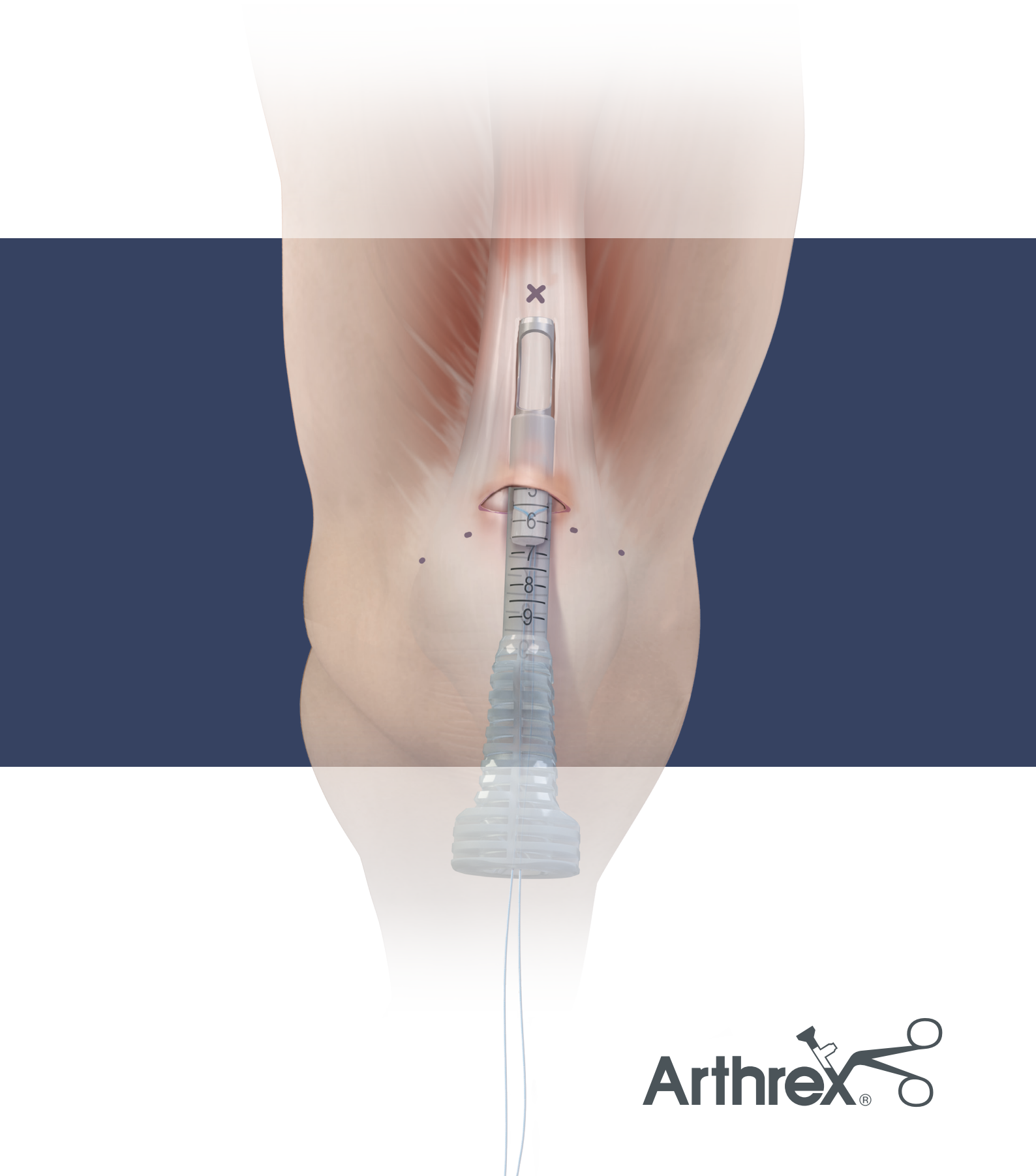
QuadPro™ Tendon Harvester

Surgical Technique



Arthrex®

QuadPro™ Tendon Harvester

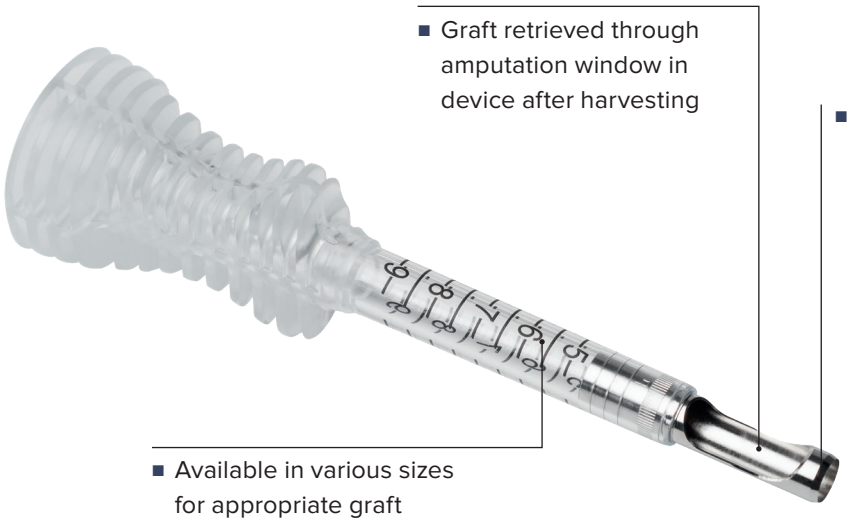
Introduction

“Quadricep tendon grafts offer unique benefits for cruciate ligament reconstruction, such as a predictably large diameter, low-morbidity, and a preferable stiffness profile for knee ligament reconstruction. The QuadPro™ tendon harvester is the latest innovation for harvesting the quadriceps tendon with a minimally invasive technique. It was designed based on published anatomic studies and allows surgeons to safely harvest a graft of a desired length and diameter through a small incision and in a time-efficient manner. The system has the versatility to create grafts to meet the surgeon’s needs whether it be all soft tissue, with a bone block, all-inside, or transtibial. The single-use design ensures sharpness, sterility, and convenience for every case.”

- John William Xerogeanes, MD

Quadriceps tendon ACL reconstruction (ACLR) continues to be one of the fastest growing ACLR techniques performed worldwide. The clinical benefits of quadriceps tendon grafts–including robust and predictable graft sizing, superior biomechanics, equivalent or superior clinical outcomes to other grafts, low-morbidity, and improved cosmesis–are now supported in a number of clinical and biomechanical studies as well as systematic reviews. **(LA1-00100-EN Quad Tendon ACL Reconstruction Scientific Update)**

Overview



The *Internal*Brace™ surgical technique is intended only to augment the primary repair/reconstruction by extending the area of tissue approximation during the healing period and is not intended as a replacement for the native ligament. The *Internal*Brace technique is for use during soft tissue-to-bone fixation procedures and is not cleared for bone-to-bone fixation.



The QuadPro™ tendon harvester was developed to further Arthrex's commitment to Helping Surgeons Treat Their Patients Better™. It was specifically engineered to allow for efficient, safe graft harvesting while reducing the morbidity and challenges associated with traditional harvesting techniques.

Reproducible Graft Sizing:

- Available in various sizes for appropriate graft diameter (8 mm, 9 mm, 10 mm, and 11 mm)
- Sharp cylindrical tip harvests a round, true-to-size graft
- Clear handle with graduations to determine graft length

Minimally Invasive Technique:

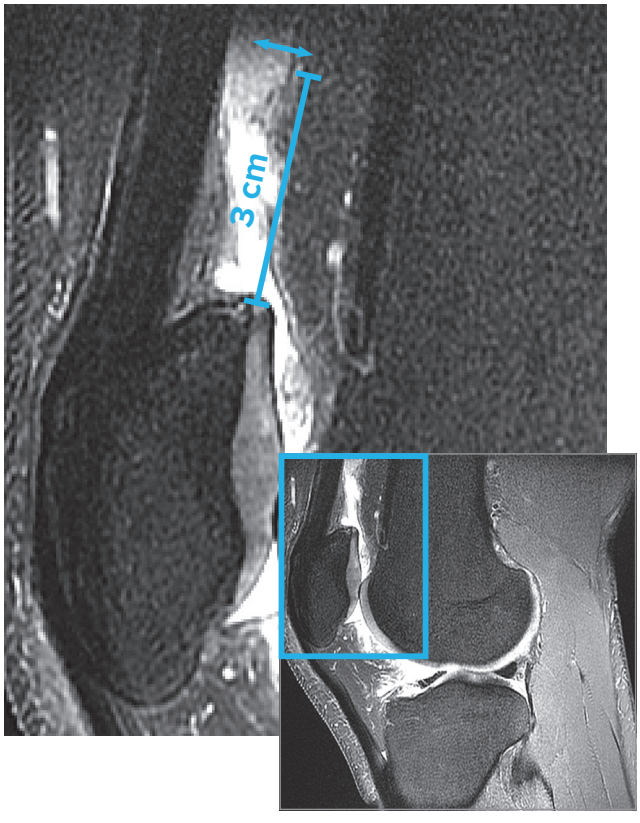
- Minimal incision and dissection required
- Reduces procedure time and graft-site morbidity

Graft Amputation:

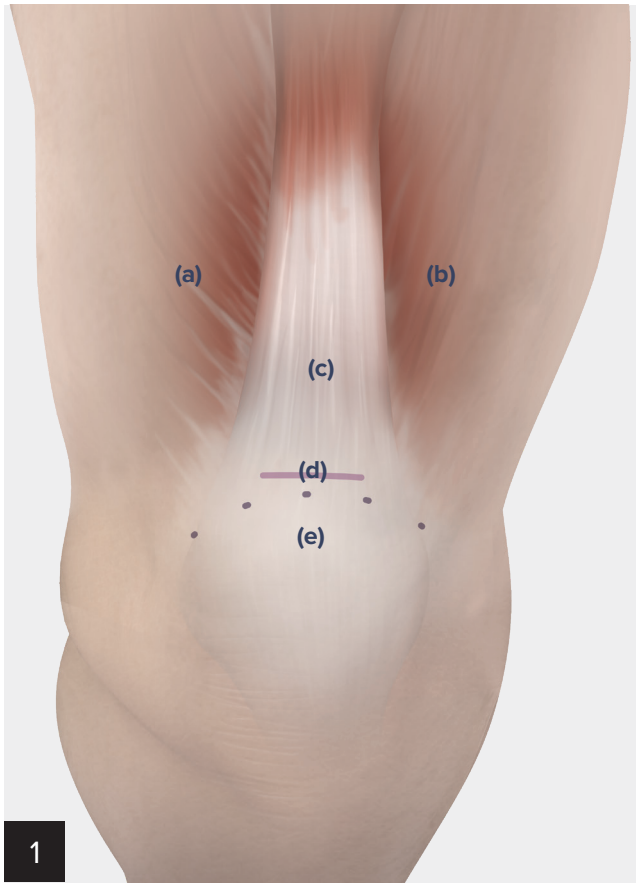
- Graft retrieved through amputation window in device after harvesting
- Sharp cutting edge in window amputates graft when push rod is completely deployed

Preoperative Planning

Patients who are at least 5 ft tall should be able to provide graft lengths of 7 cm to 8 cm in length. Midsagittal MRI measurements (measured 3 cm proximal to the patella) will help determine graft thickness. A partial-thickness graft can be harvested if the tendon is over 7 mm thick. If the tendon is 7 mm or less, a full-thickness graft will likely be taken.



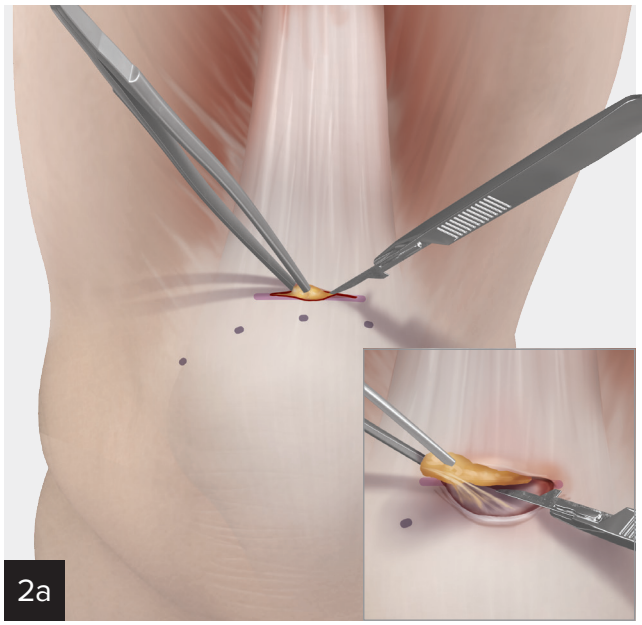
Patient Positioning and Landmark



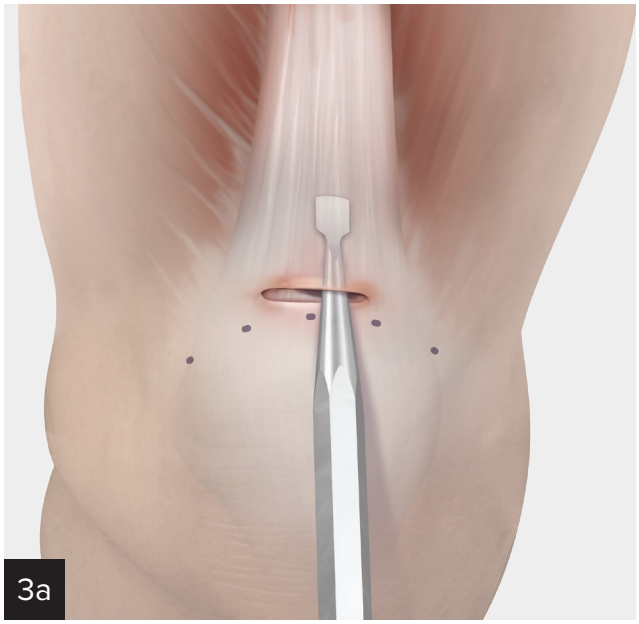
The knee should be flexed to 90˚, which will place tension on the quad and facilitate harvesting. Palpate and identify the following areas:

- Vastus medialis **(a)**
- Vastus lateralis **(b)**
- Quadriceps tendon **(c)**
- Incision line **(d)**
- Superior pole of the patella **(e)**

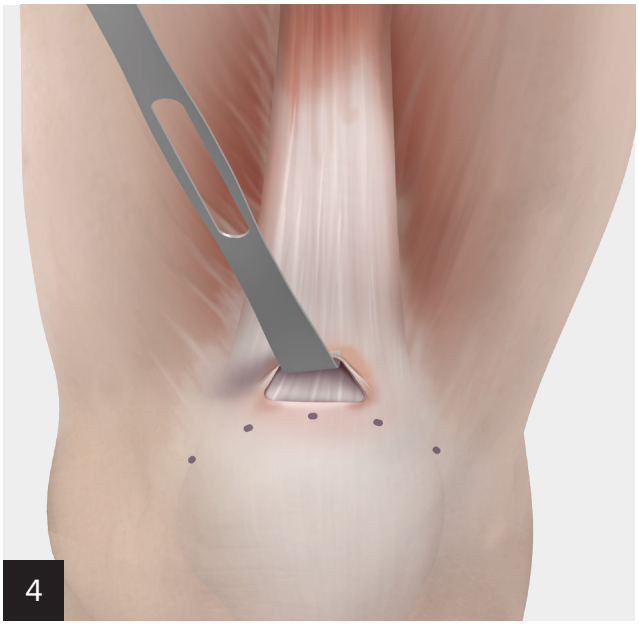
Incision and Dissection

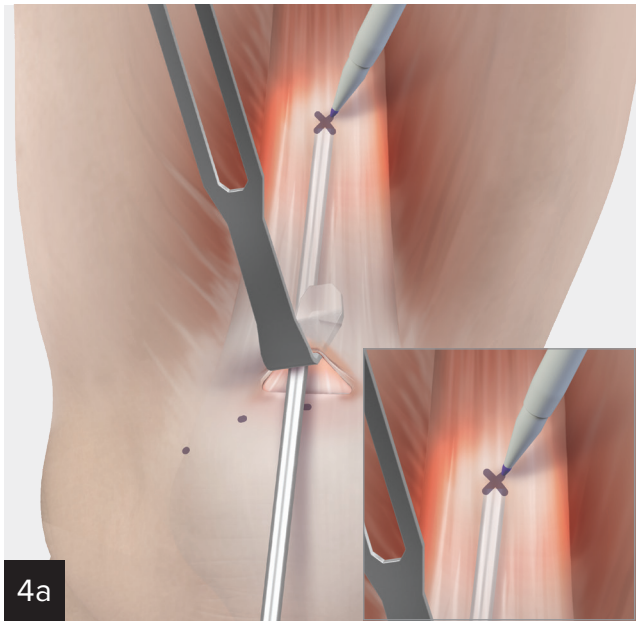


Make a 2 cm-transverse incision 1 cm to 2 cm superior to the patella. After making the skin incision, fat can be dissected and removed proximally and distally from the incision. Bluntly dissect until the distal 8 cm of the quadriceps tendon and proximal half of the patella can be felt and adhesions are removed.

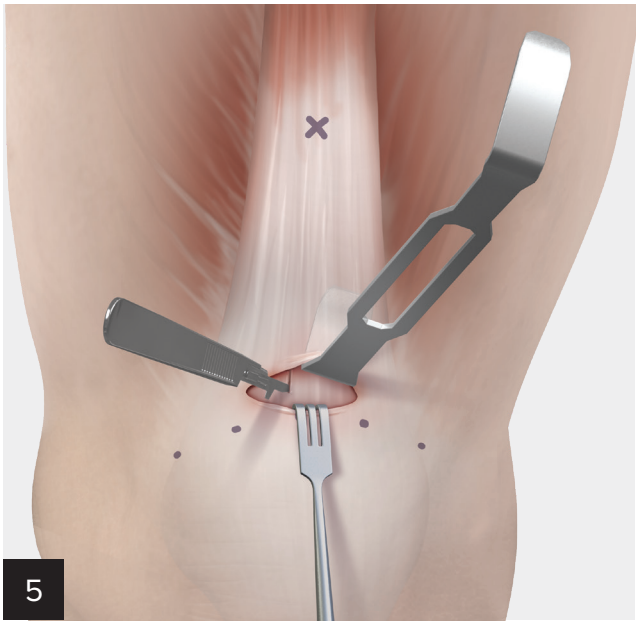


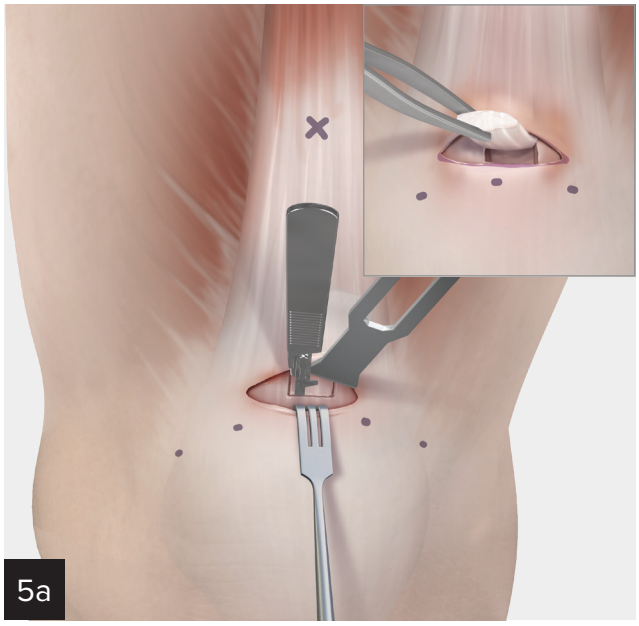
Use a 4 in × 4 in gauze to remove residual fat within the incision, and use a key elevator to clear soft tissue proximally and distally.





Use a retractor to lift the skin while guiding an arthroscope proximal to visualize the tendon. Identify the VMO and stay lateral to this landmark. Advance the scope proximally until the musculotendinous junction of the rectus femoris is visualized. Turn the lens of the scope toward the skin so the light can be seen through the skin. This is the proximal limit of the graft and marks the direction of the graft harvest. Mark the skin at this point for reference.

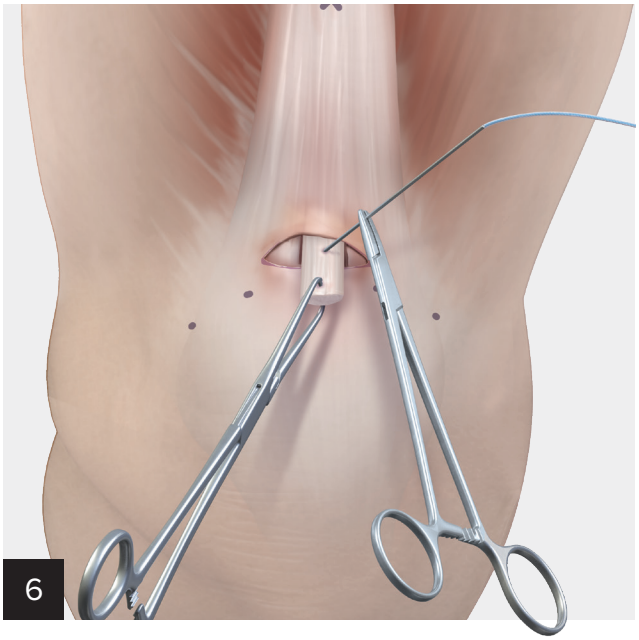


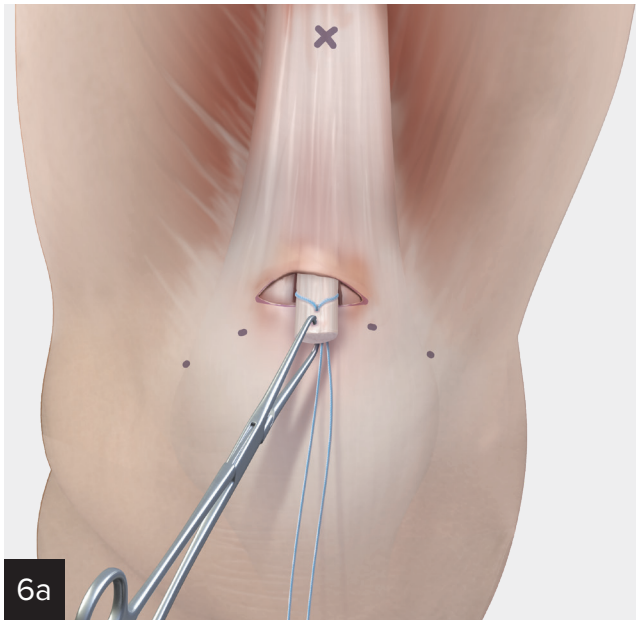


The QuadPro™ tendon harvester may be provisionally placed at the distal aspect of the tendon just adjacent to the patella in order to approximate the width of the longitudinal graft harvest incisions. The width between incisions should correlate with the desired graft diameter. Make the longitudinal incisions and continue distally toward the patella until bone is contacted.

Note: Approximately 1 cm to 2 cm of tendon length must be dissected and released. It is important to size the diameter of the released graft appropriately for the preferred harvester size. A graft that is too large in diameter may not fit in the tip of the harvester.

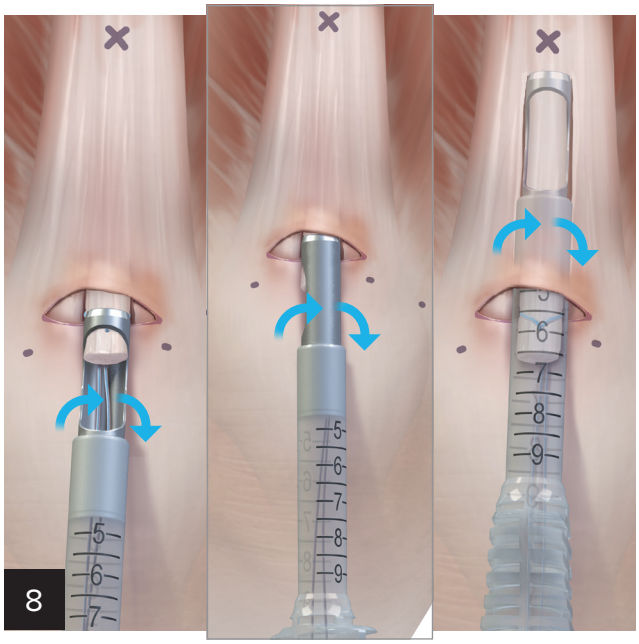
Placing a Tagging Stitch





Use a FiberLoop® SutureTape or FiberLoop suture to place a SpeedWhip™ suture 1 cm from the end of the graft. This suture functions as a tagging suture and is used to maintain tension on the graft during tendon harvesting.

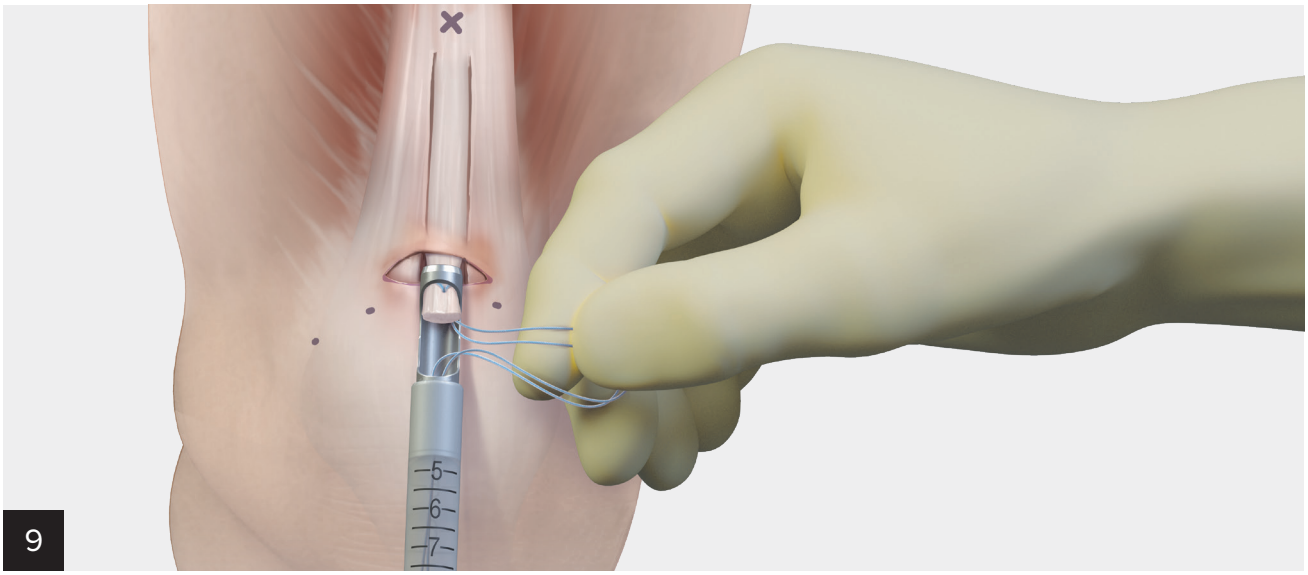
Use the weight of the FiberLoop® needle to pull sutures through the cannulation of the QuadPro™ tendon harvester. With the knee held at 90˚ of flexion, keep steady tension and advance the QuadPro harvester up to the tendon. If resistance is felt, place the knee between 30° and 60° of flexion to reduce tension on the quad tendon during harvest. Overtensioning the tendon may increase the risk of transecting the fibers.



Pull the tendon into the tip of the harvester, ensuring the tagging suture is not cut by the tip of the harvester. Keep steady, gentle tension on the suture and begin rotating the QuadPro harvester while advancing up the tendon, directing the harvester toward the proximal mark on the skin.

Note: Using controlled, quarter-turn rotations in the same direction or, alternatively, by rotating the harvester back and forth during the stripping process will allow for an easier advancement of the device compared to a pushing technique.

Graft Amputation



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Once the desired graft length has been stripped, withdraw the QuadPro™ tendon harvester from the incision and retrieve the graft through the graft amputation window by grasping the tagging sutures.


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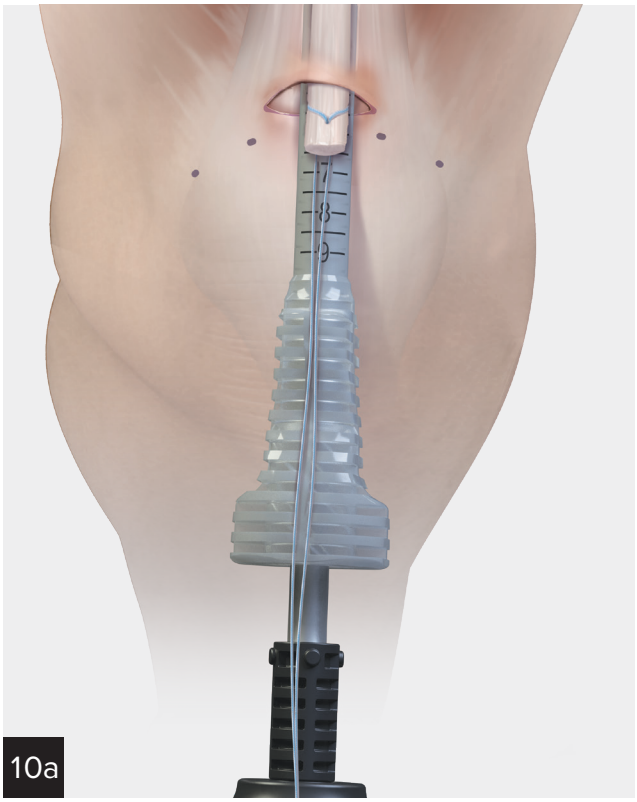
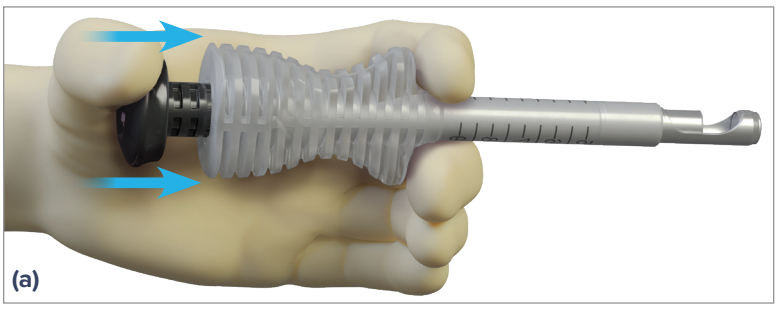
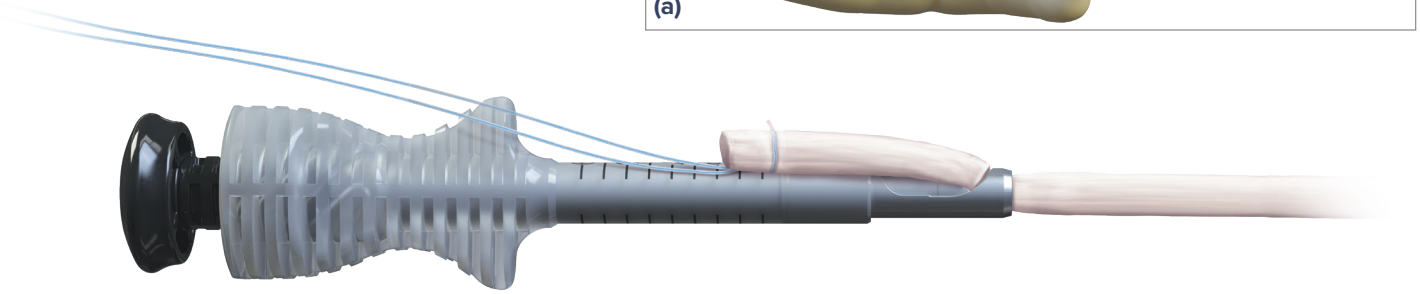

10a

Advance the QuadPro tendon harvester back into the incision. When the appropriate graft length is reached, insert the push rod into the harvester **(10a)**. Keep tension on the tagging suture while maintaining the position of the harvester.





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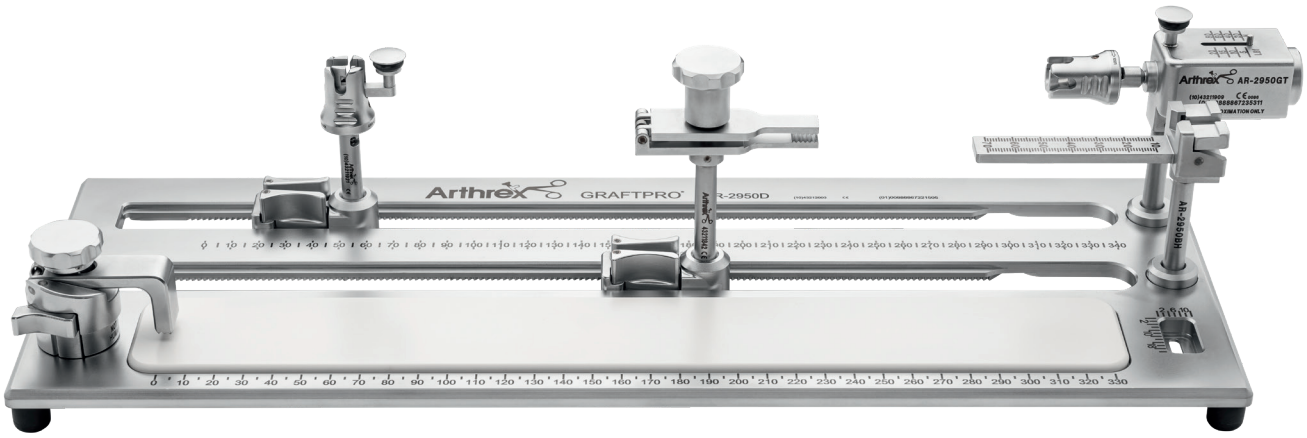
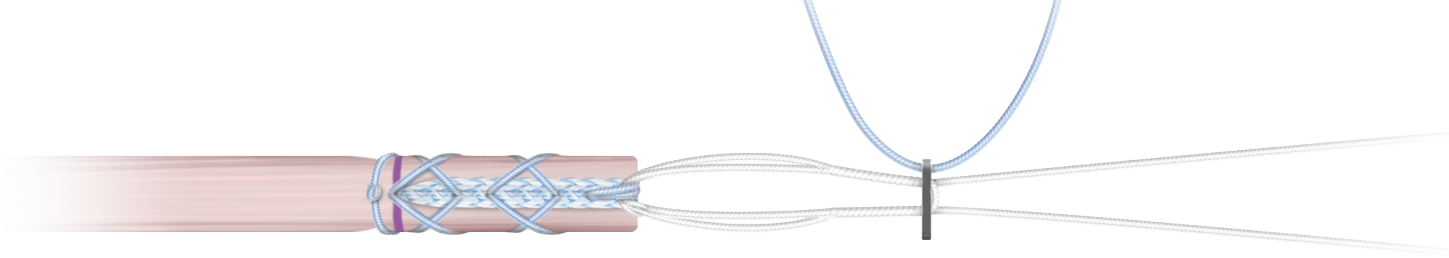
Advance the push rod forward to amputate the graft. Deploying the push rod into the handle using a syringe-type motion will allow for an easy amputation **(a)**.

Note: During amputation of the graft, it is important to maintain visualization of the harvested length to ensure the graft is not cut short.

Additional Products for Quad Tendon ACL Reconstruction

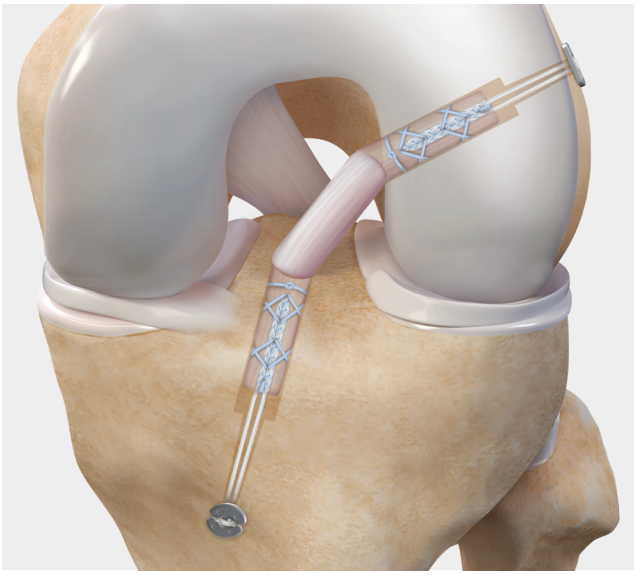


- **GraftPro® Graft Preparation System:** The GraftPro system has numerous features that simplify and accelerate graft preparation of quad tendon, BTB, and GraftLink® technique grafts.



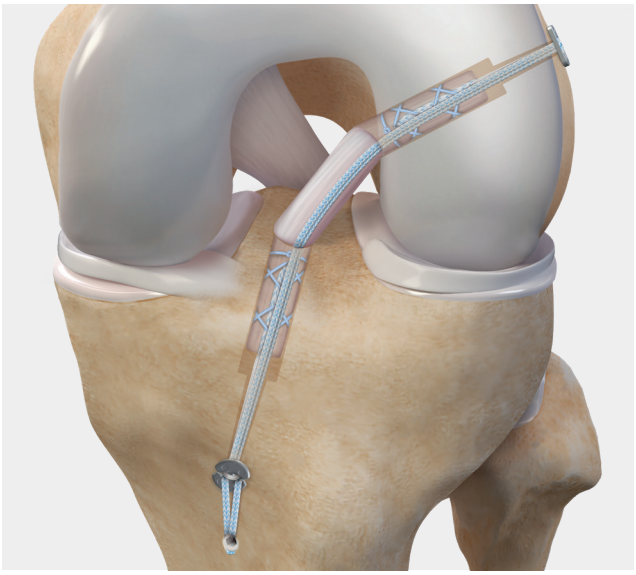
- **FiberTag® TightRope® Implant:** The all-inside ACL technique is ideal for quadriceps grafts. The FiberTag TightRope and FiberTag TightRope ABS implants were specifically designed for quadriceps tendon grafts.

- **FlipCutter® III Drill:** The new, innovative FlipCutter III drill is an adjustable, variable-size, all-in-one guide pin and reamer that allows minimally invasive socket creation from the inside out. The FlipCutter III drill simplifies technique and cost with quadriceps tendon grafts in which each end may be slightly different in size.



QuadLink™ All-Inside Construct: Provides the ultimate in anatomic, minimally invasive, and reproducible ACLR. Used in combination with anatomic guides, the FlipCutter III drill allows independent femoral and tibial retrograde drilling to create sockets while maintaining the cortices to maximize fixation and bone preservation.

- The FiberTag TightRope implant offers improved performance and reliability and reduces overall graft preparation time for quadriceps tendon grafts. FiberTag suture is integrated into the TightRope implant for a strong, consistent connection between the suture and TightRope implant loop.



QuadLink all-inside construct with a FiberTape® suture for the *Internal*Brace™ technique

Ordering Information

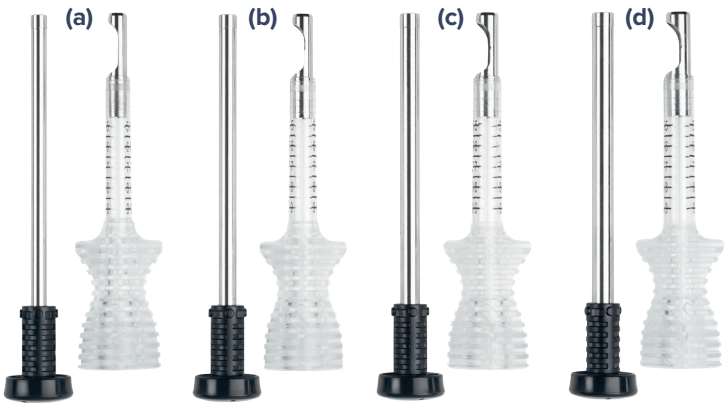
QuadPro™ Tendon Harvester

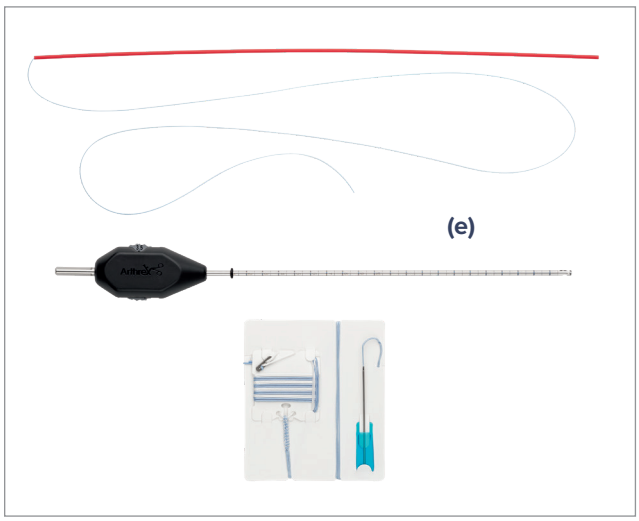
Product Description	Item Number
QuadPro Tendon Harvester, 8 mm **(a)**	AR-**2386-08**
QuadPro Tendon Harvester, 9 mm **(b)**	AR-**2386-09**
QuadPro Tendon Harvester, 10 mm **(c)**	AR-**2386-10**
QuadPro Tendon Harvester, 11 mm **(d)**	AR-**2386-11**

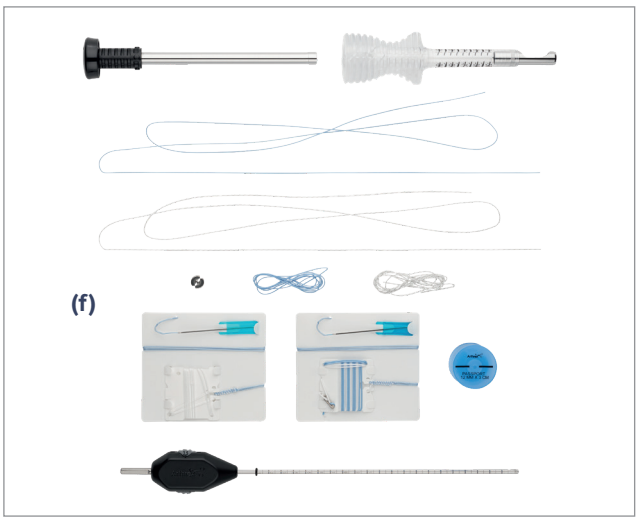
Optional

Product Description	Item Number
FiberTag® TightRope® Implant, FlipCutter® III Drill, and FiberStick™ Implant System **(e)**	AR-**1288RTT-FC3**
QuadLink™ Implant Systems	
QuadLink Implant System, 8 mm	AR-**1288QIS-80**
QuadLink Implant System, 9 mm	AR-**1288QIS-90**
QuadLink Implant System, 10 mm **(f)**	AR-**1288QIS-100**
QuadLink Implant System, 11 mm	AR-**1288QIS-110**
QuadPro Tendon Harvester and FiberTag® TightRope® Implant System Kit	
ACL FiberTag TightRope Implant System, 8 mm	AR-**1288QT-80**
ACL FiberTag TightRope Implant System, 9 mm	AR-**1288QT-90**
ACL FiberTag TightRope Implant System, 10 mm	AR-**1288QT-100**
ACL FiberTag TightRope Implant System, 11 mm	AR-**1288QT-110**

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.







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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