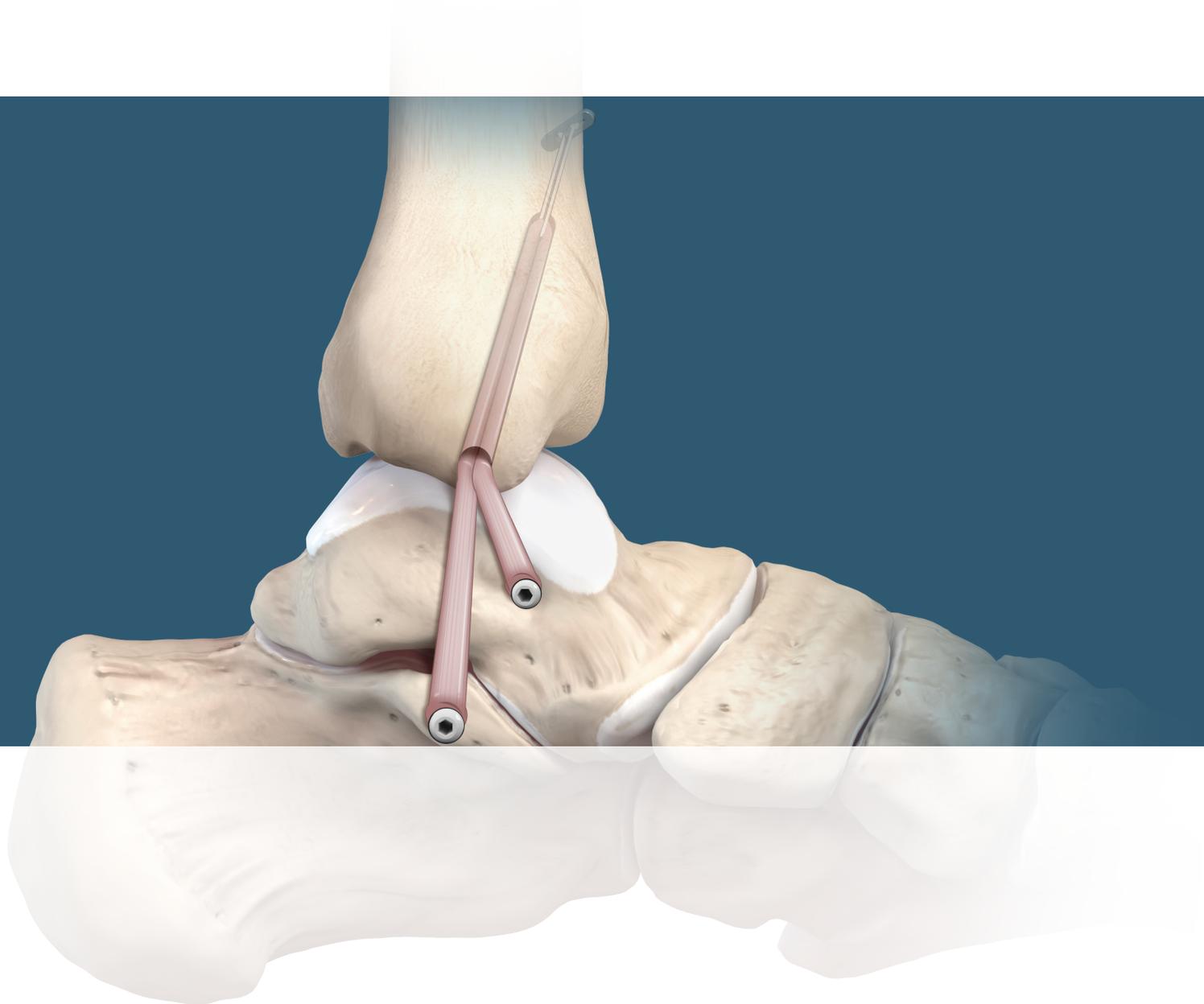


Deltoid Ligament Reconstruction System

Surgical Technique



Arthrex® 

Introduction

The Deltoid Ligament Reconstruction Implant System provides a turnkey repair technique to treat chronic deltoid ligament pathology using a soft-tissue TightRope® construct and tenodesis screws. Using the TightRope construct provides the benefit of cortical fixation and gives surgeons complete control of the final construct tension. By using a free tendon graft to recreate both the superficial and deep deltoid ligament attachments, surgeons are able to achieve a reproducible, rigid, anatomic reconstruction for patients presenting with medial ligament laxity.

This convenient all-in-one implant kit includes all of the necessary implants and instrumentation to perform this procedure. Designed to be used in conjunction with our presutured and presized allograft, Arthrex removes the guesswork from the repair technique and allows surgeons to focus on the task at hand.

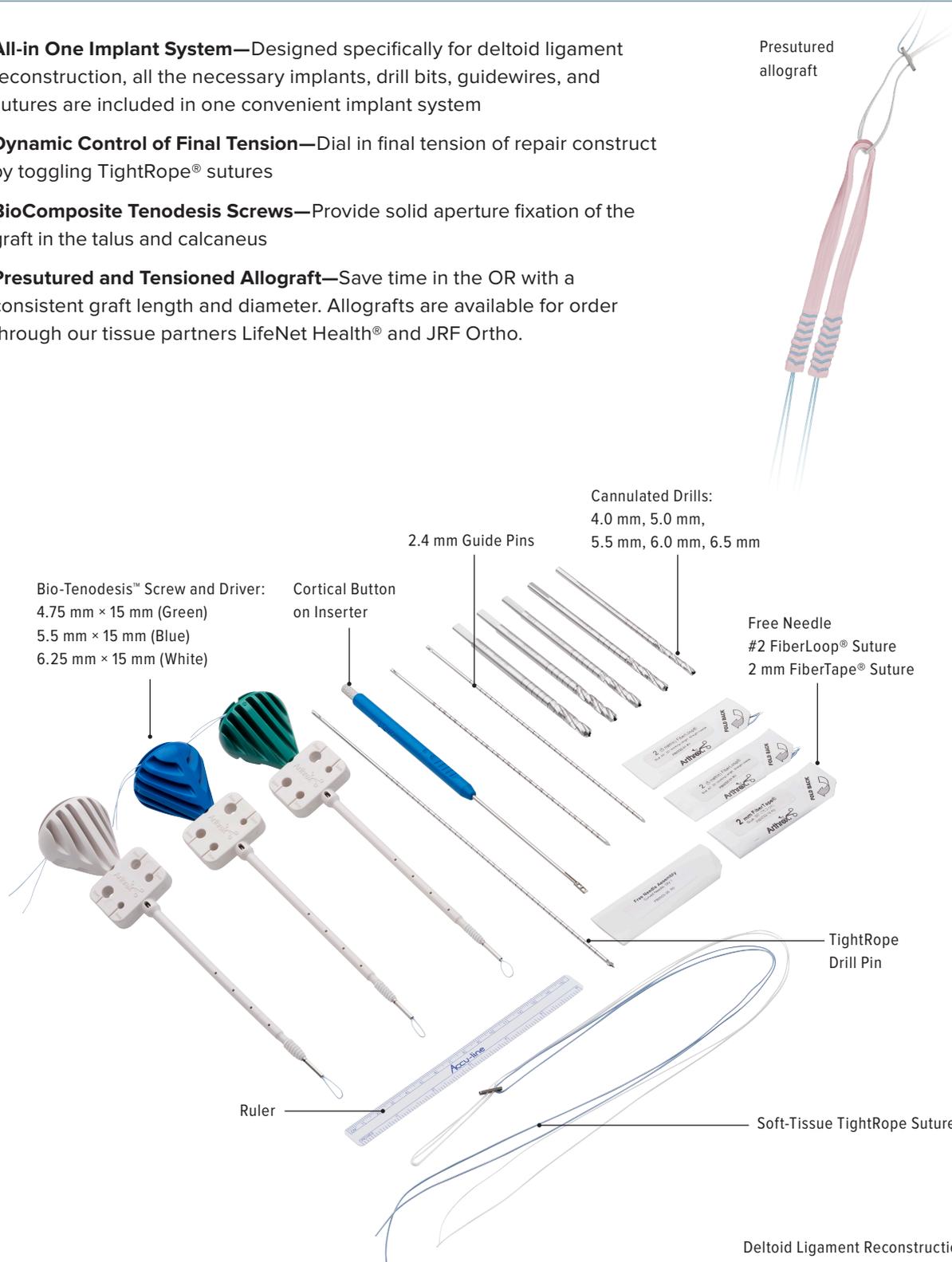
Deltoid Ligament Reconstruction System

Indications

- Chronic medial instability
- Global instability—Medial and lateral ligament deficiency
- Stage IV posterior tibial tendon dysfunction (PTTD)—Flatfoot deformity with deltoid insufficiency associated with total ankle reconstruction

Product Highlights

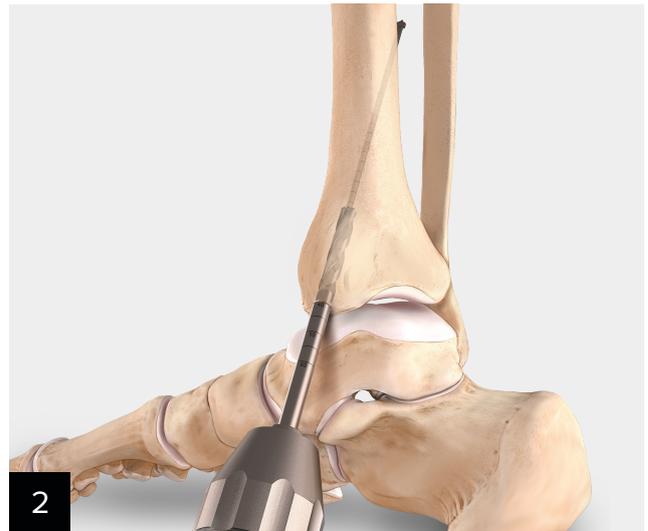
- **All-in One Implant System**—Designed specifically for deltoid ligament reconstruction, all the necessary implants, drill bits, guidewires, and sutures are included in one convenient implant system
- **Dynamic Control of Final Tension**—Dial in final tension of repair construct by toggling TightRope® sutures
- **BioComposite Tenodesis Screws**—Provide solid aperture fixation of the graft in the talus and calcaneus
- **Presutured and Tensioned Allograft**—Save time in the OR with a consistent graft length and diameter. Allografts are available for order through our tissue partners LifeNet Health® and JRF Ortho.



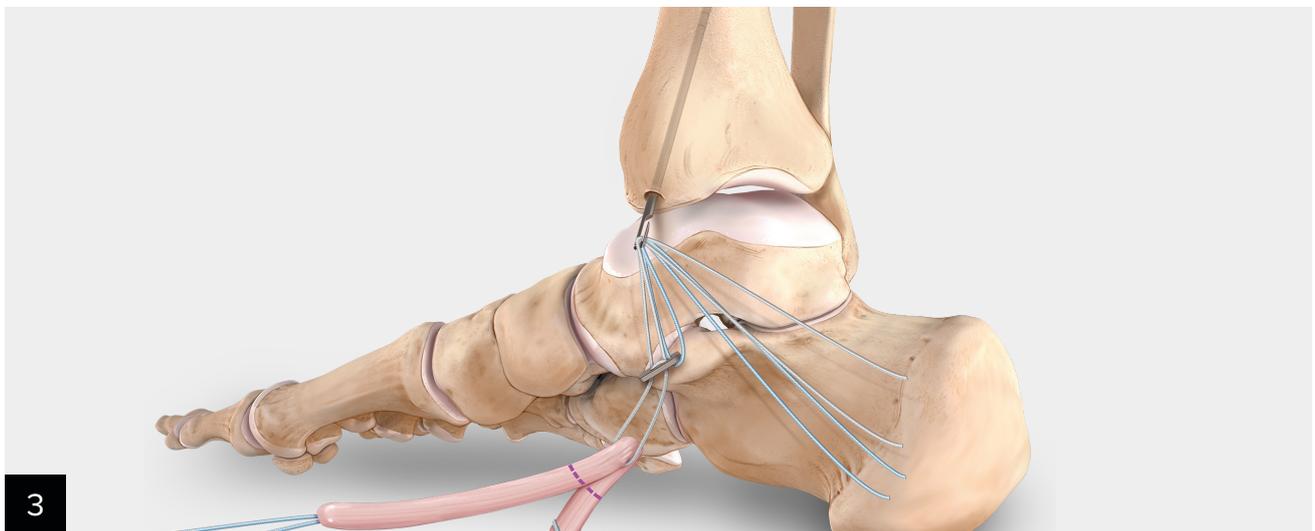
Deltoid Ligament Reconstruction System



Create a 4 cm to 6 cm incision starting posterior to the medial malleolus and extending in a lazy U fashion to the talus. Continue the incision through the posterior tibial tendon sheath. Retract the posterior tibial tendon posterior/inferior to expose the area of the proposed tibial, talar, and calcaneal tunnels.

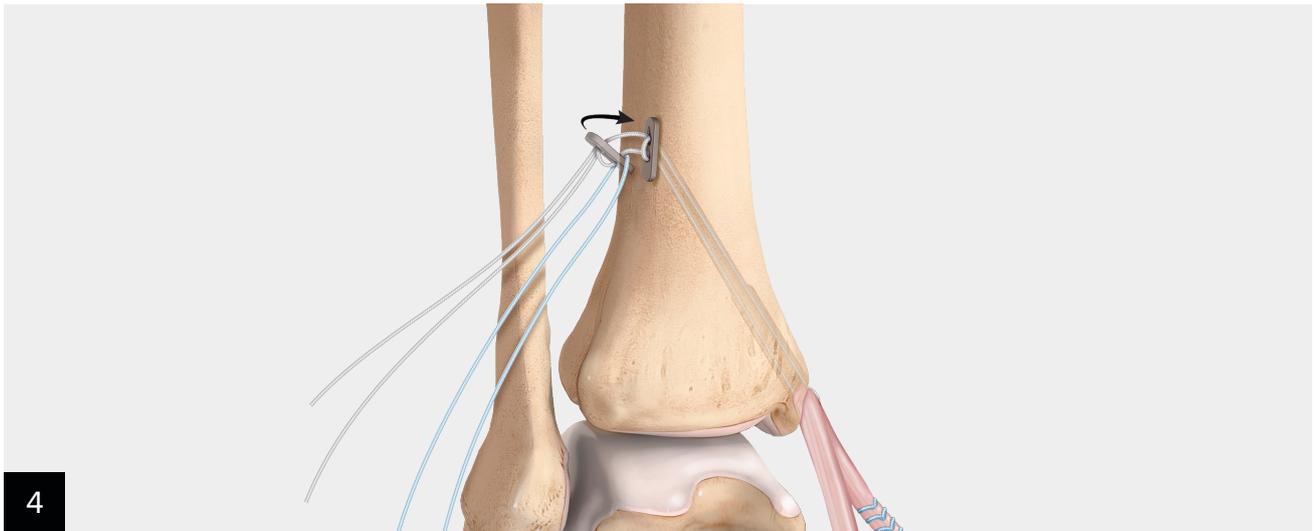


Insert the 4 mm spade tip drill pin into the medial malleolus at the intercollicular groove and aim to a point where the pin exits 5 cm to 6 cm above the joint line lateral to the anterior tibial crest. A small, 1.5 cm incision can be made superiorly to allow the spade tip pin to slide easily. Using a 6 mm reamer, drill a unicortical tunnel to a depth of 30 mm to 40 mm. Remove the drill bit, paying careful attention to ensure the spade tip pin is not removed from the bone tunnel.

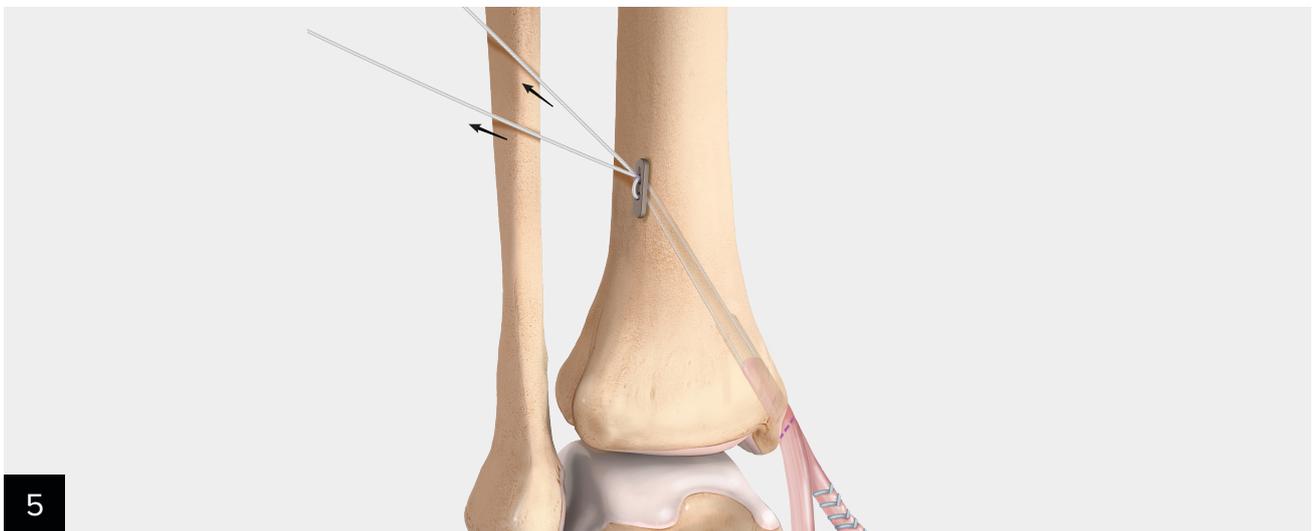


Feed the presutured allograft through the soft-tissue TightRope® construct such that the talar limb is noticeably shorter than the calcaneal limb. Mark the allograft construct 15 mm distal to the superior aspect of the allograft. Proceed to load the four sutures from the TightRope construct into the open eyelet of the TightRope drill pin and shuttle the construct through the prepared malleolar tunnel until the TightRope button exits the anterior tibial crest.

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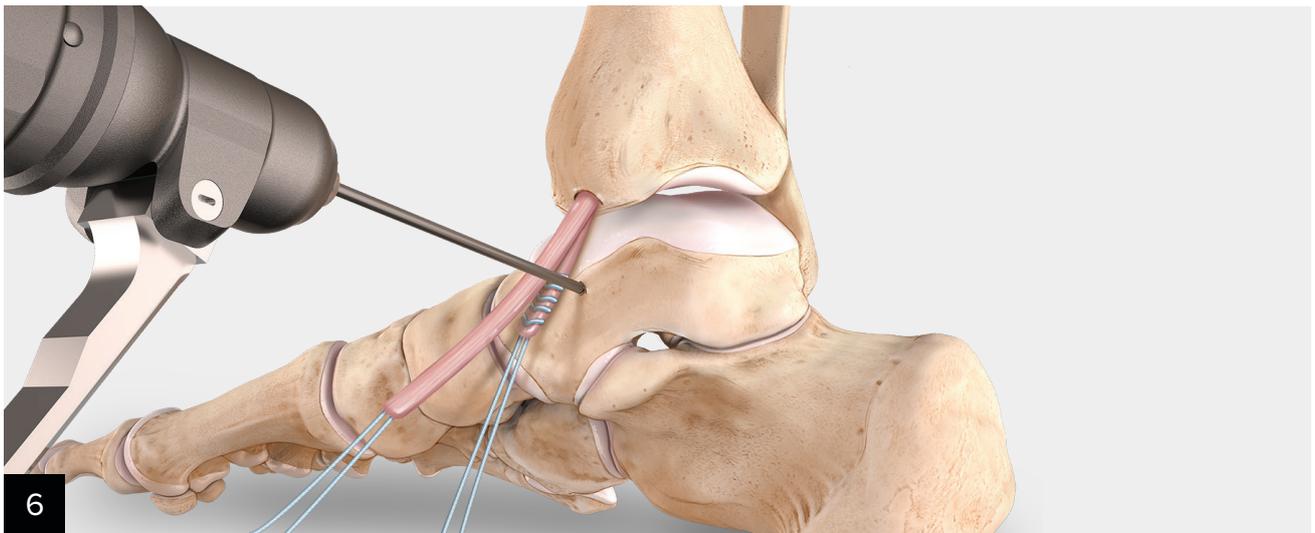


Pull tension on the free ends of the allograft to ensure the proximal TightRope® button seats properly at the anterior tibial crest. Confirm that the button has properly flipped using either fluoroscopic assistance or direct visualization through a small superior skin incision.

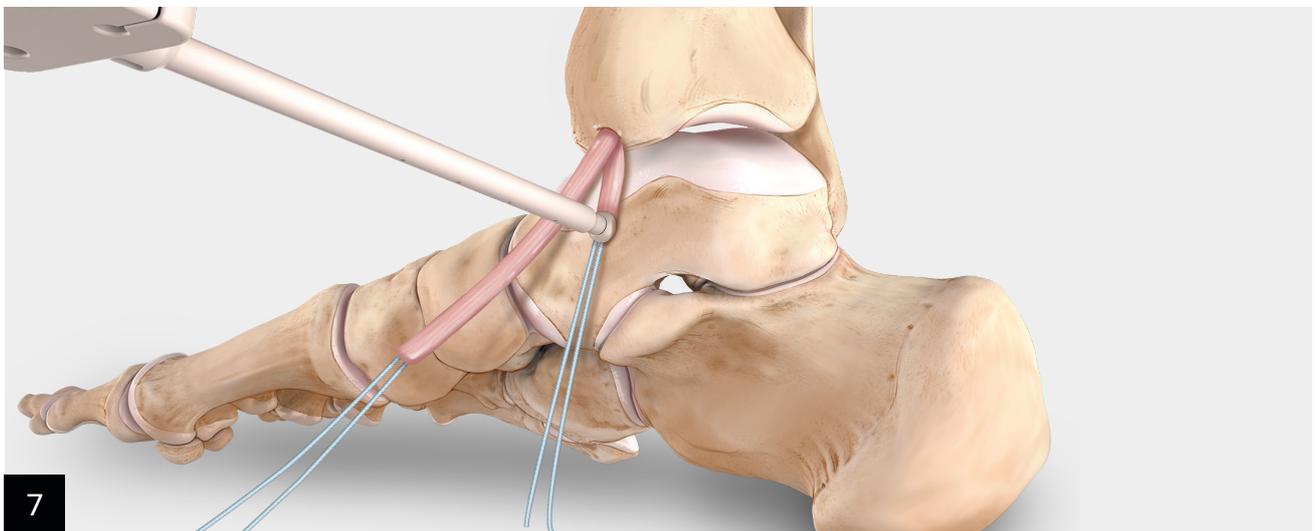


Locate the white TightRope sutures exiting the anterior tibial crest and initially tension 15 mm of the allograft construct into the malleolar tunnel.

Deltoid Ligament Reconstruction System



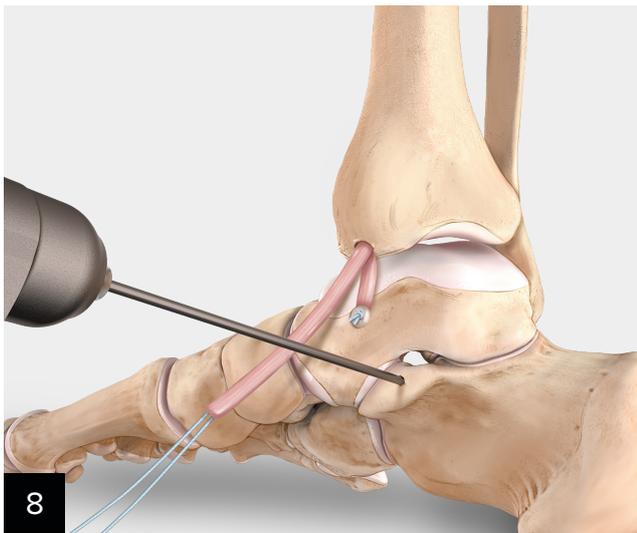
Insert a 2.4 mm guidewire into the medial nonarticular portion of the talus. The pin should be inserted at the anatomic attachment site of the native deep anterior tibiotalar ligament, 12 mm posterior from the anteromedial corner of the trochlea. Using a 5 mm reamer, drill a unicortical tunnel to a depth of 17 mm.



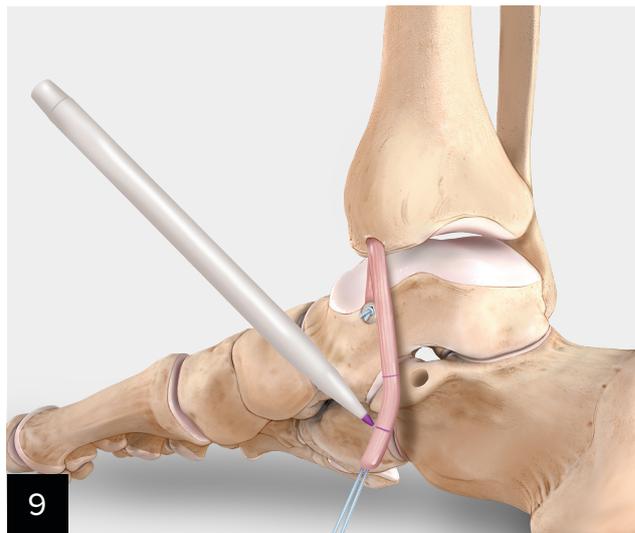
Using the green-handled, 4.75 mm preloaded tenodesis screw, capture 2 mm of the talar limb of the allograft tendon and insert into the prepared bone tunnel. Ensure that the graft has been inserted to the appropriate depth and proceed to advance the tenodesis screw until it is flush with the cortical bone surface and no further.

There are two options for allograft tendon fixation into the calcaneus: tenodesis screw or cortical button. To use the tenodesis screw, proceed to step 8. For the cortical button variation, proceed to step 12.

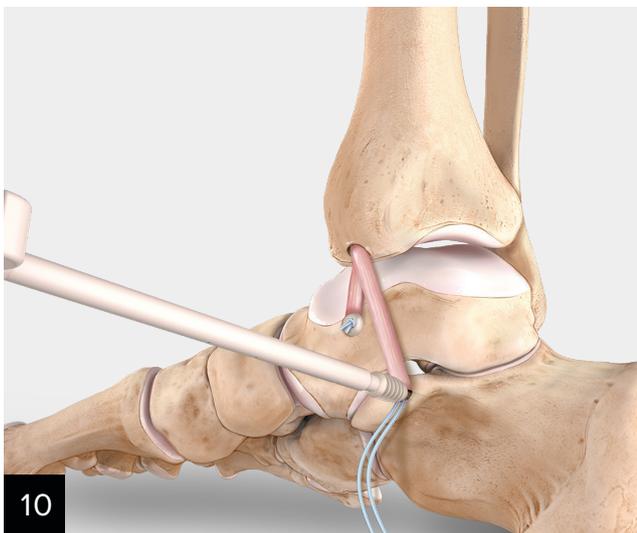
Deltoid Ligament Reconstruction System



Insert a 2.4 mm guidewire into the calcaneus at the sustentaculum tali. Using a 5.5 mm reamer, drill a unicortical tunnel to a depth of 17 mm.



Pull tension on the remaining free end of the allograft and mark a point at which the graft contacts the prepared bone tunnel. Measure a distance 15 mm distal to the original mark and make a second mark.

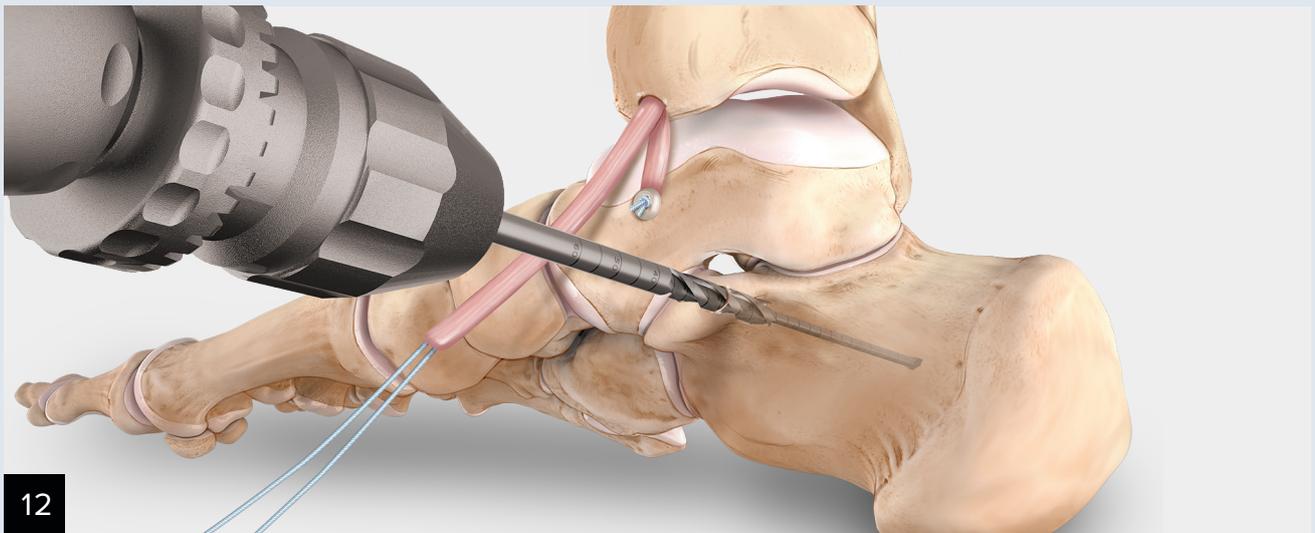


Using the blue-handled 5.5 mm tenodesis screw, capture 2 mm of the allograft tendon and insert the construct into the calcaneal tunnel until the tenodesis screw is flush with the cortical bone surface.

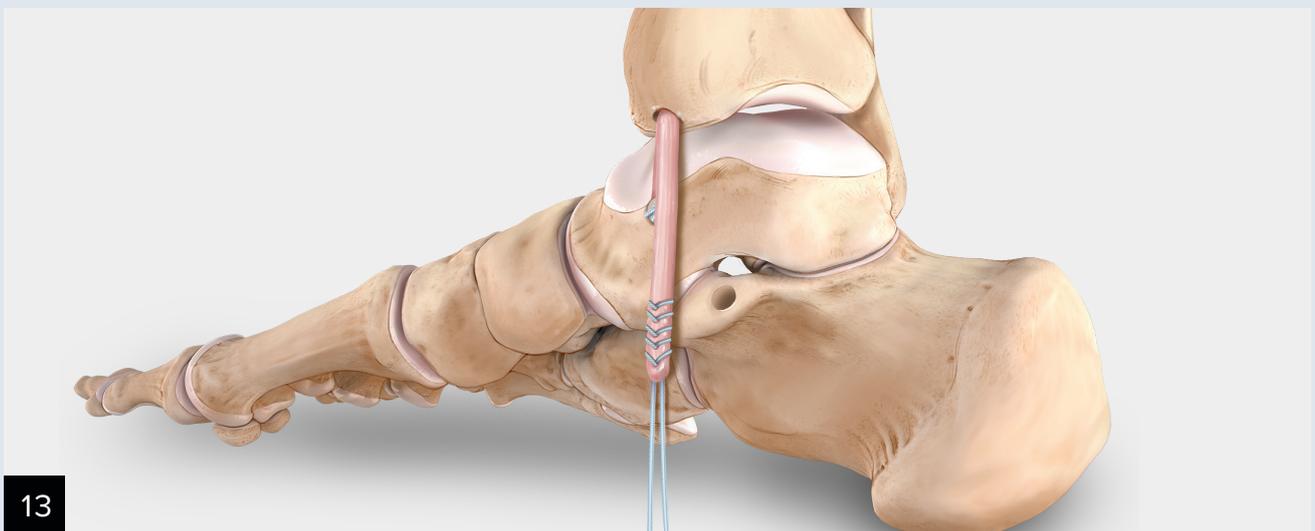


Using the white TightRope® construct sutures, toggle the sutures individually to set the final tension of the construct. Fluoroscopy may be used to ensure any remaining valgus tilting of the talus has been eliminated.

Cortical Button Variation



Insert the 4 mm spade tip drill pin bicortically through the calcaneus ensuring that the pin exits the lateral calcaneal cortex anterior and inferior to the fibula. Using a 5.5 mm reamer, drill a unicortical tunnel to a depth of 20 mm.



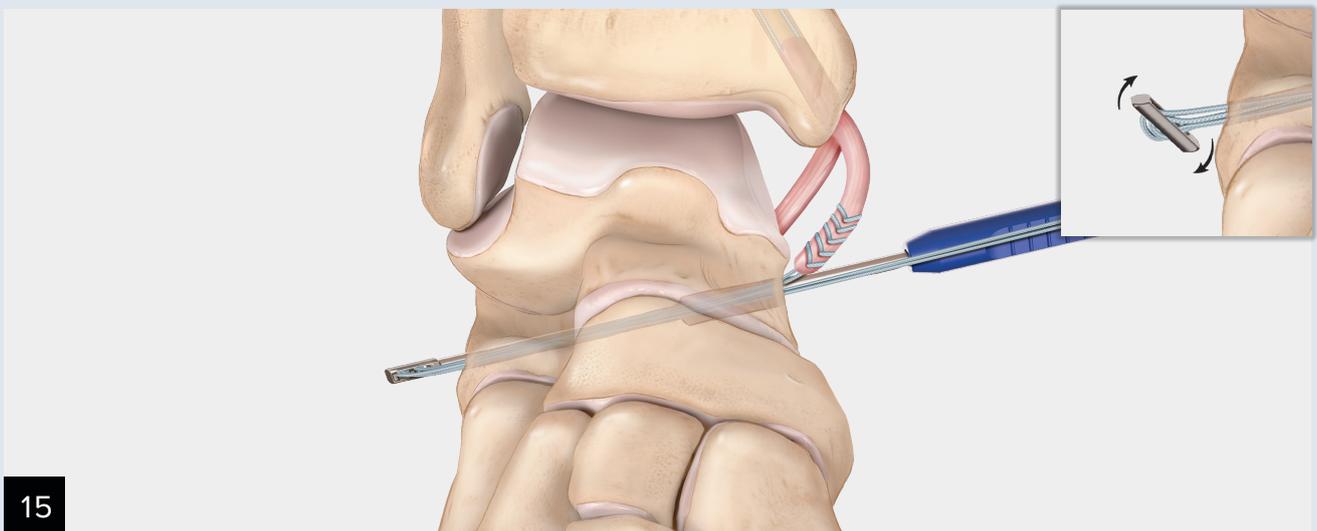
Starting proximally and working distally, whipstitch the marked portion of the tendon and excise any excess tendon.

Cortical Button Variation



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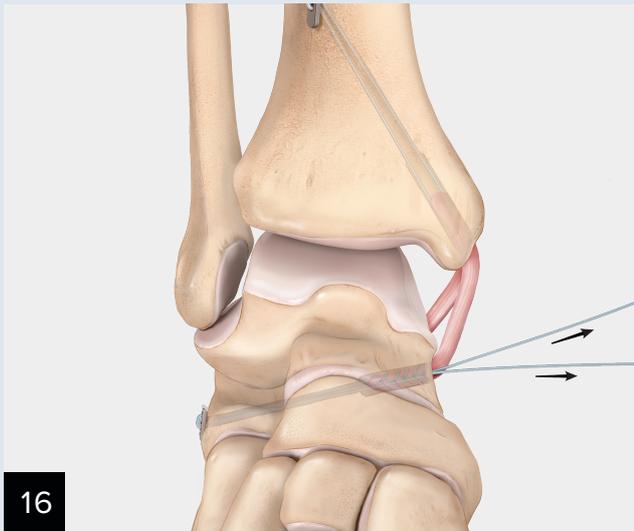
Thread one limb of suture through one side of the cortical button and back through the opposite side. Thread the other suture limb through the button in the same manner, starting on the opposite side as the first suture limb. Make certain that the suture limbs are not tangled. Pull on each suture limb simultaneously to ensure that the button slides freely on the sutures.



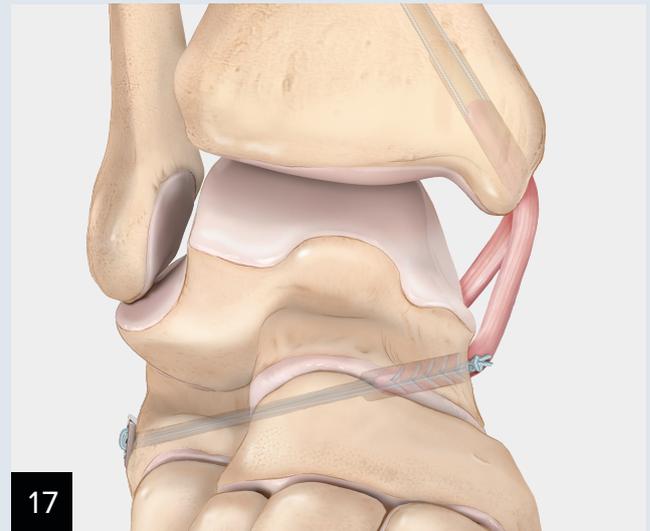
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Feed the cortical button construct through the prepared calcaneal tunnel until the button exits the lateral cortex. Unscrew the driver from the button and pull on the free sutures to seat the button against the calcaneus. Fluoroscopy may be used to ensure proper button deployment.

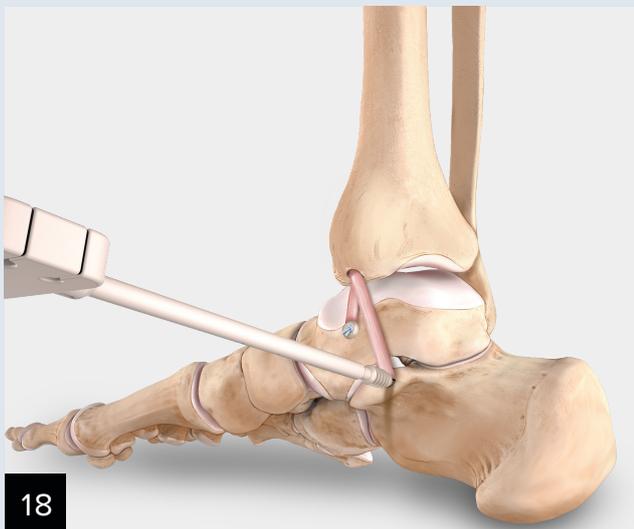
Cortical Button Variation



Grasp each limb of suture and slowly apply tension to dock the tendon into the bone tunnel.



Once the tendon is fully seated, use a free needle and pass one limb through the tendon and tie a knot.



Insert the blue-handled 5.5 mm tenodesis screw into the calcaneal tunnel in an interference fashion until it is flush with the medial cortex.



Finally, using the white TightRope® construct sutures, individually toggle the sutures to set the final tension of the construct. Fluoroscopy may be used to ensure valgus tilting at the talus has been eliminated.

Post-op Protocol*

- Posterior splint with ankle in mild plantar flexion and inversion for 7 to 10 days
- At follow-up—remove sutures and splint, apply cast
- Non-weightbearing until 6 weeks post-op
- At 6 weeks—CAM walker and weightbearing as tolerated for 4 weeks
- At 10 weeks—lace-up ankle support as needed and advance to unrestricted as tolerated

*Post-op protocol provided by Dr. Thomas O. Clanton (Vail, CO).

Ordering Information

Deltoid Ligament Reconstruction Kit

Product Description	Item Number
TightRope RT® Implant BioComposite Tenodesis Screws on Disposable Tenodesis Drivers: 4.75 mm × 15 mm (green) 5.5 mm × 15 mm (blue) 6.25 mm × 15 mm (white) Spade Tip Pin, 4 mm Guide Pins w/ Eyelet, 2.4 mm, qty. 2 #2 FiberLoop® Suture on Straight Needle, blue, qty. 2 2 mm FiberTape® Suture, blue, qty. 1 Cortical Button on Inserter Free Needle, curved Drill Bits, cannulated, 4.0 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm Ruler, 6 in	AR-8918CP



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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