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MITEK SPORTS MEDICINE
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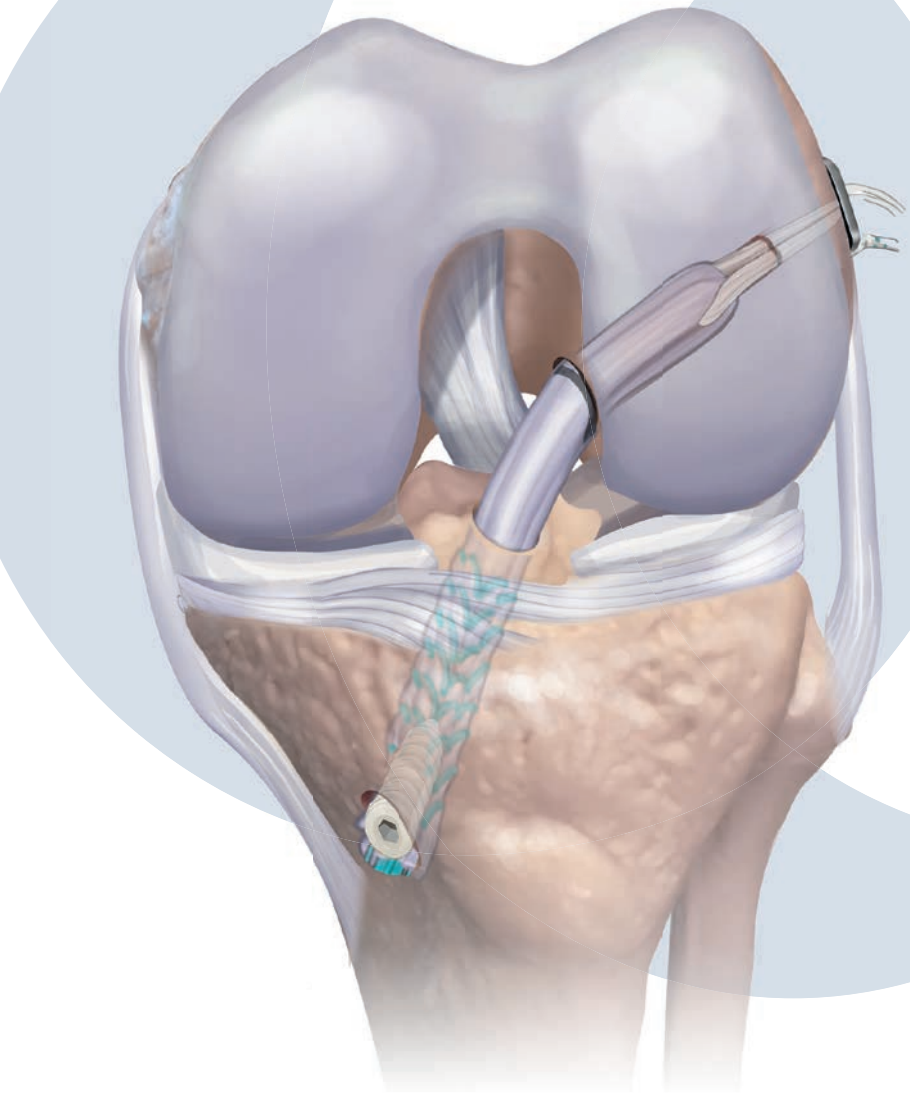
ADJUSTABLE CONVENIENCE, FIXED PERFORMANCE

Soft Tissue ACL Reconstruction



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SURGICAL TECHNIQUE

RIGIDLOOP™ Adjustable Cortical System

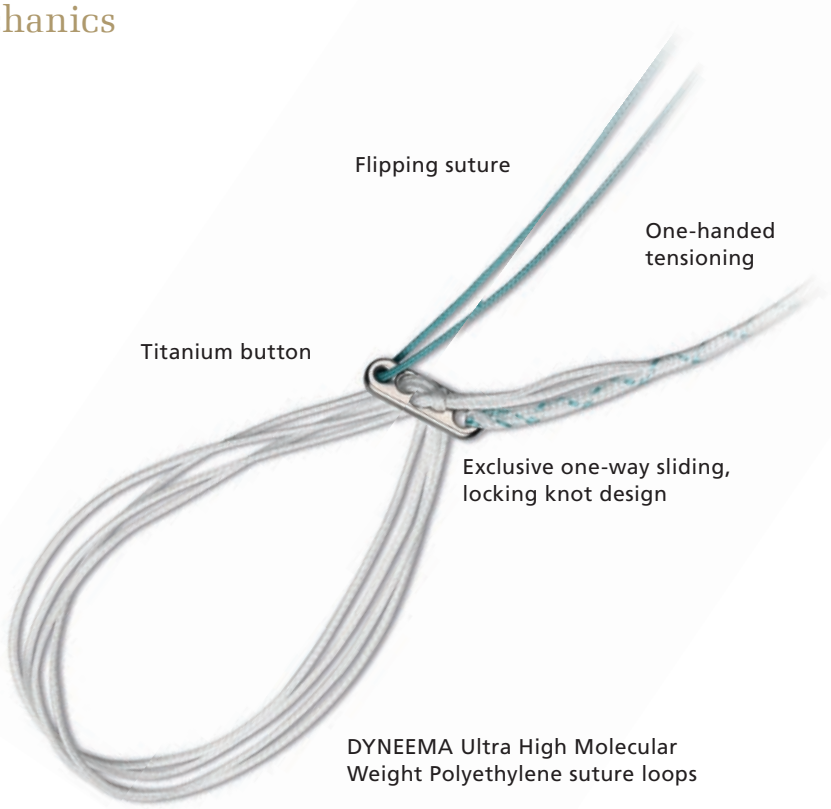
THE RIGIDLOOP® ADJUSTABLE CORTICAL SYSTEM

The RIGIDLOOP Adjustable Cortical System is an innovative technology developed for use in arthroscopic cruciate ligament reconstruction. The system was designed from the bottom up to provide surgeons with what they want:

1. procedural simplicity
2. speed and optimized biomechanics
3. strong, rigid fixation

The simplicity and speed of the RIGIDLOOP Adjustable System come from its ingenious design that incorporates adjustable suture loops to create a "one-size fits all" implant. This simplifies inventory management as only one size needs to be stocked. In addition, surgery is simplified as there is no need to perform multiple calculations to determine implant loop size or reaming depths—the implant simply adjusts to the depth that you ream. The implant also comes preloaded on an implant card that greatly simplifies suture management and graft preparation.

Strong fixation and minimal graft slippage are critical to allow early rehabilitation after cruciate ligament reconstruction. The distinctive one-way sliding, locking knot mechanism, suture loops made of DYNEEMA®, ultra-high molecular-weight polyethylene suture, and titanium button allow surgeons to easily achieve this goal. In addition, the adjustable loop mechanism allows the surgeon to maximize the amount of tendon in the femoral tunnel, thereby optimizing the graft-tunnel healing interface and the chance of a successful outcome.



Special thank you

This surgical technique guide was written in collaboration with Dr. Vishal Mehta. Dr. Mehta is an orthopaedic surgeon with the Fox Valley Orthopedic Institute in Geneva, IL, where he is also the Director of Cartilage Restoration. He is the founder and president of The Foundation for International Orthopaedic Development, a nonprofit organization dedicated to advancing orthopaedic care in Zambia, with a focus on arthroscopic surgery. He is the founder and president of the Fox Valley Orthopaedic Research Foundation, a biomechanical research laboratory created to study and develop orthopaedic fixation devices and implants. He has published numerous peer-reviewed articles on knee and shoulder arthroscopy and clinical applications of platelet-rich plasma.

GRAFT HARVEST AND PREPARATION

An incision is made over the insertion site of the semitendinosis and gracilis tendons. The tendons are identified and whip-stitched (Figure 1). Care is taken to free the tendons of any distal attachments that might cause early truncation of the tendons during harvesting.

A tendon stripper is placed over each tendon and carefully advanced towards the musculotendinous junction. Firm counter-pressure is maintained while advancing the tendon stripper until the tendon is released from its muscular attachment (Figure 2).

The tendons are brought to the back table where they are inspected and stripped of any remaining muscle. The ends of the tendons that were stripped from the musculotendinous junction are now whip-stitched and the graft is sized to determine its diameter.

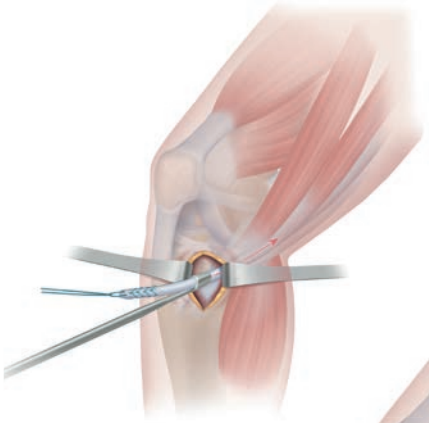


Figure 1.

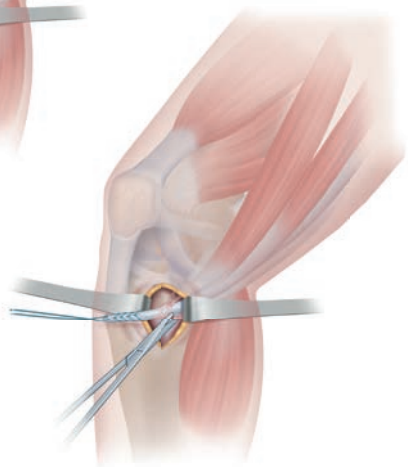


Figure 2.

The ends of the graft are now passed through the suture loops of the implant on the graft preparation card (Figure 3).

Important:Do not remove the implant from the graft preparation card at this point.

The ends of the tendons are evened out and the graft is placed on a graft preparation board for tensioning (Figure 4). Please note that the graft preparation card is designed to be directly attached to the graft preparation board as seen in the illustration.

Later, when you know your total transosseous femoral length, you can mark your suture loops at the corresponding depth as a visual cue as to when the button is expected to flip.

Attention is now turned back to tunnel creation while the graft is being tensioned.

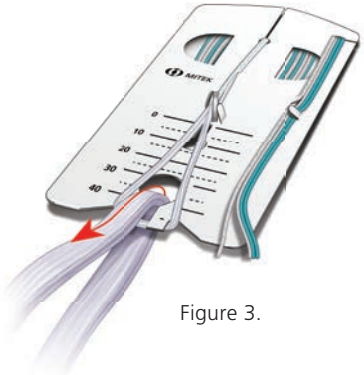


Figure 3.

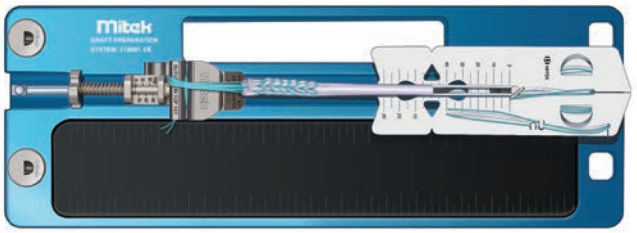


Figure 4.

FEMORAL AND TIBIAL PREPARATION

Femoral tunnel drilling

A medial portal is created that gives access to the anatomic attachment of the ACL on the lateral wall of the femoral notch. The correct tunnel site can be created using remnants of the ruptured ACL or by using reproducible anatomic landmarks such as the bifurcate ridge or distance from the articular cartilage or posterior aspect of the lateral wall.

Viewing from the medial portal can often provide a better view and perspective of the lateral wall for checking your portal placement. Hyperflexion (greater than 120°) is often required to achieve adequate tunnel length. However, visualization is more difficult in hyperflexion. To aid in tunnel creation, mark your desired tunnel placement in 90° and then verify your placement by viewing through the medial portal. Once the ideal tunnel placement is confirmed, you can now take the knee into hyperflexion and use the previously marked location as a guide even though your visualization is now obscured.

Drill the passing tunnel using the combo beath pin/4.5 mm reamer (#232453) through the lateral cortex (Figure 5). (If using the femoral aimer, back load the pin through the top.) Alternatively, use a 4.5 mm reamer and a standard beath pin to prepare the passing tunnel.

Measure the total transosseous femoral tunnel length by hooking the combo reamer on cortex (can also use a standard depth gauge or the 4.5 mm reamer).

Mark the suture loops according to the total femoral tunnel length (Figure 6). This mark signals when the button is ready to be flipped.

Ream the femoral socket
Pass the appropriate size reamer (eg, 9 mm) over the combo beath pin and ream to the desired depth making sure to keep the femoral cortex intact (Figure 7a). Then pass a looped free suture through the femoral tunnel that will be used to shuttle the graft into the femoral socket later in the procedure (Figure 7b).

Mark the graft according to the socket depth. When this mark is flush with the tunnel aperture, the graft has completely filled the socket (Figure 8).

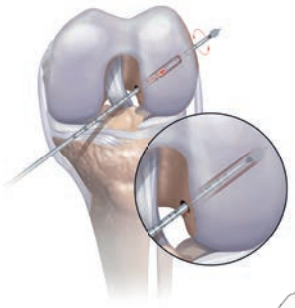


Figure 5.

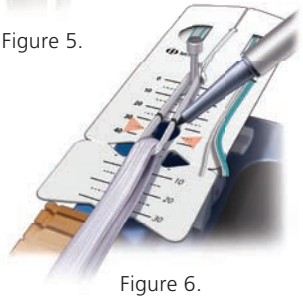


Figure 6.

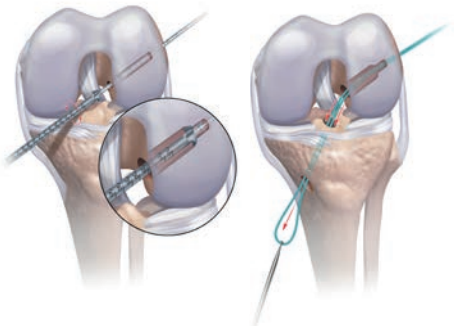


Figure 7a, b.

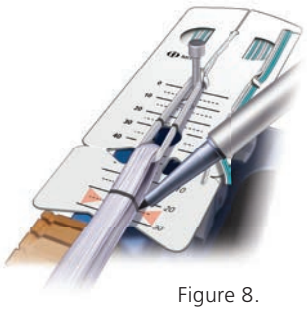


Figure 8.

Tibial tunnel drilling

Use a beath pin and a tibial aiming guide to create an anatomic tibial tunnel. Remnants of the tibial attachment of the ACL can be used as a reference as well as the anterior horn of the lateral meniscus. Once the beath pin has been placed, over-ream with the appropriate sized reamer. Place a suture retriever into the tibial tunnel and retrieve the loop of suture that was previously left exiting the femoral socket into the joint. You will now have one continuous passing suture from the tibial tunnel into the joint and out the femoral tunnel.

GRAFT INSERTION

Pull suture tails through the tunnels
Place about 3" to 4" of the implant's suture tails through the passing loop. Pull the suture tails through the tibial and femoral tunnels and out through the thigh.

Pull on green/white striped leading suture to advance the implant/graft construct through the tibial tunnel and into the joint space (Figure 9). Remove any slack from the remaining sutures as you advance the construct.

Flip the button with the green suture: watch for the markings on the suture loops as they approach the aperture which will indicate that the button is ready to be flipped. Pull on the green suture to flip the button.

Firmly pull on the distal graft to confirm the button is on the cortex.

Pull on the WHITE suture to adjust the suture loops and advance the graft into the femoral socket (Figure 10). Pull proximally, in line with the graft. When the graft markings are flush with the aperture, the graft has completely filled the socket.

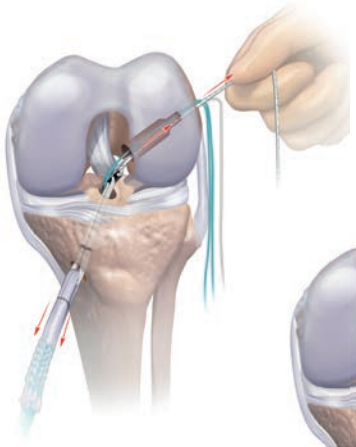


Figure 9.

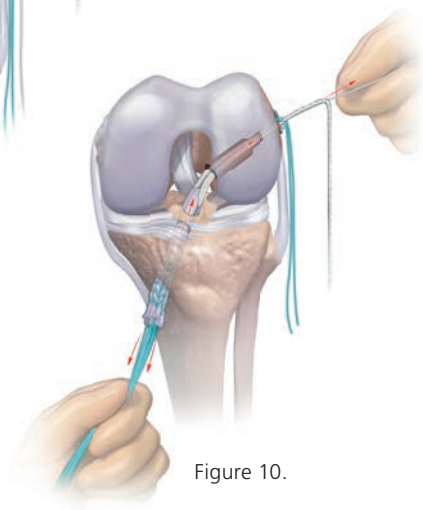


Figure 10.

Important: Apply counter tension on the graft to ensure the button stays on the cortex.

"LOCK THE KNOT"

"Lock the Knot" and remove excess laxity of loops by doing the following:

- Firmly pull on the tibial graft ends (Figure 11)
- Cycle the knee (Figure 11)
- Complete tibial side fixation *(this may be done at this point or after re-tensioning)*
- Re-tension the white adjusting suture

Remove sutures after tibial fixation is completed
To maintain integrity of the knot, remove sutures using a cord cutter or scissors in the correct order (Figure 12):

WHITE → STRIPED → GREEN

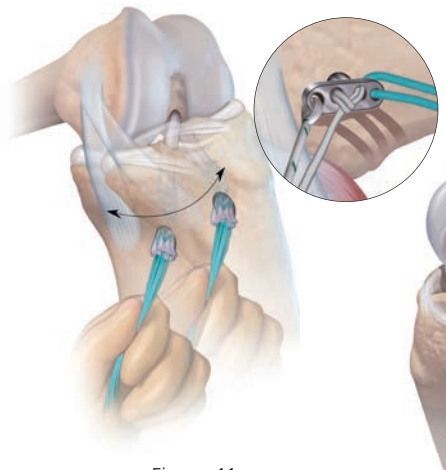


Figure 11.

Figure 12.

DISTINCTIVE DESIGN DELIVERS SIMPLICITY AND PERFORMANCE WITH INFINITE LOOP TENSIONING

Product Code	Implants (Sterile)
232447	RIGIDLOOP Adjustable Cortical System – STANDARD
232448	RIGIDLOOP Adjustable Cortical System – LONG
232449	RIGIDLOOP Adjustable Cortical System – EXTRA LARGE

Product Code	Instruments
232453	RIGIDLOOP Combo Beath/Drill Pin – 4.5 mm (sterile)
218034	RIGIDLOOP Adjustable Disposables Kit (sterile)

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Incorporated and registered in Scotland under company number SC132162.

Medos International SÀRL
Chemin-Blanc 38
2400 Le Locle
Switzerland

CE 0086

DePuy Mitek, Inc.
325 Paramount Drive
Raynham, MA 02767-0350
USA

depuysynthes.com

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