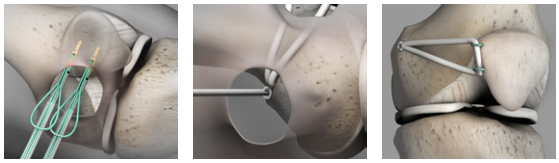
Knee Preservation System™

Medial Patellofemoral Ligament Reconstruction



SURGICAL TECHNIQUE

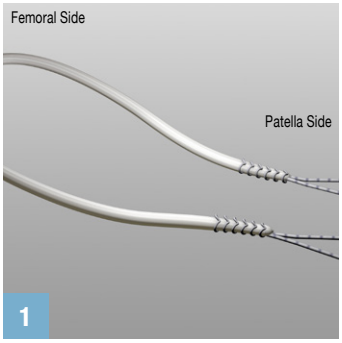
Medial Patellofemoral Ligament Reconstruction

The medial patellofemoral ligament (MPFL) functions by resisting lateral translation of the patella. MPFL reconstruction re-establishes this tether, keeping the patella centered in the trochlear groove. Attention to detail, such as anatomic placement of the graft, resisting over-tightening the graft and the gentle handling of tissues, is the key to successful stabilization of the patella.

Prior to the MPFL reconstruction, the knee should undergo a careful examination under anesthesia. Knee arthroscopy should be performed to assess the integrity of the chondral surfaces, determine other pathology, debride and perform any necessary lateral release.

The following technique is described by Dr. Laurie Hiemstra, Banff, Alberta, Canada

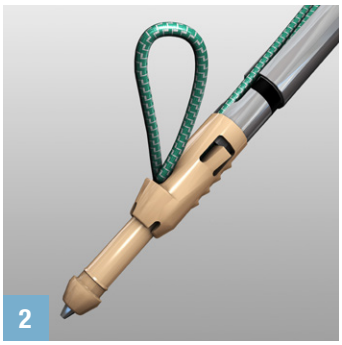
FEMORAL TUNNEL POSITIONING AND DRILLING



GRAFT PREPARATION

A semitendinosus autograft, gracilis autograft, or allograft can be used. Cut the graft to 22-24cm and double over to create an 11-12cm graft (depending on the size of the patient). Whip stitch approximately 2cm of each end of the graft with #2 suture, leaving equal ends of suture on each side.

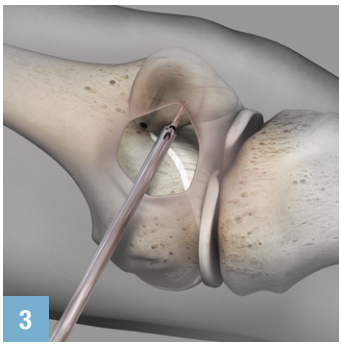
Measure the diameter of the doubled over femoral side of the graft with a graft sizer.



ANCHOR PREPARATION

Prepare two 3.3mm PopLok® suture anchors by pulling two limbs of #2 Hi-Fi® suture through the suture loading tab from distal to proximal.

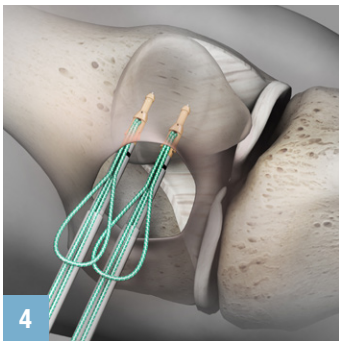
Leave a 3-4cm suture loop at the distal tip of each PopLok anchor.



PATELLAR FIXATION

Create a 2cm incision over the patellar insertion of the MPFL found at the superior 50% of the medial border of the patella. Once exposed, prepare a bleeding bone bed over the insertion area using a rongeur, taking care to leave the cortex intact at the site of the drill holes.

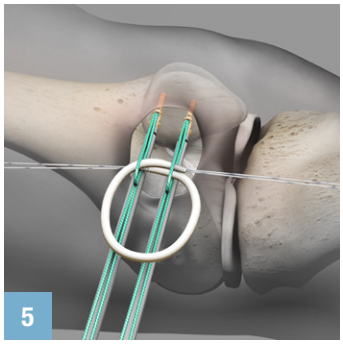
Drill two pilot holes using the 2.9mm PopLok Drill Bit at the superior and inferior edge of the prepared insertion site on the patella. Advance the drill bit until the distal laser line is just below the subchondral bone.



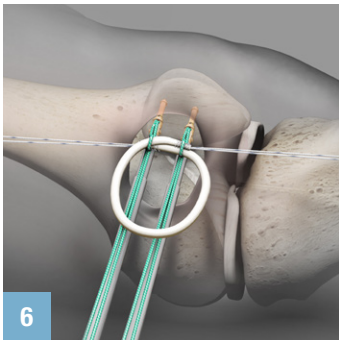
Place each 3.3mm PopLok anchor into the pilot hole at the same angle the hole was drilled. Gently tap each anchor with a mallet until the horizontal laser line is flush with the subchondral bone. Support the first anchor handle for stability while inserting the second anchor. Avoid using hand pressure to insert the anchor into the hole as this may prematurely dislodge the anchor from the driver.

SURGICAL TECHNIQUE

FEMORAL TUNNEL POSITIONING AND DRILLING (CONTINUED)



Criss-cross the free ends of the prepared graft through the two loops of Hi-Fi® sutures exiting each 3.3mm PopLok anchor.

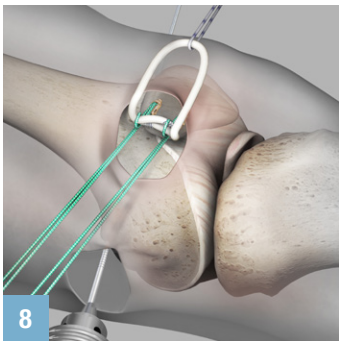


Ensuring counter-pressure is maintained on the PopLok® anchor, tension each suture limb individually until the loop tightens the graft onto the patellar insertion site.

When tightening the suture loops, adjust the graft to ensure the two ends are captured by each suture loop.

Repeat the same step with the second PopLok suture anchor.

Once satisfied with the tension of the sutures, deploy each PopLok suture anchor by releasing the red pre-deployment guard and applying firm and constant pressure on the deployment trigger until an audible "pop" is heard.



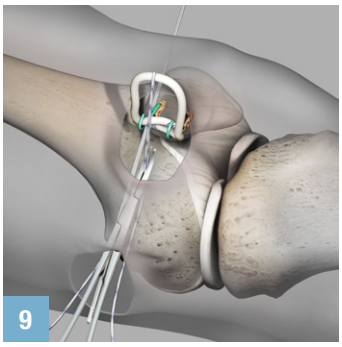
FEMORAL PREPARATION

Create a 2cm incision over the femoral insertion of the MPFL. Place a 2.4mm Graft Passing Guide Pin 2– 3cm into the anatomic insertion site of the MPFL on the femur, posterior to the medial epicondyle and inferior to adductor tubercle.

Check the position of the pin by wrapping the Hi-Fi® sutures from the PopLok® anchors on the patellar attachment around the pin. Sutures should be taut in extension and should loosen in flexion.

Once satisfied with the placement of the Graft Passing Guide Pin, advance it through the femur and out the lateral aspect of the thigh, aiming slightly superior and anterior to avoid vital structures. Ensure the eyelet of the Graft Passing Guide Pin is still exposed medially to allow for suture passage.

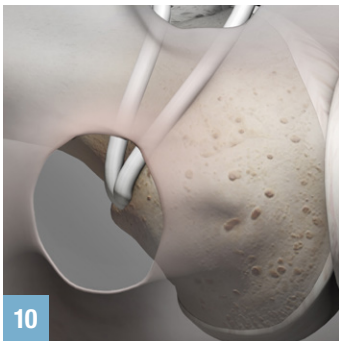
Use the Badger® Drill Bit 1mm larger than the diameter of the femoral side of the graft to drill over the 2.4mm Graft Passing Guide Pin to 30mm.



GRAFT PASSAGE

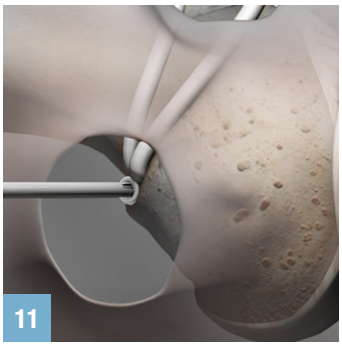
Place a #2 Hi-Fi passing suture through the doubled over femoral side of the graft. Pass a Kelly clamp from the femoral incision through Layer 2 of the knee, deep to the crural fascia but superficial to the capsule of the knee joint, to the patellar incision. Grasp the #2 Hi-Fi passing suture with the Kelly clamp and draw the graft through Layer 2 to the femoral attachment site.

Load the passing suture into the eyelet of the 2.4mm Graft Passing Guide pin. Using a mallet, advance the pin through the femur bringing the passing suture out the lateral side of thigh. Using your finger as a pulley, gently pull on sutures to position the graft into the femoral tunnel.



FEMORAL FIXATION

Center the patella in the trochlea by flexing the knee to 30-40 degrees. Tension the graft by pulling with gentle pressure on the sutures exiting the lateral thigh to make it taut while still allowing adequate mobility of the patella.



Once satisfied with the tension on the graft place a BioScrew® Hyperflex® Guidewire into the femoral tunnel. Insert a GENESYS™ Matryx® screw equal in diameter to the femoral tunnel over the Guidewire. Advance the screw until it is flush with the subchondral bone.

SURGICAL TECHNIQUE

FINAL CONSTRUCT

Patellar tracking should be evaluated arthroscopically to confirm appropriate graft tension.

Examine patellar mobility before removing any sutures. Remove the lead femoral sutures. Tie the #2 Hi-Fi® suture ends from the PopLok® anchors to each other as secondary fixation on the patellar side. Lead sutures on the free ends of the graft can be cut off.

Close the incisions in layers, apply a sterile dressing and a hinged knee brace, locked in extension.

ORDERING INFORMATION

BADGE® DRILL BITS (STERILE, 4 PER BOX)

5.0mm dia. x 9”	C8550
5.5mm dia. x 9”	C8591
6.0mm dia. x 9”	C8592
6.5mm dia. x 9”	C8593
7.0mm dia. x 9”	C8582
7.5mm dia. x 9”	8593
8.0mm dia. x 9”	C8599
8.5mm dia.x 9”	C8583
9.0mm dia.x 9”	C8692
9.5mm dia. x 9”	C8584
10.0mm dia. x 9”	8594
10.5mm dia. x 9”	C8585
11.0mm dia. x 9”	8595
12.0mm dia. x 9”	8596
13.0mm dia. x 9”	8597

ACCESSORIES

XACTPIN™ Graft Passing Guide Pin, 2.4mm	C8677
High Strength Guide Pin, 2.4mm	9744
Graft Passing Guide Pin, 2.4mm	C8675
EL Depth Probe	21.1001EL
Nitinol Guidewire 14x0.032”dia. (356x0.8mm) for use with 5.0-6.5mm interference screws	C8006
Nitinol HyperFlex® Guidewire 14x0.045”dia. for use with 7.0-11.0mm BioComposite and BioAbsobable interference screws	C8026

POPLOK® KNOTLESS SUTURE ANCHOR

PopLok 2.8mm w/One Strand of #2 Hi-Fi Suture	GKP-2801
PopLok 2.8mm w/Two Strands of #0 Hi-Fi Suture	GKP-2802
PopLok 3.3mm w/One Strand of #2 Hi-Fi Suture	GKP-3301
PopLok 3.3mm w/Two Strands of #0 Hi-Fi Suture	GKP-3302
PopLok 2.8/3.3mm Drill Bit	BKL-00M
PopLok Guide	BGU-00M

GENESYS™ MATRYX® INTERFERENCE SCREWSR

5.0 x 15 mm	235015M5
5.0 x 20mm	235020M5
5.0 x 25mm	235025M5
5.0 x 30mm	235030M5
5.5 x 15mm	235515M5
5.5 x 20mm	235520M5
5.5 x 25mm	235525M5
5.5 x 30mm	235530M5
6.0 x 15mm	236015M5
6.0 x 20mm	236020M5
6.0 x 25mm	236025M5
6.0 x 30mm	236030M5
6.5 x 15mm	236515M5
6.5 x 20mm	236520M5
6.5 x 25mm	236525M5
6.5 x 30mm	236530M5

GENESYS™ MATRYX® INTERFERENCE SCREWSR *(CONTINUE)*

7.0 x 20mmw	237020M5
7.0 x 25mm	237025M5
7.0 x 30mm	237030M5
8.0 x 20mm	238020M5
8.0 x 25mm	238025M5
8.0 x 30mm	238030M5
8.0 x 35mm	238035M5
9.0 x 20mm	239020M5
9.0 x 25mm	239025M5
9.0 x 30mm	239030M5
9.0 x 35mm	239035M5
10.0 x 20mm	231020M5
10.0 x 25mm	231025M5
10.0 x 30mm	231030M5
10.0 x 35mm	231035M5
11.0 x 20mm	231120M5
11.0 x 25mm	231125M5
11.0 x 30mm	231130M5
11.0 x 35mm	231135M5M

DRIVERS

Fixed Tri-Lobe Driver for 5.0mm Interference Screws	D8652
Short Modular Tri-Lobe Driver for 5.0mm Interference Screws	D8650
Extended Length Modular Tri-Lobe Driver for 5.0mm Interference Screws	D8660
Fixed Tri-Lobe Driver for 5.5 – 6.5mm Interference Screws	D8653
Short Modular Tri-Lobe Driver for 5.5 – 6.5mm Interference Screws	D8651
Extended Length Modular Tri-Lobe Driver for 5.5 – 6.5mm Interference Screws	D8661
Fixed Tri-Lobe Driver for 7.0 – 11.0mm Interference Screws	DFS70
Short Modular Tri-Lobe Driver for 7.0 – 11.0mm Interference Screws	DMS70
Extended Length Modular Tri-Lobe Driver for 7.0 – 11.0mm Interference Screws	C8716

INSTRUMENTATION ACCESSORIES

Universal Driver, Modular Ratcheting Handle	D8640

HI-FI® #2 HIGH STRENGTH SUTURE (STERILE, 12 PER BOX)

40 in. single white strand, HC-5 ½ in. circle, tapered needle	H5000
Two 40 in. strands, (white and white with blue strip), HC-5 ½ in. circle, tapered needles	H5100
36 in. single blue and white cobraid strand, no needle	H5120
36 in. single white strand, no needle	H5130
36 in. single strand white and green co-braid, no needle	H5140
36 in. single black and white cobraid strand, no needle	H5150

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