

# Patient-Matched Implants

CT Protocols

## Patient-Matched Implants

The prevention of motion is critical for 3-D imaging and modeling. Instruct the patient on the importance of holding completely still during the scan.

The following instructions are very important. Please read them carefully before scanning.

### Scanning the Patient and Technical Factors (for all scanners)

**Slice Thickness:** See specific protocols.

**Field of View:** Magnify or zoom image so it fills the entire screen without cutting off any of the anatomy for imaging. The FOV must not be changed during the scan.

**Table Position:** The CT couch must **not** be raised or lowered between slices. The X and Y centering must **not** be altered between slices.

**Matrix:** Quality images can be obtained from any scan matrix, although a high resolution 512 x 512 matrix should be used whenever possible.

**Algorithm:** **A standard or soft tissue algorithm** with no edge enhancement must be used. Do **not** use bone algorithm.

**Slice Spacing:** All slices must be contiguous or overlapping. Slice thickness and table increment is dependent on anatomy.

**Data Collection:** We accept CD-ROM in **DICOM** format off all CT machines.

CT Image data (not raw data) is required for patient modeling. Do **not** send hard copy X-rays.

Please contact Suzanne Smeltzer or Monica Crowder with any questions at 1.800.348.9500, ext. 1736 or 1509, or email [Suzanne.Smeltzer@zimmerbiomet.com](mailto:Suzanne.Smeltzer@zimmerbiomet.com) or [Monica.Crowder@zimmerbiomet.com](mailto:Monica.Crowder@zimmerbiomet.com).

CT data may be submitted for reconstruction:

- CD-ROM  
Ship to:  
PMI Dept./Suzanne Smeltzer  
2392 N Boeing Road  
Warsaw, IN 46582

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## Patient-Matched Implants

### Primary or Revision Hip/Acetabulum Replacement

Femurs must be positioned so they are parallel to the horizontal plane of the table. Patient needs to be in A/P position with feet inverted.



Start (see below)

Stop (see below)

Femoral Condyles

**Start:** Top of Iliac crest

**Stop\***: Mid-femur or below existing femoral

\*Perform two femoral condyle slices (to show anteversion) if patient does **not** have an existing implant.  
Do **not** change FOV or X and Y coordinates.

**Slice Thickness and Spacing:** 2 mm by 2 mm, 2.5 mm by 2.5 mm, or 3 mm by 3 mm

**Field of View:** 38–44 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Acetabulum/Pelvis for Oncology

Position patient in A/P with feet inverted, no rotation. Entire pelvis in FOV.

Start (see below)



Stop (see below)

**Start:** Top of Iliac crest

**Stop:** Ending slice just below ischial tuberosity

**Slice Thickness and Spacing:** 2 mm by 2 mm, 2.5 mm by 2.5mm, or 3 mm by 3 mm

**Field of View:** 38–44 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Knee: Primary or Revision



Start

Stop

Start

Stop

Start

Stop

**Slice Thickness and Spacing:** 1 mm by 1 mm, 1.25 mm by 1.25 mm, or 2 mm by 2 mm

**Field of View:** 25–35 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Patella / Femoral Implant



Start (see below)

Stop (see below)

**Start:** 10 cm above joint line

**Stop:** 3 cm below joint space

**Slice Thickness and Spacing:** 1 mm by 1 mm, 1.25 mm by 1.25 mm, or 2 mm by 2 mm

**Field of View:** 25 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Shoulder: Primary or Revision

Start (see below)

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Stop (see below)

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Humeral Condyles

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**Start:** Above acromion process

**Stop\*:** 15 cm below top of humerus or 3 cm below existing implant

\*Perform two humeral condyle slices (to show anteversion) if the patient does **not** have an existing implant.  
Do **not** change FOV or X and Y coordinates.

**Slice Thickness and Spacing:** 2 mm by 2 mm, 2.5 mm by 2.5 mm, or 3 mm by 3 mm is acceptable

**Field of View:** 25–30 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Elbow: Primary or Revision



Start (see below)

Stop (see below)

**Start:** 10 cm above joint line or 5 cm above existing implant

**Stop:** 8 cm below joint line or 5 cm below existing implant

**Slice Thickness and Spacing:** 1 mm by 1 mm, 1.25 mm by 1.25 mm, or 2 mm by 2 mm

**Field of View:** 15–20 FOV depending on patient size

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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## Patient-Matched Implants

### Wrist/Hand

Start (see below)



Stop (see below)

**Start:** Tip of fingers

**Stop:** 4–5 cm proximal to carpal bones

**Slice Thickness and Spacing:** 0.625 mm by 0.625 mm, 1 mm by 1 mm, or 1.25 mm by 1.25 mm

**Field of View:** 15 FOV

**Algorithm:** A **standard** or **soft tissue** algorithm, **no** bone enhancement

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