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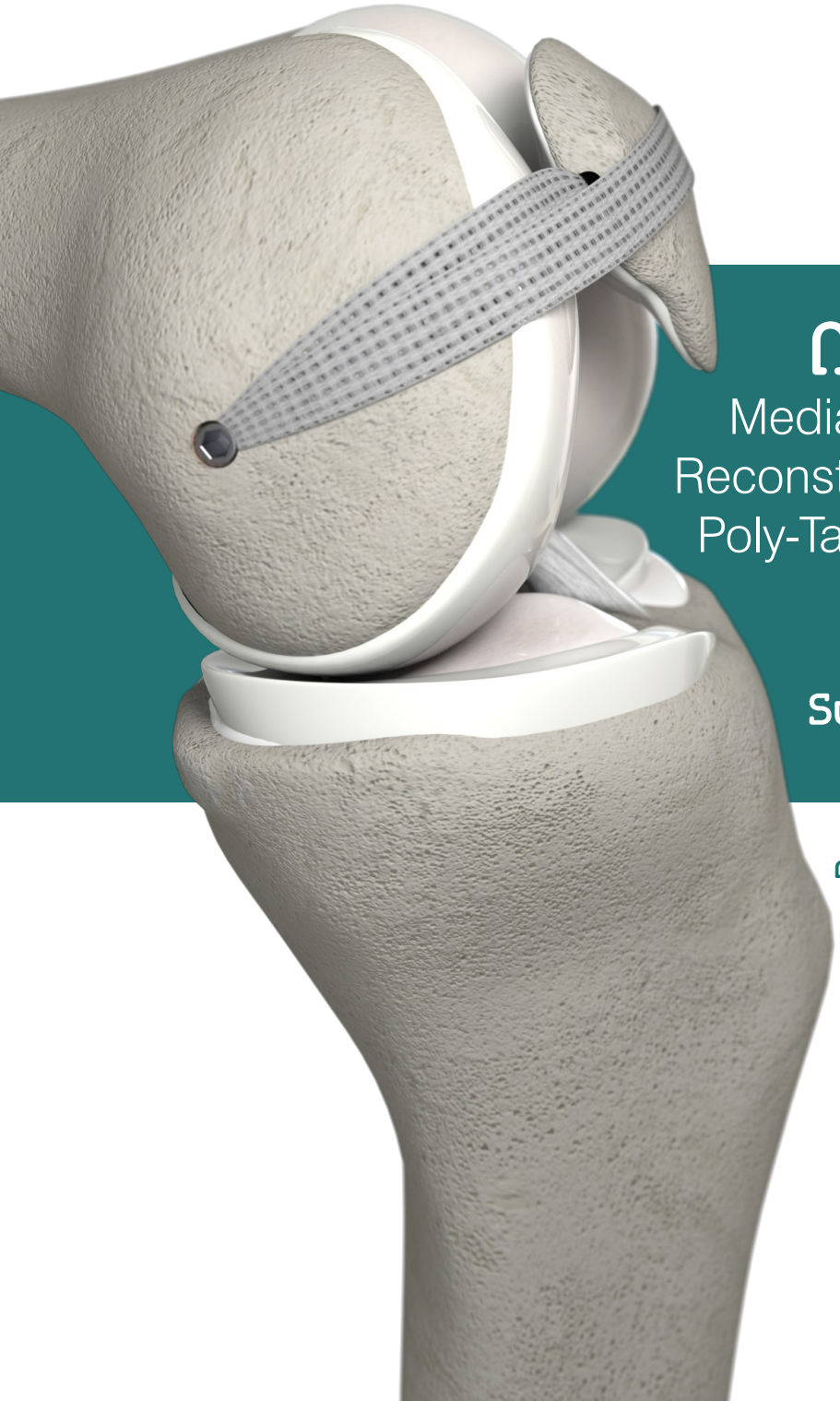


MPFL Technique

Medial Patellofemoral Ligament Reconstruction - utilising a 10 mm Poly-Tape and interference screw

Surgical Technique Manual

neoligaments is a division of XIROS

CE 2797

MPFL Technique

Introduction

This mini-invasive technique utilises a wide, open weave tape to stabilise the patella against lateral translation. The tape is looped through and around the patella and secured to the femoral attachment site utilising an interference screw. The medial patellofemoral ligament (MPFL) is thus reconstructed without the need to harvest any autogenous tissue.

Surgeon thanks:
Mr CA Bailey, Royal Hampshire County Hospital

Scope

This technique covers the reconstruction of the medial patellofemoral ligament in cases of recurrent patellar subluxation or dislocation.

Caution is advised in patients with malalignment, dysplasia, patella alta or severe maltracking.

Implants

This technique is designed to be used with the following implants supplied by Neoligaments:

- 10 mm x 500 mm Poly-Tape, (Part Code 102-1010)

Implants not supplied by Neoligaments:

- A 6 mm x 20 mm soft threaded cannulated metal screw; a compatible cannulated driver and guidewire will also be required.

Instrumentation

This technique is designed to be used with the following instrumentation supplied by Neoligaments:

- 20 cm malleable probe with eye, (Part Code 202-3026)

Instrumentation not supplied by Neoligaments:

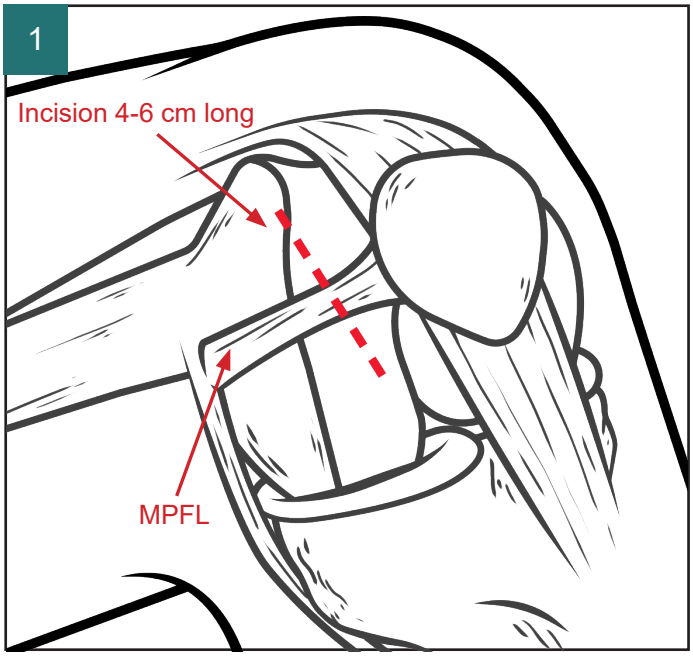
- Passing pin with suture eyelet
- 3.2 mm diameter drill bit
- 5 mm diameter cannulated drill
- Size #2 suture

Preparation and Inspection

The procedure is performed with the patient in the supine position under general or spinal anaesthesia with a tourniquet inflated. Preoperative antibiotics are administered.

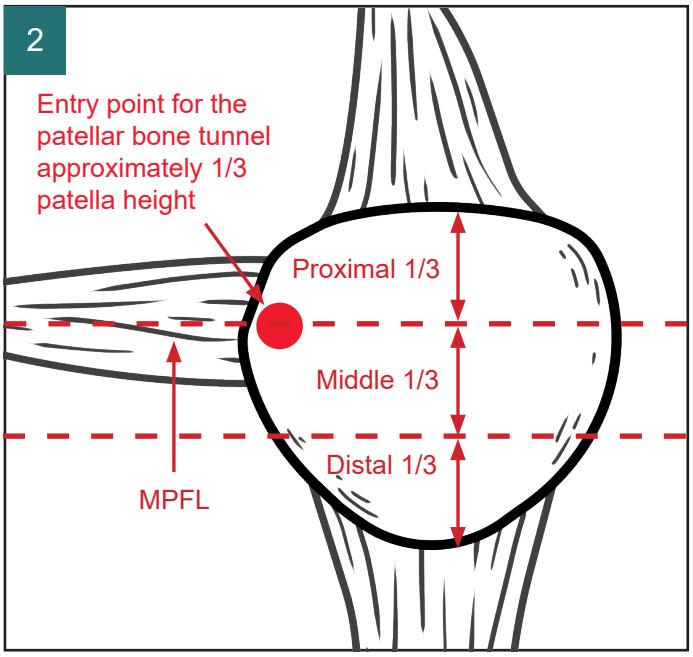
The knee is positioned using a side support and a sandbag so the limb can be flexed and held at 90°.

Recommended Approach



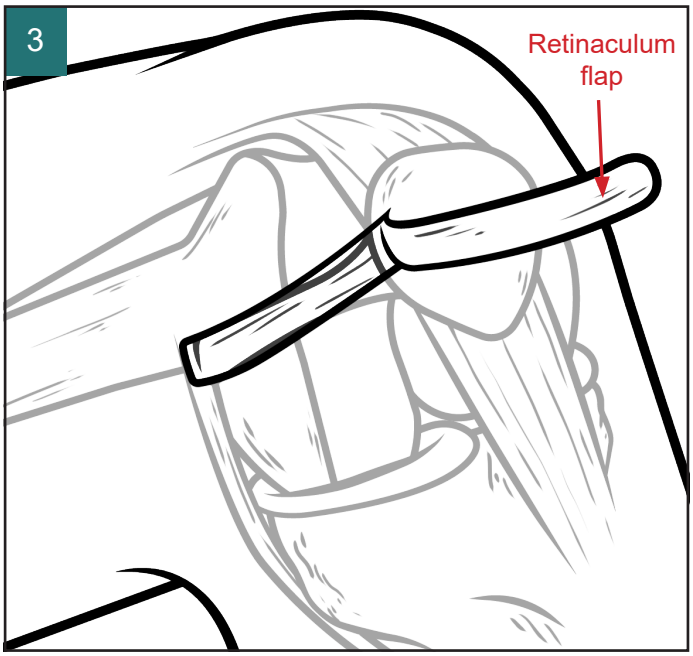
A medial longitudinal incision is made two-thirds of the distance between the medial epicondyle and the medial border of the patella. The incision is 4-6 cm long and should give access to the adductor tubercle and the lateral border of the patella. Superficial dissection of the medial patellofemoral retinaculum is performed.

NOTE: Take care not to damage the infrapatellar branch of the saphenous nerve.

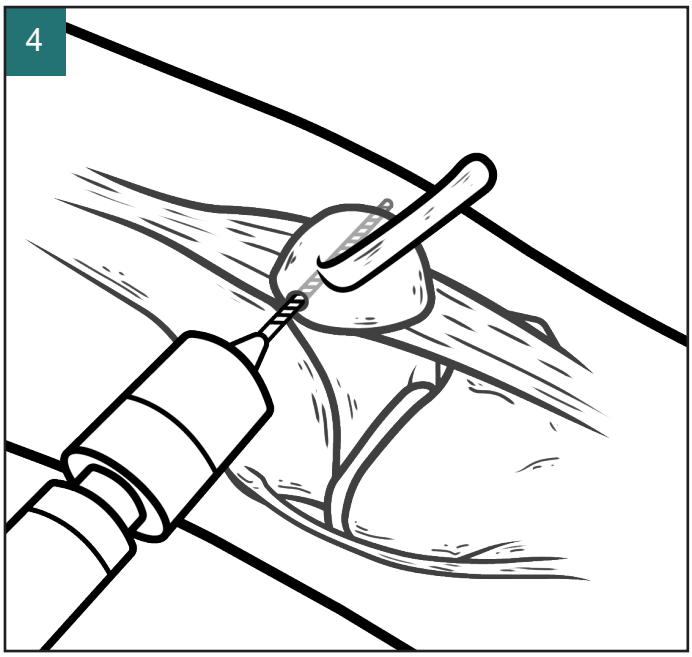


The entry point for the patellar bone tunnel is marked on the medial border of the patella within the centre of the MPFL footprint. This is approximately at the junction of the proximal and middle thirds of the patella.

NOTE: to avoid tunnel “blow out” do not place the tunnel too far anterior in the sagittal plane.

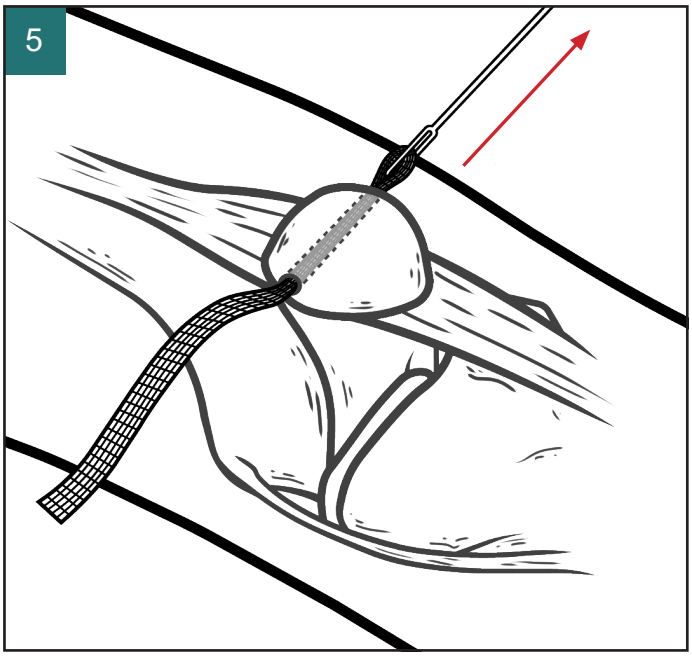


A flap of the medial patellofemoral retinaculum 10 mm wide and 6-8 cm long is extended from the point marked on the medial border of the patella to the point of origin of the ligament. The flap is then raised using sharp dissection and left attached to the patella. This usually passes just distal to the vastus medialis muscle. If the synovial lining of the knee joint is breached, it may be repaired using a standard procedure.

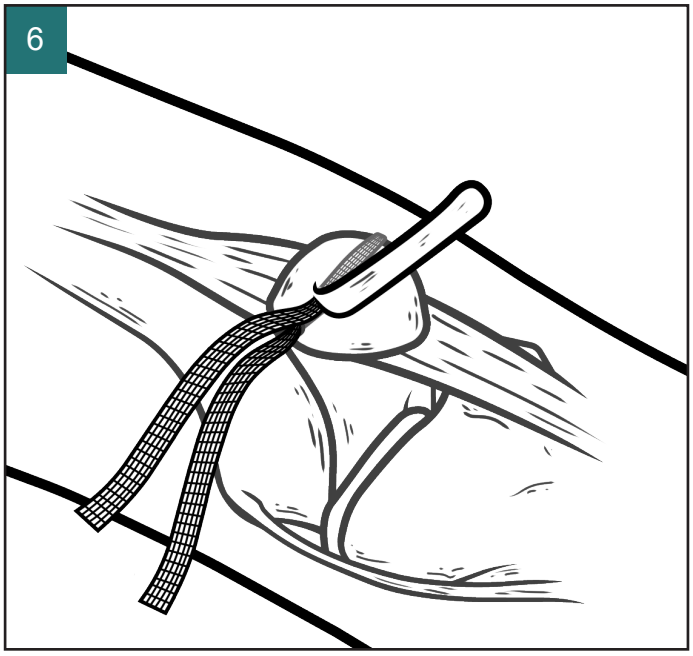


With the knee in extension, the medial border of the patella can be identified, and a 3.2 mm drill bit is passed from the medial side, emerging from the patella at its anterolateral border.

NOTE: Where possible, round the tunnel edges to prevent abrasion of the Poly-Tape.

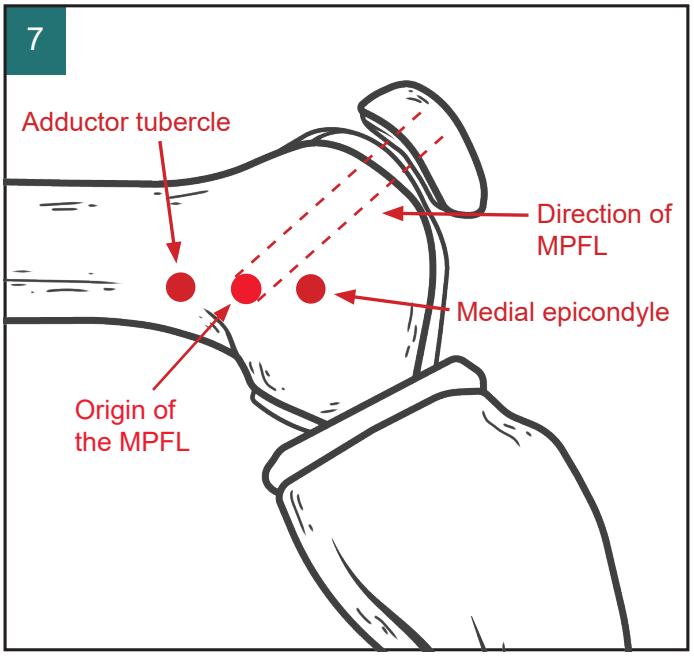


With the knee in extension, the probe is used to pass the 10 mm x 500 mm Poly-Tape through the patellar tunnel from medial to lateral.



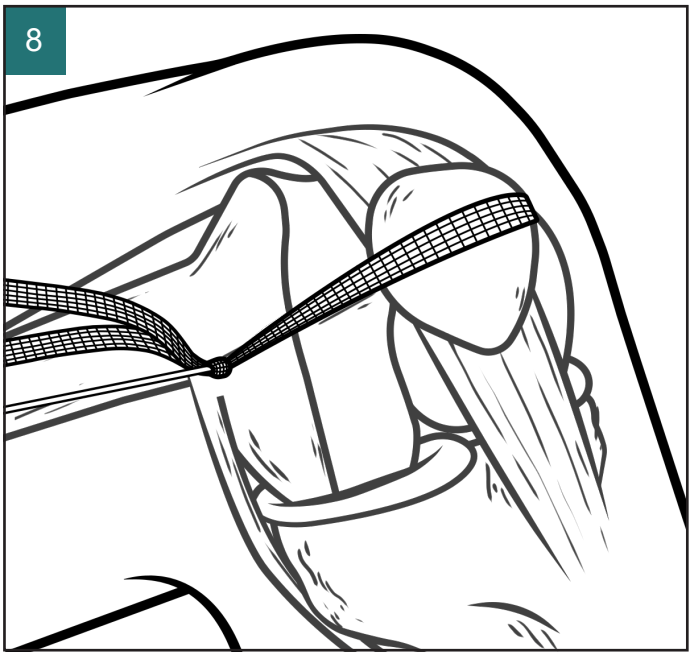
The free end of the Poly-Tape is retrieved from the lateral side of the patella and passed across the anterior surface of the patella from lateral to medial, deep to the anterior retinaculum.

Tip: Ensure the Poly-Tape lies flat on the anterior surface of the patella. Avoid twisting or rolling of the Poly-Tape.



Femoral fixation is located within the footprint of the origin of the medial patellofemoral ligament. The origin is just distal to the adductor tubercle and lies approximately equidistant to the medial epicondyle and the adductor tubercle.

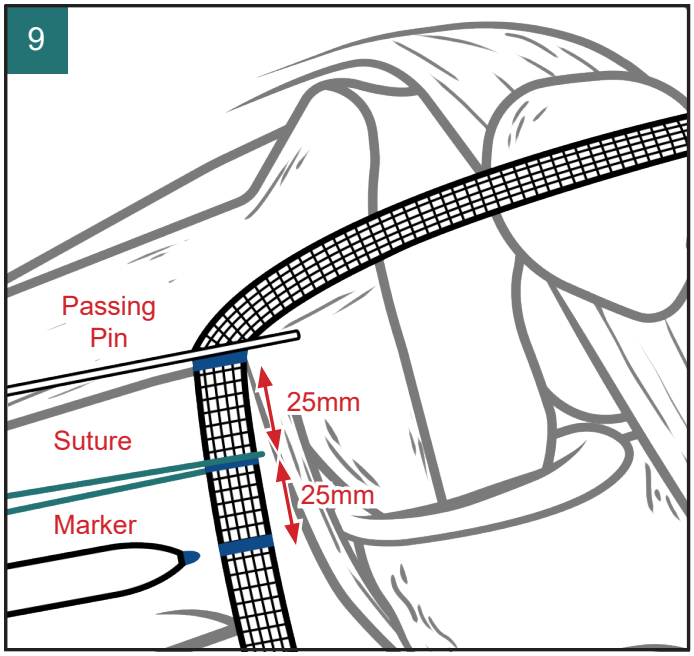
NOTE: Take care to electro-cauterise blood vessels at that site (branches of the descending geniculate and superior medial geniculate arteries).



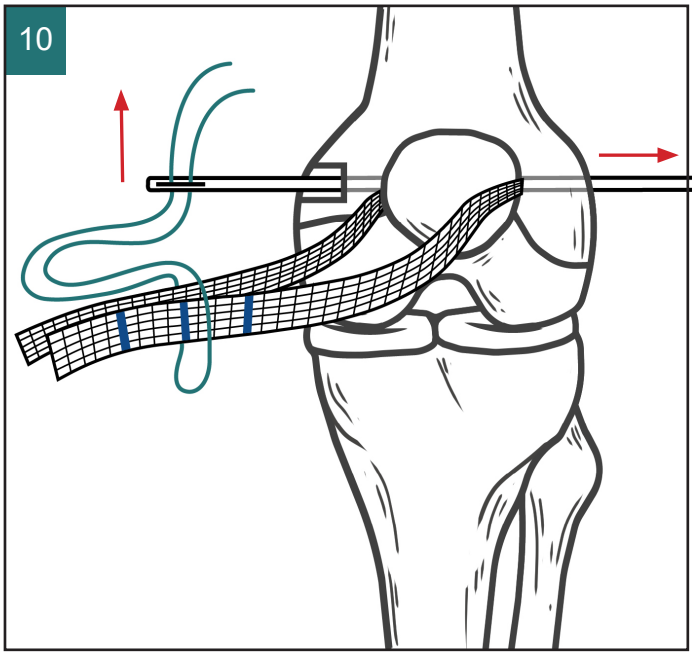
Place a passing pin at the desired femoral insertion point of the MPFL. Confirm the correct location by looping the free ends of the tape around the passing pin and flex and extend the knee. Ensure the patella tracks well throughout the range of motion and the Poly-Tape is not too tight.

The greatest tension is usually found in full flexion and less often in full extension. Fixation of the Poly-Tape should then be performed with the knee positioned at whichever angle creates the greatest tension to avoid over-tightening the Poly-Tape, this is often at or around 90˚.

NOTE: Placement of the femoral attachment site too proximal or anterior may cause tightening of the reconstruction in flexion. Placement too distal or posterior may cause tightening of the reconstruction in extension.

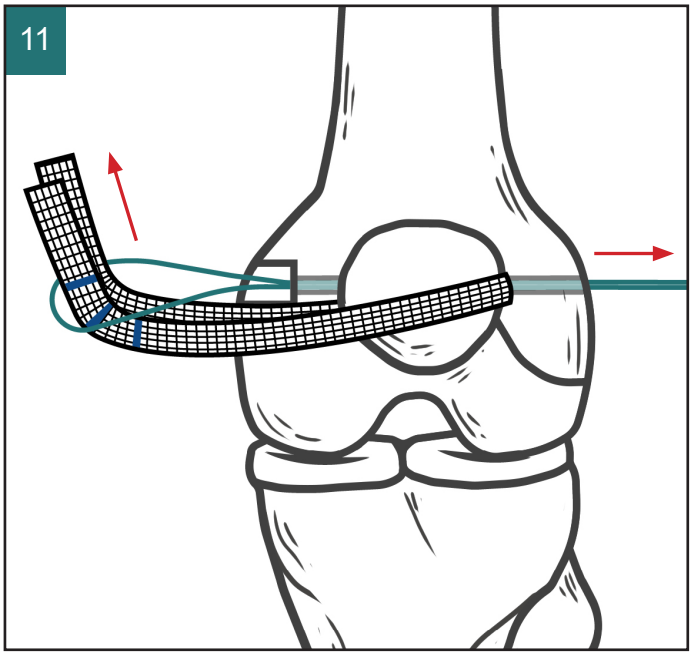


Once the correct insertion point has been confirmed, mark the Poly-Tape using a surgical marker at the insertion point. Add two further marks at 25 mm and 50 mm beyond the insertion point mark. Secure an absorbable suture at the middle mark.



Continue to advance the passing pin until it exits the skin over the lateral epicondyle. The pin should be aimed slightly proximal and anterior to avoid the intercondylar notch. Then over-drill using a 5 mm cannulated drill to a depth of 25 mm.

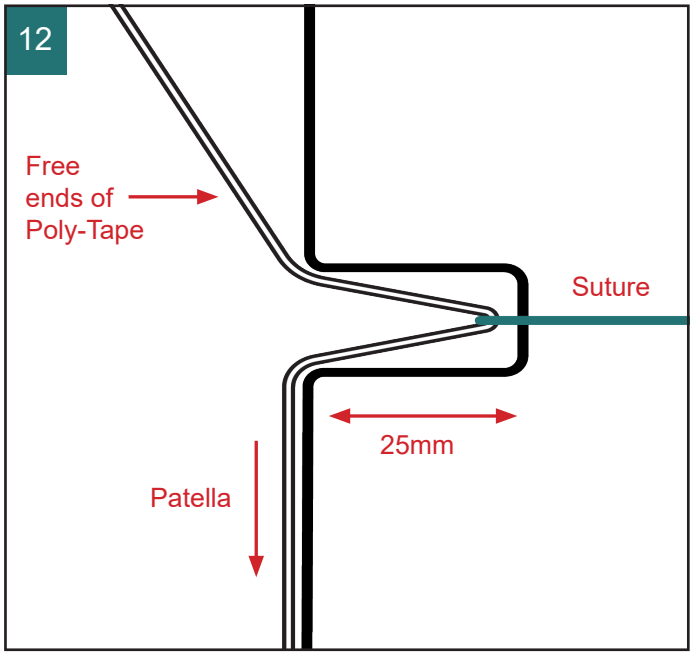
Use the eyelet of the passing pin to pass the two free ends of the absorbable suture through the tunnel and out of the skin on the lateral side of the knee.



Whilst maintaining tension on the free ends of the Poly-Tape, pull the free ends of the suture so that the Poly-Tape is drawn into the 5 mm hole. The first and third marks should be level with the entrance of the tunnel.

Evaluate tension and isometry. Adjustments should be made at this stage to avoid over-tensioning the construct.

TIP: The tensioned tape should allow the tip of a Gillie's forceps to pass between the femur and the tape.

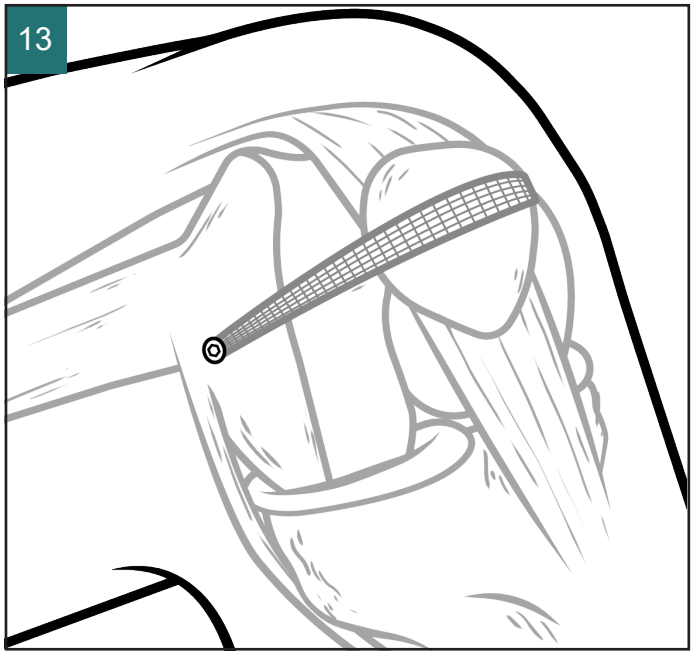


Once the desired tension of the Poly-Tape has been achieved, temporarily secure the free ends of suture so that the tension of the Poly-Tape is maintained.

A guidewire should be inserted centrally between the Poly-Tape limbs to assist screw placement. Place the screw over the guidewire, into the drill hole and drive into place. Slight tension should be maintained on the free ends of the Poly-Tape to avoid twisting of the tape in the hole.

The screw should be advanced until it is flush with the cortical surface of the bone.

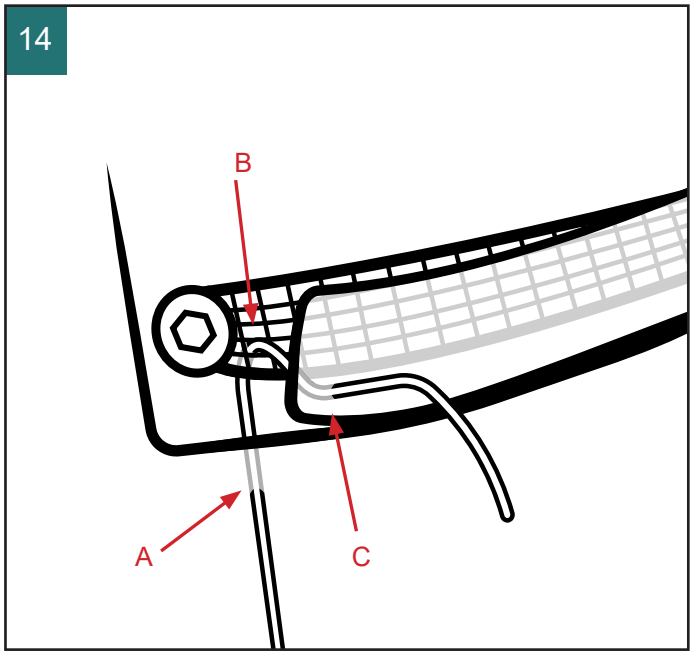
Trim the suture on the lateral side of the knee, so that it is deep to the skin.



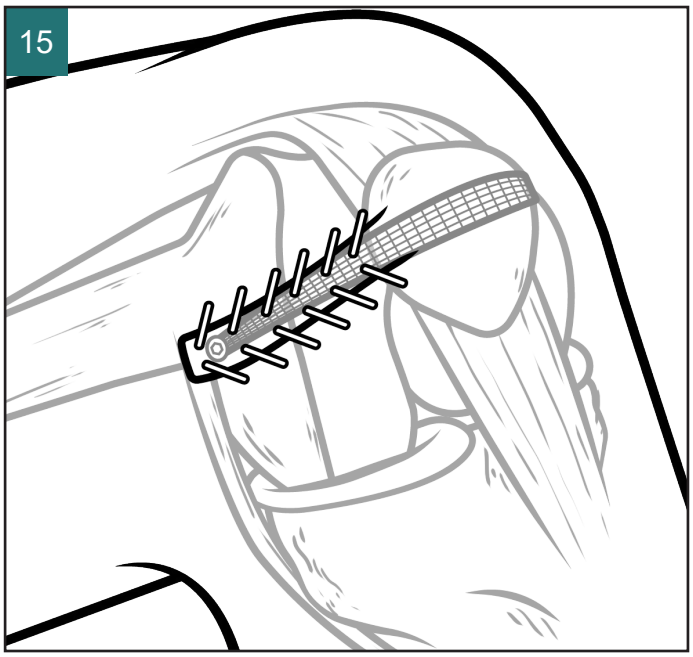
Trim the free ends of the Poly-Tape at a right angle to its length where it emerges from the drill hole. This will minimise the generation of loose fibres. You may wish to leave a length of Poly-Tape that can be sutured back over the screw and screw hole.

IMPORTANT:

Any loose fibres created when trimming to length must be carefully removed from the incision site.



The medial soft tissue flap is then replaced and repaired along the superior and inferior edges to the surrounding retinaculum. During this process, the Poly-Tape is also sutured whenever possible to the medial retinacular flap as it is repaired along its superior and inferior edges using a 2/0 absorbable suture. The needle of the suture is placed through the capsule (A), Poly-Tape (B) and then the retinaculum flap (C). When the suture is pulled tight and knotted the cut ends of the Poly-Tape are thus anchored and buried in the tissue.



Wound Closure

The wound is closed as per surgeon preference.

Postoperative Management

Postoperative management

Standard rehabilitation protocols should be applied. A typical example is as follows.

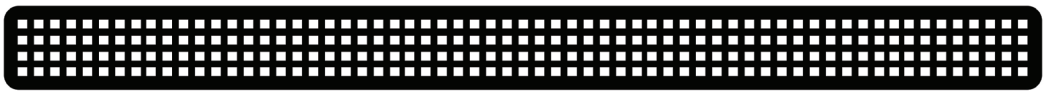
- Post-operative X-Ray before discharge.
- Patient allowed to fully weight bear and mobilise, when able.
- Early range of motion, with quads and hamstring exercises.
- Outpatient physiotherapy commence from week one post-op.
- Wound check at week two post-op.

Typically, many patients return to light, daily activities at 4-6 weeks with heavier, physical, or sporting activities at 3 months.

Ordering Information

Implant

102-1010 Poly-Tape, 10 mm x 500 mm (supplied sterile)



Instrumentation

202-3026 Malleable probe with eye, stainless steel, 20 cm (supplied sterile)

Please refer to the Instructions for Use leaflet (LAB 028) packaged with the 10 mm Poly-Tape for essential information, including Use, Sterility, Indications, Contraindications, Warnings and Precautions, Potential Adverse Effects and Storage. Additional copies may be obtained from the Neoligaments™ Sales Department, or viewed at www.neoligaments.com

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