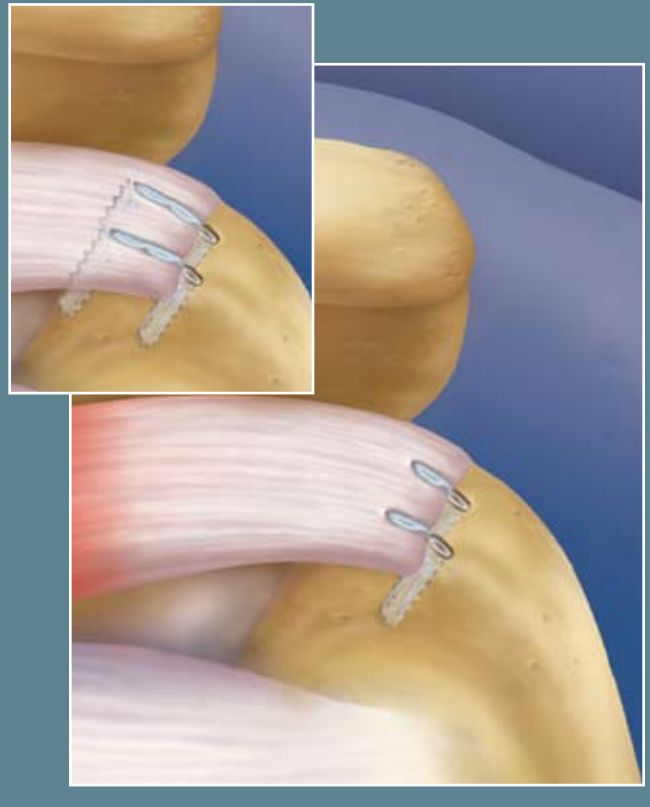
Arthrex®

SwiveLock™ & FiberChain™ Knotless Rotator Cuff Repair

Surgical Technique



Designed in conjunction with Stephen S. Burkhart, M.D., San Antonio, TX.

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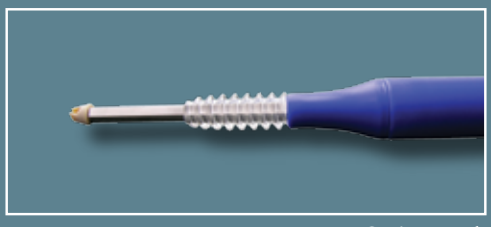


SwiveLock

FiberChain

Introduction

"My approach to arthroscopic rotator cuff repair has always been to optimize the mechanical fixation of the repair construct. When I decided to address the issue of knotless rotator cuff repair, this same philosophic principle determined the design parameters. Loop security is optimized by means of the FiberChain's configuration of consecutive links. The appropriate link can be chosen for optimum loop security. Knot security is a nonissue, since the link design precludes the need for a knot. Pull-out strength of the SwiveLock Suture Anchor is optimized by a fully threaded design that has the same thread configuration as the 5.5 mm Bio-Corkscrew® FT, a proven anchor with superior pull-out strength. In short, every component of fixation has been biomechanically optimized without the need for knots."

Stephen S. Burkhart, M.D.
San Antonio, Texas

Patient Positioning

The patient may be positioned in the beach chair position using the Beach Chair Lateral Traction Device or in a lateral decubitus position using the 3-Point Shoulder Distraction System. Access to the subacromial space is facilitated with a variety of clear cannulas.

Portal Placement

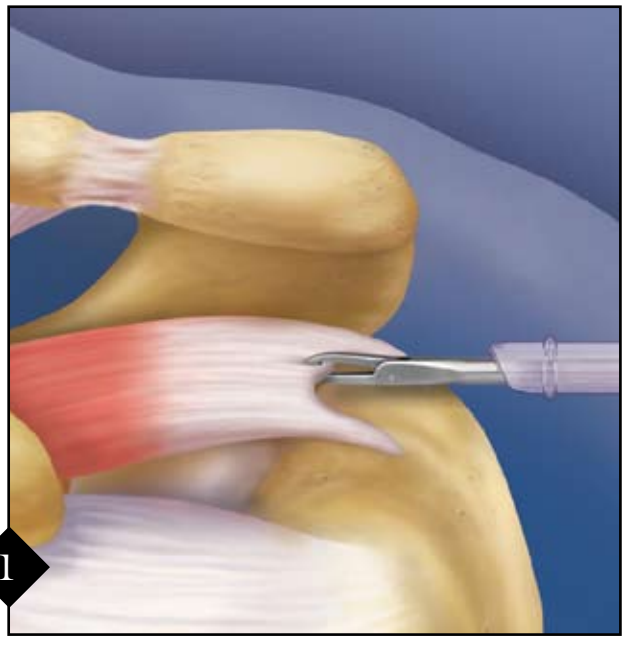
Posterior Viewing Portal: Located approximately 2 to 3 cm inferior and 1 cm medial to the posterolateral corner of the acromion at the "soft" spot.

Lateral Portal: Located approximately 3 to 4 cm lateral to the acromion in line with the posterior aspect of the clavicle. This portal will be used for suture passing with the Scorpion™ and FiberChain management.

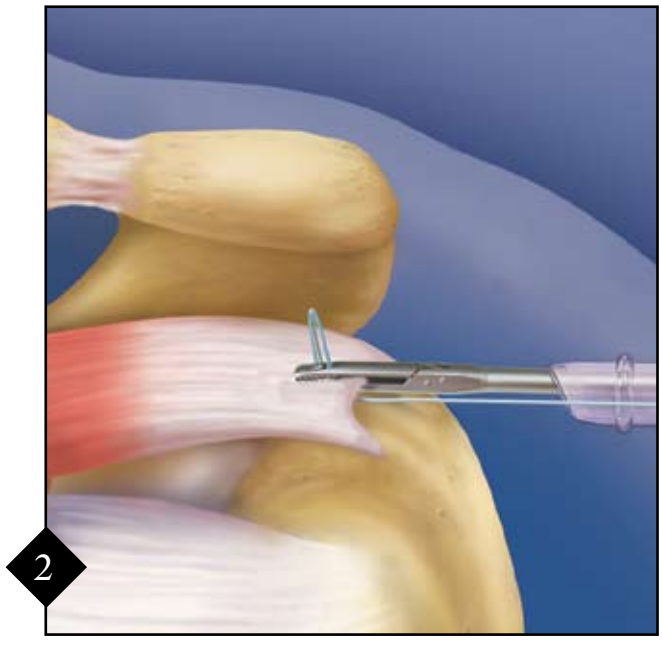
Anterior Portal: Utility portal located midway along the anterolateral acromial corner and the tip of the coracoid

Superolateral Portal: Percutaneous portal is located just lateral to the edge of the acromion. It will be used for SwiveLock bone socket preparation and anchor insertion.

Knotless Single Row Repair

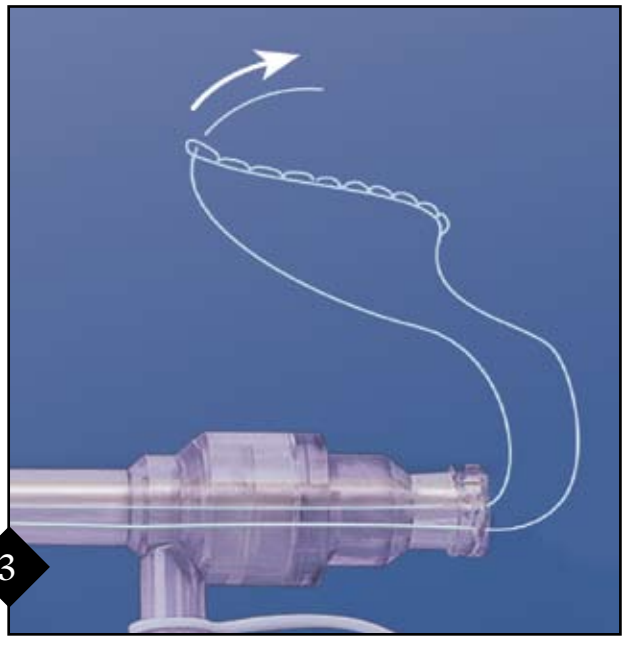


Assess the mobility of the tear using a KingFisher™ Suture Retriever/Tissue Grasper. In the case of a large U-shaped tear, margin convergence suturing with FiberChain or FiberWire® may be required. Use a shaver, high-speed burr, or Chondro Pick to prepare a bleeding bone bed.



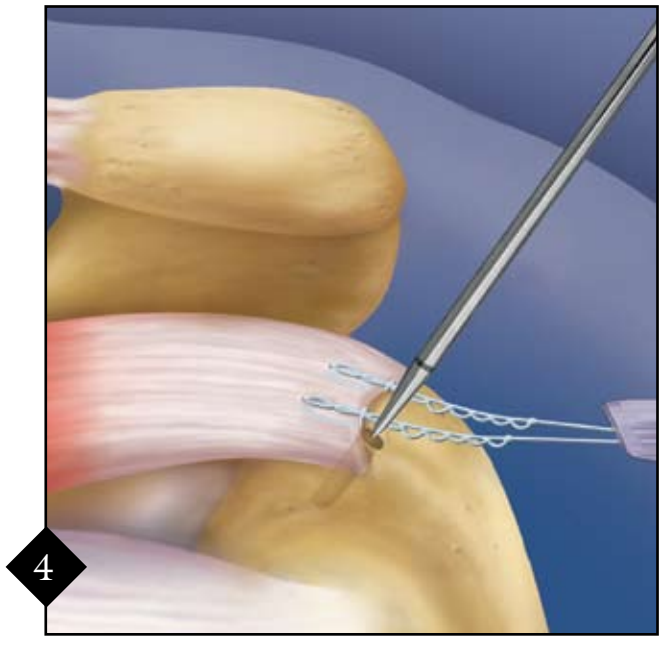
Pass the nonlinked, free end of the FiberChain through the rotator cuff using a Scorpion Suture Passer through a 5.75 mm Crystal Cannula®.

Retrieve the suture through the same cannula.

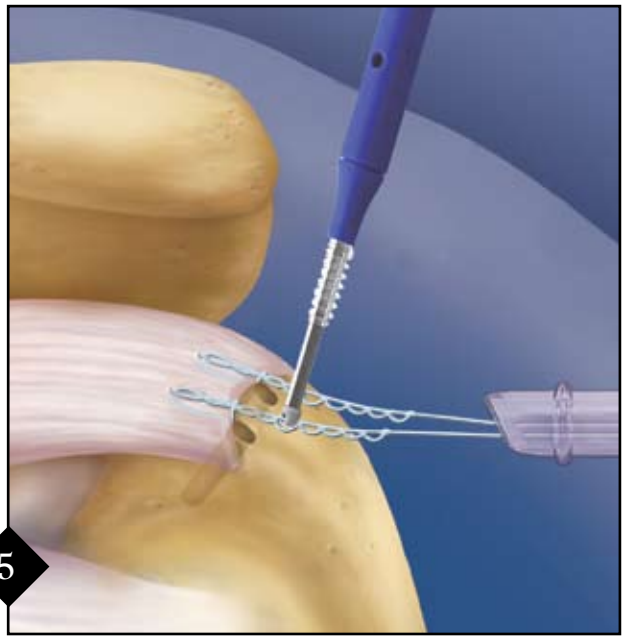


Pass the free end of the FiberChain through the terminal link at its opposite end. Cinch the loop down by pulling on the free end of the FiberChain. The tip of the Crystal Cannula may be used to help seat the FiberChain loop securely against the rotator cuff. A suture retriever or grasper may be useful to ensure that the loop has been fully tightened.

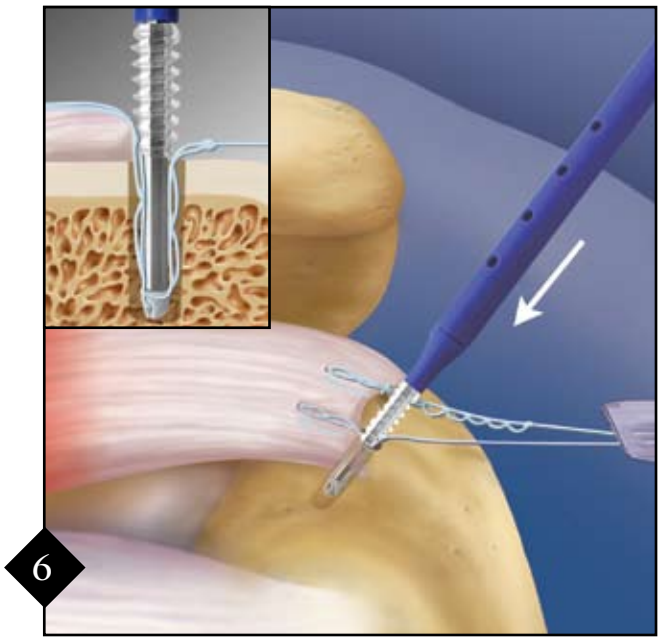
Repeat steps two and three for the second FiberChain.



Use the FiberChain as a traction suture to determine the desired anchor location adjacent to the rotator cuff margin and punch a bone socket with the 5.5 mm Bio-Corkscrew FT Punch through a superolateral percutaneous portal. Repeat for the second anchor.

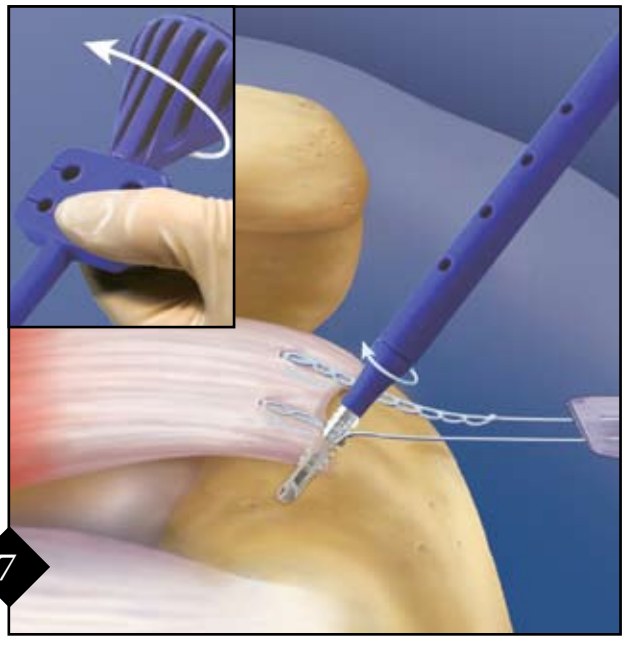


Retrieve both FiberChain ends through the lateral portal. Introduce the SwiveLock anchor through the percutaneous superolateral portal, capturing the third link from the free margin of the rotator cuff. Each link in the FiberChain is approximately 6 mm in length. Since the total length of the SwiveLock anchor is 18 mm, capturing the third link from the cuff edge will usually position the cuff directly at the edge of the bone socket and perfectly tension the FiberChain and the rotator cuff segment that it spans, when the inserter tip pushes the FiberChain to the bottom of the bone socket.



Advance the driver into the bone socket and push the FiberChain toward the bottom of the socket until the anchor body contacts the bone. Evaluate the tissue tension. If the tension is not adequate, remove the driver from the bone socket by pulling on the free end of the FiberChain (to release any wedging of the swivel tip) at the same time that the inserter is withdrawn. Capture the adjacent, more proximal link. If the tension is too great to fully insert the driver to the bottom of the bone socket, remove the driver and capture the adjacent, more distal link. Then reinsert the driver to the base of the bone socket.

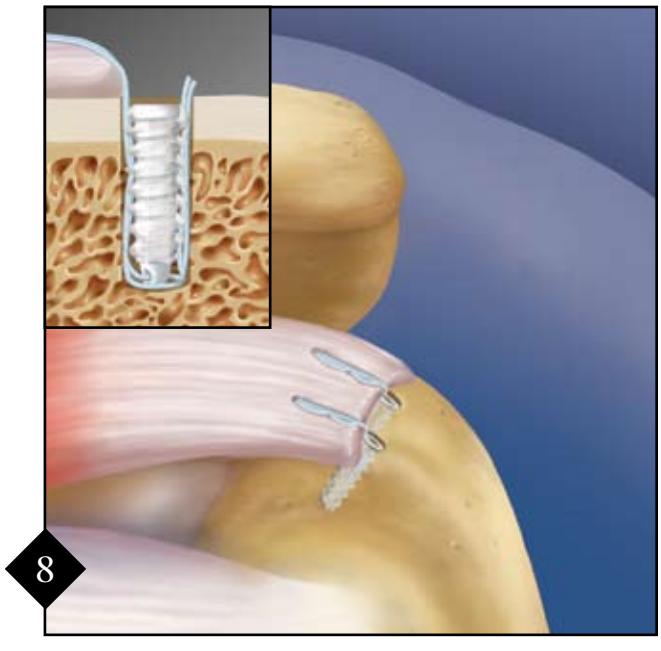
Note: The forked tip of the implant is held to the driver with a 0 retention suture cleated at the driver's proximal end.



Advance the screw by holding the thumb pad as the inserter handle is turned clockwise.

When the implant is fully seated, the shaft of the forked swivel tip is fully engaged by the body of the screw-in portion of the anchor to optimize the stability of the SwiveLock construct.

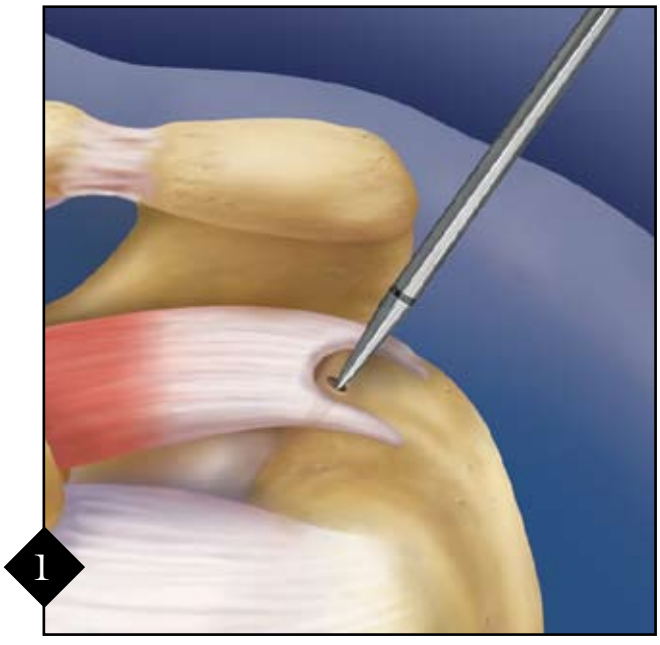
Unwind the tip retention suture from the cleat at the back of the driver handle. Remove the driver. Pull one limb of the retention suture to fully remove it from the implant.



Repeat the insertion steps for the second SwiveLock to obtain the final construct.

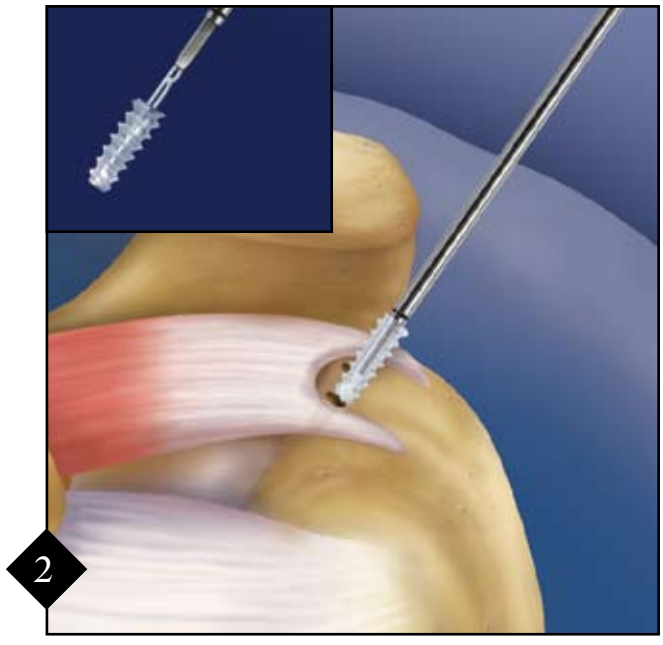
Cut the free suture ends with an open ended Suture Cutter so that they are flush with the edge of the bone socket.

Knotless Double Row Repair



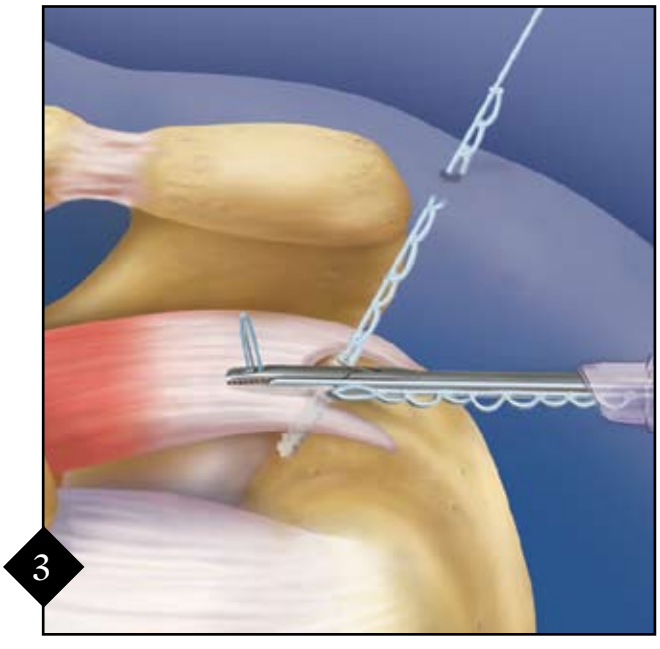
Assess the mobility of the tear using a KingFisher Suture Retriever/Tissue Grasper. In the case of a large U-shaped tear, margin convergence suturing with FiberChain or FiberWire may be required. Use a shaver, high-speed burr, or Chondro Pick to prepare a bleeding bone bed.

Prepare pilot holes for the two Bio-Corkscrew FT Suture Anchors that will comprise the medial row through a percutaneous superolateral portal. Advance the 5.5 mm Bio-Corkscrew FT Punch to the laser line at a 45° "deadman" angle, adjacent to the articular margin of the humerus. Tapping is seldom necessary.



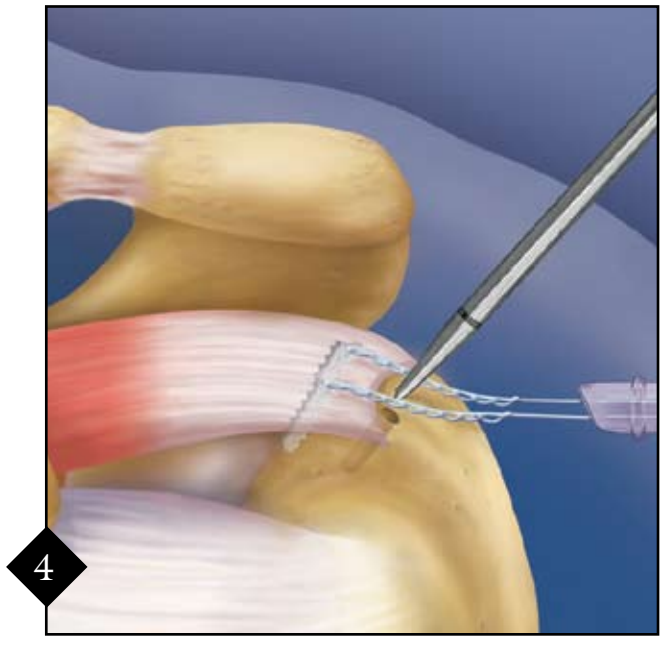
Place both 5.5 mm diameter Bio-Corkscrew FT Suture Anchors.

Note: These Bio-Corkscrew FT Suture Anchors come preloaded with FiberChain.

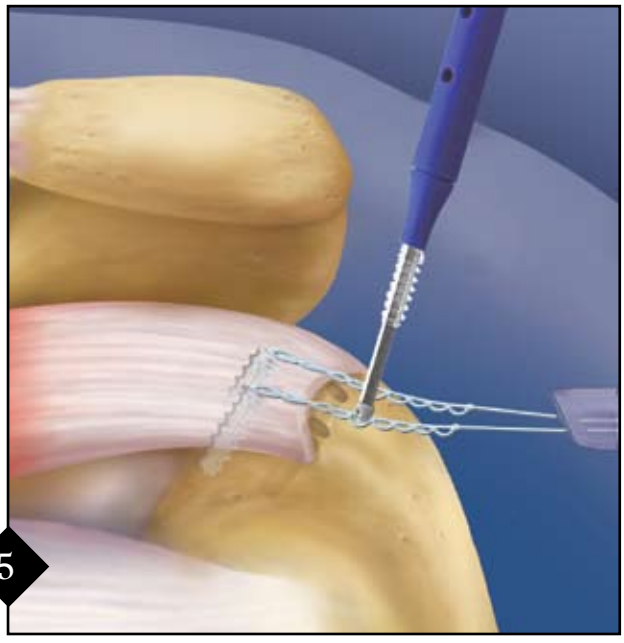


Retrieve the suture leader from one of the FiberChain strands through the lateral portal and load it onto a Scorpion Suture Passer.

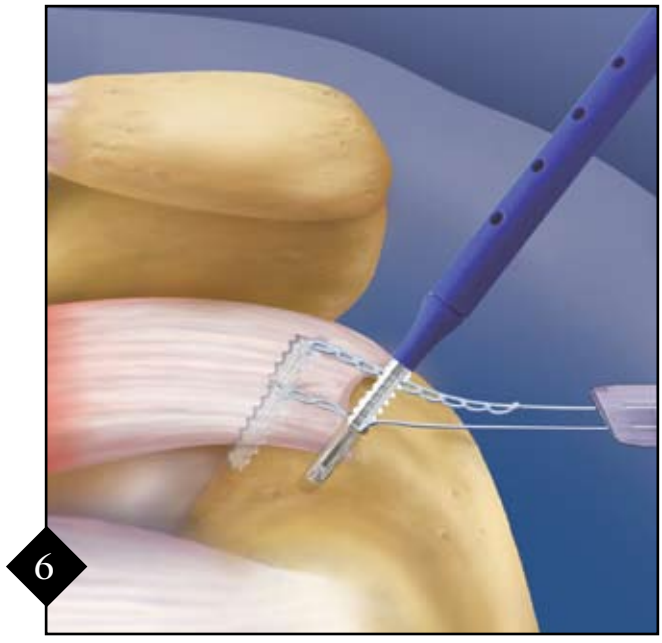
Pass the FiberChain suture leader approximately 15 mm from the free margin of the rotator cuff. Repeat for the second FiberChain.



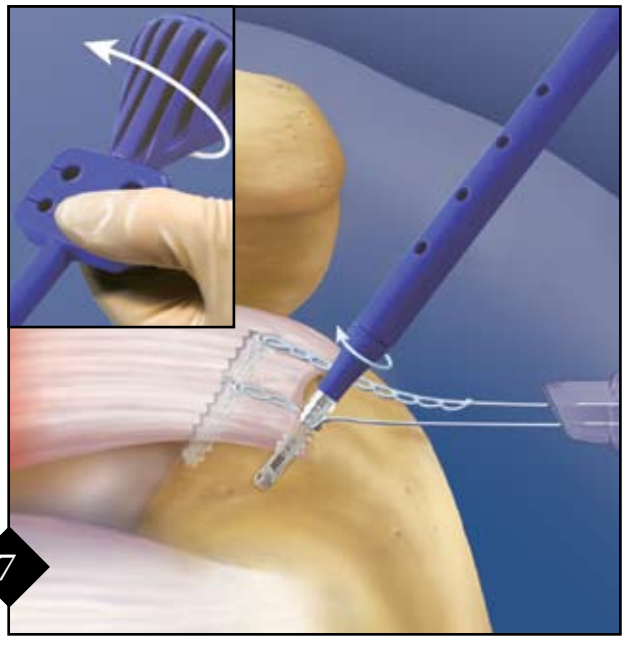
Retrieve both FiberChain suture ends through the lateral portal and tension them to bring the cuff into contact with the medial portion of the footprint. The tip of the cannula may be used to push the tendon against the footprint. Through a percutaneous superolateral portal, make two bone sockets for the lateral row SwiveLock anchors using the 5.5 mm Bio-Corkscrew FT Punch. These two bone sockets should be adjacent to the lateral margin of the cuff when the cuff is appropriately tensioned by the two previously placed FiberChains.



Introduce the SwiveLock anchor through the percutaneous superolateral portal and capture the third link from the free margin of the rotator cuff. Each link in the FiberChain is approximately 6 mm in length. Since the total length of the SwiveLock anchor is 18 mm, capturing the third link from the cuff edge will usually position the cuff directly at the edge of the bone socket and perfectly tension the FiberChain and the rotator cuff segment that it spans, when the inserter tip pushes the FiberChain to the bottom of the bone socket.



Advance the driver into the bone socket and push the FiberChain toward the bottom of the socket until the anchor body contacts the bone. Evaluate the tissue tension. If the tension is not adequate, remove the driver from the bone socket by pulling on the free end of the FiberChain (to release any wedging of the swivel tip) at the same time that the inserter is withdrawn. Capture the adjacent, more proximal link. If the tension is too great to fully insert the driver to the bottom of the bone socket, remove the driver and capture the adjacent, more distal link. Then reinsert the driver to the base of the bone socket.



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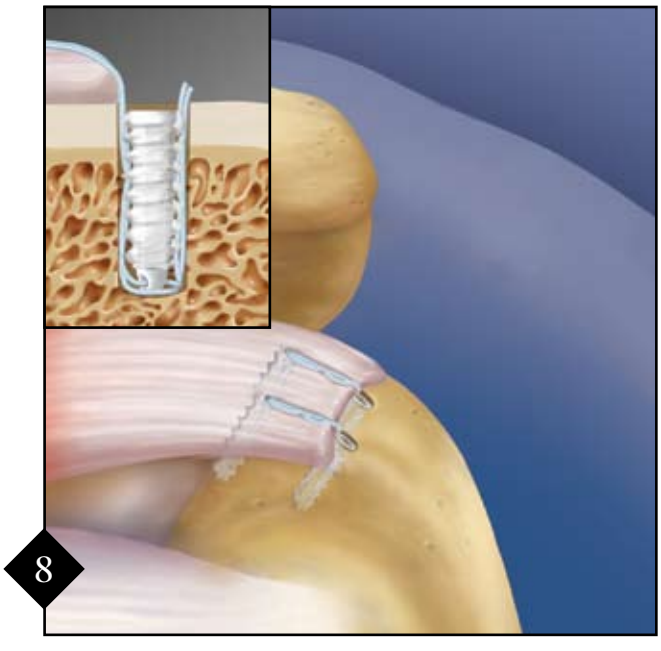

Repeat steps five through seven for the second SwiveLock to obtain the final construct.

Cut the free suture ends with an open ended Suture Cutter so that they are flush with the edge of the bone socket.

Ordering Information

Implants/Disposables:

Bio-SwiveLock Suture Anchor, 5.5 mm x 15 mm	AR-2323BS
PEEK SwiveLock Suture Anchor, 5.5 mm x 15 mm	AR-2323PSL
FiberChain, #2 FiberWire w/ 10 loops, 7 mm long	AR-7270
Bio-Corkscrew FT Suture Anchor, 5.5 mm x 15 mm, w/FiberChain	AR-1927BFC
Scorpion Needle	AR-13990N
Crystal Cannula, 5.75 mm I.D. x 7 cm	AR-6560

Accessory Instruments:

Chondro Pick, straight, 40° tip	AR-8670
Bio-Corkscrew FT Punch, reusable	AR-1927PB
Bio-Corkscrew FT Punch, disposable	AR-1927PBS
Bio-Corkscrew FT Punch/Tap, reusable	AR-1927CTB
Suture Retriever, 3.4 mm, straight	AR-12540
Suture Retriever, straight, 3.4 mm w/WishBone Handle	AR-12540W
Scorpion Suture Passer, 16 mm	AR-13990
Scorpion Suture Passer, 20 mm	AR-13992
KingFisher Suture Retriever/Tissue Grasper	AR-13970SR
KingFisher Suture Retriever/Tissue Grasper w/WishBone Handle	AR-13970W
Suture Cutter, open ended, left notch	AR-11794L
Suture Cutter, open ended, left notch w/WishBone Handle	AR-11794LW

Associated DVD Media:

Arthroscopic Rotator Cuff Repair featuring the SwiveLock Anchor	DVD-1088

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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.