/below anatomy of interest

DFOV: To include bilateral Hands, Wrists or Fingers ****For elbows-affected side only****

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial
- Recon 2 is a Bone axial
- Recon 3 is for Gout evaluation (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- Gout Axial Bone (3d lab)
- Gout Coronal Bone (3d lab)
- Gout Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 0.6	32 x 0.6
Pitch	0.75	0.75
Eff mAs (care dose)	400	134
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Extremity	Extremity
SAFIRE	2	2
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	1.0	1.0
Slice Increment (mm)	0.5	0.5

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DIAGNOSTIC IMAGING

HI_Res Lower Extremity Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Foot, Ankle and Toes

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused ~10-15cm; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 0.6	32 x 0.6
Pitch	0.75	0.75
Eff mAs (care dose)	400	134
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Extremity	Extremity
SAFIRE	2	2
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	1.0	1.0
Slice Increment (mm)	0.5	0.5

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HI_Res Upper Extremity Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Hand, Wrist, Elbow and Fingers

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused ~10-15cm; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 0.6	32 x 0.6
Pitch	0.75	0.75
Eff mAs (care dose)	400	134
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Extremity	Extremity
SAFIRE	2	2
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	1	1
Slice Increment (mm)	1	1
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	0.75	0.75
Slice Increment (mm)	0.5	0.5

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ARA DIAGNOSTIC IMAGING

Routine Lower Extremity Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Femur, Knee and Tib/Fib

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 1.2	32 x 1.2
Pitch	0.75	1
Eff mAs (care dose)	400	134
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Abdomen	Abdomen
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	2	2
Slice Increment (mm)	1.0	1.0

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ARA DIAGNOSTIC IMAGING

Routine Upper Extremity Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position (Please note reason for protocol changes)

Used for evaluation of the following: Forearm and Humerus

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above/below through above/below anatomy of interest

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.5	1.5
Detector Configuration	32 x 1.2	32 x 1.2
Pitch	0.5	1
Eff mAs (care dose)	400	200
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Abdomen	Abdomen
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	2	2
Slice Increment (mm)	1.0	1.0

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Hip_Pelvis Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position. Turn feet inward so pointing towards each other. (Please note reason for protocol changes)

Used for evaluation of the following: Hip and Pelvis

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above the iliac crest through the symphysis pubis

DFOV: Focused DFOV; appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Scan from above the iliac crest through proximal femur (include entire fracture/prosthesis)

Reconstructions:

- Recon 1 is a ST axial
- Recon 2 is for Bone axial
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)
- Recon 4 is for Bilateral Axial Bone
- Recon 5 if for Bilateral Coronal Bone

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- 130 kV Bilateral Axial Bone
- 130 kV Bilateral Coronal Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.0	1.0
Detector Configuration	32 x 1.2	32 x 1.2
Pitch	0.5	1
Eff mAs (care dose)	400	200
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Abdomen	Abdomen
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	2	2
Slice Increment (mm)	1.0	1.0

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ARA DIAGNOSTIC IMAGING

Shoulder Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: Place anatomy of interest in true anatomical position; Humerus supported to lie parallel to table with palm supinated; Scan obtained during breath hold with opposite shoulder raised above head (Please note reason for protocol changes)

Used for evaluation of the following: Shoulder

Contrast: At the discretion of the Radiologist inject 75ml omni350 @ 3ml/sec with a 50sec scan delay in contra lateral arm; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: 18cm for Routine Shoulder

Scan Parameters: Exam consists of two helical acquisitions; Scan from above the clavicle through anatomy of interest

Reconstructions:

- Recon 1 is a Bone axial dataset
- Recon 2 is for ST evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone/ST (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.5	1.5
Detector Configuration	32 x 1.2	32 x 1.2
Pitch	0.5	1
Eff mAs (care dose)	500	200
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Abdomen	Abdomen
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Osteo	Osteo
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Osteo	Osteo
SAFIRE	3	3
Slice Thickness (mm)	1.5	1.5
Slice Increment (mm)	1.0	1.0

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DIAGNOSTIC IMAGING

Spine Dual Energy (Perspective) Revised-3/28/2024

Indications: As Requested or when patient presents for Hardware evaluation

PT Preparation: PT supine, arms down for cervical evaluation and arms raised above head for thoracic/lumbar evaluation (Please note reason for protocol changes)

Used for evaluation of the following: Cervical, Thoracic and Lumbar Spine

Contrast: At the discretion of the Radiologist inject 100ml omni350 @ 2ml/sec with a 50sec scan delay; If ww/o requested/approved, the DE will be performed on the non-contrast portion of the exam only and a routine HI_Res extremity protocol will be performed on the post contrast portion

Setup: PA/Lateral Scout from above/below through above/below anatomy of interest

DFOV: 12cm for Cervical; 17cm for Thoracic and Lumbar; Appropriate for anatomy of interest

Scan Parameters: Exam consists of two helical acquisitions; Adjust mAs to be appropriate for hardware; Adjust to 1x1 for cervical

Reconstructions:

- Recon 1 is a ST axial dataset
- Recon 2 is for Bone evaluation
- Recon 3 is for Metal Artifact Suppression (send to Syngovia)

PACS Series:

- Topogram
- 130 kV Axial ST
- 130 kV Axial Bone
- Dose Report/PT Protocol
- MAR Axial Bone (3d lab)
- MAR Coronal Bone (3d lab)
- MAR Sagittal Bone/ST (3d lab)
- MAR Obliques as needed (3d lab)

Acquisition	80kV	130kV
Scan Type	Helical	Helical
Rotation Time (sec)	1.5	1.5
Detector Configuration	32 x 1.2	32 x 1.2
Pitch	0.4	0.8
Eff mAs (care dose)	500	200
kVp	80	130
Recon 1		
Algorithm/Kernel	I30s medium smooth	I30s medium smooth
WW	Spine	Spine
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 2		
Algorithm/Kernel	I80s very sharp	I80s very sharp
WW	Cranial Bone	Cranial Bone
SAFIRE	1	1
Slice Thickness (mm)	2	2
Slice Increment (mm)	2	2
Recon 3		
Algorithm/Kernel	Q40s medium	Q40s medium
WW	Cranial Bone	Cranial Bone
SAFIRE	3	3
Slice Thickness (mm)	1.5	1.5
Slice Increment (mm)	1.0	1.0

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Protocol Review

CT Protocols are reviewed by the Radiation Safety Protocol Committee.

Committee members consists of ARA Radiation Safety Officer, Radiologists, ARA Outpatient Imaging Center Directors, Manager of Quality, Safety and Risk Management and Lead CT Technologists

Protocol(s) Review Date
09/04/2024