

CT Scan Protocol

**Custom Hip / Knee / Pelvis Augments**

## CUSTOM HIP IMPLANTS

### IMPORTANT

The quality of the CT scan determines the accuracy of the anatomical model, surgical guide and/or implant. Please follow this scanning protocol as much as possible.

On receipt, we will check the data and let you know if they are suitable for your request as soon as possible.

We recommend that the CT scan is **less than 3 months old** at the time of the surgery. If the CT scan is more than 3 months old, we will need to get in contact with you to evaluate the risks so that we can decide jointly how we can proceed with the project. Patient specific devices will be designed to fit the patient anatomy at the time of the CT scan. The devices' fit will be compromised if any changes in the patient anatomy occurred after the CT scan.

### Artefacts & patient positioning

- Artefacts are created by metal items such as jewels, fillings, braces, screws, plates and implants. Ask the patient to remove all jewels and metal non-fixed dentures. For existing metallic implants, a metal artifact reduction method should be applied where possible. (MAR, SEMAR etc).
- The patient should be immobile during the scan, in supine position, feet first.
- Make sure the CT scan covers the area of interest plus additional margin. Include the acetabulum as well as the femoral neck isthmus and anterior superior iliac spines. In cases of congenital hip dysplasia, include the false acetabulum.



### CT Scanning parameters

Gantry tilt	0°
Slice thickness	Maximum 1mm, recommended <b>0.5mm</b>
kVp	100-120
Reconstruction algorithm	Bone or high resolution

- Gantry tilt should be 0 degrees. Oblique or reformatted images are unacceptable as they negatively influence the accuracy: use only primary axial images.
- All slices must have the same field of view, reconstruction center, and table height.
- Scan with the same slice spacing, less than or equal to the slice thickness.
- If there are some artefacts in the CT scan, we recommend using a noise reduction filter, type iMAR for Siemens scanner.
- Include the acetabulum as well as the distal femoral isthmus, in cases of congenital hip dysplasia include the false acetabulum. We recommend landmarks including the opposite hip and some slices through both distal femoral condyles are taken in order to appropriately orientate our custom manufactured hip implants.

## CUSTOM KNEE IMPLANTS

### IMPORTANT

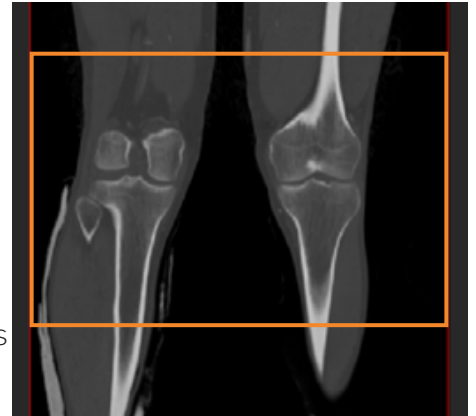
The quality of the CT scan determines the accuracy of the anatomical model, surgical guide and/or implant. Please follow this scanning protocol as much as possible.

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### Artefacts & patient positioning

- Artefacts are created by metal items such as jewels, fillings, braces, screws, plates and implants. Ask the patient to remove all jewels and metal non-fixed dentures. For existing metallic implants, a metal artifact reduction method should be applied where possible. (MAR, SEMAR etc).
- The patient should be immobile during the scan, in supine position, feet first.
- Make sure the CT scan covers the area of interest plus additional margin. Include the entire distal femoral epiphysis.



### CT Scanning parameters

Gantry tilt	0°
Slice thickness	Maximum 1mm, recommended <b>0.5mm</b>
kVp	100-120
Reconstruction algorithm	Bone or high resolution

- Gantry tilt should be 0 degrees. Oblique or reformatted images are unacceptable as they negatively influence the accuracy: use only primary axial images.
- All slices must have the same field of view, reconstruction center, and table height.
- Scan with the same slice spacing, less than or equal to the slice thickness.
- If there are some artefacts in the CT scan, we recommend using a noise reduction filter, type iMAR for Siemens scanner. If there are some artefacts in the CT scan, we recommend using a noise reduction filter, type iMAR for Siemens scanner.
- Include the entire distal femoral epiphysis. We recommend landmarks including the centre of rotation of the femoral head and some slices through the talus in order to appropriately orientate our custom manufactured Knee implants.

## CUSTOM PELVIC AUGMENTS

### Important

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We recommend that the CT scan is **less than 3 months old** at the time of the surgery. If the CT scan is more than 3 months old, we will need to get in contact with you to evaluate the risks so that we can decide jointly how we can proceed with the project. Patient specific devices will be designed to fit the patient anatomy at the time of the CT scan. The devices' fit will be compromised if any changes in the patient anatomy occurred after the CT scan.

### Artefacts & patient positioning

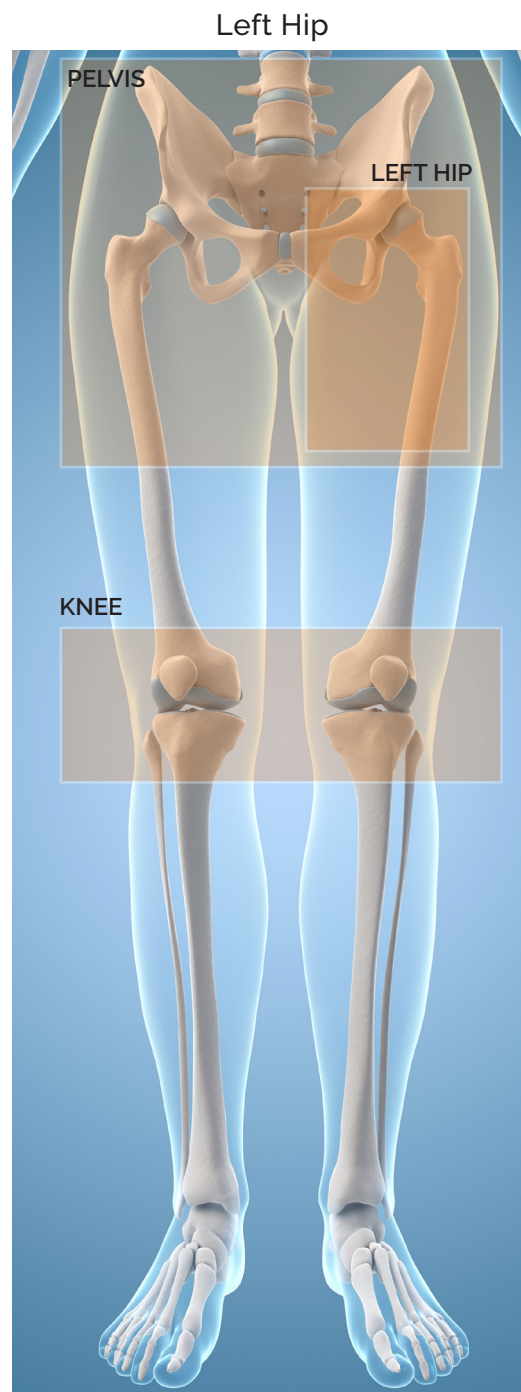
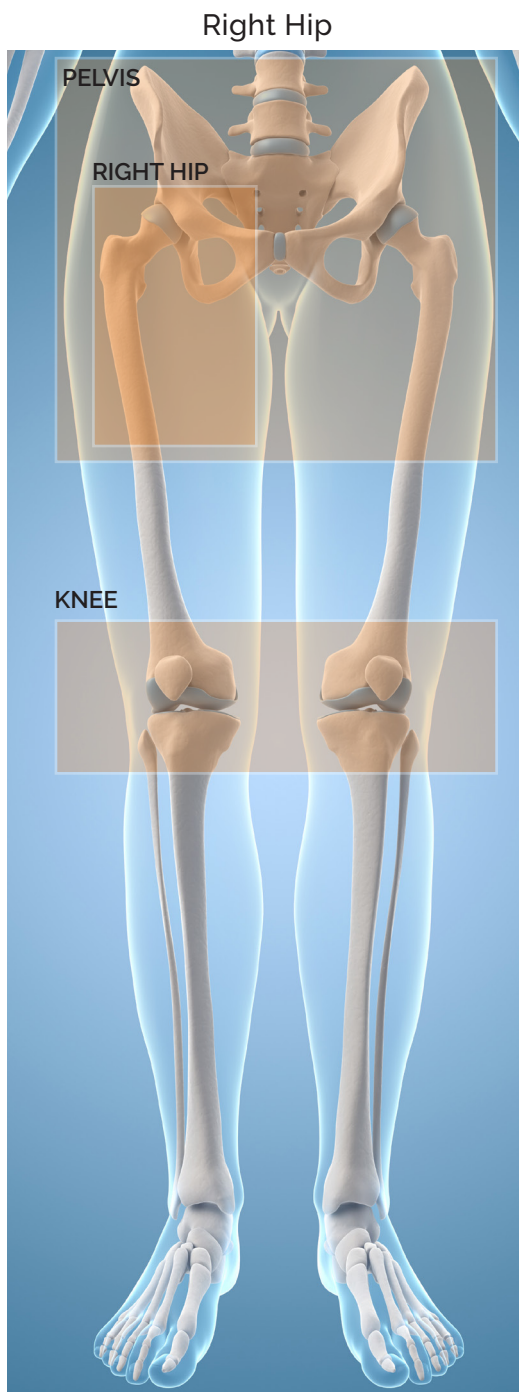
- Artefacts are created by metal items such as jewels, fillings, braces, screws, plates and implants. Ask the patient to remove all jewels and metal non-fixed dentures. For existing metallic implants, a metal artifact reduction method should be applied where possible. (MAR, SEMAR etc).
- The patient should be immobile during the scan, in supine position, feet first.
- Make sure the CT scan covers the area of interest plus additional margin. Include the iliac crests as well as the proximal femoral isthmus.



### CT Scanning parameters

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Slice thickness	Maximum 1mm, recommended <b>0.5mm</b>
kVp	100-120
Reconstruction algorithm	Bone or high resolution

- Gantry tilt should be 0 degrees. Oblique or reformatted images are unacceptable as they negatively influence the accuracy: use only primary axial images.
- All slices must have the same field of view, reconstruction center, and table height.
- Scan with the same slice spacing, less than or equal to the slice thickness.
- If there are some artefacts in the CT scan, we recommend using a noise reduction filter, type iMAR for Siemens scanner.
- Include the iliac crests as well as the distal femoral isthmus.



## DATA TRANSFER TO JOINTMEDICA

CT scans images can be saved onto a disk (CD-ROM or DVD-ROM). Please ensure the patients name is noted.

The disc should be posted to the following address:

**Jointmedica Ltd**

**FAO: Custom Devices**

Unit 3 – Ball Mill Top Business Park

Main Road

Hallow

Worcestershire

WR2 6LS

**Jointmedica Ltd**

Unit 3 – Ball Mill Top Business Park  
Main Road  
Hallow  
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WR2 6LS

Tel: +44 1905 640008  
Fax: +44 1905 676464  
Email: [cs@jointmedica.com](mailto:cs@jointmedica.com)  
[www.jointmedica.com](http://www.jointmedica.com)

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