



LARS^x_{TM}

PCL

Posterior Cruciate Ligament
Reconstruction and Reinforcement
Surgical Technique



LARS™ PCL

Stability / Versatility / Recovery

The next generation in soft tissue internal fixation

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LARS™ PCL

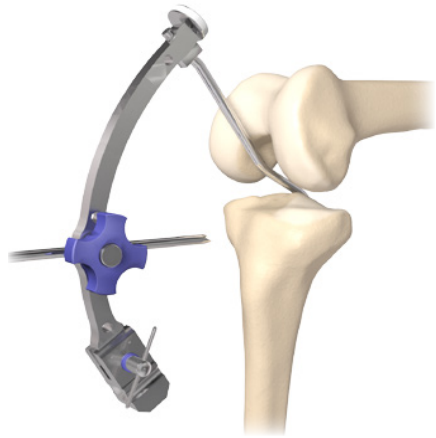
Operative set-up

Setting of the operative room following the state of the art procedures.

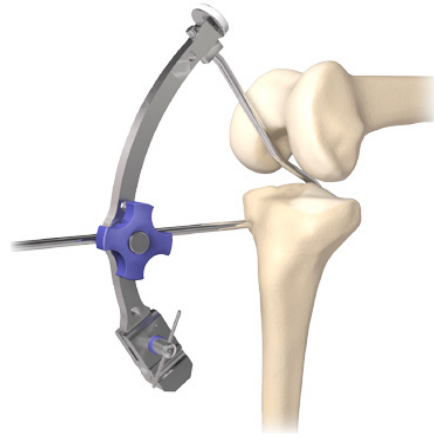
An image intensifier (C-arm) may be used to check the placement of the tibial target device and to confirm the precise isometric position of the entry point of the femoral tunnel.

Notes

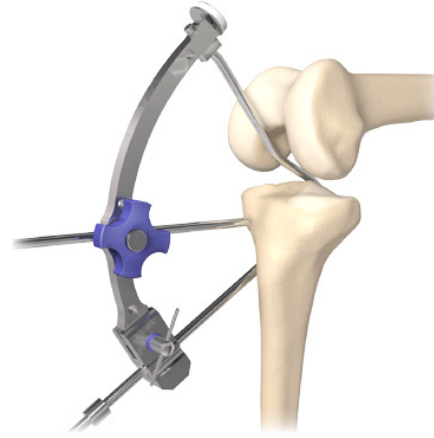
Surgical Technique Overview



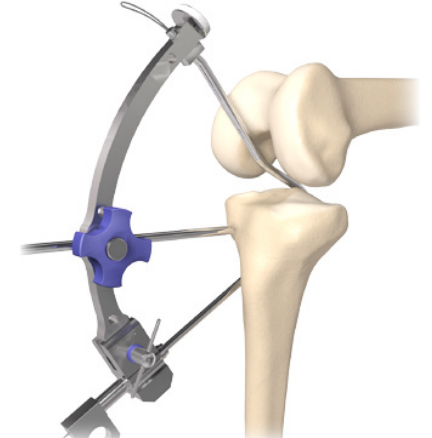
a. Placement of the tibial target device



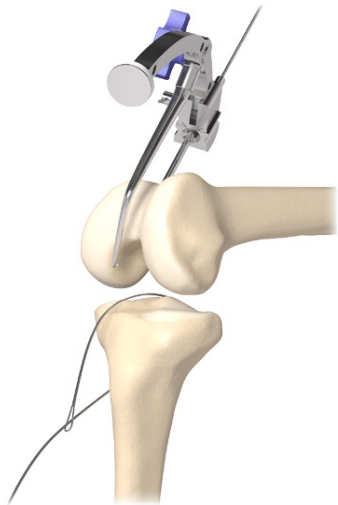
b. Insertion of the stabiliser



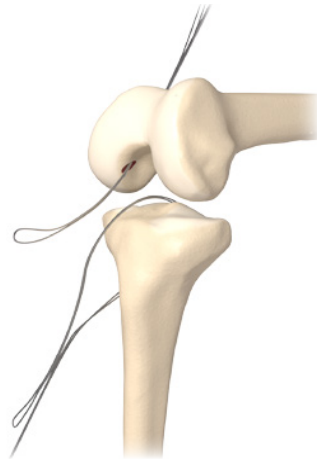
c. Preparation of the tibial tunnel



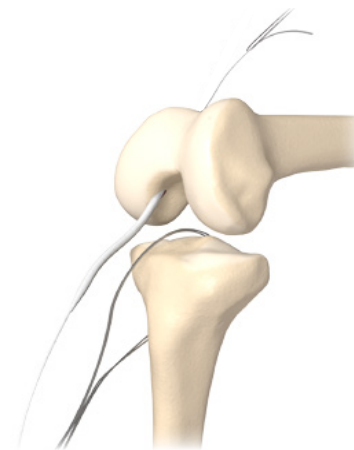
d. Tibial wire loop insertion



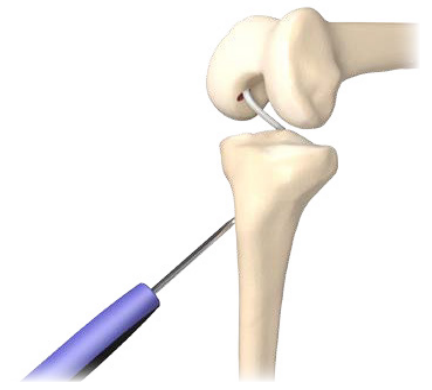
e. Preparation of the femoral tunnel



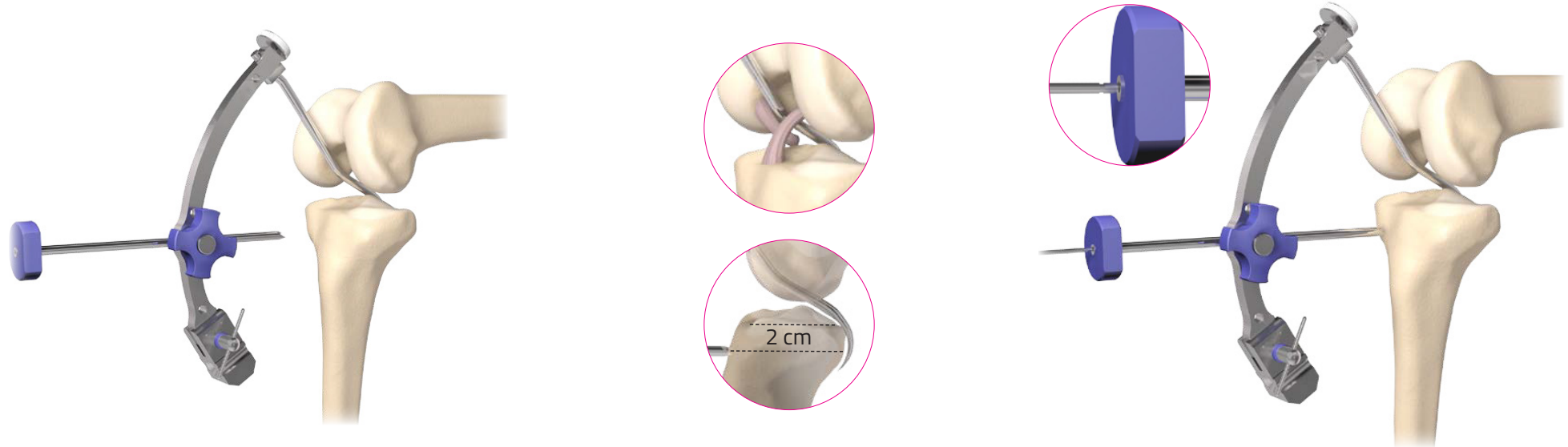
f. Femoral wire loop insertion



g. Insertion of the LARS™



h. Ligament fixation



Step 1. Placement of the tibial target device

The knee should be flexed at 90°. The tibial target device is assembled with the drilling guide, the spatula and the stabiliser guide. The drilling guide diameter is chosen according to the selected LARS™ implant.

The spatula is inserted in the knee joint via a medial parapatellar portal, 1-2cm above the tip of the patella, medially to the ACL, and placed behind the tibia, and in the centre of the tibial plateau. The spatula is correctly placed when it lies on the roof of the notch. Its positioning may be confirmed under an image intensifier.

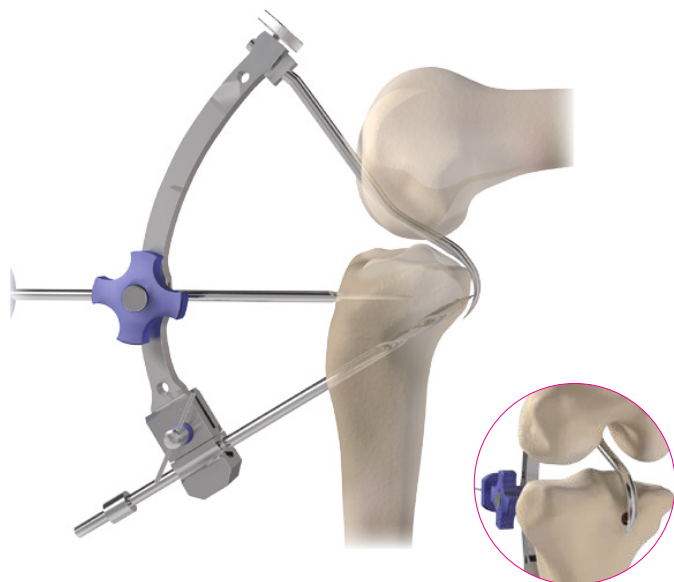
The stabiliser guide is placed on the tibia, about 2 cm above the tibial plateau and parallel to it.

If the patient presents a small notch, the femoral tunnel may be drilled first and protected before drilling the tibial tunnel. This avoids the tibial wire loop obstructing the femoral tunnel during drilling.

Step 2. Intertion of the stabilizer

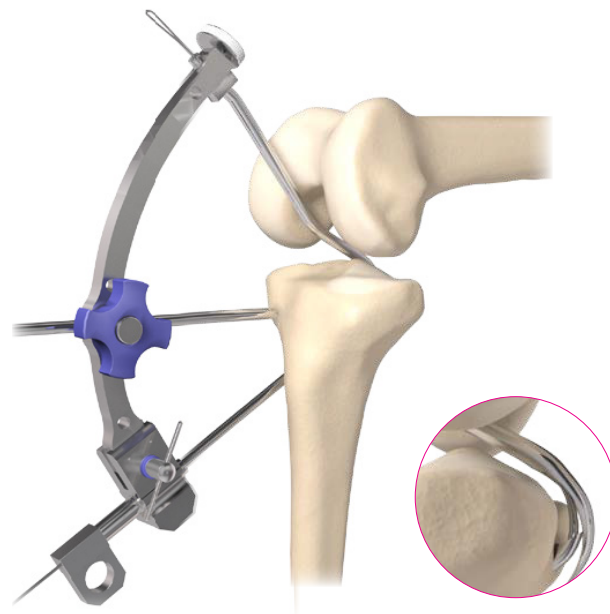
Once the alignment is confirmed, the stabiliser is drilled through the guide, into the tibial cortex and inserted up to the engraved line.

Care should be taken to maintain the right position of the guide. Inserting the stabiliser up to the engraved line ensure it does not interfere during the preparation of the tunnel.



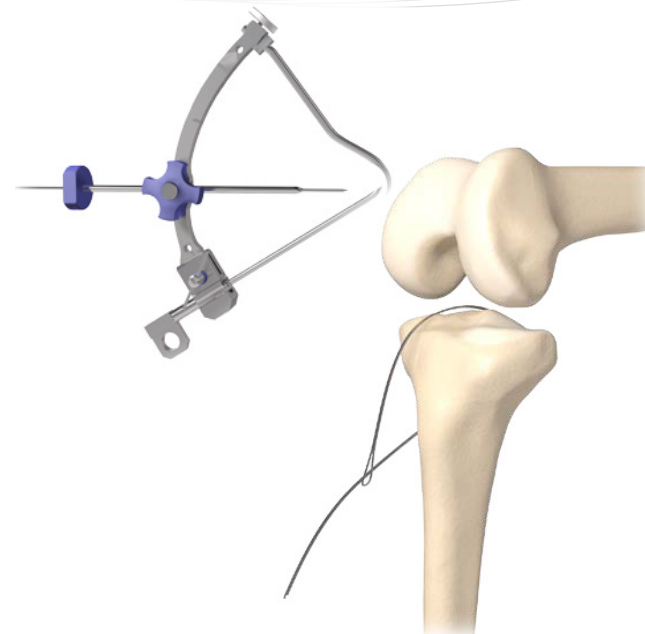
Step 3.
Preparation of the tibial tunnel

The tibial tunnel is drilled with a 6mm drill, which should stop against the spatula. The completion of this step may be confirmed using the image intensifier. The stabilizer and the drill may not be in contact one with the other.



Step 4.
Insertion of the wire loop

The cannulated wire passer is placed into the drilling guide with the flag pointing down; this positioning allows the distal end of the wire passer to be correctly aligned with the spatula, and eases the insertion of the wire loop. The wire loop is passed through the wire passer and the spatula at the back of the knee; it is exited through the cannula at the top of the target device.



The target device is carefully disassembled. The wire loop placed in the tibial tunnel is secured by passing it through the loop: it prevents the wire loop to impinge the notch during the preparation of the femoral tunnel.



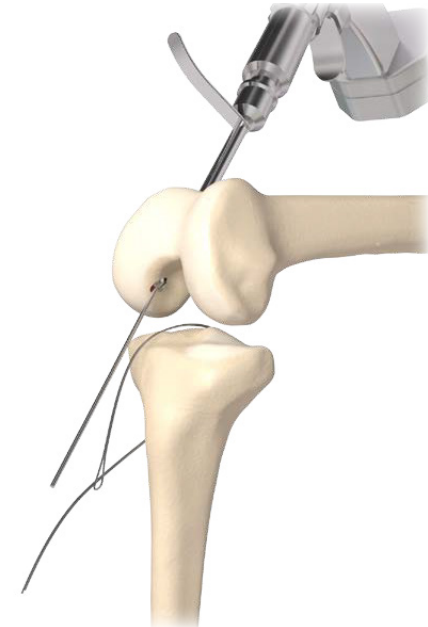
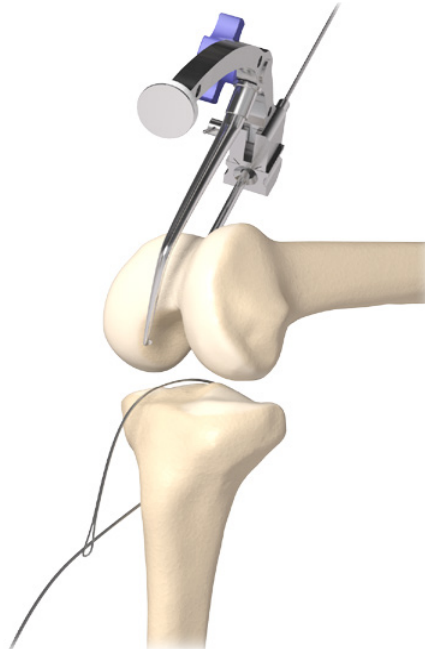
Step 5.
Placement of the femoral target device

To prepare the femoral tunnel with an outside-in drilling technique, the femoral hook is assembled to the target device in the middle position of the target device while the stabilizer guide is inserted through the drilling guide.

The knee is flex at 90°.

The femoral hook is inserted into the joint and held at the entry point of the femoral tunnel which is placed 1cm below the tip of the intercondylar notch and 1cm posterior to the cartilage surface of the medial condyle.

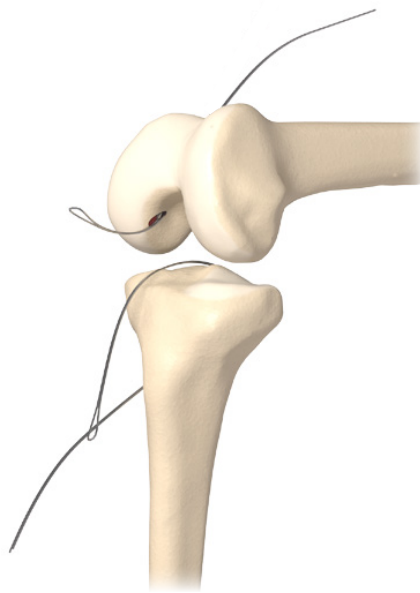
The outside-in technique is recommended in acute cases as it prevents to damage the femoral stump of the PCL.



Step 6.
Preparation of the femoral tunnel

The K-wire is passed through the stabiliser guide and drilled through the femur till it touches the tip of the femoral hook.

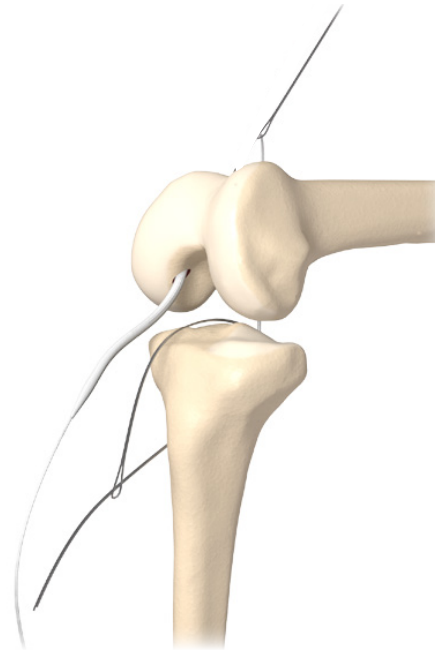
The target device is carefully disassembled. The cannulated drill is drilled over the K-wire to prepare the femoral tunnel.



Step 7.
Insertion of the wire loop

The drill is removed while the K-wire is maintained in place to ease the insertion of the wire loop passer.

The wire loop is inserted through the passer.



Step 8.
Insertion of the LARS™

One of the ligament traction wires is passed through the loop of the wire. The wire loop is pulled through the femoral tunnel inside-out and the ligament is placed in the tunnel. The blunt K-wire is maintained into the femoral canal.

The second traction wire is passed through the loop of the wire to secure it into the tibial tunnel. The wire loop is pulled through the tunnel and the ligament is inserted in the tibial tunnel.

Care must be taken when positioning the intra-articular free fibers: woven fabric must exit the tunnels by 1mm, on both the femoral and tibial sides.

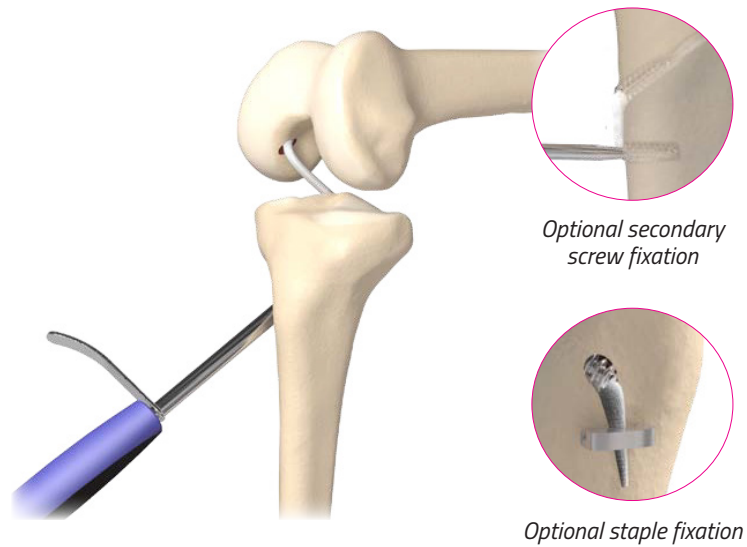


Step 9.
Fixation of the LARS™ into the femoral tunnel

Perform first the fixation of the LARS™ on the femoral side and then on the tibial side. The blunt k-wire is placed through the tunnel. A LARS™ screw of a diameter of at least 1mm larger than the size of the tunnel is selected.

Place the screw and the screwdriver over the blunt tip; the screw is seated flush with the cortex of the femur.

Finally the ligament is cut flush to the cortex at the exit of the tunnels.



Step 10.
Fixation of the LARS™ into the tibial tunnel

The range of motion is checked to make sure the ACL is functional. If the ACL is not functional, the implant positioning may be checked using an image intensifier and placed correctly if needed.

The blunt k-wire is placed through the tunnel. The ligament is fixed into the tibial tunnel with a screw, whose diameter is at least 1mm larger than the size of the tunnel. Place the screw and the screwdriver over the blunt tip; the screw is seated flush with the cortex of the femur.

A secondary fixation may be used to secure the ligament into the tibial tunnel, and it is recommended when the bone is judged of poor quality.

Two techniques can be used: a blind tunnel may be drilled below the tibial tunnel, the ligament is cut to the correct length, inserted into the blind tunnel, and fixed with the appropriate screw in relation to the tunnel; alternatively a staple is implanted.

The implant positioning may be checked through the arthroscope and the range of motions are verified.

Reinforcement of an autograft or an allograft with a LARS™

When the anterior cruciate ligament is totally absent or seems of poor quality, it is possible to reconstruct the ACL with an autograft or an allograft and reinforce it with a LARS™.

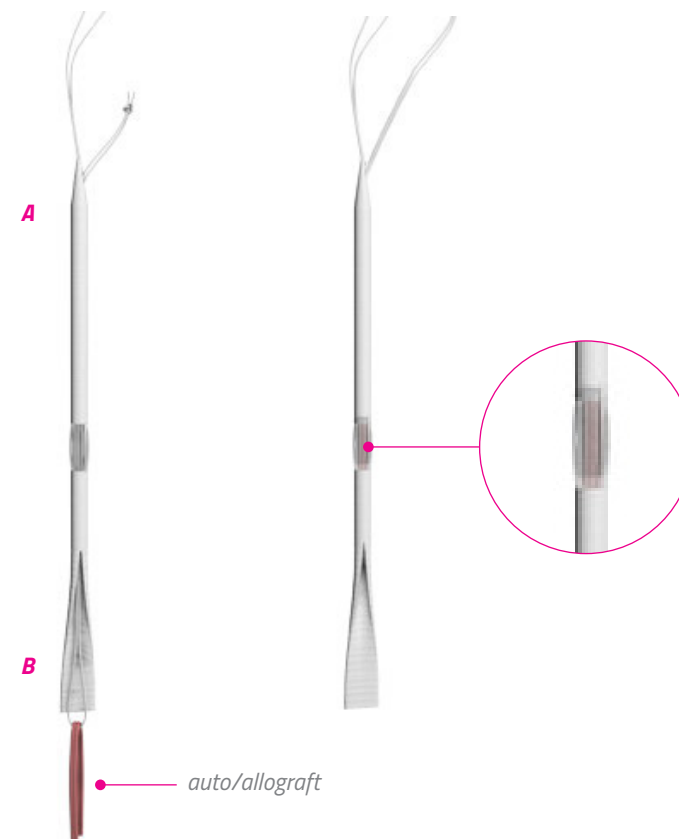
The procedure is realized with the same instrumentation as that used in the techniques described above; the graft and the LARS™ artificial ligament have to be fixed together in the femoral tunnel with LARS™ cannulated ligament screws.

On the tibial side, the graft should be stretched but not the artificial ligament because no discomfort must be created on the biological ligament, only a protection against elongation.

The same fixation techniques described above can be used for the graft and the reinforcement with the LARS™.

Ordering information

The list of ligaments, fixations and instruments are available in the catalogue VEN/IN.03.



Hot-dog reinforcement

Shall the surgeon select a reinforcement implant allowing a «hot-dog» reinforcement, the graft is looped to the drawstring looped end (B). The drawstring is pulled on the opposite side (A) through the implant to pass the graft into the reinforcement implant.

Notes

A series of horizontal dotted lines for writing notes.



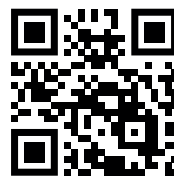
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