NEWCLIP TECHNICS - CT SCAN PROTOCOL: LOWER LIMB OSTEOTOMIES.

TO MANUFACTURE PRECISE PATIENT-MATCHED CUTTING GUIDES, HIGH-QUALITY CT IMAGES ARE ESSENTIAL: BONE SEGMENT CONTOURS AND DETAILS MUST BE WELL-DEFINED AND CLEARLY VISIBLE.

POOR IMAGE QUALITY RENDERS THE IMAGES UNUSABLE, REQUIRING A NEW SCAN.

Summary:

General settings to be followed:

- No injection of contrast medium.
- Acquire a **bilateral scan,** the position of both limbs must be the same.
- Keep a constant coordinate system and pixel size throughout the scan - **no displacement.**
- Perform the entire acquisition on a **single topogram.**
- Use an **artifact reducer** for **material already in place.**

Patient positioning	Coordinates system	Tension	Rotation time	Power	Matrix
Supine position + Feet perpendicular to legs	Same for all images	90 - 120 kV	0.5 s	Dose modulation	512 x 512 (no less than)

Images sets to provide:

Provide DICOM images from the acquisition and a reconstruction of the whole acquisition with the following:

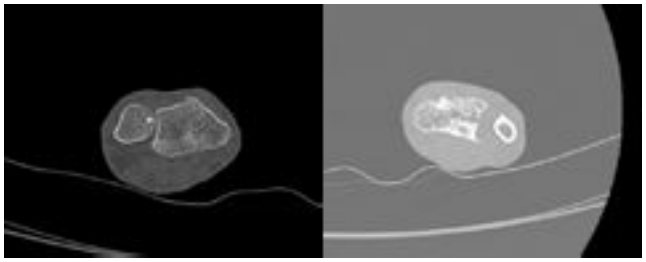
Sections	Acquisition - Bilateral Hip/Knee/Ankle	Reconstruction - Bilateral Hip/Knee/Ankle
Joined edges	Window («Bone»)	Window («Soft Tissue»)
0.5 mm ≤ **Thickness** ≤ 0.8 mm	Center : 500 - Width : 2500	Center : 40 - Width 400

If the CT machine can not reach these values, please use the closest values to obtain the thinnest sections thickness possible with a good spatial resolution.

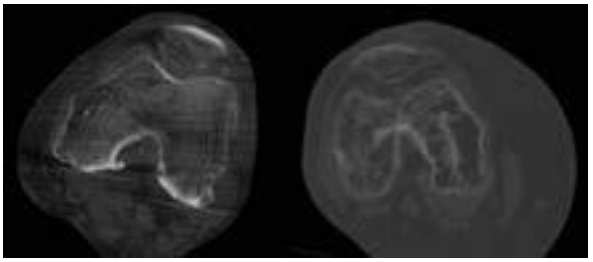
- Images must be sharp: the boundaries between bone and soft tissue must be clearly visible.
- Blurred images, or images with low contrast between bone tissue and surrounding soft tissue, lead to inaccuracies in the reconstruction, and therefore in the production of the personalized guide.

CT Scan imaging examples:

Usable images



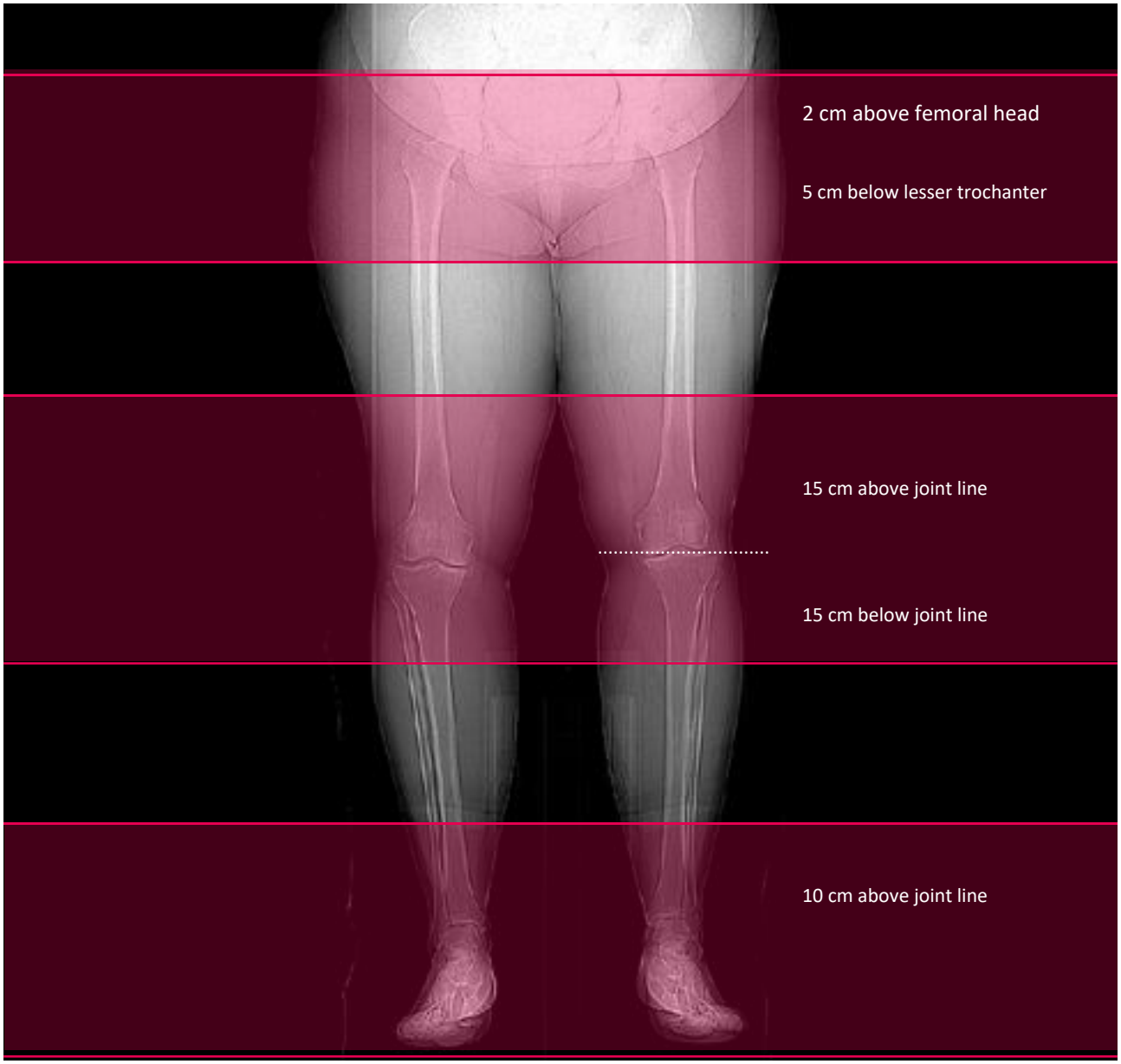
Unusable images



Knee osteotomy.

REMINDERS:

- The entire acquisition must be performed on a **single topogram.**
- **The sections' thickness** must be comprised **between 0.5 and 0.8 mm.**
- Patient positioning: **Supine position + Legs extended.**



Acquisition: Start the acquisition 2 cm above the femoral head and to the femoral shaft proximal quarter (5 cm) - Acquire a third of the femur and the tibia on both joint sides (15 cm) - Acquire from the third part of the distal tibia (10 cm) until 2 cm after the distal phalanges.