

BTB ACL Reconstruction

with the ToggleLoc™ Fixation Device with ZipLoop™ Technology

Surgical Technique
by James R. Andrews, M.D.

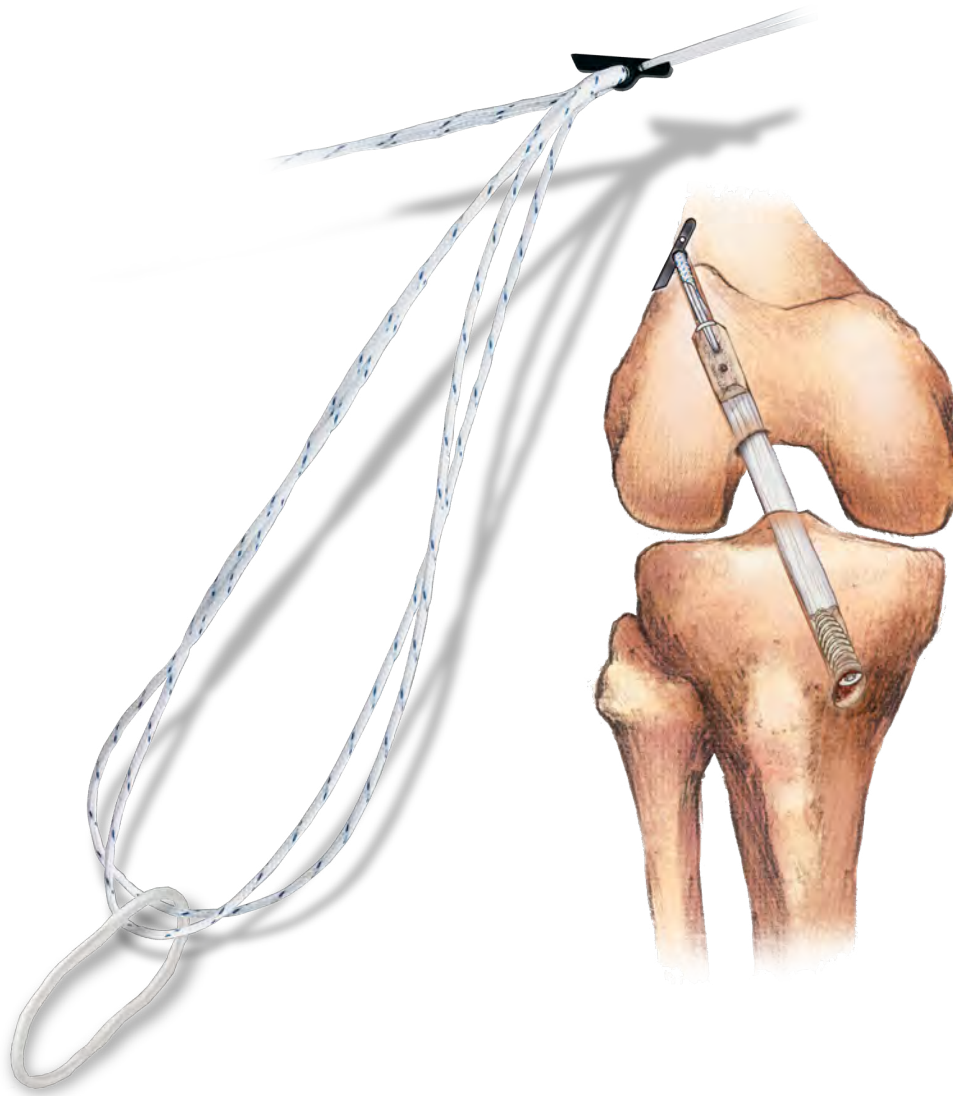
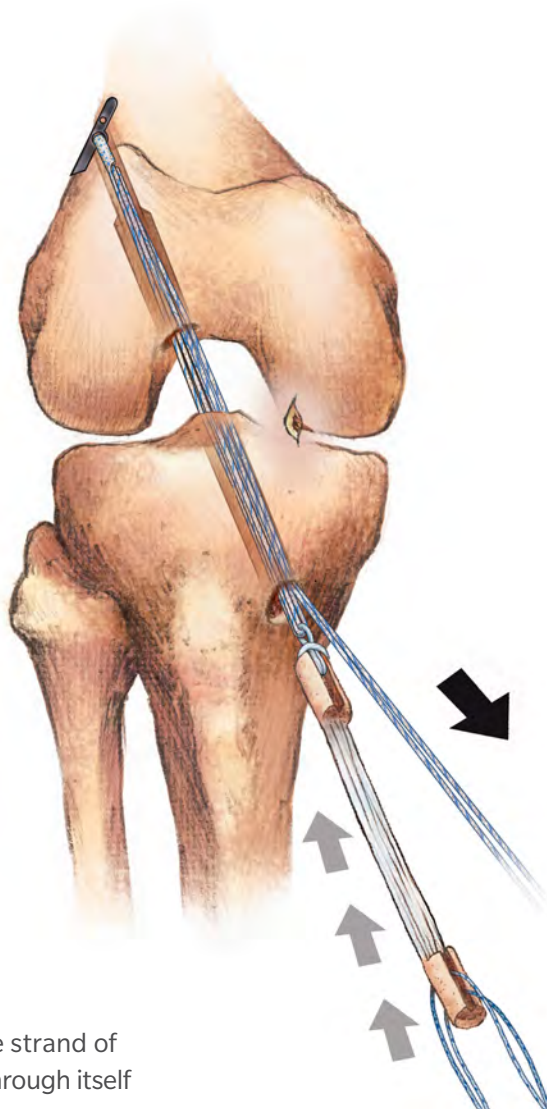


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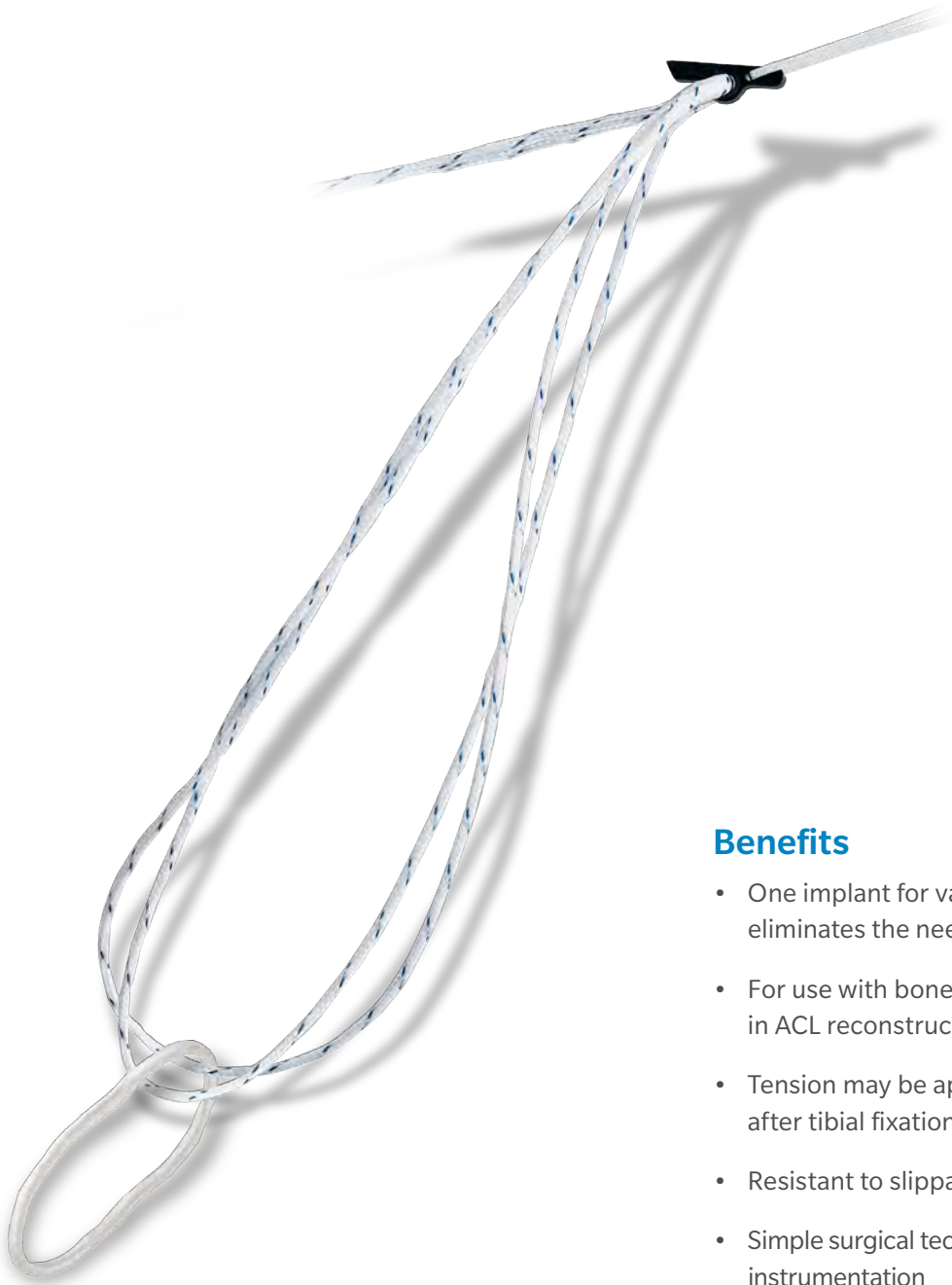
ZipLoop Technology



Features

- A unique weave in which a single strand of braided polyethylene is woven through itself twice in opposite directions.
- This construct allows Zimmer Biomet Sports Medicine to produce innovative products that can vary in length and compression/tension addressing the individual needs of each patient.

ToggleLoc Fixation Device



Benefits

- One implant for varying tunnel lengths—eliminates the need for multiple sizes
- For use with bone-tendon-bone in ACL reconstruction
- Tension may be applied from femoral side after tibial fixation has been achieved
- Resistant to slippage with no knot tying
- Simple surgical technique requires minimal instrumentation
- Femoral fixation device designed to capture the cortical bone of the femur

Surgical Technique

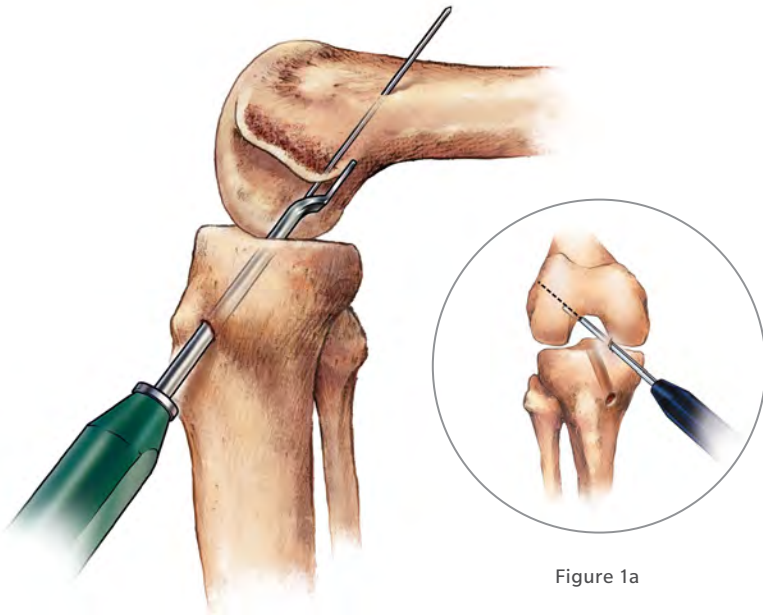


Figure 1

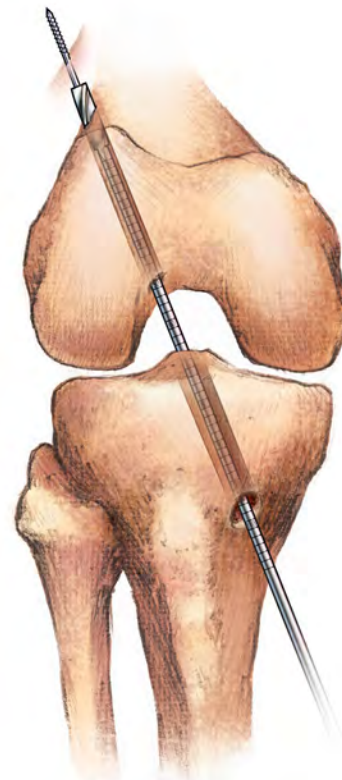


Figure 2

Femoral Tunnel Preparation

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 4.5 mm ToggleLoc drill bit through the lateral cortex of the femur (Figure 2). After the 4.5 mm tunnel is drilled, remove the guide wire.

Note: This technique can also be completed utilizing the medial portal (Figure 1a).

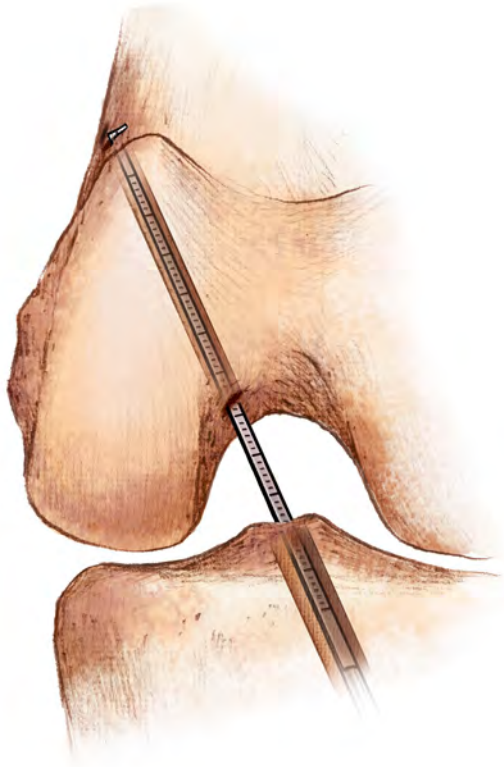


Figure 3

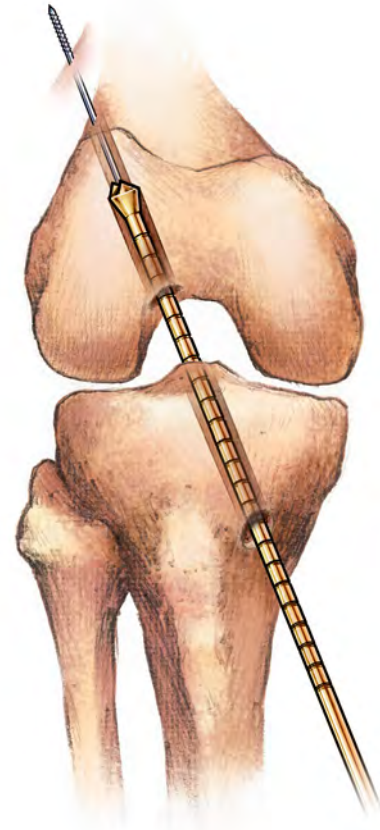
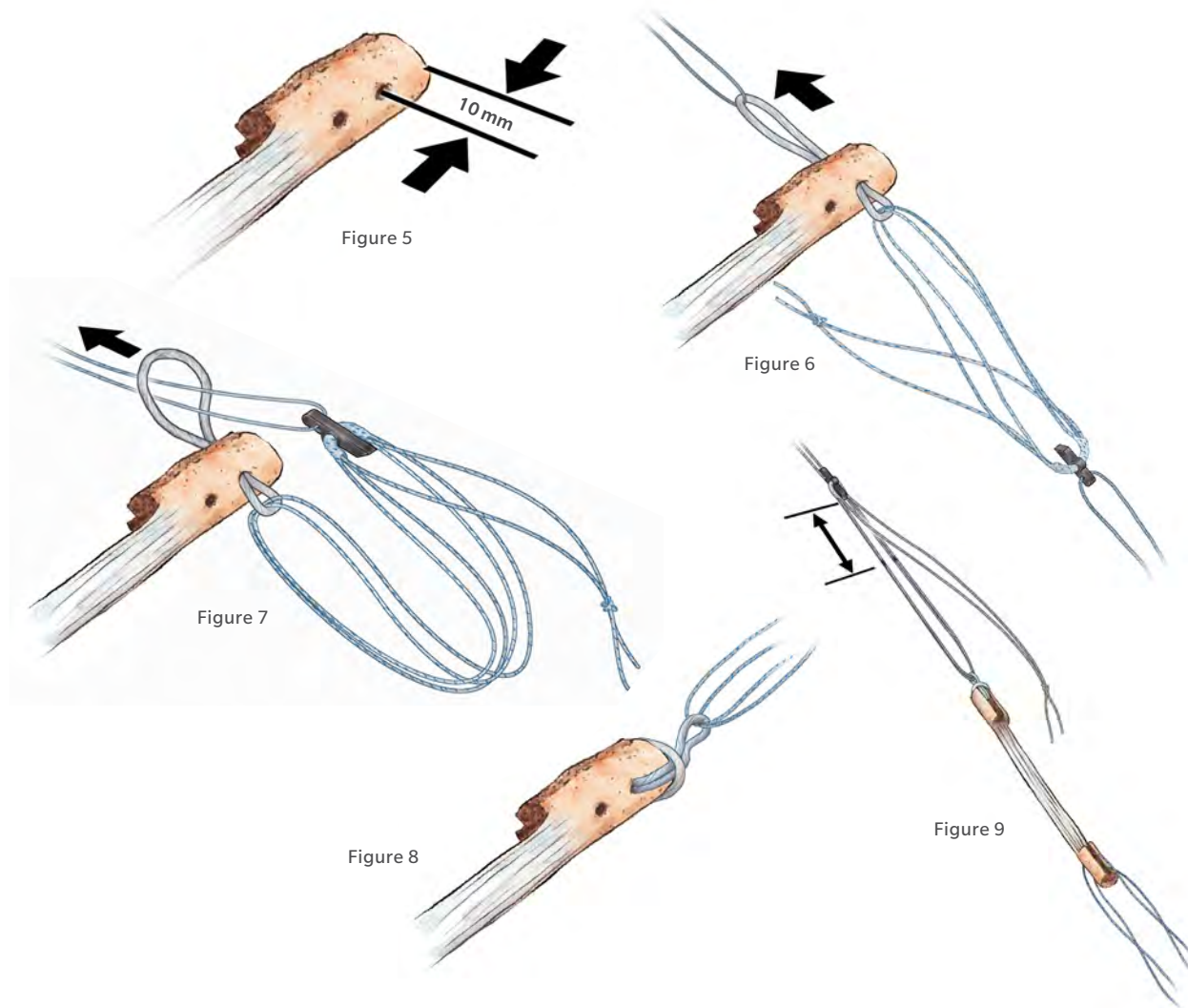


Figure 4

Femoral Tunnel Preparation (cont.)

Pass the ToggleLoc depth gauge transtibially into the 4.5 mm 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).

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 accommodate the femoral bone block. It is recommended to over-ream by 2 mm to allow space for the continuous loop of suture. If the femoral tunnel length is less than 30 mm, the bone block should not exceed 20 mm in length. The reamer should not exit the femoral cortex (Figure 4). Clean any debris from the tunnel to ensure smooth graft passage.



Prepare ToggleLoc Device

Open the BTB ToggleLoc Femoral Fixation Device with ZipLoop Technology. If not already prepared, drill a 2.0 mm hole through the bone block to aid in preparing the implant.

Note: The 2 mm hole should be 10 mm from the top of the bone block (Figure 5).

Pass a free suture through the continuous loop of the implant. Pass both ends of the free suture through the 2 mm hole in the bone block, pulling the continuous loop with them (Figure 6). Next, pass the ToggleLoc Fixation Device through the continuous loop that was pulled through the bone block (Figure 7).

Continue pulling on the ToggleLoc Fixation Device until the continuous strand completely cinches around the bone block (like a luggage tag) (Figure 8).

Use the measurement previously obtained with the ToggleLoc depth gauge to mark the loops of the ZipLoop “zip suture” of the implant to ensure deployment on the lateral cortex. Measure from the distal end of the ToggleLoc device toward the loops and mark the “zip suture” (Figure 9).

Thread the passing suture of the BTB ToggleLoc Fixation Device with ZipLoop Technology through the eyelet of the guide wire, which should be exiting the tibial tunnel. Pull proximally on the guide wire to pull the passing suture through the tibial tunnel, joint space and femoral tunnel, exiting through the skin.

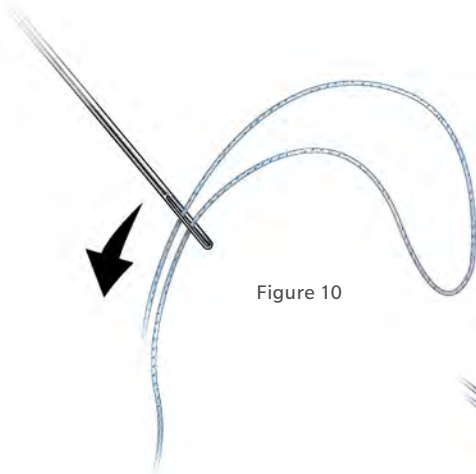


Figure 10

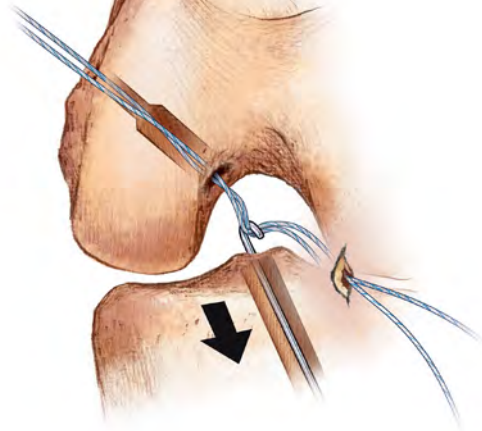


Figure 11

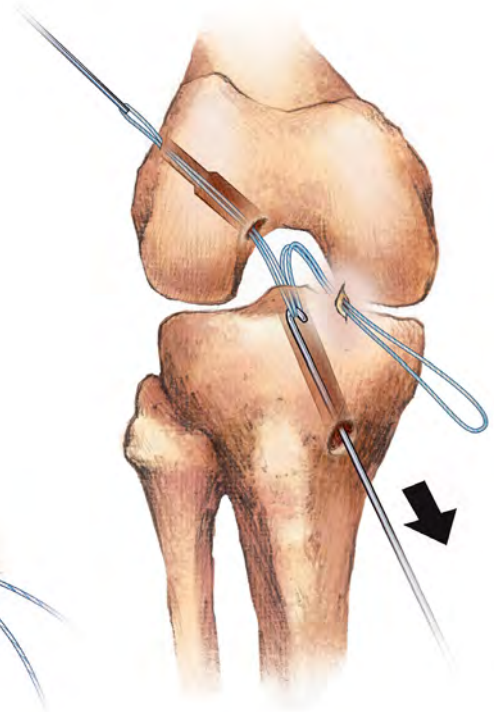


Figure 12

Relay Suture Technique if Utilizing the Medial Portal Procedure

Thread a strand of relay suture through the eyelet of the graft passing pin so that the suture forms a continuous loop (Figure 10). Introduce graft passing pin into medial portal and through the femoral tunnel. Pull proximally on the graft passing pin to pull the relay suture through the skin. Use a suture grasper or crochet hook (Figure 11) to retrieve the relay suture through the tibial tunnel (Figure 12).

Loop the passing suture (white #2 suture pre-loaded into the titanium button) of the ToggleLoc Femoral Fixation Device with ZipLoop Technology through the relay loop, which should be exiting the tibial tunnel. Pull proximally on the relay suture to pull the passing suture through the tibial tunnel, joint space and femoral tunnel, exiting through the skin.

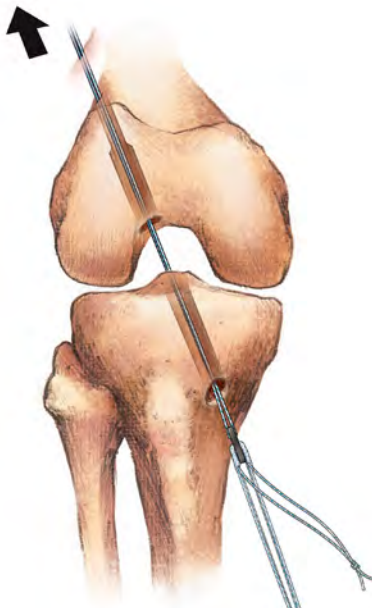


Figure 13

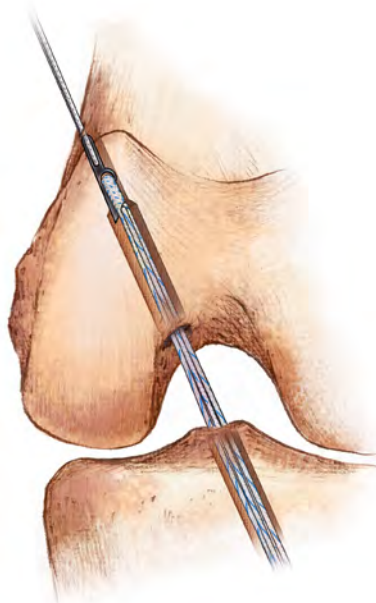


Figure 14

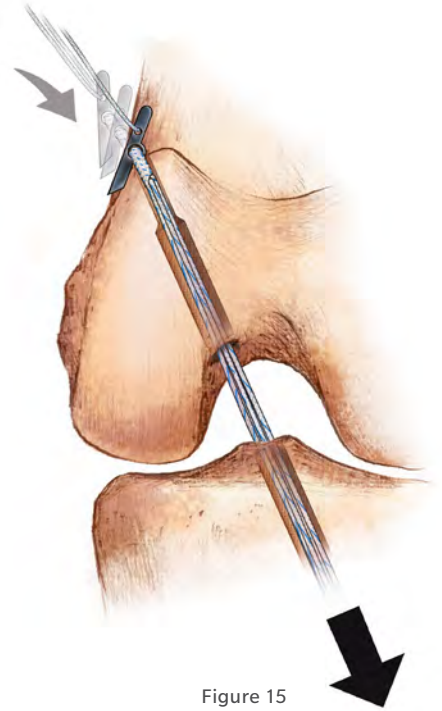


Figure 15

Insert Implant into Tunnel

Prior to fixation, ensure that the BTB 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 BTB graft prior to graft placement within the femoral tunnel (Figure 13).

Pull the passing suture proximally until the mark on the "zip suture" of the BTB ToggleLoc device reaches the entrance of the femoral tunnel. Position the implant just beyond the lateral cortex of the femur (Figure 14). Pull on the distal end of the BTB graft to feel the implant catch on the lateral femoral cortex, achieving femoral fixation (Figure 15).

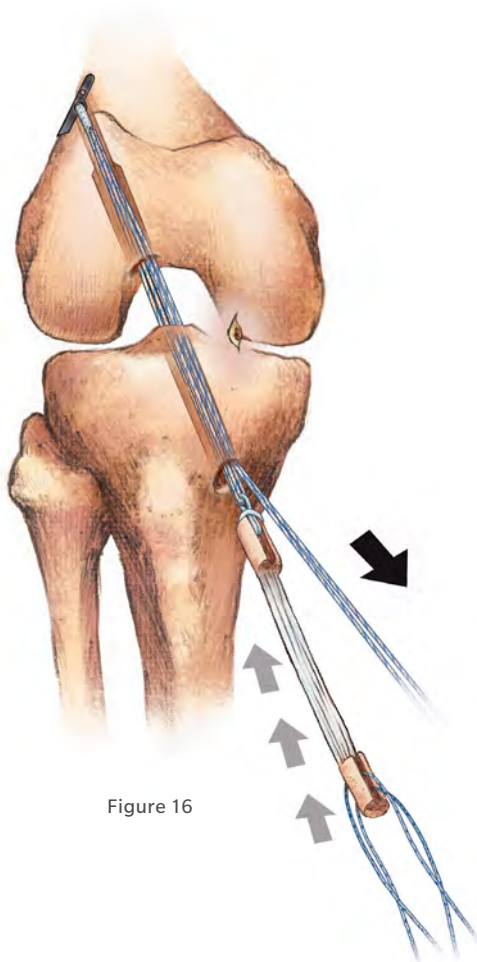


Figure 16

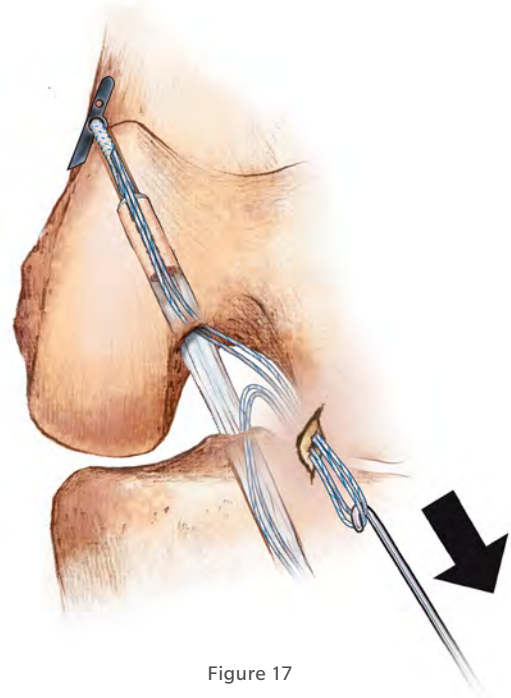


Figure 17

Insert Implant into Tunnel (cont.)

Pull distally on the zip suture to draw the graft through the tibial tunnel and into the femoral tunnel. This will shorten the loop of the BTB ToggleLoc Femoral Fixation Device with ZipLoop Technology and accurately position the BTB graft in the femoral tunnel (Figure 16).

Cut the knot off of the zip suture and retrieve the limbs through the medial portal with a crochet hook or other suture grasping device (Figure 17).

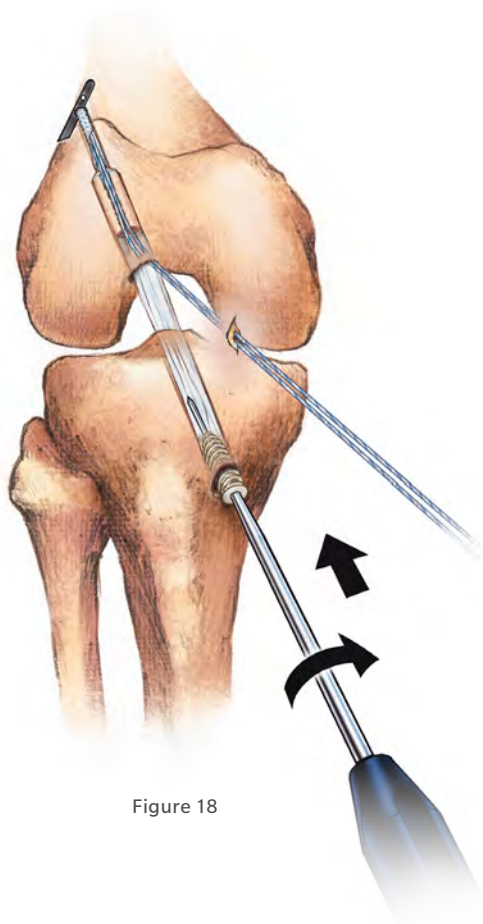


Figure 18

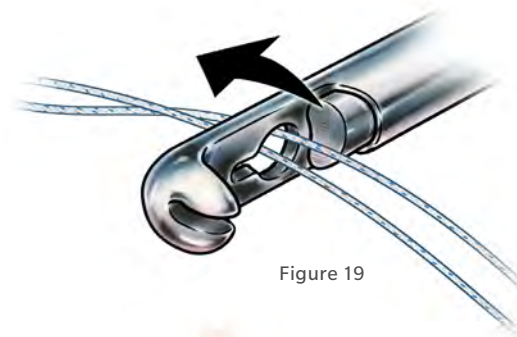


Figure 19

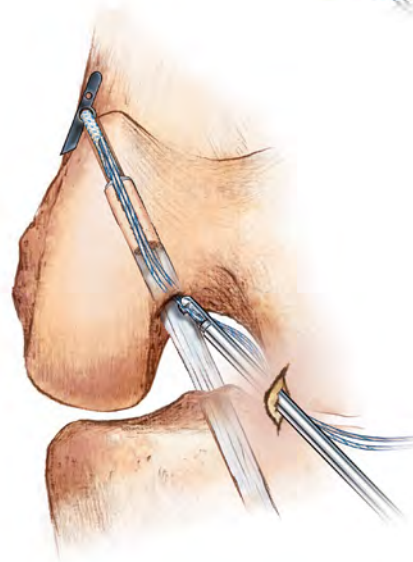


Figure 20

Complete Tibial Fixation

Tension the graft by manually pulling on the sutures attached to the patella bone plug exiting from the tibial tunnel. Cycle the knee between full extension and flexion to settle the graft, and confirm that the femoral fixation is sound. Bring the knee into full extension. Insert the appropriately sized Nitinol wire posterior to the patellar tendon graft and insert an interference screw (Figure 18).

The BTB ToggleLoc device can be re-tensioned at this point if necessary. Pass the limbs of the suture through the key shaped hole in the Super MaxCutter™ instrument (Figure 19). Advance the Super MaxCutter through the medial portal and sever the suture near the entrance of the femoral tunnel in the joint space (Figure 20).

Ordering Information

Implants

Part Number	Description
904756	ToggleLoc Femoral Fixation Device with ZipLoop Technology for BTB Grafts
909849	ToggleLoc Femoral Fixation Device with ZipLoop Technology for BTB Grafts Implant System

Instrumentation

Part Number	Description
904760	Drill Bit 4.5 mm (Disposable)
904765	Drill Bit 4.5 mm (Reusable)
904766	ToggleLoc Depth Gauge
909846	ToggleLoc Disposable Kit Includes: 2.4 mm x 13" Drill Point K-Wire 2.4 mm x 16" Graft Passing Pin ToggleLoc 4.5 mm Drill Bit 2.4 mm x 10" Drill Point K-Wire 3.2 mm Drill Bit
904776	ZipLoop Puller
900342	Super MaxCutter Suture Cutter

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 Devices)

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.

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