

EUROPEAN SHOULDER TECHNIQUE GUIDE

Arthroscopic Guided Latarjet and Bankart Surgical Technique

Prof. Pascal Boileau

Knee

Hip

Shoulder

Extremities

Arthroscopic Latarjet and Bankart Technique

As described by:

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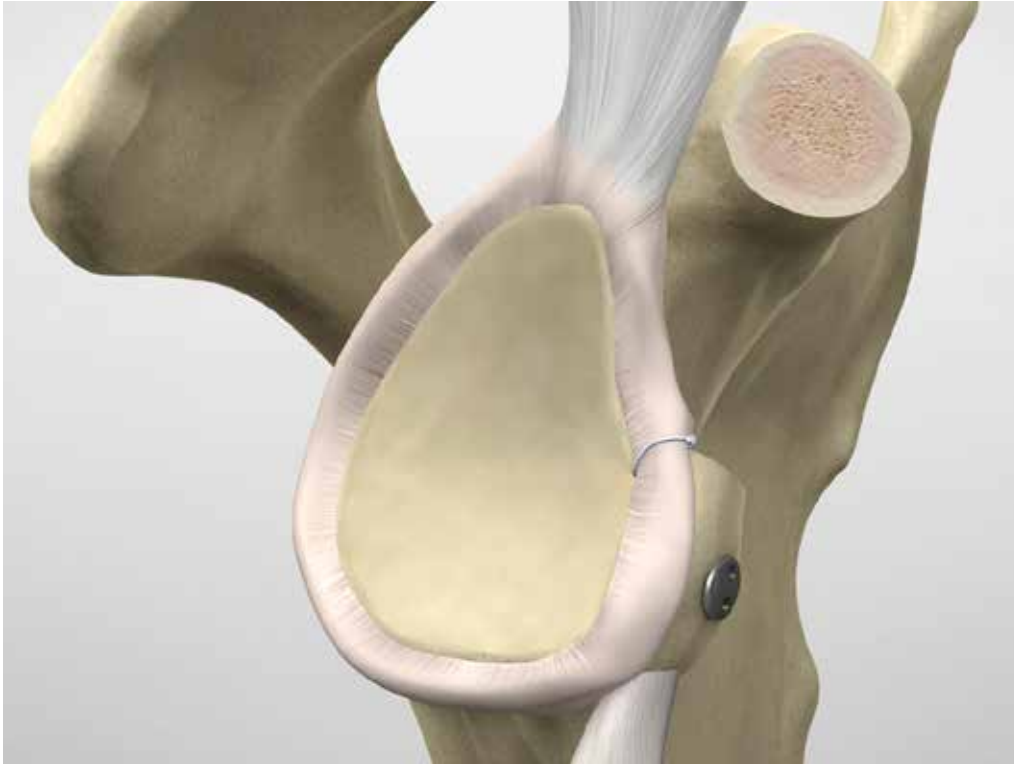
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This technique guide, used with the medical devices included herein, is not approved for use in the US or Canada.

This surgical technique was prepared with the guidance of Prof. Pascal Boileau, and contains a summary of techniques and opinions based upon his training and expertise in the field, along with his knowledge of Smith & Nephew products.

Smith & Nephew does not provide medical advice and recommends that surgeons exercise their own professional judgement when determining a patient's course of treatment. This surgical technique is presented for informational and educational purposes only.

For more information on the products in this surgical technique, including indications for use, contraindications, effects, precautions and warnings, please consult the products' Instructions for Use (IFU).



For illustrative purposes only. Results may vary.

Introduction

Introduction

Coracoid transfer to address anterior shoulder instability, first proposed by Michel Latarjet in 1954¹ and popularized by Walch and Patte^{2, 3} is increasingly used in cases of glenoid deficiency and in revision anterior stabilization.^{4, 5, 6, 7, 8, 9, 10} The technique has a three-fold advantage: (1) it allows reconstruction of the glenoid bone loss (static bone effect); (2) it reinforces the weak and stretched inferior glenohumeral ligament by transferring the conjoined tendon closer to the joint and lowering the inferior part of the subscapularis (dynamic sling or seatbelt effect); and ^{11, 1, 12} (3) together with the reattachment of the labrum and capsule, it allows “triple locking” of the shoulder.^{13, 14, 12} The procedure yields good results with a low rate of recurrent instability, high rate of return to sports to preinjury levels, and high rate of patient satisfaction.^{15, 16, 17, 7, 18, 19, 14, 2, 20}

In an attempt to make the arthroscopic Latarjet procedure safer and to reduce complications associated with the traditional screw fixation, we have developed a novel surgical technique and fixation method involving a guided surgical approach for graft positioning and the use of specific suture buttons for fixation.

In a recent clinical study, we have evaluated the accuracy of graft positioning and healing with computed tomography (CT) assessment in 76 patients followed prospectively (Boileau et al., JSES 2016). We have demonstrated that:

- (1) the use of the guiding technique does allow accurate positioning of the coracoid bone graft,
- (2) cortical button fixation is an alternative to screw fixation which allows predictable and reproducible bone union and minimizes complications reported with screw fixation, and
- (3) neurological and hardware complications, classically reported with screw fixation, have not been observed with this guided technique and novel fixation method.

Patient Preparation / Portal Placement



Patient Preparation

Under general anesthesia and interscalene block, place the patient in the 'lazy' beach-chair position.

Using a movable arm support (SPIDER2 Limb Positioner, Smith & Nephew) place the shoulder in 60° of flexion (to relax the anterior deltoid) and 30° of internal rotation (to increase the space under the coracoid process and relax the axillary nerve). Place the elbow at 90° of flexion (to relax the conjoined tendon).

Shoulder abduction is not recommended as it brings the neurovascular structures laterally in front of the scapular neck, putting them at risk. Shoulder extension is also contraindicated as it reduces the anterior subdeltoid space and puts the axillary nerve under tension.

Note:

In addition to a standard posterior portal for systematic joint inspection, 5 anterior arthroscopic portals are required for this procedure: proximal (north), distal (south), lateral (west), and medial (east) to the coracoid process and used to work mainly extra-articularly. The North-West portal (located to the antero-lateral corner of the acromion) is the rotator interval portal used to work inside the joint.

Portal Placement

Posterior	Ⓟ	Located 1cm inferior and medial to the posterior angle of the acromion
North	Ⓝ	Located 1 finger-breadth proximal to the tip of the coracoid process
South	Ⓢ	Located 2 finger-breadths distal to the tip of the coracoid process in the axillary fold
East	ⓔ	Located 3 finger-breadths medial to the tip of the coracoid process, passing obliquely through the pectoralis major muscle
West	Ⓦ	Located 2 finger-breadths lateral to the tip of the coracoid process
North-West	ⓃⓌ	Located at the antero-lateral corner of the acromion

A 70° scope is used in preference to a 30° scope throughout the procedure.

Surgical Technique

Surgical Technique

The surgical technique is composed of 5 surgical steps.

Step 1: Coracoid preparation

1a. Coracoid dissection (Fig 1a)

Start with the 70° arthroscope in the (P) portal. Locate the (NW) portal with a needle. Use a radio-frequency device to open the rotator interval and identify under-surface of the coracoid process.

Release the coracoacromial ligament from the lateral side of the coracoid and continue the dissection of the sub-coracoid space over the coracoid and lateral to the conjoint tendon.

Through the (N) portal, release the pectoralis minor from the medial side. Take care not to completely devascularize the coracoid graft by limiting pectoralis release to no further than 1cm from the tip of the coracoid process.

1b. Through the (S) portal use an ACCU-PASS[®] suture shuttle (Smith & Nephew) to pass and retrieve a PDS around the conjoint tendon. This will be used to retract the tendon and coracoid distally, after the osteotomy. Clip out of the way using a Kelly forceps (Fig 1b).

1c. Coracoid abrasion (Fig 1c)

Through the (NW) portal, introduce the Reciprocating Rasp and abrade the under surface of the coracoid process to create a flat surface.



Figure 1a



Figure 1b



Figure 1c



ACCU-PASS[®]
Suture Shuttle
Cat. No. 7210423 (left)
Cat. No. 7210424 (right)



Straight Cut
Reciprocating Rasp
Cat. No. 71935043

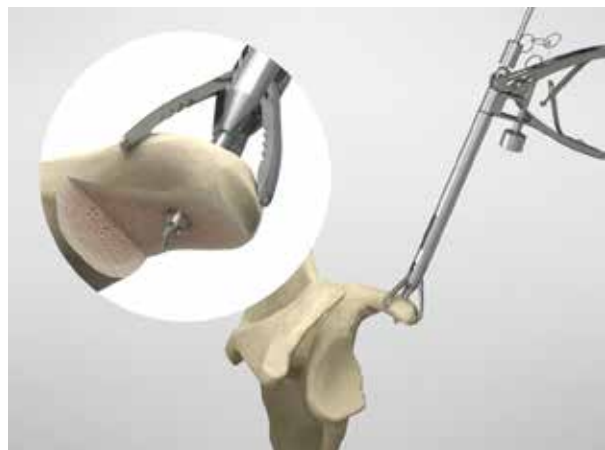


Figure 1d

1d. Coracoid drilling (Fig 1d)

Introduce the Coracoid Drilling Guide through the (N) portal and grasp the coracoid perpendicular to its surface to its surface ensuring one jaw sits at the tip of the coracoid as shown in Fig.1d.

Advance a 2.8 mm drill and sleeve through the coracoid until both exit the prepared surface of the coracoid. Remove the Coracoid Drilling Guide.

Remove the drill (leaving the sleeve in place), and pass a PDS suture through the coracoid (superior to inferior) and retrieve through the (W) portal. Remove the sleeve using the Pin Puller.

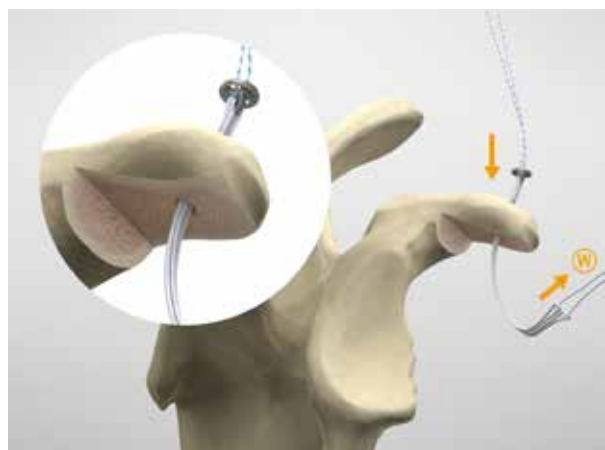


Figure 1e

1e. Coracoid shuttling (Fig 1e)

Tie the PDS suture coming from the (N) portal to the blue/white cobraid attached to the white suture loop of the ENDOBUTTON® Fixation Device.

From the (W) portal, pull the PDS suture to draw the white suture bundle and then the ENDOBUTTON into the hole in the coracoid.

Retrieve the white suture through the (N) portal and the blue/white cobraid suture on the ENDOBUTTON through the (S) portal.

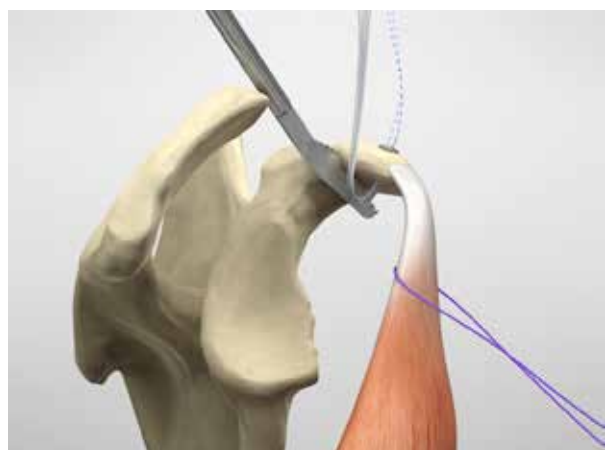


Figure 1f

1f. Coracoid osteotomy (Fig 1f)

Through the (NW) portal, use the Reciprocating Saw to osteotomize 15 to 20 mm of the coracoid process. Additional soft tissue release may be helpful to fully mobilize the coracoid graft. Temporarily close the (N) portal with a clamp to avoid losing excess water.



Coracoid Drilling Guide
Cat. No. EU000645



Round ENDOBUTTON®
S2 3/4 Suture Loop
Cat. No. 71934993



Reciprocating Saw
Blade
Cat. No. 71935042



Pin Puller
Cat. No. EU000734



2.8mm Drill and Sleeve
Cat. No. 71935044

Surgical Technique

Step 2: Glenoid preparation

2a. Labral dissection and elevation (Fig 2a)

Through the (NW) portal, detach the anterior labrum using a radio-frequency device. Through the (W) portal, pass a PDS traction suture through the labrum at the 5 o'clock position. Pull this suture medially and clip it to the drape to create a working pouch at the glenoid neck level.

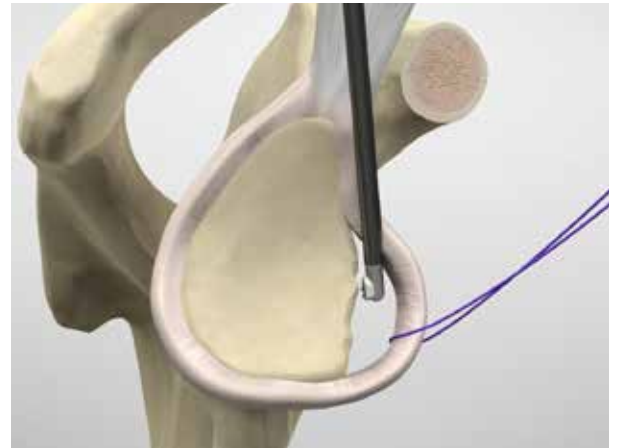


Figure 2a

2b. Glenoid neck abrasion (Fig 2b)

Using the Reciprocating Rasp through the (NW) portal, abrade the glenoid neck between 3 and 6 o'clock to create a cancellous flat surface.



Figure 2b

2c. 3 o'clock anchor insertion (Fig 2c)

Through the (W) portal, drill an anchor hole at 3 o'clock position and insert a SUTUREFIX® ULTRA S suture anchor (Smith & Nephew) to be used later for the Bankart repair.

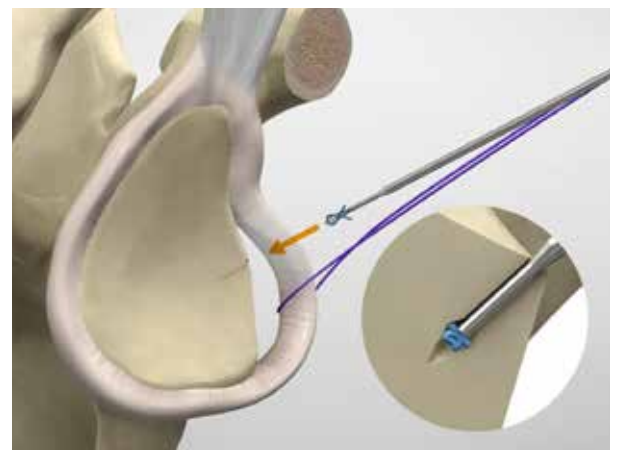


Figure 2c


Straight Cut
Reciprocating Rasp
Cat. No. 71935043


SUTUREFIX® ULTRA
Cat. No. 72203853



Figure 2d

2d. Glenoid Drill Guide placement (Fig 2d)

Using a switching stick, move the scope to the (NW) portal to view the glenoid surface and anterior glenoid neck.

Place a switching stick in the (P) portal and slide the Short Half Cannula down it. Remove the stick and slide the Glenoid Drill Guide down the cannula and then remove the cannula. Place the Glenoid Drill Guide flush to the glenoid at the 5 o'clock position (in a right shoulder), with the tip of the hook over the glenoid rim. Make a second posterior skin incision and push the "bullet" into the joint until it reaches the posterior neck of the glenoid.

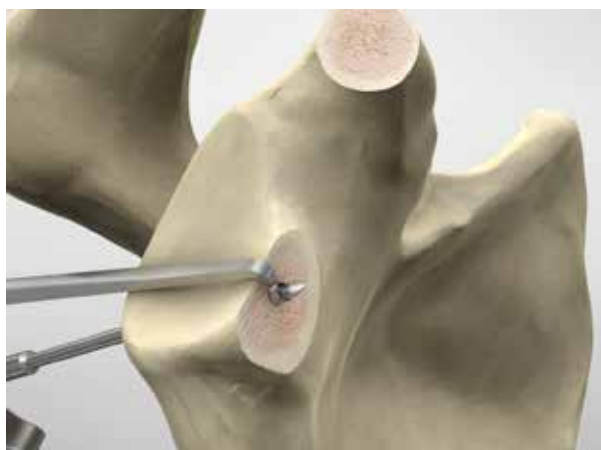


Figure 2e

2e. Glenoid drilling (Fig 2e)

Advance a second 2.8 mm drill and sleeve from posterior to anterior through the Glenoid Drill Guide until both are visible from the anterior glenoid.

Remove the drill and "bullet", leaving the sleeve in place. Reintroduce the drill into the sleeve for additional stability and reduced water leakage.



Figure 2f

2f. Posterior spreader placement (Fig 2f)

Slide the half cannula under the Glenoid Drill Guide, remove the guide, and replace with the Subscapularis Spreader with Sliding Block (ensuring the spreader is closed at this stage). Remove the cannula. In a lateral direction, gently push the Subscapularis Spreader through the subscapularis muscle, below the labrum and at the same level as the drill and sleeve (5 o'clock). Lock the Subscapularis Spreader against the skin of the posterior aspect of the shoulder.



Short Half Cannula
Cat. No. EU000714



Glenoid Drill Guide
Cat. No. EU000712
Glenoid Drill Guide "Bullet"
Cat. No. EU000752



Subscapularis Spreader
Cat. No. EU000647
Sliding Block
Cat. No. EU000667



2.8mm Drill and Sleeve
Cat. No. 71935044

Surgical Technique

Step 3: Subscapularis split

3a. Anterior bursectomy and “three sisters” identification

With the scope in the (W) portal, use a radio-frequency device through the (S) portal to remove the bursae of the subscapularis and identify the anterior axillary vessels (the so called “three sisters”).



Figure 3a

3b. Axillary and musculo-cutaneous nerves identification and protection

Following medially, the “three sisters” lead to the “two brothers”: the axillary and musculo-cutaneous nerves. Introduce the Tissue Retractor through the (S) portal, to retract the nerves medially.



Figure 3b

3c. Lateral subscapularis split (Fig 3a)

After checking the position of the Subscapularis Spreader (correct at the 2/3 superior 1/3 inferior junction of the subscapularis tendon), gently open it. Use a radio-frequency device through the (S) portal to further open the tendon.

3d. Medial split (Fig 3b)

From the (E) portal, introduce the Long Half Cannula through the pectoralis major and aim towards the base of the coracoid graft. Slide the Subscapularis Spreader along the cannula. Open the Subscapularis Spreader to visualize the abraded neck of the glenoid and to get clear sight of the drill and sleeve. Slide the open Spreader medially and under the glenoid neck. Together, the two Spreaders create a “safe window” through the subscapularis muscle.



Tissue Retractor
Cat. No. EU000624



Subscapularis Spreader
Cat. No. EU000647



Subscapularis Spreader
Cat. No. EU000647
Sliding Block
Cat. No. EU000667



Long Half Cannula
Cat. No. EU000713

Step 4: Coracoid transfer and fixation

4a. Suture shuttling (Fig 4a)

Remove the glenoid drill from the sleeve and introduce a Suture Retriever. Introduce a suture grasper through the (N) portal to retrieve the PDS suture (attached to the white suture) and direct it to the mouth of the Suture Retriever. Capture the PDS suture with the retriever and pull posteriorly through the glenoid. Before transferring the white suture through the glenoid, remove the sleeve from the glenoid using the Pin Puller.

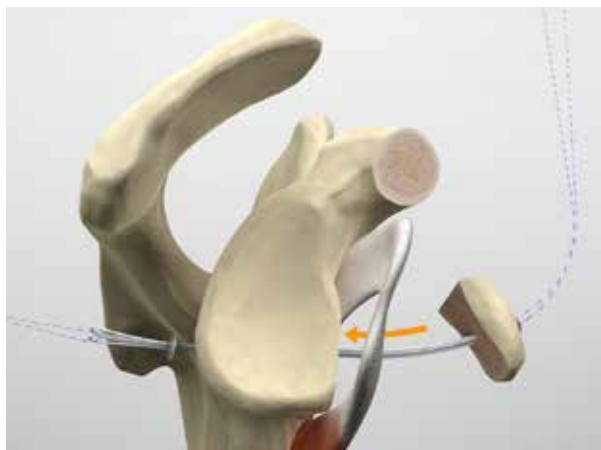


Figure 4a

4b. Coracoid transfer (Fig 4b)

Pull on the blue/white cobraid suture from the P portal to transfer the coracoid bone graft. There must be no resistance when pulling. Introduce the Bone Grasper through the (S) portal, and use it to adjust the rotation of the graft in order to be flush with the glenoid surface. (Check for a smooth pulley by alternating pulls on the two suture loops).

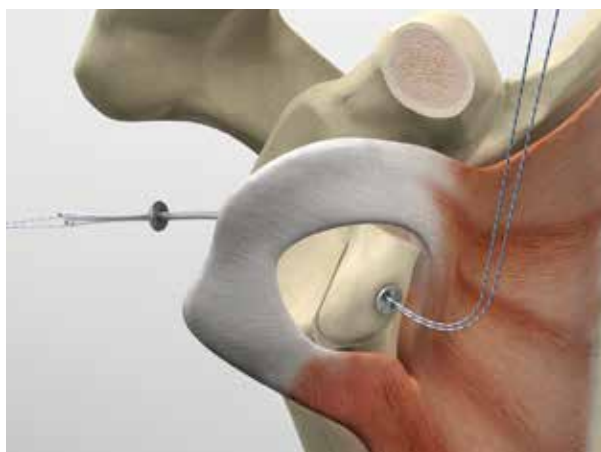


Figure 4b



Suture Retriever
Cat. No. 013593



Bone Grasper
Cat. No. 75102285



1-hole Round
ENDOBUTTON®
Cat. No. 71934989



Pin Puller
Cat. No. EU000734

Surgical Technique

4c. Posterior button placement & knot tightening (Fig 4c to 4d)

Using the Suture Retriever, pass the four white sutures through the posterior ENDOBUTTON®. Tie a Nice knot (sliding locking knot) making sure that the loop with the blue/white cobraid remnant is the post. Advance the Suture Tensioner through the (P) portal and apply a tension of 50 Newtons. Reintroduce the scope through the (P) portal to control placement and rotation of the bone block, ensuring no lateral overhang. The positioning and the rotation of the coracoid graft are controlled with the help of the Bone Grasper through the (S) portal if needed. Further compression of 50 Newtons (total 100 Newtons) on the bone graft against the anterior glenoid neck is obtained by using the Suture Tensioner. Remove the tensioner and lock the construct using 3 square knots.

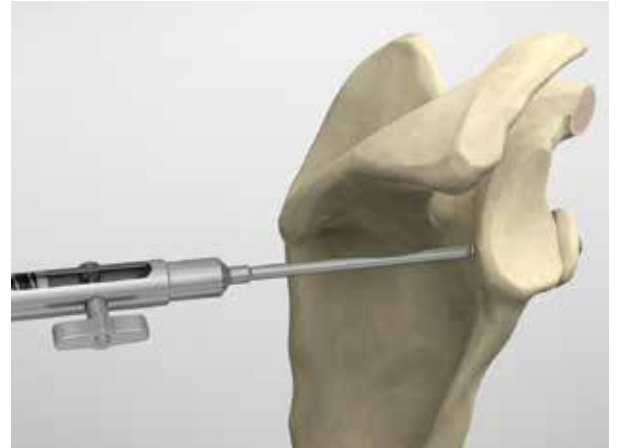


Figure 4c



Figure 4d

Step 5: Bankart repair (Fig 5)

Using the previously placed SUTUREFIX ULTRA S anchor, reattach the capsule and labrum to the glenoid rim, leaving the bone graft in an extra-articular position.



Figure 5



Suture Tensioner
Cat. No. EU000715



Bone Grasper
Cat. No. 75102285



Suture Retriever
Cat. No. 013593



Round ENDOBUTTON®
S2 3/4 Suture Loop
Cat. No. 71934993



SUTUREFIX® ULTRA
Cat. No. 72203853

Postoperative Management

Postoperative Management*

The arm is immobilized for 2 weeks in a neutral rotation sling; this allows healing of the conjoint tendon in the muscular part of the subscapularis muscle and avoids loss of external rotation.

Pendulum exercises start after two weeks (5 times a day, 5 minutes each session). Patient is allowed to remove the sling at night and to sleep with the operated arm inside a t-shirt.

After four weeks, the sling is removed and formal rehabilitation with a physiotherapist is started.

Swimming pool therapy is encouraged. No heavy lifting is allowed for the first 12 weeks.

Return to all types of sports activities, including collision and contact-overhead sports, is allowed between 3 to 6 months post-operatively.

* The views and opinions expressed for postoperative care are solely those of the surgeon and do not reflect the views of Smith & Nephew, Inc. In no event shall Smith & Nephew, Inc., be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use the expressed views.

INDICATIONS FOR USE

Double ENDOBUTTON® Fixation Device

The Double ENDOBUTTON Fixation Device is used in the reduction and fixation of osteotomies, arthrodesis, and fractures of the upper extremities, foot, and ankle including the scapula, metatarsal, metacarpal, carpal, phalangeal, malleolus, hallux valgus, humerus, radius and ulna. The device is used during the healing period following syndesmotic trauma such as acromioclavicular (AC) joint reconstruction, ankle syndesmosis reconstruction.

SUTUREFIX® Ultra Suture Anchor

The Smith & Nephew SUTUREFIX Ultra Suture Anchor is intended for the secure fixation of soft tissue to bone for the following indications:

Hip

- Hip capsule repair
 - Acetabular labrum repair/reconstruction

Shoulder

- Capsular stabilization
 - Bankart repair
 - Anterior shoulder instability
 - SLAP lesion repairs
 - Capsular shift or capsulolabral reconstructions
- Acromioclavicular separation repairs
- Deltoid repairs

- Rotator cuff tear repairs
- Biceps tenodesis

Foot and Ankle

- Hallux valgus repairs
- Medial or lateral instability repairs/reconstructions
- Achilles tendon repairs/reconstructions
- Midfoot reconstructions
- Metatarsal ligament/tendon repairs/reconstructions
- Bunionectomy

Elbow, Wrist, and Hand

- Biceps tendon reattachment
- Ulnar or radial collateral ligament reconstructions
- Lateral epicondylitis repair

Knee

- Extra-capsular repairs
 - Medial collateral ligament
 - Lateral collateral ligament
 - Posterior oblique ligament
- Patellar realignment and tendon repairs
 - Vastus medialis obliquus advancement
- Iliotibial band tenodesis

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ORDERING INFORMATION

Set number: 75210404

Instrument part list Arthroscopic Guided Latarjet and Bankart Procedure

Reference #	Description
EU000736	Arthroscopic Latarjet Tray
EU000737	Arthroscopic Latarjet Lid
EU000752	Glenoid Drill Guide "Bullet"
EU000712	Glenoid Drill Guide
EU000715	Suture Tensioner
EU000623	Tissue retractor straight
EU000624	Tissue retractor
EU000645	Coracoid Drilling Guide
EU000647	Subscapularis Spreader
EU000667	Sliding Block
EU000713	Long Half Cannula
EU000714	Short Half Cannula
EU000734	Pin Puller
75102285	Bone grasper

Implant part list Arthroscopic Guided Latarjet and Bankart Procedure

Reference #	Description
71934989	1-hole Round Endobutton
71934993	Round Endobutton S2 3/4 Suture Loop

Specific disposables for Implant part list Arthroscopic Guided Latarjet and Bankart Procedure

Reference #	Description
71934994	Loop Tip Guidewire
71935044	2.8mm Drill and Sleeve (2)
71935042	Reciprocating Saw Blade
71935043	Straight Cut Reciprocating Rasp

SYSTEM COMPATIBILITY WITH EARLIER AVAILABLE INSTRUMENTS

Instrument part list Arthroscopic Guided Latarjet and Bankart Procedure

Reference #	Description	Replaced by
EU000690	Suture Tensioner	EU000715
72203342	Bullet, Glenoid Guide, Posterior, Short	EU000752
71928166	Pin Puller	EU000734
EU000650	Drill Guide with cannulation	none

Specific disposables for Implant part list Arthroscopic Guided Latarjet and Bankart Procedure

Reference #	Description	Replaced by
EU000610	Reciprocating Saw	71935042
EU000634	Reciprocating Rasp	71935043
014771	2.8mm Drill/Sleeve	71935044
72202189	1.5mm Guidewire with 12	none

