



Zimmer® Patient Specific Instruments

Zimmer Unicompartmental
High Flex Knee
Surgical Technique



Introduction

Unicompartmental knee arthroplasty (UKA) has been shown to be an effective treatment for isolated osteoarthritis. This guide to the surgical technique is a step-by-step procedure written for medial compartment UKA using *Zimmer*® Patient Specific Instruments (PSI). It is strongly recommended that the surgeon read the complete procedure for details, notes, and technique tips prior to the first case.

Exposure

Perform a standard *Zimmer* Unicompartmental knee incision (see *Zimmer* Unicompartmental High Flex Knee Spacer Block Surgical Technique for reference).

Remove at least the anterior half of the medial meniscus and expose the anterior portion of the medial plateau. Any remaining meniscus will be removed after the tibia bone resection.


Do not remove any osteophytes from the femur or tibia.

Remove any soft tissue that may prevent proper placement of the femoral or tibia guide.


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Tibial Surgical Technique

- Position the tibia cut guide on medial tibia plateau while holding the guide using downward pressure (**Fig. 1**).

TECHNIQUE TIP

1.A

Dry the tibial plateau before positioning the tibia cut guide.

TECHNIQUE TIP

1.B

Externally rotating the tibia will expose more of the proximal surface and reduce any interference with the femur.

- Verify a unique and stable fit of the cut guide on the tibia. Apply pressure on top of the tibia guide to hold in position. Verify contact with bone through the windows and around the contact surface of the guide (**Fig. 2**).
- Place a Headless Trocar Drill Pin through the hole in the sagittal cut slot (**Fig. 3**). Verify the guide location has not changed. Check the bone contact through the windows and around the perimeter of the guide.

TECHNIQUE TIP

1.C

It is recommended that one person hold the guide to ensure the least amount of movement while a second person drills.

TECHNIQUE TIP

1.D

Use caution when inserting the pin to avoid exiting the bone posteriorly.

Fig. 1

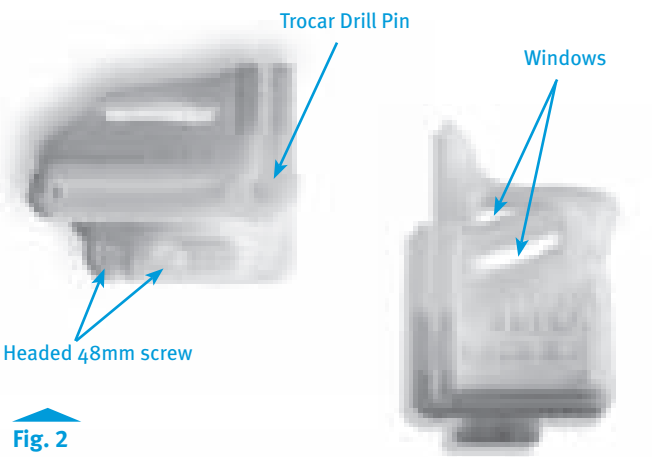


Fig. 2



Fig. 3

Instruments



Zimmer Uni PSI
Tibia Cut Guide
00-5970-000-04



MIS Screw
Insertor/Extractor
00-5983-049-00



Headless Trocar
Drill Pin
00-5901-020-00

- Insert a 48mm headed screw through the center hole (Fig. 4a). Then insert a 48mm headed screw through the medial hole. Verify the guide did not move while placing the headed screws (Fig. 4b).

TECHNIQUE TIP

1.E

Do not over torque the headed screws, this can lead to movement of the guide position. Reduce speed when the screw head is nearly seated against the guide.

TECHNIQUE TIP

1.F

A 33mm headed screw may be used for the medial hole depending on the tibia size.



Fig. 4a



Fig. 4b

Instruments



MIS Screw
Insertor/Extractor
00-5983-049-00



Hex Headed
48mm screw
00-5983-040-48



Hex Headed
33mm screw
00-5983-040-33

- Slide the *Zimmer Uni Alignment Tower* onto the tibia guide to check the alignment of the planned proximal cut with the drop rod. The rod should be parallel with the tibia crest in the frontal plane (**Fig. 5**).

TECHNIQUE TIP**1.G**

In order to maintain guide stability, it is recommended to perform the proximal cut first.

Fig. 5

- Perform the proximal cut through the proximal tibia cut slot using a narrow oscillating saw (1.27mm thick, 12.5mm wide) (**Fig. 6**). The saw blade will make contact with the Trocar Drill Pin on the lateral side. Do not insert the saw blade more posteriorly than the pre-operatively planned saw blade excursion depth.

Fig. 6**TECHNIQUE TIP****1.H**

The PSI report will display the saw blade excursion depth and can be monitored when using an oscillating saw with depth markings.

Instruments

*Zimmer Uni PSI
Tibia Cut Guide
00-5970-000-04*



*Alignment Rod
00-5785-079-00*



*Spacer Block
Alignment Tower
00-5843-032-00*



*Brasseler
Sagittal / Osc
Saw Blade
125090127BO
(or equivalent)*

- Perform the sagittal cut through the sagittal tibia cut slot using a reciprocating saw (1.19mm thick saw blade). The blade will stop on the Trocar Drill Pin at the distal end of the cut (**Fig. 7**).
- Remove the Trocar Drill Pin, 48mm screw and the cut guide from the tibia.
- Remove the medial tibia plateau. If required, complete the proximal cut to ensure complete removal of tibia plateau.


 Fig. 7


 Instruments


Zimmer Uni PSI
Tibia Cut Guide
00-5970-000-04



Brasseler
Reciprocating
Saw Blade
112078119B0



Headless Trocar
Drill Pin
00-5901-020-00



Hex Headed
48mm screw
00-5983-040-48

Femoral Surgical Technique

- Position the femoral guide on the medial femoral condyle with the knee in approximately 45 degrees of flexion. Apply posterior pressure to the femoral cut guide and verify the unique and stable fit of the cut guide. Verify contact with bone through the windows and around the contact surface of the guide (Fig. 8).

TECHNIQUE TIP

2.A

Dry the femoral condyle surface before positioning the femoral guide.

- Extend the femur to full extension. Insert the tension guide (2mm or 3mm) between the femoral guide and the tibia cut to hold axial pressure and keep the guide in full contact with the bone

Note: The tension may vary depending on the laxity of the soft tissues.

- Verify the fit of the cut guide. Then insert a 48mm headed screw through the lateral hole (Fig. 9).
- Insert a 48mm headed screw through the medial hole. Verify the guide did not move while placing the fixation screws.

TECHNIQUE TIP

2.B

The lateral femoral surface should be fixated first to minimize movement.

TECHNIQUE TIP

2.C

It is recommended that one person hold the guide to ensure the least amount of movement while a second person drills. Apply pressure on the distal and anterior positions of the guide.

TECHNIQUE TIP

2.D

Do not over torque the headed screw, this can lead to movement of the guide position. Reduce speed when the screw head is nearly seated against guide.

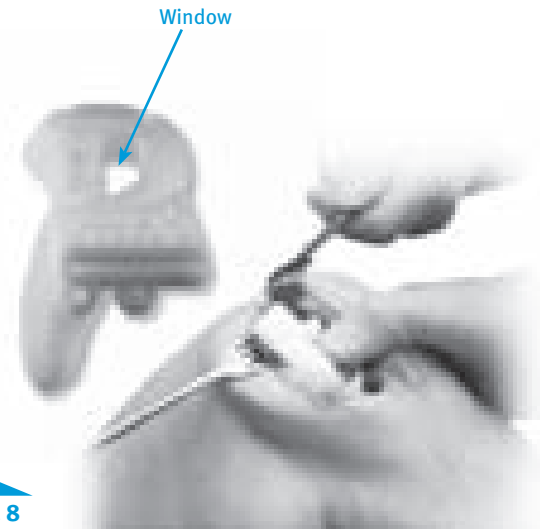


Fig. 8



Fig. 9

Instruments



Zimmer UNI PSI
Femoral Cut Guide
00-5970-000-04



Tension Gauge
00-5789-071-00



Hex Headed
48mm screw (2)
00-5983-040-48



MIS Screw
Inserter/Extractor
00-5983-049-00

- Remove the tension gauge and flex the knee slightly.
- Ensure the femoral guide has not moved and is in contact with the bone through the window.
- Drill through the distal rotation pin cylinder with a 3.2mm drill bit (Fig. 10). Do not insert the pin into the rotation hole.



Fig. 10

Instruments



Zimmer Uni PSI
Femoral Cut Guide
00-5970-000-04



Hex Headed
48mm screw (2)
00-5983-040-48



3.2mm Drill Bit
00-5791-071-00



MIS Screw
Inserter/Extractor
00-5983-049-00

- Extend the knee with the femoral guide in position.
- Insert the tension gauge (2mm or 3mm) in the joint space between the proximal cut and distal surface of the femoral guide.

Note: The tension may vary depending on the laxity of the soft tissues (Fig. 11).

- Compress the knee joint so the tension gauge securely pushes the distal part of the femoral guide against the femoral condyle.
- Perform the distal cut through the distal femoral cut slot using a narrow oscillating saw (1.27mm thick, 12.5mm wide) (Fig. 12). Do not insert the saw blade more posteriorly than the pre-operatively planned saw blade excursion depth.



Fig. 11

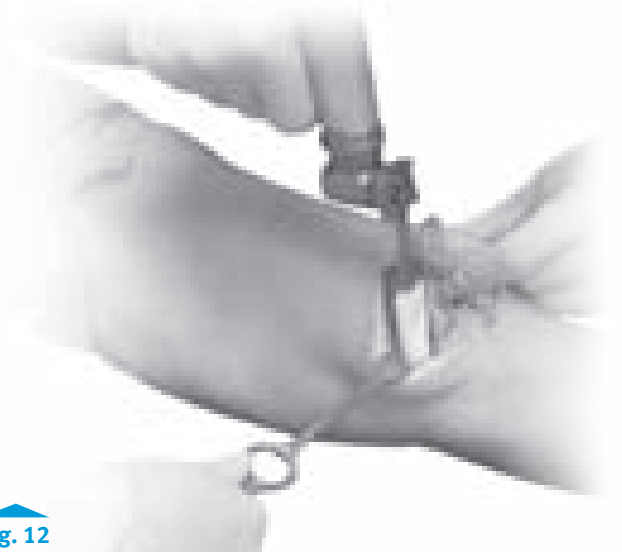


Fig. 12

TECHNIQUE TIP

2.E

Ensure the saw blade is parallel with the cut slot to avoid moving the femoral guide.

TECHNIQUE TIP

2.F

Rotate the blade to cover the entire cut surface. If any remaining uncut bone remains, finish the resection by hand.

TECHNIQUE TIP

2.G

The PSI report will display the saw blade excursion depth and can be monitored if using an oscillating saw with depth markings.

Instruments



Zimmer Uni PSI
Femoral Cut Guide
00-5970-000-04



Tension Gauge
00-5789-071-00



Brasseler
Sagittal / Osc
Saw Blade
125090127B0

- Remove the fixation screws and the femoral cut guide.
- Remove the distal bone resection.
- Based on the pre-operatively planned femoral size, place the Femoral Finishing guide onto the distal femur cut.
- Align the proximal hole on the Femoral Finishing guide over the pre-drilled distal hole location. Insert a pin through the proximal hole into the pre-drilled hole.

TECHNIQUE TIP

2.H

A 33mm headed screw can be used in place of a pin for additional fixation.

- Adjust the femoral rotation by rotating the Femoral Finishing guide around the pin. The posterior surface of the femoral finishing guide should be parallel to the tibia cut. An under hang of 2-3mm is visible when the component is sized properly (**Fig. 13**).

TECHNIQUE TIP

2.I

If rotation is not satisfactory, remove the pin and follow standard placement of the Femoral Finishing guide.

- Fixate the Femoral Finishing guide to the femur and finish the femur according to the *Zimmer Unicompartmental High Flex Knee Spacer Block* surgical technique.

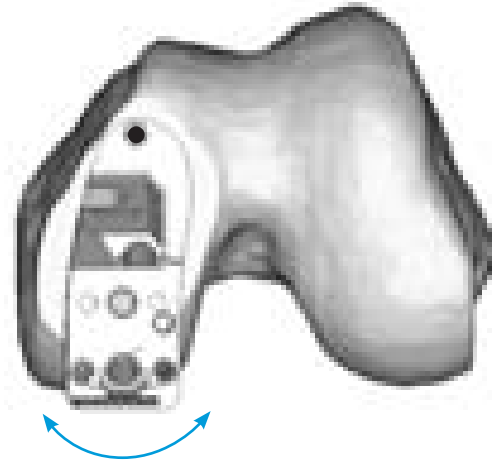


Fig. 13

Instruments



Zimmer Uni Femoral
Finishing Guide
00-5843-01x-01/02



MIS Screw
Inserter/Extractor
00-5983-049-00

Check Overall Alignment

- Check overall alignment using a spacer block with the desired poly thickness and a full leg drop down rod (If preferred) (Fig. 14).



Fig. 14

Instruments



Concave Tibial
Spacer

00-5791-060-08_14



Alignment Rod
00-5785-079-00

Tibial Finishing Surgical Technique

- Verify the pre-operatively planned tibia size with the corresponding Tibial Sizer (**Fig. 15**).
- Finish the tibia according to the *Zimmer* Unicompartmental High Flex Knee Spacer Block Surgical Technique.
- Finish the knee according to the *Zimmer* Unicompartmental High Flex Knee Spacer Block Surgical Technique.

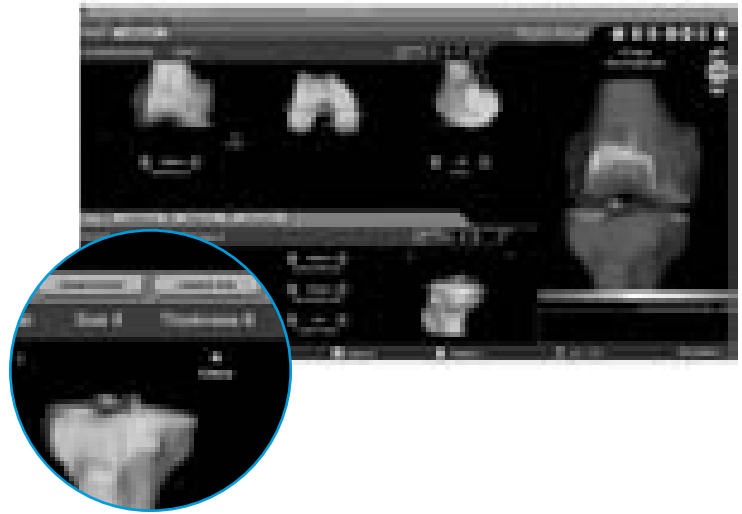


Fig. 15

TECHNIQUE TIP

4.A

It is recommended that a pulse lavage is used on the femur and tibia cut surfaces before cementing.

Instruments



Tibial Sizer

00-5843-041-0x





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