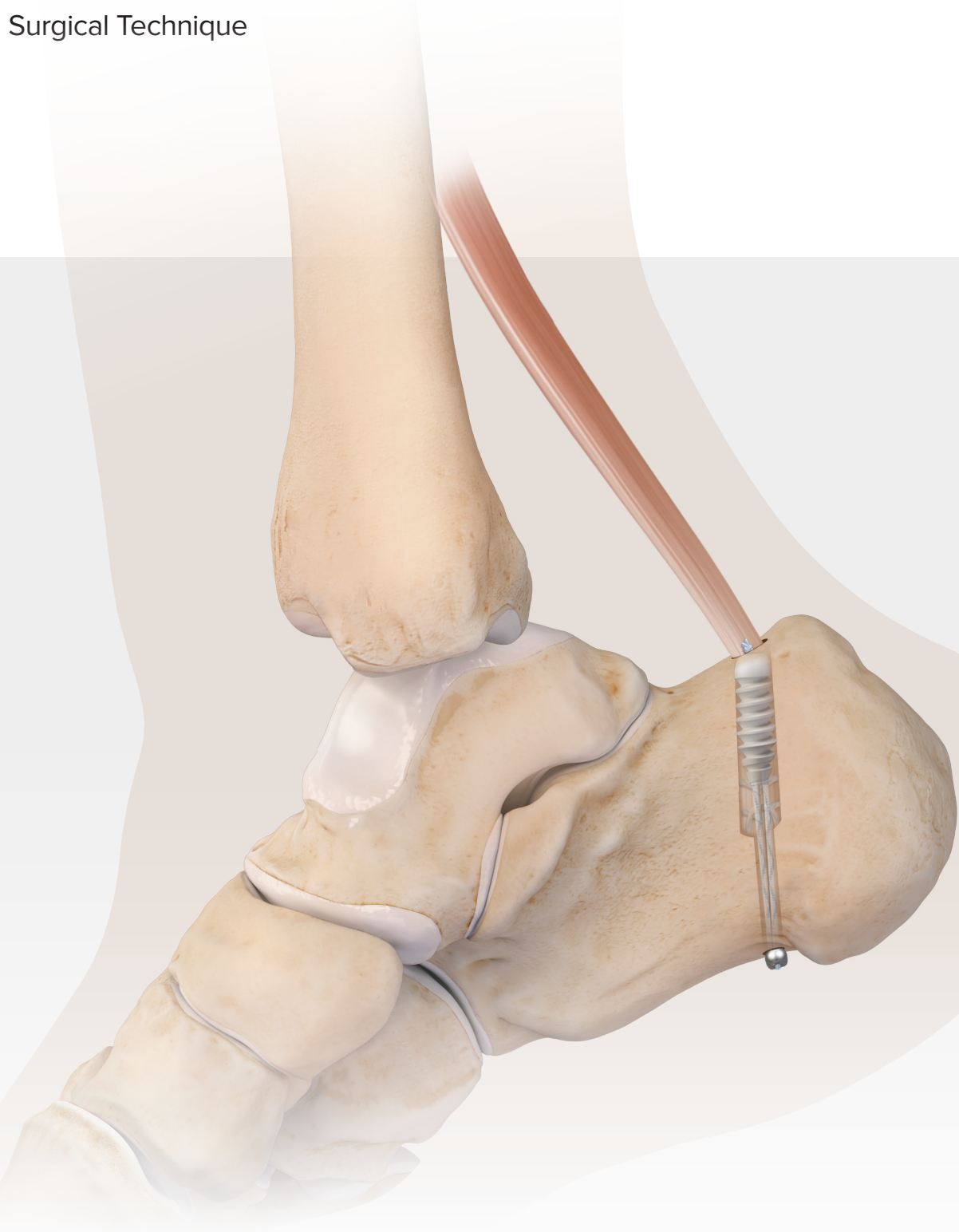


Flexor Hallucis Longus Tendon Transfer With DX Button and Tension-Slide Technique

Surgical Technique



Flexor Hallucis Longus (FHL) Tendon Transfer Using the DX Button and Tension-Slide Technique

Introduction

FHL tendon transfer using the DX button and tension-slide technique allows the surgeon to tension the FHL through a single posterior incision. The combination of cortical button fixation and a BioComposite Tenodesis screw allows for a precise and strong anatomic construct.¹

Advantages

- > Less tendon harvest graft
- > Maximize tendon-to-bone contact
- > Low-profile fixation
- > No plantar poke hole or incision
- > Excellent (299N) ultimate load to failure¹
- > Less dissection

Procedures

- > FHL tendon transfer for chronic Achilles tendinosis
- > Insertional Achilles tendinopathy
- > Chronic Achilles tendon insertional tear

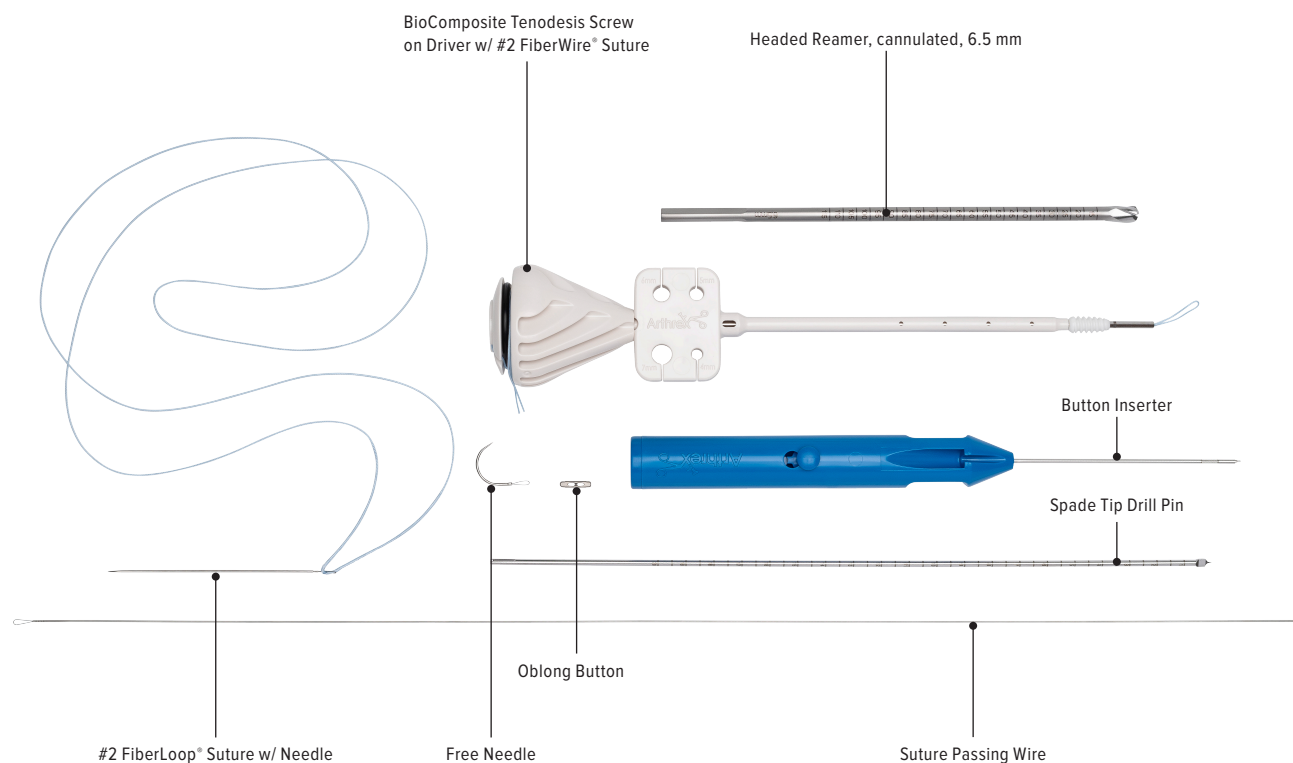
Other Techniques

- > Posterior tibialis tendon transfer
- > Tibialis anterior rupture repair

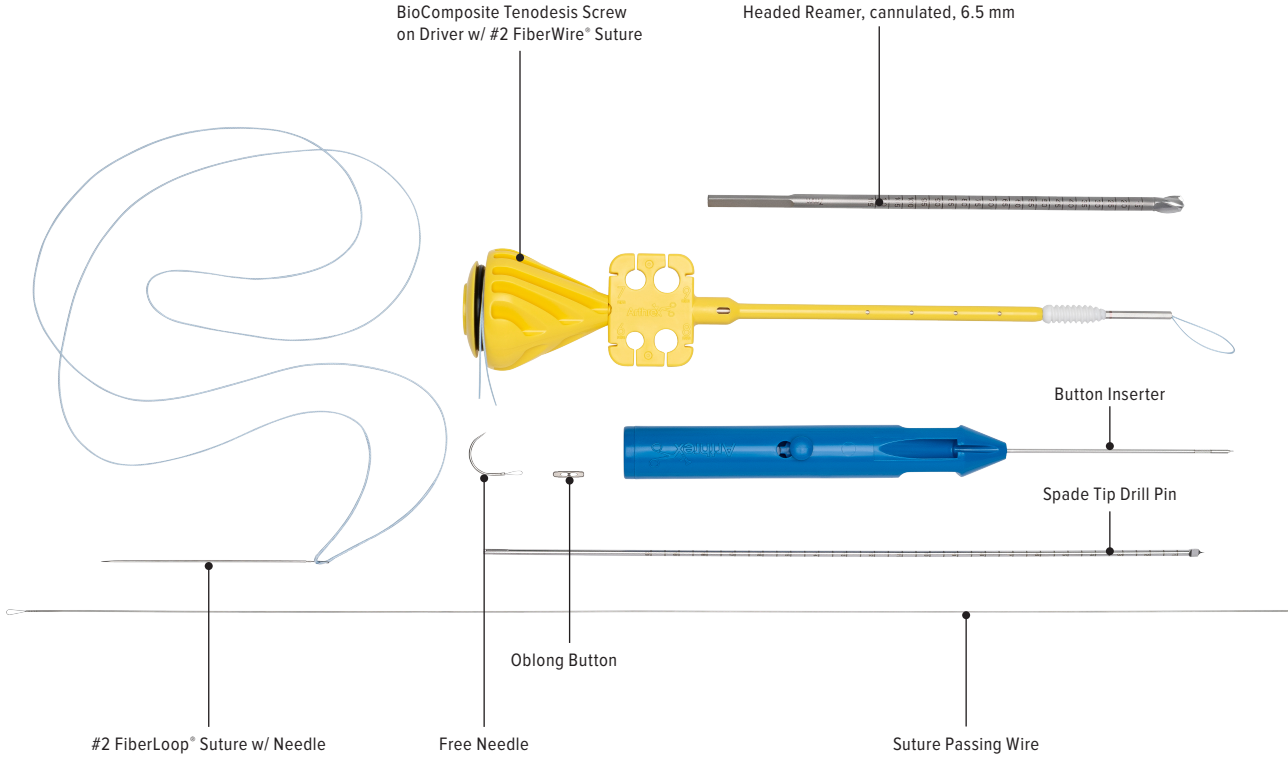
Reference

1. Arthrex, Inc. APT 04032. Naples, FL; 2018.

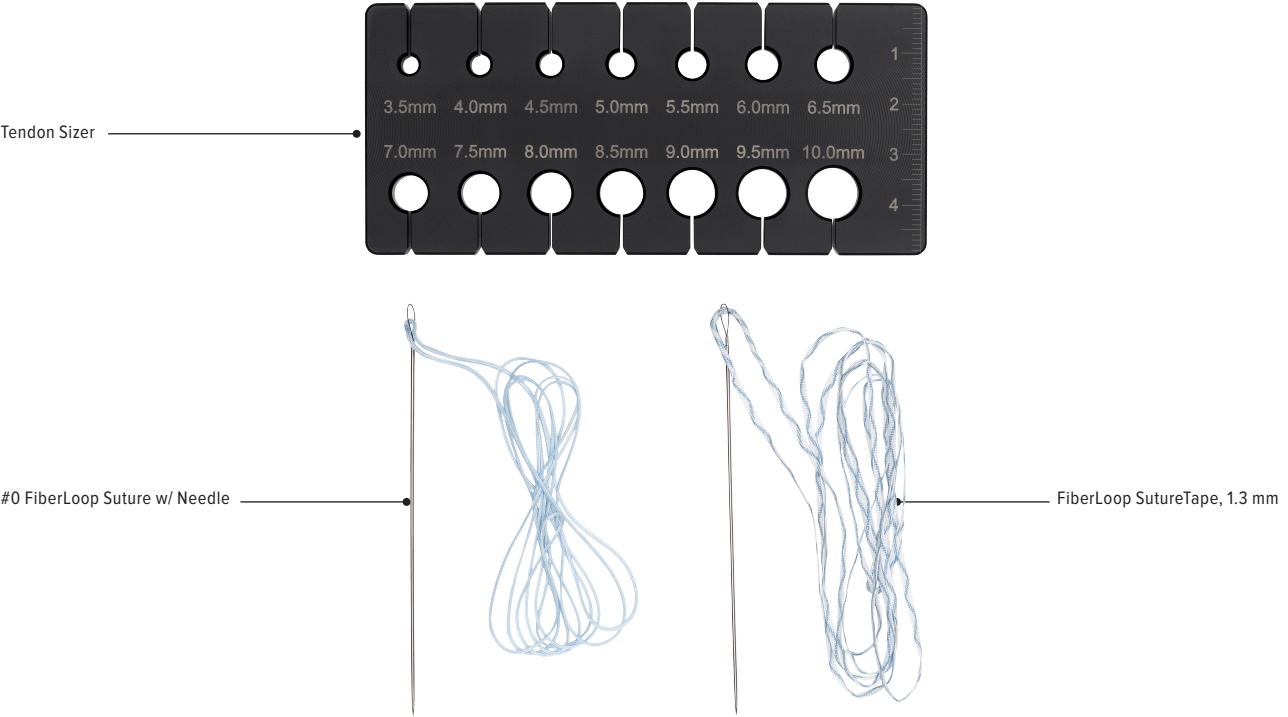
FHL Implant System, 6.25 mm



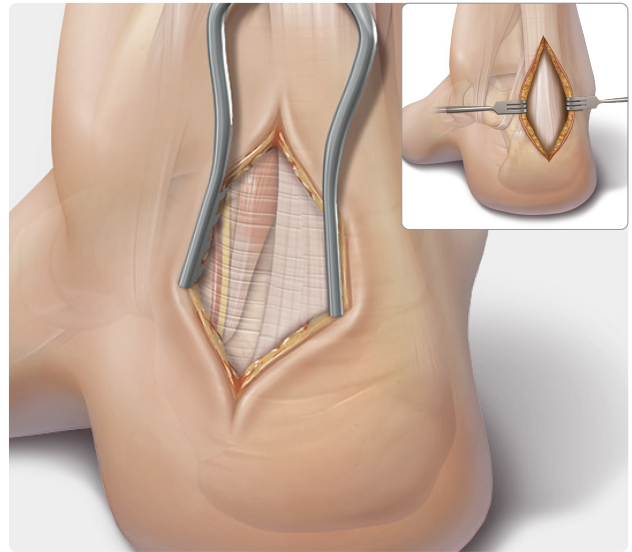
FHL Implant System, 7.0 mm



Tenodesis Graft Sizing Kit

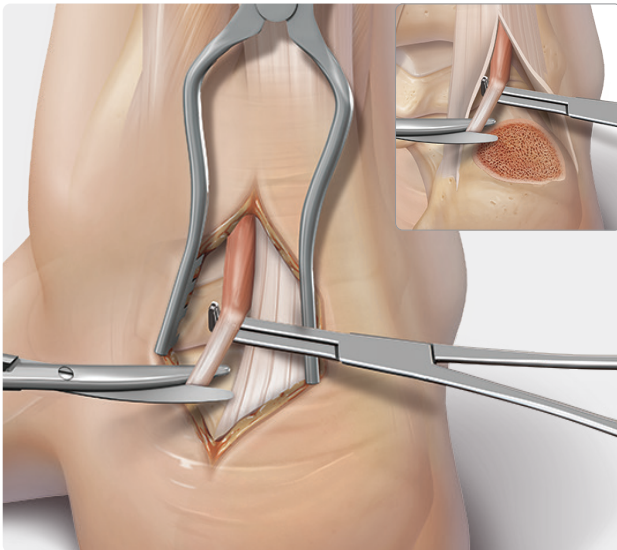


Tendon Preparation



1

Place the patient in a prone position on the operating room table under general anesthesia. A tourniquet may be applied at the surgeon's discretion. Make a 5 cm to 7 cm longitudinal incision just medial to the Achilles tendon. If this procedure is performed in conjunction with insertional pathology, a midline incision can be used.



2

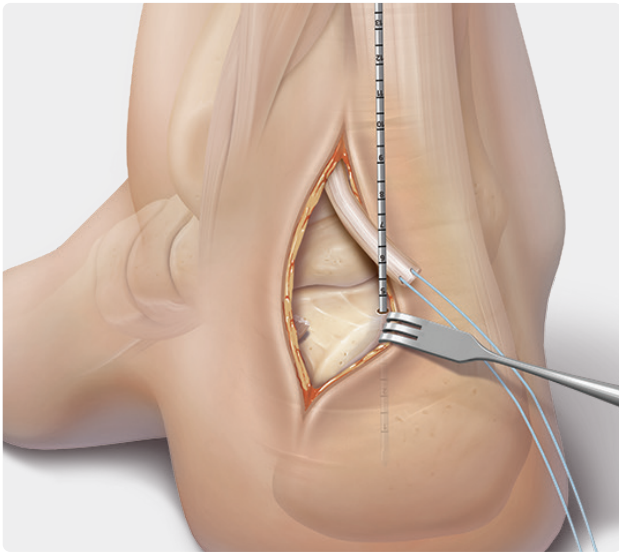
Use fine scissors to make the incision deeper through the fascia until the FHL tendon and its muscle belly are identified, as confirmed by flexion and extension of the hallux. Retract the neurovascular bundle and open the fibroosseous tunnel to expose enough tendon. Cut the FHL as distal as possible.



3

Place a traction stitch through the tendon using a #2 FiberWire® suture or #2 FiberLoop® suture. Use the traction stitch to size the tendon through one of the holes on the tendon sizer. Based on the tendon diameter, open either the 6.25 mm × 15 mm or 7 mm × 23 mm FHL implant system.

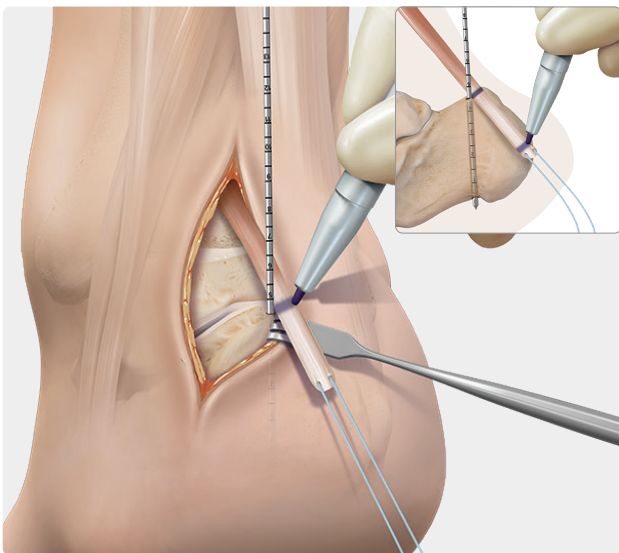
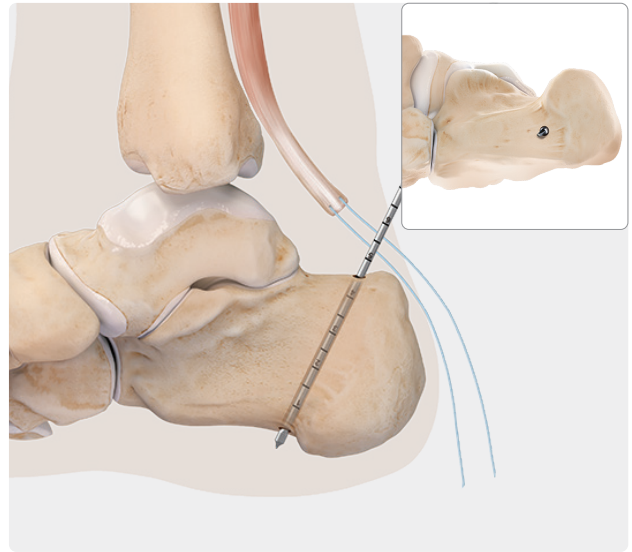
Calcaneus Preparation



4

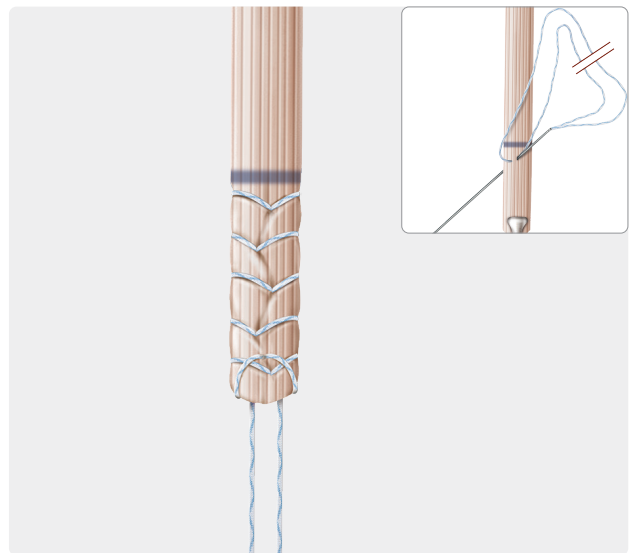
On the superior calcaneus, approximately 1 cm anterior to the Achilles tendon insertion, drill the 3.2 mm spade tip drill pin bicortical aiming 1 cm anterior to exit the plantar surface in the midline of the calcaneus (weight-bearing surface) and centered medial to lateral.

Note: Fluoroscopy is recommended to ensure the 3.2 spade tip pin just breaches the plantar cortex. It is important to make sure the drill does not exit along the plantar posterior tuberosity.



5

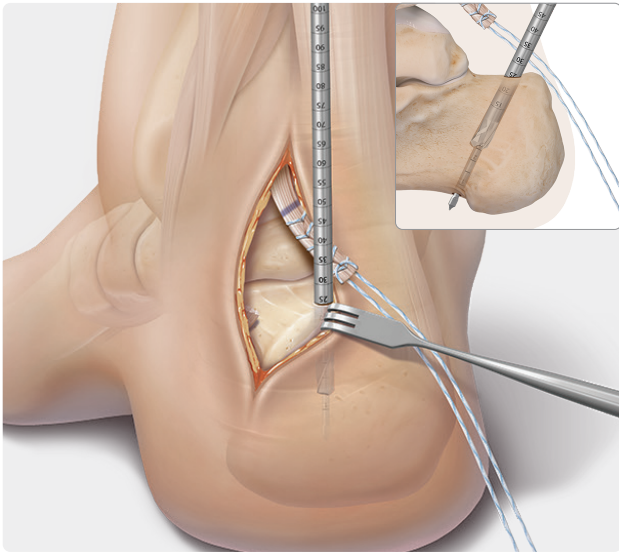
Plantar flex the foot and pull the traction stitch so that the FHL tendon is at appropriate tension at the interface of the bone and drill pin. With a marking pen, mark the entry point of the tendon and determine the length of the tendon that will pass into the tunnel: this will be either 15 mm or 23 mm, depending on the choice of the 6.25 mm × 15 mm or 7 mm × 23 mm tenodesis screw. Please mark the tendon at this point for preparation with the FiberLoop® suture.



6

Using an Allis clamp to secure the end of the tendon, speed whipstitch with the FiberLoop® SutureTape the previously marked areas and lock the construct by making the final pass proximal to the previous pass and having the needle exit through distal tip of tendon. Cut the FiberLoop suture near the needle to provide long suture limbs to pass through the DX button. Remove the traction stitch and any tendon past the second mark and bulletize the tip of the tendon.

Calcaneus Preparation (Cont.)

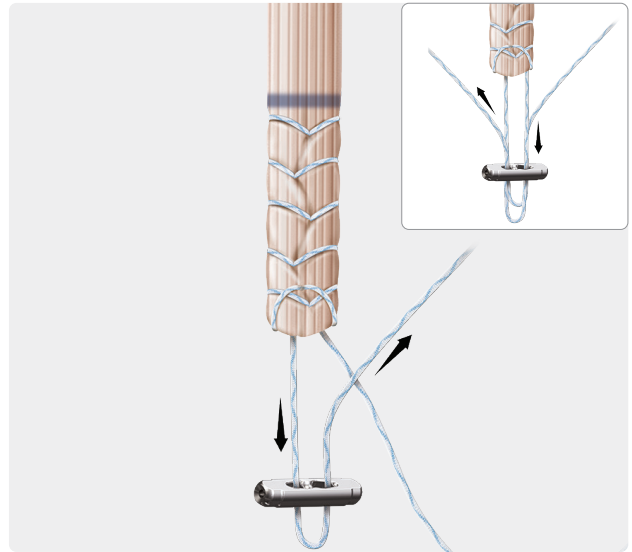


7

Using the reamer in the implant system, drill either 20 mm for the 6.25 mm tenodesis screw or 30 mm for the 7 mm tenodesis screw. Remove the spade tip drill pin. Irrigate to remove bone debris.

Note: When reaming over the 3.2 mm spade tip pin, make sure the pin does not push through the plantar fascia and skin.

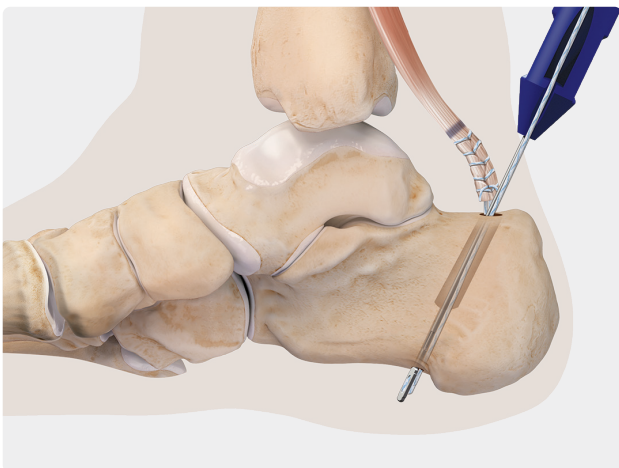
Button Loading



8

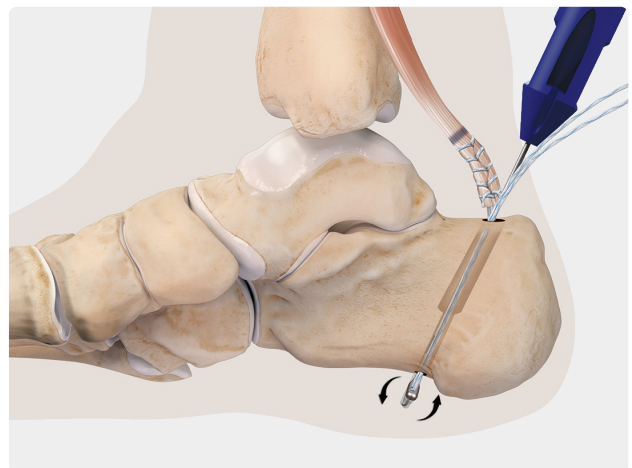
Thread one suture limb from the tendon whipstitch through one side of the 12 mm DX button and back through the opposite side with a straight needle. Thread the other suture limb through in the same manner, starting on the opposite side as the first limb. Make sure the suture limbs are not tangled, pulling each limb to ensure the button slides freely.

Button Passing



9

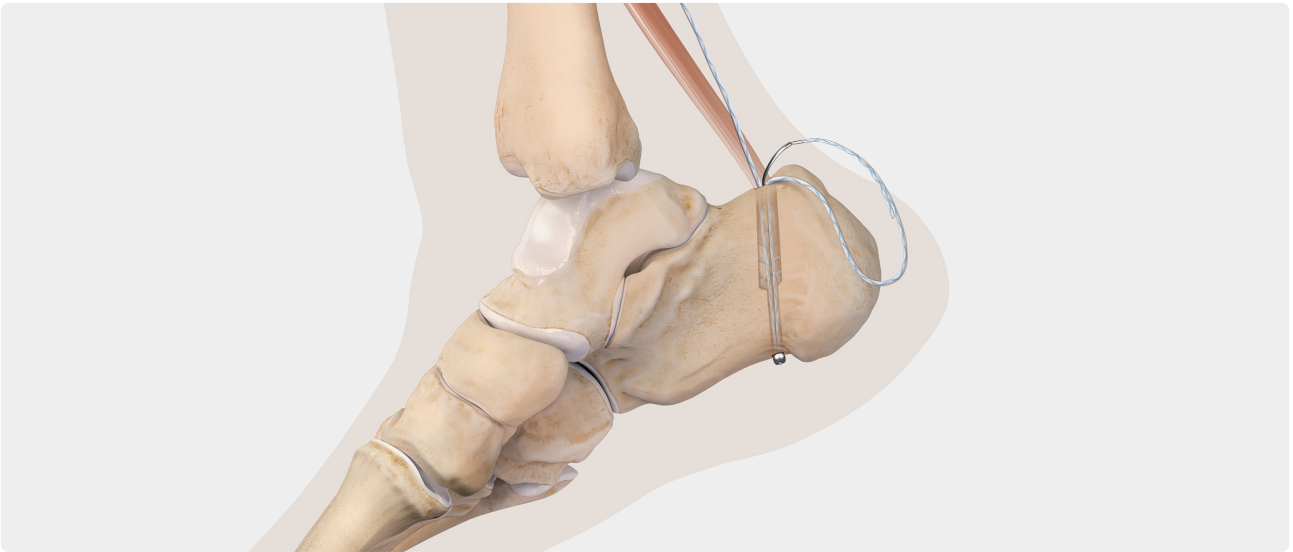
Hold tension on the suture limbs and insert the tip of the button inserter into the button. Hold tension on the sutures and insert the button through the calcaneus under fluoroscopy, ensuring it is deployed through both cortices. Pull the lever back on the inserter handle to release the button.



Note: Leave button inserter in the hole when pulling tension back on button.

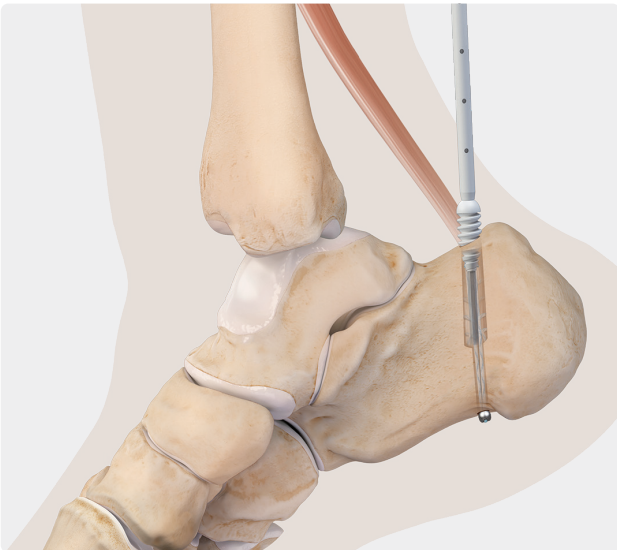
Pull on the free ends to seat the button against the plantar calcaneal cortex. Confirm with fluoroscopy that the button is in the appropriate position resting against cortical bone. Remove button inserter. Grasp each suture limb and slowly apply axial tension to dock the tendon into the bone tunnel.

Tensioning and Securing the Tendon



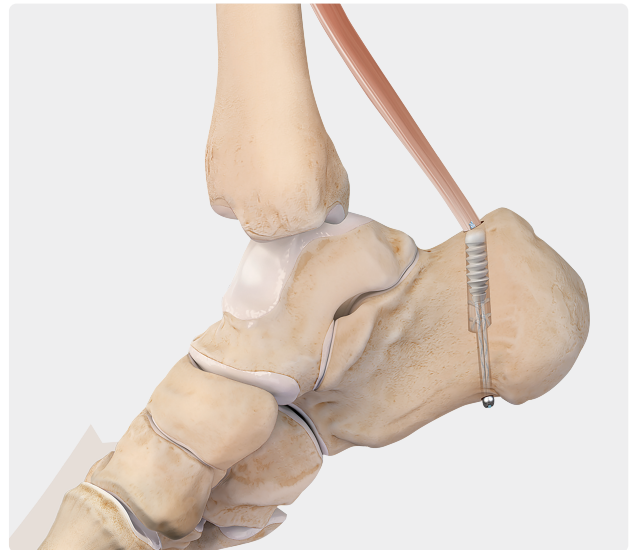
10

Once the tendon is fully seated, use the free needle and pass one suture limb through the tendon and tie 3 to 4 knots.



11

Insert a 6.25 mm or 7 mm tenodesis screw into the bone tunnel to secure it to the tendon. The screw should sit flush with the cortex. Cut the excess suture.



12

Final fixation.

Biologic Augmentation Options



VersaGraft®

The VersaGraft pre-sutured tendon is a preassembled, presized, sterile allograft tendon, used to achieve an anatomic reconstruction of the FHL tendon.

VersaGraft tendon

VRG-001



Amnion

Arthrex Amnion™ matrix is rich in growth factors and contains regenerative qualities that maintain the natural healing properties of amnion. Used as an anatomical barrier or wrap in a variety of orthopedic applications, Arthrex Amnion matrix provides essential biological and mechanical protection while helping prevent adhesions.



TenoWrap™ Collagen Tendon Wrap

TenoWrap wrap is resorbable type I collagen matrix that provides a nonconstricting encasement for injured tendons and provides a protected environment and gliding surface for the tendon sheath.

TenoWrap collagen tendon wrap, 16 mm × 2.5 cm

ABS-16025

Post-op Protocol

Place the patient in a posterior and stirrup splint postoperatively with the foot in plantar flexion but with enough tension on the transferred tendon to improve collagen alignment. After wound healing, the splint can be removed and active dorsi- and plantar flexion can begin as permitted. Weightbearing is generally delayed for 4 to 6 weeks per surgeon discretion.

Ordering Information

FHL Implant System, 6.25 mm	AR-1562BC-CP	Disposables Kit	AR-1676ST
<ul style="list-style-type: none">> Oblong Button, 2.6 mm × 12 mm> BioComposite Tenodesis Screw on Driver w/ #2 FiberWire® Suture, 6.25 mm × 15 mm> Spade Tip Drill Pin, 3.2 mm> Headed Reamer, cannulated, 6.5 mm> #2 FiberLoop® Suture w/ Needle, blue> Free Needle> Suture Passing Wire> Button Inserter		<ul style="list-style-type: none">> Tenodesis Graft Sizing Kit w/ FiberLoop® SutureTape> Tendon Sizer> #0 FiberLoop w/ Needle, blue> FiberLoop SutureTape, 1.3 mm	
FHL Implant System, 7 mm	AR-1570BC-CP		
<ul style="list-style-type: none">> Oblong Button, 2.6 mm × 12 mm> BioComposite Tenodesis Screw on Driver w/ #2 FiberWire Suture, 7 mm × 23 mm> Spade Tip Drill Pin, 3.2 mm> Headed Reamer, cannulated, 7 mm> #2 FiberLoop Suture w/ Needle, blue> Free Needle> Suture Passing Wire> Button Inserter			

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.



Arthrex manufacturer, authorized representative, and importer information (Arthrex eIFUs)



US patent information