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Joint Preservation

# Technique Guide

**ReelX STT®**

Double-Row Achilles  
Tendon Repair



*J. Martin Leland III, M.D.*

## Double-Row Achilles Tendon Repair Using the ReelX STT Knotless Suture Anchor

J. Martin Leland III, M.D. is an Orthopaedic Sports Medicine specialist at the University of Chicago Medical Center. His surgical cases focus on the latest techniques in arthroscopic surgery of the knee, shoulder, hip and elbow, multi-ligament knee reconstructions and proximal hamstring repairs. During his Orthopaedic Sports Medicine fellowship at Thomas Jefferson University, Dr. Leland worked with the Philadelphia Eagles and the Philadelphia Phillies. While in Chicago, Dr. Leland has served as a team physician with the Chicago Blackhawks as well as numerous local high schools and colleges. Dr. Leland is a committee member for the American Orthopaedic Society for Sports Medicine (AOSSM), a principal reviewer for the American Journal of Sports Medicine (AJSM), and an instructor at the Orthopaedic Learning Center in Rosemont, IL. He is an Assistant Professor at the University of Chicago where he teaches Orthopaedic Sports Medicine fellows and residents and conducts his research.



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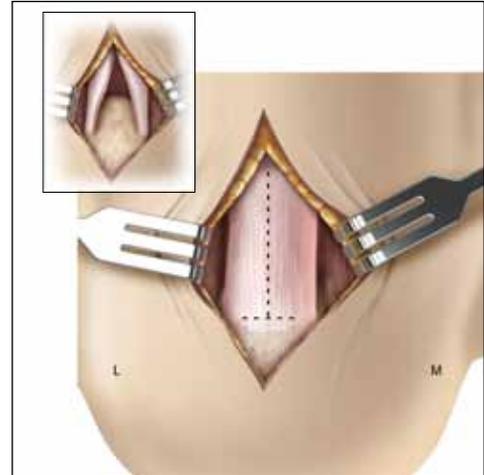
### Introduction



Through the use of double-row repairs in rotator cuff surgery, surgeons have been able to re-create the broad, anatomic footprint of tendon to bone insertion. This technique can also be used in other critical tendon to bone junctions, such as with the Achilles tendon. Whether to repair an Achilles tendon avulsion or after the excision of a Haglund prominence, a double-row technique can aid in the reattachment of the Achilles to its normal, anatomic footprint on the calcaneus. This surgical technique guide describes an Achilles tendon repair using a double-row technique after the resection of a Haglund's deformity.

## Step 1

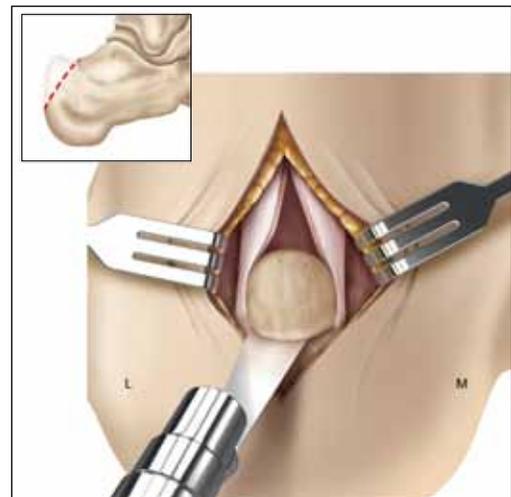
Begin with a posterior midline incision from the distal aspect of the calcaneal tuberosity proximally for 6cm. The incision is carried down sharply through the paratenon. Identify and split the Achilles tendon vertically, in line with the incision, down onto the calcaneus. Carefully dissect the Achilles off of the calcaneus in order to expose the prominent bone tubercle of the Haglund's deformity. The Achilles should not be completely released off of the calcaneus, with the most medial and lateral aspects of the tendon remaining attached.



Step 1.

## Step 2

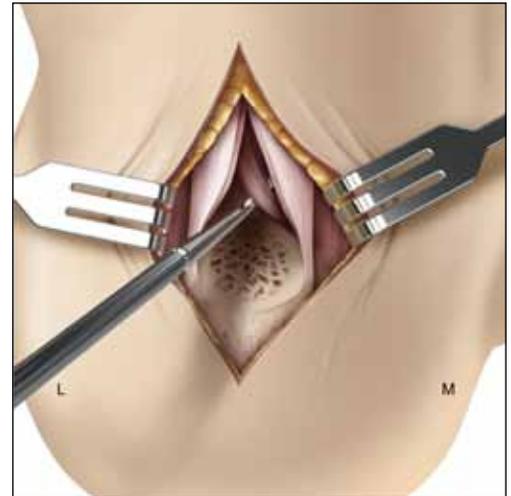
Using an oscillating saw, resect the Haglund deformity in a posterior distal to anterior proximal direction. Complete the cut with an osteotome so as to not risk injury to the structures anterior to the Achilles tendon. Smooth off the sides with a rongeur or rasp to remove any remaining bony prominences.



Step 2.

### Step 3

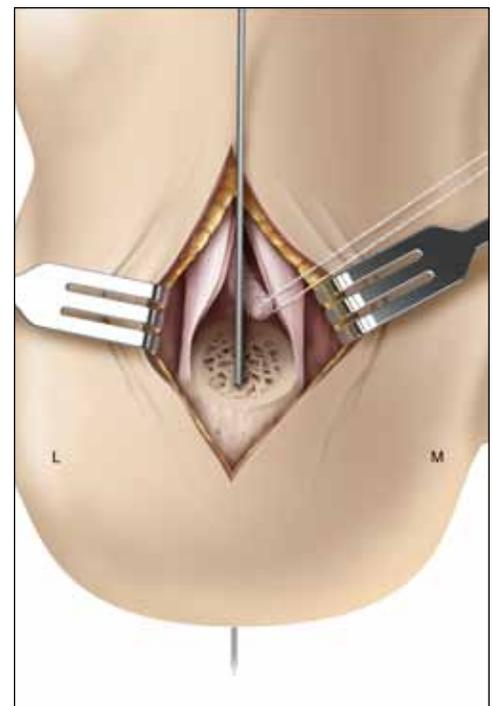
Make a 4cm, longitudinal incision through the anterior aspect of the Achilles sheath and identify the flexor hallucis longus (FHL) tendon (runs in a lateral proximal to medial distal direction in this location). Retract the flexor hallucis longus tendon laterally and cut it as distal as possible without risking injury to the posterior tibial neurovascular bundle.



Step 3.

### Step 4

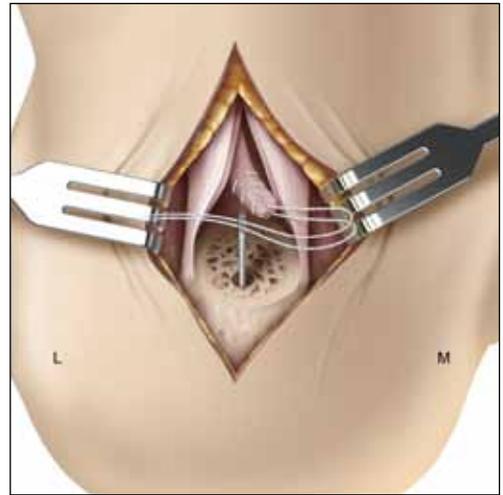
Sew a #2 Force Fiber suture to the end of the FHL tendon using a running whipstitch technique. Drill a Beath needle into the cut surface of the calcaneus, approximately 1cm from the most posterior edge of the cut surface. The needle should enter the calcaneus perpendicular to the cut surface and come out through the bottom of the heel.



Step 4.

## Step 5

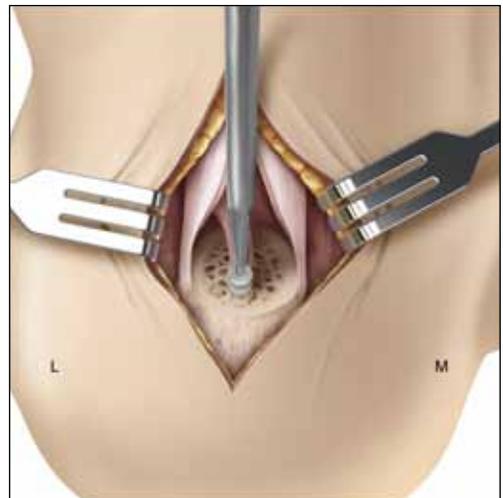
Overdrill the Beath needle with a size 6 reamer to a depth of at least 25mm. Remove the reamer, pass the Force Fiber suture through the eye of the Beath needle, and use the needle to shuttle the suture through the hole and out through the bottom of the heel.



Step 5.

## Step 6

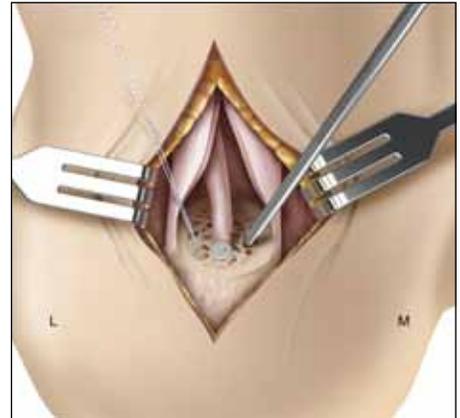
Plantarflex the foot and pull the Force Fiber suture to draw the FHL tendon down into the hole that was created in the calcaneus. Secure the FHL in the hole with a 6 x 23mm Biosteon interference screw.



Step 6.

## Step 7

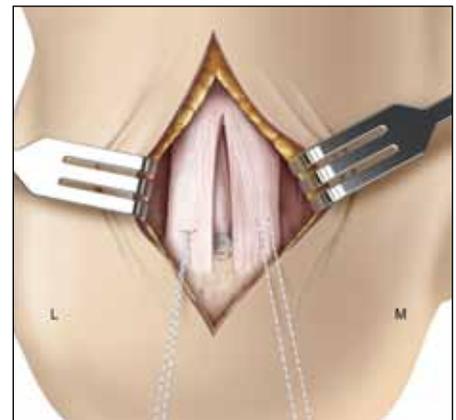
Using a 5mm BioZip drill, create a pilot hole medial and lateral to the FHL tunnel. Both holes should be just anterior to the FHL tunnel. Insert a 5.5mm PEEK Zip anchor into each of the pilot holes. Remove one of the sutures from each anchor so the anchors are single-loaded.



Step 7.

## Step 8

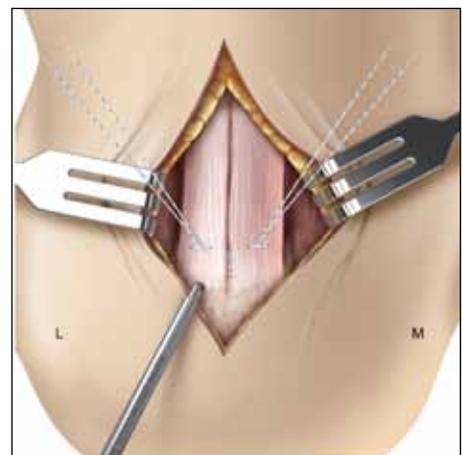
Pass both limbs of the sutures through the corresponding half of the Achilles, approximately 1cm from the distal end of the tendon. Tie the sutures in a horizontal mattress or modified Mason Allen technique.



Step 8.

## Step 9

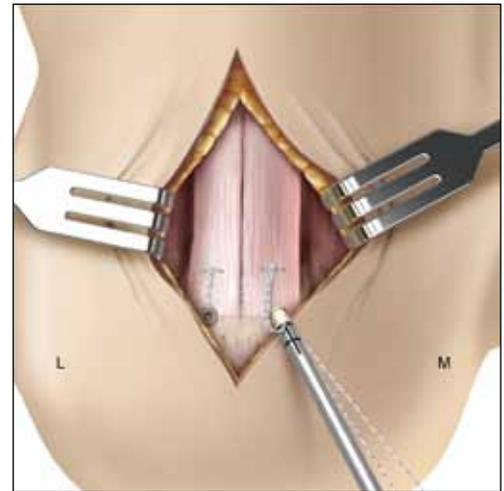
Using a 6.5mm BioZip drill, create another pilot hole on the lateral aspect of the calcaneus, just distal to the most posterior edge of the cut calcaneal surface.



Step 9.

## Step 10

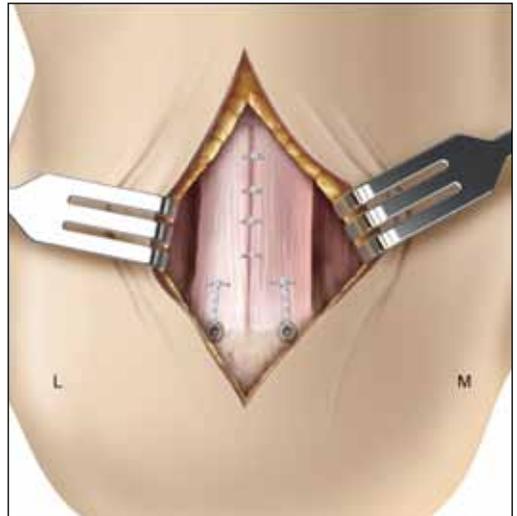
Pass two of the limbs from the “proximal row” knots through a ReelX STT knotless suture anchor and insert the tip of the anchor into the lateral pilot hole. Make sure the vertical laser line on the inserter shaft faces the Achilles tendon and allow some slack in the suture. Impact the ReelX STT device until it is seated to the first laser line on the insertion shaft. *Remove the white suture from the top of the ReelX STT handle and twist the top of the handle with 2 fingers clockwise until the sutures are pulled to the desired tension. Cut the excess high strength sutures as they exit the ReelX STT anchor.* Repeat this process again with the remaining limbs from the “proximal row” knots through another ReelX STT anchor inserted on the medial aspect of the calcaneus.



Step 10.

## Step 11

Re-approximate the longitudinal incision in the Achilles tendon with interrupted, simple sutures. With each pass, the suture should run through one side of the Achilles tendon, through the FHL, and then through the other side of the Achilles tendon. This will incorporate the FHL tendon into the repair for added strength. Close the paratenon with a running, absorbable suture and close the subcutaneous tissue with 2.0 interrupted absorbable sutures. Skin closure per surgeon preference. Immobilize the patient in a splint in plantarflexion or walking boot with heel lift.



Step 11.

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<b>PART NUMBER</b>	<b>DESCRIPTION</b>
234-010-160	6MM X 23MM Biosteon Screw
234-040-060	6.0MM VersiTomic Cannulated Drill
234-020-234	23MM Biosteon Screw Driver
3910-004-032	5MM BioZip Drill 3.25MM X 13.5MM
3910-200-035	5.5MM PEEK Zip Suture Anchor with 2 Strands #2 Force Fiber
3910-004-040	6.5MM BioZip Drill 4.0MM X 13.5MM
3910-600-060	Stryker REELX STT
3910-900-020	FORCE FIBER, Size #2, 38" Strand With ½ Circle Taper Needle

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