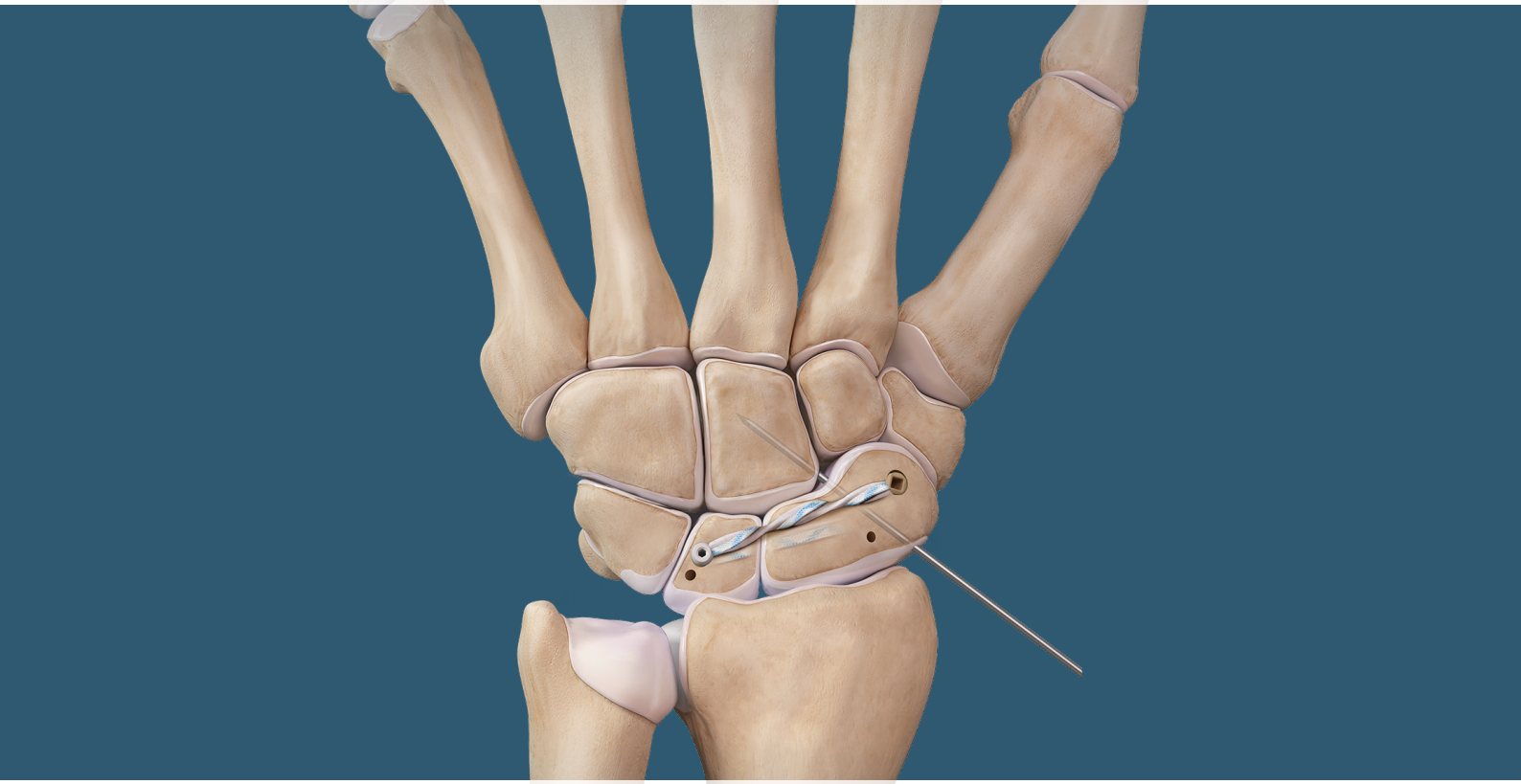
Interosseous Scapholunate Reconstruction

Surgical Technique



Arthrex®

Interosseous Scapholunate Reconstruction

Introduction

The treatment of scapholunate ligament (SL) tears remains difficult and controversial. The pathology represents a spectrum of injury that ranges from a sprain of the ligament to a partial tear to the volar, central, or more commonly dorsal component of the SL ligament. Progression leads to complete tears of all 3 components, disruption of secondary stabilizers and subsequent DISI deformity. Ultimately, arthritic changes ensue. Direct repair of all three components of the SL ligament cannot be performed reliably.

The 3.5 mm SwiveLock® SL reconstruction is achieved by using a strong anchor construct that incorporates a combination of a biologic tendon graft reconstruction into bony tunnels with additional soft tissue-to-bone points of fixation using the *Internal*Brace™ procedure. Together, this construct supports the connection between the bones so that graft incorporation can take place. This reconstruction is best suited for tears of all three components of the scapholunate interosseous ligament. Partial tears of the dorsal and central portions of the SL ligament can be reconstructed using the dorsal reconstruction technique.

Interosseous reconstruction of the scapholunate ligament with the 3.5 mm DX SwiveLock SL anchor is indicated for complete tears of the scapholunate ligament where there is inadequate ligament to repair, the carpal cartilage is preserved (no arthrosis) and the carpus is reducible. The goal of the reconstruction is to address the scapholunate diastasis as well as the scaphoid flexion and lunate extension.

Contraindications for the SwiveLock SL technique include inflammatory arthritis, previous and/or current infection, carpal arthrosis (SLAC wrist), irreducible carpus, pediatric patients, preexisting hardware in the carpal bones, large cystic changes in the carpal bones and patients with unusually small anatomy.

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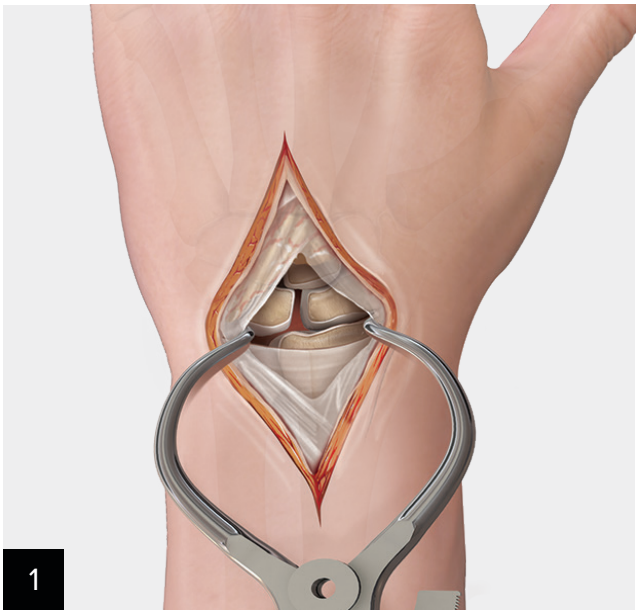

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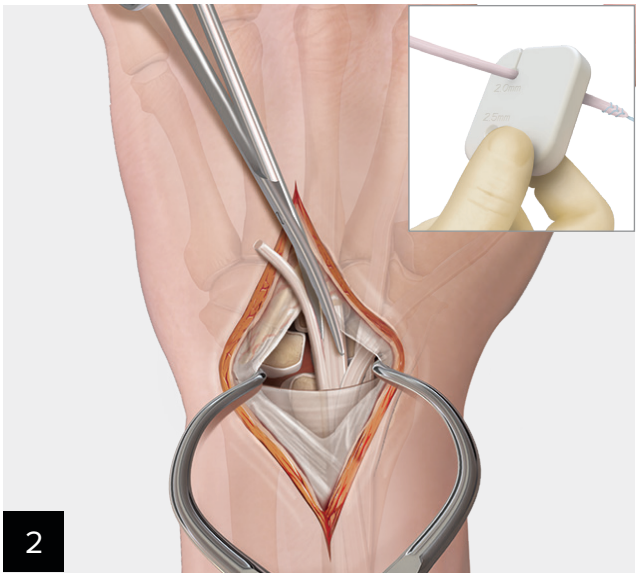
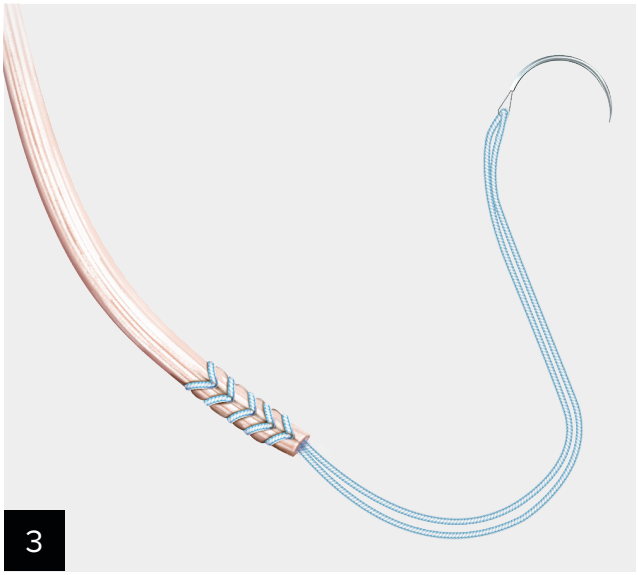
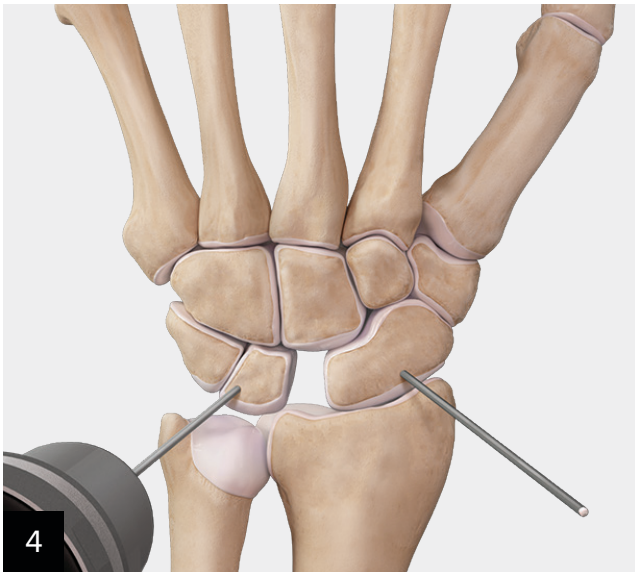
Make a 4” longitudinal incision starting between the bases of the 2nd and 3rd metacarpals and extending proximally between the 3rd and 4th compartments. PIN and/or AIN neurectomy is optional. Expose the scapholunate interval via a dorsal approach with an inverted T-capsulotomy. The transverse portion of the capsulotomy is taken down directly off the distal radius. Incise enough capsule to adequately visualize the entire dorsal surface of the lunate and scaphoid bones. Try to preserve the lateral/dorsal blood supply to the scaphoid.



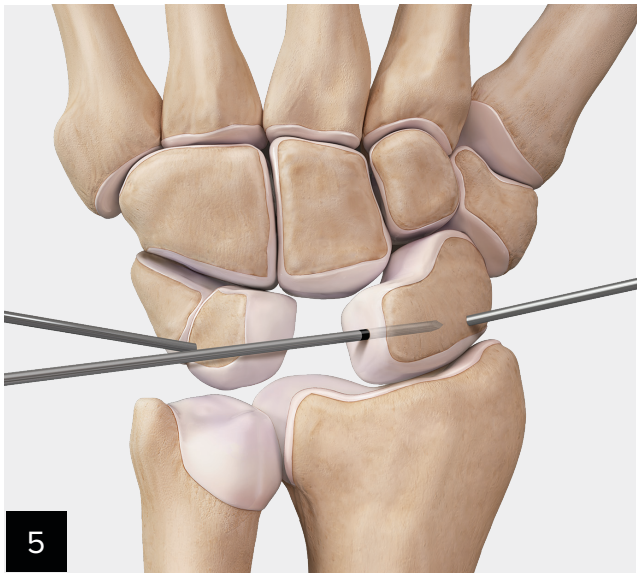
Harvest a 2 mm wide slip of the extensor carpi radialis brevis (ECRB) tendon at its insertion on the base of the 3rd metacarpal. Alternatively, a slip of ECRL can be used. **It is crucial to keep the graft width between 2 mm and 2.5 mm. Use the tendon sizer to confirm proper width of the tendon.** Using a larger graft will complicate insertion into both the eyelet of the anchor and the drill hole. A tendon stripper is often useful in retrieving the required 10 cm or longer graft, and can be used in an intratendinous fashion.



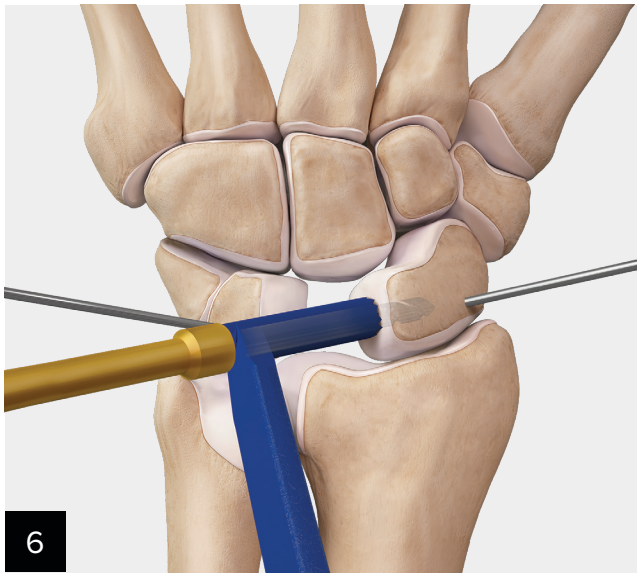
Whipstitch both ends of the graft with 2-0 FiberLoop® suture.



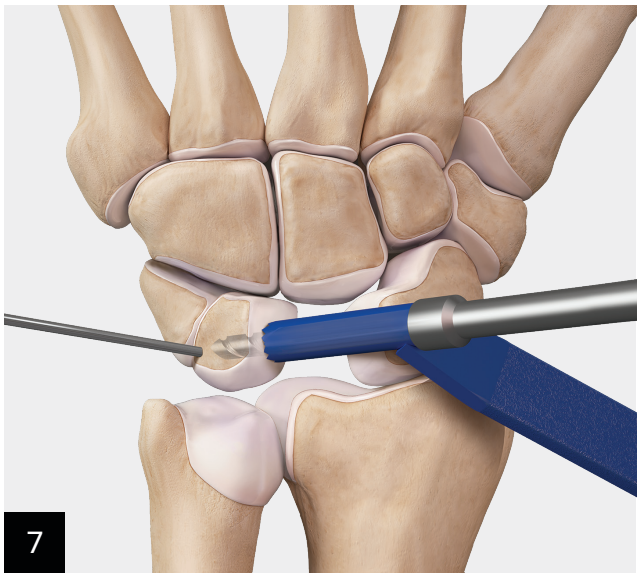
Place one K-wire into the waist of the scaphoid, and one into the proximal/ulnar side of the lunate to act as joysticks. Place the joysticks in a way that avoids future bone tunnels, and when clamped together, helps to reduce the diastasis and rotational deformity. Avoid over reduction of the scaphoid flexion/lunate extension. If there are any remaining soft tissues joining the scaphoid to the lunate, they may be incised in order to allow complete diastasis between the bones.



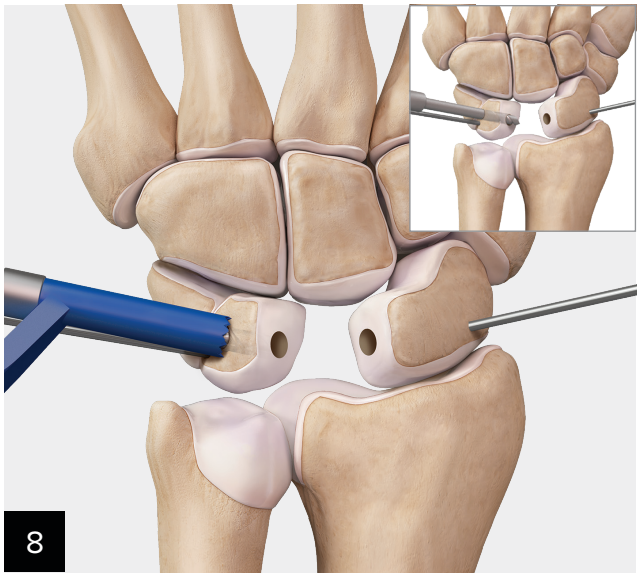
Using the joysticks, the scaphoid and lunate are “open-booked” to access the ulnar side of the scaphoid and radial aspect of the lunate. The central point of the scaphoid is determined and a 0.054” guidewire is placed into this central axis. Check the position on fluoroscopy to confirm that the drill will be within the confines of the bone.



Drill using the 3.5 mm cannulated drill and drill guide to 1 cm depth stop.

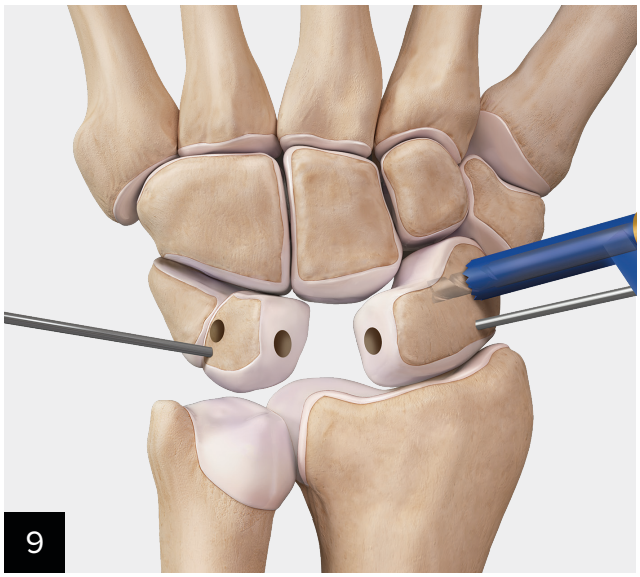


The central point of the lunate matching the central point of the scaphoid bone is located and a 0.054” guidewire is placed into the central axis of the lunate. Drill using the 3.0 mm cannulated drill to 1 cm depth stop, creating an inside-out tunnel in the lunate. The 1 cm tunnel is within the confines of the lunate and does not exit out of the far cortex.

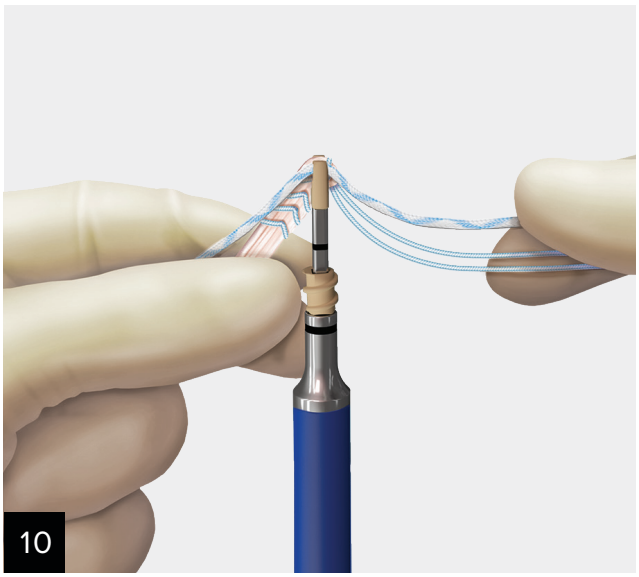


A separate outside-in tunnel in the lunate is made starting from the dorsal-ulnar corner of the lunate and connecting to the central, inside-out tunnel. The guidewire is aimed from the dorsal-ulnar corner of the lunate near the lunotriquetral ligament attachment and aimed at a 45° angle toward the central tunnel. Overdrill using the 3.0 mm cannulated drill to create a connected tunnel through the lunate.

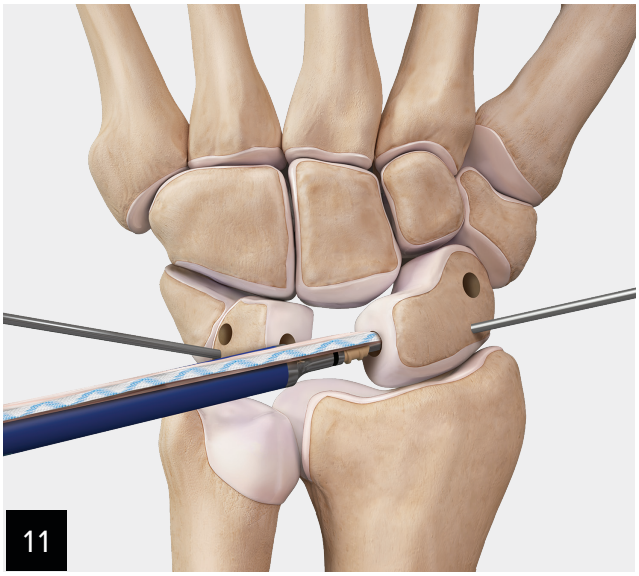
Optional technique variation: A single drill hole can be drilled in lieu of a converging drill hole. A 2.5 mm or 3.0 mm drill is advanced from the dorsal ulnar aspect of the lunate, through the midbody of the bone, and exiting out the central aspect.



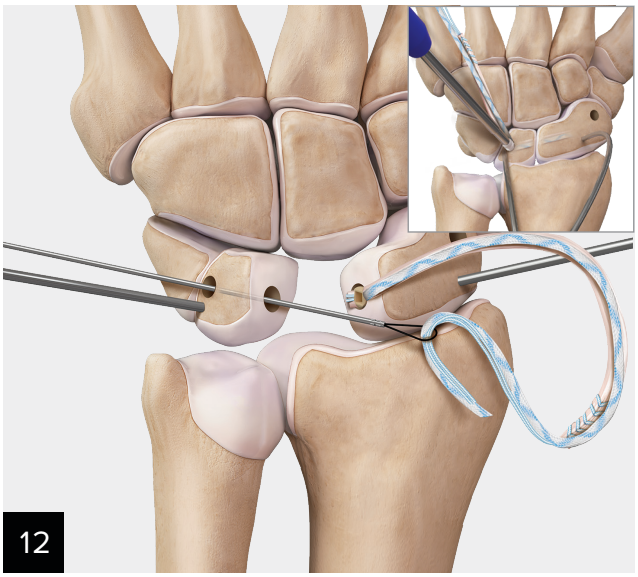
Place the final 0.054” K-wire into the distal pole of the scaphoid and confirm via fluoroscopy prior to overdrilling. Use the 3.5 mm cannulated drill to the 1 cm depth stop. Clear any soft tissue and remnants of bone surrounding, and in the drill holes, to facilitate insertion of the graft.



Place the forked eyelet of the SwiveLock® SL anchor onto the tendon graft about 3 mm from the end of the graft and secure both limbs of the FiberLoop® suture into the notch on the SwiveLock® tab. For additional points of fixation using the *Internal*Brace™ procedure, place SutureTape over the graft and forked eyelet and secure onto the SwiveLock tab.



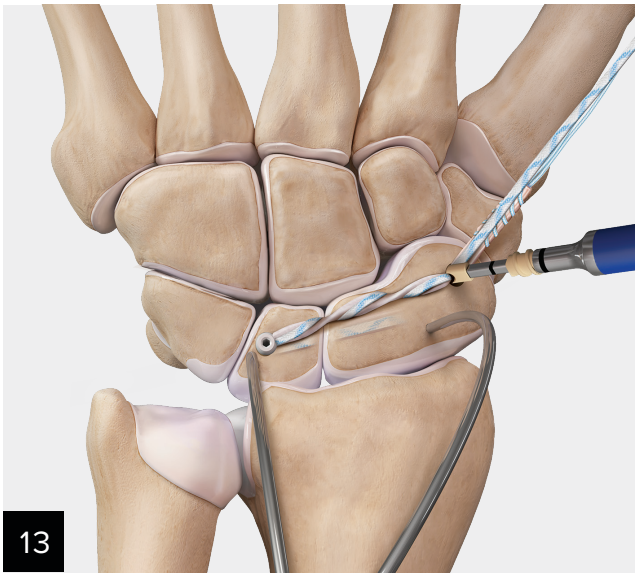
Insert the SwiveLock® SL anchor into the scaphoid until the leading end of the threaded anchor body is flush to the bone. Hold the square tab steady while turning the knob clockwise with forward pressure until the laser line is just below the level of the bone. Do not countersink the anchor. Remove the handle. If it does not disengage easily, turn the square tab counterclockwise to disengage the handle from the anchor.



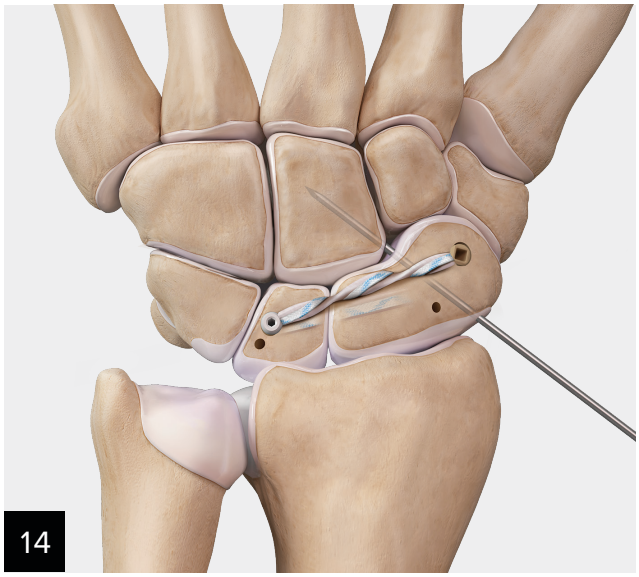
Shuttle the tendon graft and one limb of the 1.3 mm SutureTape through the lunate tunnel. (The extra limb of SutureTape can be cut flush with the anchor body.) Reduce the scaphoid and lunate and clamp the joystick K-wires together.

A 3 mm × 8 mm Tenodesis Screw is used to secure the tendon graft and SutureTape in the lunate hole.

Optional: If the length of the tunnel is less than 8 mm, the body from a 3.5 mm DX SwiveLock SL anchor can be used. The tunnel should be overdrilled with the 3.5 mm drill if this fixation method is preferred.



An additional 3.5 mm DX SwiveLock® SL anchor is used to capture the tendon graft and SutureTape near the distal pole of the scaphoid drill hole. Twisting the graft and SutureTape together can facilitate placement into the forked eyelet. Insert into the scaphoid. Apply counter pressure to the volar scaphoid tubercle while advancing the anchor. If resistance is met, slow and constant pressure downward will allow the SwiveLock SL anchor to insert and auto-tension the construct.



Cut off any excess tendon graft and suture. If you have not previously placed a scapho-capitate K-wire, do so now prior to removing the joystick K-wires. Close the capsule and dorsal incision.

Post-op: A forearm-based thumb spica splint or cast is worn for 6-8 weeks. Any supplemental K-wires can be removed and hand therapy may be started at this time depending on patient's status. The splint is worn for an additional 6 weeks.

Ordering Information

Hand and Wrist *Internal*Brace™ Ligament Repair System

Product Description	Item Number
DX SwiveLock SL Anchor, w/ forked eyelet, 3.5 mm × 8.5 mm, qty. 2 Drill Bit, cannulated, 3.0 mm (for all-suture constructs) Drill Bit, cannulated, 3.5 mm (for all constructs with graft incorporation) Guidewires w/ Laser Marking, 1.35 mm, qty. 3 Tendon Sizer, 2.0 mm and 2.5 mm 2-0 FiberLoop® Suture w/ Tapered Needle, qty. 2 SutureTape Suture	AR-**8978-CP**

Note: Additional guidewires will be needed for joystick maneuvering and scaphocapitate fixation. Size may be determined by surgeon preference.

3.5 mm DX SwiveLock Anchor

Product Description	Item Number
DX SwiveLock SL Anchor, with forked-tip eyelet, 3.5 mm × 8.5 mm	AR-**8978P**

Tenodesis Screws

Product Description	Item Number
PEEK Tenodesis Screw, 3 mm × 8 mm	AR-**1530PS**
BioComposite Tenodesis Screw, 3 mm × 8 mm	AR-**1530BC**

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.

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