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CT SCAN PROTOCOL

FOOT

Important Information

This CT scanning protocol consists of a localizer and a scan of the foot/feet. The CT scan quality (with clear bony edges and details) is critical for the production of accurate patient-specific surgical instruments. Deviations from this protocol may result in an unusable scan and delay of surgery.

Please contact Materialise's support team if you require further clarification.

NOTE

CT scan quality (with clear bony edges and details) is critical for the production of accurate patient-specific surgical instruments.

Patient Preparation

- Remove any non-fixed metal prosthesis, jewelry, or zippers that might interfere with the region to be scanned.
- Make the patient comfortable and instruct him/her not to move during the procedure. If any movement is detected, the patient will need to be rescanned as this will prevent the accurate development of a patient-specific model.
- Patient positioning: supine with either feet, or the foot of interest, in the center of the scanner; use a foot holder if available; toes pointing straight up; foot/feet endorotated slightly.
- If only one foot is of interest, bend the other leg to prevent a needless dose of radiation.
- In bilateral cases: place both feet in a symmetrical position.
- Place an RT marker near the right foot for identification purposes.

Scanning Instructions

TABLE POSITION

Set the table height so that the area that needs to be scanned is centered in the scan field.

FIELD OF VIEW (FOV)

All slices must have the same FOV, the same reconstruction center, and the same table height.

Use the smallest FOV possible (max. 20 cm) to capture all of the required bone regions. Capturing all of the soft tissue is not necessary.

KERNEL

Use a soft tissue/moderate reconstruction algorithm.

NO GANTRY TILT – NO OBLIQUENESS

All slices have to be scanned parallel and perpendicular to the scanning couch – This means slices in TRUE orthogonal planes – NO oblique acquisitions, including localizers

BILATERAL IMAGING

Bilateral imaging can be accomplished with a single acquisition, FOV max. 32cm.

RECONSTRUCTION

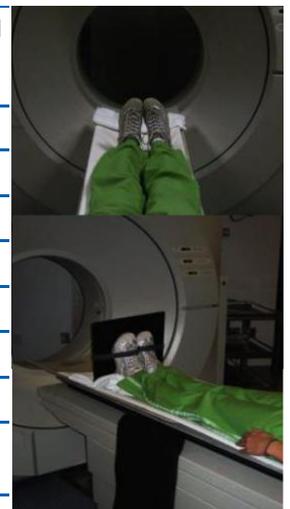
No secondary reconstructions; images must be scanned at the given parameters or more strict

No obliqueness; **no** gantry tilt and **no** oblique reconstructions.

No reformatting into coronal or sagittal planes; **no** MPR's. **No** 3D reconstructions

SCANNING PARAMETERS

Helical Region of interest	Just above the tibio-talar joint through to the carpal-metacarpal joints, dependent on the fracture region / region of interest.
Collimation	Slice thickness: 1.25mm or smaller
	Slice increment: 0.625mm (50% overlap)
kVp	120
mAs	As given by the automatic system
Pitch	Use 1 or smaller
Field of View (FOV)	Use 20cm or smaller (bilateral: try to fit in 32cm)
Matrix	Use a 512 x 512 matrix
Kernel / Algorithm	Moderate/soft tissue



Very Important

- Provide the complete data set of **raw/original DICOM images** to the surgeon.
- **Lossy compression is NOT allowed** (ISO_10918_1, ISO_14495_1, ISO_15444_1 or ISO_13818_1).
- **Only send the images needed for our procedure.**
- Do not send any recons, reformats, viewer software, etc.

IMPORTANT

Retain a permanent archive (PACS) copy of the RAW data of images (as scanned by the original parameters and in the uncompressed format).

Data anonymisation

- Do not erase patient name and ID – Ensure necessary rights are obtained for transfer of data to Materialise.
- Data will be anonymized by Materialise on receipt of the data, after cross-check with prescription of the surgeon to ensure the images of the right patient are provided.

NOTE

We recommend building a “Materialise Foot Protocol” in your CT scanner(s) with the appropriate ranges and parameters.

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