

# IMAGING PROTOCOL

for tumour resection & mandibular reconstruction  
CT / CBCT · dental data when the bite is involved · fibula donor CT

ACCURACY · SYMMETRY · RECONSTRUCTION

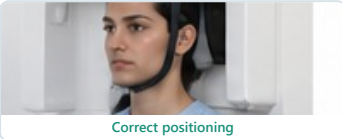


Virtual resection and fibula reconstruction are planned entirely from your imaging. The more closely the scan follows this protocol, the more faithfully the plan transfers to surgery.

## 1 CT / CBCT ACQUISITION

### GENERAL PRINCIPLES (MAXILLOFACIAL)

- Full facial skeleton — both condyles and the whole mandible
- Natural Head Position (NHP)
- Mandible in centric relation (CR) — condyles seated
- No chin support
- Metal-artefact-reduction protocol enabled
- Patient in slight disocclusion during the scan

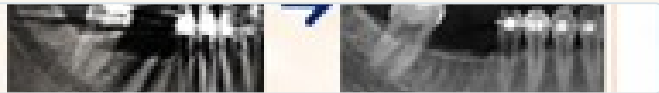


### RECOMMENDED

Stabilise the head with posterior support and a light forehead band only if necessary.

### IMPORTANT — METAL ARTEFACT REDUCTION

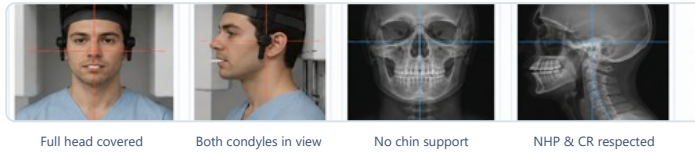
Enable the metal-artefact-reduction protocol — it reduces streaks from metallic materials (fillings, implants, existing plates) around the resection site.



## 2 RECOMMENDED CT / CBCT PARAMETERS

PARAMETER	CT (SPIRAL)	CBCT (CONE-BEAM)
FOV (field of view)	Full head (min. 16–22 cm)	Full head (min. 16–22 cm)
Matrix	≥ 512 × 512	≥ 512 × 512
Slice thickness (Z)	0.5–1.0 mm (reconstruction)	0.3–0.6 mm
In-plane reconstruction (X,Y)	0.5–0.7 mm	0.3–0.4 mm
Contrast (planning scan)	NO	NO
Scan time	Per device protocol	20–40 sec
Metal-artefact-reduction protocol	<b>ENABLED</b>	<b>ENABLED</b>

### 2.1 — SCAN VERIFICATION (SCOUT)



**Wax wafer:** use a CR wax record to keep the mandible seated in centric relation during the scan, if needed.

### 2.2 — OCCLUSION IN CR (CONDYLES SEATED)

#### ✓ CORRECT — IN CR

- Condyles seated in the fossae
- Uniform bilateral contacts
- Mandibular position is the reference



#### ✗ INCORRECT — OTHER POSITION

- Anterior / lateral shift
- Condyles not centric
- Reconstruction position is lost

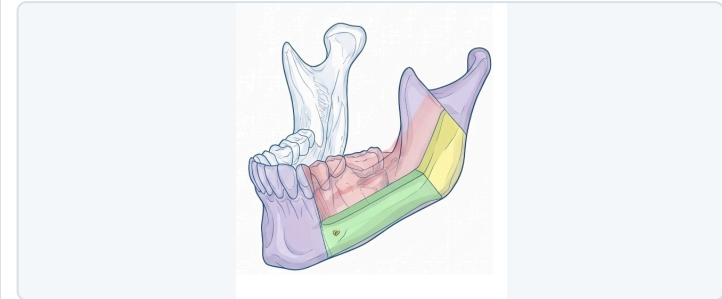


## 3 FIBULA DONOR — CT ANGIOGRAPHY (LEGS)

Fibula free-flap reconstruction needs a separate CT angiography of the lower leg(s). It maps the usable fibula length and the peroneal vessels (perforators) before the flap is raised.

### 3.1 — SCANNING PARAMETERS (CTA)

Coverage	Both legs — knee to ankle
Contrast	IV iodinated — arterial phase, bolus tracking
Slice thickness	≤ 1.0 mm
Reconstruction	0.6–1.0 mm · bone + vascular kernels
Goal	Peroneal vessels & fibula clearly opacified



Virtual fibula reconstruction planned on your CT

### 3.2 — FILE FORMATS

Maxillofacial CT / CBCT	.dcm · .DICOM (uncompressed)
Fibula CT angiography	.dcm · .DICOM (arterial)
Dental scan (if bite involved)	.STL · .PLY · .OBJ

### GENERAL RECOMMENDATIONS

- Provide complete, uncompressed data (maxillofacial + leg CTA)
- State which leg(s) the donor scan covers
- Dental data — both arches + occlusion in CR — only if the bite is involved

### FOR OPTIMAL RESULTS

- Follow the positioning and scan parameters
- Seat the condyles in CR for the maxillofacial scan
- Include the fibula CT angiography

### SIMPLIFIED WORKFLOW



### KEY MESSAGE

Faithful reconstruction depends on:  
**1.** Maxillofacial CT with the condyles in CR  
**2.** The bite when teeth are involved  
**3.** A fibula donor CT angiography