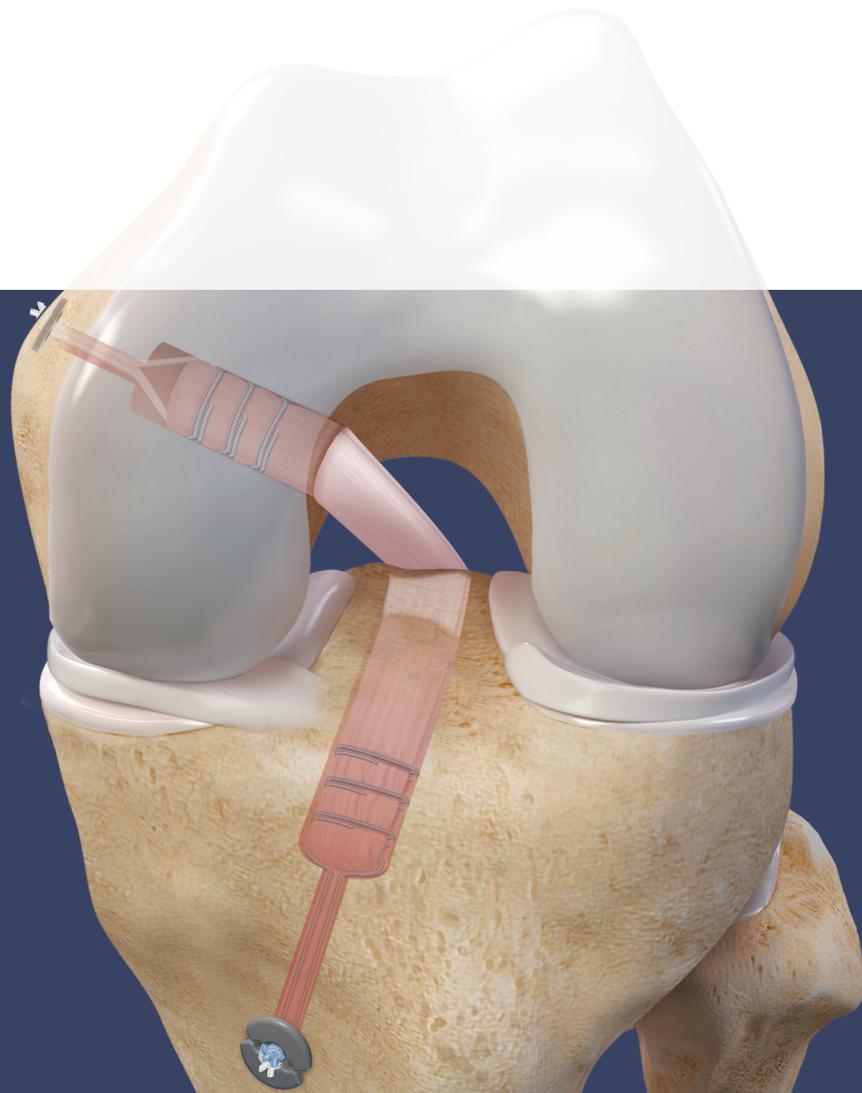
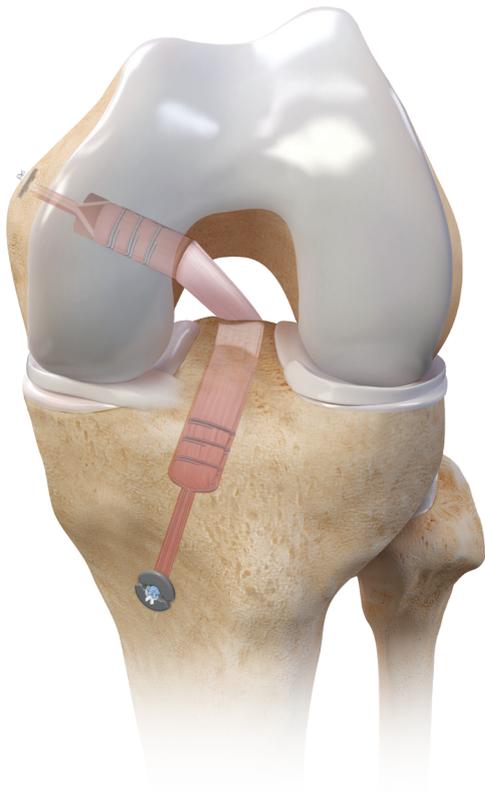


# GraftLink<sup>®</sup> PCL Reconstruction

Surgical Technique



## GraftLink® Minimally Invasive PCL Reconstruction

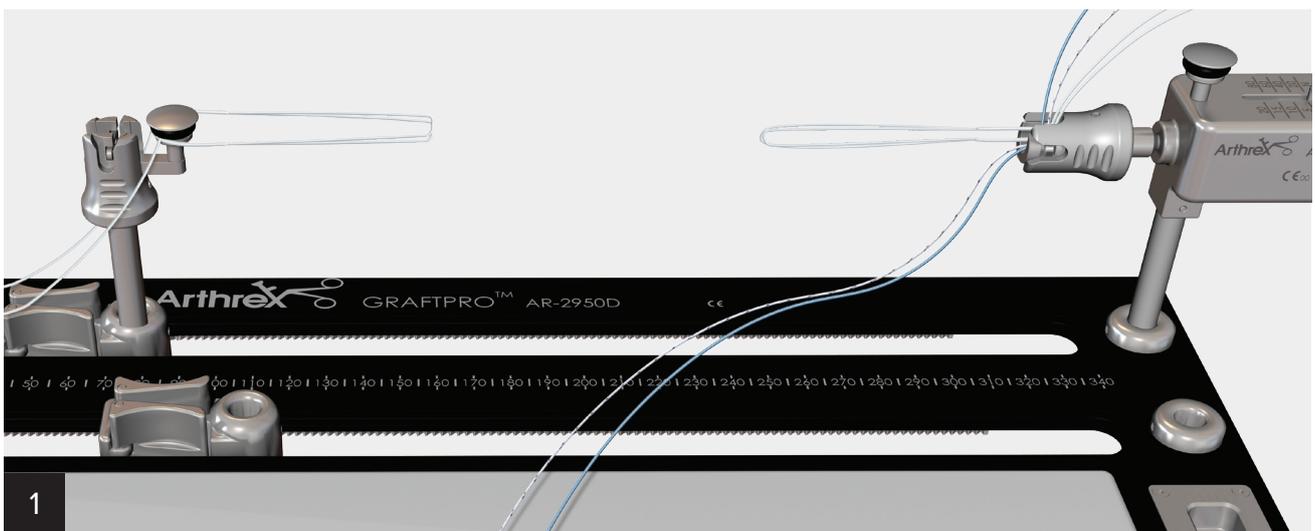


The GraftLink technique provides the ultimate in anatomic, minimally invasive, and reproducible PCL reconstruction.

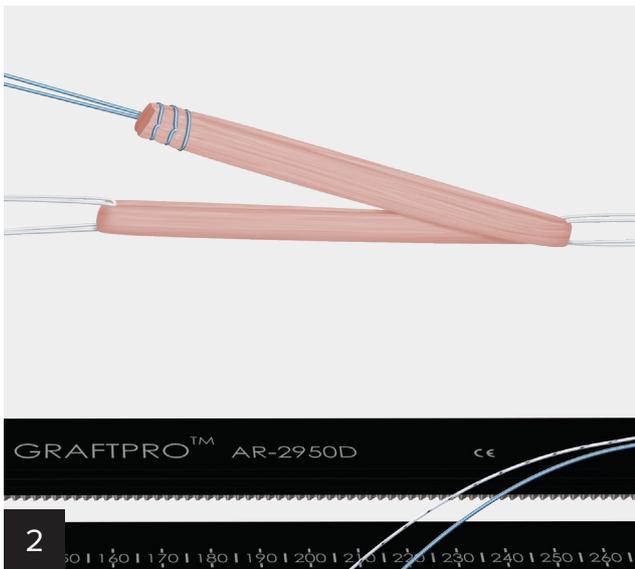
- **Anatomic:** Independent tibial and femoral socket preparation with the FlipCutter® III drill and/or low-profile reamers facilitates unconstrained placement of the PCL graft.
- **Minimally Invasive:** Using the FlipCutter III drill for socket preparation, create variable tunnel sizes with a single device while limiting soft-tissue dissection and preserving bone and periosteum.
- **Reproducible:** The GraftPro® workstation simplifies graft preparation. The tapered graft and adjustable femoral and tibial TightRope® implants facilitate graft passing, fine tuning of graft depth, and graft tensioning from the femoral and tibial sides.

## Tendon Graft and GraftLink Construct Preparation

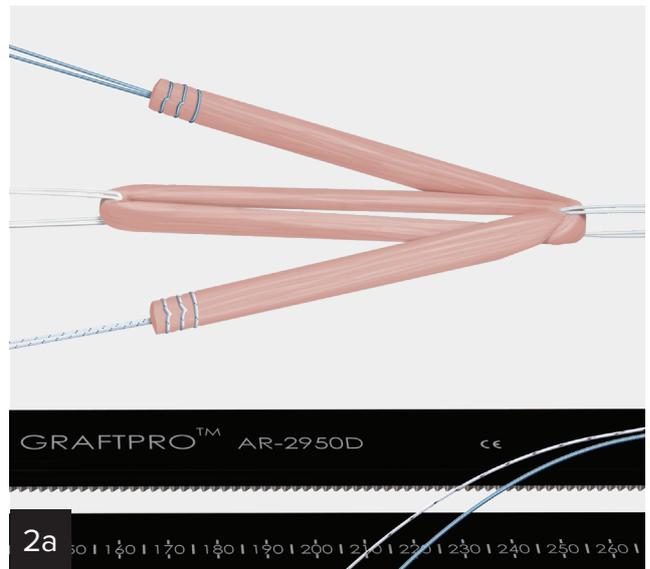
In most cases, only a tibialis anterior, tibialis posterior, or peroneus longus tendon is needed to create the PCL GraftLink construct. The GraftPro GraftLink prep attachments are placed on the base and the TightRope RT implant and TightRope ABS loop are loaded. The distance between the TightRope loop ends is measured. This distance should equal 10 mm less than the desired final graft length.



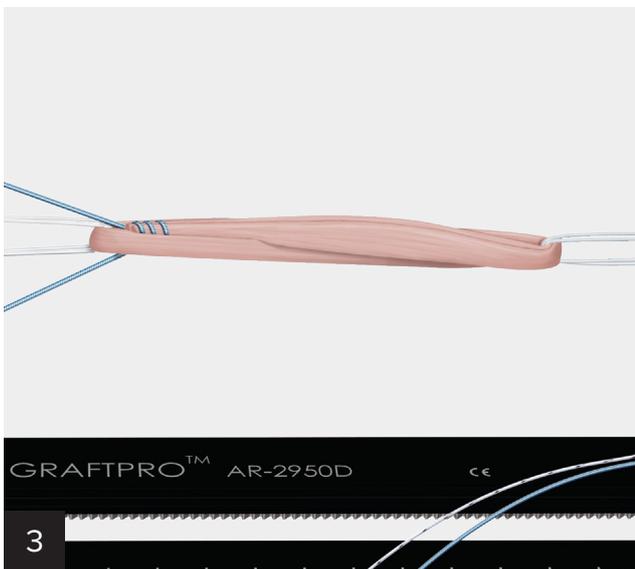
Measure the overall graft length. **Note: A length of 360 mm will yield a 4-stranded GraftLink construct of at least 90 mm, which will provide at least 20 mm of graft in the femoral and tibial sockets. If a 360 mm graft isn't available, a tripled GraftLink construct may be used (refer to the technique video on Arthrex.com).**



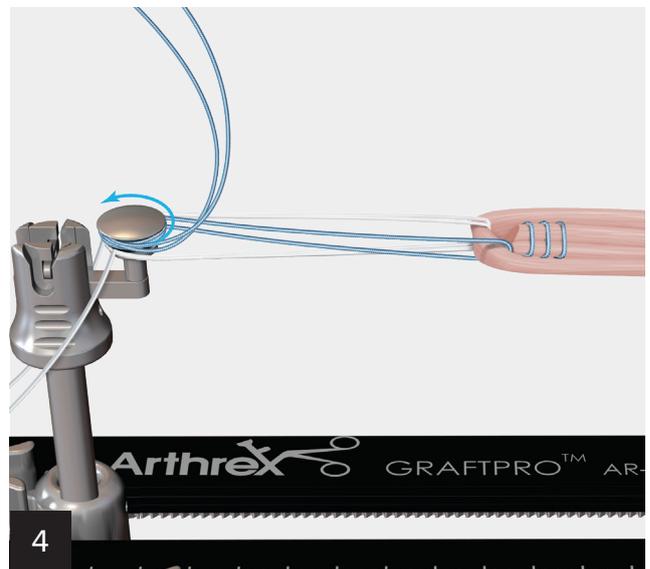
Both graft ends may be stitched together with a single #2 FiberLoop® suture after passing the graft through the TightRope® RT implants.



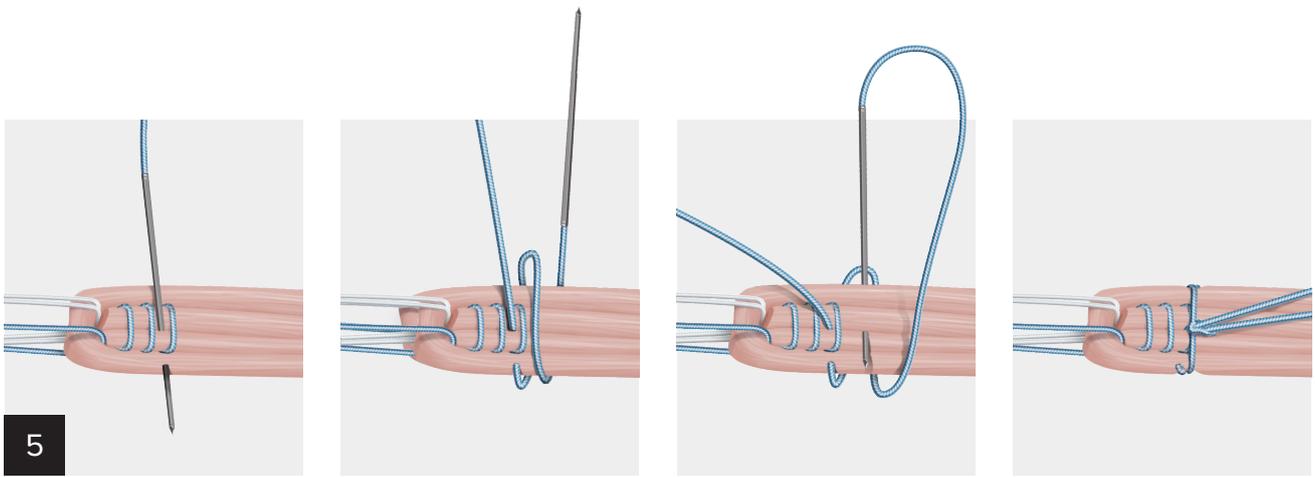
Load the graft through the implants by folding it symmetrically over the loops. Alternatively, stitch approximately 2 mm of each graft end with one #2 FiberLoop suture and one #2 TigerLoop™ suture.



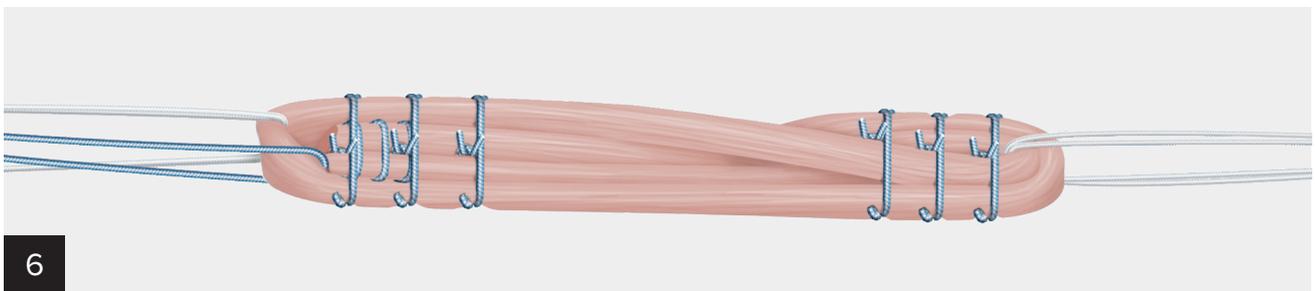
Pass one tail of each whipstitch over the graft loop and the other under the graft loop. This will ensure that the tails of the graft are tucked inside the loop during tensioning, which will facilitate tapering of the ends and uniform thickness of the graft.



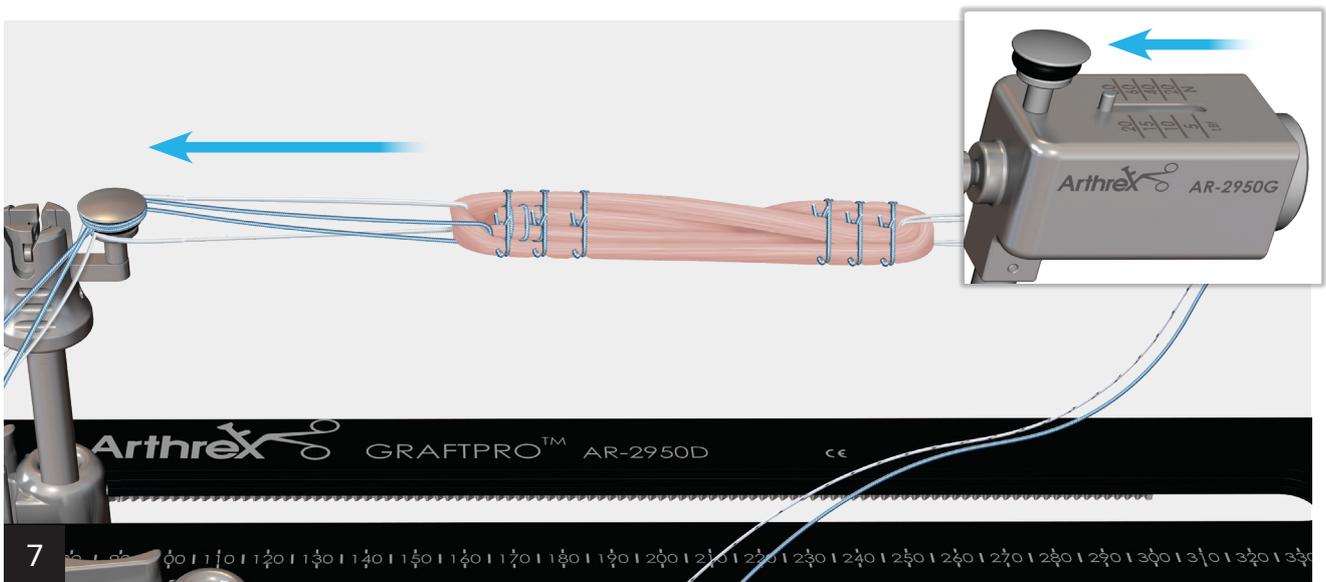
Once the graft is folded properly and the desired length is obtained, wrap the whipstitch sutures around the post and hold the construct in place.



The first stitch may now be placed. Using a “buried-knot” technique, start from the inside of the graft and place the needle through the first 2 graft limbs, passing the needle on the same side as the suture tail of the circumferential sutures so that the knot will be buried. Wrap the suture around the graft then place the needle through the second set of graft limbs from outside-in. Tension the suture and tie a knot to secure the stitch.

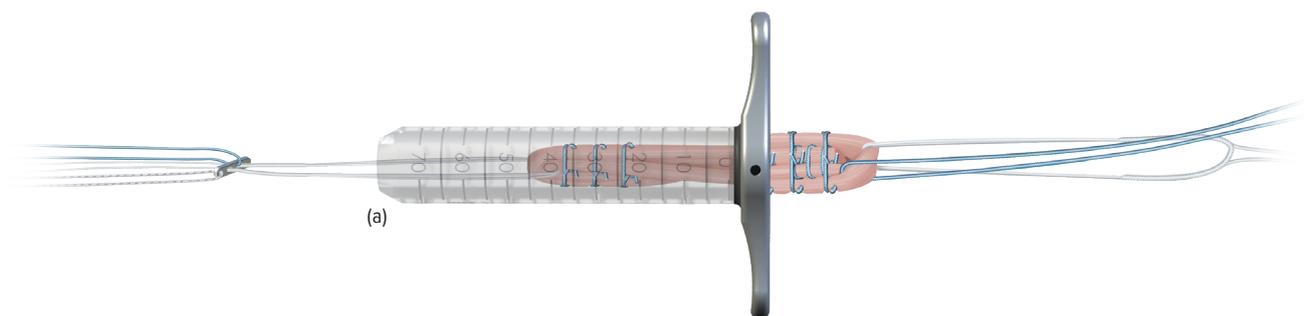


Repeat this on either end of the graft for a total of 3 stitches on each end. The graft should be between 10 mm and 12 mm depending on the size of the patient. The circular stitches should be placed within 25 mm from the end of the graft.

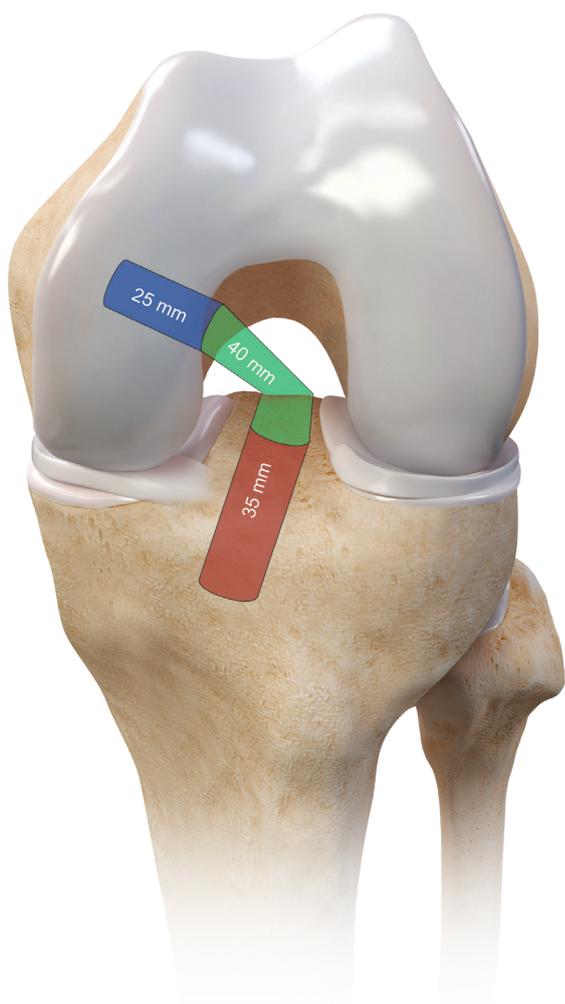


The GraftPro® GraftLink® graft prep attachments may now be used for tensioning by simply pulling on one side until the desired tension is obtained, as read on the tensiometer. The FiberLoop® whipstitch sutures may be cut off or used as supplemental fixation.

## Graft Sizing and Socket Creation



Arthrex graft tubes (a) are ideal for sizing and compression of the GraftLink® construct. These full-length, clear tubes facilitate graft compression, sizing, and preparation. The unique transparent tube, which has an etched ruler, allows visualization of the graft during diameter and length sizing. A funneled entrance and attachable handle ease the entry of grafts into the sizer, allowing compression of up to 2 mm. Small holes in the graft tube allow hydration of the graft or injection of biologics along the entire length.



Measure the graft length and diameter. Pass both the femoral and tibial ends of the graft into the sizing block to measure diameter for socket drilling. Graft compression tubes may also be used for sizing and compression of the graft.

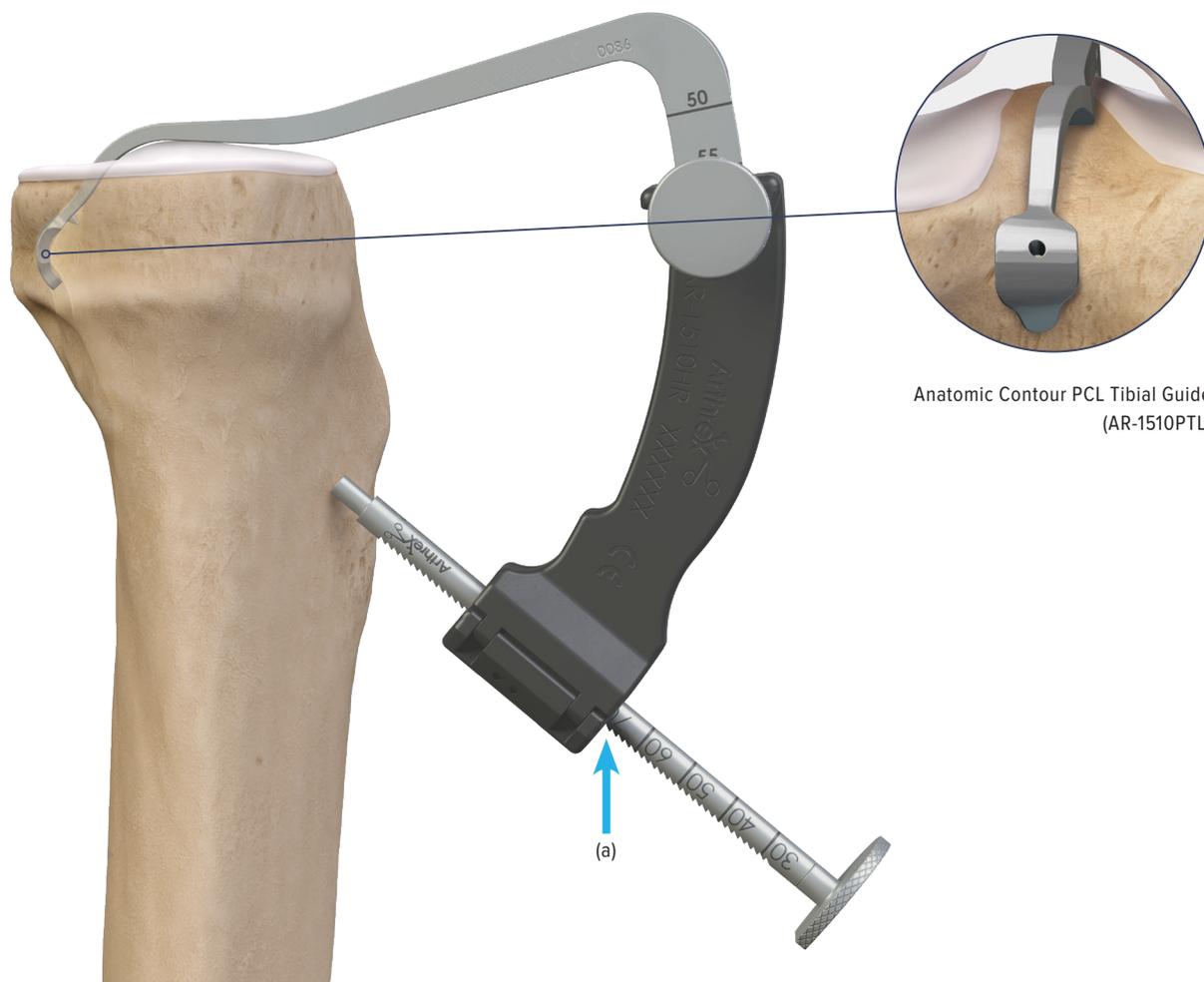
■ **Socket Creation:** The length from the end of the femoral socket to the end of the tibial socket should be at least 10 mm longer than the graft to ensure that the graft can be tensioned fully (90 mm graft length).

**Graft Tubes (AR-1886-S)**  
**Sizing Block (AR-1886)**



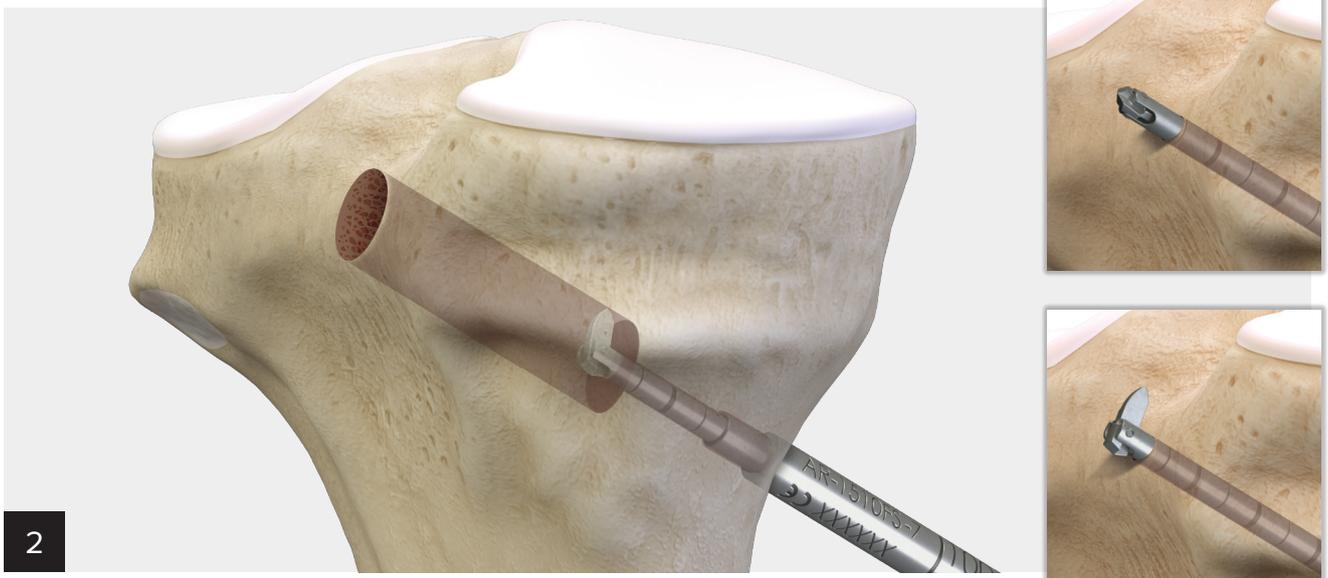
## Tibial Socket Creation

Standard AM and AL portals are placed, as well as a PM portal. A Gemini™ or PassPort Button™ cannula is placed through the PM portal.



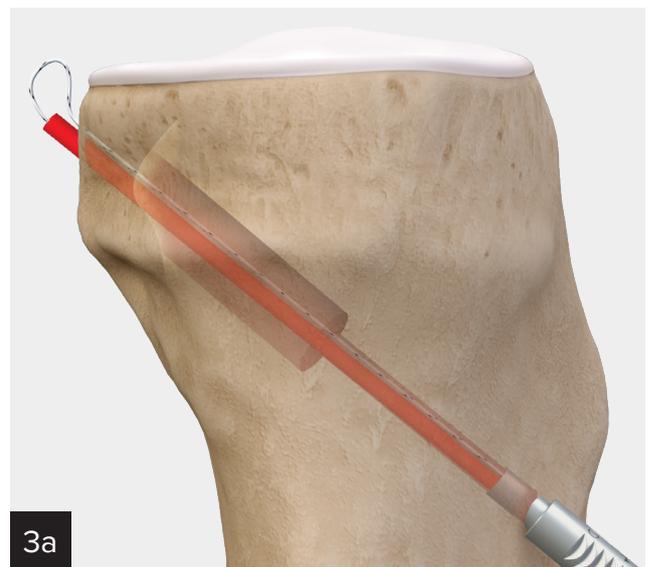
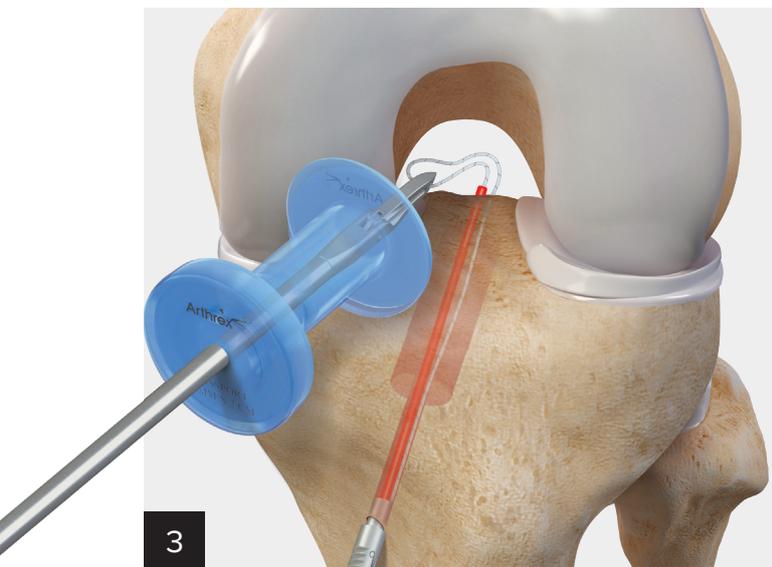
Anatomic Contour PCL Tibial Guide  
(AR-1510PTL)

Place the tibial anatomic contour PCL guide through the AM portal and, using the “over-the-back” hook, grasp the distal edge of the posterior facet for tactile feedback. The wide, convex paddle tip helps to properly position the guide in the coronal plane, between the mamillary bodies. In this position, the pin is guided to the appropriate exit point in the sagittal plane. Fluoroscopy may be used to confirm placement. Push the drill sleeve against the bone and note the intraosseous distance where the drill sleeve exits the guide (a) (in this case, 70 mm).



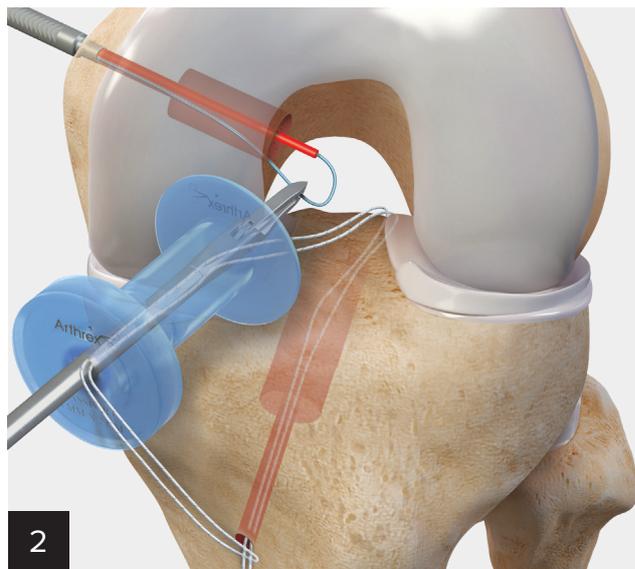
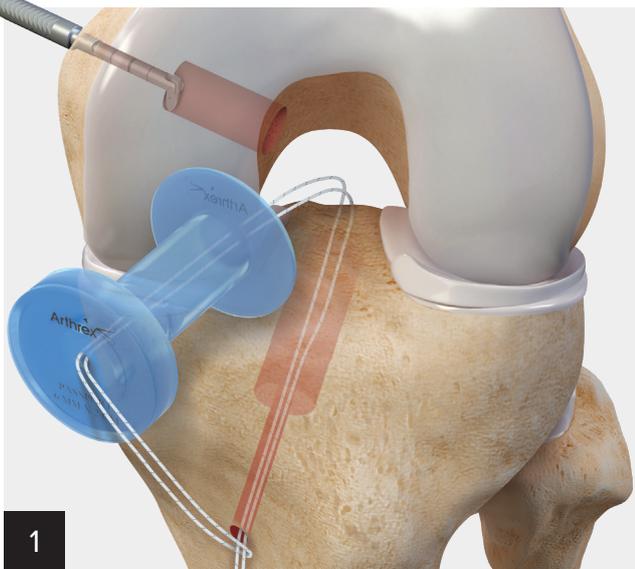
Once the FlipCutter® III drill exits the posterior cortex, rotate the sizing wheel to the appropriate socket diameter. Use the mallet to tap the 7 mm tip of the stepped drill sleeve into the bone. This will facilitate drilling and insertion of the passing suture after the socket has been created.

Set the rubber ring against the drill sleeve. Taking care to begin drilling off the bone, drill (on forward) while pulling distally to create the socket. Socket depth can be quantified by counting the 5 mm markings between the drill sleeve and the rubber ring. Drill to 40 mm. Before attempting to remove the FlipCutter III drill, straighten the blade by rotating the wheel back to the starting position (3.5 mm). **Note: Opening the blade to size 12 mm before removing the drill may help dislodge any bony debris that may have gotten stuck in the device.**



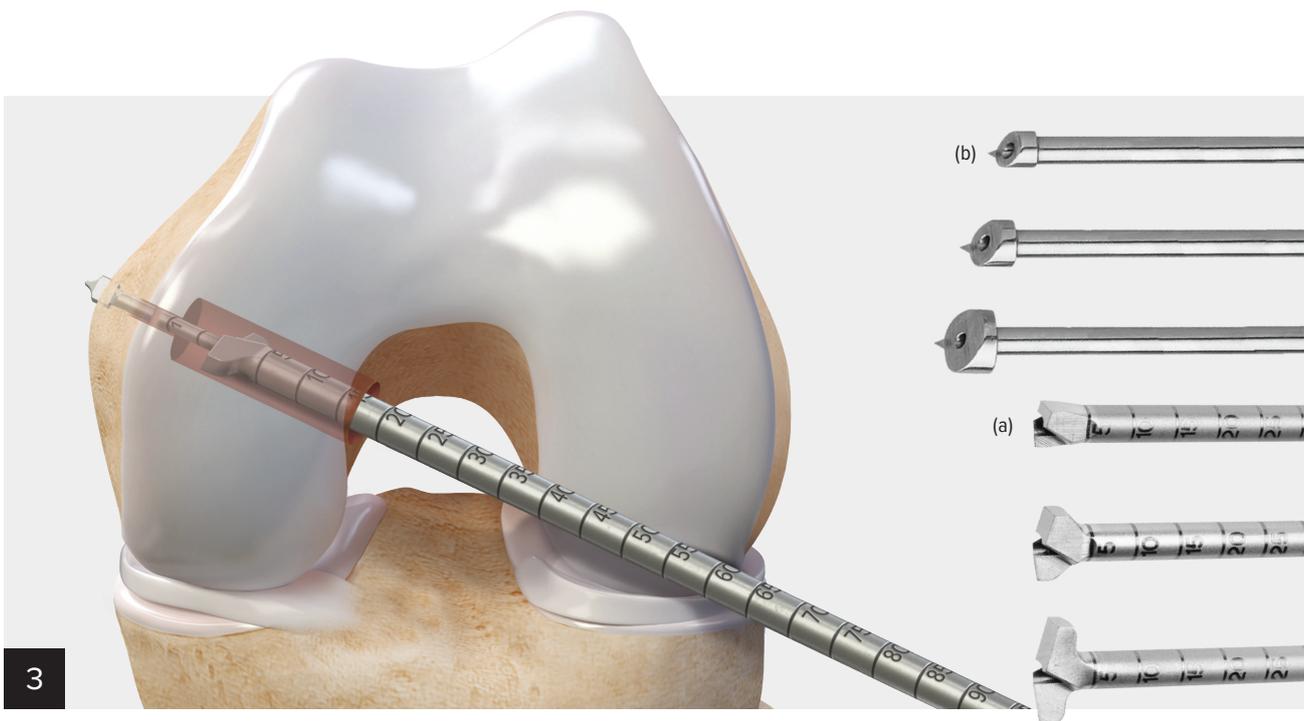
Remove the FlipCutter drill from the drill sleeve while holding the sleeve in place for suture passing. Pass a #2 TigerStick® suture through the drill sleeve and into the joint for retrieval. Use a grasper through the PM portal to push the suture anterior for retrieval through anteromedial portal.

## Femoral Socket Creation With the FlipCutter® III Drill



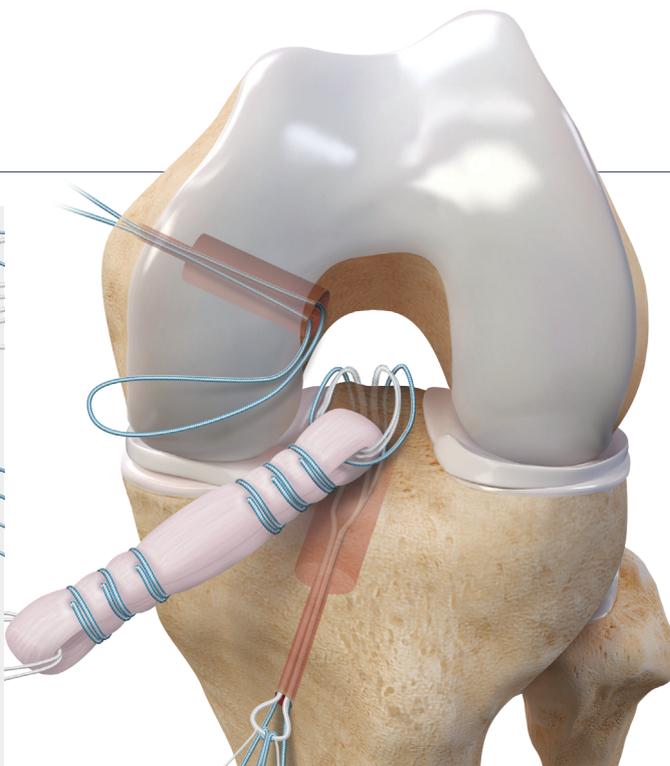
The FlipCutter drill may also be used to create the femoral socket. Note the intraosseous length on the drill sleeve when pushed down to bone. **Note: A PassPort Button™ cannula can greatly assist in suture management as seen in step 2.**

Pass a #2 FiberStick™ suture through the stepped drill sleeve, retrieve through the AM portal and dock for later graft passage.

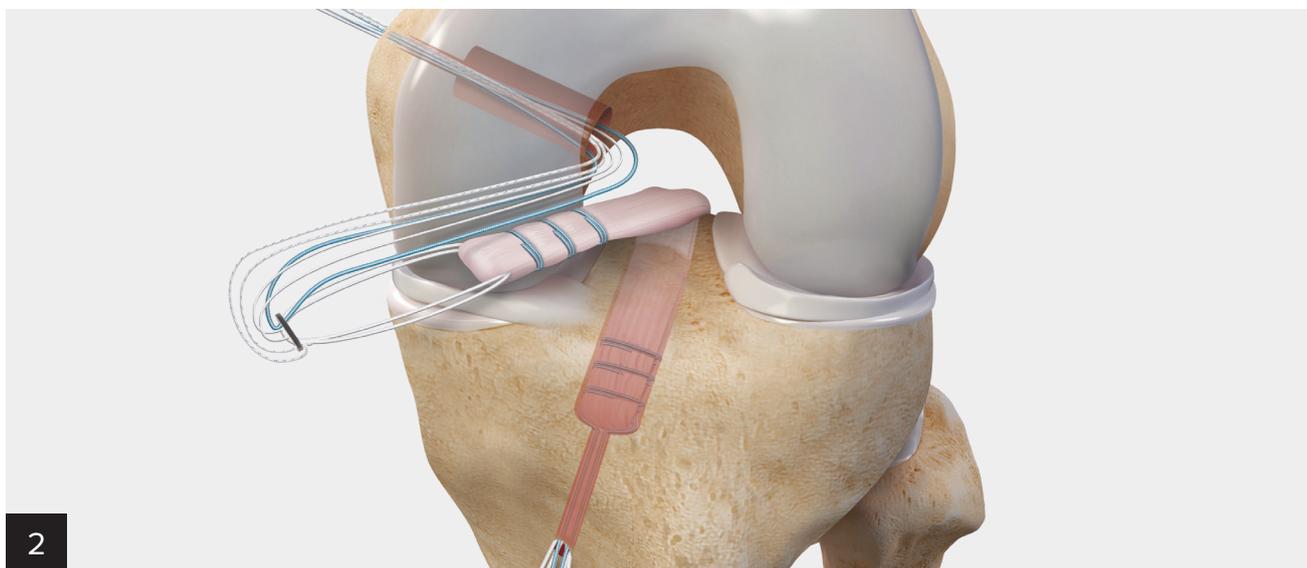


**Alternative option:** Through an accessory AL portal (distal and lateral to the standard AL portal), drill the femur to a depth of 25 mm using a low-profile reamer (a). A double-bundle PCL guide (b) can be used for placement against the superior inner wall of the medial femoral condyle. After drilling, insert a passing suture using the eyelet of the guide pin. Then retrieve the sutures through the AM portal.

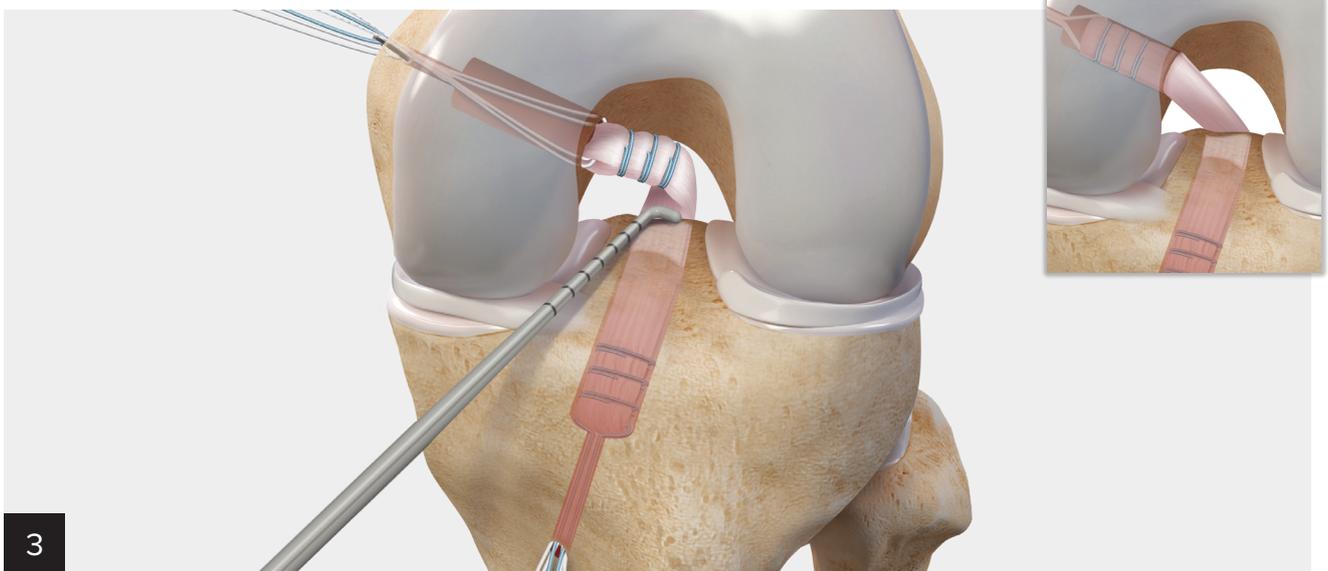
## Graft Passing



Use an additional suture cinched into the loop of the TightRope® ABS implant as a locking stitch to prevent premature tightening of the ABS as it is passed through the tibia. Use the TigerStick® suture to pass the locking stitch and sutures of the TightRope ABS implant. Pass the implant through the tibia and retrieve it out of the anterior cortex. Remove the TigerStick suture and ensure that the medial portal is large enough to easily pass the GraftLink® construct. If not, increase the incision size or dilate with a hemostat.

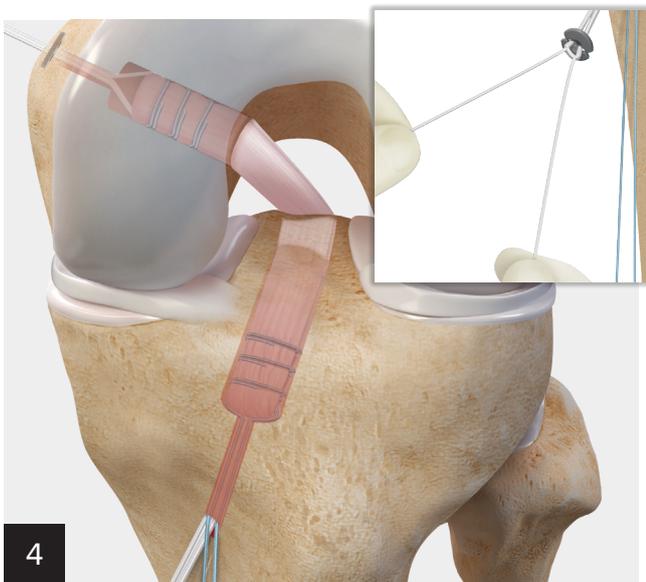


Insert the graft deeply into the tibial socket to facilitate passage of the femoral end. Pass the blue button suture and the white shortening strands through the femur. Remove slack from the sutures and ensure equal tension.



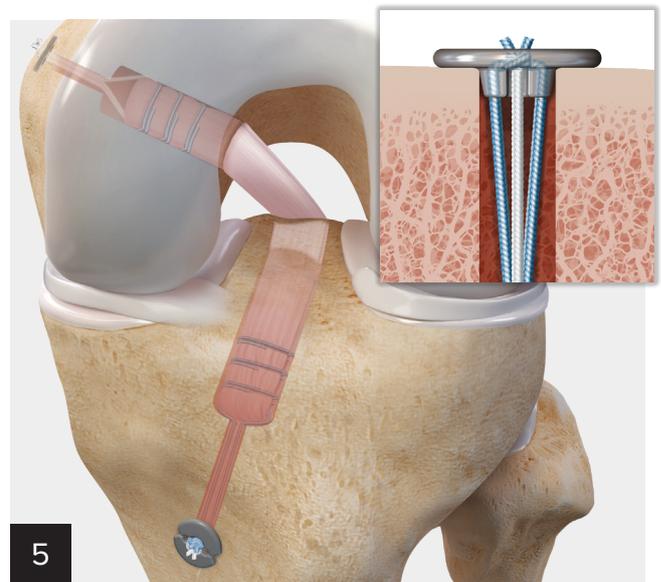
3

Clamp or hold the blue and white sutures together and pull them simultaneously to advance the button out of the femur. Use markings on the loop and arthroscopic visualization of the button to confirm exit from the femoral cortex. Push back on the graft with a probe to confirm the button is seated. While holding tension on the graft, pull the shortening strands proximally, one at a time, to advance the graft to the desired depth of 25 mm. Pull on each strand in 5 mm increments.



4

To secure tibial fixation, load the shortening strands and the whipstitched sutures into the 11 mm ABS button. With the knee flexed at 80°, pull the shortening strands distally, one at a time, to tension the graft and recreate the normal anterior tibial “step-off.” Pull on each strand in 5 mm increments cycling the knee and retensioning both TightRope® sutures to remove any slack in the system. Tie a knot with both the shortening strands and the whipstitched sutures for backup fixation.



5

The centering feature of the ABS maintains the button position over the tunnel and provides a strong seal at the cortex than standard flat buttons. The concave surface countersinks sutures and knots. The 14 mm and 20 mm buttons have slots for the TightRope loop along with 2 holes for additional sutures. After cycling and retensioning the femoral side, remove the blue sutures and cut the TightRope suture tails.

## Ordering Information

### Implants

Product Description	Item Number
ACL TightRope® RT Implant	AR-1588RT
TightRope ABS Implant	AR-1588TN
TightRope ABS Button	AR-1588TB-3
ACL TightRope Convenience Pack	AR-1588RTS
Autograft GraftLink® Implant Convenience Pack	AR-1588AU-CP
Allograft GraftLink Implant Convenience Pack	AR-1588AL-CP
Concave ABS Button, 11 mm w/ 4 mm collar	AR-1588TB-3
Concave ABS Button, 14 mm w/ 7 mm collar	AR-1588TB-4
Concave ABS Button, 20 mm w/ 9 mm collar	AR-1588TB-5

### Instruments (FlipCutter® III Technique)

Product Description	Item Number
FlipCutter III Drill, 6 mm-12 mm	AR-1204FF
RetroConstruction™ Drill Guide Set	AR-1510S
Anatomic Contour PCL Guide, left	AR-1510PTL
Anatomic Contour PCL Guide, right	AR-1510PTR
Femoral PCL, Hook Arm	AR-1510PF

### GraftPro® Graft Preparation System (AR-2950D)

Product Description	Item Number
GraftPro Board	AR-2950D
GraftPro Posts	AR-2950AP
GraftPro Case	AR-2950DC
GraftPro GraftLink Tensioner	AR-2950GT
GraftPro GraftLink Holder	AR-2950GH
GraftPro Button Holder	AR-2950BH
GraftPro Soft Tissue Clamp	AR-2950SC
Optional	
Cutting Board Clamp	AR-2950CBC

### Suture

Product Description	Item Number
0 FiberWire® Suture, 38 in (blue) w/ Tapered Needle, 22.2 mm ½ circle	AR-7250
FiberStick™ Suture, #2 FiberWire Suture, 50 in (blue) one end stiffened	AR-7209
TigerStick® Suture, #2 TigerWire® Suture, 50 in (white/black) one end stiffened	AR-7209T
SutureTape Loop, 1.3 mm, 20 in loop (White/Blue) w/ 76 mm straight needle, 12/box	AR-7534
SutureTape Loop, 1.3 mm, 20 in loop (White/Black) w/ 76 mm straight needle, 12/box	AR-7534T
#2 TigerLoop™ Suture w/ Straight Needle, 20 in w/ TigerWire® suture (white/green), 76 mm needle w/ 7 mm loop	AR-7234T
#2 FiberWire Suture, w/ Straight Needle	AR-7246
#2 FiberWire Suture, w/ Two Straight Needles	AR-7246-02

Products may not be available in all markets because product availability is subject to the regulatory approvals and medical practices in individual markets. Please contact Arthrex if you have questions about the availability of products in your area.

### Instruments (Lateral Portal Technique)

Product Description	Item Number
Double-Bundle PCL Guide Set	AR-5015S
Low-Profile Reamer, 5 mm-13 mm	AR-1405LP – AR-1413LP
TightRope Drill Pin, open	AR-1595T
TightRope Drill Pin, closed	AR-1595TC

### Accessories

Product Description	Item Number
Suture Retriever	AR-12540
Graft Sizing Block	AR-1886
Suture Cutter for ACL TightRope Implant	AR-4520
Flexible Arthroscopy Retractor (FAR)	AR-1262



This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.

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