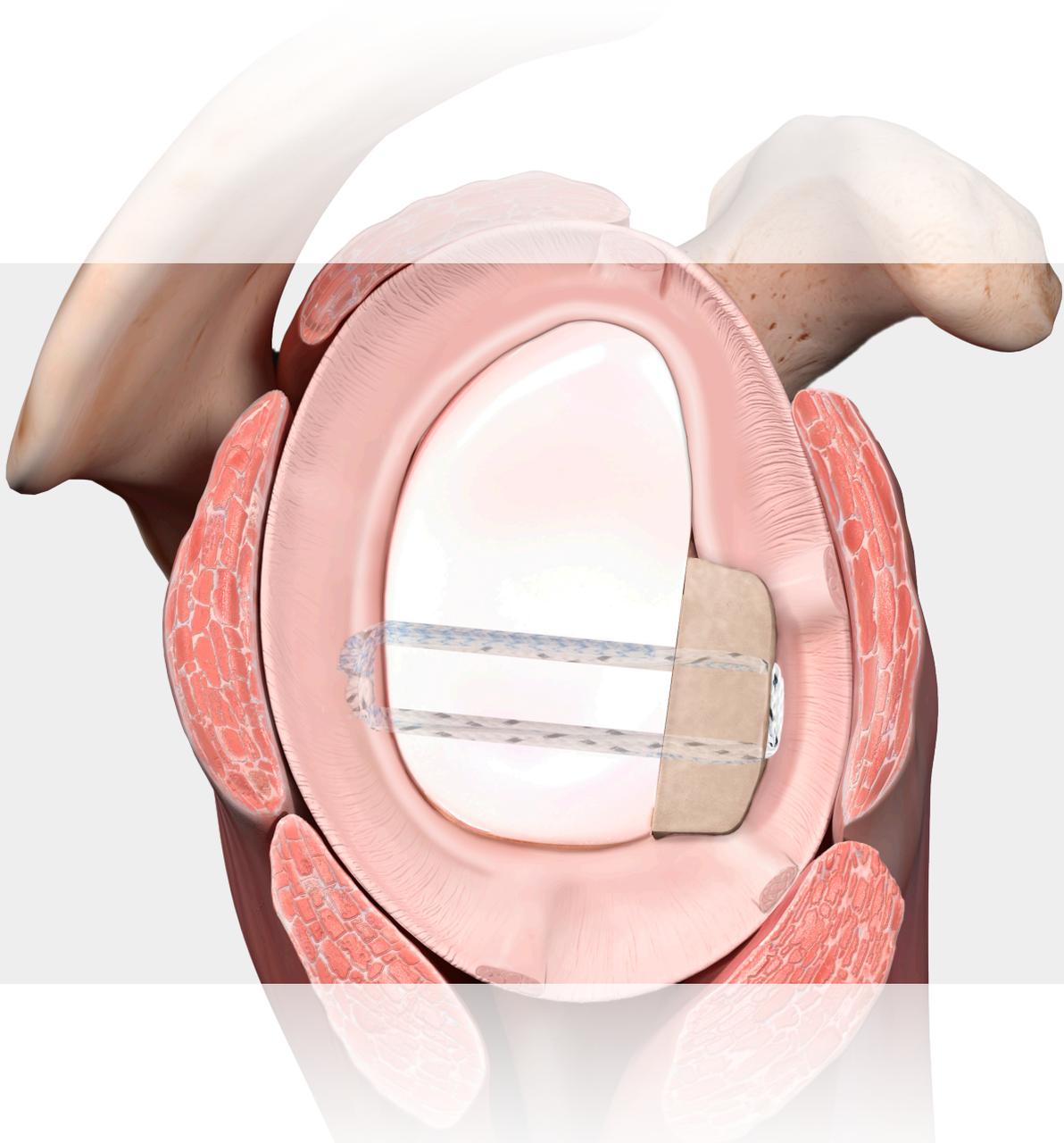


Bone Block Cerclage

Surgical Technique



Introduction

Bony glenoid defects frequently occur in patients with recurrent anterior shoulder instability. Free bone block procedures aim to restore the glenoid concavity and anatomy of the glenohumeral joint to reestablish stability. Various bone-grafting techniques have been published that have yielded satisfying clinical and radiological outcomes in the long term.¹⁻⁴ However, the structural integrity and clinical function of the subscapularis tendon may be compromised after open shoulder stabilization procedures.⁵

Bone block cerclage is an innovative arthroscopic surgical technique that preserves the integrity of the subscapularis and provides a metal-free fixation of the bone graft.⁶ Two interconnected FiberTape® and TigerTape™ cerclage sutures provide a firm compression of the graft and a strong fixation that minimizes construct displacement at high loads.^{7,8}

Portals, Preparation, and Defect Sizing

Portals

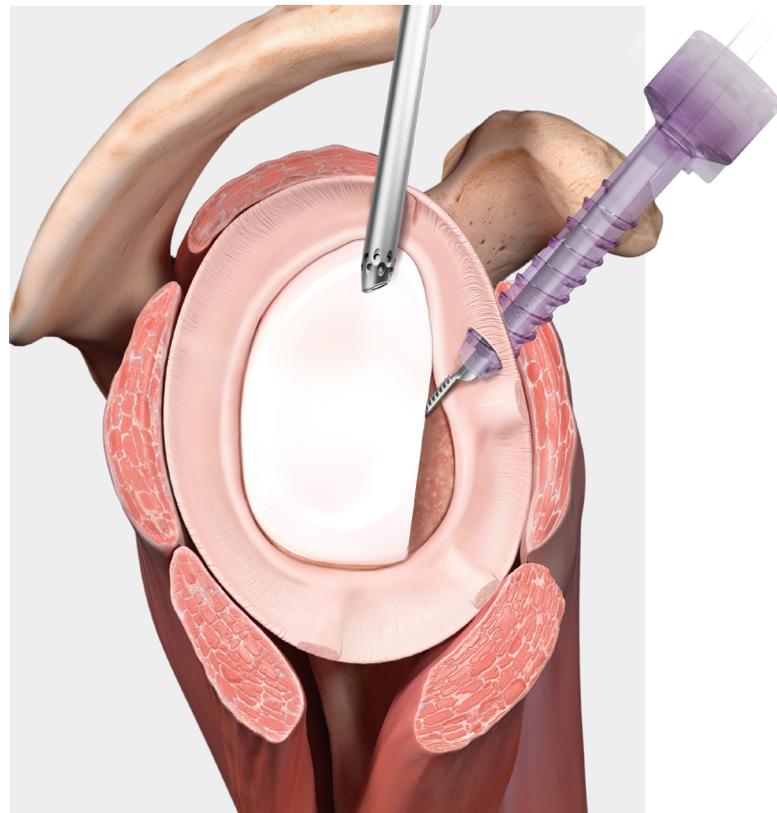
- Adjust standard posterior portal slightly more medial than usual
- Insert an 8.25 mm cannula into the anteroinferior portal through the rotator interval
- Switch the arthroscope to a suprabicipital portal just behind the biceps tendon or to an anterolateral portal

Preparation

- Elevate capsulolabral lesions from 1 to 6 o'clock, allowing visualization of the subscapular muscle fibers
- Release the anterior capsulolabral complex from the anterior glenoid rim and scapular neck, respectively
- To create more room in the anterior compartment, pass a percutaneous suture lateral and medial to the labrum and around the capsulolabral complex
- Debride the anterior glenoid defect and abrade the glenoid neck to create a flat surface

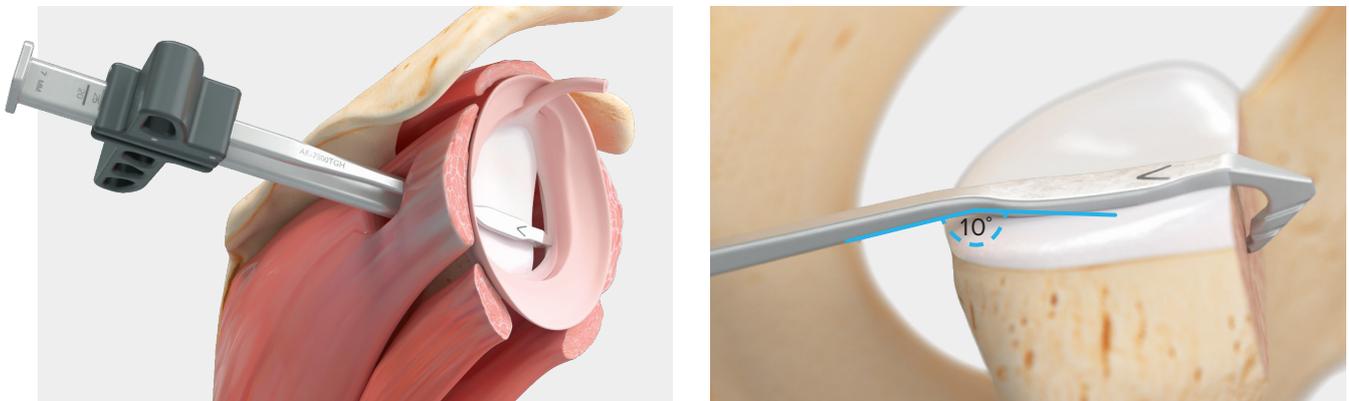
Defect Sizing

- Use an arthroscopic measuring probe from the anteroinferior portal to measure from proximal-to-distal and from anterior-to-posterior to estimate the size of the defect and bone block
- To calculate where the drill guide will be placed, make a small mark using a radiofrequency device at the center of the previously measured defect along the longitudinal axis

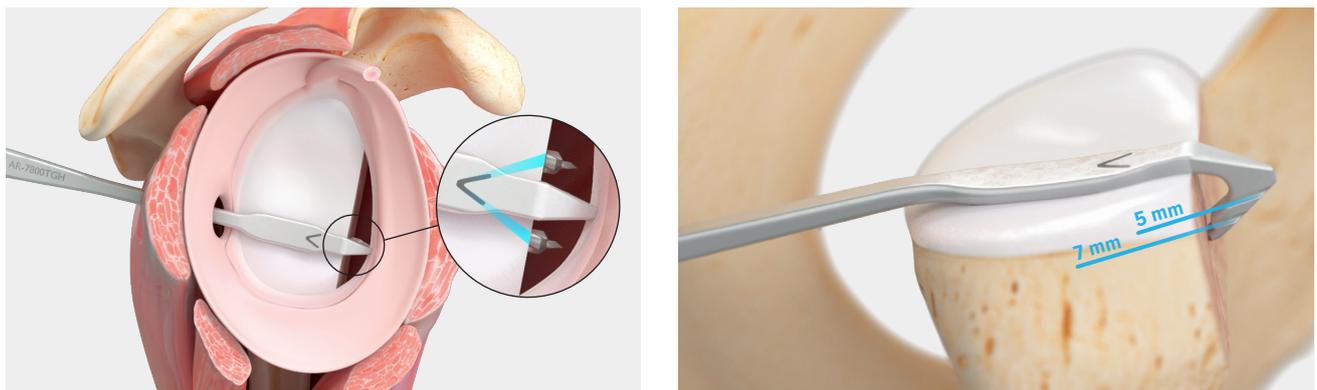


TransGlenoid Drill Guide Features and Benefits

The TransGlenoid drill guide is designed to provide accurate drilling of two parallel bone tunnels across the glenoid. The guide consists of an ergonomic hook that conforms to the anatomy of the glenoid, with the ability to choose two different medial offsets (5 mm or 7 mm) and a ratcheting system to secure the guide in place.



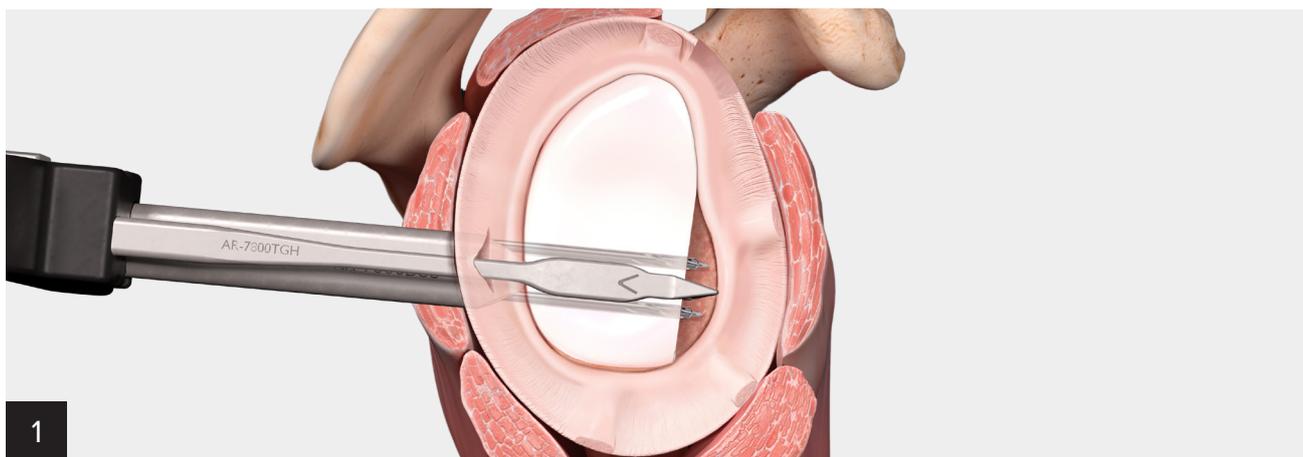
The anatomically curved aiming guide is designed to lay flush to the glenoid face and features a 10° safety angle incorporated in the shaft 3 cm from the tip of the hook. Make sure to have both anterior and posterior glenoid contact.



The “V” laser mark on the aiming guide shows the projected exit points of the drills. Two grooves on the tip of the hook provide visual confirmation of the preselected 5 mm or 7 mm offset and drill exit points.

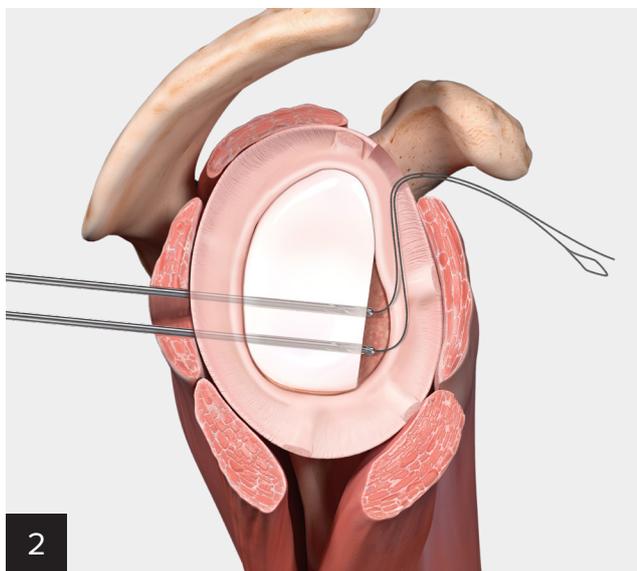


The drill sleeve provides placement of two 3 mm tunnels across the glenoid, 10 mm apart from the centers. The sleeve allows the option of drilling either 5 mm or 7 mm anterior medial offset tunnels. Insert the sleeve with the 5 mm mark facing towards the shaft of the hook, or flip the sleeve to provide a 7 mm medial offset. Laser marks on the sleeve show the intraosseous distance between the posterior and anterior scapular bone (from tip of sleeve to drill exit points). The short and long 3 mm cannulated drills incorporate corresponding laser marks to aid in anticipating when the drills will exit.

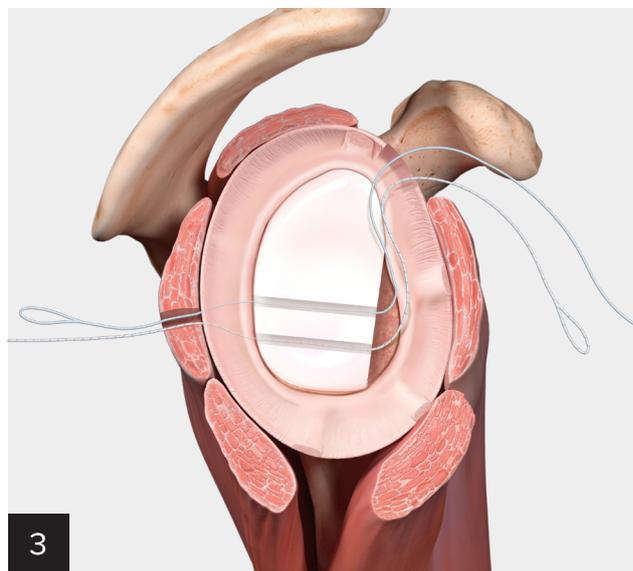


Insert the TransGlenoid aiming guide through the posterior portal and place the anatomic hook flush to the glenoid surface, just above the previously made mark (see pg 2, Defect Sizing), and as close as possible to the center of the defect. Make sure to feel glenoid contact both anteriorly and posteriorly. Use Mayo scissors to enlarge the opening through the muscle and all the way down to the posterior scapular bone surface.

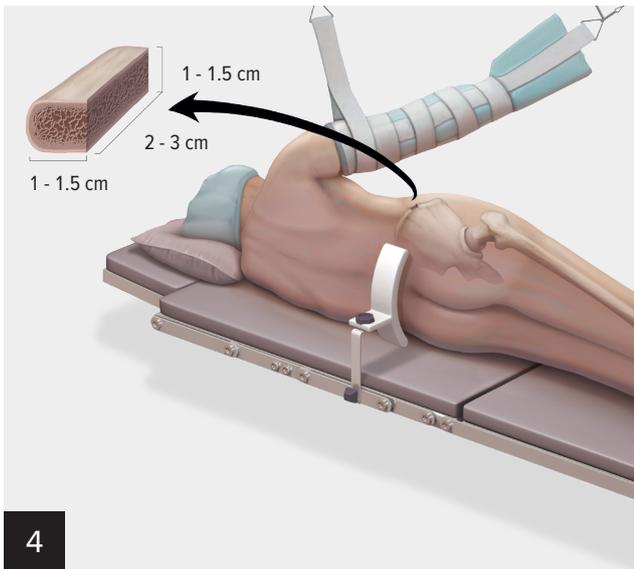
Select the desired offset (5 mm or 7 mm, shown on the drill sleeve and facing the shaft of the hook) and introduce the drill sleeve until firm contact is felt against the posterior scapula. Make sure not to overtighten the ratcheting system to avoid excessive medialization of the bone tunnels. Using the short cannulated drill first, drill two 3 mm tunnels with direct visualization of the defect and exit points.



Remove the guide and leave the drills in place. Remove the pins from the cannulated drills and pass 2 nitinol wires from posterior to anterior. Leave the loop of one wire posteriorly and the other wire's loop anteriorly. Retrieve the wires through the anteroinferior portal.



Remove the drills, leaving the nitinol wires in place. Replace the wires with FiberLink™ and TigerLink™ sutures, ensuring one loop is posterior and the other loop is anterior. Make sure the sutures are separated and not twisted going through the interval portal. Using the arthroscopic measuring probe, measure the distance between the drill holes (1 cm) and the anterior glenoid rim and the distance between the distal glenoid tunnel to 6 o'clock, to subsequently help obtain accurate bone block preparation.

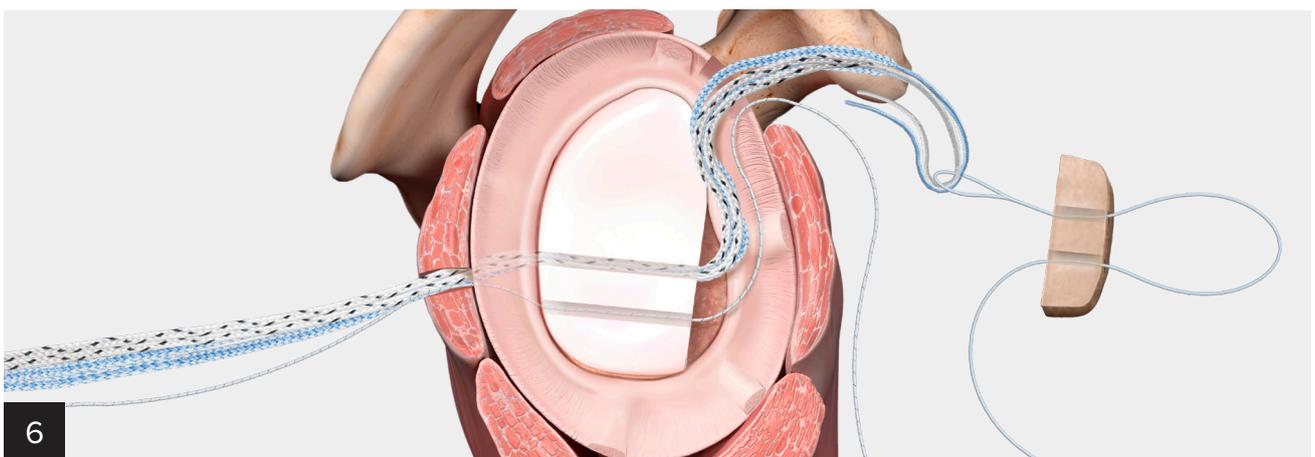


Bone Block Preparation

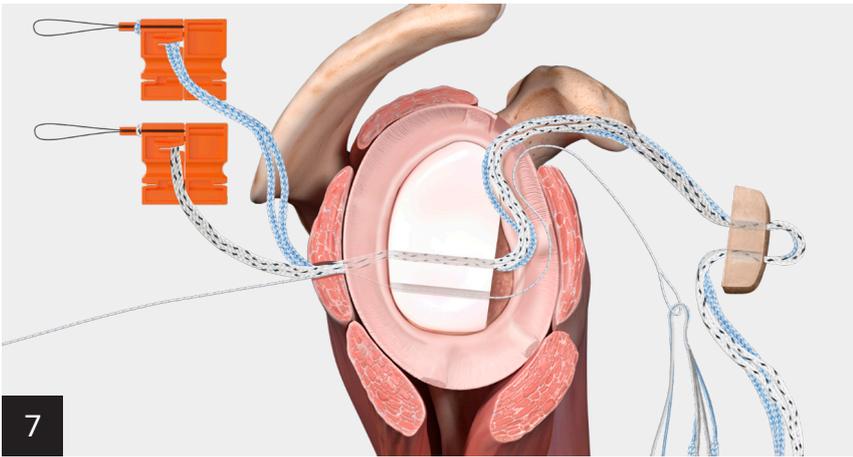
An ipsilateral tricortical iliac crest autograft or distal tibia allograft may be used for the bone block graft. The size is generally 2-3 cm × 1 cm to 1.5 cm × 1-1.5 cm, depending on the iliac crest anatomy and the previously measured glenoidal defect. Using a 3 mm cannulated drill, drill 2 holes 1 cm apart starting from the cancellous bone-graft side of the bone block, matching them to the previously defined glenoid drill-hole measurements, to obtain a flush articulating surface and correct distal glenoid graft placement.



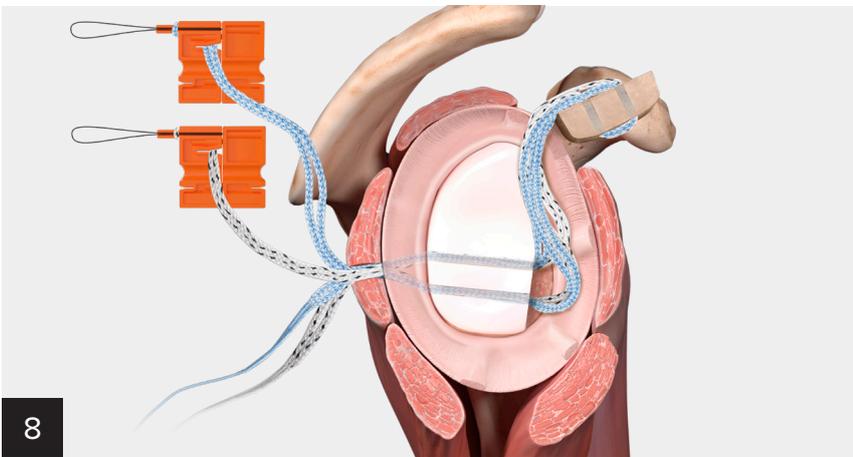
Enlarge the anterior skin incision and open the rotator interval using a radiofrequency device. Use an index finger as a dilator to make sure the final passage of the graft is possible without any soft-tissue restraint. Using the loop of the FiberLink™ suture, pass the single limbs of both the FiberTape® and TigerTape™ cerclage sutures through the same glenoid tunnel, through the rotator interval, and out of the anteroinferior portal.



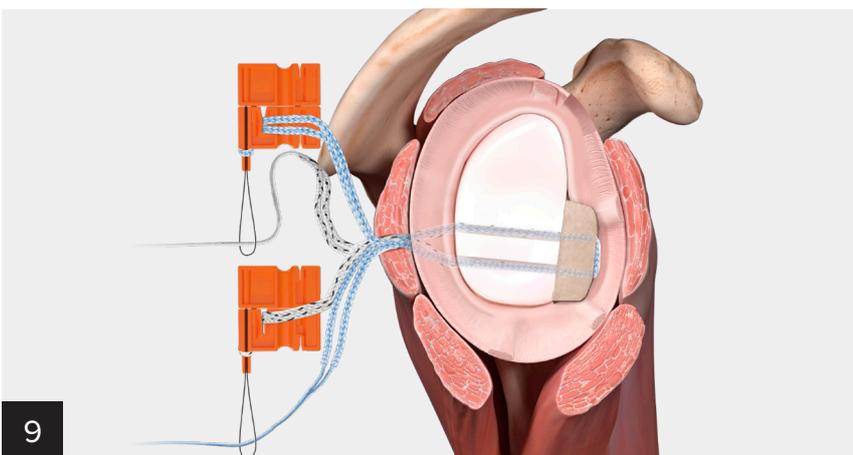
Pass both cerclage sutures first through the cancellous bone-graft side of the bone block and matching glenoid drill hole, and then back through the other drill hole.



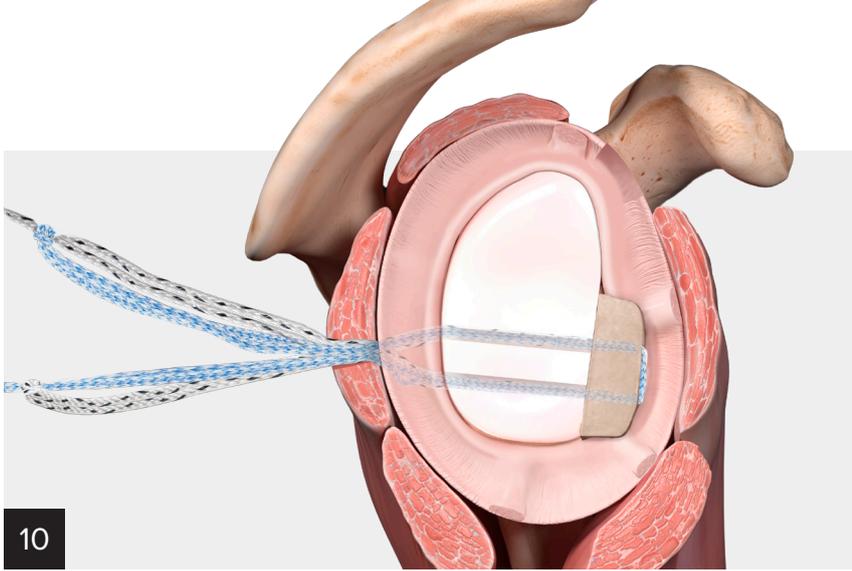
Use the remaining TigerLink™ suture loop to shuttle the FiberTape® and TigerTape™ cerclage sutures through the rotator interval and the other glenoid bone tunnel.



A clamp can be used to help introduce the graft and maintain orientation while pulling on the sutures posteriorly. Make sure that the suture limbs are not twisted or trapped between the bone block and anterior glenoid. Pull on each limb individually to remove the slack.

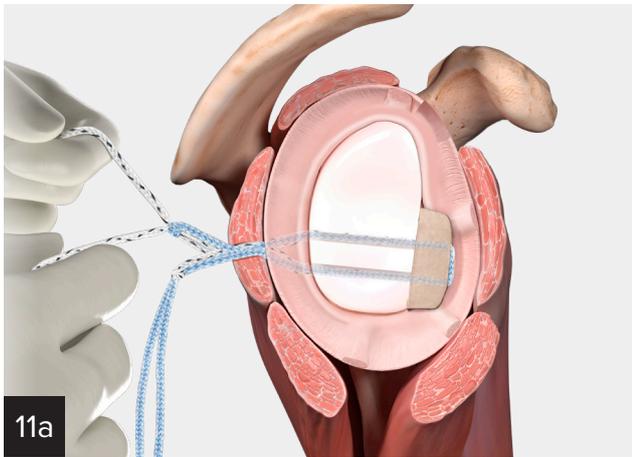


Introduce the FiberTape® cerclage (blue) suture into the knot of the TigerTape™ cerclage (white) suture using the nitinol loop of the orange loader. Introduce the TigerTape cerclage suture into the knot of the FiberTape cerclage suture using the same method.

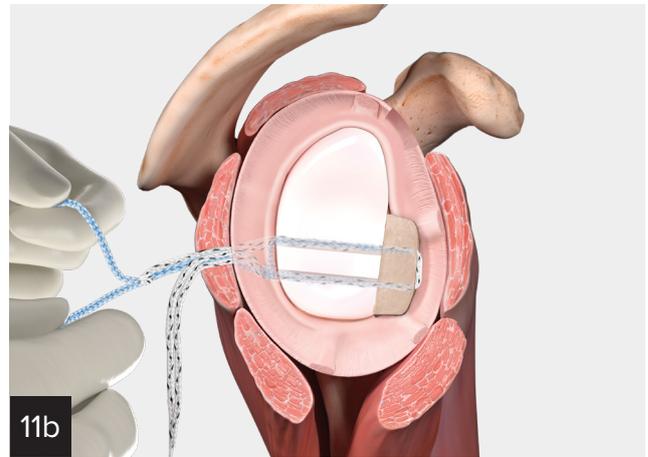


Slide the knots all the way to the tape portion of each suture and tighten the knots manually (not too tight). Pull alternately on the single limbs of both the FiberTape® and TigerTape™ sutures to remove slack from the knot side of the construct prior to advancing the knot any further.

10

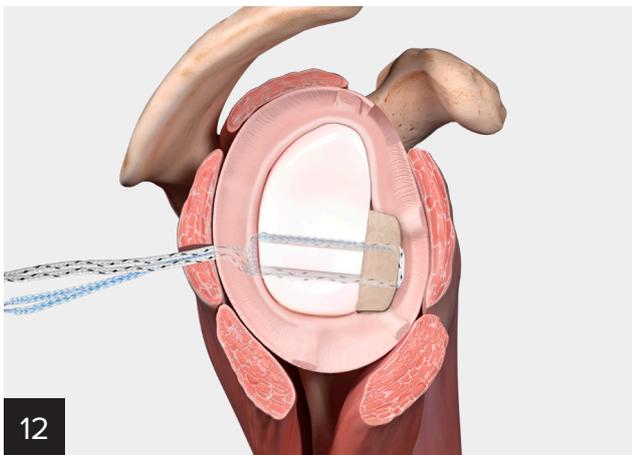


11a

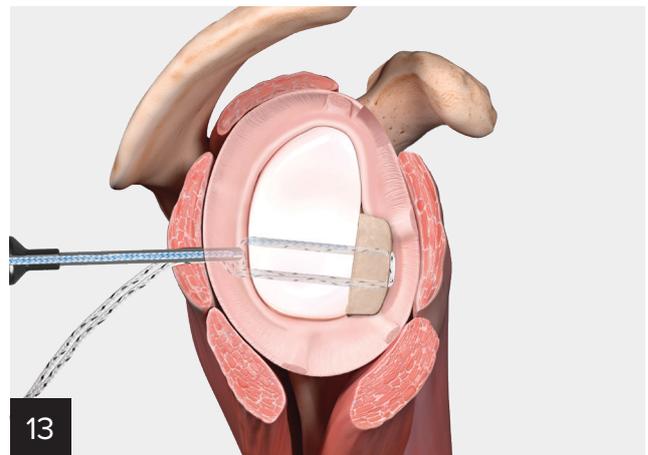


11b

Grasp the TigerTape cerclage suture limbs separately and pull alternately on each cerclage suture, advancing a few centimeters at a time. Then grasp the FiberTape cerclage suture limbs separately and pull alternately on each cerclage suture advancing a few centimeters at a time. The goal is to keep the knots roughly at the same level, which will introduce the knots through the incision and down to the bone.



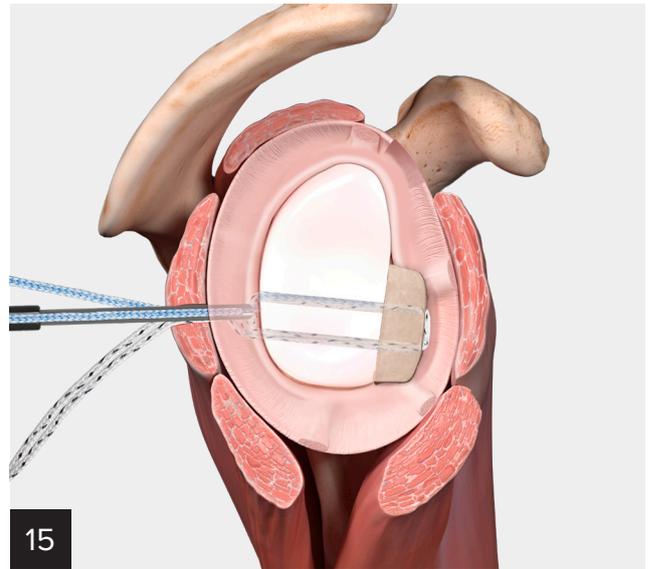
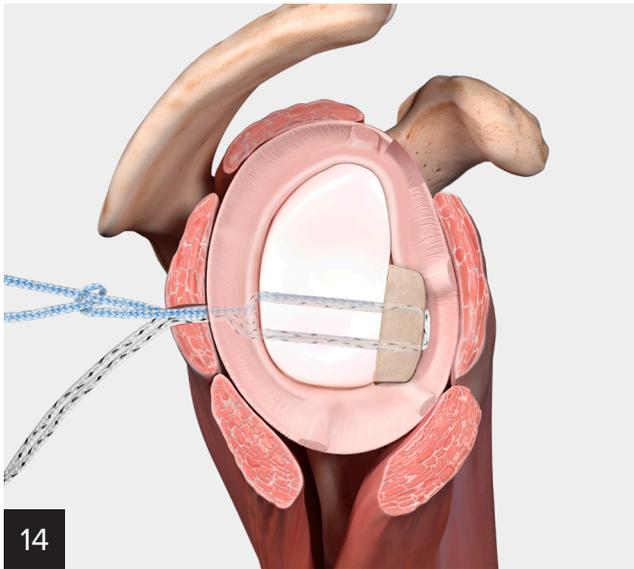
12



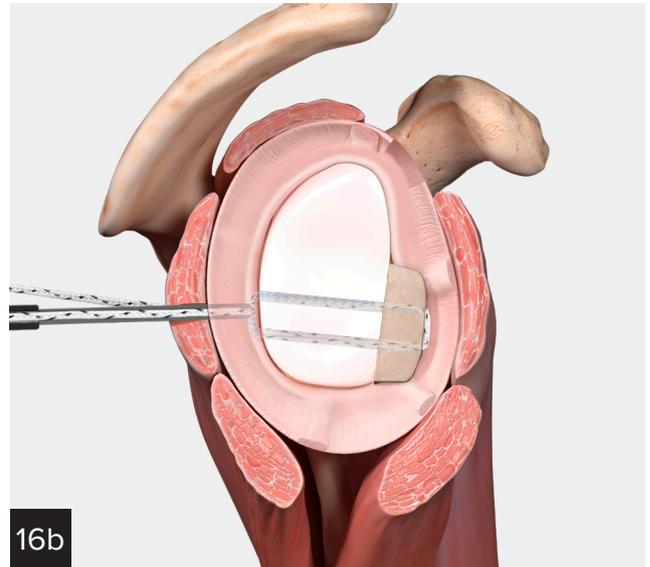
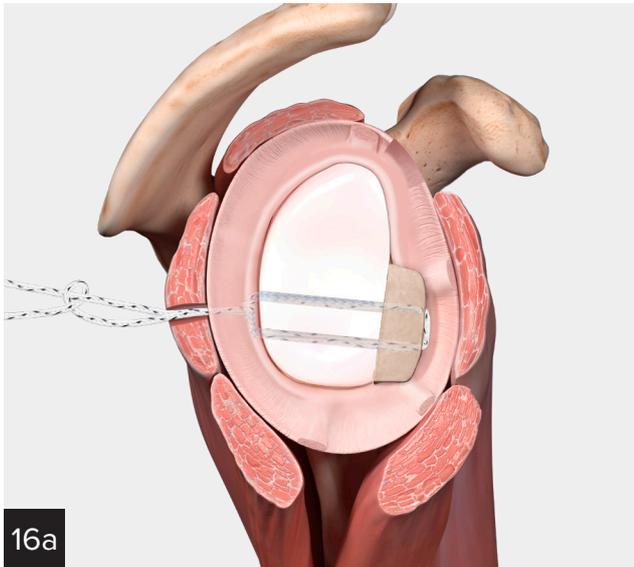
13

Once the knots are seated against the posterior cortex, pull on each suture limb separately to help reduce any slack left in the construct.

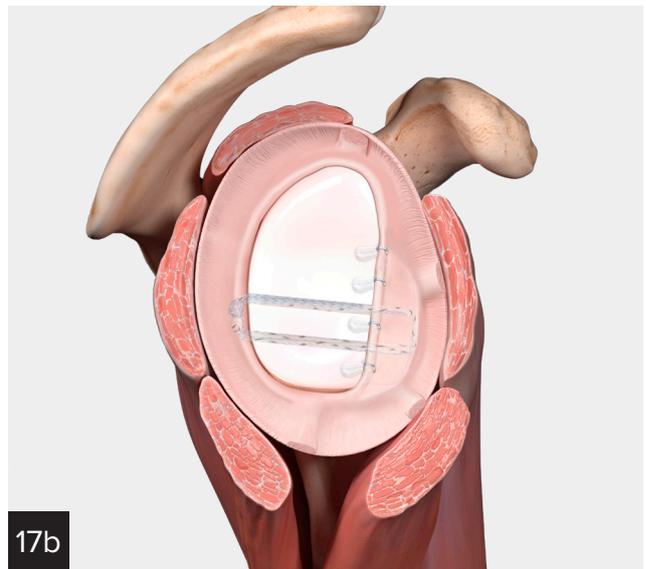
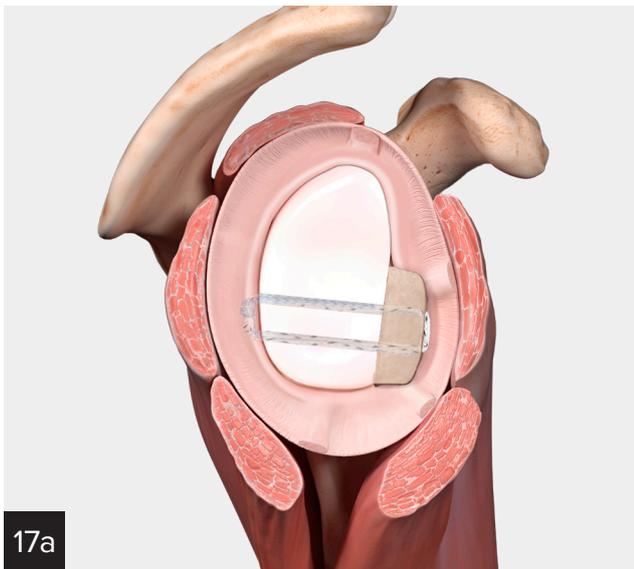
To make sure the knots are fully reduced to the bone, load the FiberTape cerclage suture into the tensioner and lightly tension until resistance is felt. Repeat this step with the TigerTape cerclage suture.



Cut the FiberTape® cerclage suture to separate the limbs. Throw a half hitch and reduce the knot to the bone tightly using a knot pusher. Insert the hitching suture limb into the tensioner and tension to around 30 while having direct visualization of the anterior portion of the bone graft and the cerclage suture bridge. Apply additional alternating half-hitch knots and cut the sutures.



Repeat the same steps for the TigerTape™ cerclage suture.

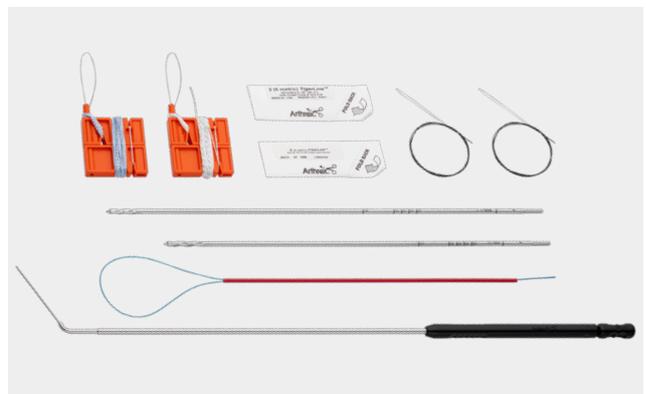


Reattach the capsulolabral complex to the anterior glenoid rim with Knotless FiberTak® soft anchors while avoiding the suture construct as much as possible, leaving the bone block extra-articular.

WARNING: To avoid damaging the construct, only FiberTak soft anchors using nonfluted drills (AR-3610ND-2 [standard drill] AR-3610NSD-2 [shaver drill]) should be used when placed between the bone tunnels.

FiberTape® Cerclage for Glenoid Bone Loss Convenience Kits

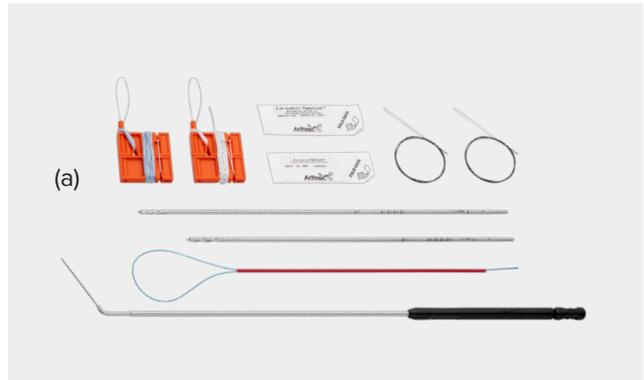
The FiberTape cerclage for glenoid bone loss implant system contains all the necessary implants and disposables for the procedure (except capsulolabral repair anchors). To help provide an easy and reproducible surgical technique, the kit includes an arthroscopic measuring probe, two 3 mm cannulated drills of different lengths to facilitate unobstructed drilling, and the Megaloader to aid in the passage of sutures into instruments and the bone graft. Two additional kits are available with either the required implants or just the disposables.



Ordering Information

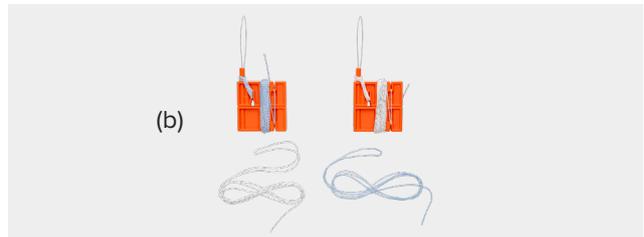
FiberTape® Cerclage for Glenoid Bone Loss Implant System (a)

Product Description	Item Number
FiberTape cerclage for glenoid bone loss implant system Includes: <ul style="list-style-type: none"> ■ FiberTape cerclage with TigerLink™ shuttle suture ■ TigerTape™ cerclage with FiberLink™ shuttle suture ■ Standard length drill, cannulated, 3 mm ■ Short length drill, cannulated, 3 mm ■ Arthroscopic measurement probe, 60°, 220 mm ■ Megaloader suture passing loop 	AR-7268GBL



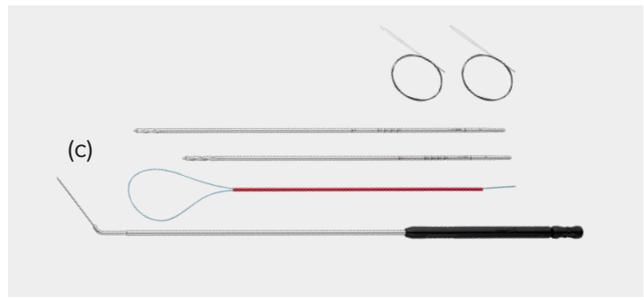
FiberTape Cerclage for Glenoid Bone Loss Implants (b)

Product Description	Item Number
FiberTape cerclage for glenoid bone loss implants Includes: <ul style="list-style-type: none"> ■ FiberTape cerclage with TigerLink shuttle suture ■ TigerTape cerclage with FiberLink shuttle suture 	AR-7268GBL-01



FiberTape Cerclage for Glenoid Bone Loss Disposables (c)

Product Description	Item Number
FiberTape cerclage for glenoid bone loss disposables Includes: <ul style="list-style-type: none"> ■ Standard length drill, cannulated, 3 mm ■ Short length drill, cannulated, 3 mm ■ Arthroscopic measurement probe, 60°, 220 mm ■ Megaloader suture passing loop 	AR-7268GBL-02



Implants

Product Description	Item Number
FiberTape cerclage with TigerLink shuttle suture	AR-7268
TigerTape cerclage with FiberLink shuttle suture	AR-7268T
Knotless 1.8 FiberTak® soft anchor	AR-3636

Instruments

Product Description	Item Number
TransGlenoid drill guide hook, for anterior instability	AR-7800TGH
Parallel drill guide hook, for posterior instability	AR-7800PGH
Drill guide sleeve	AR-7800DGS
FiberTape cerclage tensioner, reusable	AR-7800
Cerclage tensioner ratcheting handle	AR-7801

Disposables

Product Description	Item Number
SutureLasso™ SD wire loop	AR-4068-05SD
Drill, for AC repair, cannulated, 3 mm	AR-2257D-30
Arthroscopic measurement probe, 60°, 220 mm	AR-4070-01
Knotless FiberTak disposable kit, curved	AR-3638DC

Products advertised in this brochure/surgical technique guide may not be available in all countries. For information on availability, please contact Arthrex Customer Service or your local Arthrex representative.

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7. Arthrex, Inc. LA2-000140-en-US_A. Naples, FL; 2021.
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