

Avenir® Hip System

Surgical Technique



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Zimmer Biomet does not practice medicine. Each physician should exercise his or her own independent judgment in the diagnosis and treatment of an individual patient, and this information does not purport to replace the comprehensive training physicians have received.

Refer to the package insert for a complete list of prescribing information, including indications, contraindications, warnings, precautions, potential adverse effects, and patient counseling information.

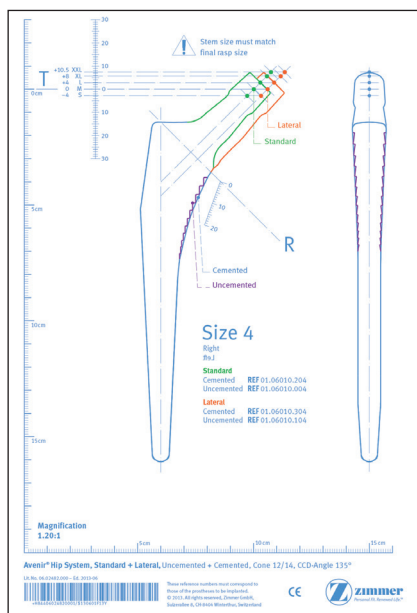


Figure 1



Figure 2

Pre-operative Planning

The objectives of pre-operative planning are to define:

- Pre-operative leg length
- Acetabular component size and position
- Femoral component size
- Femoral offset and center of rotation

The Avenir Hip System provides X-ray template with 120% magnification (Figure 1).

It is recommended to use a radiographic marker to assess the X-ray magnification and select the appropriate template.

It is recommended that templates are positioned over the AP X-rays to best decide the correct implant size and center of rotation.

Digital Pre-operative Planning

The Avenir Hip System digital templates are available through various digital template providers. When using digital templating for a primary THR, it is necessary to use a magnification marker with a known dimension. This is required to calculate the correct magnification. As soon as the correct magnification has been determined, the system can be used with aiming at best deciding the correct implant size and center of rotation (Figure 2).

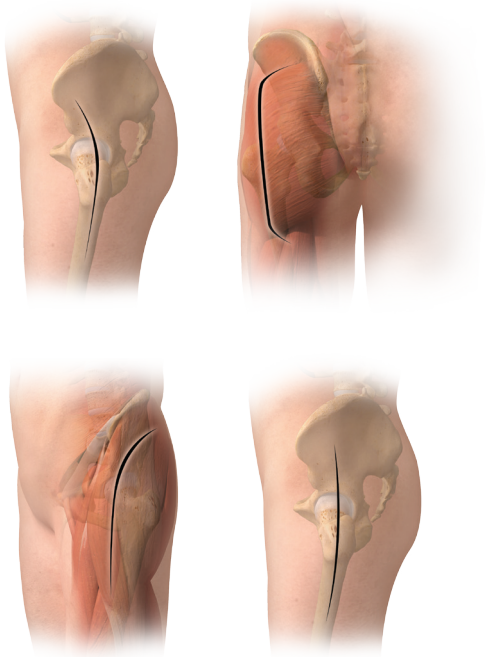


Figure 3



Figure 4

Patient Positioning/Surgical Exposure

The Avenir femoral component can be implanted using any of the standard approaches for total hip replacement (Figure 3).

This surgical technique may be adapted to the surgeon's specific approach.

The aim of the approach selected is to provide optimal visualization of both the acetabulum and proximal femur in order to help reproduce the normal hip anatomy and aiming to restore the physiologic center of rotation.

Femoral Neck Resection

Once the femoral head is dislocated, cut the femoral neck according to the preoperative plan, using classic marks between the greater and the lesser trochanter (Figure 4).



Figure 5



Figure 6

Femoral Canal Opening

Carefully prepare the medial section of the greater trochanter with the boxed chisel (Figure 5).

Open the medullary cavity using the T-handle awl. Position the awl close to the tip of the greater trochanter in order to avoid varus positioning (Figure 6).



Figure 7



Figure 8

Femoral Canal Preparation

Start the femoral preparation with the smallest rasp considering appropriate anteversion (Figure 7).

Progress with sequentially larger rasps until reaching the pre-operatively templated implant size.

Zimmer Biomet offers different handle designs for different approaches. Choose the appropriate one according to the selected surgical approach.

Once complete stability is achieved with the final rasp, remove the handle from the rasp (Figure 8).

Note: When using a line-to-line broaching technique, the final rasp size should match the final implant size for both cementless and cemented versions.

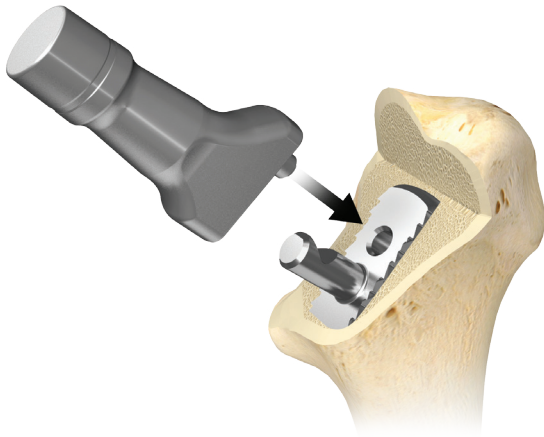


Figure 9



Figure 10

Trial Reduction

With the final rasp in place, select the appropriate provisional neck (standard or lateral) and connect it onto the rasp (Figure 9).

Once the provisional neck is in place, select the correct provisional head size and position it on the provisional neck (Figure 10). Perform a trial reduction using the head impactor. Repeat the procedure with different head offsets until reaching joint stability, soft tissue tension and desired leg length.

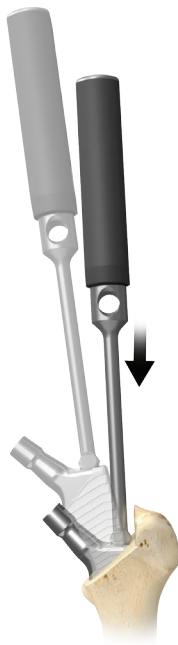


Figure 11

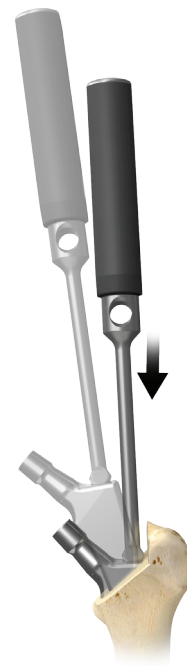


Figure 12

Femoral Implant Insertion

When implanting a cementless or cemented stem, the definitive implant must correspond to the last rasp used. Insert the femoral component into the femoral canal using the stem inserter (Figure 11 and 12).

Cementless Stem Insertion

Drive the stem into the femur using the impactor until the edge of the hydroxyapatite coating corresponds to the insertion depth of the rasp.

Special attention on the anteversion is necessary during the first few centimeters of insertion only, as subsequently the implant positions itself in the femoral bed.

Cemented Stem Insertion

When using a cemented stem, clean and dry the femoral shaft using a high-pressure pulse lavage system in order to remove blood, fat and debris from the cancellous surface of the canal. Insert an appropriate distal femoral plug.

Deliver the cement in the clean and dry femoral shaft in a retrograde fashion.

Apply the proximal seal and pressurize the cement to improve the interlock of the bone-cement interface. Insert the stem down the center, maintaining pressure on the stem through the inserter handle until the cement is polymerized.

For cementing guidance, please refer to Zimmer Biomet's Modern Cementing Technique for Hip Arthroplasty.

Note: When using a line-to-line broaching technique, the final rasp size should match the final implant size for both cementless and cemented versions.



Figure 13



Figure 14

Head Impaction

If desired, a further trial reduction can be completed after implantation of the definitive femoral stem (Figure 13).

Once again, the range of motion, joint stability and leg length can be assessed.

Once the provisional head is removed, carefully clean and dry the taper of the stem.

Fully seat the modular head by means of firm axial impaction utilizing the femoral head impactor and mallet (Figure 14).

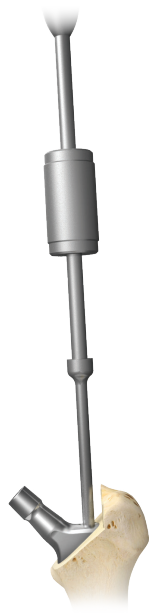


Figure 15

Implant Removal

Should an Avenir stem require removal, only the specific extraction instrument should be used.

Connect the extractor to the final implant through the threaded hole and pull the stem out of the femoral canal by using the slide hammer.

INDICATIONS

The product is intended for total or hemi hip arthroplasty with cementless and cemented applications for rehabilitating hips damaged as a result of:

- Advanced wear of the joint due to degenerative, post-traumatic, or rheumatic diseases.
- Failed previous hip surgery including joint reconstruction (osteotomy), arthrodesis, hemiarthroplasty or total hip replacement (THR).
- Acute traumatic fracture of the femoral head or neck.
- Avascular necrosis of the femoral head.

CONTRAINDICATIONS

- Acute, chronic, local, or systemic infections.
- Severe muscular, neural, or vascular diseases that endanger the limbs involved.
- Lack of bony structures proximal or distal to the joint, so that good anchorage of the implant is unlikely or impossible.
- Total or partial absence of the muscular or ligamentous apparatus.
- Any concomitant diseases that can jeopardize the functioning and the success of the implant.
- Local bone tumors and/or cysts.
- Pregnancy

Cementless Stem:

- Skeletal immaturity
- Allergy to the implanted material, especially to metal (e.g., cobalt, chromium, nickel, etc.).

Cemented Stem:

- For patients biologically younger than 60 years with joint disease, a different reconstruction operation (e.g., osteotomy) or arthrodesis may be indicated.
- Allergy to the implanted material, especially to metal (e.g., stainless steel).

For full information please refer to IFU D011500294 & D011500297

Notes

Notes

Notes

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For ordering information refer to the following documents :

- 0885.1 - OUS Ordering Information leaflet
- 0885.1 - US Ordering Information leaflet



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