Arthrex®

Arthroscopic SOFT Shoulder Model

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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.

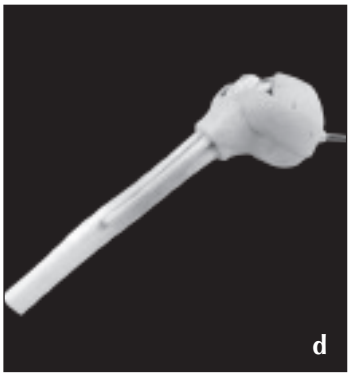
The SOFT Shoulder Model may be mounted in lateral decubitus or beach chair position, or may be attached to a standard specimen mounting apparatus. The unique blend of molded polymers creates a realistic feel of the bone and soft tissue during anchor or screw placement, suture passage, and knot tying.

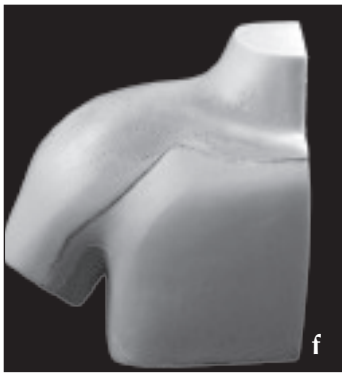
Available exclusively from Arthrex, the Arthroscopic SOFT Shoulder Model takes technical instruction into any office setting. Completely transportable, easily assembled and refurbished with new components, the SOFT Shoulder Model is perfect for students at all levels including surgical residents, fellows,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

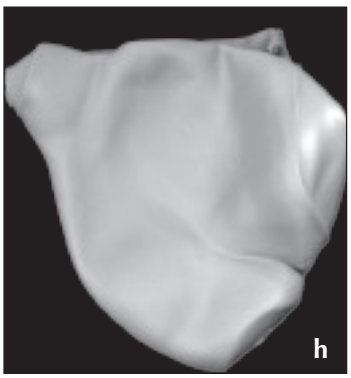
Arthrex® Arthroscopic SOFT Shoulder Model Directions For Use

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 w/Biceps Tendon
j. Thumb Nut

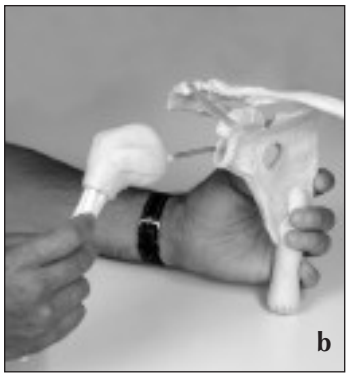


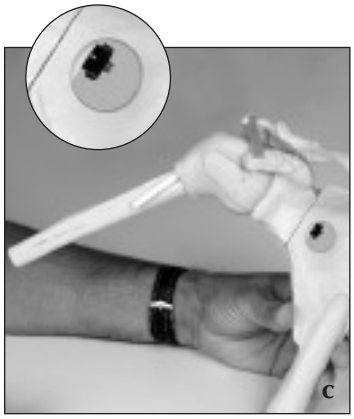


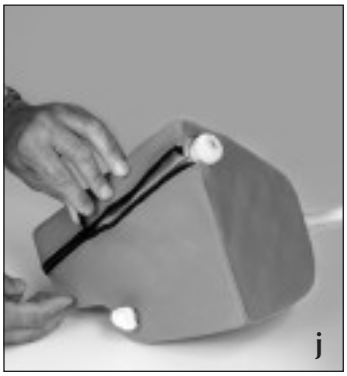


Model Assembly

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





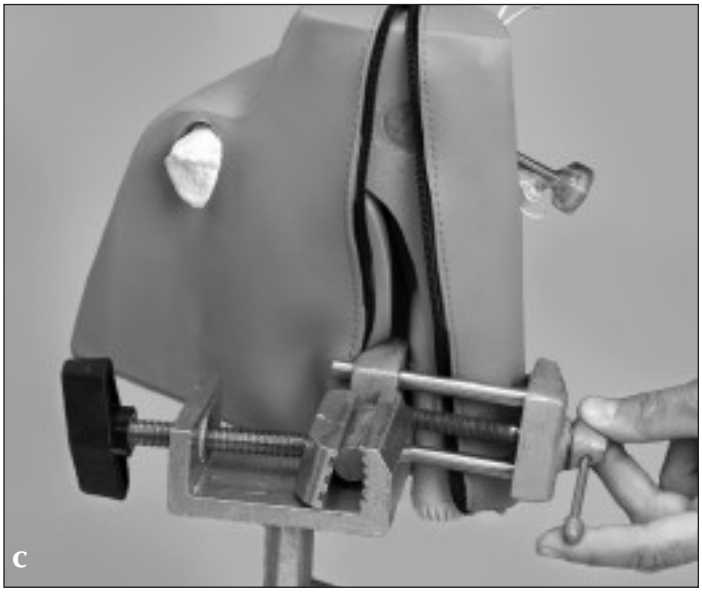


Mounting the Shoulder Model

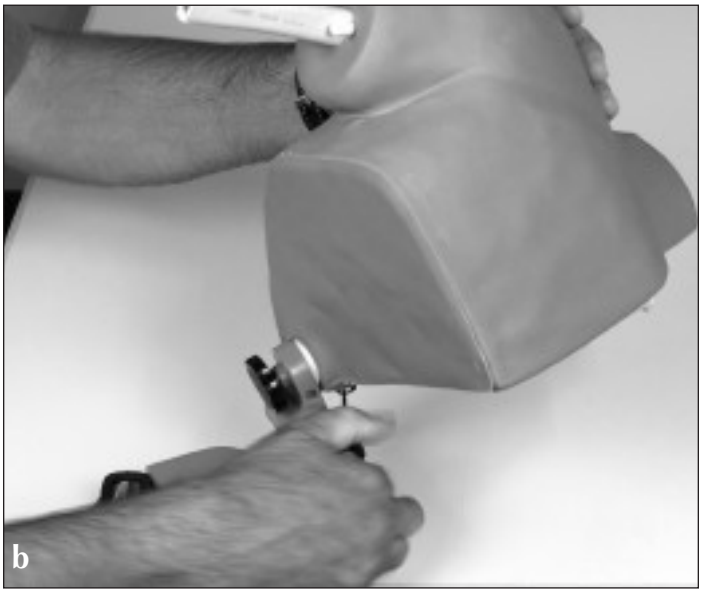
The SOFT Shoulder may be mounted in either lateral decubitus or beach chair position. For dry lab work, a 4" or larger C-clamp is required to secure the bidirectional base to a flat surface.

For wet lab use, the usual scapular clamp is applied to the posteromedial corner of the model, approximately 15 cm up 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 allowing one jaw of the clamp to contact the post directly.

Clamped to the table in beach chair position



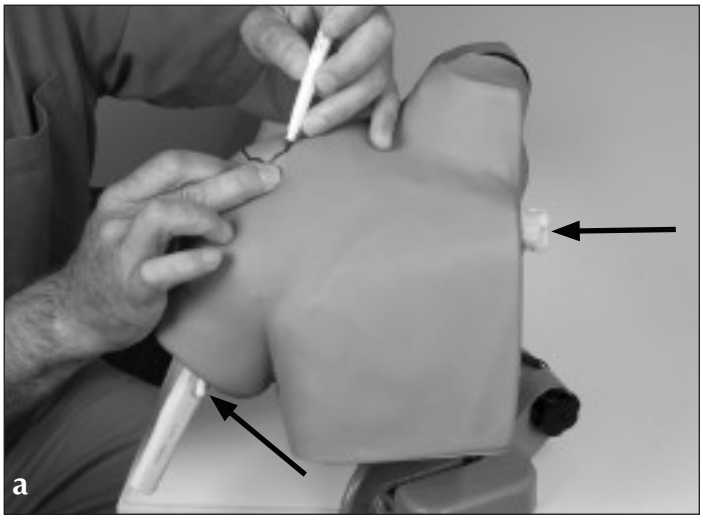
Close up of the model's flat side with the clamp in place, inside the zipper



Clamped to the table in lateral decubitus position

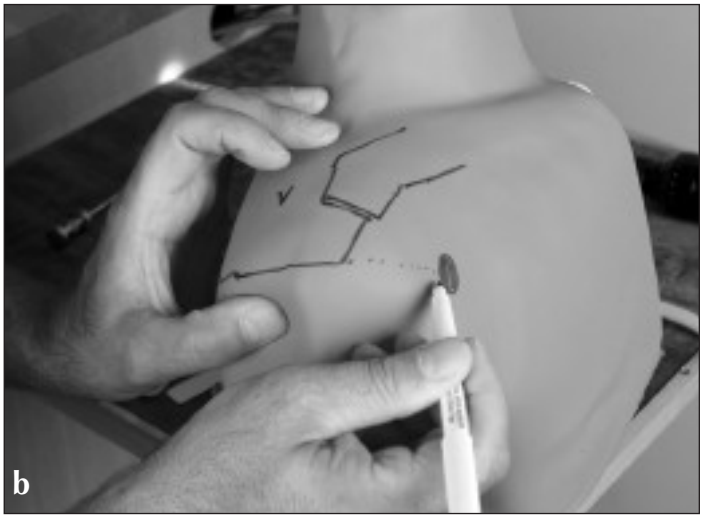
Anatomical References

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 AC joint.



Angled view with the biceps tendon exiting the distal humerus and the view of the medial flat side with protruding clavicle (2 arrows)

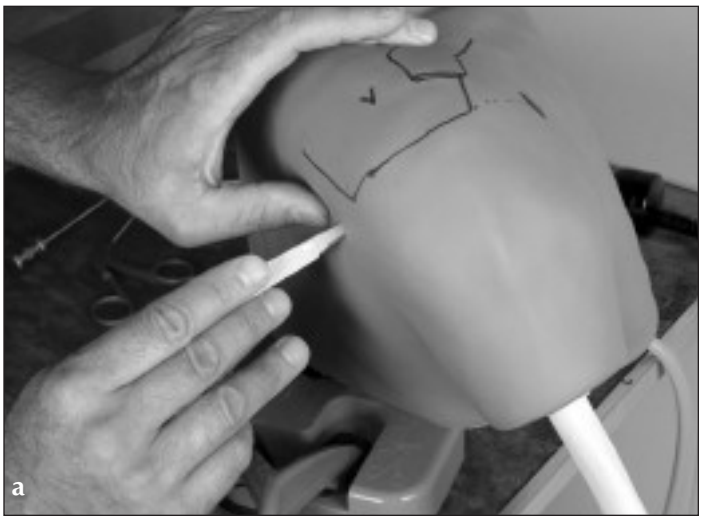
Bony prominences may be palpated for anatomical reference. Use a skin marker to outline the borders of the acromion. Outline the distal clavicle and AC joint. Mark the coracoid process. Mark a "V" at the medial border of the acromion, midpoint between the AC joint and the scapular spine. Mark the position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



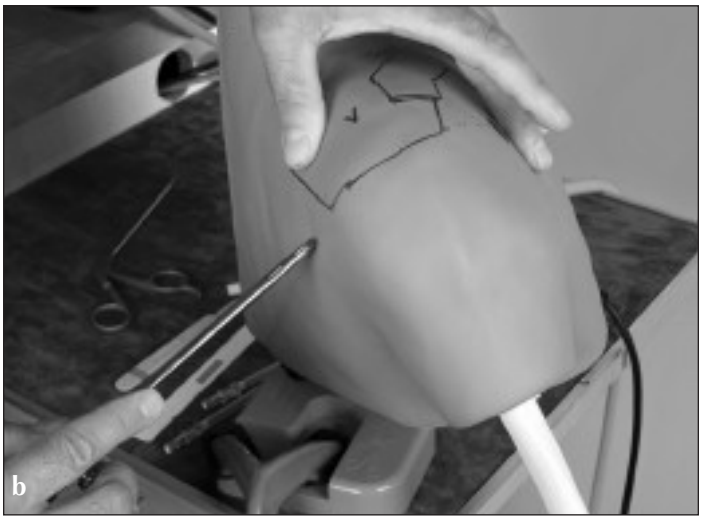
View of hands palpating bony landmarks and marking the skin

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.



Outside view making posterior portal (a), inserting trocar and sheath into portal (b) with scope in posterior viewing portal showing subacromial space on monitor (c)



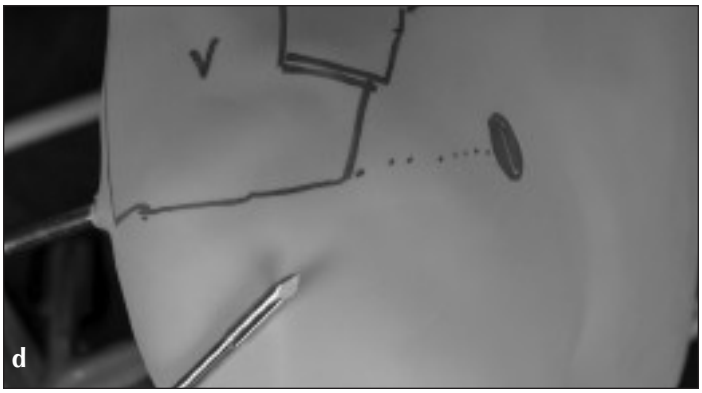
Note the bony landmarks, the rotator cuff/ capsule, and the AC joint

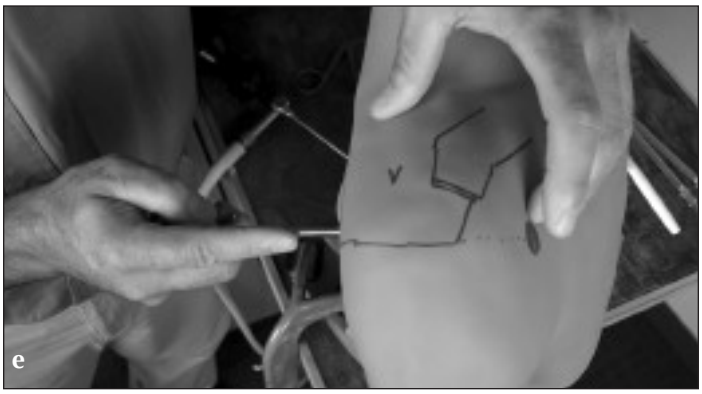
Note the teres minor and infraspinatus, the supraspinatus and the narrow intervals between. Advance the scope anterolaterally while externally rotating the humerus. The supraspinatus, rotator interval, and the subscapularis should come into view. The CA ligament and coracoid should also be visible in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

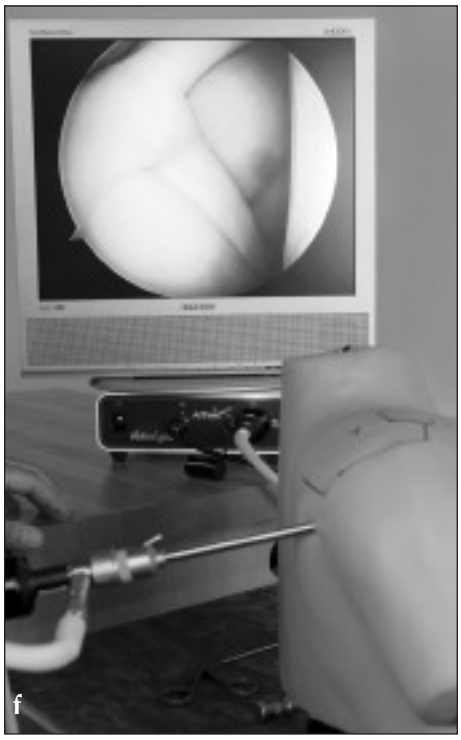
Note the tactile feel of entering the joint space between the humeral head and the glenoid surface. Proceed in the usual fashion as in cadaveric or live surgery. DO NOT FORCE ENTRY, this should be nice and easy.

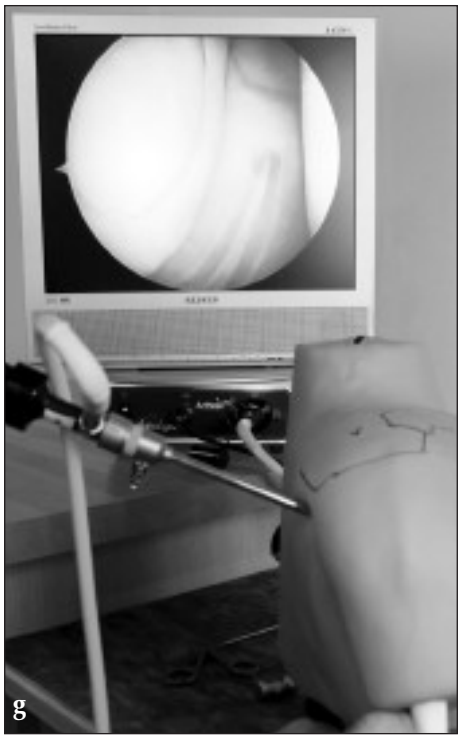
Remove trocar and insert the scope. If you are still in the subacromial space, point the scope tip at the "dimple" molded into the posterior capsule (in the interval between the infraspinatus and teres minor). While holding pressure on the sheath, remove the scope and puncture the capsule with a sharp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





Sharp trocar (d), inserting into joint (e), superior look in joint (f) and inferior look (g)





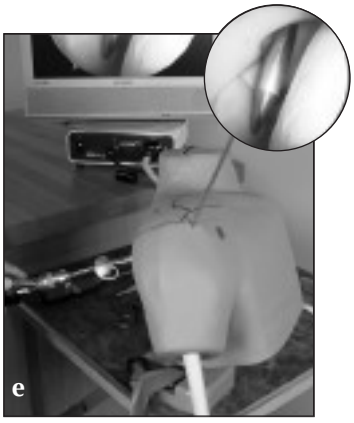
Note the structural features including the glenoid, labrum, biceps tendon, subscap, and plication bands (molded seams to facilitate capsular plication)

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).

Outside view of the Switching Stick through the scope sheath (a), cannula/obturator assembly being inserted (b)

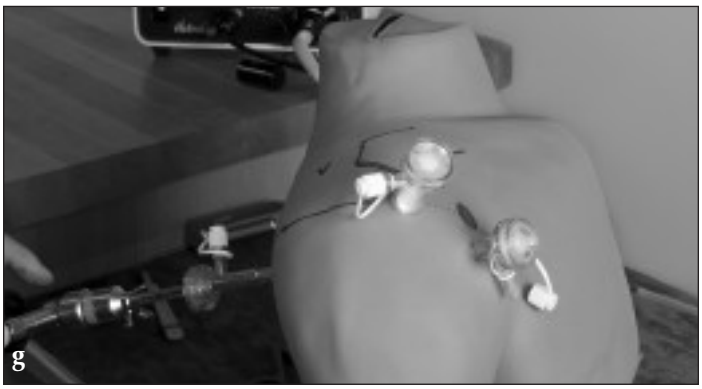
Anterior Superior Portal (1 o'clock position)
Looking from the standard posterior portal, place a spinal needle into the joint from a point just off the anterior corner of the acromion. The needle should enter the joint behind the biceps tendon, 1-2 cm lateral to its glenoid attachment. Make a small (3-4 mm) stab incision through the skin, foam musculature and into the 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 with cannula/plastic obturator combination.



Stabbing through capsule from inside with needle (c), with scalpel (d), with Switching Stick (e), and with reusable cannula/obturator (f)

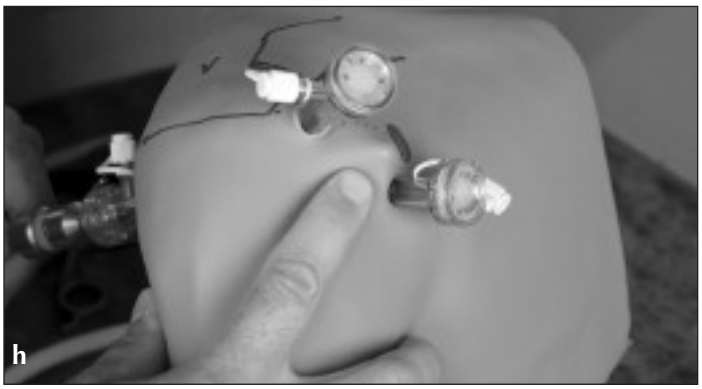
Note: due to the elasticity of the polymer capsule, it is ALWAYS NECESSARY to make a small incision through the capsule prior to cannula insertion

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, 2-3 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 with cannula/plastic obturator combination.



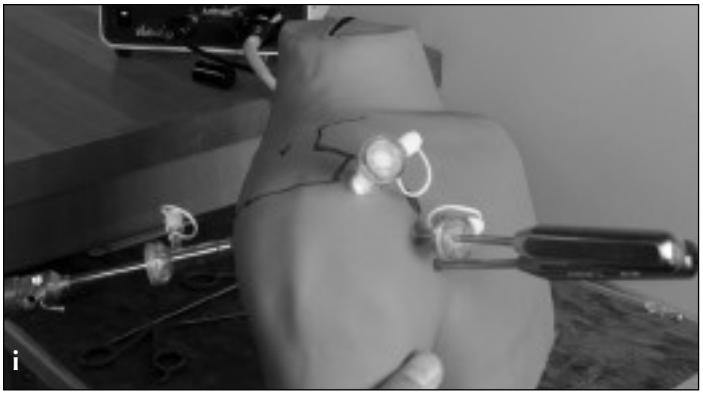
Inside view of two anterior cannulas in place (g)

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, 2-3 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.



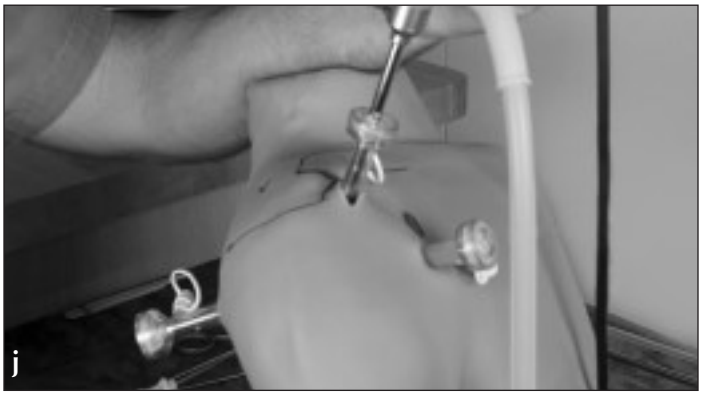
Outside view of drive-through anterior portal location (h)

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.



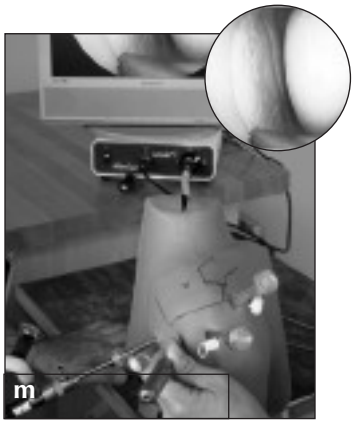
View of two anterior cannulas plus 5 o'clock percutaneous spear guide and trocar in place (i)

Low Posterior Portal (7 o'clock position)
This portal is placed from outside/in following the normal procedure, with the scope in on 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 (j)

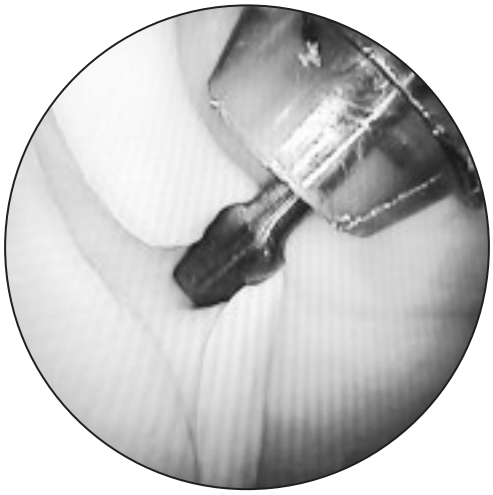
Portal of Wilmington
This percutaneous portal enters the skin off the posterolateral corner of the acromion, and penetrates the muscular portion of the infraspinatus. It is perfectly suited for the posterior SLAP anchor placement, as well as low 7 o'clock anchor placement for posterior Bankart repairs.



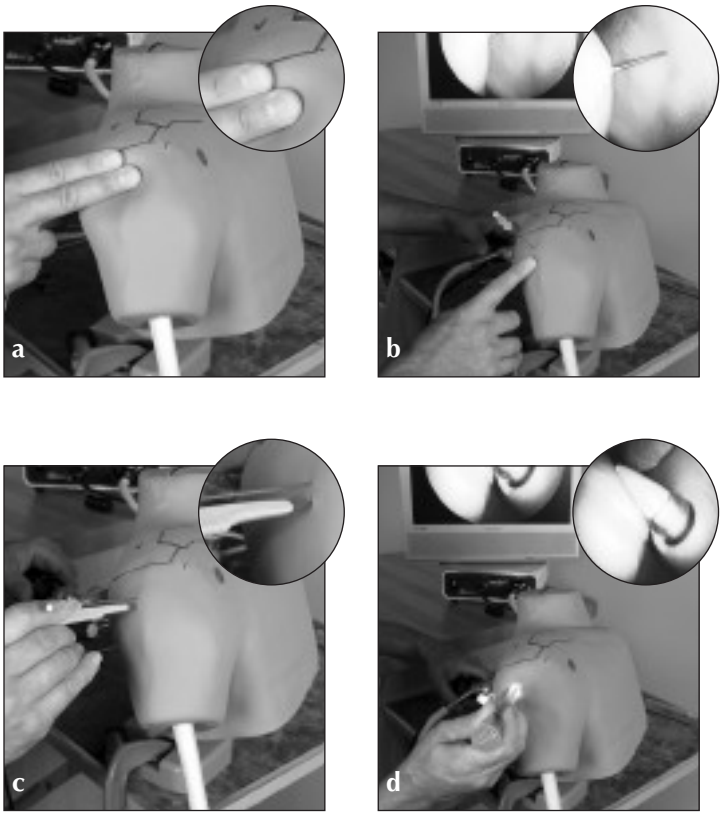
Posterior view of showing spinal needle through Portal of Wilmington (k), spear guide addressing posterior SLAP position (l), and the low posterior glenoid anchor position (m)

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



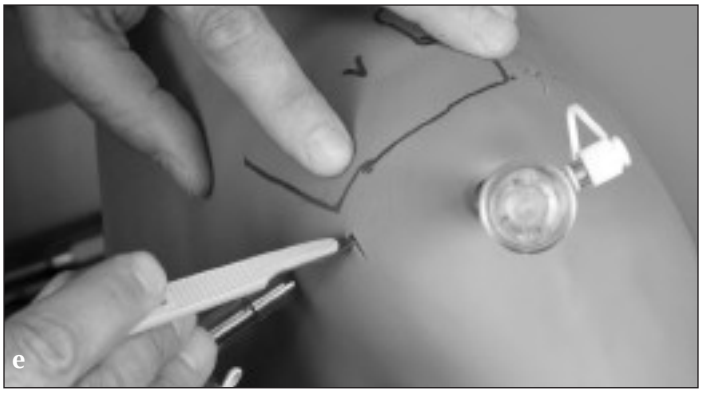
Outside view of two finger breadth measurement (a), inside/outside view of spinal needle in lateral position (b), outside view of scalpel (c), and inside/outside view of lateral cannula going into place with a diposable obturator (d)

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 2-3 cm lateral to the acromion, in line with the posterior edge of the AC 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 which allows in-line access to the torn cuff tissue edge. In this photo (d), a disposable obturator is used.

Posterolateral Viewing Portal
This percutaneous portal is placed 1-2 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.

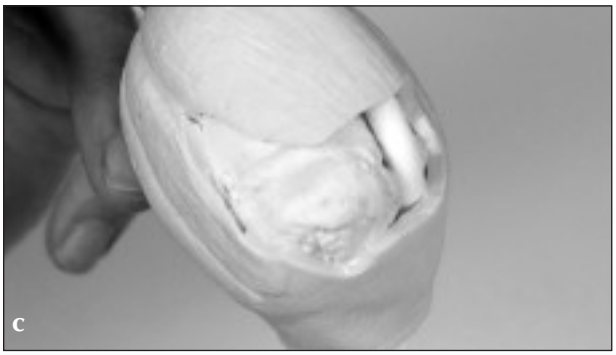
Spinal needles at the lateral border of the acromion, toward the medial row anchor sites

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®.

Banana SutureLasso in modified Neviaser portal

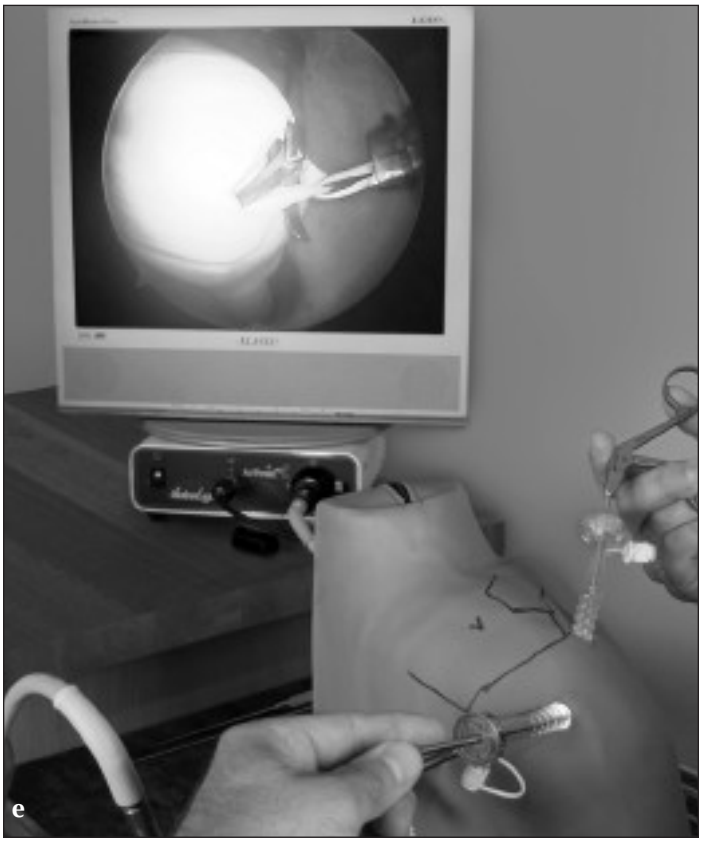
Creating a Rotator Cuff Tear

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



View of cuff/capsule in hand with the FiberWire® Scissor cutting cuff by hand (a) view of anterior "L" (b), posterior "L" (c), and massive cuff tear (d)

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®	**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

Part Number	*Product Name*	*Price ($)*
DS-012	Arthrex® SOFT Shoulder Model - Complete	350.00

Replacement Components

Part Number	*Product Name*	*Price ($)*
DS-012-1	Nylon Tote	12.50
DS-012-2	AC Assembly	80.00
DS-012-3	Intact Joint Capsule Assembly	85.00
DS-012-3SST	Joint Capsule Assembly w/ Cuff Tear	90.00
DS-012-4	Scapula & Mounting Post	25.00
DS-012-5	Foam Musculature	100.00
DS-012-6	Base - Complete	25.00
DS-012-7	Vinyl Skin for Shoulder	45.00
DS-012-8	Labrum/Glenoid Assembly w/ Biceps Tendon	48.00
DS-012-9	Thumb Nut	3.00

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 1-800-934-4404.

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.

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