EXACTECH | **KNEE**

Operative Technique

OPTETRAK®

CR Slope®

Addendum to Optetrak® CR/PS
and LPI® Distal First/Anterior
Rough Cut Operative Techniques

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THE OPTETRAK® CR SLOPE® OPERATIVE TECHNIQUE WAS DEVELOPED IN CONSULTATION WITH:

Albert Burstein, PhD
Sarasota, Fla.

David Covall, MD
Atlanta, Ga.

Jay Mabrey, MD
Dallas, Texas

Bernard Stulberg, MD
Cleveland, Ohio

INTRODUCTION

Both posterior stabilized (PS) and cruciate retaining (CR) total knee replacement systems have demonstrated high rates of survivorship, high clinical knee scores and high patient satisfaction scores. However, CR total knees sometimes exhibit more varied kinematics with diminished range of motion (ROM) as compared to similar PS knees. The causes of these observations are multi-factorial, but one cause may be a posterior cruciate ligament (PCL) that does not perform optimally in concert with the tibial slope. There is some evidence that even well-functioning CR TKAs may have different kinematic behavior than was anticipated from initial design criteria. This appears to be related to difficulty in obtaining optimal PCL function post-operatively.[1-3]

To achieve proper PCL balance, several operative techniques have been suggested. These include: increasing the slope of tibial resection, recession of the PCL along its tibial or femoral attachment and resection of additional posterior femoral bone. Each of these approaches can have negative consequences for consistent PCL balance and CR TKA performance.

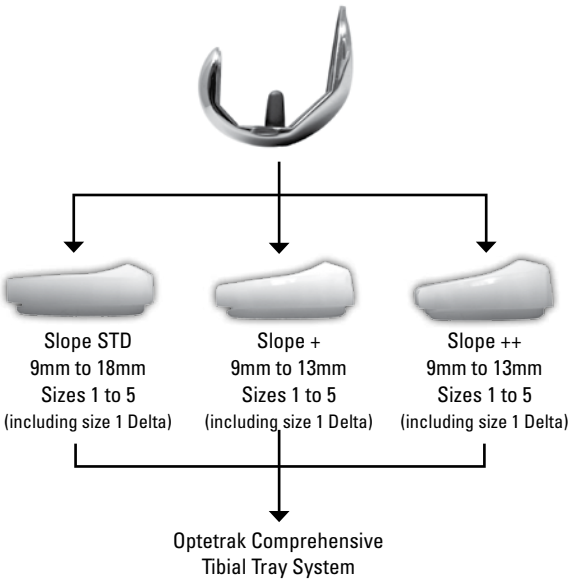
The Optetrak CR Slope system is designed to address proper tensioning of the PCL by incorporating a logical and effective design in addition to proven features already present in the Optetrak Comprehensive Knee System (i.e., excellent articular geometry, patellar tracking and polyethylene technology, to name a few). The Optetrak CR Slope's patent-pending design enables surgeons to plan and perform PCL-retaining total knee arthroplasty based on the anatomical integrity of the PCL. In order to achieve a well-balanced PCL, the Optetrak CR Slope system provides a Tibial Insert available with varying posterior tibial slopes, in addition to choices in size and thickness. This feature allows surgeons to accommodate variability in the angle of the tibial surface resulting from resection of the tibia, avoiding the potential need for additional bone resection.

The system is designed to:

- Preserve the integrity and balance of the PCL
- Preserve bone stock
- Restore knee joint stability
- Maintain Optetrak's proven design features: stable joint geometry, unexcelled patello-femoral tracking and minimal wear rate
- Provide instruments that achieve consistency, while meeting criteria for ease of use and predictable bone resection.

Important Note: The Optetrak CR Slope Tibial Insert articulates against the classic Optetrak CR femoral component. Optetrak CR Slope fixed-bearing Tibial Inserts and corresponding instrumentation should be available if required. The size range of Optetrak CR Slope is 1 to 5 *(Table 1)*. Inserts are available in 9mm, 11mm and 13mm thicknesses.

Table 1
Compatibility Chart



DETAILED OPERATIVE TECHNIQUE

PREPARATION OF THE FEMUR

The femur is prepared with the Optetrak instrumentation according to the Optetrak CR/PS or LPI (Distal First/ARC) operative technique. Attention should be paid to preserving the femoral origin and tibial insertion of the PCL.

PREPARATION OF THE TIBIA

Step 1: Identification of the Posterior Cruciate Ligament Insertion Points

Instrument Setup

Place the **No-Touch PCL Retractor** behind the tibia; one prong medial and one prong lateral to the PCL. Subluxate the posterior margin of the tibia anterior to the femur. At this point, the No-Touch PCL Retractor protects both the PCL and the resected surface of the distal femur. Connective and scar tissues are usually present around the anterior aspect of the tibial insertion of the PCL.

These tissues are intimately attached to the fibers of the PCL. Proceed to release these tissues around the anterior portion of the PCL until the fibers of the PCL are recognized right at their insertion into the posterior tibia *(Figures 1 and 2).*

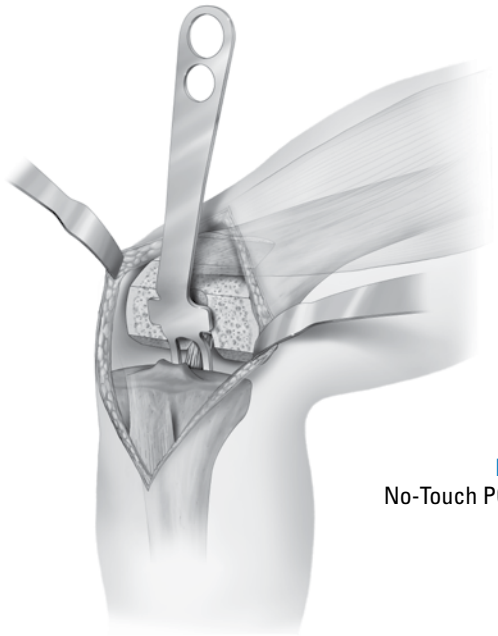


Figure 1
No-Touch PCL Retractor in Place

Figure 2
Tissues Anterior to PCL that need to be Resected

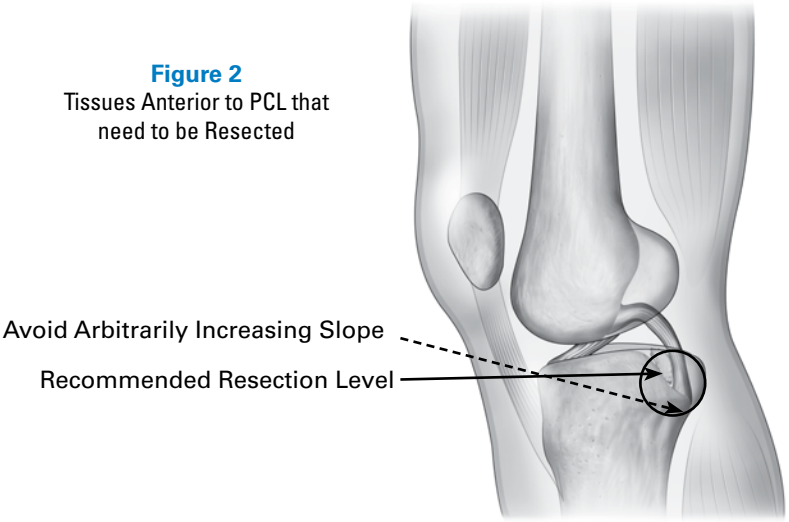


Figure 3
Clear Soft Tissues around PCL

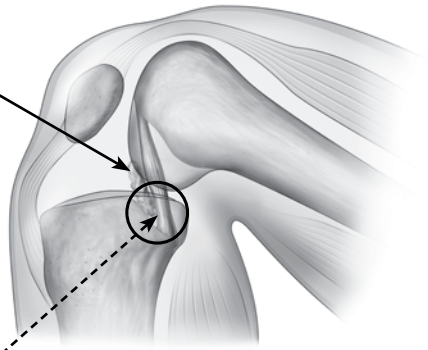
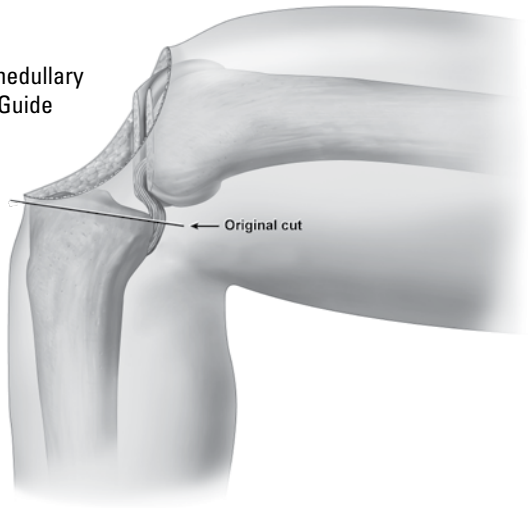


Figure 4
Placement of Extramedullary Tibial Alignment Guide



Identification of the PCL fibers and release of the scar tissue surrounding the PCL is essential at this point *(Figure 3).* This is the anatomical landmark that will be used to reference the proximal tibial resection *(Figure 4).*

It is also advisable to resect any remaining posterior horns of both menisci and menisco-femoral ligaments at this time.

Step 2: Assembly, Placement and Distal Alignment of the Extra-medullary Alignment Guide

Assembly of the Extra-medullary Tibial Guide
The proximal tibial resection can be aligned and performed using the **Extra-medullary Tibial Alignment Guide.**

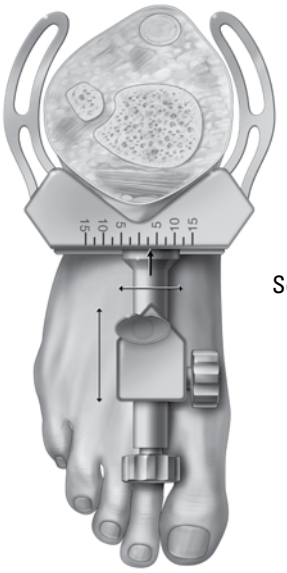
To assemble the Extra-medullary Tibial Alignment Guide, slide the **Adjustable Tibial Resector Shaft,** into the Tibial Ankle Clamp Upright. The **Tibial Resection Guide** is attached by sliding the guide into the proximal dovetail of the **Tibial Resector Shaft.**

Placement of the Extra-medullary Tibial Guide
Place the EM Tibial Guide on the front of the tibia and clamp the spring loaded arms around the ankle in the supra-malleolar position *(Figure 5).*

Figure 5
Placement of Extramedullary Tibial Alignment Guide

The distal end of the EM Tibial Alignment Guide should be centered over the ankle joint. In most instances, the Ankle Clamp will read 2-5mm medial when properly centered on the ankle. The second toe is another common landmark for the distal alignment of the Ankle Clamp. The position of the Ankle Clamp can be adjusted by pressing the release lever and shifting the Guide medially or laterally *(Figure 6).*

Figure 6
Setting Medial/Lateral Alignment at Ankle



Landmarks to center the EM Tibial Resection Guide proximally include the medial 1/3 of the anterior tibial tuberosity and tibial spine. In the sagittal plane, In the sagittal plane, the EM Tibial Alignment Guide should be aligned parallel to a line extending from the center of the knee joint to the center of the ankle joint *(Figure 7 and 8).*

Step 3: Determination of Posterior Tibial Slope

The posterior slope of the Tibial Resection Guide can be adjusted by positioning the proximal end of the Adjustable Tibial Resector Shaft to the desired degree of posterior slope (Figure 9). When setting up the saggital orientation of the proximal tibial resection, aim for a posterior tibial slope between 0 and 3 degrees. Increasing the posterior tibial slope beyond 5 degrees may damage the tibial insertion of the PCL.

If the surgeon prefers, posterior slope may also be adjusted by repositioning the Adjustable Tibial Resector Shaft on the Ankle Clamp Base. Positioning the Shaft more anterior onto the base will add slope to the Tibial Resection Guide, while positioning it more posterior will reduce slope.

Adjustments to the flexion gap can be made during trial reduction by using various **CR Slope Tibial Insert Trial** options as detailed later in the technique.

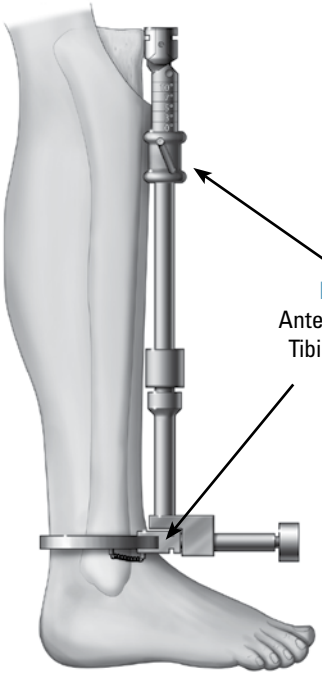
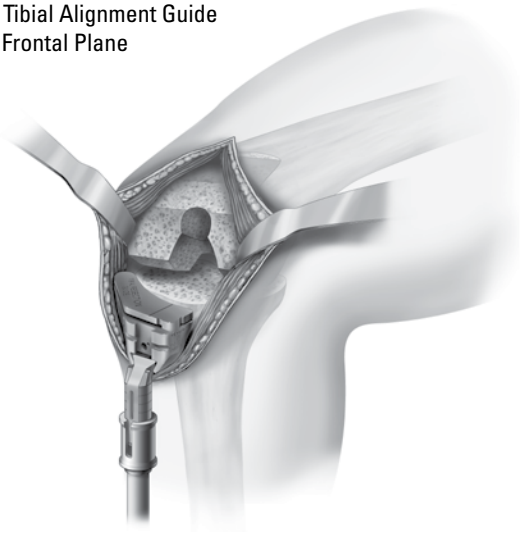


Figure 7
Anterior/Posterior Tibial Alignment

Figure 8
Proximal Alignment of the Extramedullary Tibial Alignment Guide in the Frontal Plane



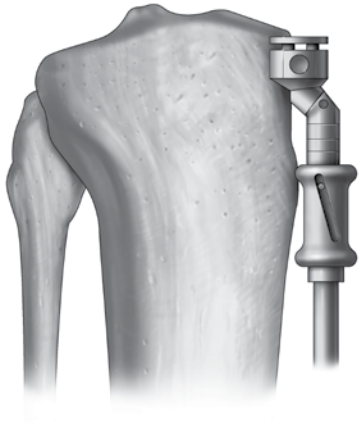
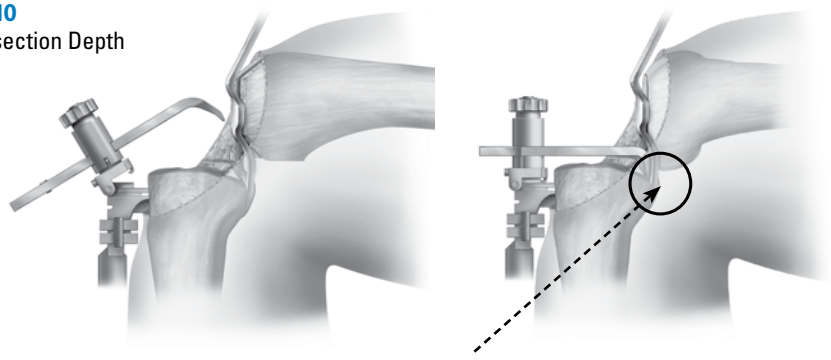


Figure 9
Anterior/Posterior Alignment Using the Cam on the Extramedullary Tibial Alignment Guide

Figure 10
Determine Tibial Resection Depth



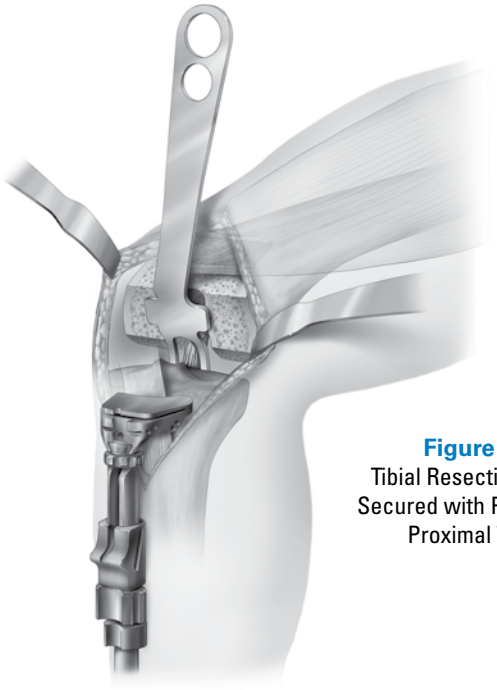


Figure 11
Tibial Resection Guide Secured with Pins to the Proximal Tibia

Step 4: Determination of Tibial Resection Depth
The **Adjustable PCL Stylus** should be placed in the cutting slot of the Tibial Resection Guide with the stylus in the raised position *(Figure 10).* After assembly, snap the stylus down and place the tip of the stylus at the tibial insertion of the PCL (refer back to *Figure 3*). The Adjustable PCL Stylus has three settings: 0, 2, and 4mm. This setting indicates the amount of additional distal tibial resection from the tip of the stylus. For example, if the stylus guide is set to 0mm, the tibia resection is aligned exactly to the tip of the stylus. If this stylus is set to 2mm or 4mm, the tibial resection is aligned either 2mm or 4mm below (more distal) the tip of the stylus. The recommended resection level is at the 2mm position.

Step 5: Securing Tibial Resection Guide to Tibia and Final Checking
When the proper positioning of the Tibial Resection Guide has been assured, drill pins should be placed through the guide into the tibia *(Figure 11).*

The Tibial Resection Guide maybe adjusted proximally or distally in 2mm increments by shifting the Tibial Resection Guide to either the +2mm or -2mm holes on the block itself on the existing drill pins.

Proceed to make your proximal tibial resection *(Figure 12).*

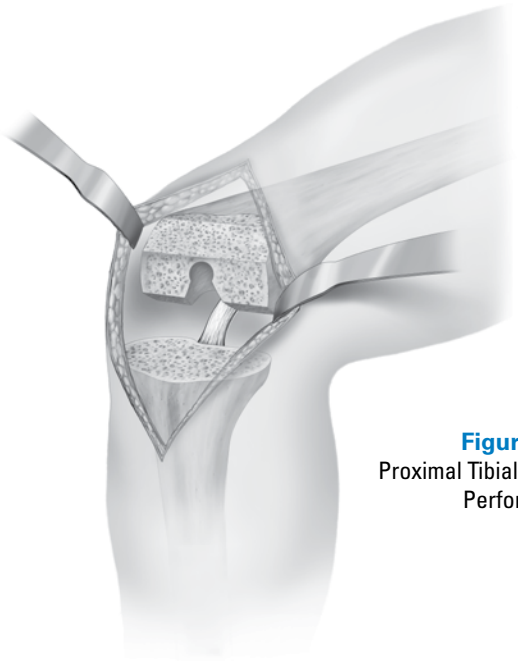


Figure 12
Proximal Tibial Cut has been Performed

PREPARATION OF THE PATELLA

The patella is prepared following the guidelines outlined in the Optetrak CR/PS and/or LPI operative techniques.

FINAL PROSTHESIS TRIAL CHECK

Final prosthesis trial check should include assessment of:

ALIGNMENT

STABILITY

MOTION and

PATELLAR TRACKING

Trial Placement

Place the CR Femoral Trial on the distal femur utilizing the Locking Femoral impactor *(Figure 13).* Assemble the selected femoral trial to the Locking Femoral Impactor. Ensure that the femoral component is properly positioned on the distal femoral condyles in the medial and lateral direction. Apply slight upward pressure to the impactor handle as the component is being impacted to prevent the femoral component from rotating into flexion. Once correct positioning is assured, the component should be fully seated by striking the Locking Femoral Impactor with a mallet.

The tibial tray trial should be selected as the largest tray that fits within the borders of the resected tibial surface, without any overhang, and then fixed to the proximal tibia. Please note that the position of the tibial tray trial relative to the resected tibial surface should be centered along the AP direction *(Figure 14).* Notably any anterior offset of the tibial tray trial should be avoided, as it would result into a posterior shift of the femoro-tibial contact point. Next, tibial insert trials should be exchanged until a "best fit" is achieved.

Keep in mind that the size of the femur must always match the size of the tibial insert in order to maintain the 0.96 femoral/tibial congruency.

Alignment Check

With the knee in full extension and the Mauldin Multi-Tool assembled to the Tibial Tray Trial, EM Alignment Rods should be placed in the holes in the Mauldin Multi-Tool and the alignment should be assessed *(Figure 15)* . Proper rotation of the tibial component should be determined by its congruency with the femoral component. Normally, the anterior plane of the tibial component will point approximately in the direction of the tibial tubercle and second toe when congruency is established.

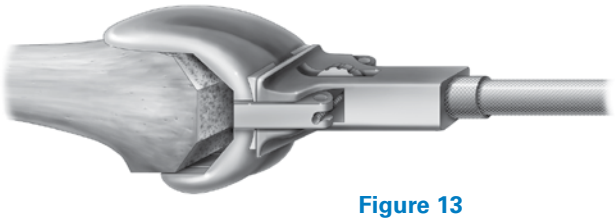


Figure 13
Placement of Femoral Trial

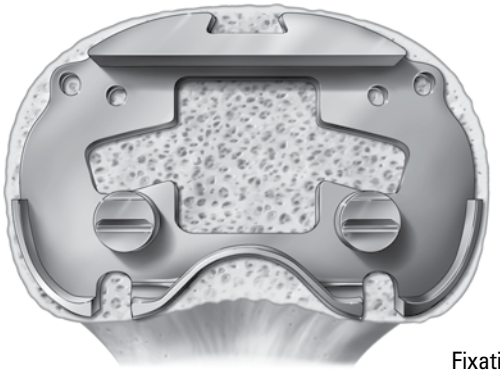


Figure 14
Fixation of Tibial Tray Trial

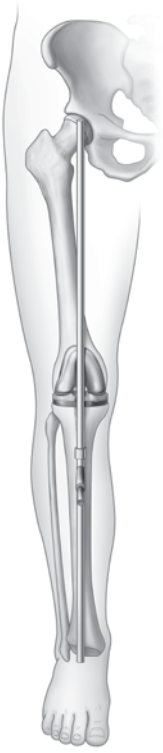


Figure 15
Assess Alignment

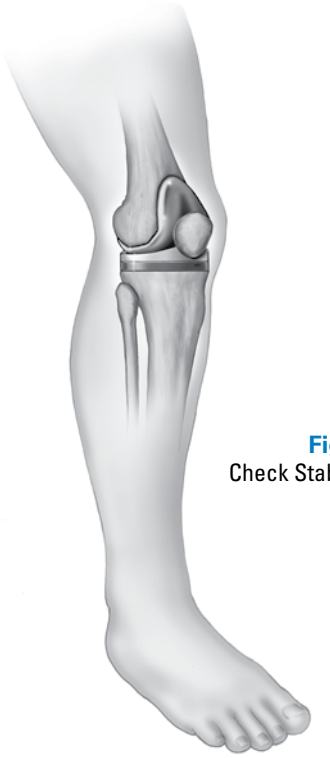


Figure 16
Check Stability in Extension

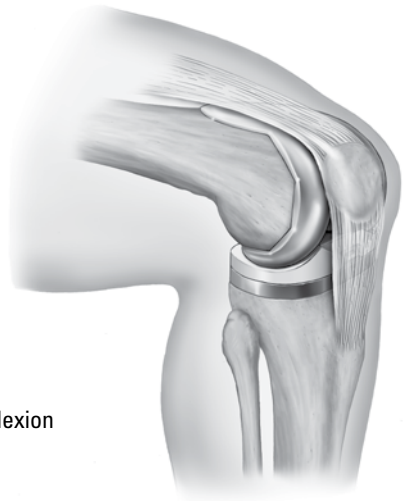


Figure 17
Check Stability in Flexion

Stability Check
The knee should be assessed for stability in both extension and flexion *(Figures 16 and 17).* The extension check should be performed with the knee flexed a few degrees to relax the posterior capsule. However, the knee should extend fully. The flexion check should be performed with the knee flexed to 90 degrees. The most appropriate stability is achieved when the medial and lateral opening is similar to that of a normal knee during application of valgus and varus stress. An adjustment of ligament balance may be needed, if there is differential ligament tightness between varus and valgus in flexion or extension.

CR SLOPE SURGICAL APPROACH

The initial assessment should begin with the CR 9mm Neutral or Standard Tibial Insert Trial. If the joint is tight in flexion, the CR Slope 9mm + or ++ insert may be selected. There are four different indicators of a tight flexion space:

1. Excessive femoral rollback with limited ROM in flexion
2. Anterior lift-off of the Tibial Insert Trial and/or Tibial Tray Trial *(Figure 18)*
3. Palpable tension of the PCL when the knee is in flexion
4. If there is difficulty in extracting the Insert Trial with the Femoral Trial in place and the knee flexed at 90 degrees (pull-out test)

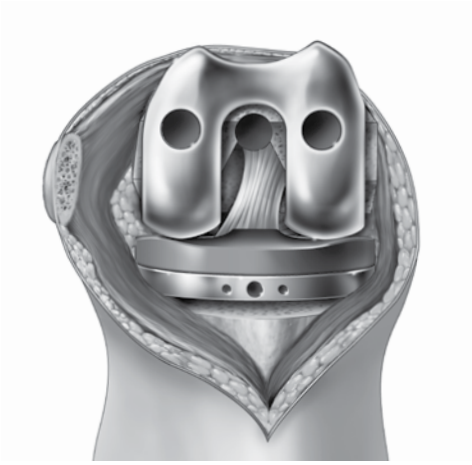


Figure 18
Anterior Lift-Off of
the Tibial Tray Trial

Table 2
Flexion/Extension Gap Balancing for Optetrak CR Slope

	Tight Extension	Loose Extension	OK Extension
Tight Flexion	• Use a thinner Logic CR **Neutral** Tibial Insert Trial if possible • Cut additional tibia, respecting the PCL insertion • Recess the PCL fibers respecting the PCL footprint	• Increase insert thickness and trial with Logic CR **Slope+ or Slope++** Tibial Insert Trials • Downsize femoral component • Recess the PCL fibers respecting the PCL footprint	• Trial with Logic CR **Slope+ or Slope++** Tibial Insert Trials of the same thickness • Downsize femoral component • If trialed with CR Slope++ and flexion gap is still tight convert to Logic PS
Loose Flexion	• Resect additional distal femoral bone and use a thicker Logic CR **Neutral** Tibial Insert Trial • Verify integrity of the PCL if the **Neutral** Tibial Insert Trial is thicker than **13mm**	• Use a thicker Logic CR **Neutral** Tibial Insert Trial • Verify integrity of the PCL if the **Neutral** Tibial Insert Trial is thicker than **13mm**	• Resect additional distal femoral bone and use a thicker Logic CR **Neutral** Tibial Insert Trial • Verify integrity of the PCL if the **Neutral** Tibial Insert Trial is thicker than **13mm**
OK Flexion	• Resect additional distal femoral bone	• Increase insert thickness and trial with Logic CR **Slope+ or Slope++** Tibial Insert Trials	

Note: *Some studies reported that an additional degree of insert slope on average increases peak flexion by 1.5° to 1.7°* [1]

Refer to the table for tips regarding flexion/extension gap balancing *(Table 2).*

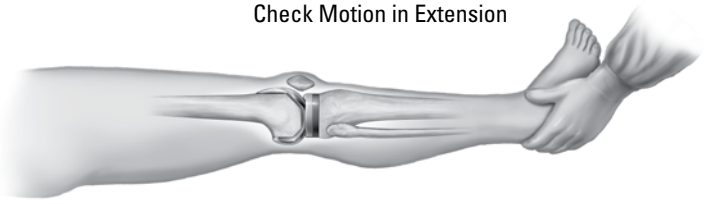
The combination of additional thicknesses and slope continues until joint stability is achieved.

Motion Check
The knee should extend fully without force *(Figure 19).* To check flexion, the surgeon should elevate the thigh and allow the leg to flex by the pull of gravity *(Figure 20).* The amount of flexion determined in this manner is the best intra-operative predictor of the flexion that will be ultimately achieved.

PATELLAR TRACKING CHECK
As the knee is put through a range of motion (ROM), the patella should track smoothly in the patellar groove of the femoral prosthesis with little or no pressure exerted against its lateral edge and without being held medially. If there is a tendency to lateral subluxation, lateral retinacular release should be performed.

FINAL TIBIAL AND FEMORAL PREPARATION
Final preparation of femur and tibia is carried out as described in the Optetrak CR/PS and/or LPI operative techniques.

Figure 19
Check Motion in Extension



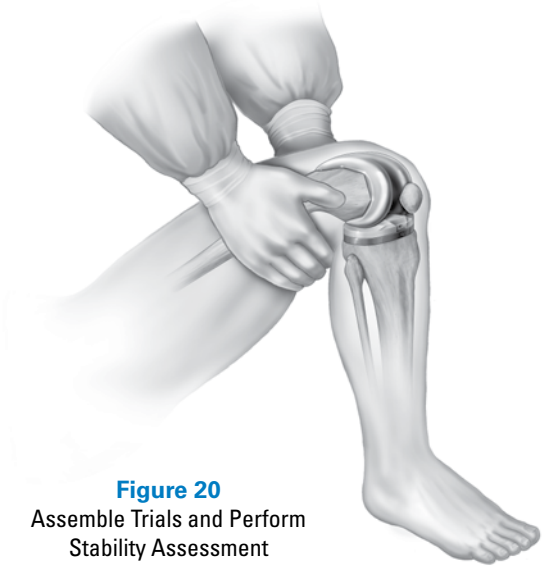


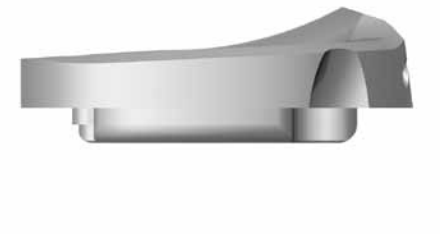
Figure 20
Assemble Trials and Perform Stability Assessment

IMPLANT AND INSTRUMENT SCOPE

Catalog Number	Part Description
231-04-01	No-Touch PCL Retractor
231-04-02	Adjustable PCL Stylus
231-04-03	Trial Inserter

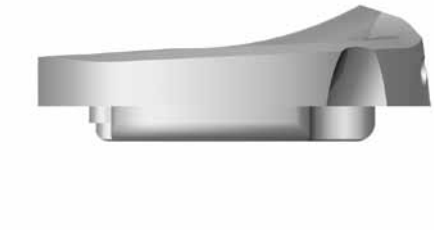
Optetrak CR Slope Tibial Insert Trial

231-51-09	CR Tibial Insert Trial, Size 1 Delta, 9mm, Slope STD
231-21-09	CR Tibial Insert Trial, Size 1, 9mm, Slope STD
231-22-09	CR Tibial Insert Trial, Size 2, 9mm, Slope STD
231-23-09	CR Tibial Insert Trial, Size 3, 9mm, Slope STD
231-24-09	CR Tibial Insert Trial, Size 4, 9mm, Slope STD
231-25-09	CR Tibial Insert Trial, Size 5, 9mm, Slope STD
231-56-09	CR Tibial Insert Trial, Size 1 Delta, 9mm, Slope+
231-61-09	CR Tibial Insert Trial, Size 1, 9mm, Slope+
231-62-09	CR Tibial Insert Trial, Size 2, 9mm, Slope+
231-63-09	CR Tibial Insert Trial, Size 3, 9mm, Slope+
231-64-09	CR Tibial Insert Trial, Size 4, 9mm, Slope+
231-65-09	CR Tibial Insert Trial, Size 5, 9mm, Slope+
231-57-09	CR Tibial Insert Trial, Size 1 Delta, 9mm, Slope++
231-71-09	CR Tibial Insert Trial, Size 1, 9mm, Slope++
231-72-09	CR Tibial Insert Trial, Size 2, 9mm, Slope++
231-73-09	CR Tibial Insert Trial, Size 3, 9mm, Slope++
231-74-09	CR Tibial Insert Trial, Size 4, 9mm, Slope++
231-75-09	CR Tibial Insert Trial, Size 5, 9mm, Slope++



IMPLANT AND INSTRUMENT SCOPE

Catalog Number	Part Description
231-51-11	CR Tibial Insert Trial, Size 1 Delta, 11mm, Slope STD
231-21-11	CR Tibial Insert Trial, Size 1, 11mm, Slope STD
231-22-11	CR Tibial Insert Trial, Size 2, 11mm, Slope STD
231-23-11	CR Tibial Insert Trial, Size 3, 11mm, Slope STD
231-24-11	CR Tibial Insert Trial, Size 4, 11mm, Slope STD
231-25-11	CR Tibial Insert Trial, Size 5, 11mm, Slope STD
231-56-11	CR Tibial Insert Trial, Size 1 Delta, 11mm, Slope+
231-61-11	CR Tibial Insert Trial, Size 1, 11mm, Slope+
231-62-11	CR Tibial Insert Trial, Size 2, 11mm, Slope+
231-63-11	CR Tibial Insert Trial, Size 3, 11mm, Slope+
231-64-11	CR Tibial Insert Trial, Size 4, 11mm, Slope+
231-65-11	CR Tibial Insert Trial, Size 5, 11mm, Slope+
231-57-11	CR Tibial Insert Trial, Size 1 Delta, 11mm, Slope++
231-71-11	CR Tibial Insert Trial, Size 1, 11mm, Slope++
231-72-11	CR Tibial Insert Trial, Size 2, 11mm, Slope++
231-73-11	CR Tibial Insert Trial, Size 3, 11mm, Slope++
231-74-11	CR Tibial Insert Trial, Size 4, 11mm, Slope++
231-75-11	CR Tibial Insert Trial, Size 5, 11mm, Slope++
231-51-13	CR Tibial Insert Trial, Size 1 Delta, 13mm, Slope STD
231-21-13	CR Tibial Insert Trial, Size 1, 13mm, Slope STD
231-22-13	CR Tibial Insert Trial, Size 2, 13mm, Slope STD
231-23-13	CR Tibial Insert Trial, Size 3, 13mm, Slope STD
231-24-13	CR Tibial Insert Trial, Size 4, 13mm, Slope STD
231-25-13	CR Tibial Insert Trial, Size 5, 13mm, Slope STD
231-56-13	CR Tibial Insert Trial, Size 1 Delta, 13mm, Slope+
231-61-13	CR Tibial Insert Trial, Size 1, 13mm, Slope+
231-62-13	CR Tibial Insert Trial, Size 2, 13mm, Slope+
231-63-13	CR Tibial Insert Trial, Size 3, 13mm, Slope+
231-64-13	CR Tibial Insert Trial, Size 4, 13mm, Slope+
231-65-13	CR Tibial Insert Trial, Size 5, 13mm, Slope+
231-57-13	CR Tibial Insert Trial, Size 1 Delta, 13mm, Slope++
231-71-13	CR Tibial Insert Trial, Size 1, 13mm, Slope++
231-72-13	CR Tibial Insert Trial, Size 2, 13mm, Slope++
231-73-13	CR Tibial Insert Trial, Size 3, 13mm, Slope++
231-74-13	CR Tibial Insert Trial, Size 4, 13mm, Slope++
231-75-13	CR Tibial Insert Trial, Size 5, 13mm, Slope++



Catalog Number	Part Description
200-56-09	CR Tibial Insert, Size 1 Delta, 9mm, Slope+
200-61-09	CR Tibial Insert, Size 1, 9mm, Slope+
200-62-09	CR Tibial Insert, Size 2, 9mm, Slope+
200-63-09	CR Tibial Insert, Size 3, 9mm, Slope+
200-64-09	CR Tibial Insert, Size 4, 9mm, Slope+
200-65-09	CR Tibial Insert, Size 5, 9mm, Slope+
200-57-09	CR Tibial Insert, Size 1 Delta, 9mm, Slope++
200-71-09	CR Tibial Insert, Size 1, 9mm, Slope++
200-72-09	CR Tibial Insert, Size 2, 9mm, Slope++
200-73-09	CR Tibial Insert, Size 3, 9mm, Slope++
200-74-09	CR Tibial Insert, Size 4, 9mm, Slope++
200-75-09	CR Tibial Insert, Size 5, 9mm, Slope++
200-56-11	CR Tibial Insert, Size 1 Delta, 11mm, Slope+
200-61-11	CR Tibial Insert, Size 1, 11mm, Slope+
200-62-11	CR Tibial Insert, Size 2, 11mm, Slope+
200-63-11	CR Tibial Insert, Size 3, 11mm, Slope+
200-64-11	CR Tibial Insert, Size 4, 11mm, Slope+
200-65-11	CR Tibial Insert, Size 5, 11mm, Slope+
200-57-11	CR Tibial Insert, Size 1 Delta, 11mm, Slope++
200-71-11	CR Tibial Insert, Size 1, 11mm, Slope++
200-72-11	CR Tibial Insert, Size 2, 11mm, Slope++
200-73-11	CR Tibial Insert, Size 3, 11mm, Slope++
200-74-11	CR Tibial Insert, Size 4, 11mm, Slope++
200-75-11	CR Tibial Insert, Size 5, 11mm, Slope++
200-56-13	CR Tibial Insert, Size 1 Delta, 13mm, Slope+
200-61-13	CR Tibial Insert, Size 1, 13mm, Slope+
200-62-13	CR Tibial Insert, Size 2, 13mm, Slope+
200-63-13	CR Tibial Insert, Size 3, 13mm, Slope+
200-64-13	CR Tibial Insert, Size 4, 13mm, Slope+
200-65-13	CR Tibial Insert, Size 5, 13mm, Slope+
200-57-13	CR Tibial Insert, Size 1 Delta, 13mm, Slope++
200-71-13	CR Tibial Insert, Size 1, 13mm, Slope++
200-72-13	CR Tibial Insert, Size 2, 13mm, Slope++
200-73-13	CR Tibial Insert, Size 3, 13mm, Slope++
200-74-13	CR Tibial Insert, Size 4, 13mm, Slope++
200-75-13	CR Tibial Insert, Size 5, 13mm, Slope++

IMPLANT AND INSTRUMENT SCOPE

Catalog Number	Part Description
200-51-09	CR Tibial Insert, Size 1 Delta, 9mm, Slope STD
200-21-09	CR Tibial Insert, Size 1, 9mm, Slope STD
200-22-09	CR Tibial Insert, Size 2, 9mm, Slope STD
200-23-09	CR Tibial Insert, Size 3, 9mm, Slope STD
200-24-09	CR Tibial Insert, Size 4, 9mm, Slope STD
200-25-09	CR Tibial Insert, Size 5, 9mm, Slope STD
200-51-11	CR Tibial Insert, Size 1 Delta, 11mm, Slope STD
200-21-11	CR Tibial Insert, Size 1, 11mm, Slope STD
200-22-11	CR Tibial Insert, Size 2, 11mm, Slope STD
200-23-11	CR Tibial Insert, Size 3, 11mm, Slope STD
200-24-11	CR Tibial Insert, Size 4, 11mm, Slope STD
200-25-11	CR Tibial Insert, Size 5, 11mm, Slope STD
200-51-13	CR Tibial Insert, Size 1 Delta, 13mm, Slope STD
200-21-13	CR Tibial Insert, Size 1, 13mm, Slope STD
200-22-13	CR Tibial Insert, Size 2, 13mm, Slope STD
200-23-13	CR Tibial Insert, Size 3, 13mm, Slope STD
200-24-13	CR Tibial Insert, Size 4, 13mm, Slope STD
200-25-13	CR Tibial Insert, Size 5, 13mm, Slope STD

REFERENCES

1. **Fantozzi S, Benedetti MG, Leardini A, Banks SA, Cappello A, Assirelli D, Catani F.** Fluoroscopic and gait analysis of the functional performance in stair ascent of two total knee replacement designs. *Gait Posture.* 2003 Jun;17(3):225-34.
2. **Catani F, Fantozzi S, Ensini A, Leardini A, Moschella D, Giannini S.** Influence of tibial component posterior slope on in vivo knee kinematics in fixed-bearing total knee arthroplasty. *J Orthop Res.* 2006 Apr;24(4):581-7.
3. **Yoshiya S, Matsui N, Komistek R, Dennis D, Mahfouz M, Kurosaka, M.** In vivo kinematic comparison of posterior cruciate-retaining and posterior stabilized total knee arthroplasties under passive and weight-bearing conditions. *J Arthroplasty.* 2005 Sep;20(6):777-83.
4. **Bellemans J, Robijns F, Duerinckx J, Banks S, Vandennuecker H.** The influence of tibial slope on maximal flexion after total knee arthroplasty. *Knee Surg Sports Traumatol Arthrosc.* 2005 Apr;13(3):193-6.

REFERENCES

1. Bellemans J, Robijns F, Duerinckx J, Banks S, Vandenneucker H. The influence of tibial slope on maximal flexion after total knee arthroplasty. Knee Surgical Sports Traumatol Arthroscopy. (2005) 13: 193–196.

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