

The Ideal Fixation Device
For Rotator Cuff Repair

Super Revo® Surgical Technique

INCREASED STRENGTH AND SUTURE MANAGEMENT

- Self-drilling, titanium anchor
- Independent Suture Sliding (ISS-) Eyelet Design
- Preloaded with #2 Sutures
- Optimized thread pitch for increased pullout strength



This product contains Dyneema® Purity.
Dyneema® Purity is a registered
trademark of Royal DSM N.V.

Two sutures provide versatile suture placement

Depth Marking



Tapered Core Diameter

Cutting Tip



Suture Retention Cleat

Super Revo[®] Shoulder Fixation System

SURGICAL TECHNIQUE

INTRODUCTION

The ConMed Linvatec 5mm Super Revo[®] Suture Anchor offers a simple and reproducible technique for arthroscopic or a mini-open rotator cuff repair. The cutting tip requires no pre-drilling and the anchor is pre-threaded with two #2 strands of braided polyester suture or two #2 strands of HiFi[®] Suture. The potential pitfalls of suture management are avoided with the Independent Suture Sliding (I.S.S.[™]) Eyelet design. The sutures slide with relative ease, which allows for sliding knots to be tied without the worry of locking the other strand and minimizes suture abrasion. In addition, the Super Revo Suture Anchor is designed for improved pullout strength.

The surgeon must have an excellent understanding of the technique and must practice suture passing and knot tying before attempting the operation. The following outline highlights the important steps in a typical rotator cuff repair. ConMed Linvatec will be happy to provide more comprehensive videotape instructions. You may also use an "Alex The Shoulder Professor" shoulder model to practice these techniques prior to surgery. Information can be obtained by calling your local ConMed Linvatec representative or Customer Service at (800) 237-0169.

**The following techniques are described
by Stephen J. Snyder, MD, Van Nuys, CA**

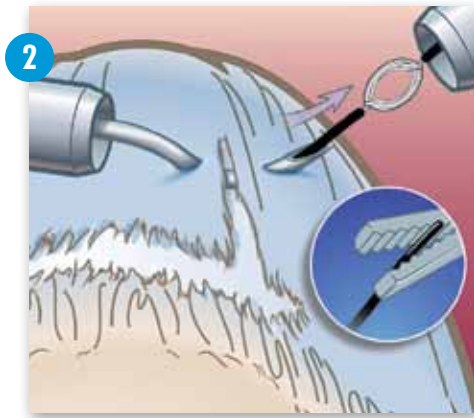
Super Revo[®] Shoulder Fixation System

Surgical Technique



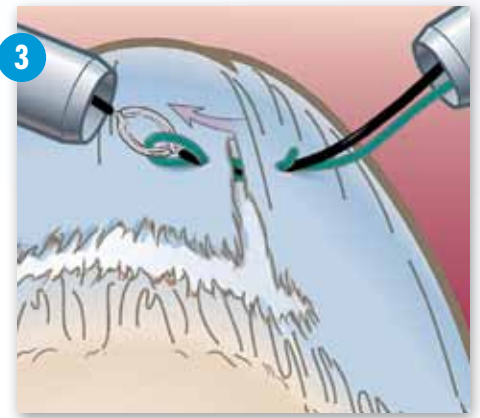
STEP 1 –

The rotator cuff tear is carefully evaluated with an arthroscope on both the articular and bursal sides, and the frayed edges of the cuff are debrided. The best view of the rotator cuff is usually “the 50 yard line” view with the arthroscope in a lateral subacromial portal which is located at the center point of the rotator cuff tear.



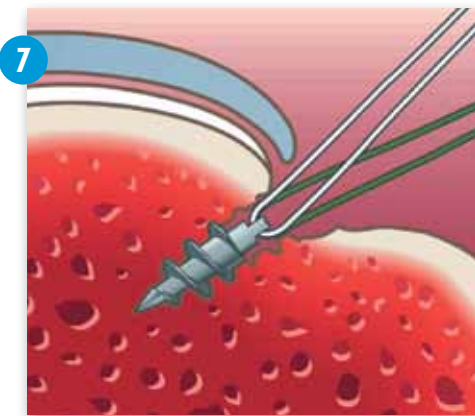
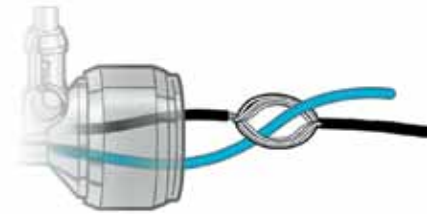
STEP 2 –

A Spectrum[®] Crescent Suture Hook with a Shuttle Relay[™] or a Blitz[®] suture passer is used to perform a side-to-side repair of longitudinal tears in the rotator cuff tendon.



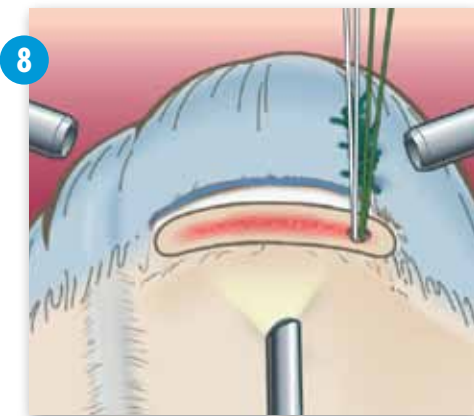
STEP 3 –

After passing the curved suture hook across the tear, a strong, long lasting suture is carried across the tear and the suture limbs tied together.



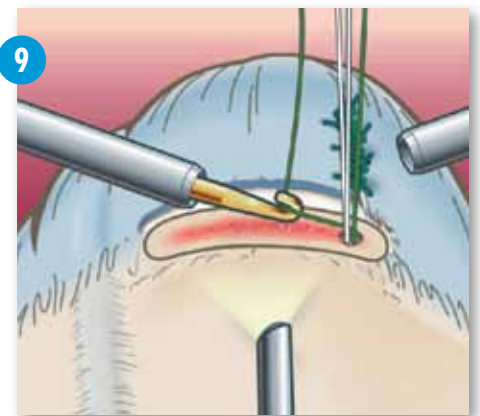
STEP 7 –

The anchor security is tested by pulling on the suture strands.



STEP 8 –

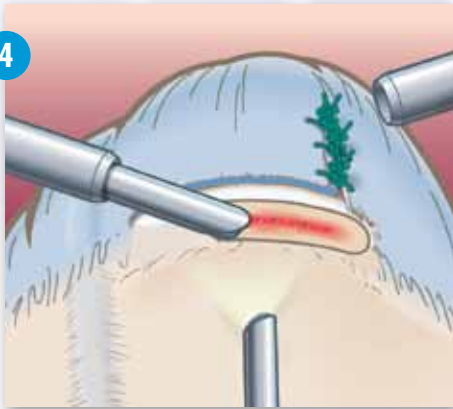
The arthroscope can be positioned in the anterior or posterior portal but most often the overall visualization is best from the lateral acromial portal.



STEP 9 –

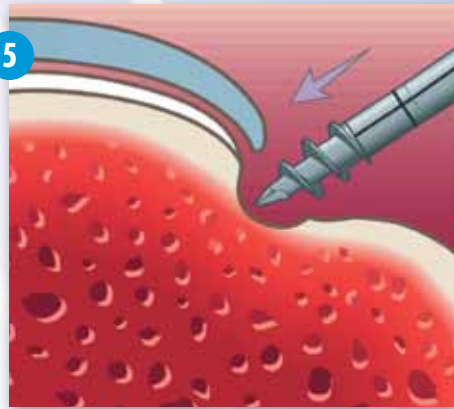
A crochet hook or suture retrieval forceps is inserted through the anterior portal (ConMed Linvatec 6mm operating cannula) and retrieves the strand of the green suture that exits the anchor closest to the cuff*. The retriever must pass behind (medial to) the suture limbs.

*Prior to insertion the anchor and suture can be disengaged from the driver. A marking pen can be used to color one side of the suture limbs. This simple maneuver helps to differentiate between the two suture limbs during suture retrieval.



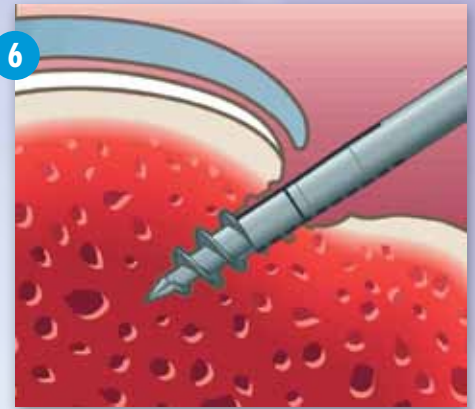
STEP 4 –

The bone is lightly decorticated at the anatomical neck of the humerus, adjacent to the articular cartilage, using a high speed bur and/or shaver. The rotator cuff is mobilized to minimize tension on the repair.



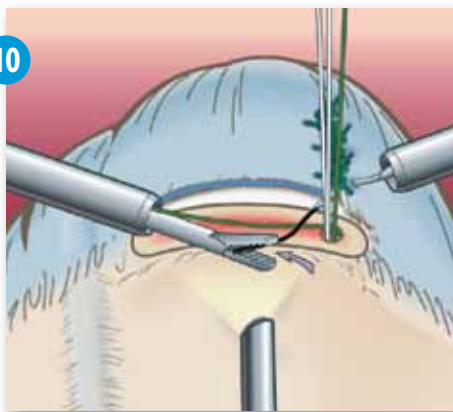
STEP 5 –

A small puncture wound is created adjacent to the lateral border of the acromion. The 5mm Super Revo® anchor, preloaded with two strands of #2 suture, is inserted directly through the percutaneous puncture wound (no cannula is needed to insert the anchor). The posterior anchor is usually inserted first. The anchor is directed to enter the bone in a medial direction below the subchondral bone at approximately a 45° angle.



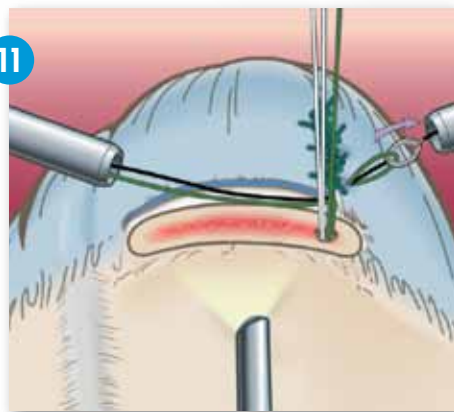
STEP 6 –

The Super Revo anchor is inserted into the bone until the seating ring on the driver is just below the surface. The vertical orientation mark (solid or dashed line which indicates the direction the anchor eyelet is facing) is aligned toward the cuff edge. This ensures that the suture passes in a direct line from the eyelet to the cuff without forming a twist.



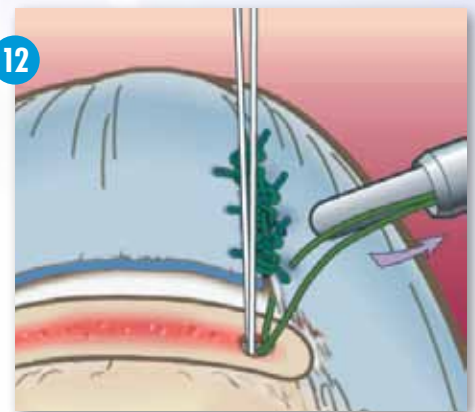
STEP 10 –

A Spectrum Crescent Suture Hook is inserted into the posterior cannula and through the bursal side of the posterior edge of the torn rotator cuff 5mm posterior to the anchor. The Shuttle Relay suture passer is sent through the hook and retrieved with a grasping forceps out the anterior cannula. Care must be taken to insure that the grasping forceps follows the same path as the green suture when retrieving the Shuttle Relay™ to avoid causing twists in the strands.



STEP 11 –

The green suture strand is loaded into the eyelet of the Shuttle Relay suture passer outside the anterior cannula. The suture is then carried through the cuff from the articular side to the bursal side by withdrawing the opposite end of the suture passer out the posterior cannula.

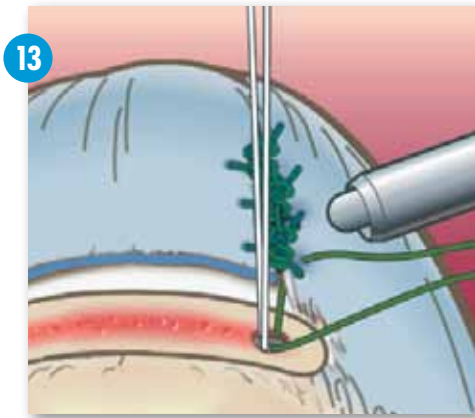


STEP 12 –

A crochet hook is used to retrieve the other limb of green suture into the posterior cannula. A switching stick is then inserted through the posterior cannula and the cannula is removed from the joint.

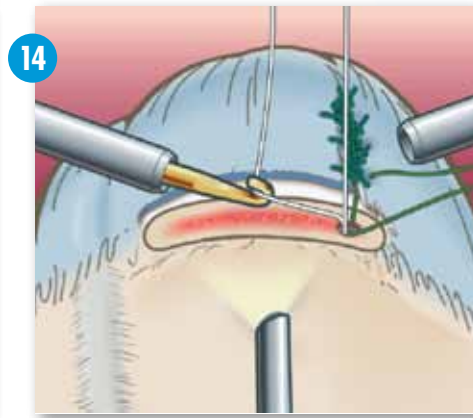
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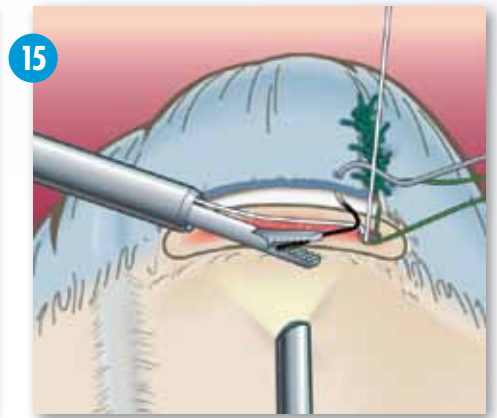
STEP 13 –

The cannula is reinserted over the switching stick leaving the sutures outside the cannula where they will be less likely to be tangled during stitching with the white sutures.



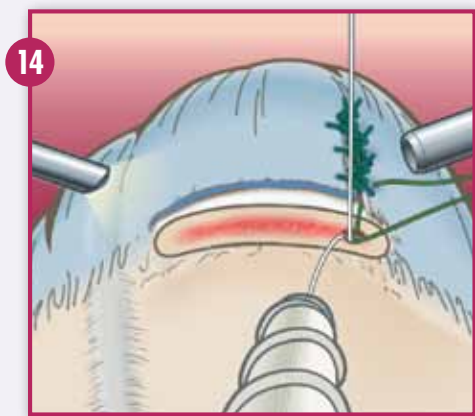
STEP 14 –

A crochet hook or suture retrieval forceps is used to retrieve the limb of white suture that exits the anchor eyelet closest to the rotator cuff. The suture is pulled through the anterior cannula.



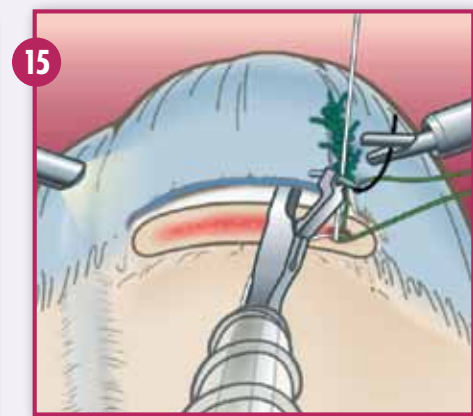
STEP 15 –

The Spectrum[®] Suture Hook is passed through the torn rotator cuff from top to bottom approximately 5mm anterior to the anchor site. If a crescent suture hook is used again, it may be inserted through the posterior cannula. If a more angled suture hook is used, the posterior cannula can be removed and the hook passed directly through the portal without a cannula. The Shuttle Relay[™] suture passer is passed through the hook and retrieved with a grasping forceps through the anterior cannula.



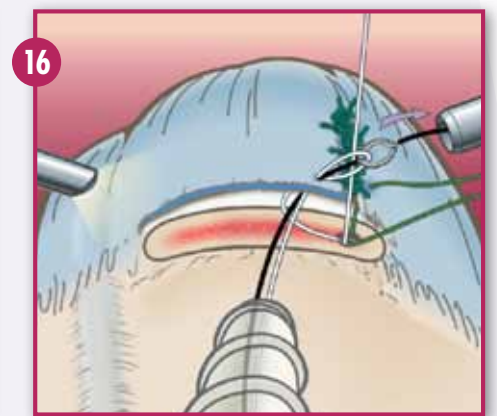
STEP 14A –

ALTERNATIVE METHOD (Modified Caspari Suture Punch): A crochet hook is used to retrieve the limb of white suture that is closest to the cuff. The suture is pulled out through the lateral cannula.



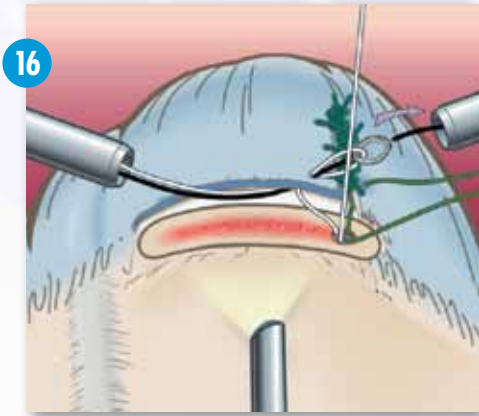
STEP 15A –

Modified Caspari Suture Punch Continued: With the scope viewing from the anterior portal, a modified Caspari Suture Punch can be inserted through a 6mm ClearFlex[™] Cannula in the lateral portal to pass a Shuttle Relay[™] suture passer from the bottom to top through the cuff. The suture passer is carried out the posterior cannula with a grasping forceps.



STEP 16A –

Modified Caspari Suture Punch Continued: The eyelet of the Shuttle Relay suture passer is loaded with the suture outside the lateral cannula and carried through the cuff from bottom to top by pulling on the opposite end.



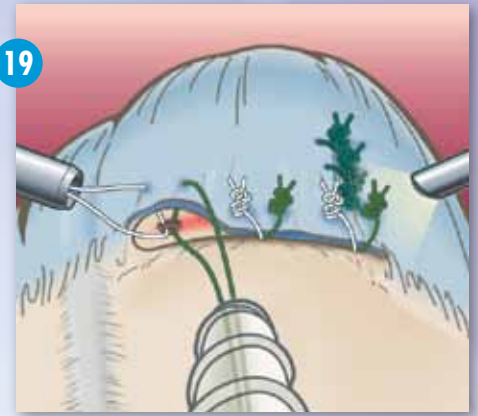
STEP 16 –

The white suture strand is loaded into the eyelet of the Shuttle Relay suture passer outside the anterior cannula. The suture is carried through the cuff from the articular side to the bursal side by withdrawing the opposite end of the suture passer out the posterior portal.



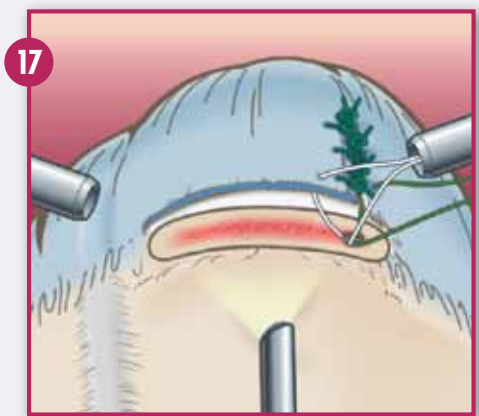
STEP 18 –

The ring handled knot pusher is threaded on to the green suture exiting the top of the cuff. It is passed into the joint to ensure there are no twists or obstructing soft tissue. The green and white suture limbs associated with the posterior anchor are first tied using a knot of choice. The second anchor is placed in a similar fashion, suture limbs passed, and tied down.



STEP 19 –

The arthroscope may be moved to the posterior cannula for visualization. The third (anterior) anchor is placed in the same fashion and suture limbs passed through the cuff, usually suturing from the anterior portal.



STEP 17 –

The posterior cannula is reinserted and the remaining white suture limb is retrieved using a crochet hook or suture retrieval forceps.



STEP 20 –

The illustration of the final repair shows three Super Revo anchors in place. Each anchor has two fixation points through the rotator cuff oriented 45° from the anchor. Notice the final side-to-side repair. At the completion of the repair, the torn end of the rotator cuff is tightly opposed to the bone to promote strong rotator cuff tendon healing.

Super Revo®

Diameter	5.0mm
Drill Hole Size	N/A
Suture	Two strands of #2 braided polyester suture. C6141
Suture	Two strands of #2 Hi-Fi® High Strength Suture. C6140H
Pullout	101 lbs, 451 N ²
Material	Titanium
Insertion Type	Self-drilling



Super Revo® Shoulder Fixation System



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Implants Description

	Cat. No.
Super Revo® Suture Anchor, 5.0mm, pre-loaded on a disposable driver.....	C6140 (pre-threaded with two #2 braided polyester sutures-green and white)
Super Revo Suture Anchor, 5.0mm, pre-loaded on a disposable driver.....	C6140H (pre-threaded with two #2 Hi-Fi® sutures – white and white with blue stripe)
Super Revo Suture Anchor, 5.0mm, Anchor Only	C6141 (pre-threaded with two #2 braided polyester sutures-green and white)
Super Revo Suture Anchor, 5.0mm, Anchor Only	C6141H (pre-threaded with two #2 Hi-Fi sutures, white and white with blue stripes)
Super Revo Driver, Reusable	C6142
Super Revo Remover Guide	C6143

Spectrum® II Instrument Set:

Suture Hook Handle.....	C6350
Suture Hook, 45° Right Curve	C6360
Suture Hook, 45° Left Curve.....	C6361
Suture Hook, 60° Right Curve	C6362
Suture Hook, 60° Left Curve.....	C6363
Suture Hook, 90° Right Curve	C6364
Suture Hook, 90° Left Curve.....	C6365
Suture Hook, Right Corkscrew	C6366
Suture Hook, Left Corkscrew	C6367
Suture Hook, Straight	C6368
Suture Hook, Small Crescent	C6369
Suture Hook, Medium Crescent	C6370
Suture Hook, Large Crescent	C6371
■ Suture Hook, 45° Right Curve	C6380
■ Suture Hook, 45° Left Curve.....	C6381
■ Suture Hook, 60° Right Curve	C6382
■ Suture Hook, 60° Left Curve.....	C6383
■ Suture Hook, Straight	C6384
□ Suture Hook, Small Crescent	C6385
■ Suture Hook, Medium Crescent	C6386
■ Suture Hook, Large Crescent	C6387

Spectrum II Accessories:

Spectrum® II Sterilization Tray	C6355
Spectrum II Roller Wheel Replacement Kit.....	C6356 (includes 2 wheels, 2 axles, 1 screw and Allen Wrench)

Accessories

Suture Saver Kit	C6180
Crocket Hook	C6005
Knot Pusher	C6112
Katana™	GU1009
Grasping Forceps	11.1001
Suture Retrieval Forceps.....	16.1018
Dry Doc® Cannula with Obturator, 8.0mm x 75mm, Translucent Red	C7367
Dry Doc Cannula with Obturator, 8.0mm x 85mm, Translucent Yellow	C7368

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11311 Concept Boulevard
 Largo, FL 33773-4908
 (727) 392-6464
 Customer Service: 1-800-237-0169
 FAX: (727) 399-5256
 International FAX: +1 (727) 397-4540
 email: customer_service@linvatec.com
 www.linvatec.com