Femoral Fixation for ACL Reconstruction

Surgical Protocol by Mark Gittins, D.O.
Features

• A unique weave in which a single strand of braided polyethylene is woven through itself twice in opposite directions.

• This construct allows Biomet Sports Medicine to produce innovative products that can vary in length and compression/tension addressing the individual needs of each patient.

• Products utilizing ZipLoop Technology are resistant to slippage without tying knots.
Features

- One implant for varying tunnel lengths—eliminates the need for multiple sizes
- For use in both transtibial and anteromedial portal ACL reconstruction
- Tension may be applied from femoral side after tibial fixation has been achieved
- Resistant to slippage without tying knots
- Simple surgical technique requires minimal instrumentation
- Femoral fixation device designed to capture the cortical bone of the femur
Tunnel Preparation

Utilizing a tibial guide that allows for optimal tunnel placement, position the tibial guide appropriately and drill the guide wire. After the graft size has been determined, ream over the guide wire with the corresponding reamer.

After the tibial tunnel has been completed, position a Femoral Aimer transtibially into the over-the-top position. Drill a calibrated guide wire through the Femoral Aimer and the lateral cortex of the femur (Figure 1). Drill over the previously placed guide wire with the 4.5mm ToggleLoc drill bit through the lateral cortex of the femur (Figure 2). After the 4.5mm tunnel is drilled, remove the guide wire.

Assess Room for Femoral Tunnel

Pass the ToggleLoc depth gauge transtibially into the 4.5mm femoral tunnel and measure the tunnel length from the lateral cortex of the femur to the tunnel exit point in the joint space to ensure that there is sufficient room to drill an adequate length femoral tunnel (Figure 3).
Drill Full Diameter Femoral Tunnel
Re-insert the guide wire into the femoral tunnel and out the skin of the lateral thigh. Select the endoscopic reamer that corresponds with graft diameter and ream to the depth that will allow the desired soft-tissue graft-to-tunnel interface (typically around 30mm). The reamer should not exit the femoral cortex (Figure 4). Clean any debris from the tunnel to ensure smooth graft passage.

Prepare ToggleLoc Device
Pass the soft tissue grafts through both loops of the ToggleLoc Femoral Fixation Device with ZipLoop Technology (Figure 5). Balance the soft tissue grafts in the loops of the implant to allow equal amounts of the soft tissue on either side of the loop. Use the measurement previously obtained with the ToggleLoc depth gauge to mark the loops of the implant to ensure deployment on the lateral cortex. Measure from the distal end of the ToggleLoc device toward the loops and mark (Figure 6).
Make a second mark on the graft by measuring the depth of the “graft tunnel” (typically 30mm). This mark will aid in optimal graft positioning later in the procedure (Figure 6).

Thread the passing suture of the ToggleLoc Femoral Fixation Device with ZipLoop Technology through the eyelet of the guide wire, which should be exiting the tibial tunnel. **Make sure the titanium button is in the middle of the ZipLoop Sleeve.** Pull proximally on the guide wire to pull the passing suture through the tibial tunnel, joint space and femoral tunnel, exiting through the skin (Figure 7).

**Insert Implant into Tunnel**

Prior to fixation, ensure that the ToggleLoc Femoral Fixation Device with ZipLoop Technology is oriented laterally, as it will deploy on the femur’s lateral cortex. The “zip suture” should be on the anterior side of the soft-tissue graft prior to graft placement within the femoral tunnel.

Pull the passing suture proximally until the mark on the loops of the ToggleLoc device reach the entrance of the femoral tunnel. Position the implant just beyond the the lateral cortex of the femur (Figure 8). Pull on the distal end of the soft tissue grafts to feel the implant catch on the lateral femoral cortex, achieving femoral fixation (Figure 9).
Position Graft in Femoral Tunnel

Ensure the “zip suture” is anterior to the graft and pull distally to draw the graft through the tibial tunnel and into the femoral tunnel. This will shorten the loop of the ToggleLoc Femoral Fixation Device with ZipLoop Technology and accurately position the soft-tissue graft in the femoral tunnel (Figure 10).

Make sure the knot stays in the center of the zip strand. Correct placement is indicated when the mark on the graft enters the femoral tunnel (Figure 11).

Complete ACL Graft Fixation

After graft positioning, retrieve the “zip suture” through the medial portal with a crochet hook or other suture grasping device (Figure 12). Pass the knot of the “zip suture” through the key shaped hole in the Super MaxCutter instrument. Advance the Super MaxCutter through the medial portal and sever the suture near the entrance of the femoral tunnel in the joint space (Figure 13). Cycle the knee and implant the desired method of tibial fixation (Figure 14).
Ordering Information

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<th>Product Description</th>
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<tr>
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<td>ToggleLoc Femoral Fixation Device with ZipLoop Technology—Long Loop</td>
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INDICATIONS FOR USE

The ToggleLoc System devices, except the ToggleLoc XL device, are intended for soft tissue to bone fixation for the following indications:

**Shoulder**
- Bankart lesion repair
- SLAP lesion repairs
- Acromio-clavicular repair
- Capsular shift/capsulolabral reconstruction
- Deltoid repair
- Rotator cuff tear repair
- Biceps Tenodesis

**Foot and Ankle**
- Medial/lateral repair and reconstruction
- Mid- and forefoot repair
- Hallux valgus reconstruction
- Metatarsal ligament/tendon repair or reconstruction
- Achilles tendon repair
- Ankle Syndesmosis fixation ( Syndesmosis disruptions) and as an adjunct in connection with trauma hardware for Weber B and C ankle fractures (only for ToggleLoc with Tophat/ZipTight Fixation Device)

**Elbow**
- Ulnar or radial collateral ligament reconstruction
- Lateral epicondylitis repair
- Biceps tendon reattachment

**Knee**
- ACL/PCL repair / reconstruction
- ACL/PCL patellar bone-tendon-bone grafts
- Double-Tunnel ACL reconstruction
- Extracapsular repair: MCL, LCL, and posterior oblique ligament
- Iliotibial band tenodesis
- Patellar tendon repair
- VMO advancement
- Joint capsule closure

**Hand and Wrist**
- Collateral ligament repair
- Scapholunate ligament reconstruction
- Tendon transfers in phalanx
- Volar plate reconstruction

The ToggleLoc XL device is used for fixation of tendons and ligaments in cases of unanticipated intraoperative complications such as cortical breaching during orthopedic reconstruction procedures, such as Anterior Cruciate (ACL) or Posterior Cruciate (PCL) Reconstruction.

CONTRAINDICATIONS

1. Infection.
2. Patient conditions including blood supply limitations, and insufficient quantity or quality of bone or soft tissue.
3. Patients with mental or neurologic conditions who are unwilling or incapable of following postoperative care instructions.
4. Foreign body sensitivity. Where material sensitivity is suspected, testing is to be completed prior to implantation of the device.