stryker®

Orthopaedics

MIS Hip Joint Replacement
Surgical Technique

Anterolateral MIS Approach

MIS Hip Joint Replacement
Surgical Technique
Anterolateral Approach

It is Stryker's mission to deliver state of the art MIS technologies and implants for hip and knee arthroplasty, while providing the highest standards of training and education for the medical community. Stryker's ultimate goal is to promote patient lifestyle recovery supported by responsible science. Stryker will endeavor to invent, develop and deliver procedural simplification through innovative technologies that provide greater patient satisfaction and potentially lead to long-term clinical success.

The decision to perform an MIS procedure is ultimately left to the surgeon's professional medical and clinical judgment. It is the surgeon who must carefully evaluate each patient to determine if MIS surgery is indeed appropriate. In some cases the clinical risks that apply to MIS total joint arthroplasty may be greater than conventional total joint arthroplasty. Stryker strongly recommends that surgeons complete a formalized training program before attempting these operative techniques on their own.

Table of Contents

Stryker MIS Technique for THA

Minimally invasive surgery (MIS) is a surgical technique, which may enable the surgeon to potentially reduce the amount of soft tissue dissection, manipulation, and overall disruption of the surgical site throughout the surgery.

Minimally invasive procedures bring technique and implant together in a synergy that may improve patient outcome and may reduce recovery time. MIS techniques and instrumentation may minimize the impact of the surgical procedure on tissue and/or bone that may accelerate post-operative rehabilitation, recovery, and return to pain-free function.

The MIS total hip arthroplasty (MIS-THA) procedures you are going to learn about in this surgical protocol each begin with a single incision. The purpose of the incision is to minimize soft tissue trauma dissection that may reduce muscle and other tissue trauma. This may contribute to reduced patient pain and may decrease recovery time.

The key to MIS is soft tissue management. Although bone and implant management are no less important than in conventional hip surgery, the incremental benefits of pain reduction and improved strength are closely related to soft tissue management.

Anterolateral MIS Technique

Conventional total hip arthroplasty relies on maximum exposure of the joint so the entirety can be seen at once. Such exposure, however, requires much of the soft tissue to be cut, inflicting damage on tissue that can increase pain and recovery time.

The surgeon using MIS-THA must pay as much attention to the position of the leg and to soft tissue management as to the instruments that make the procedure possible. At the same time, the limited field of vision offered by MIS requires that the surgeon develop greater confidence using the sense of touch (tactile sensation) to supplement visualization.

As you work through a MIS-THA, it helps to ask yourself two questions:

1. **What am I doing with the soft tissues at this stage of the procedure?**
2. **What am I doing with the bone at the stage of the procedure?**

Preoperative planning aids in the selection of the appropriate implant style and size for the patient's hip pathology.

Preoperative X-ray analysis can be used to evaluate:

- **Optimal femoral stem fit**
- **Prosthetic neck length**
- **Neck offset**
- **Acetabular component sizing**

Determination of probable implant style and size can facilitate operating room preparation by ensuring that the appropriate size selection is available. Anatomic anomalies that could prevent the intra-operative achievement of the established preoperative goals may also be detected through such planning.

The patient position is the same for both the Posterolateral and for the Anterolateral Approach.

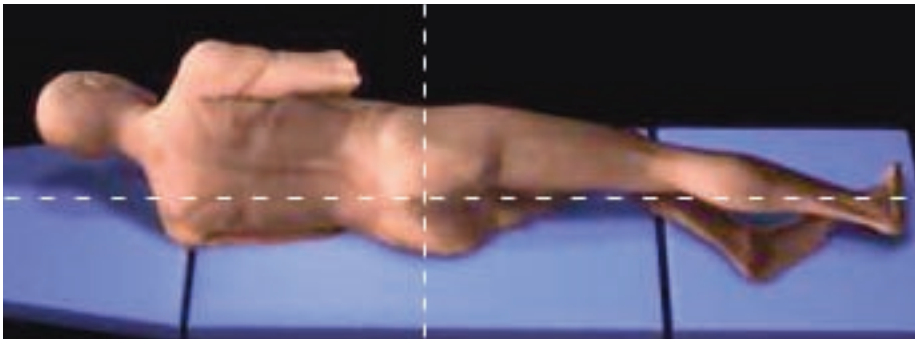
The patient is placed in the **lateral decubitus position with the operative hip superior.** Care should be taken to position the pelvis so that a line connecting the anterior superior iliac spines (ASIS) is vertical when viewed from both the end and the side of the operating table.

A pelvic stabilizing device must be used to ensure that the patient's pelvis remains stable throughout the procedure. The dependent leg is flexed at both the knee and the hip so that the hip is flexed up to 45˚.

As the image shown here makes clear, this position also maintains a perpendicular orientation of the hip to the table so that improper implant placement can be avoided. *(See illustration below)*.

A general guide to follow for a MIS Hip posterolateral procedure is an incision length of 6 to 10cm. The incision may need to be lengthened beyond 10 cm to accommodate a patient's anatomy and size. Retractor placement is critical to the success of the MIS-THA. Therefore, it is recommended that the surgeon begin with a standard incision. Once he is familiar with retractor placement, he can make the incision progressively smaller.

It is also recommended that the surgeon select smaller patients to begin with. This approach helps ensure a safe and reproducible procedure.



Incision

Palpate the greater trochanter on the outer aspect of the thigh. Using a sterile marking pen, mark the outline of the greater trochanter on the skin. Start the location for the initial incision on the anterior tip of the greater trochanter and extend the incision distally along the anterior aspect of the femoral shaft approximately 6 to 8 cm. *(Figure 1+2)*

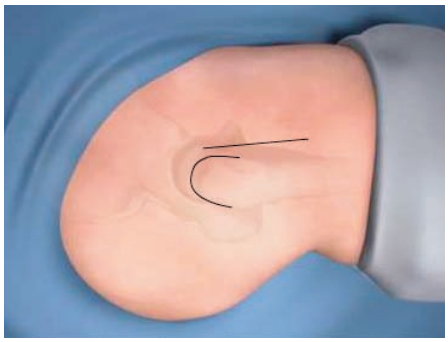


Figure 1

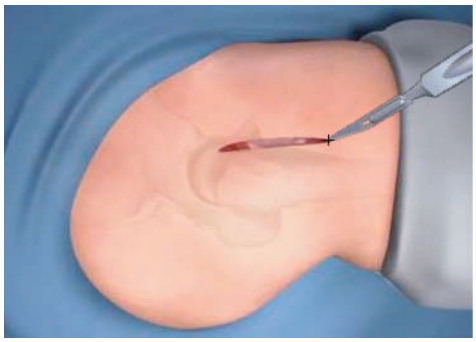


Figure 2

Using the initial incision mark as a guide, make the initial incision and divide the subcutaneous tissue. Identify the interval between the tensor fascia lata and the gluteus maximus. This is done by first visually identifying the divergent fibers of the two muscles and then palpating the soft spot where the tissue is thin. *(Figure 3)*

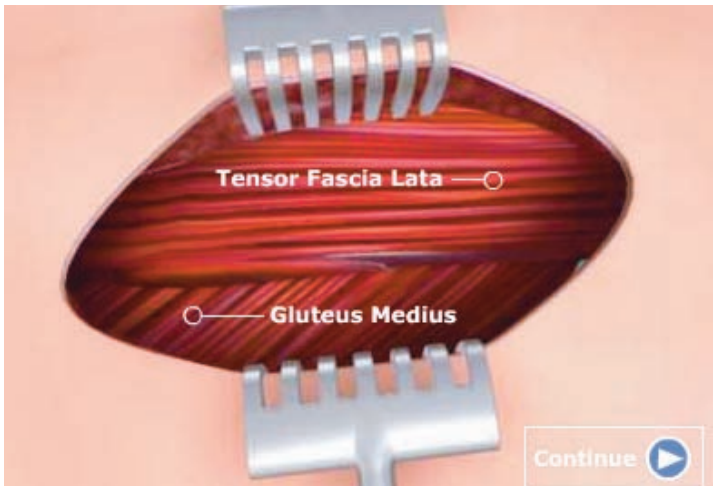


Figure 3

Incise along the posterior aspect of the tensor fascia lata and retract it anteriorly to expose the gluteus medius. Ligate the superior gluteal artery to reduce bleeding. *(Figure 4)*

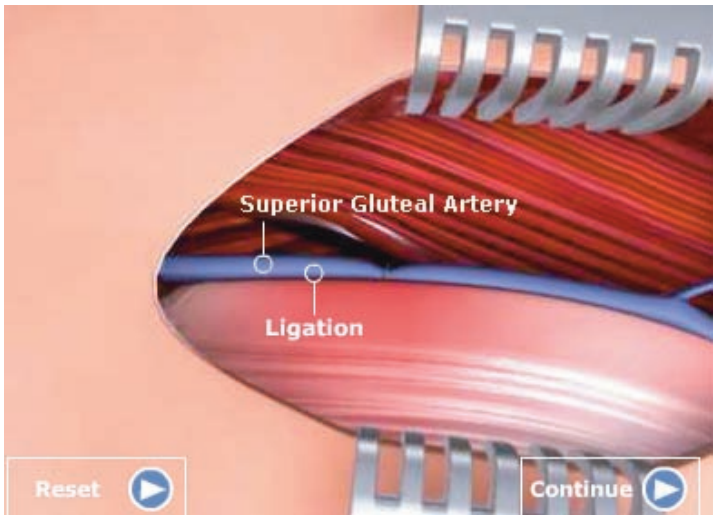


Figure 4

The medius fascia creates a very tight sling effect that can reduce visibility. Perform a T release of a 1cm portion of the gluteus medius fascia proximally. *(Figure 5)*

Place a Blunt Cobra retractor or a Narrow Hohmann retractor on both sides of the deep fascia. The greater trochanter and the abductors should now be visible. *(Figure 6)*

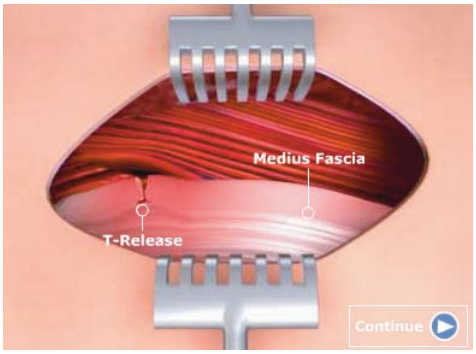


Figure 5

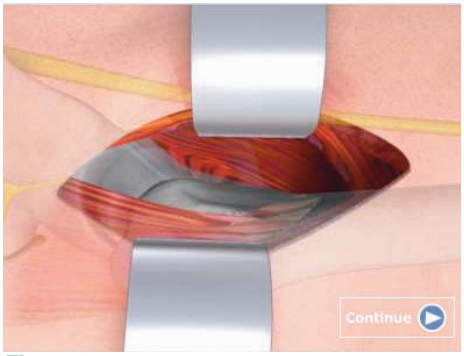


Figure 6

Place a Narrow Cobra retractor or a Hohmann Retractor under the greater trochanter to elevate the tendons for easier manipulation. *(Figure 7)*

Use your finger to lift the gluteus medius and the minimus slightly away from the femur. *(Figure 8)*

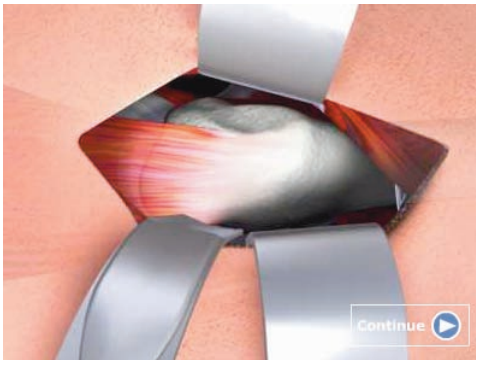


Figure 7

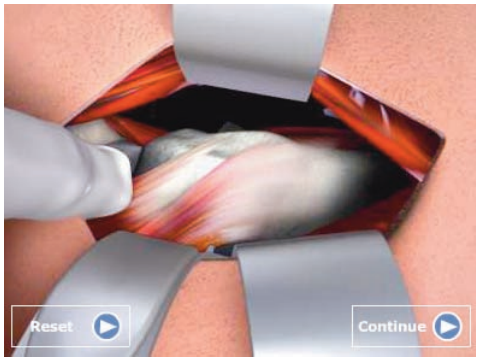


Figure 8

Split the gluteus medius with a Narrow Cobra retractor or a Narrow Hohmann retractor approximately 1.5 cm from its most posterior aspect and continue distally for approximately 3 cm. Take care to avoid the gluteal nerve when splitting the gluteus medius. The gluteal fibers are identified and a small nick is made in them at the distal end of the incision. *(Figure 9)*

Use your finger to release the gluteus medius by starting distally and working proximally, leaving a cuff of tissue for repair. Leave enough tendon (approximately 1.5cm) on both the muscle side and the bone side to facilitate later reattachment. One of the most important steps in doing a good Anterolateral approach is leaving good tendon and good soft tissue on the bone so these tissues can be sewn into and will hold a stitch.

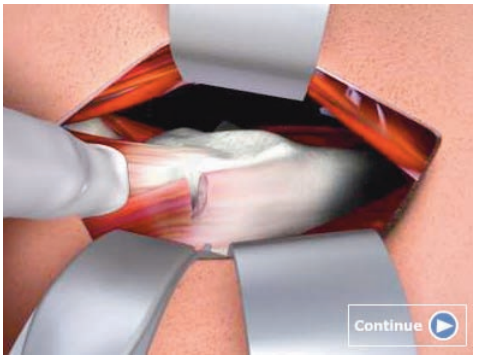


Figure 9

Place a Narrow Cobra retractor or a Hohmann Retractor under the inferior aspect of the resected medius to expose the gluteus minimus for resection. Leave enough tendon (approximately 1.5cm) on both the muscle side and the bone side to facilitate later reattachment. *(Figure 10)*

Reposition the Blunt Cobras to restrain and protect the resected abductors. Externally rotate the leg to make the capsule tight and clearly visible. *(Figure 11)*

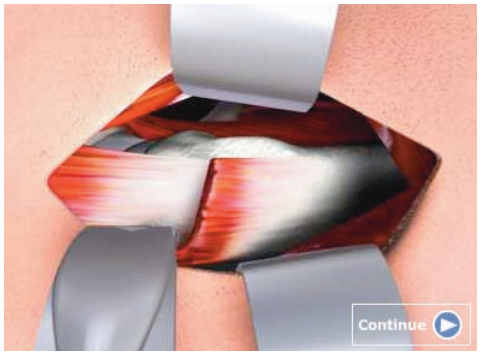


Figure 10

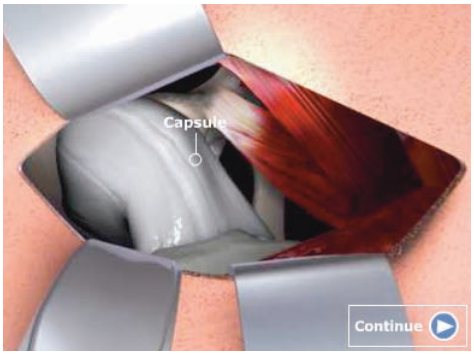


Figure 11

Place a Hohmann Retractor superior under the top part of the gluteus medius and another Hohmann Retractor inferior underneath the femoral neck and elevate slightly. Make a T incision in the center of the exposed capsule, centering the top of the T near or on the femoral head. *(Figure 12)*

Remove the retractors. Palpate the remaining attached gluteus medius. Take note of the degree of tension in the gluteus medius with the leg in the neutral position for leg length comparison after the implants have been place. Dislocate the hip by rotating and flexing it externally while simultaneously depressing the knee into adduction.

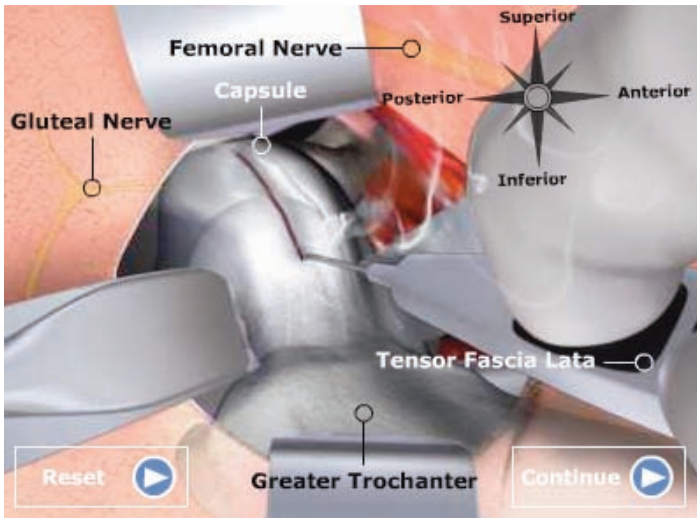


Figure 12

Femoral Neck Osteotomy

A proper neck resection level directly affects stem fit and placement. The correct resection level can be easily determined by using the anatomic landmarks identified during templating in conjunction with a Neck Resection Guide.

To obtain appropriate exposure of the femoral neck, place a Hohmann Retractor under the Anterior/Inferior aspect of the femoral neck and another Hohmann Retractor at the superior/posterior position and elevate the femur. *(Figure 13)*

Note: Poor exposure can often result in an anteverted neck resection. Careful orientation of the flexed knee perpendicular to the floor helps prevent this error. If necessary, a re-cut can be made to correct the initial neck resection.

Use electrocautery to indicate the neck resection level. Use an oscillating or reciprocating saw to resect the femoral neck along the scribed line. Be careful not to extend the cut laterally into the greater trochanter. If necessary, this issue can be avoided by making an axial resection at the medial border of the greater trochanter to connect it with the neck resection cut.

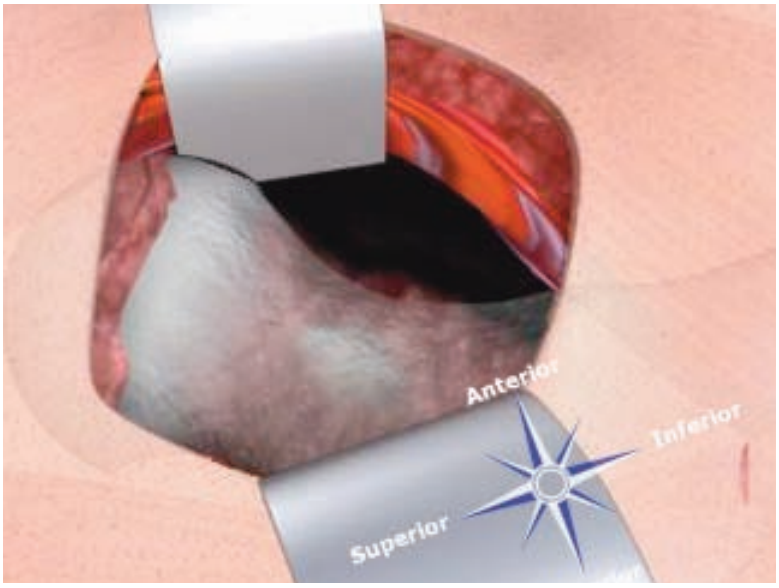


Figure 13

Using the Neck Resection Guide

While holding the Neck Resection Guide Assembly by the handle, place the left or right guide leg on the anterior/posterior aspect of the exposed proximal femur. The width of each leg guide is 1 cm and can be used as an estimate of distance from the lesser trochanter. The Alignment Rod should be positioned so that it is parallel with the long axis of the femur. Electro cauterization or Methylene Blue can then be used to indicate the neck resection level. Mark the planned femoral neck cut with an electrocautery device. Care should be taken to align the body of the guide with the axis of the femoral canal. Once the neck cut has been marked, remove the neck resection guide. With the leg rotated externally, make the femoral neck cut with an extra small oscillating saw blade. The axial resection is made at the medial border of the greater trochanter to connect it with the neck resection. Use the Femoral Head Extractor with the T-Handle to elevate the head and extricate it from the wound.

Using the Femoral Head Extractor *(Figure 14)*

Puncture the surface of the femoral head by applying axial force onto the Femoral Head Extractor Assembly. Continue applying axial force to the assembly and begin to rotate the T-Handle clockwise. When approximately 50% of the Femoral Head Extractor's threads have been engaged, the femoral head can be pulled or levered out of the incision. Use your preferred method for removing the femoral head.

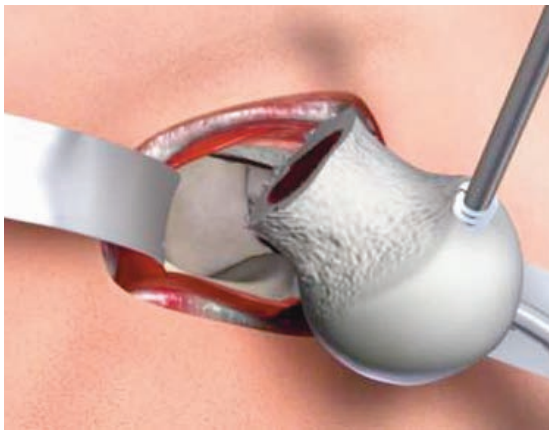


Figure 14

Acetabular Preparation

For the Anterolateral approach, the acetabulum is put in the neutral position.

Position three retractors (Narrow Hohmann or Narrow Cobra, Wide Hohmann and Left/Right Acetabular Retractors) over the edges of the acetabulum to gain adequate exposure for acetabular preparation.

Place the Narrow Cobra retractor or the Hohmann retractor in the posterior/inferior position over the ischial column to retract the femur posteriorly. The sciatic nerve is nearby, so care should be taken when placing this retractor. Place a Left/Right Acetabular Retractor over the anterior column along the bony margin. Place a second Narrow or Wide Hohmann over the top of the superior rim of the acetabulum. Take care to prevent soft tissue impingement between the retractors and the acetabulum. The Narrow and Wide Hohmann Retractors have sharp tips that can fix to bone. If necessary, additional fixation can be achieved through the use of the Retractor Impactor. Insert the Retractor Impactor into the impaction window of the Hohmann and impact with the Slotted Mallet. Caution must be taken not to break through the superior wall of the acetabulum.

To improve visibility, the Light Pipe can be attached to the Narrow Hohmann, Wide Hohmann, and Left/Right Acetabular retractors. To assemble the Light Pipe onto the retractor, insert the two distal tabs into the retractor slots. Slide the device upward until the tabs hit the top edge of the slots. Snap the two proximal tabs into the slot on the top surface of the retractor. To disassemble, reverse the preceding steps *(Figure 15)*. The device can be pre-assembled to the fiber optic cable when you begin these steps. Excise the labrum and osteophytes for proper visualization of the bony anatomy and to improve ease of reaming.

Figure 15

Acetabular Reaming

The Reamer Handle Assembly, consisting of a Reamer Handle and Spherical Reamers, is used to prepare the acetabulum. *(Figure 16 and 17)*

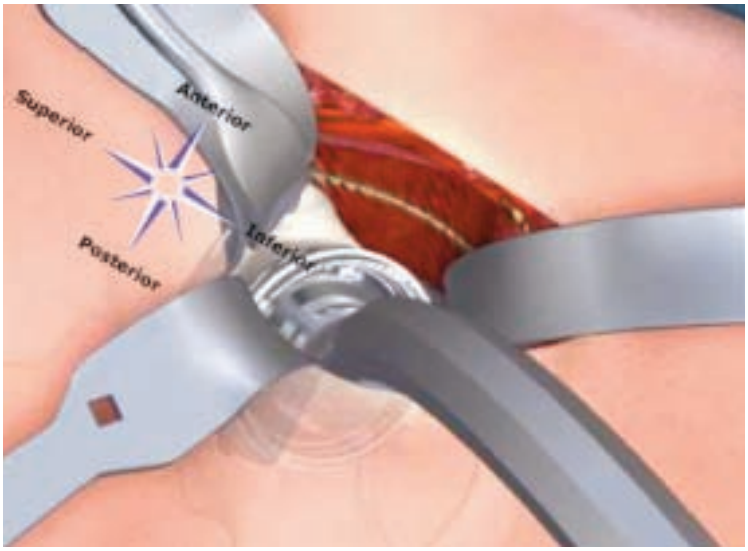


Figure 16

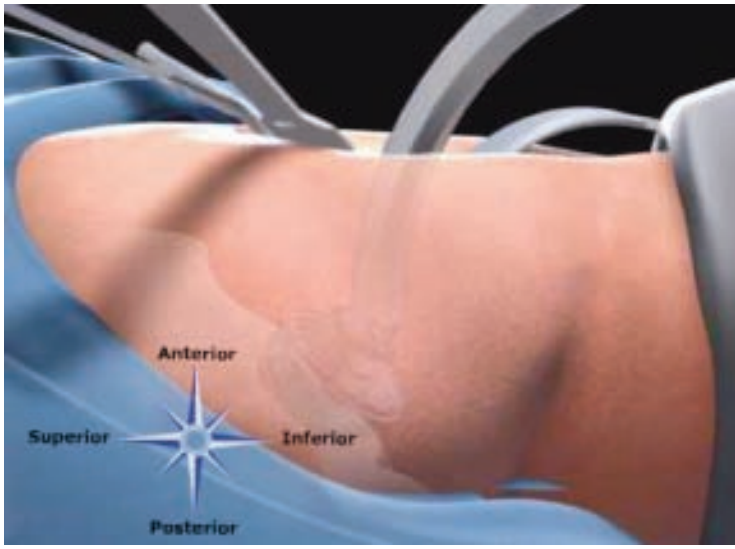


Figure 17

Begin reaming with a Spherical Reamer that is 4 mm smaller than the templated or gauged size of the implant. Increase Reamer size in 1mm increments until final sizing is achieved.

To obtain congruity in the reaming process, an optional 45˚ Abduction 20˚ Anteversion Alignment Guide can be attached to the Reamer Handle. When the Alignment Guide is perpendicular to the axis of the patient, it will orient the Reamer Handle Assembly at 45˚ of abduction, placing the axis of the Spherical Reamer at the appropriate 45˚ of inclination. The Reamer Handle Assembly may then be positioned at 20˚ of anteversion by aligning the left/right anteversion rod on the Alignment Guide so that it is parallel to the long axis of the patient.

Although the alignment guide offers some assistance, it is important to critically evaluate anatomic landmarks before placement of the metal shell. These anatomic landmarks include

- Anterior and posterior walls of the acetabulum
- Sciatic notch (if visible)
- Acetabular fossa

Drive the reamer head to the point where the crossbars contact the acetabular wall at the peripheral lunate region. Take care to avoid enlarging or distorting the acetabulum by eccentric reaming. Final acetabular reaming ideally shows the hemispherical acetabulum denuded of cartilage, with the subchondral plate intact and the anterior acetabular wall preserved.

Acetabular Trial Placement

While performing the trial reduction, moving soft tissue out of the way solves the difficulty of getting the head into place. With the hand introduced medially and the smaller two fingers supporting the bone, use the longer fingers under the head to skid the muscles out of the way. This creates a soft tissue envelope in which to drop the head.

Thread a Window Trial, of the same diameter as the last Spherical Reamer, onto the Shell Positioner/Impactor and place it in the acetabulum to evaluate the size and congruity of the preparation.

If desired, the Abduction/Anteversion Alignment Guide can be attached to the Shell Positioner/Impactor to help establish the recommended 45˚ of abduction inclination and 20˚ of anteversion. When the Alignment Guide is perpendicular to the long axis of the patient, it will orient the Shell Positioner/Impactor at 45˚ of abduction, placing the axis of the Window Trial at the appropriate 45˚ of inclination. The Shell Positioner/Impactor may then be positioned at 20˚ of anteversion by aligning the left/right anteversion rod on the Alignment Guide so that it is parallel to the long axis of the patient.

Femoral Exposure / Canal Preparation

With the leg externally rotated, retractors can be placed to achieve the exposure necessary to prepare the femur. The tibia should be perpendicular to the floor to maximize exposure and facilitate implant alignment.

Place the Femoral Elevator under the medial aspect of the femur and elevate the femur out of the incision to provide access to the femoral canal. If additional retraction of soft tissue is required, a Hohmann retractor or a Narrow Cobra retractor can be placed under the Femoral Elevator.

Graduate the Axial Starter Reamer circumferentially along the flutes indicating both the depth (length) and the width of the implant body. The Reamer can be used with power equipment or with a T-handle. The Axial Starter Reamer is used to enter the femoral canal. The Axial Starter Reamer has a sharpened point to facilitate entry and should be inserted to the depth of the final rasp. The proper depth of the Axial Starter Reamer can be determined by aligning the designated engraved grooves on the reamer shaft with the medial calcar. Lateral pressure on the Axial Starter Reamer will help provide a neutral orientation of the implant. *(Figure 20)*

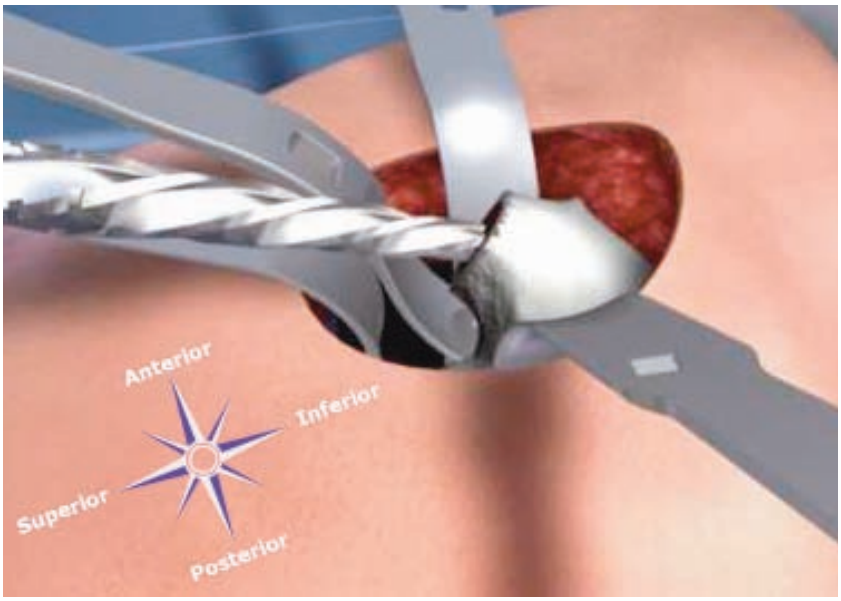


Figure 20

Use the femoral rasp to contour the Medial Lateral and Anterior Posterior aspects of the femur. The rasp geometry is relative to the surface enhanced proximal geometry in the M/L plane and offers a press-fit in the A/P plane, approximating the final stem seating level.

Lock the Rasp Handle onto the Rasp by inserting the post of the Rasp into the corresponding hole on the Rasp Handle and pressing the two together. Align the version post on the Rasp Handle with the positioning slot on the Rasp. *(Figure 21)*

Begin rasping with the smallest rasp. Increase rasp size upward until the size of the rasp matches that of the planned stem size and application. The final rasp should seat firmly against medial and lateral cortical bone. To prevent misalignment, it is imperative that axial alignment of the rasp in the canal be maintained at all times.

Figure 21

The rasp has been inserted to the proper depth when it seats tightly within the canal as determined by visual and auditory clues. The surgeon's clues that the implant has been firmly fixated include increased sound pitch of blows on rasp handle, increased resistance to forward advancement, and a decrease in motion. Reliance only on neck cut may lead to improper sizing and inadequate component fixation. *(Figure 22)*

Note: Generally, if a rasp sinks below the level of the neck cut, advance to the next larger rasp. On the other hand, if the surgeon feels that the neck cut may have been slightly high, remove the rasp and re-cut the neck at a slightly lower level. Once the rasp sinks below the level of the neck cut, the surgeon typically loses the visual and auditory clues that indicate the rasp is properly seated.

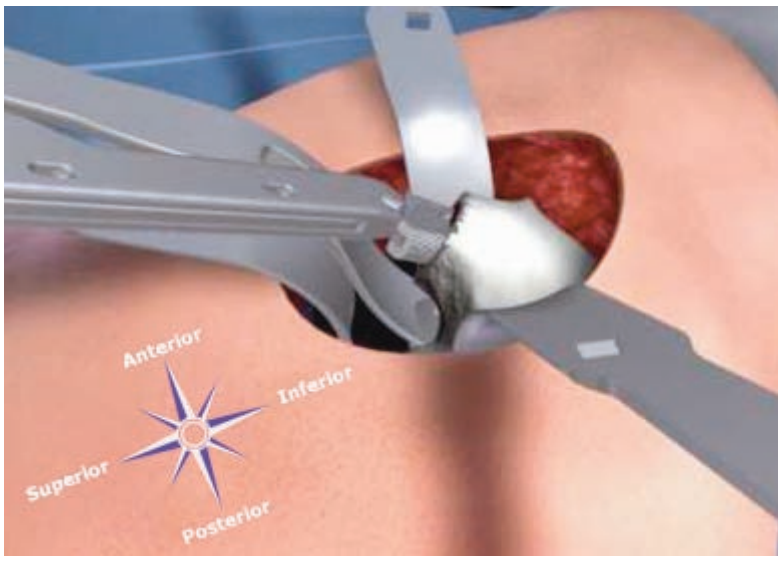


Figure 22

Upon reaching the proper size and depth of rasp, leave the final rasp fully seated in the canal. Disengage the rasp handle by compressing the trigger located on the rasp handle body.

Implant Trial Reduction

Trial reductions are necessary for confirming proper placement of the femoral and acetabular components before final selection and implantation. Intraoperative radiographs can also be used for this purpose. It is recommended that both of these techniques be used, especially during early experience with minimally invasive techniques.

Use the Trial Assembly (consisting of the Rasp, Trial Neck, Trial Head, Window Trial, and Insert Trial) to carry out a thorough evaluation of hip mechanics during trial reduction. This evaluation allows for preoperative modification of neck length, head diameter, head offset, cup orientation, and insert selection. *(Figure 23)*

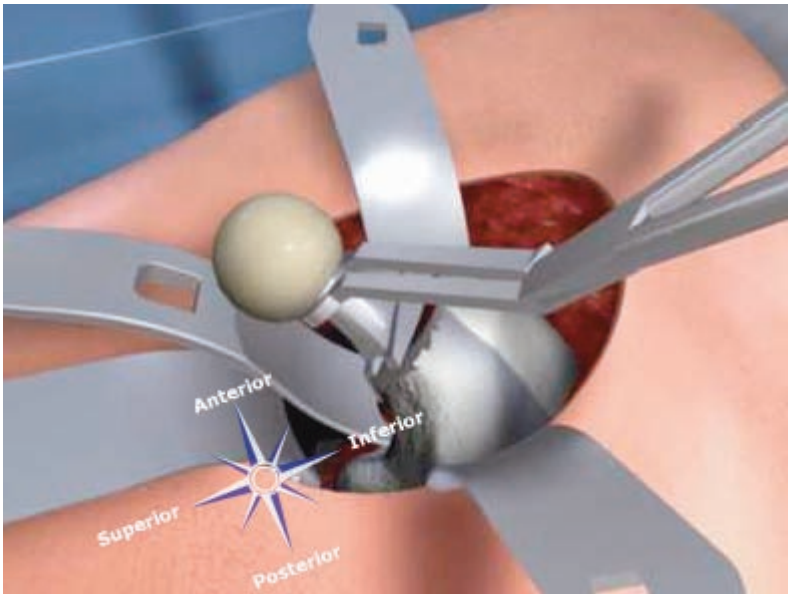


Figure 23

Select a Trial Neck that has the same base neck length as the inserted Femoral Rasp by matching the color indicator on top of the Trial Neck to the color indicator on top of the Rasp.

Select a plastic tapered Trial Head and place it onto the Trial Neck. The tapered Trial Heads are available in a variety of offset lengths to create the desired neck length of the prosthesis.

Place the Trial Head/Neck Assembly over the post of the rasp by positioning the assembly onto the slot located at the proximal tip of the rasp and pressing firmly.

Perform a trial reduction of the hip and adjust neck length until leg lengths are equal. Stability can also be checked by telescoping the leg and performing a full range of motion. The face orientation of the trial insert to the acetabular cup affects optimal joint stability. If it is determined that the leg is unstable, reposition the trial insert within the metal shell in 30˚ increments to create optional positions in which the cup insert may be oriented.

Upon confirmation of the selected components, remove the Trial Head/Neck Assembly.

Reassemble the Rasp Handle to the Rasp. Remove the rasp with the slotted mallet to preserve the integrity of the handle and locking mechanism.

Acetabular Implant Placement

Use the Narrow Hohmann or Cobra and Left/Right Acetabular retractors to expose the acetabulum. *(Figure 24)*

Select the appropriately sized acetabular cup implant. Thread the metal shell onto the Shell Positioner/Impactor using the threaded hole in the dome of the metal shell.

Note: It is important to engage the threads fully and seat the Impactor against the shell. Otherwise, the threads on the metal shell could become damaged, resulting in difficulty with the removal of the Impactor from the shell.

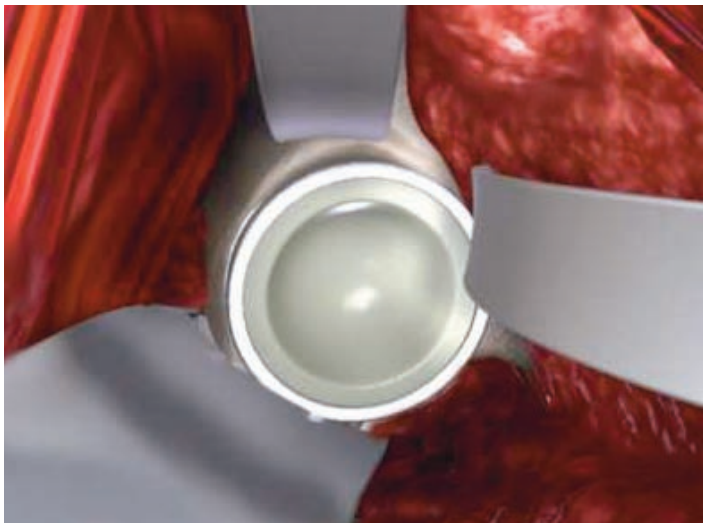


Figure 24

Confirm the removal of the labrum and any osteophytes from the acetabulum. Confirm that soft tissue has been retracted to avoid impingement between the metal shell and the acetabulum during cup implantation.

Evaluate anatomic landmarks before placement of the metal shell. These anatomic landmarks include:

- **The anterior and posterior walls of the acetabulum**
- **The sciatic notch (if visible)**
- **The acetabular fossa**

When inserting the acetabular component into the wound, retrovert it to get around the femoral neck, then antevert it to the desired position. The placement of the cup can be checked with an arthroscope. Impact the metal shell into the acetabulum to achieve a tight, stable press-fit. Unthread the Shell Impactor/Positioner carefully from the shell.

Determine the depth of the shell seating by viewing through the threaded hole in the dome.

Acetabular and Implant Insertion

Based on the desired acetabular insert size, load the appropriate size Silicone Insert Positioner Tip into the Insert Positioner/Impactor Handle. Attach the insert onto the Insert Positioner Tip by pressing the two firmly together. Gently introduce the insert into the shell and align the barbs and grooves. Remove the Silicone Insert Positioner Tip from the Insert Positioner/Impactor Handle. Load the appropriate size Plastic Insert Impactor Tip into the Insert Positioner/Impactor Handle.

Position the Insert Positioner/Impactor Handle into the inner diameter of the insert. Take care to ensure the soft tissue around the shell has been retracted and that the handle is aligned with the axis of the shell. *(Figure 25 and 26)*

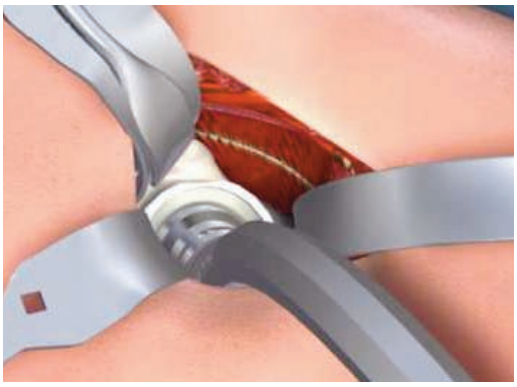


Figure 25

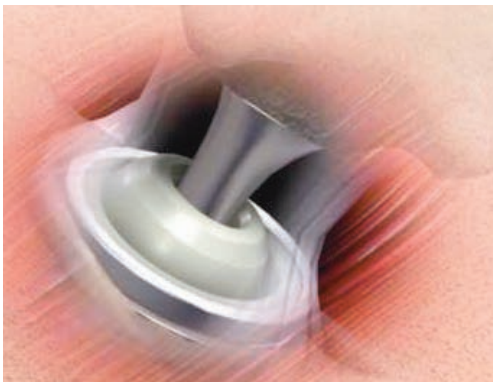


Figure 26

Strike the handle approximately four times with a mallet to seat the insert fully. Verify that the insert is fully seated and properly aligned into the acetabular shell. Thread the Femoral Stem Impactor/Extractor into the recess on the proximal face of the stem.

Note: To help prevent damaging the femoral stem or the femoral stem Impactor, be certain that the femoral stem Impactor is fully seated against the proximal face of the femoral stem.

Do NOT continue impacting the femoral component if visual and auditory clues indicate that the resting position of the femoral component has been reached, even if the femoral component is not yet down to the level of the rasp trials. If the femoral component comes to a rest at a level below that of the rasp trial, it is very likely that a femoral split has been created. It is imperative that the surgeon investigates this possibility.

Note: Before implanting the head assembly, the neck length selection may be re-evaluated using the trial head by placing the trial head onto the stem's neck and reducing the hip to verify that the mechanics have not been altered because of implant seating.

Place the corresponding tapered head implant onto the dry trunnion of the femoral stem with a slight twist. Impact the tapered head onto the stem with two moderate blows using the Head Impactor. Reduce the femoral head into the acetabular cup/insert assembly and re-check for stability and range of motion.

Wound Closure

Reapproximate the tagged inferior and anterior capsule leaves, completely encasing the femoral head of the prosthesis within the acetabulum. Tendons have some elasticity and are stronger than osteoporotic or osteopenic bone. Therefore, reattach the short external rotators to the gluteus medius tendon that is still attached to the greater trochanter. This reattachment places the rotators in a physiologic position that increases their potential to remain attached.

Complete fascia and skin closures. *(Figure 27)*

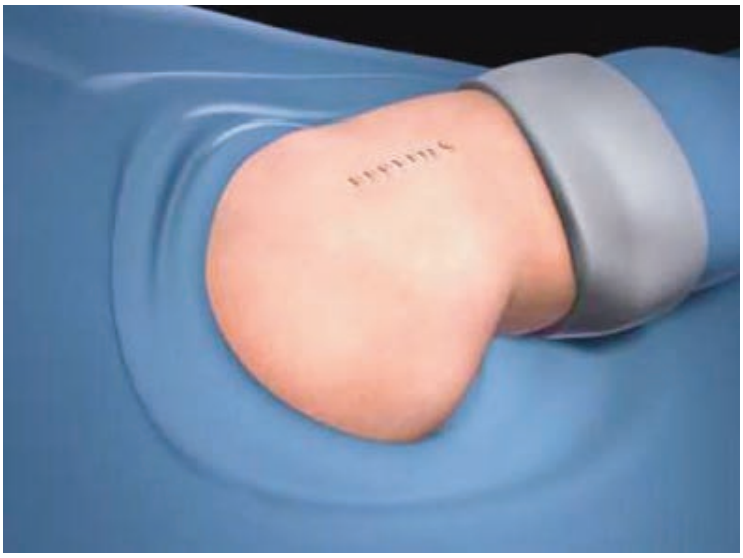


Figure 27

Stryker MIS Instrumentation

Stryker's streamlined instruments allow a minimally invasive approach for both Posterolateral and Anterolateral surgery.

The Retractor Set

The Retractor Set available for use in minimally invasive hip procedures includes:

- **2 Blunt Narrow Cobra Retractors**
- **2 Narrow Hohmann Retractors**
- **1 Wide Hohmann Retractor**
- **1 Retractor Impactor**
- **1 Left and 1 Right Acetabular Retractor**
- **1 Femoral Elevator**

Blunt Narrow Cobra Retractors
(1440-1140)

The Blunt Narrow Cobra Retractor has an increased bend to maximize visualization and a blunt tip design to protect soft tissue.

Narrow Hohmann Retractors
(1440-1130S)

The Narrow Hohmann Retractor has a sharp tip that allows for bone fixation. The retractor also has an impaction window for the Retractor Impactor and slots to install the Light Pipe.

Wide Hohmann Retractors
(1440-1135S)

The Wide Hohmann Retractor has an extra wide body to move soft tissue out of the incision area. The sharp tip allows for bone fixation. The retractor has an impaction window for the Retractor Impactor and slots to install the Light Pipe.

Retractor Impactor
(1440-1020)

Additional retractor fixation can be achieved through the use of the Retractor Impactor. Once the retractor is placed within the incision, insert the Retractor Impactor into the impaction window of the appropriate retractor with the Slotted Mallet. Caution must be taken not to break through the superior wall of the acetabulum.

Acetabular Retractors
(1440-1105S/1110S)

An Acetabular Retractor is provided for both the left and right hip. Sharp tips allow for bone fixation. The Retractor includes an impaction window for the Retractor Impactor and slots to install the Light Pipe.

Femoral Elevator Retractor
(1440-1120)

The Femoral Elevator is designed to elevate the femur out of the incision. It is placed superiorly under the medial aspect of the femur.

Light Pipe
(1440-1080)

The Stryker Light Pipe provides a low profile, efficient light source allowing excellent visibility of the acetabulum. A sterile, single-use, disposable device, the Light Pipe is composed of a polymer inner core and a metallic outer shield. It is intended for use with the following Minimally Invasive Hip Instrument Retractors with mating slots:

- Narrow Hohmann Retractors
- Wide Hohmann Retractors
- Left/Right Acetabular Retractors

The Surgeon's preference will dictate which Retractor will be used as the light source.

Before clinical use, attach the Light Pipe to the fiber optic cable of the Stryker X6000 Light Source.

To attach the Light Pipe to a retractor:

Insert the two distal tabs into the retractor slots. Slide the device upwards until the tabs hit the top edge of the slots. Snap the two proximal tabs into the slot on the top surface of the retractor.

To disassemble:

Reverse the steps above: unsnap the proximal tabs, slide the device downwards, and disengage the two distal tabs.

The device can be pre-assembled to the fiber optic cable when you begin these steps. Please note that when the device is fully threaded onto the cable, one thread will be exposed.

Femoral Set

The Femoral Set available for use in minimally invasive hip procedures includes:

- **Neck Resection Guide**
- **Alignment Rod**
- **T-Handle**
- **Femoral Head Extractor**
- **Straight Accolade Rasp Handle**
- **Quick Connect Handle**
- **Femoral Head Impactor**
- **Offset Neck Trial Forceps**

Accolade Neck Resection Guide & Alignment Rod

Accolade Neck Resection Guide (1440-1000) / Alignment Rod (1440-1050)

The Accolade Neck Resection Guide Assembly consists of the Neck Resection Guide and the Alignment Rod. It is designed to work with the Accolade TMZF implant system.

To correctly assemble the instrument, place the Alignment Rod through the corresponding left or right hole in the Neck Resection Guide. While holding the Neck Resection Guide Assembly by the handle, place the left or right guide leg on the anterior/posterior aspect of the exposed proximal femur.

The width of each guide leg is 1 cm and can be used as an estimate of distance from the lesser trochanter. The Alignment Rod should be positioned so that it is parallel with the long axis of the femur. Electrocauterization or Methylene Blue can then be used to indicate the neck resection level.

Straight Accolade Rasp Handle

Straight Accolade Rasp Handle (1440-1400)

The straight design of the Straight Accolade Rasp Handle limits soft tissue impingement. It is designed for the Accolade TMZF Implant Stem system.

The Straight Accolade Rasp Handle locks firmly onto the Accolade Rasps by inserting the post of the Rasp into the corresponding hole on the Rasp Handle and pressing the two together. Care should be taken to align the version post on the Rasp Handle with the positioning slot on the Rasp.

Offset Neck Trial Forceps
(1440-1700)

The Offset Neck Trial Forceps can be used to facilitate placement of the Trial Head/Neck Assembly in a MIS incision.

Clasp the Trial Head/Neck Assembly between the forceps tips and apply pressure until the lock is engaged. The bent end tip of the forceps is pointed up towards the user.

Femoral Head Impactor
(1440-1070)

The Femoral Head Impactor has a slim profile to allow better entry into a reduced MIS incision.

Femoral Head Extractor
(1440-1010) and
T-Handle (5900-0050)

The femoral head can be delivered from the incision with the use of the Femoral Head Extractor Assembly that consists of the Femoral Head Extractor and the T-Handle.

Puncture the surface of the femoral head by applying axial force onto the Femoral Head Extractor Assembly. Continue applying axial force to the assembly and begin to rotate the T-Handle in a clock-wise direction. Once approximately 50% of the Femoral Head Extractor's threads are engaged, the femoral head can be pulled or levered out of the incision.

stryker®

Joint Replacements

Trauma, Extremities & Deformities

Craniomaxillofacial

Spine

Biologics

Surgical Products

Neuro & ENT

Interventional Spine

Navigation

Endoscopy

Communications

Imaging

Patient Care & Handling Equipment

EMS Equipment

325 Corporate Drive
Mahwah, NJ 07430
t: 201 381 5000

www.stryker.com

Literature Number: **LSP50 Rev. 1**
MS/GS 05/11