# OSTEOCONNECT Arthroscopic Bone Block

**Using DOUBLE ENDOBUTTON◊ Fixation Device for anterior inferior glenohumeral instability**

A shoulder technique guide as described by

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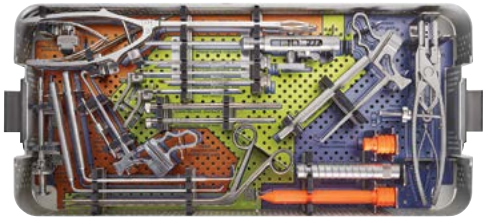

GLENOID BONE LOSS SYSTEMS
Advanced Instability Solutions

# Introduction

This technique guide describes a new arthroscopic technique for the treatment of concomitant bony defects with the accurate placement of an iliac crest tricortical bone graft or allograft material, perfectly flush on the anterior glenoid rim, followed by soft-tissue fixation on the anteroinferior glenoid rim. It is an all-arthroscopic technique with the advantage of not using fixation devices, such as screws, but instead using the round ENDOBUTTON◊ Fixation Device to fix the bone graft. The steps of the operation enable the precise placement of a specific posterior glenoid guide that allows the accurate positioning of the bone graft on the anterior glenoid neck; fixation of the graft flush with the anterior glenoid rim using specific buttons under arthroscopic control; and finally, subsequent capsular, labral, and ligament reconstruction on the glenoid rim using suture anchors and leaving the graft as an extra-articular structure.

The following technique guide was prepared under the guidance of Professor Ettore Taverna, MD. Created under close collaboration with Professor Taverna, it contains a summary of medical techniques and opinions based upon his training and expertise in the field, along with his knowledge of Smith+Nephew's ENDOBUTTON◊ Fixation Device and other instruments.

S+N does not provide medical advice and recommends that surgeons exercise their own professional judgment when determining a patient's course of treatment. This guide is presented for educational purposes only. **For more information on the ENDOBUTTON Fixation Device, including its indications for use, contraindications, and product safety information, please refer to the product's label and the Instructions for Use packaged with the product.**

**Figure 1**

**Figure 2**

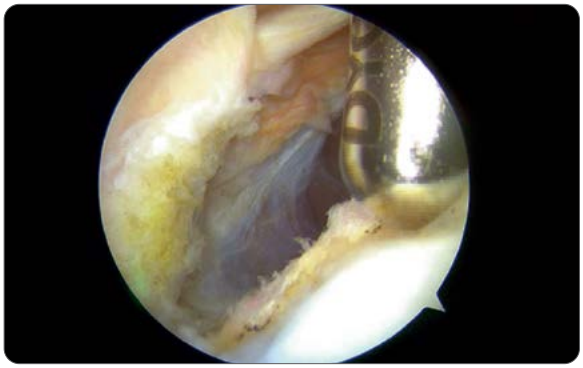

**Figure 3**

## Patient positioning and joint preparation

Under general anesthesia and with the administration of perioperative antibiotics, place the patient in the beach-chair position. The scapula can be bolstered to rotate the glenoid externally. Create a standard posterior portal for the insertion of the arthroscope. Then, viewing from the posterior portal, create an antero-superior portal and a mid-glenoid portal. Insert two 5.5mm cannulas into the rotator interval (**Figure 1**).

Detach labrum from the glenoid rim, and remove all soft tissue from the anterior glenoid neck using a combination of an arthroscopic soft tissue shaver and radio-frequency device (**Figure 2**).

Introduce the arthroscope through the anterosuperior portal. Further decorticate the anterior glenoid rim with an arthroscopic burr to create a flat and bleeding bony surface to accommodate the graft (**Figure 3**).

Figure 4

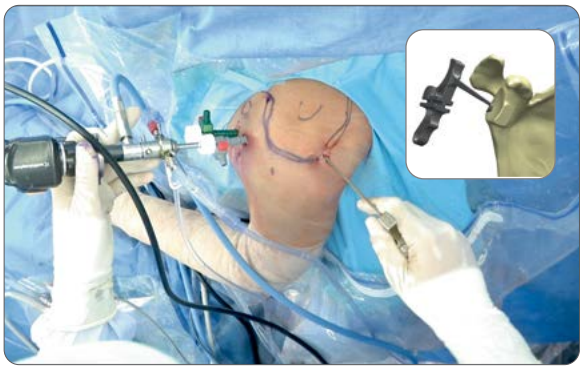

Figure 5

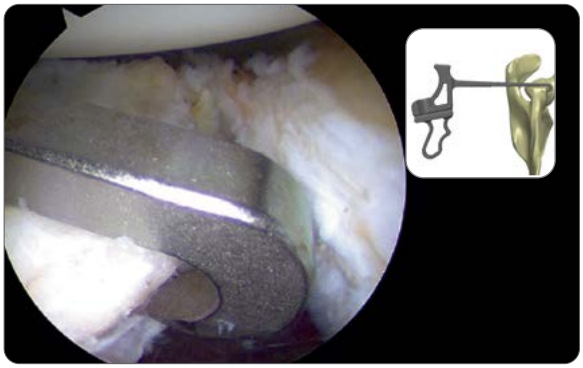

Figure 6

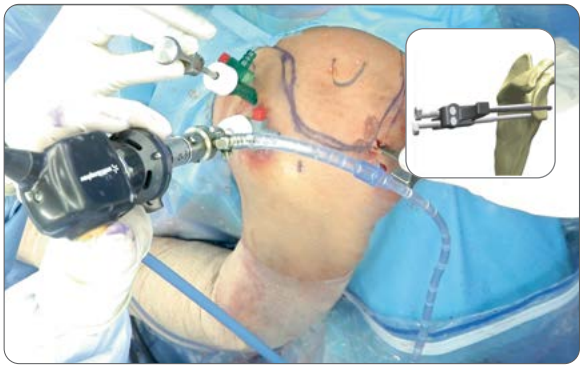

Figure 7

## Glenoid guide and drill pin placement

Insert a spinal needle from posterior to anterior along, and parallel to, the face of the glenoid and centre on the anterior glenoid bone defect below the midline (**Figure 4**).

Insert the hook end of the Glenoid Guide through the posterior portal and pass it along the glenoid parallel to the glenoid face to avoid damaging the articular surface. Use the cannula for introduction of Glenoid Guide (**Figure 5**).

Once sufficiently advanced, the guide is rotated to capture the anterior edge of the glenoid under the hook. The hook should be placed at the centre of the anterior glenoid defect, usually between the 3- and 4-o'clock position. The Glenoid Guide should be parallel and flush to the glenoid surface (**Figure 6**).

The guide is secured by two bullets placed percutaneously. A small skin incision is made and a bullet can be advanced until it firmly contacts the posterior aspect of the glenoid neck. Care should be taken to ensure the ratchet teeth of the bullet are aligned with the screws that are adjacent to the handle of the guide. The process is repeated for the second bullet (**Figure 7**).

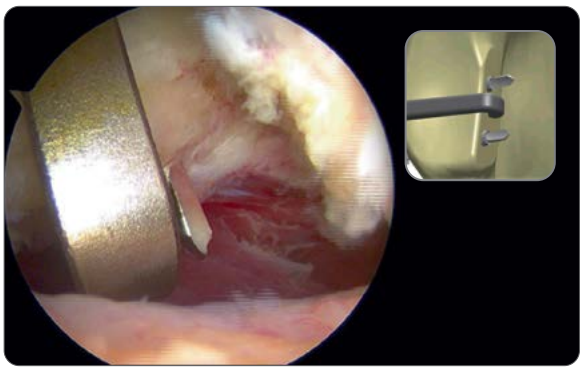

Figure 8

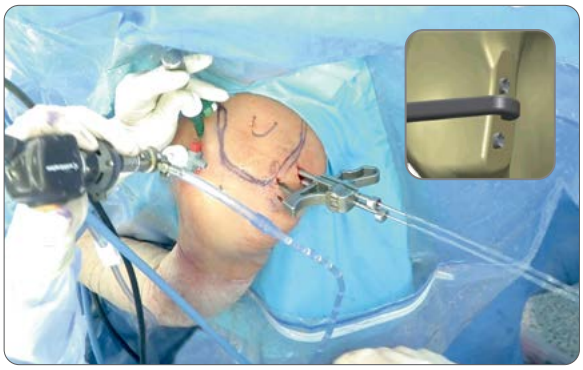

Figure 9

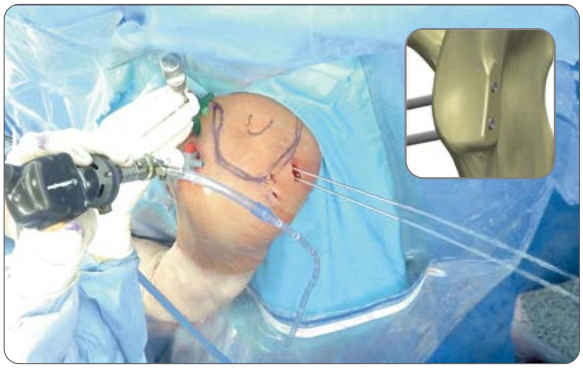

Figure 10

Figure 11

## Glenoid guide and drill pin placement

A 2.8mm sleeved drill is placed through each bullet and advanced under power until exiting from the anterior aspect of the glenoid. It is not necessary for the sleeve portion of the drill to exit the tunnel. Each drill will be 5mm below the cortical edge of the glenoid face, parallel to one (**Figure 8**).

The inner drill is removed, leaving the cannulated outer sleeve in place. Arthroscopic fluid exiting from the outer sleeve posteriorly confirms positioning. Exiting fluid from outer sleeves can be managed by using two plugs (**Figure 9**).

Once drilling is complete the bullets can be removed by rotating each bullet to disengage the ratcheting teeth and extracting posteriorly.

The guide can be removed at this stage. Care should be taken to ensure the sleeves remain firmly positioned in the glenoid neck (**Figure 10**).

**NOTE:** When removing the guide, rotate it so that the hook is flat against the glenoid surface.

A 15mm cannula is introduced through the rotator interval. Flexible looped guide wires enter into the joint by passing one wire through each sleeve posterior to anterior. Each guide wire is then retrieved using a loop grasper which is passed through the cannula. The wires are separated and stored. The drill sleeves should now be removed (**Figure 11**).


Figure 12

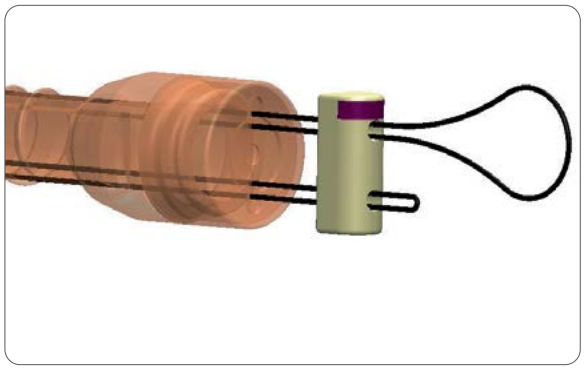

Figure 13

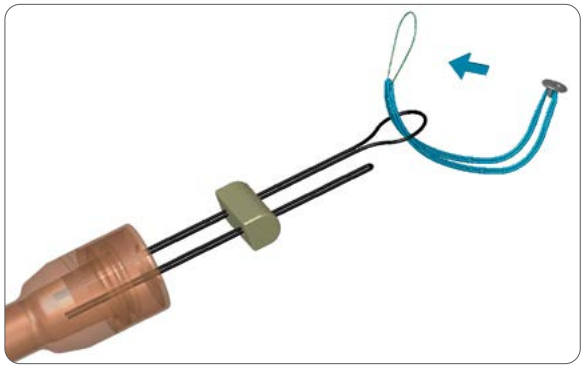

Figure 14

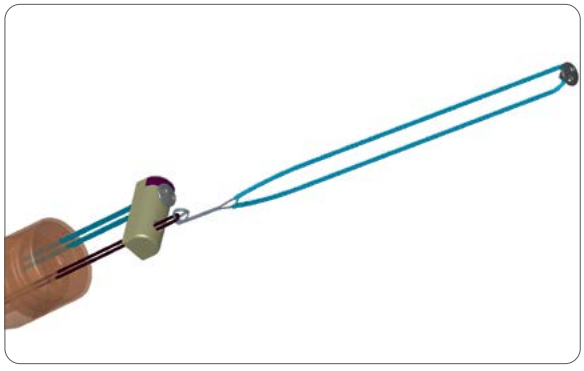

Figure 15

## Bone block preparation

Utilizing the Graft Preparation Tool, prepare a 20mm x 10mm x 10mm bone block out of tri cortical iliac crest or allograft material.

Next, using the Graft Preparation Tool, drill two 2.8mm drill holes, 10mm apart and 5mm from each edge. The holes created correspond to the distance of the cannulated drill sleeves previously placed in the glenoid neck. With a marking pen, mark the superior aspect of the bone block (**Figure 12**).

## Graft passage and loading of anterior implants

Prior to loading the implant onto the guide wires, care is taken to ensure that the looped guide wires are not tangled within the joint. Each looped guide wire is fed through the prepared bone block and exits on the cortical side (**Figure 13**).

Secure the implant to the end of the looped guide wire with a classic slip-knot. This can be achieved by passing the loop of the lead suture through the looped guide wire (**Figure 14**) and feeding the implant through the lead suture (**Figure 15**).

Figure 16

Figure 17

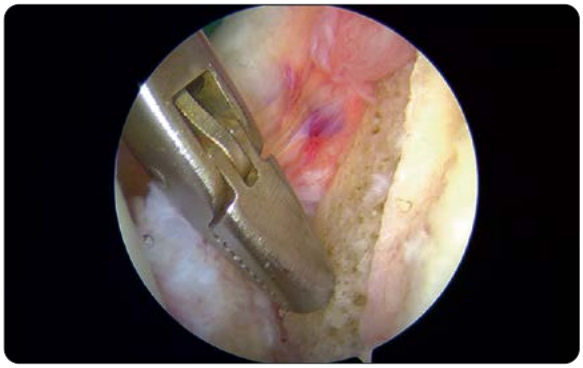

Figure 18

## Graft passage and loading of anterior implants

Withdraw the guide wires posteriorly to engage the anterior round ENDOBUTTON◊ Fixation Device until they lie flat on the bone block. Sutures should be taut to allow smooth movement down the cannula (**Figure 16**).

Ensuring the superior end of the bone-block enters first (marked end), insert into the 15mm cannula. The bone block is advanced by pulling the guidewires out posteriorly. Slight tension should be maintained on the sutures throughout this step.

The sutures should advance the implant through the cannula until the bone block sits flush on the anterior neck of the glenoid with each implant's lead suture exiting the skin posteriorly (**Figure 17**).

**NOTE:** A knot pusher can be used to push the bone-block down the cannula.

The bone block should be oriented so that the cancellous surface is perpendicular to the anterior neck of the glenoid. Use Bone grasper for positioning of the bone block.

Once the bone block sits flush on anterior neck of the glenoid and the suture has been pulled through the skin posteriorly, cut the SZ 3/4 suture to separate the two ends of the continuous loop (**Figure 18**).

Figure 19

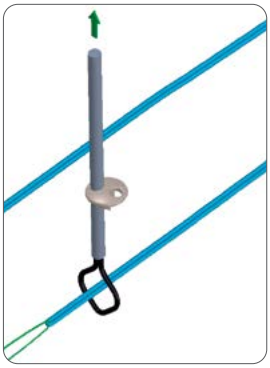

Figure 20

Figure 21

## Loading the posterior implants

The posterior implants are placed on the suture retriever by advancing the instrument through the eyelet of a posterior round ENDOBUTTON◊ Fixation Device (**Figure 19**).

Pass the suture through the suture retriever. Retract the suture retriever to allow the suture to pass through the eyelet of the posterior round ENDOBUTTON Fixation Device. The same steps must be performed for the second eyelet with the other side of the suture (**Figure 20**).

The posterior round ENDOBUTTON Fixation Devices are advanced until they sit flush against the posterior face of the glenoid using a sliding knot. The knot pusher is used to secure the posterior round ENDOBUTTON Fixation Devices. The knot pusher will provide tactile feedback when the posterior round ENDOBUTTON Fixation Devices are properly seated (**Figure 21**).

# The Nice Knot technique

## Securing the bone graft

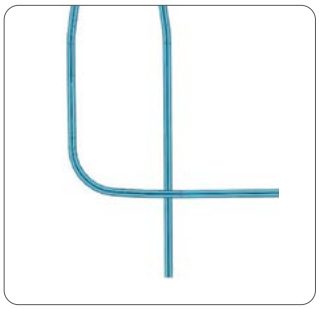

Figure 1

### Step 1

The side of the suture that has the cobraid woven into the white suture, will serve as your post. With the post in your right hand, create a figure four by placing the loop over the post (**Figure 1**).

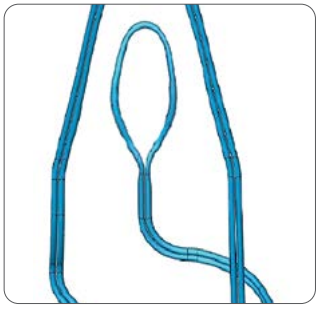

Figure 2

### Step 2

Bring the loop underneath the post and through the figure of four. Open the loop at the end of the thread (**Figure 2**).

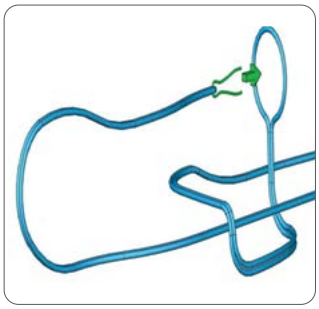

Figure 3

### Step 3

Place the post through the open loop created in step 2 (**Figure 2**). Build the knot behind the posterior implant by pulling taught on the loop. Care is taken to ensure that the knot is fully taut prior to pulling the post and advancing the implant (**Figure 3**).

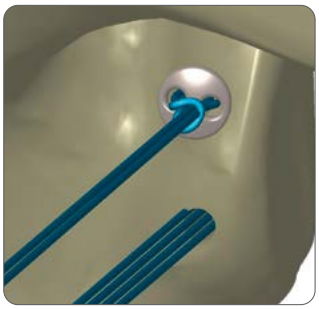

Figure 4

### Step 4

Advance the Nice Knot to the face of the Round ENDOBUTTON◊ Fixation Device (**Figure 4**).

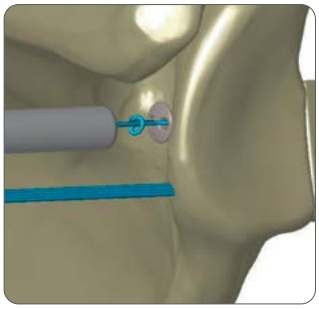

Figure 5

### Step 5

Introduce a suture retriever through the back of the suture tensioner and use it to load the tensioner onto the suture.

Advance the suture tensioner to the round ENDOBUTTON Fixation Device and apply tension of 25 Newtons, then repeat steps 1-5 for the second implant (**Figure 5**).

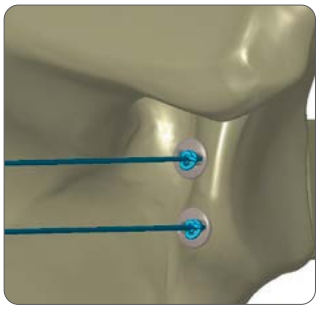

Figure 6

### Step 6

Revisit the coracoid position and adjust if needed with Bone grasper. Further compression to 100 Newtons with one implant, remove tensioner and secure with three square knots. Repeat with second implant (**Figure 6**).

## Soft-tissue repair

The anterior labrum, capsule, and ligaments are repaired to the glenoid rim with suture anchors and a standard arthroscopic soft-tissue repair technique.

# Ordering information

| Set number: 7193R005 Instruments, Bone Block Procedure | |
|---|---|
| Reference # | Description |
| 71935618 | Arthroscopic Latarjet Tray |
| 71935619 | Arthroscopic Latarjet Lid |
| 71935462 | Glenoid Drill Guide, Long Bullet |
| 71935461 | Glenoid Drill Guide, Short Bullet |
| 71935607 | Suture Tensioner |
| 7193R006 | 15mm Cannula Set, including: |
| 71935634 | 15mm Cannula Trocar |
| 71935635 | 15mm Cannula Tube |
| 71935636 | 15mm Cannula Cover |
| 71935061 | Bone Graft Preparation Tool |
| 71935460 | Double Posterior Glenoid Drill Guide |
| 71935463 | Half Cannula - Short |
| 71935464 | Half Cannula Obturator - Short |
| 71928166 | Pin Puller |
| 71935459 | Bone grasper |

| Implant, Bone Block Procedure | |
|---|---|
| Reference # | Description |
| 71934990 | 2-hole Round ENDOBUTTON◊ |
| 71934993 | Round ENDOBUTTON S2 3/4 Suture Loop |

| Specific Disposables, Bone Block Procedure | |
|---|---|
| Reference # | Description |
| 71934994 | Loop Tip Guidewire (2) |
| 013593 | Suture Retriever (Box 6) |
| 014771 | 2.8mm Drill and Sleeve (2) |

This technique is for informational and educational purposes only. It is not intended to serve as medical advice. It is the responsibility of the treating physicians to determine and utilise the appropriate products and techniques according to their own clinical judgment for each of their patients. For more information on the products shown in this surgical technique, including indications for use, contraindications, effects, precautions and warnings, please consult the Instructions for Use (IFU) for the product.

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