The Implant of Choice for Extracortical, Soft Tissue Fixation in Cruciate Reconstructions.

- Pre-stretched continuous loop
- Simplified technique
- Integrated method to reposition the implant
- Inherent Rotational Moment (I.R.M.) for effective seating on the femoral cortex
- Pre-loaded with passing sutures and limited reuse drill bit

This product contains Dyneema® Purity. Dyneema® Purity is a registered trademark of Royal DSM N.V.
The XO Button™ implant allows for effective seating on the femoral cortex. The unique design of the XO Button™ allows for an integrated technique for repositioning.

The following techniques are described by Donald Johnson, M.D.
**Graft Harvest and Notch Preparation:**

**Step 1:** Harvest and prepare a soft tissue graft (STG) using a preferred technique. With the ConMed Linvatec Graft Sizing Block, measure the graft bundle diameter. Measurements of the femoral end and tibial end should be taken.

**Step 2:** If needed, use the ConMed Linvatec Vortex® Router to perform a Notchplasty. Osteotomes and Curettes may also be used to remove bone and soft tissue for a clear view into the notch.

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**Surgical Pearl:**

Use Vortex® Router in reverse to "polish" the surface of the notch.

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**Tibial Tunnel:**

**Step 1:** Use the Pinn-ACL® Cruciate Guide, following standard cruciate guide techniques, to place a guide pin for the tibial tunnel. Note: The guide pin will emerge from the tibial plateau just anterior to the tip of the guide and will interact with the “collet” circling the pin (Figure 1).

**Step 2:** Create the appropriate size tibial tunnel using a ConMed Linvatec Badger® Drill Bit (Figure 2).

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**Surgical Pearl:**

For a less vertical tunnel, set your guide angle to 45° and place the sleeve medially on the tibia next to the MCL.
**Femoral Socket:**

**Step 1:** Select and position the correct Bullseye® Femoral Guide for a ten/two o’clock position on the femur. Insert the XO Button™ Graft Passing Guide Pin, C8676, through the handle of the Bullseye® Guide.

**Step 2:** With the knee flexed to ninety degrees, slowly drill the XO Button™ Graft Passing Guide Pin, advancing until the pin reaches the distal femoral cortex (Figure 3). When the pin reaches the cortex, note the depth taken from reference marks on the proximal end of the pin. This measurement provides you with an estimate of the aperture to cortex length, AC length, (Figure 4). Once noted, advance the guide pin through the skin.

**Step 3:** Select a ConMed Linvatec Badger® drill bit of a size comparable to the graft diameter and create the femoral socket. Drill the femoral socket to an adequate 35mm.

NOTE: If the estimated AC length (step 2) is less then 40mm deep, reduce the femoral socket drilling depth accordingly. See chart A. If difficulty is encountered feeling the cortex for a depth estimate, then drill the 5mm femoral channel to accurately measure the AC length.

**Surgical Pearl:**

When drilling the Guide Pin use a pistoning motion to gently palpate the cortex.
**Femoral Channel:**

**Step 1:** Without removing the XO Button™ Graft Passing Guide Pin, use the XO Button™ Drill Bit, C8590, to create a 5mm femoral channel. Over-drill the pin through the lateral femoral cortex (Figure 6).

**Step 2:** To measure the aperture to cortex length, using the XO Button™ Drill Bit, rest the base of the drill bit on the exterior cortex of the femur and read the measurement at the aperture of the tunnel. This confirms the AC length (Figure 7). Alternatively, use the ConMed Linvatec Depth Probe, trans-tibially, to measure the AC length (Figure 8).

**Surgical Pearl:**

Un-chuck the XO Button™ Drill Bit from power to take your measurement. This will allow for tactile feeling of resting the drill bit head on the cortex.

**Surgical Pearl:**

10-15mm is required to flip the XO Button™ implant. 15mm is necessary only when you have a large graft bundle (9mm and up). This is because the larger graft spreads the bottom of the loop and decreases the actual length.
Donald Johnson, M.D.

**XO Button™ Sizing:**
The appropriate XO Button™ loop length is chosen based upon the desired length of graft in the femoral socket. The loop length is the difference between the AC length and the desired length of graft in the socket (Figure 9).

To flip the XO Button™ implant it must be drawn 15mm past the femoral channel. This allows the implant to fully emerge from the bone tunnel and completely rotate (Figure 10). Because of this, the femoral socket depth must be 15mm greater than the length of graft in the socket. Always verify that:

- **Socket length – Desired length of graft in tunnel ≥ 15mm**
- **XO Button™ Length = Aperture to Cortex – Graft in socket**

**Chart A:**

<table>
<thead>
<tr>
<th>Aperture to Cortex Length</th>
<th>Recommended Socket Depth</th>
<th>Recommended Length of Graft in Socket</th>
<th>XO Button™ Length: Aperture to Cortex – Graft in socket</th>
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<tbody>
<tr>
<td>30mm</td>
<td>25mm</td>
<td>15mm</td>
<td>30mm – 15mm = 15mm</td>
</tr>
<tr>
<td>35mm</td>
<td>30mm</td>
<td>20mm</td>
<td>35mm – 20mm = 25mm</td>
</tr>
<tr>
<td>40mm and Greater</td>
<td>35mm</td>
<td>20mm to 25mm</td>
<td>40mm – 20mm = 20mm</td>
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**Graft Loading**

**Step 2:** Load the graft onto the XO Button™ implant by threading it through the continuous loop. The orientation of the implant relative to the graft should be such that the notch on the wing of the XO Button™ faces away from the graft bundle (Figure 12). Using the Grafix prep-table, load the XO Button™ construct onto the XO Button™ Holder.

**Step 3:** Mark the graft using a surgical skin marker the same distance as the AC length. This is the seating depth. **Optional:** Apply a second line 10-15mm proximally of the seating depth to note toggle depth (Figure 11).

**Surgical Pearl:**
For easiest flipping of the XO Button™ implant, pass the construct with the notch facing anterior.
**Passing the Graft:**

**Step 1:** Load the XO Button™ passing suture (centrally located, green suture) onto the XO Button™ graft passing pin eyelet.

**Step 2:** Using the graft-passing pin, pull the passing suture through the tibial and femoral tunnels until the suture can be retrieved percutaneously.

**Step 3:** Pass the graft construct through the tibial tunnel and into the femoral socket by pulling with the lead suture while holding tension on the guiding suture (axially located, white suture) (Figure 13).

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**Surgical Pearl:**
Do not apply distal tension to graft bundles while advancing the XO Button™; this will cause the XO Button™ to flip prematurely.

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**XO Button™ Fixation:**

**Step 4:** Bottom the graft out in the femoral socket. Release the white guiding suture.

**Step 5:** While holding tension on the green passing suture, pull distally on the sutures whipstitched to the graft bundles to complete the rotation of the XO Button™ and firmly seat the implant on the femoral cortex (Figure 14). Visualize the mark on the graft to confirm proper seating.
**Graft Tensioning:**
Apply tension to the graft construct at the point where it exits the tibial tunnel to check femoral fixation. Use the SE™ Graft Tensioner System to tension the graft. Cycle the knee until the tensioner stabilizes. To remove the sutures from the implant, pull one end.

**Tibial Fixation:**
Recommended tibial fixation is the ConMed Linvatec Xtralok® or Matryx® Interference Screw (Figure 16).

**Removal of the XO Button™:**
If at any point during the procedure the construct needs to be repositioned after the XO Button™ implant has been seated, pull upward on the leading suture and downward on the guiding suture. This will straighten the XO Button™ and allow it to re-enter the femoral channel (Figure 15).

**Surgical Pearl:**
If removing the construct from the femoral tunnel, you must pull retrograde on the graft bundle and guiding suture.
### Ordering Information

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<th>Implant Product Description</th>
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### Instrumentation

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<td>XO Button™ Holder</td>
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### Information & Marketing Materials

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