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CT SCAN PROTOCOL

CLAVICLE

Important Information

This CT scanning protocol consists of two detailed axial scans: one of the left and one of the right clavicle. The CT scan quality (with clear bony edges and surface detail) 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 can directly affect the design of guides and implants. Please ensure that all protocol steps are followed for optimum scan quality.

Patient Preparation

- Remove any non-fixed metal prosthesis, jewelry, zippers that might interfere with the region to be scanned.
- Discuss the procedure with the patient. 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 the patient-specific model.
- Position the patient as follows: head first, supine, arms at sides of the body and with the shoulder in neutral rotation. Cervical spine is in neutral position.

Scanning Instructions

TABLE POSITION

Set the table height so that the area to be scanned is centered in the scanning field.
Do not raise or lower the CT couch between slices.

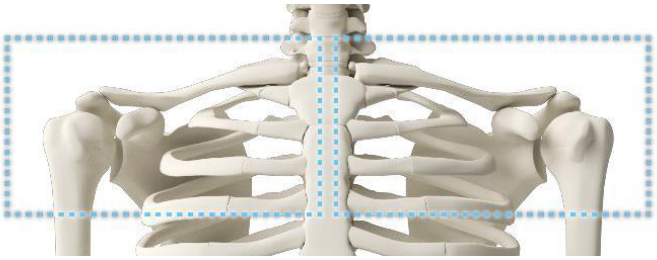
FIELD OF VIEW (FOV)

Use a FOV for the left and a second FOV for the right clavicle in the same bilateral scan. For reconstruction the left and right clavicle should be reconstructed separately. Although scanning the patient once, two high resolution datasets are obtained.
Capture the clavicle, the acromioclavicular joint and sternoclavicular joint using a reconstruction FOV of 25 cm. For large patients, use the smallest FOV possible.
Capturing all soft tissue is not necessary, only the bony regions are of interest.
Scan all slices with the same FOV, reconstruction center AND table height (coordinate system).

NO GANTRY TILT

Materialise NV, +32 (0) 16 744 930, ortho@materialise.com, SGC.CustomerSupport@materialise.com

Scanning parameters

Region of interest	Full clavicle, acromioclavicular and sternoclavicular joints. Scan the patient bilateral with two FOVs. Reconstruct the scan separately for left and right clavicle.
	
Collimation	Slice thickness: 1mm or smaller
	Slice increment: 1mm or smaller. Contiguous or overlapping slices. **No gap allowed!**
kVp	120
mAs	As given by the automatic system
Pitch	Use 1 or smaller
Field of View (FOV)	Place two separate FOVs, one for each clavicle. ≤ 25 cm x 25 cm. For large patients, use the smallest FOV possible.
Matrix	Use a 512 x 512 matrix
Algorithm	Standard soft tissue algorithm with no edge enhancement

Reconstruction

- **True axial scans** are required.
- **Two original reconstructions** are required, left and right clavicle separately.
- **No** reformations in coronal or sagittal plane, no MPR's.
- **No** obliqueness; no gantry tilt and no oblique reconstructions.
- **No** secondary reconstructions; images must be scanned at the given parameters or more strict.
- **No** reformations into coronal and sagittal planes; no MPR's.
- **No** 3D reconstruction. 3D reconstructions may be forwarded as an extra to the requested CT data.
- **No** lossy compression.

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Data transmission

- **Submit Dicom format only**. No .jpg images or other formats are acceptable. Do not submit other types of reconstructed or reformatted images. Only the true axial scans are required.
- Uncompressed Dicom data is necessary for processing. Lossy and other forms of compression are not allowed.
- Do not erase patient name and ID.

IMPORTANT
Your site should keep an archive (PACS) copy of the CT exams, in uncompressed DICOM format and the original scanning parameters.

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