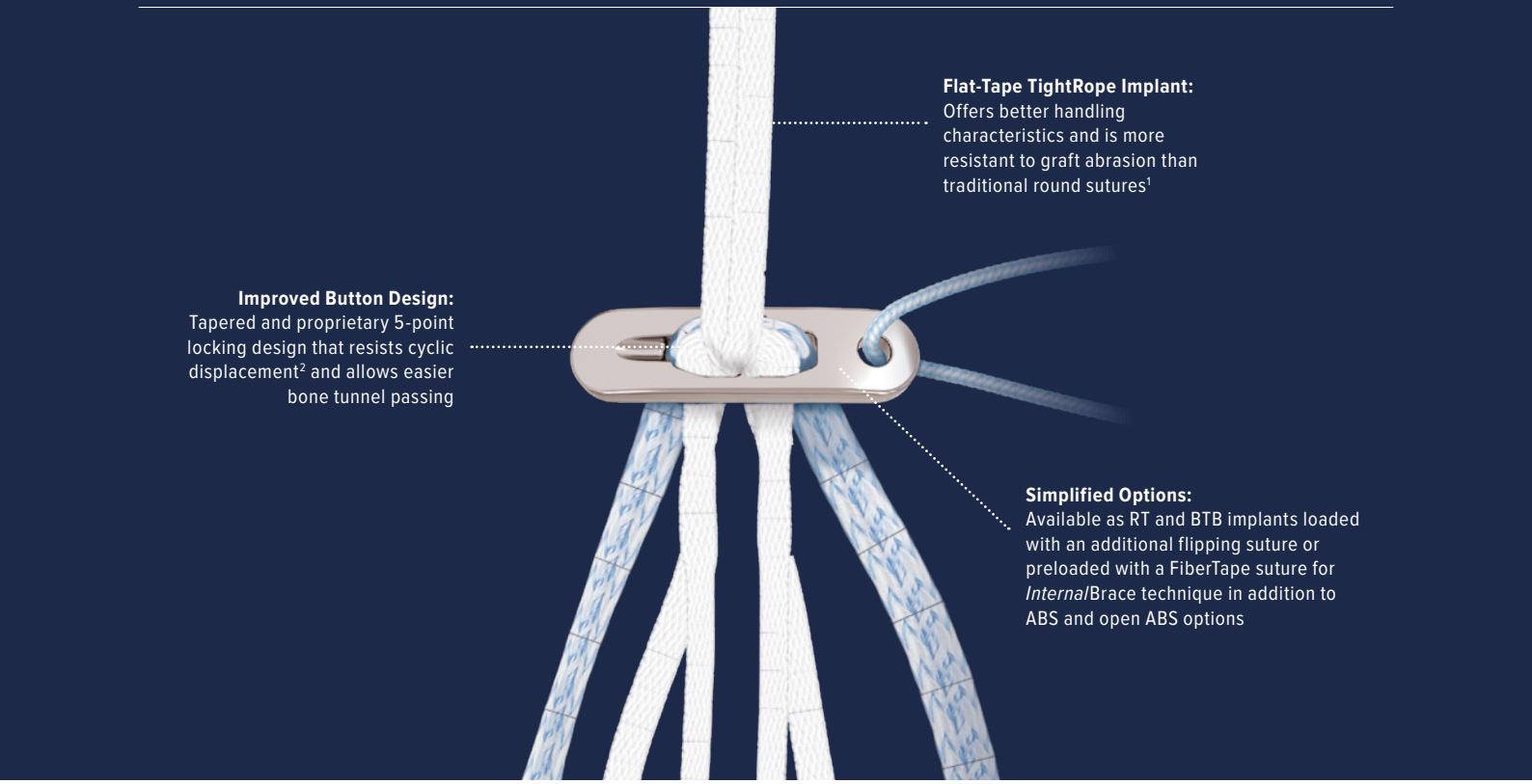
BTB TightRope® II Implant

Surgical Technique

Arthrex®

BTB TightRope® II Implant With FiberTape® Suture for *Internal*Brace™ Technique

Flat-Out Better Adjustable-Loop Technology

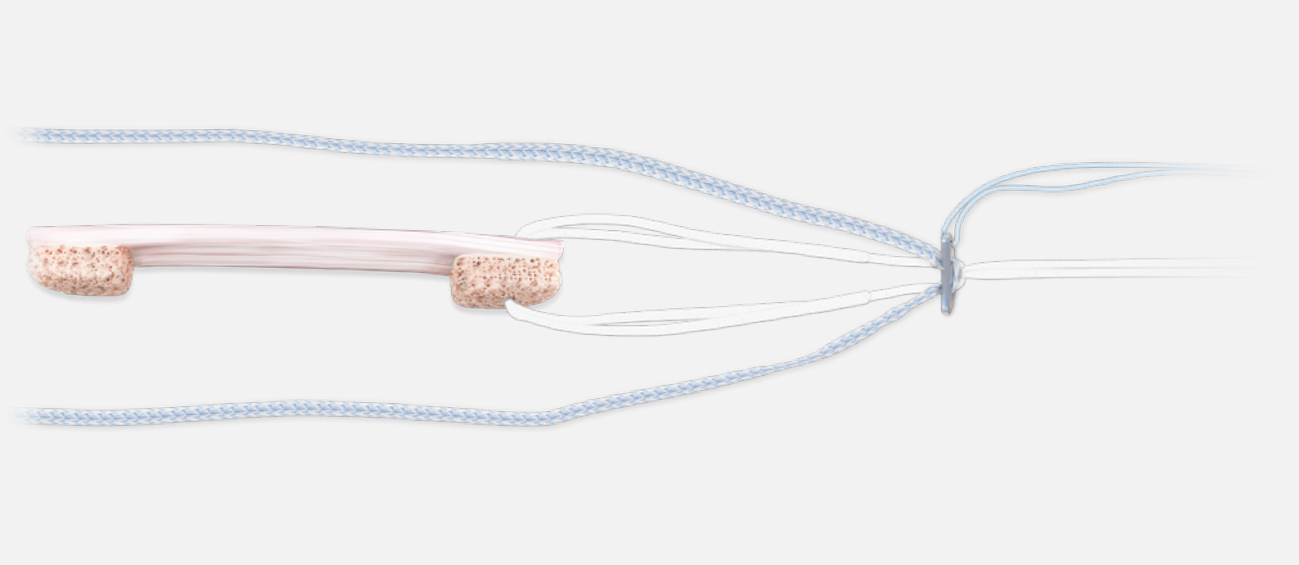


The ACL TightRope II implant is the next evolution in adjustable cortical suspensory fixation. The new flat-tape TightRope loop offers improved graft interface and handling characteristics during graft tensioning and greater resistance to graft abrasion.[1] The new proprietary 5-point locking design of the TightRope II button resists cyclic displacement[2] and offers ultimate load strength.[3] The TightRope II implant was engineered to enable precise graft tensioning and to allow incremental retension of the construct after cortical button fixation.

The TightRope II implant with FiberTape suture for *Internal*Brace technique is available for both ACL and PCL reconstruction. It is available in RT and BTB options for various technique and graft preferences.

- TightRope II RT implant
- TightRope II RT implant with FiberTape suture for *Internal*Brace technique
- TightRope II BTB implant
- TightRope II BTB implant with FiberTape suture for *Internal*Brace technique
- TightRope II ABS implant
- TightRope II open ABS implant
- Concave ABS buttons

ACL Graft Simplicity and Strength

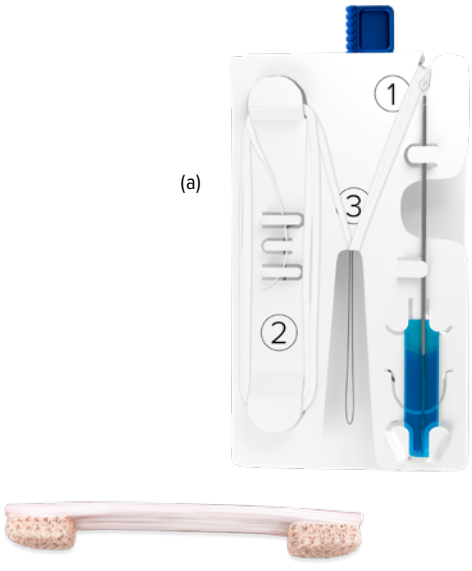


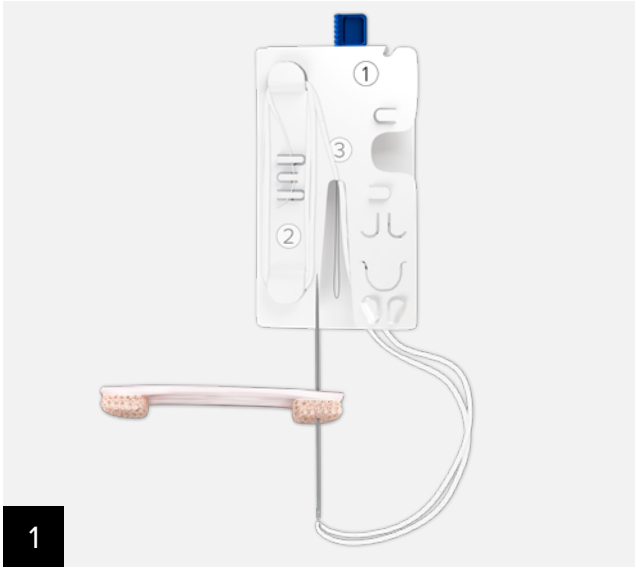
The BTB TightRope® II implant offers the same adjustable 5-point locking system as the ACL TightRope RT II construct but allows placement through a small drill hole in the cortical bone block. The TightRope II button facilitates dependable cortical fixation and the adjustable loop allows the graft to be pulled into the femoral socket as deep as needed for ideal graft-tunnel matching. Furthermore, the TightRope II button can hold the FiberTape® suture for *Internal*Brace™ technique. The BTB TightRope II implant also allows fixation of BTB grafts into anatomic femoral sockets, which can be difficult to reach with traditional interference screws.

Graft Preparation and Implant Loading

It is recommended to use the BTB TightRope II implant for bone blocks of 10 mm in diameter and 20 mm in length. Use the 2 mm drill pin to place a hole 10 mm from the end of the bone block, perpendicular to the cortical bone. The BTB TightRope II implant is packaged in a unique card with each step numbered sequentially to facilitate assembly (a).

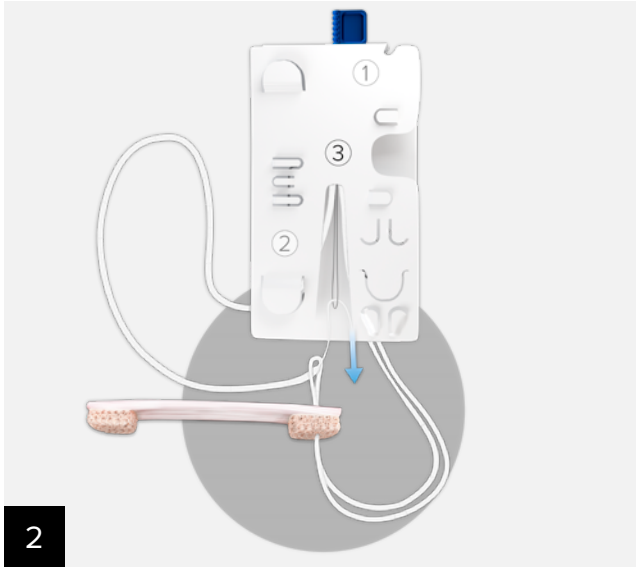
(a)





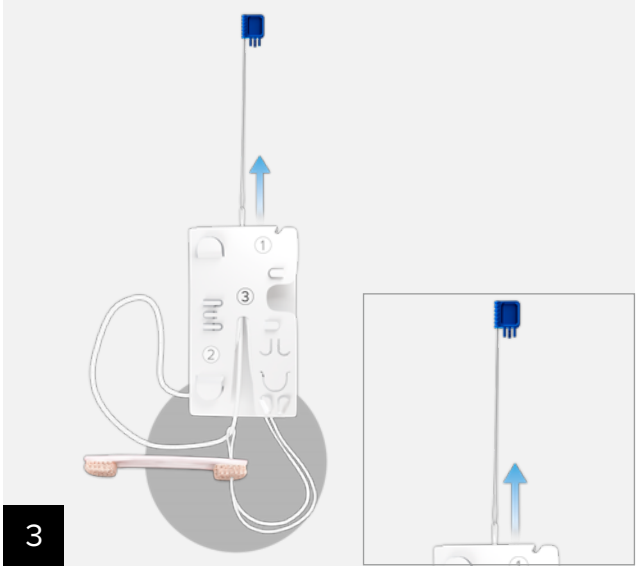
1

Use the attached needle to pass the looped limb of the BTB TightRope® II implant through the bone block. Once passed, cut the wire off the needle and remove. Take care not to damage the implant during cutting.



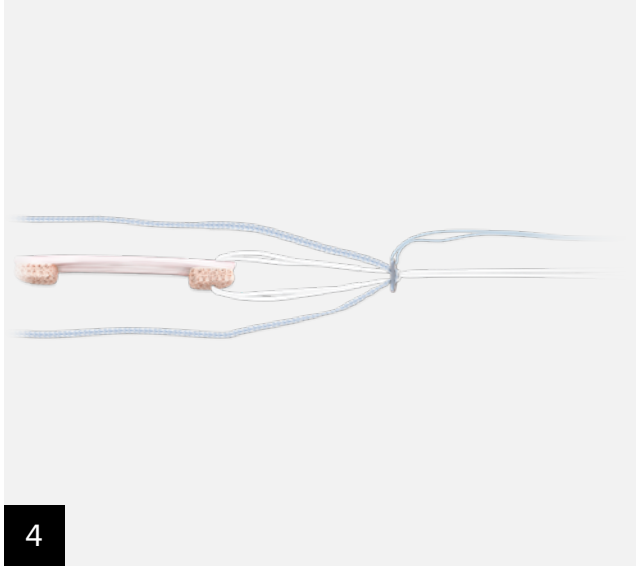
2

Pass the straight limb of the TightRope implant through the first loop. Place 3 cm to 4 cm of the tip of the straight limb into the wire snare and fold it over.



3

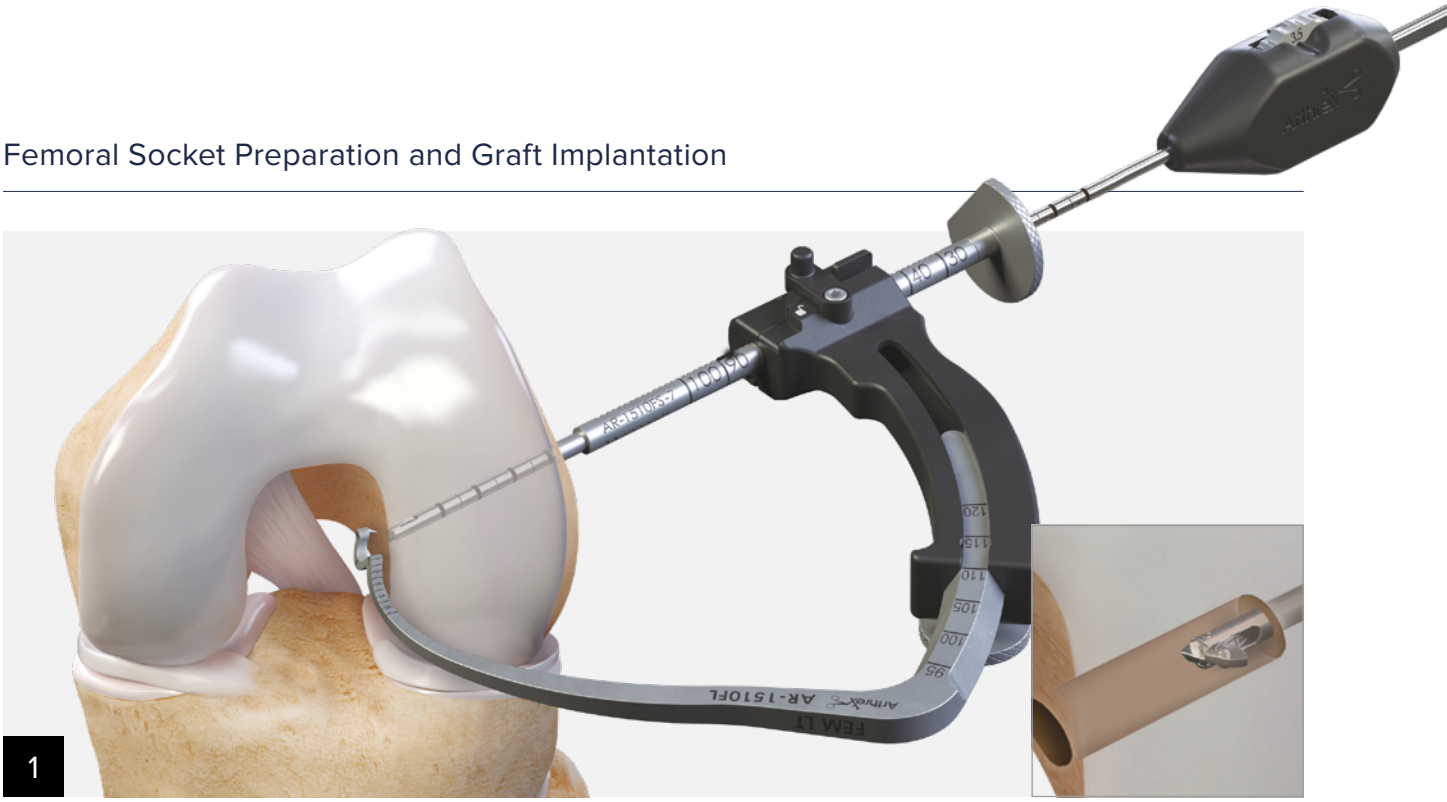
While holding the top of the card firmly, pull the blue tab of the wire snare to deliver the straight limb through the suture splice and button.
Note: As the suture is passed through the splice, there will be resistance. Pull on the newly created shortening strand to even up the loop lengths before implantation.



4

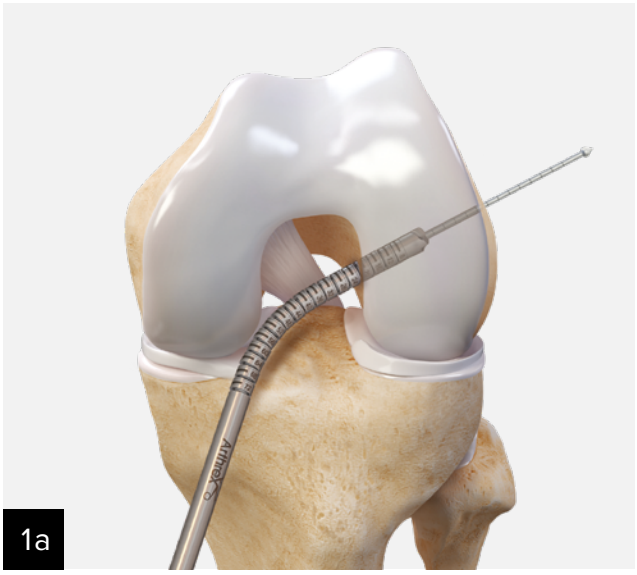
Final graft construct BTB TightRope II implant with FiberTape® suture for *Internal*Brace™ technique.

Femoral Socket Preparation and Graft Implantation



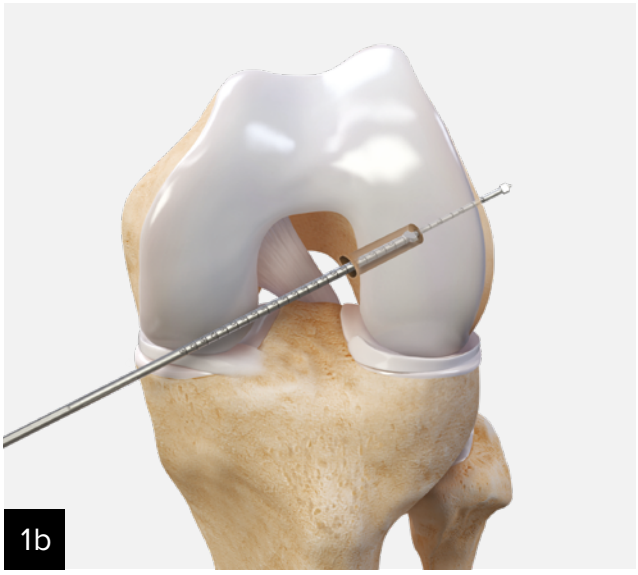
1

FlipCutter® III drill option: The femoral socket can be prepared in a retrograde fashion using the FlipCutter III drill and RetroConstruction™ guide system.



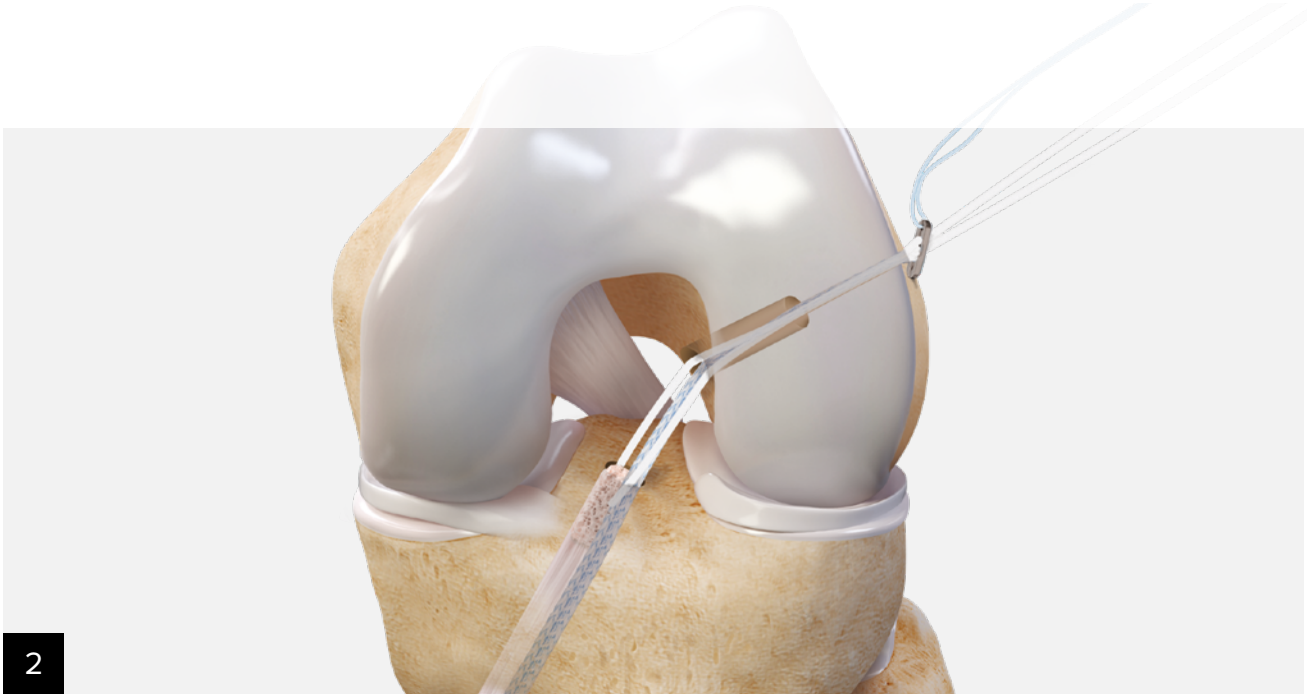
1a

Flexible reamer option: The socket can also be prepared in an antegrade fashion with the ACL TightRope® drill pin and flexible reamers.



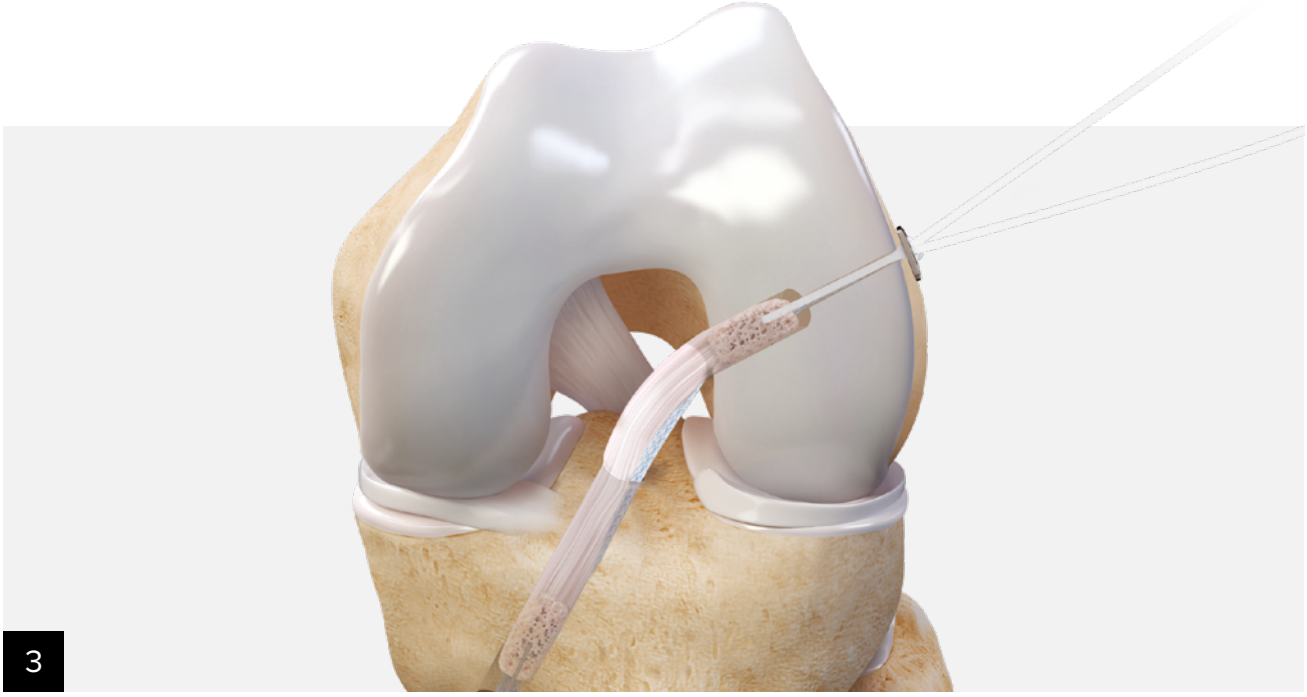
1b

Low-profile reamer option: The socket can also be prepared in an antegrade fashion with the ACL TightRope drill pin and low-profile reamers.



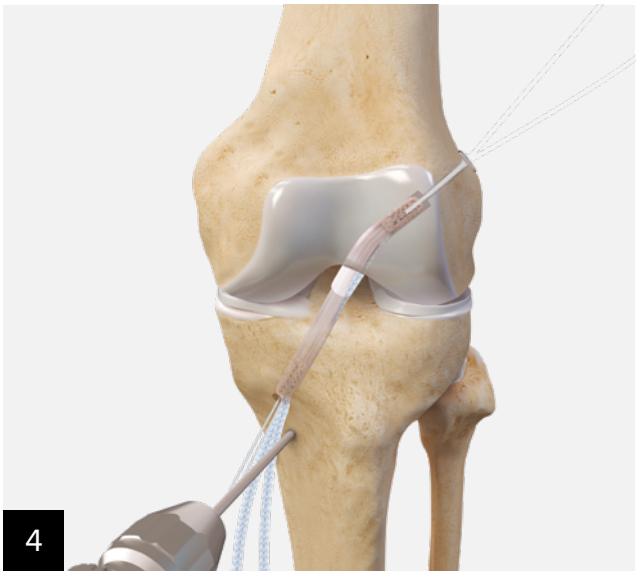
2

Pass the blue passing suture and white tensioning strands together through the femur. Pull with even tension on the sutures. Clamp the sutures together and pull to advance the button. Pull the button through the femur. The FiberTape suture can be tensioned to confirm deployment of the button on the cortex. A line on the implant marked at the intraosseous length may be helpful to signal that the button has exited the femur. The button can also be viewed through the medial portal as it exits the femoral cortex.

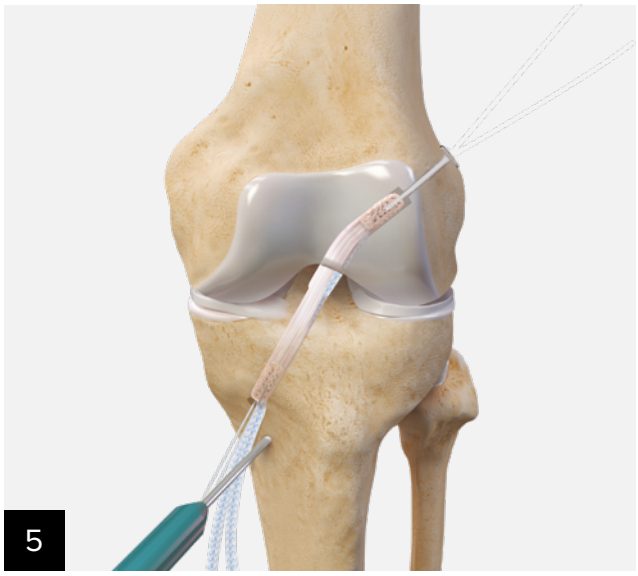


3

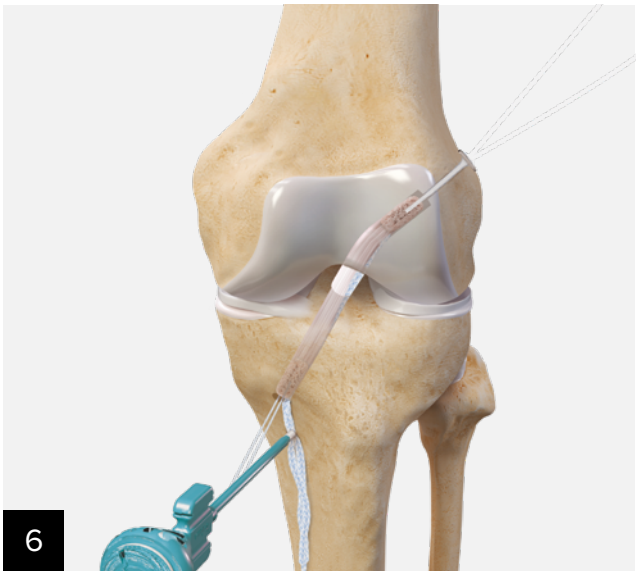
Maintain slight tension on the tibial graft sutures during graft advancement. To advance the graft, pull on the tensioning strands one at a time, alternating approximately 2 cm on each side. When the femoral bone block is visible in the joint, stop advancing the graft and align the bone block with the femoral tunnel using a grasper or probe. Once the graft is fully seated, pull firmly back on the graft to check fixation.
Note: Once the graft is seated, do not continue pulling the tensioning strands. If tunnels are divergent, it may be helpful to use a probe through the lateral portal to facilitate implant and graft passage out of the tibia and into the femoral socket.



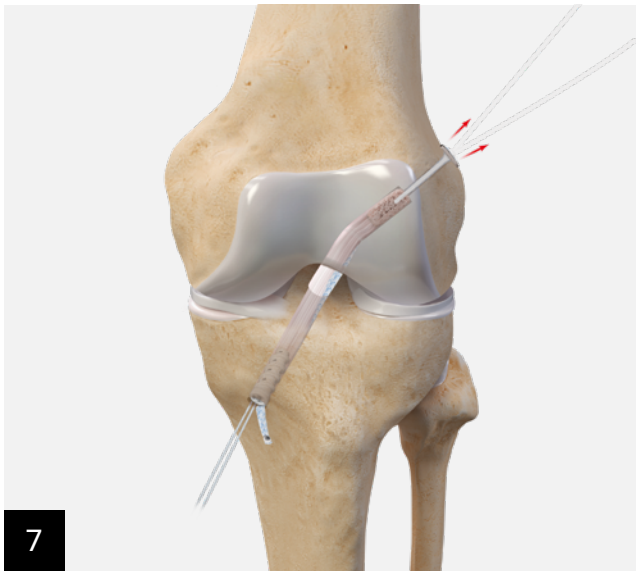
Use the spade-tip drill from the ACL Backup Kit to drill into the tibia to the depth of the drill collar. This represents an approximate 20 mm depth.



Use the disposable 5.2 mm tap to prepare the drill hole.



With the leg in full extension, pass the FiberTape® suture through the eyelet of the 4.75 mm BioComposite SwiveLock® anchor. Push the anchor into the drill hole until the eyelet is fully seated. Maintain tension on the suture limbs and screw the biocomposite anchor into the tibia. After removing the driver, keep the knee in extension and remove the retention suture from the anchor.



Fix the tibial side of the graft with a BioComposite FastThread™ screw. After the knee is cycled several times, the femoral TightRope® sutures can be retensioned with the knee in extension. Cut the femoral TightRope suture shortening strands.
Note: An open TightRope ABS implant and appropriate concave ABS button can be used for tibial fixation if an all-inside technique is preferred. In this case, tie the tibial TightRope II sutures over the button to protect the TightRope loop.

Ordering Information

Implants

Product Description	Item Number
TightRope® Implants	
TightRope II BTB Implant, with deploying suture	AR-**1588BTB-2J**
TightRope II BTB Implant, with FiberTape® suture for *Interna*lBrace™ technique	AR-**1588BTB-IB**
TightRope II ABS Implant	AR-**1588TN-20**
TightRope II ABS Implant, open	AR-**1588TN-21**
ABS Buttons	
TightRope ABS Button, 11 mm	AR-**1588TB-3**
TightRope ABS Button, 14 mm	AR-**1588TB-4**
TightRope ABS Button, 20 mm	AR-**1588TB-5**
BioComposite FastThread™ Interference Screws	
6 mm × 20 mm (used with 6 mm driver)	AR-**4020C-06**
7 mm - 10 mm × 20 mm Screws	AR-**4020C-07 – 10**
7 mm - 12 mm × 30 mm Screws	AR-**4030C-07 – 12**
PEEK FastThread Interference Screws	
6 mm × 20 mm (used with 6 mm driver)	AR-**4020P-06**
7 mm - 10 mm × 20 mm Screws	AR-**4020P-07 – 10**
7 mm - 12 mm × 30 mm Screws	AR-**4030P-07 – 12**
ACL Backup Kits	
ACL Backup Fixation System, BioComposite	AR-**1593-BC**
ACL Backup Fixation System, PEEK	AR-**1593-P**

FastThread Instruments

Product Description	Item Number
Ratcheting SlapDriver	
SlapDriver, ratcheting, quick connect handle	AR-**1999SD**
Quick Connect Drivers	
Quick Connect Driver, for 20 and 30 mm screws (hexalobe)	AR-**1996CD-1**
Quick Connect Driver, for 20 mm-length screws only (hexalobe)	AR-**4020D-1**
Quick Connect Driver, extended-length shaft (hexalobe)	AR-**1996CDL-1**
Quick Connect Driver, for 20 mm-length screws only (hexalobe)	AR-**4020DF**
Quick Connect Driver, for 6 mm-diameter screws (trilobe)	AR-**4019D-1**
Fixed SlapDrivers	
SlapDriver, fixed, for 20 mm- and 30 mm-length screws only (hexalobe)	AR-**1996SD**
SlapDriver, fixed, for 20 mm screws only (hexalobe)	AR-**4020SD**
SlapDriver, fixed, for 6 mm-diameter screws only (trilobe)	AR-**4019SD**

FlipCutter® Drilling Option

Product Description	Item Number
FlipCutter III Drill, 6 mm - 12 mm	AR-**1204FF**
RetroConstruction™ Drill Guide Set	AR-**1510S**

Flexible Reamer Option

Product Description	Item Number
Curved Guide, for flexible pins	AR-**1800F**
TightRope® Drill Pin, flexible	AR-**1298FLX**
Reamer, flexible, 7 mm - 11 mm, with flexible guide pin	AR-**1400F-70** – AR-**1400F-110**
Reamer, flexible, with flexible TightRope drill pin, 7 mm - 11 mm	AR-**1401F-70** – AR-**1401F-110**

Low-Profile Reamer Option

Product Description	Item Number
Reamer, low-profile, 5 mm - 11 mm	AR-**1405LP** – AR-**1411LP**
ACL TightRope Drill Pin, open eyelet, 4 mm	AR-**1595T**
ACL TightRope Drill Pin, closed eyelet, 4 mm	AR-**1595TC**

Accessories

Product Description	Item Number
Suture Retriever	AR-**12540**
FiberWire® Cutter	AR-**12250**
TightRope Suture Cutter	AR-**4520**
#2 FiberWire Suture, 2 strands (1 blue, 1 white / black), 96.5 cm	AR-**7201**
#2 FiberLoop® Suture	AR-**7234**
#2 TigerLoop™ Suture	AR-**7234T**
FiberStick™ Suture, #2 FiberWire suture, blue, 1 end stiffened, 127 cm	AR-**7209**
GraftPro® Graft Preparation System	AR-**2950DS**

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 your Arthrex representative if you have questions about the availability of products in your area.

References

1. Arthrex, Inc. Data on file (LA1-00038-EN_B). Naples, FL; 2017.
2. Arthrex, Inc. Data on file (APT-G01155). Munich, Germany; 2020.
3. Nye DD, Mitchell WR, Liu W, Ostrander RV. Biomechanical comparison of fixed-loop and adjustable-loop cortical suspensory devices for metaphyseal femoral-sided soft tissue graft fixation in anatomic anterior cruciate ligament reconstruction using a porcine model. *Arthroscopy*. 2017;33(6):1225-1232.e1. doi:10.1016/j.arthro.2016.12.014

*Internal*Brace™ surgical technique is intended only to support the primary reconstruction and is not intended as a replacement for the standard of care using biologic augmentation in a primary reconstruction. *Internal*Brace surgical technique is intended only for soft-tissue-to-bone fixation and is not cleared for bone-to-bone fixation.

Arthrex®

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 and/or outcomes.

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