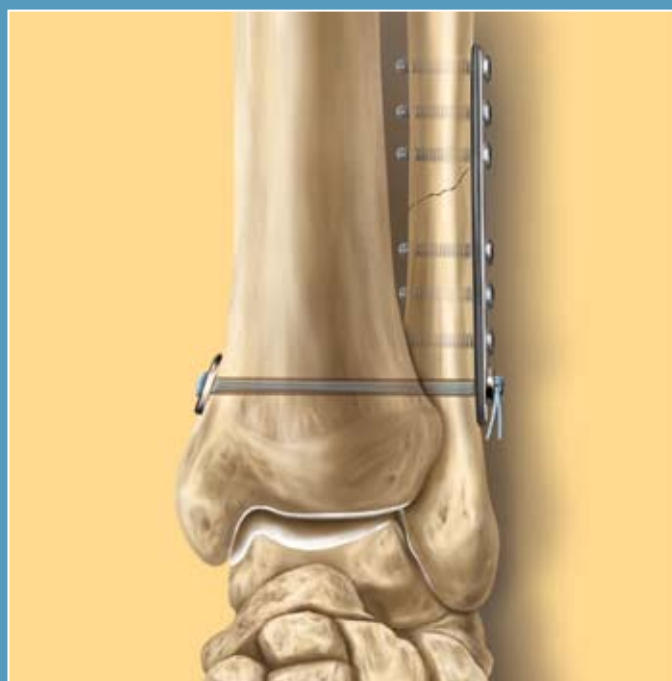




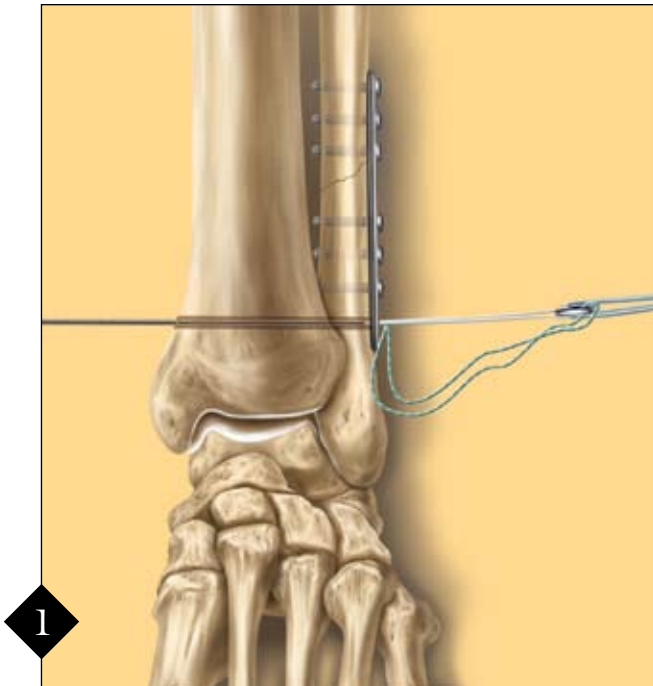
TightRope™ Syndesmosis Fixation

Surgical Technique



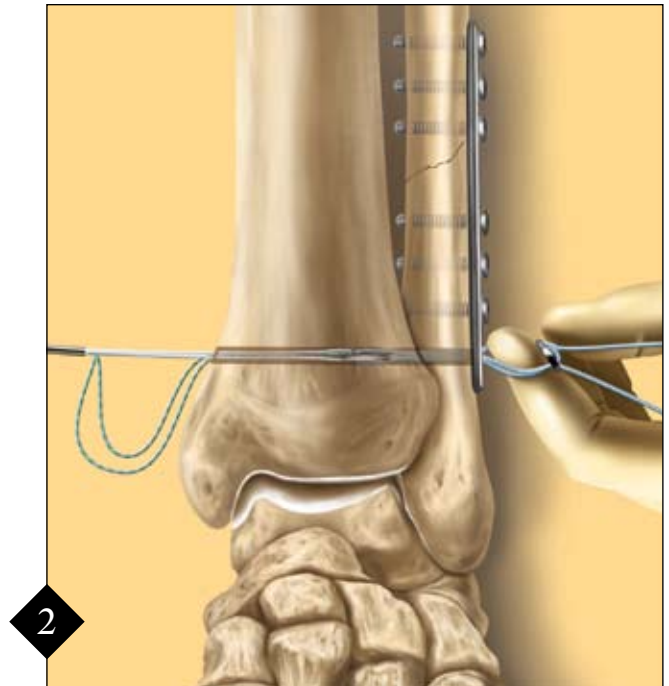
TightRope Syndesmosis Fixation

TightRope™ Syndesmosis Fixation



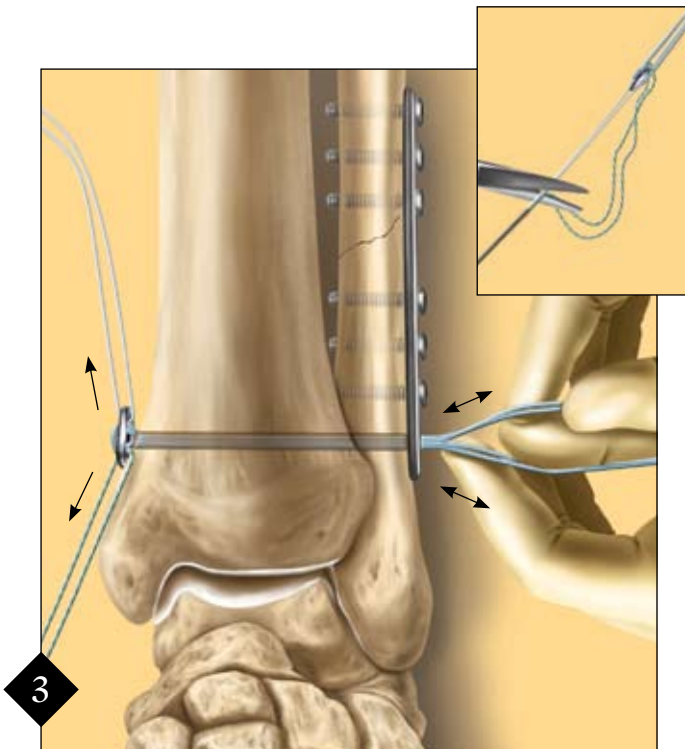
1

Drill all four cortices, 1.5 cm above the ankle joint, in the transmalleolar plane (30° anterior to the coronal plane), using the 3.56 mm drill bit. The needle and pull-through sutures are passed along the drill hole and out the intact medial skin. Care should be taken to avoid the saphenous vein and nerve (anterior to medial malleolus).



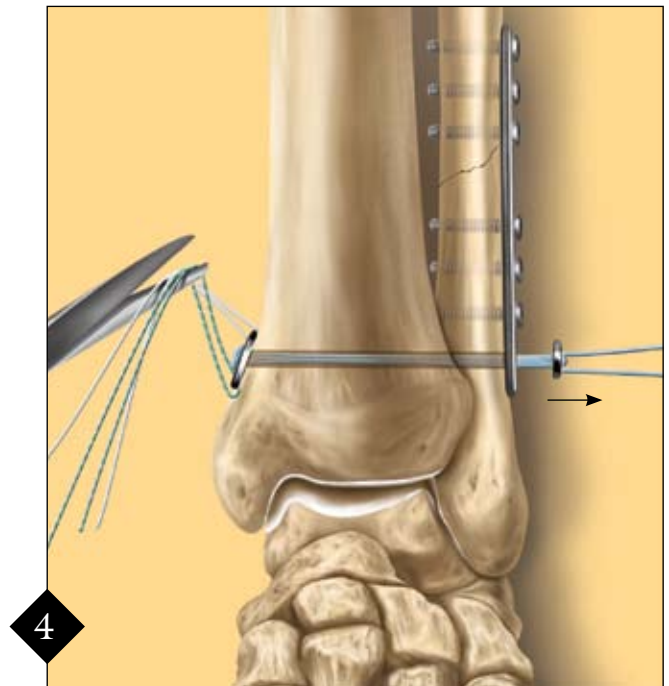
2

The white 2-0 FiberWire pull-through suture advances the leading oblong button, which continues longitudinally along the drill hole, until it just exits the medial tibial cortex. (Note: The green/white 2-0 FiberWire suture has been added to help facilitate placement of the medial button during step 3. Do not tension the green/white suture while passing the button from the fibula through the tibia). It should remain slack as it passes through the drill hole.



3

Cut the green/white and white pull-through sutures where they connect to the needle after passage through the medial skin. Slight upward tension should be placed on the white pull-through suture, while placing downward tension on the green/white suture. The button should seat easily along the medial cortex. Confirm placement using C-ARM. Note: Toggling the two pairs of #5 FiberWire on the lateral side will also aid in seating the medial button.

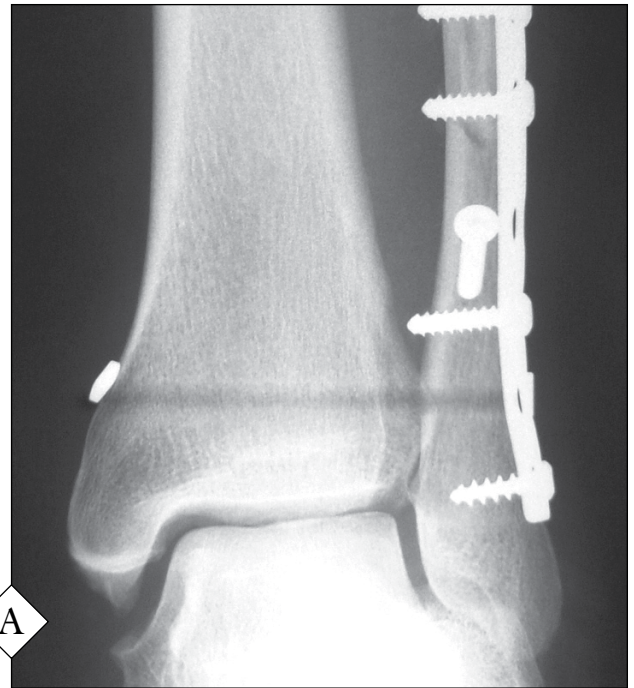


4

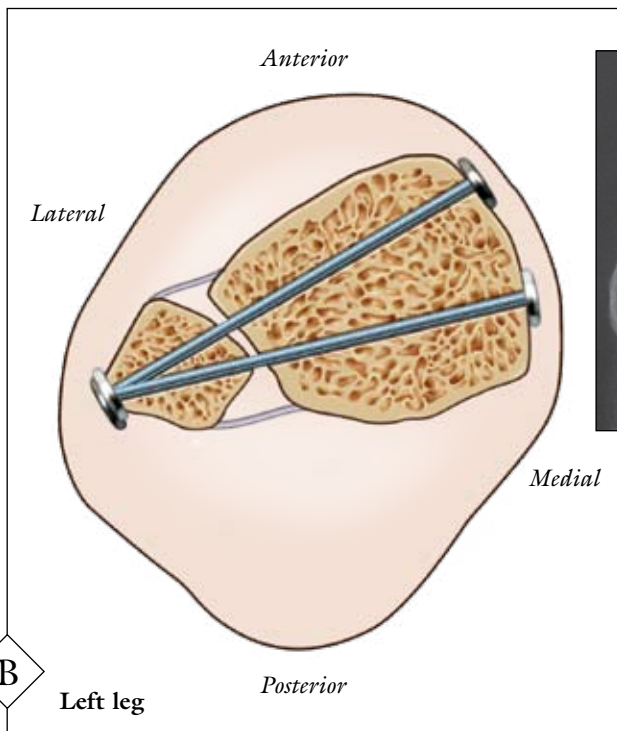
The white and green/white pull-through sutures are cut and removed. The trailing lateral button is tightened down on the lateral side by pulling on the free ends of the syndesmosis suture with the syndesmosis reduced (internal rotation and moderate ankle plantar flexion).



The construct is secured with three half-hitches. The suture ends are cut about 1 cm long to allow the knot and suture to lay down, reducing knot prominence.



Repair is complete using one TightRope.



A second TightRope should be used to treat Maisonneuve injuries, or if further syndesmosis stability is required. The second TightRope should be placed 1 cm above the first, with slight axial divergence to increase rotational stability. (see illustration B and x-ray insets)



Postoperative Management

Following wound closure, immobilize the ankle in the neutral position in a below-knee cast, nonweight-bearing for the first two weeks. Depending on fracture fixation stability and satisfactory wound healing, partial weight-bearing (50% body weight) may then be permitted in cast or walker boot, until six weeks postoperatively. Full weight-bearing can be allowed out of cast at six weeks.

Implant Removal

Routine removal of the TightRope is not required. If, for any reason it needs removal; small incisions over both buttons and cutting the suture makes removal of the buttons and suture easy.

TightRope Plus Syndesmosis Repair Kits:*

TightRope Plus Syndesmosis Repair Kit, titanium, sterile, <i>SU</i>	AR-8924DS
TightRope Plus Syndesmosis Repair Kit, stainless steel, sterile, <i>SU</i>	AR-8925DS

TightRope Plus Syndesmosis Kits include:

- Drill Bit, 3.56 mm
- Drill Guide, disposable
- 3.5 mm x 10 mm oblong Button (medial side placement)
- 6.5 mm Round Button (lateral side placement)
- #5 FiberWire Suture (blue)
- 2-0 FiberWire (white)
- 2-0 FiberWire (green/white)
- Guidewire, 1.6 mm (with pull-through suture, white and green/white)

TightRope Syndesmosis Repair Kits, cannulated:*

TightRope Syndesmosis Repair Kit, cannulated, titanium, sterile, <i>SU</i>	AR-8920CDS
TightRope Syndesmosis Repair Kit, cannulated, stainless steel, sterile, <i>SU</i>	AR-8921CDS

TightRope Syndesmosis Repair Kits, cannulated, include:

- Guidewire for TightRope Syndesmosis Kit, 1.2 mm
- Drill Bit, 3.56 mm
- Drill Guide, disposable
- 3.5 mm x 10 mm oblong Button (medial side placement)
- 6.5 mm Round Button (lateral side placement)
- #5 FiberWire Suture (blue)
- 2-0 FiberWire (white)
- Guidewire for TightRope Syndesmosis Kit, 1.2 mm

Accessories:

• Cannulated Drill Bit, 3.56 mm	AR-8920DC
• Guidewire for TightRope Syndesmosis Kit, 1.2 mm	AR-8920P

Button Design (actual size)

Lateral Buttons



front

back

Medial Button



SU Single Use

U.S. PATENT NO. 6,716,234 and PATENT PENDING

TIGHTROPE AWARDS

“*Orthopaedics Today*” Prize for Technological Advancement, British Orthopaedic Association Annual Congress, 2003, Birmingham, UK

“Medical Futures”, Best Medical Device Innovation 2003, UK

“Cutlers Prize”, an Annual Award for the Best Advance in Surgical Instrumentation, 2004

Arthrex TightRope

The Arthrex Syndesmosis TightRope provides fixation of syndesmosis disruptions with or without associated ankle fractures. The TightRope is a low profile system comprised of a #5 FiberWire® loop which, tensioned and secured between metallic buttons placed against the outer cortices of the tibia and fibula, provides physiologic stabilization of the ankle mortise. Biomechanical testing and clinical trials have shown equivalent strength and improved patient outcome with the TightRope technique. The TightRope obviates the need for a second procedure for removal, therefore late diastasis cannot occur. Weight-bearing may be commenced earlier than with screw fixation, as cyclic loading does not promote device failure. The “snowshoe” hold on cortical bone makes the TightRope suitable in osteoporotic bone where polymer or metallic screws cut out.

Advantages

- No need for routine removal
- Eliminates broken screw complications
- Achieves strong, anatomic and flexible fixation
- Simplifies lateral insertion technique
- Facilitates double TightRope technique for Maisonneuve fracture

Indications

The TightRope is intended to provide syndesmosis fixation during the healing process following a syndesmotic trauma, usually seen with Weber B and C ankle fractures.

Syndesmosis Reduction

The syndesmosis should be formally reduced prior to fixation and confirmed using fluoroscopy. Internal rotation in moderate ankle plantar flexion is the usual method of reduction. Dorsiflexion of the ankle to reduce is not recommended as it may cause malreduction and compromise the end result. Overtightening of the syndesmosis will not occur using the TightRope.

Fracture Fixation

Fractures in the lower half of the fibula should be rigidly and anatomically fixed to ensure correct fibular length and rotation. High fibula fractures (Maisonneuve injury) can be managed by reduction and syndesmosis fixation only, using two TightRopes.



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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.

Developed in conjunction with Brian Thornes, M.D., Dublin, Ireland.

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