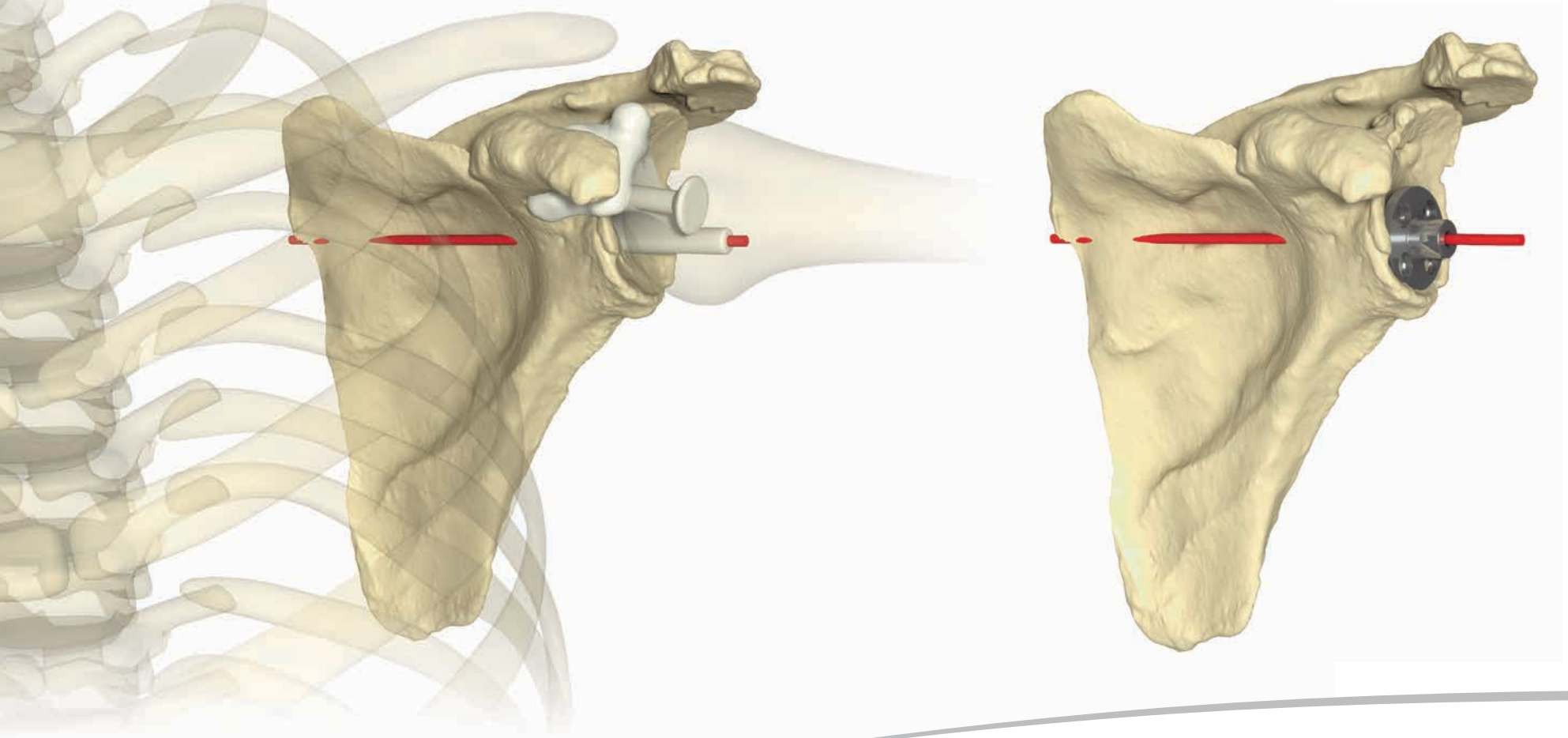
djosurgical

AltiVate | Match Point System®

Shoulder CT Scan Protocol



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Purpose

This CT scan protocol consists of a localizer and a detailed axial scan of the shoulder. The CT scan quality needs to identify clear bony edges and surface detail critical for the production of accurate patient-specific surgical instruments. Deviations from this protocol may result in unusable images.

For questions, please contact Materialise at **djoservice@materialise.be** or **734-259-7014**.

Patient Preparation

- Remove any non-fixed metal prosthesis, jewelry, zippers that might interfere with the scan region to be scanned.
- Make the patient comfortable and instruct him/her **not to move** during the procedure.
- Position the patient as follows: supine, arms at sides of the body and with the shoulder in neutral rotation.
- Cervical spine is in neutral position.
- Place a marker on the arm indicating if it is the right or left. Use a marker that does not hinder the quality of the CT scan.

Scanning Instructions

Table position

- Set the table height so that the area to be scanned is centered in the scan field.
- **Do not change table position between images so that all images create one unified volume.**

Field of view (FOV)

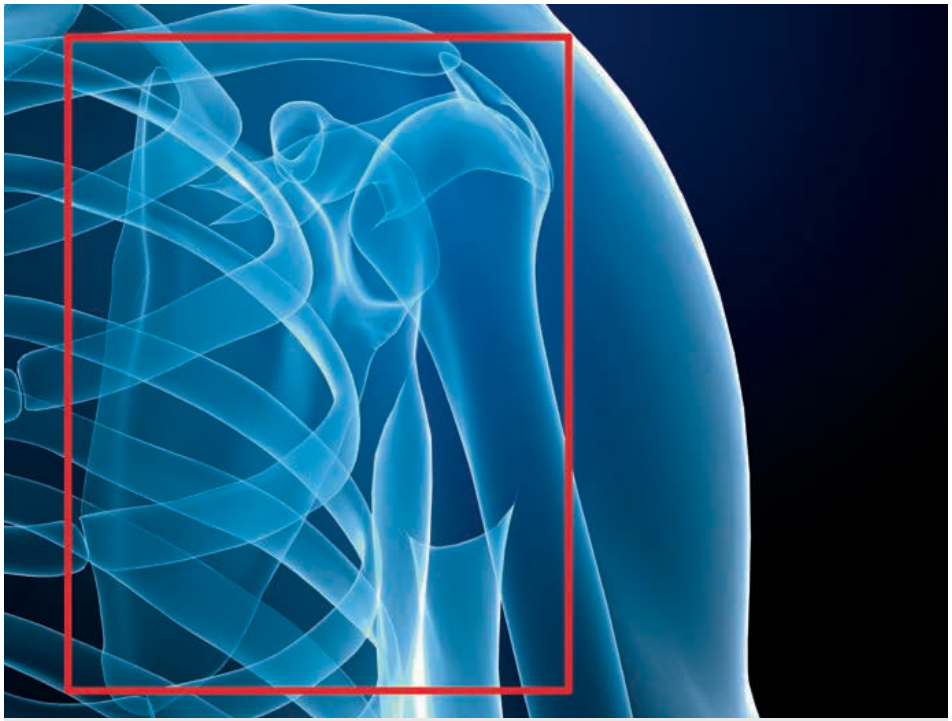
- Capture the scapula and proximal humeral head using a **25cm FOV - DO NOT EXCEED**.
- Scan all slices with the same FOV, reconstruction center AND table height (coordinate system).
- The scan range should cover the entire scapula. You may **add axial slices** as necessary to ensure coverage from superior to inferior.
- **Imaging soft tissue is unnecessary, only the bony regions are of interest.**
- **No Gantry Tilt / No Oblique Images**

Kernel

- Use a soft tissue/moderate reconstruction algorithm, with no edge enhancement.

Scanning Parameters

We recommend building a 'Match Point' protocol in your CT scanner(s) with the appropriate ranges and parameters.



Scan helical	
Region of interest:	Shoulder: full scapula and proximal humerus
Kv:	120
mAs:	As given by the automatic system
Pitch:	1
Matrix:	512 x 512
FOV:	**25cm x 25 cm - DO NOT EXCEED**
Collimation:	
Slice thickness:	≤ 1.25 mm
Slice increment:	≤ 0.625 mm (50% overlap)
Kernel / Algorithm:	Moderate/soft tissue

Reconstruction and Delivery of the Images

- No secondary reconstructions; images must be scanned at the given parameters or smaller.
- No obliqueness; no gantry tilt and no oblique reconstructions.
- No reformatting into coronal or sagittal planes; no MPR's and no 3D reconstructions.
- Provide the complete data set of **primary DICOM images.**
- **Lossy compression is NOT acceptable** (ISO_10918_1, ISO_14495_1, ISO_15444_1 or ISO_13818_1).
- Please include patient age, sex, and weight information.
- Please retain a permanent archive (PACS) copy of the RAW data of images for 1 month.

Frequently Asked Questions

1. **What should I do if the entire scapula doesn't fit in the 25cm FOV?**
   It is not necessary to include the surrounding soft tissues, chest/lung or the clavicle in the FOV. You may add axial slices as necessary to increase coverage from superior to inferior.

2. **What is the difference between bone kernel and soft tissue kernel?**
   Bone kernel vs. soft tissue kernel: we want the soft tissue kernel with no edge detection because it is easier to process the 3D model from. The bone kernel is ideal for detecting fractures but this is not the purpose of these images.

3. **Can we use compressed jpeg format?**
   No, DICOM images are necessary and the compressed jpeg format cannot be used to keep the accuracy of the 3D models.

For more information, please contact Materialise at **djoservice@materialise.be** or **734-259-7014.**

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materialise

CAUTION: Federal Law (USA) restricts this device to sale by or on the order of a physician.

See package insert for a complete listing of indications, contraindications, warnings, and precautions.

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