

Arthroscopy SOFT Shoulder Model

Directions for Use



Arthrex Arthroscopic SOFT Shoulder Model

The Arthroscopic SOFT Shoulder Model has been designed with the arthroscopic surgeon in mind. Learning and mastering new arthroscopic techniques takes practice. In instances where cadaveric shoulder specimens are unavailable or otherwise undesirable, the SOFT Shoulder Model enables surgeons to engage in arthroscopic procedures in a clean and dry setting, and may be substituted for a cadaveric specimen in a wet lab setting.

The SOFT Shoulder Model features the critical anatomical structures important for the arthroscopist to identify and reference when performing shoulder reconstruction.

The SOFT Shoulder Model may be mounted in lateral decubitus or beach chair position, or it may be attached

to a standard specimen-mounting apparatus. The unique blend of molded polymers creates a realistic feel of the bone and soft tissue during anchor or screw placement, suture passage, and knot tying.

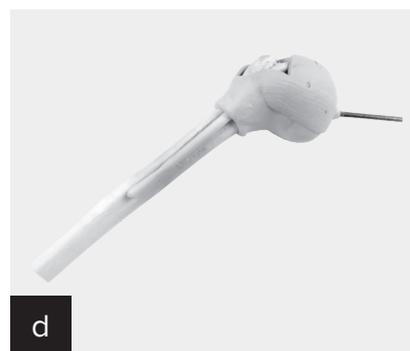
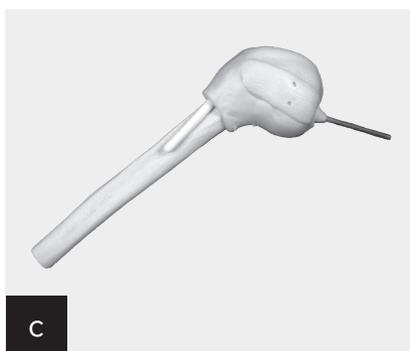
Available exclusively from Arthrex, the Arthroscopic SOFT Shoulder Model takes technical instruction into any office setting. Completely transportable, and easily assembled and refurbished with new components, the SOFT Shoulder Model is perfect for students at all levels including surgical residents, fellows, medical staff, and Arthrex representatives.

The model is also an excellent tool for patient education.



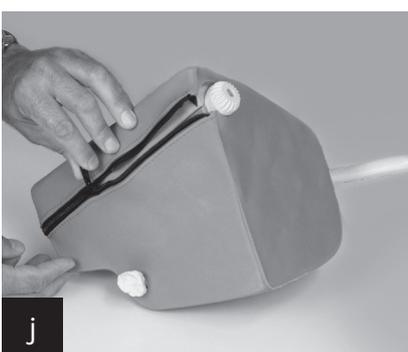
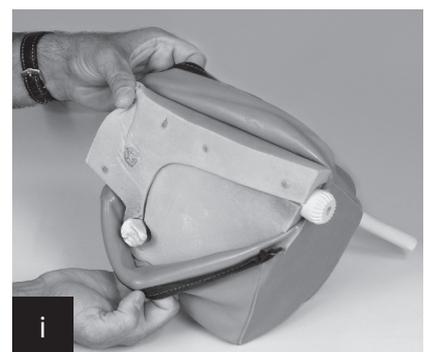
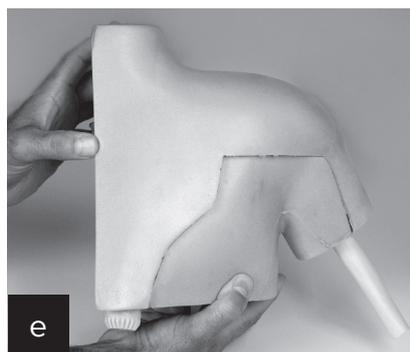
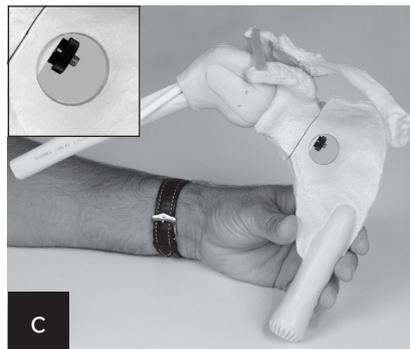
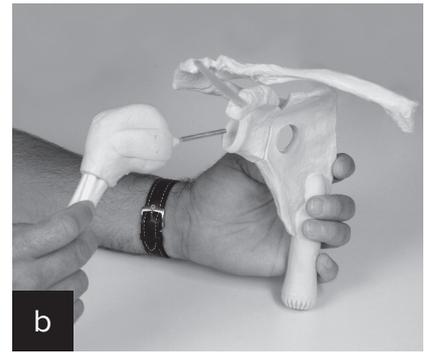
Components

- a. Nylon Tote (DS-012-1)
- b. AC Joint Assembly (DS-012-2)
- c. Intact Joint Capsule Assembly (DS-012-3)
- d. Joint Capsule Assembly With Cuff Tear (DS-012-3SST)
- e. Scapula and Mounting Post (DS-012-4)
- f. Foam Musculature (DS-012-5)
- g. Base Complete (DS-012-6)
- h. Vinyl Skin for Shoulder (DS-012-7)
- i. Labrum/Glenoid Assembly With Biceps Tendon (DS-012-8)
- j. Thumb Nut (DS-012-9)



Model Assembly

- a. Bony cage AC joint into scapula mount
- b. Joint capsule into bony cage
- c. Mounting screw/nut in position
- d. Foam musculature open with assembly dropping in
- e. Foam musculature closed from rear view with all components within
- f. Rolled back skin
- g. Model placed into skin humerus first
- h. Skin rolled over foam musculature
- i. Rear view of same
- j. Zipper closure in progress
- k. Blue base attachment with long screw
- l. Model assembly complete



Mounting the SOFT Shoulder Model

The SOFT Shoulder Model may be mounted in either lateral decubitus or beach chair position. For dry lab work, a 4 inch or larger C-clamp is required to secure the bidirectional base to a flat surface.

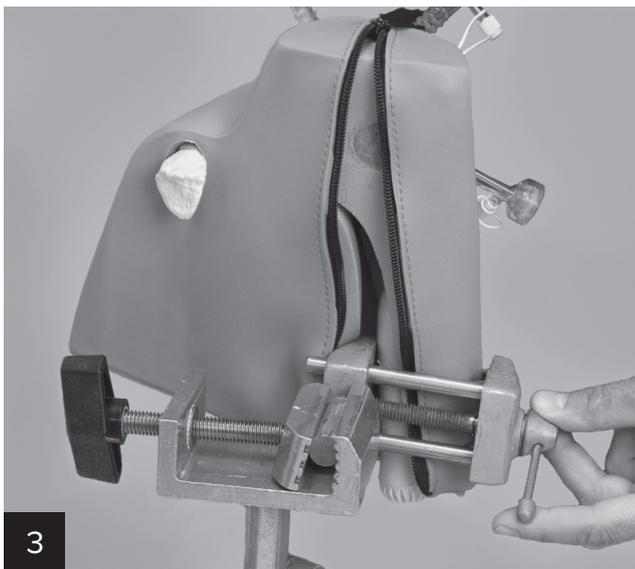
For wet lab use, the usual scapular clamp is applied to the posteromedial corner of the model, approximately 15 cm from the bottom. The clamp is opened wide enough to capture the post-mount within the skin and foam musculature, or the zipper may be opened to allow one jaw of the clamp to contact the post directly.



Clamped to the table in beach chair position.



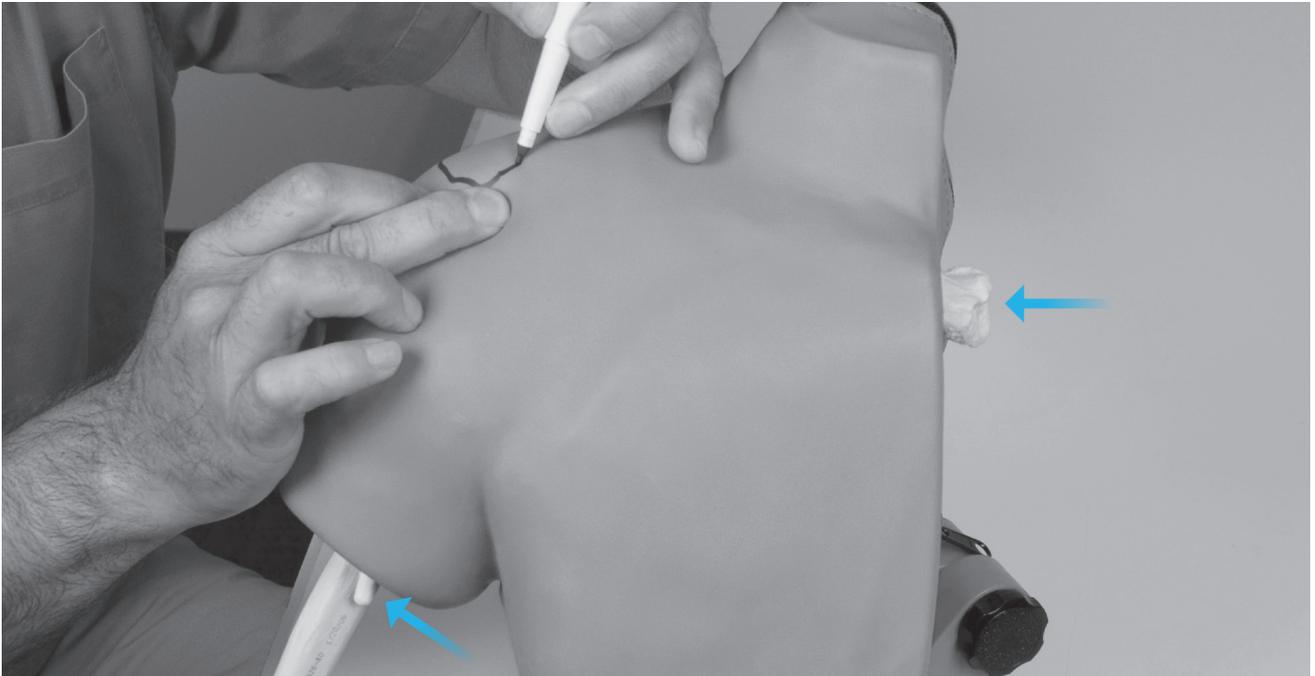
Clamped to the table in lateral decubitus position.



Close up of the model's flat side with the clamp in place, inside the zipper.

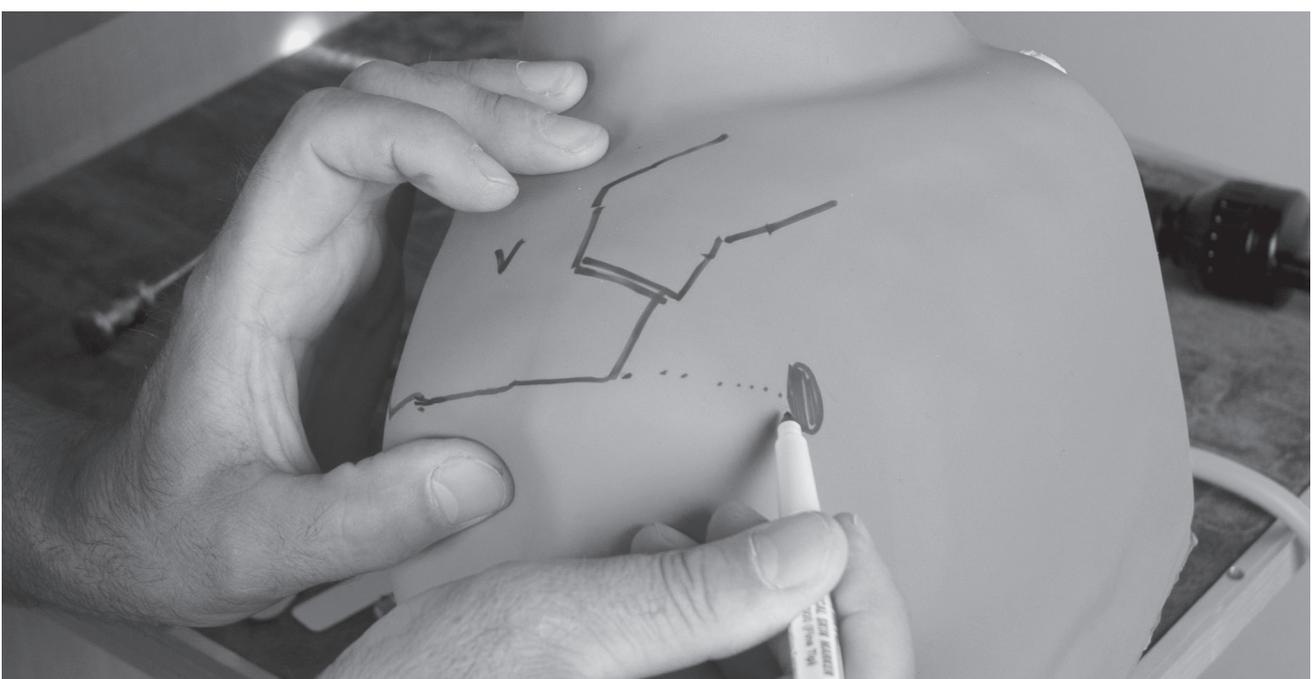
Anatomical References

Note the external features of the model. The biceps tendon exits the model skin adjacent to the rotating humeral shaft. The medial head of the clavicle exits the skin medially and is useful for manipulating the acromioclavicular (AC) joint.



Angled view shows the biceps tendon exiting the distal humerus (left arrow) and the medial flat side with protruding clavicle (right arrow).

Bony prominences may be palpated for anatomical reference. Use a skin marker to outline the borders of the acromion. Outline the distal clavicle and AC joint. Mark the coracoid process. Mark a “V” at the medial border of the acromion, midpoint between the AC joint and the scapular spine. Mark the position of the coracoacromial (CA) ligament.



View of hands palpating bony landmarks and marking the skin.

Model Use

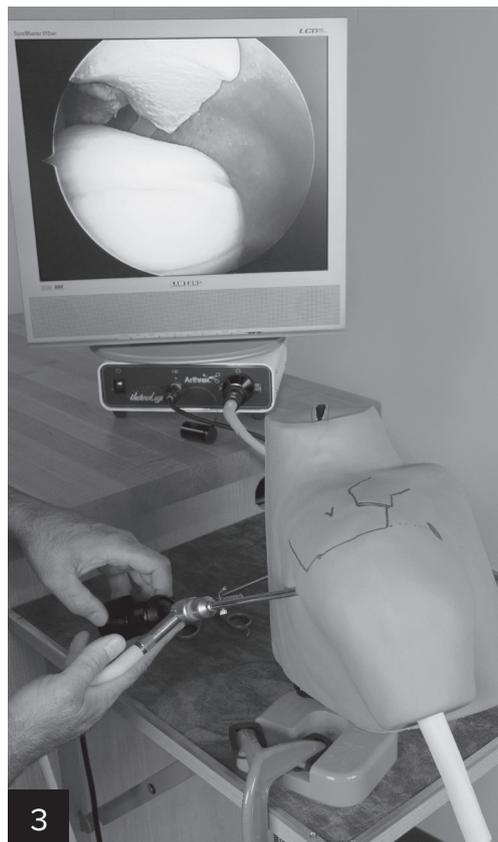
Establishing the Posterior Viewing Portal

Subacromial Space

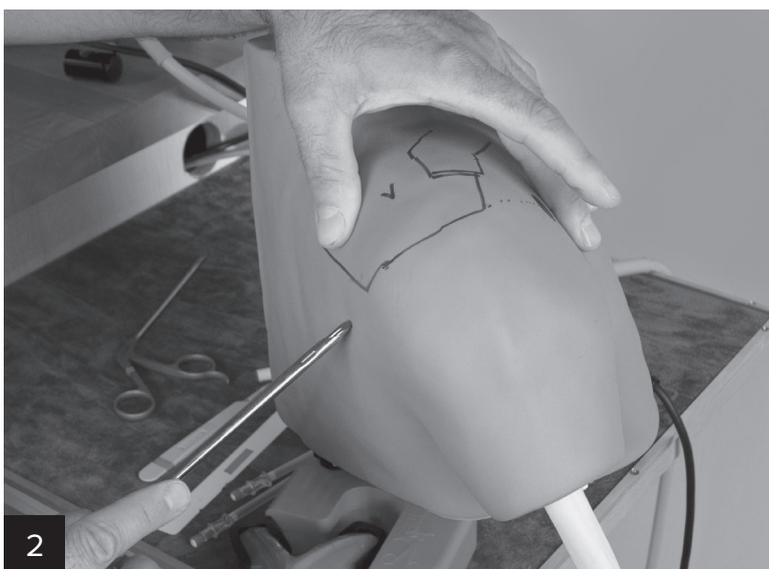
2 cm posterior and 1 cm inferior to the posterior border of the acromion, make a 1 cm incision with a #11 blade to a depth of 2 cm. Insert the scope sheath and blunt obturator in a superior direction until the underside of the acromion can be felt. Remove the obturator and insert the arthroscope into the sheath. The posterior cuff and subacromial space structures should be immediately visible.



(1) Outside view making posterior portal, (2) inserting trocar and sheath into portal, and (3) scope in posterior viewing portal showing subacromial space on the monitor.



Note the bony landmarks, the rotator cuff/capsule, the AC joint, the teres minor and infraspinatus, the supraspinatus, and the narrow intervals between. Advance the scope anterolaterally while externally rotating the humerus. The supraspinatus, rotator interval, and the subscapularis should come into view. The CA ligament and coracoid should also be visible in the background.

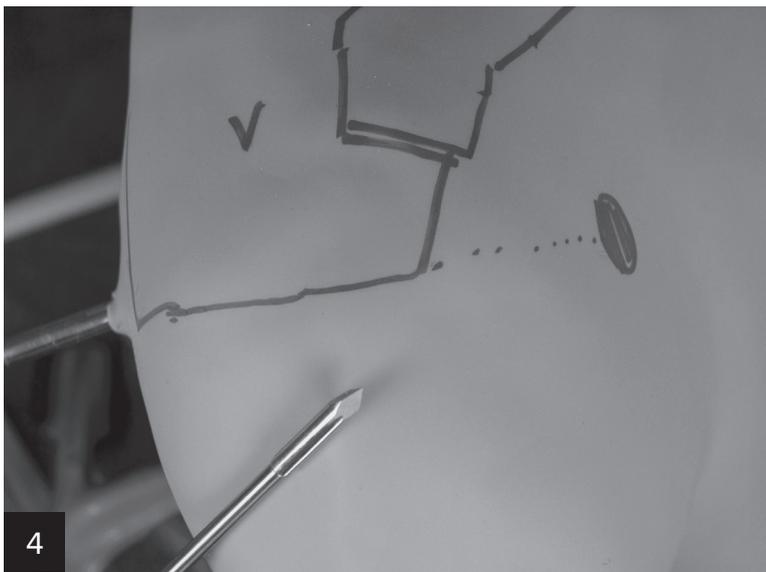


Glenohumeral Joint

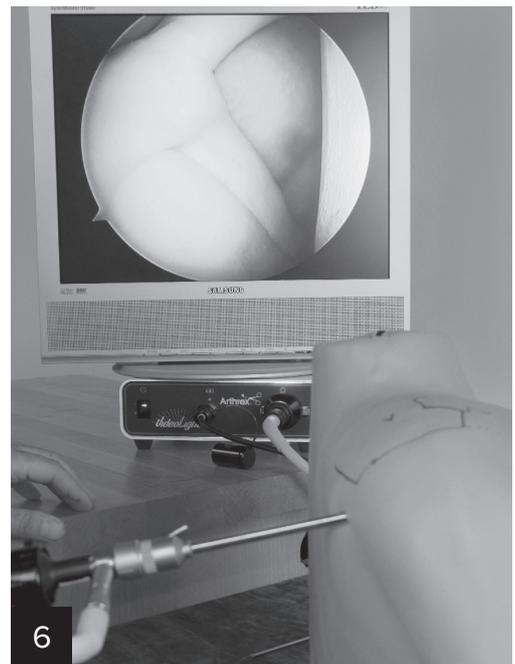
Remove the scope from the sheath and replace it with a sharp trocar. Enter the glenohumeral joint by inserting the scope and sheath through the posterior capsule from the standard posterior portal. The direction of insertion is anteromedial across the joint toward the coracoid process.

Note the tactile feel of entering the joint space between the humeral head and the glenoid surface. Proceed in the usual fashion as in cadaveric or live surgery. DO NOT FORCE ENTRY; this should be nice and easy.

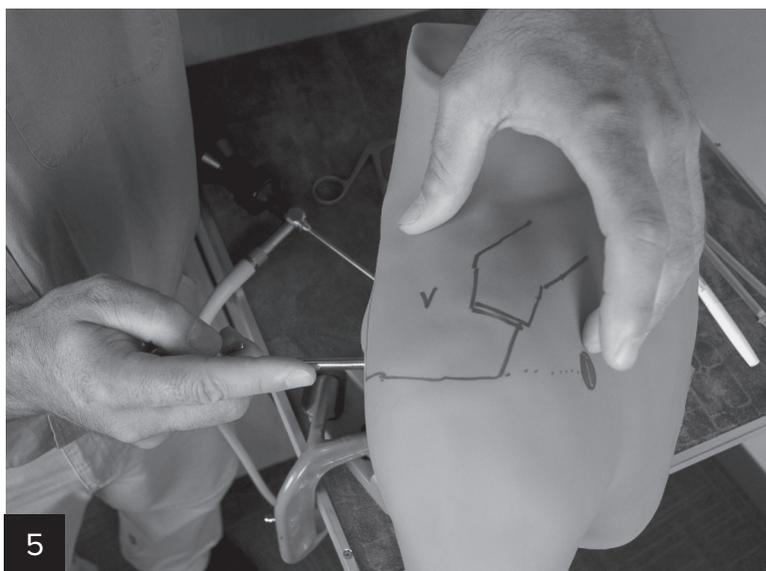
Remove the trocar and insert the scope. If you are still in the subacromial space, point the scope tip at the “dimple” molded into the posterior capsule (in the interval between the infraspinatus and teres minor). While holding pressure on the sheath, remove the scope and puncture the capsule with a sharp instrument placed through the sheath. Advance the sheath, replace the scope...you're in.



4
Sharp trocar

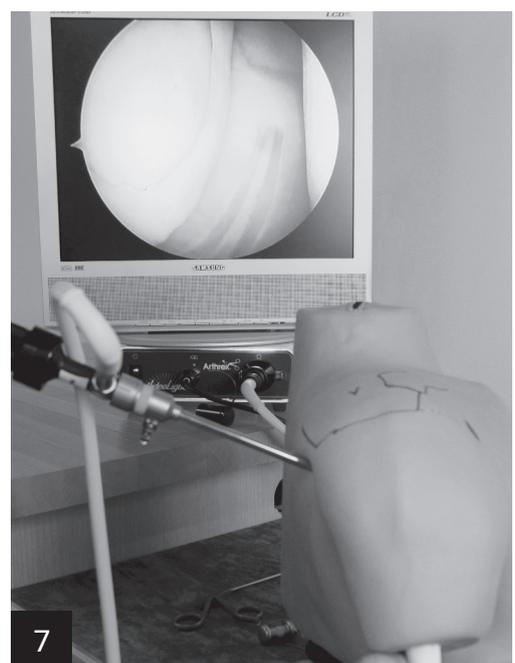


6
Superior look in the joint



5
Inserting trocar into joint

Note the structural features including the glenoid, labrum, biceps tendon, subscap, and plication bands (molded seams to facilitate capsular plication)

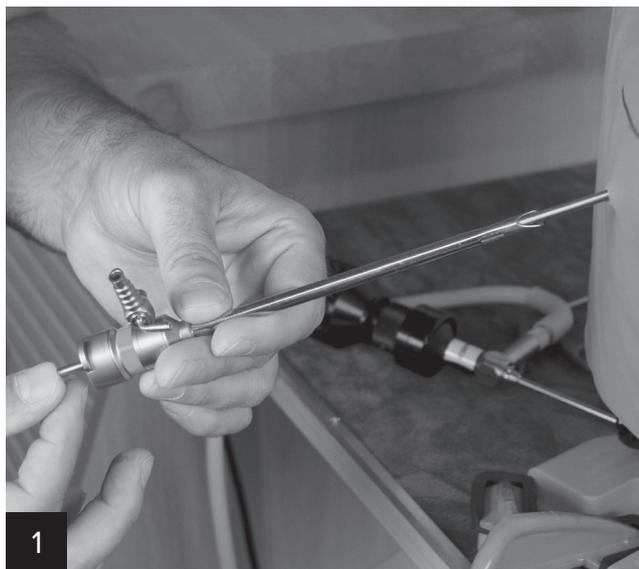


7
Inferior look

Portal Placement and Cannula Insertion Into the Glenohumeral Joint

Standard Posterior Portal

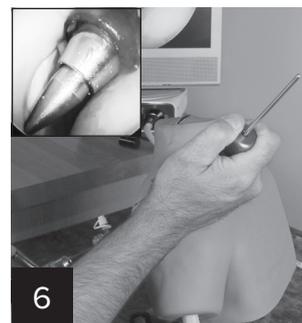
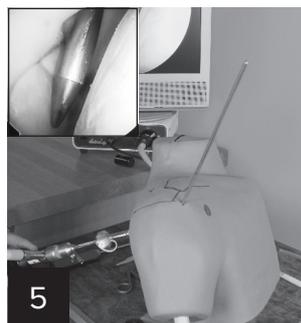
Remove the arthroscope from the sheath. Place a switching stick through the sheath and into the joint. Remove the sheath. Place a Crystal Cannula® or other small cannula and its reusable obturator over the switching stick and insert the cannula into the 9 o'clock position through the skin, soft tissue, and capsule (into the joint).



(1) Outside view of the switching stick through the scope sheath, and (2) cannula/obturator assembly being inserted.

Anterior Superior Portal (1 o'clock position)

Looking from the standard posterior portal, place a spinal needle into the joint from a point just off the anterior corner of the acromion. The needle should enter the joint behind the biceps tendon, 1 to 2 cm lateral to its glenoid attachment. Make a small (3-4 mm) stab incision through the skin, foam musculature, and capsule at the position of the needle with a #11 blade from the outside/in. Remove the needle and knife, place the small cannula in the usual progression of switching stick, cannula/obturator or cannula/plastic obturator combination.

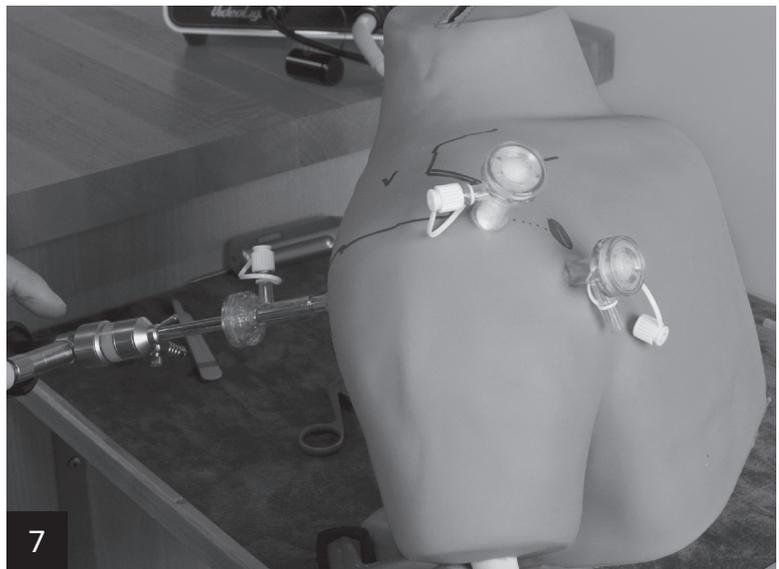


Stabbing through capsule from inside with (3) a needle, (4) a scalpel, (5) a switching stick, and (6) the reusable cannula/obturator.

Note: due to the elasticity of the polymer capsule, it is **ALWAYS NECESSARY** to make a small incision through the capsule prior to cannula insertion.

Anterior Inferior Portal (3 o'clock position)

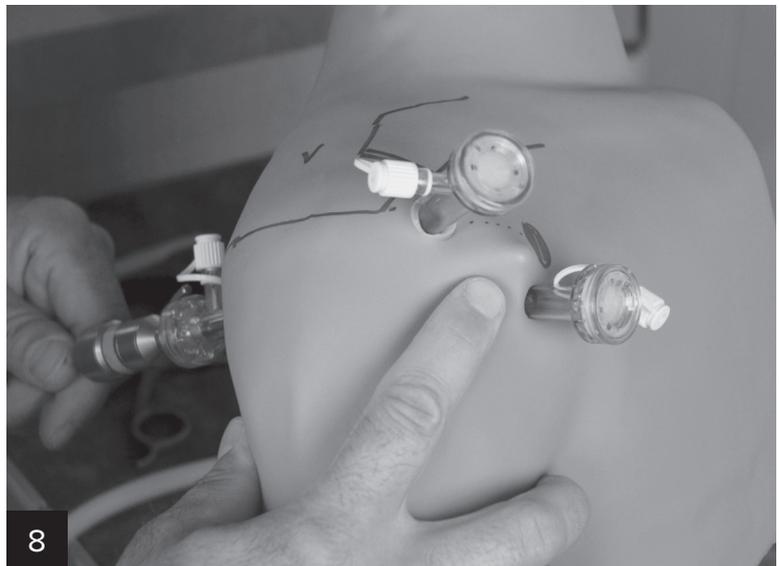
Looking from the posterior portal, place a spinal needle into the joint from a point near and just lateral to the coracoid process. The needle should enter the joint at the superior edge of the subscap tendon, 2 to 3 cm lateral to the first cannula. Make a small (3-4 mm) stab incision through the skin, foam musculature and capsule at the position of the needle with a #11 blade from the outside/in. Insert a larger cannula (8.25 mm) in the usual progression of switching stick, cannula/obturator, or cannula/plastic obturator combination.



Inside view of two anterior cannulas in place.

Drive-Through Anterior Portal (2 o'clock)

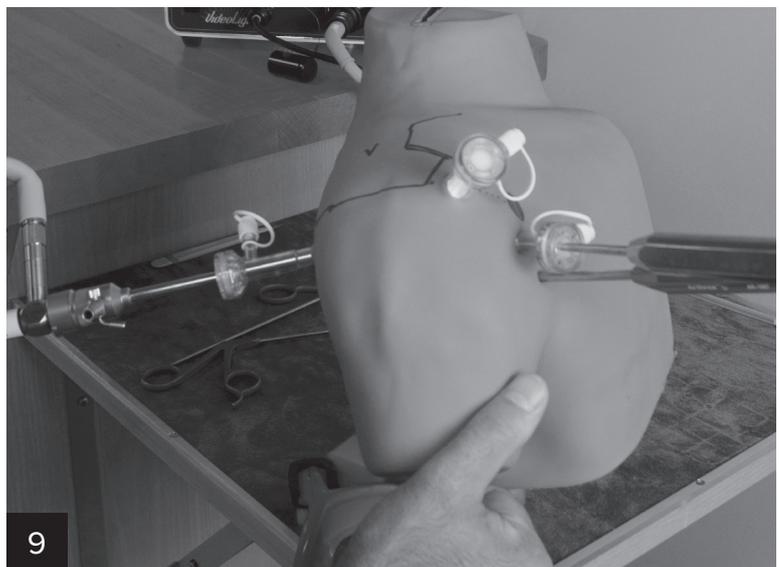
This portal is typically used instead of the two anterior portals described on the previous page. The scope is driven through the joint until the viewer can see the center of the rotator interval, 2 to 3 cm lateral to the glenoid rim. The scope sheath is used to deliver a switching stick to a position to tent up the capsule, soft tissue, and skin from the inside, at a point on the skin between the anterior corner of the acromion and the coracoid as shown. A deep 5 mm skin incision is made to expose and advance the tip of the switching stick. The cannula/obturator assembly is inserted over the switching stick from the outside/in.



Outside view of drive-through anterior portal location.

Low Anterior Portal (5 o'clock position)

This portal enters the joint 2-3 cm lateral to the 3 o'clock cannula, and is frequently used for percutaneous anchor placement. Insert a spinal needle in this position and notice the improved angle toward the lower reaches of the anterior glenoid rim. Insert a spear guide and sharp obturator as shown above.



View of two anterior cannulas plus 5 o'clock percutaneous spear guide and trocar in place.

Low Posterior Portal (7 o'clock position)

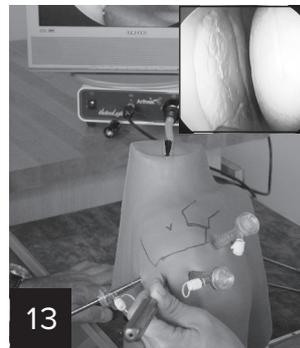
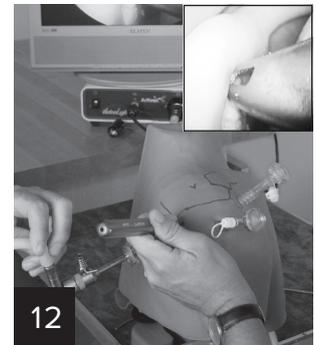
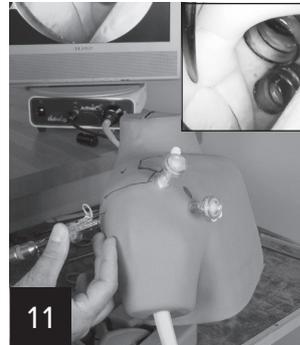
This portal is placed from outside/in following the normal procedure, with the scope in on an anterosuperior portal. A 7 mm cannula is effective here, and is shown below. This portal is used by many surgeons for suture management.



Anterosuperior view of posterior portal and spinal needle at 7 o'clock.

Portal of Wilmington

This percutaneous portal enters the skin off the posterolateral corner of the acromion, and penetrates the muscular portion of the infraspinatus. It is perfectly suited for the posterior SLAP anchor placement, as well as low 7 o'clock anchor placement for posterior Bankart repairs.



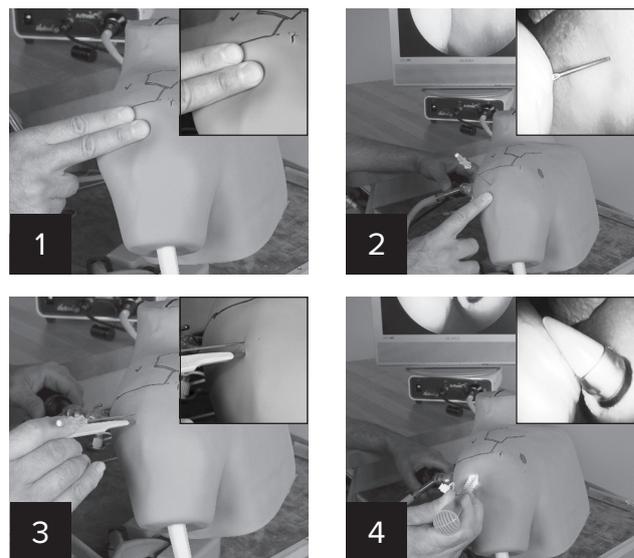
Posterior view showing (11) spinal needle through portal of Wilmington, (12) spear guide addressing posterior SLAP position, and (13) low posterior glenoid anchor position.

Creating Labral Disruption

By design, the model labrum is not strongly affixed to the glenoid rim. Simple reattachment (Bankart and SLAP repair) may be easily accomplished with little or no release required. Significant labral shift/capsular plication exercises may require slight release of the medial glenoid-labral attachment, due to the tight model assembly and a strong adhesive bond at the base of the glenoid component. This tight seal allows for fluid arthroscopy.



Arthroscopic view of elevating anterior labrum with elevator.



(1) Outside view of two-finger breadth measurement, (2) inside/outside view of spinal needle in lateral position, (3) outside view of scalpel, and (4) inside/outside view of lateral cannula going into place with a disposable obturator.

Portal Placement and Cannulas in the Subacromial Space

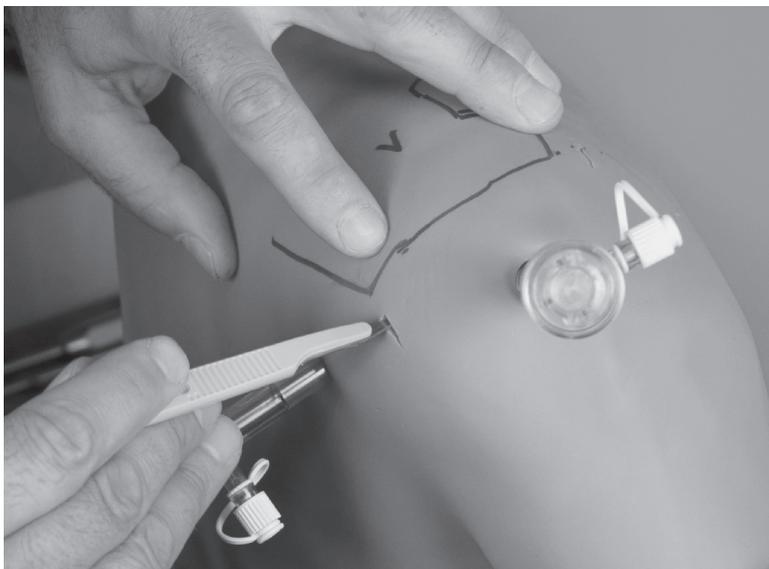
Back the posterior viewing portal cannula out of the glenohumeral space to re-establish a view of the subacromial space.

Standard Lateral Portal

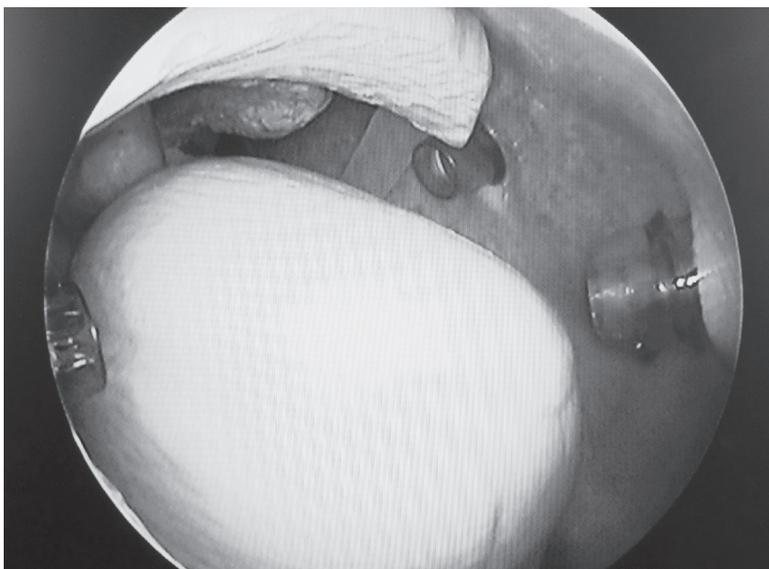
Following spinal needle localization, a mid-lateral portal, aka “50 yard line” portal, is made 2 to 3 cm lateral to the acromion, in line with the posterior edge of the acromioclavicular joint. This portal is used for subacromial decompression, and ultimately provides a working portal for rotator cuff repair. An 8.25 mm cannula is placed at an angle that allows in-line access to the torn cuff tissue edge. In photo (4), a disposable obturator is used.

Posterolateral Viewing Portal

This percutaneous portal is placed 1 to 2 cm off the posterior edge of the acromion. It provides for better visualization of rotator cuff pathology, and opens up the posterior cannula for suture management.



Outside view creating posterolateral portal.



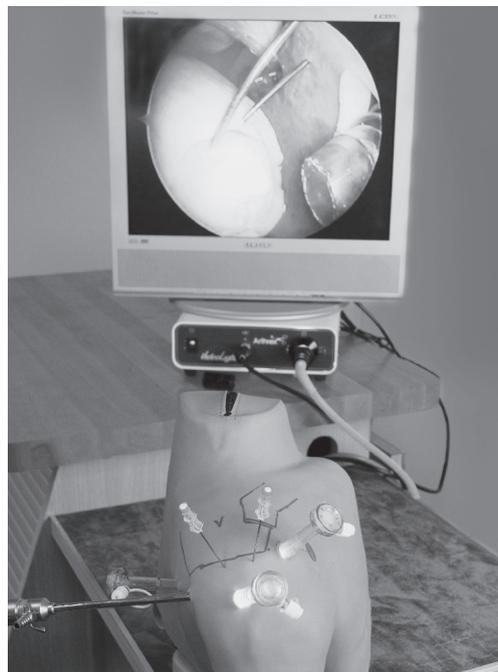
"Room with a view" with scope from posterolateral viewing portal.

Anterior Portal

The anterior portal is placed according to the purpose it must serve. Most often, considerations include angle of incidence with rotator cuff pathology, and position relative to the AC joint.

Off-Acromion Percutaneous Access

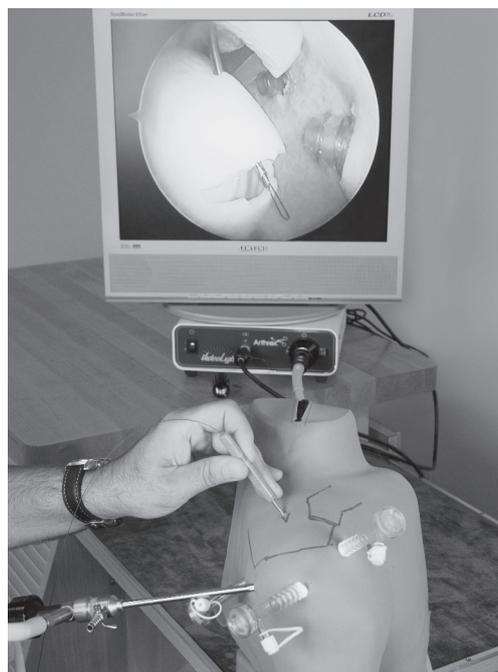
Excellent access for medial rotator cuff anchors at the articular margin may be accomplished along the lateral border of the acromion.



Spinal needles at the lateral border of the acromion, toward the medial row anchor sites.

Modified Neviaser Portal

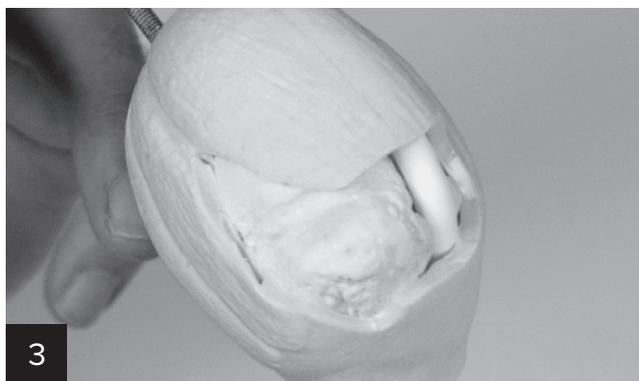
From a point medial to the acromion, and posterior to the AC joint, the "notch" offers excellent percutaneous access to the rotator cuff with the Banana SutureLasso™ suture passer.



Banana SutureLasso suture passer in modified Neviaser portal.

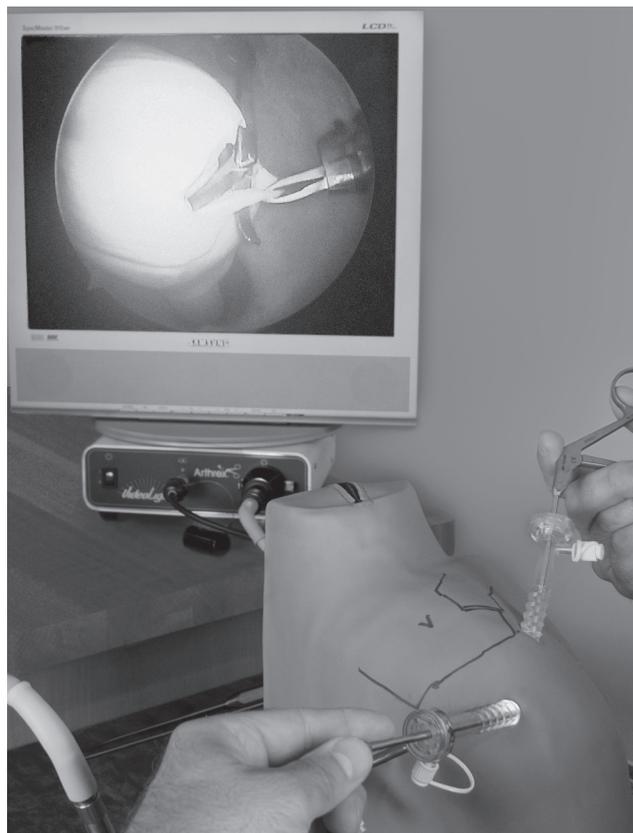
Creating a Rotator Cuff Tear

The simplest method for creating a rotator cuff tearing involves disassembling the model to create the desired tear.



(1) View of cuff/capsule in hand with the FiberWire® scissor cutting cuff by hand, (2) anterior “L”, (3) posterior “L”, and (4) massive cuff tear.

The arthroscopic method requires excellent visualization (suggest scope in posterolateral viewing portal) of the lateral margin of the molded-cuff musculature. An arthroscopic grasper placed into the lateral portal with arthroscopic scissors from an anterior portal enables the user to complete the desired crescent-shaped tear. Alternative methods, with a #11 blade through an anterolateral portal, may also be used.



Inside view from posterolateral viewing portal, creating rotator cuff tear from anterior portal with arthroscopic scissors.

Arthrex Arthroscopic SOFT Shoulder Model

Model Comparison: Features	SOFT Shoulder	Cadaveric Specimen	Alex	SAM	Hillway
Dry Arthroscopy	Yes	No	Yes	Yes	Yes
Wet Arthroscopy	Yes	Yes	No	No	?
Palpation/Soft Tissue	Yes	Yes	No	No	Yes
Realistic Cannula Placement	Yes	Yes	No	No	?
Full Humerus Mobility	Yes	Yes	No	No	Yes
Full Clavicle Mobility	Yes	Yes	No	No	No
Anatomically Relevant Soft-Tissue Structures	Yes	Yes	?	?	?
Bioabsorbable Anchors for Instability (glenoid)	Yes	Yes	?	?	?
Metal Anchors for Instability (glenoid)	Yes	Yes	Yes	Yes	Yes
Bioabsorbable Anchors for Cuff (tuberosity)	Yes	Yes	?	?	?
Metal Anchors for Cuff (tuberosity)	Yes	Yes	Yes	Yes	Yes
Arthroscopic AC Joint Reconstruction	Yes	Yes	No	No	No
Open AC Joint Reconstruction	Yes	Yes	No	No	No
Arthroscopic Biceps Tenodesis	Yes	Yes	?	?	?
Humeral Head OATS® Procedure	Yes	Yes	No	No	No
Unlimited Percutaneous Access	Yes	Yes	No	No	?
Expiration Date/Storage Issues	None	Yes	?	?	Yes
Biohazard	No	Yes	No	No	No

Ordering Information

Complete Model

Product Description	Item Number
Arthrex® SOFT Shoulder Model, Complete	DS-012

Replacement Components

Product Description	Item Number
Nylon Tote	DS-012-1
AC Assembly	DS-012-2
Intact Joint Capsule Assembly	DS-012-3
Joint Capsule Assembly With Cuff Tear	DS-012-3SST
Scapula and Mounting Post	DS-012-4
Foam Musculature	DS-012-5
Base, Complete	DS-012-6
Vinyl Skin for Shoulder	DS-012-7
Labrum/Glenoid Assembly With Biceps Tendon	DS-012-8
Thumb Nut	DS-012-9

The Arthrex SOFT Arthroscopic Shoulder Model is for the exclusive use of Arthrex staff and representatives. Models and model components may be ordered by contacting Customer Service at (800) 934-4404.



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 and/or outcomes.

View U.S. patent information at www.arthrex.com/corporate/virtual-patent-marking

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