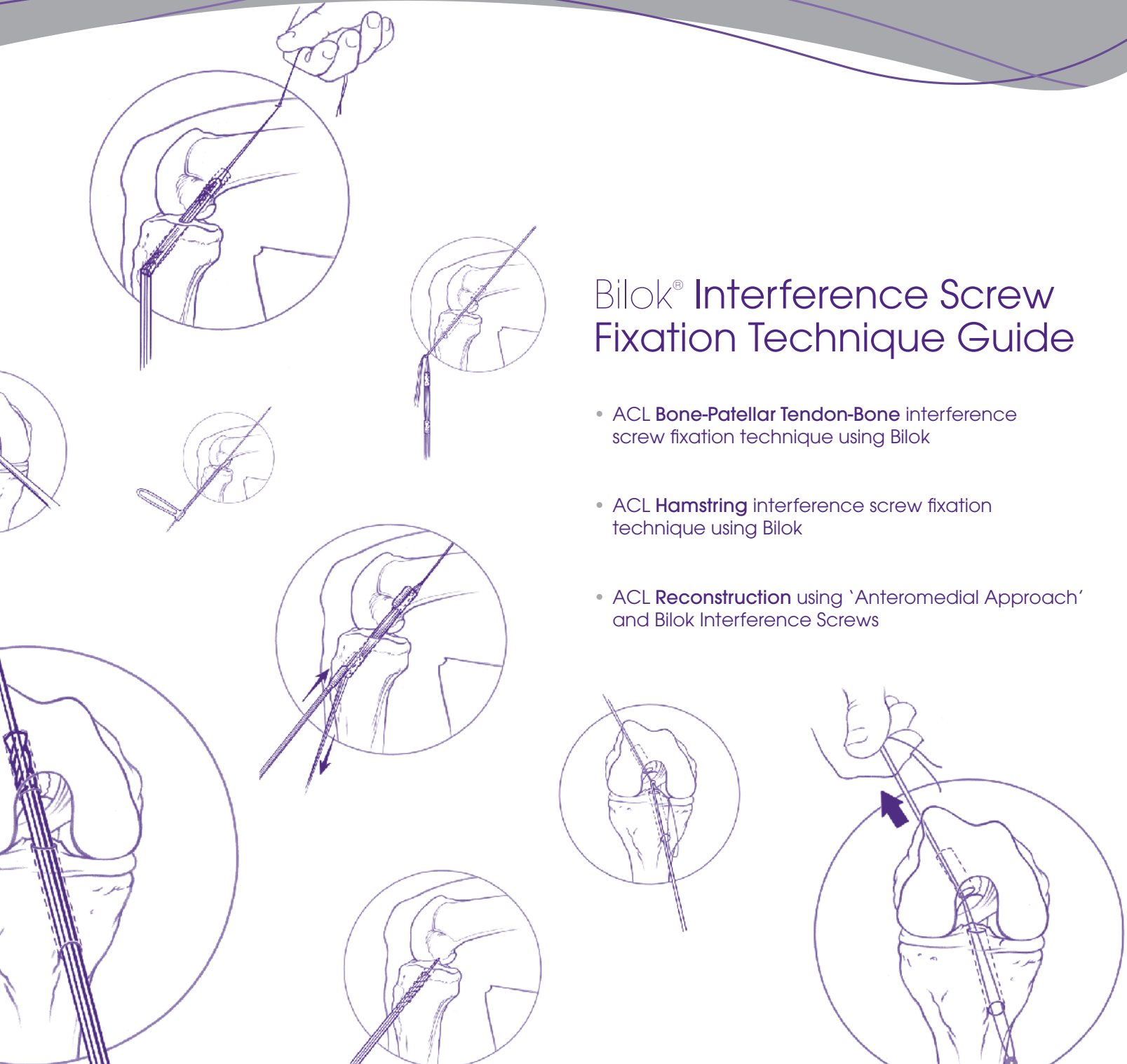




## Bilok® Interference Screw Fixation Technique Guide

- ACL **Bone-Patellar Tendon-Bone** interference screw fixation technique using Bilok
- ACL **Hamstring** interference screw fixation technique using Bilok
- ACL **Reconstruction** using 'Anteromedial Approach' and Bilok Interference Screws





**ACL Bone-Patellar  
Tendon-Bone**  
interference screw  
fixation technique  
using Bilok



## Patient Preparation

Prepare the patient preoperatively according to standard procedures. Position the patient so that the knee can be flexed beyond 90 degrees. Establish a low anteromedial portal.

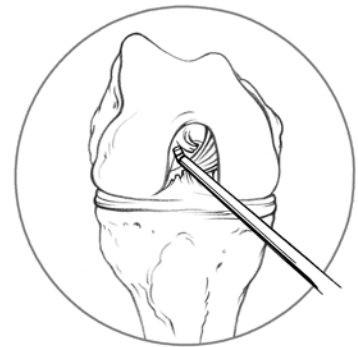
## Recommended Accessories

An ACL Disposables Kit (21-5431) is recommended for this procedure. This sterile kit contains a 2.4mm Drill Tip Guidewire (250mm / 10"); a 2.4mm Drill Tip Passing Pin (430mm / 17"); a 1.2mm A-Tech Flexion Control Guidewire (300mm/12"); a Cannulated Bone Tunnel Plug; Ruler and Skin Marker.



## Procedure

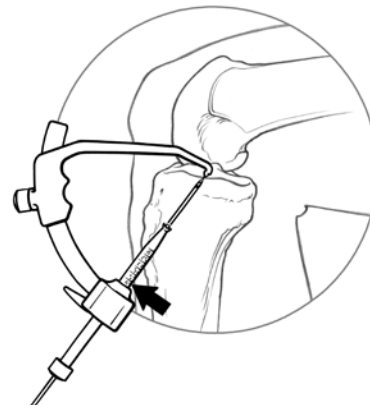
- 1 Through the anteromedial portal, initiate the femoral notchplasty by debriding the soft tissue with an ArthroWand<sup>®</sup> of choice.



- 2 Continue the notchplasty until the over-the-top position is identified.



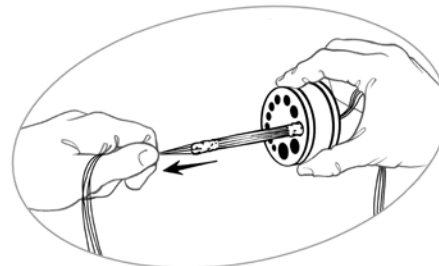
- 3 Using either the Point-to-Point (21-4026) or the Point-to-Elbow (21-4027) ACL Arm, position the Atlantech A-Tech Guidewire Aimer (21-4023) for optimal placement of the tibial tunnel. Slide the ACL Bullet (21-4025) forward until it engages the cortex medially, adjacent to the tibial tubercle. Advance the 2.4mm Drill Tip Guidewire (in ACL Disposables Kit) through the Bullet and tibia so that it enters the joint through the ACL footprint.



**Note:** In the case of unusually long graft length, careful consideration must be given to the length of the tibial tunnel in order to avoid bone tunnel mismatch. Usually a setting of 50-55 degrees results in appropriate tibial tunnel length. The actual tunnel length can be noted by the calibrations on the Bullet (on the concave side of the tibial guide arc).

**Total graft length – (femoral socket + intra-articular distance) = minimum tibial tunnel length.**

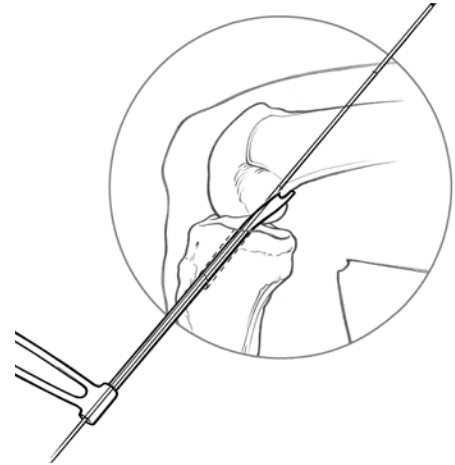
- 4 Use the Multi-Sizing Block (21-2010) to determine the diameter of the bone blocks and to select the appropriate size of Cannulated 4-Flute Drill Bit (parallel-sided tibial drill) and Ligament Tunnel Drill Bit (headed reamer femoral drill).



- 5 Remove the Tibial Guide and over-drill the Drill Tip Guidewire with an appropriately sized 4-Flute Drill Bit, creating the tibial tunnel. Remove the Drill Bit and Guidewire. Use an ACL Tunnel Rasp (21-2006) to chamfer the tibial tunnel edges. Use the Cannulated Bone Tunnel Plug (in ACL Disposables Kit) to plug the tibial tunnel to help maintain joint distention and minimize fluid loss.

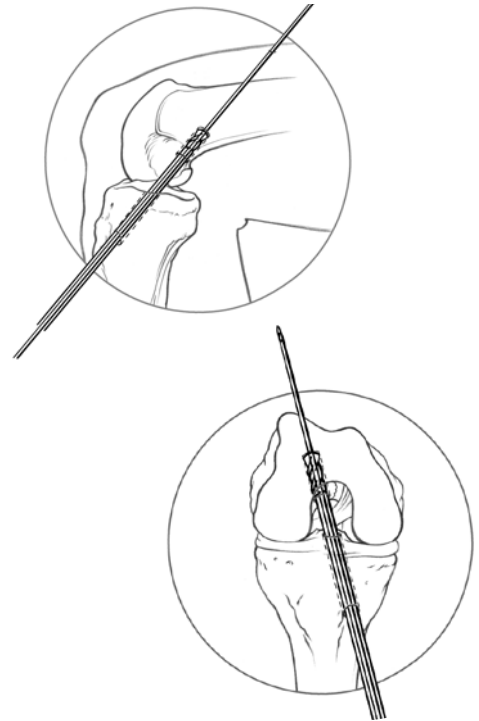


- 6 Extend the knee and via the tibial tunnel introduce the appropriate A-Tech Femoral Aimer, positioning the tip at the over-the-top position on the femur. Flex the knee to 90 degrees. Drill a 2.4mm Drill Tip Passing Pin (in ACL Disposables Kit) through the Femoral Aimer, into the femur and out through the anterolateral cortex. Remove the Aimer, leaving the Passing Pin.

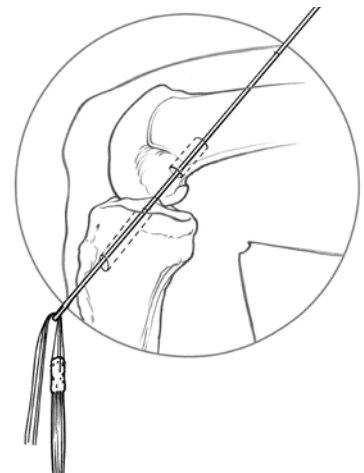


- 7 With an appropriately sized Cannulated Ligament Tunnel Drill, over-drill the Passing Pin to a depth equal to the femoral bone block length.

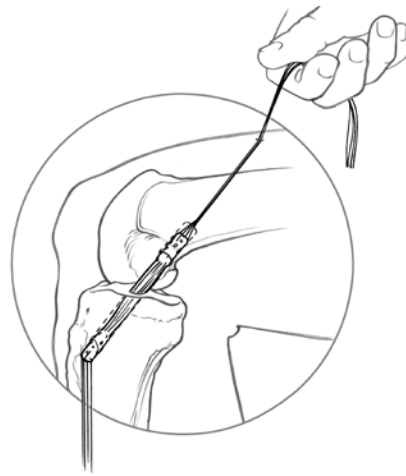
**Note:** A ligament tunnel drill is designed to protect the Posterior Cruciate Ligament (PCL) and is calibrated so that the appropriate length femoral socket can be drilled arthroscopically.



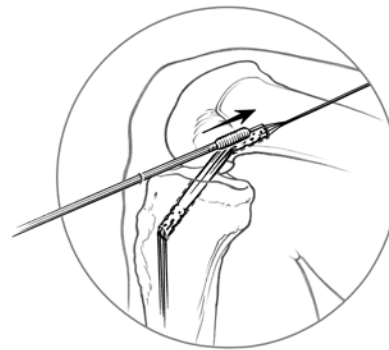
- 8 Thread the graft suture through the eyelet of the Passing Pin and withdraw the Passing Pin proximally out through the anterolateral thigh.



- 9 While grasping the graft suture superiorly, carefully advance the graft through the tibial tunnel, and into the femoral socket. Ensure that the graft is orientated so that the cortical side of the bone block is posterior (closer to over the top position) and the cancellous portion is anterior. Seat the graft securely.



- 10 Flex the knee beyond 90 degrees. Through the anterior medial portal, and under visualization, place the Tunnel Expander (160-007) into the femoral socket adjacent and parallel to graft, anteriorly. Place an A-Tech Controlled Flexion Guidewire (in ACL Disposables Kit) through the Tunnel Expander leaving the A-Tech Controlled Flexion Guidewire in place. Advance an appropriately sized Tapered Tap (same diameter as screw) over the Guidewire and tap the bone block/socket wall interface so that it is tapped to a depth corresponding to the length of the femoral screw to be inserted.

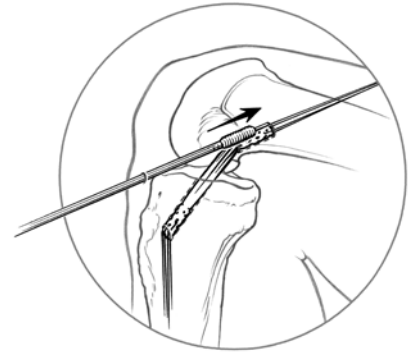


**Guideline:** Screw diameter for femur should be 1mm smaller than femoral socket diameter in normal bone or at least 2mm less or smaller in hard bone. Length of screw should be equal to femoral bone block.

**Tip:** When tapping, keep the graft under tension proximally and distally in order to avoid damage to graft.

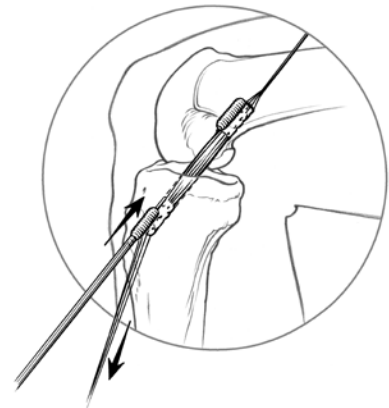
- 11 While maintaining knee flexion beyond 90 degrees, advance the Bilok Tapered Interference Screw over the Guidewire and into the femoral socket. Remove the Guidewire before the interference screw is fully inserted into the socket.

**Tip:** Maintain tension on the graft (proximal and distal) during screw insertion in order to minimize graft rotation.



- 12 Place the Tunnel Expander (160-007) into the tibial tunnel adjacent and parallel to graft, anteriorly. Place an A-Tech Controlled Flexion Guidewire through the Tunnel Expander into the tibial tunnel and alongside graft. Remove the Tunnel Expander leaving the A-Tech Controlled Flexion Guidewire in place. Advance an appropriately sized Tapered Tap over the Guidewire and tap the bone block/socket wall interface so that it is tapped to a depth corresponding to the length of the tibial screw to be inserted.

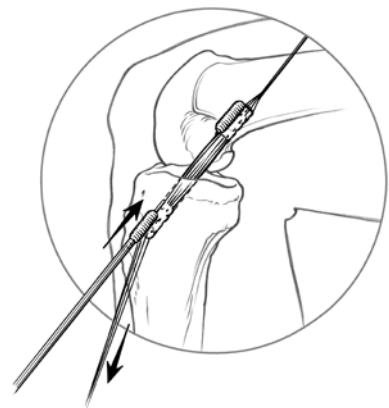
**Guideline:** Screw diameter for tibia should be 1mm less than the diameter of tibial tunnel and equal in length to the tibial bone block.



- 13 Advance the Bilok Tapered Interference Screw over the Guidewire and into tibial tunnel.

## Postoperative Care

Postoperative management for each of the potential pathologic conditions is determined by the individual physician preference.



## ACL Hamstring interference screw fixation technique using Bilok



## Patient Preparation

Prepare the patient preoperatively according to standard procedures. Position the patient so that the knee can be flexed beyond 90 degrees. Establish a low anteromedial portal.

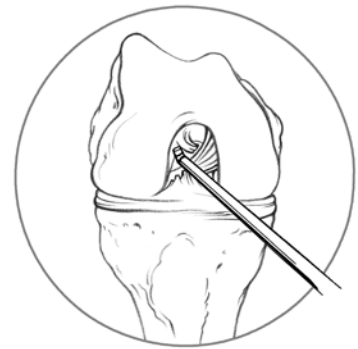
## Recommended Accessories

An ACL Disposables Kit (21-5431) is recommended for this procedure. This sterile kit contains a 2.4mm Drill Tip Guidewire (250mm / 10"); a 2.4mm Drill tip Passing Pin (430mm / 17"); 1.2mm A-Tech Flexion Control Guidewire (300mm/12"); a Cannulated Bone Tunnel Plug; Ruler and Skin Marker.



## Procedure

- 1 Through the anteromedial portal, initiate the femoral notchplasty by debriding the soft tissue with an ArthroWand of choice.

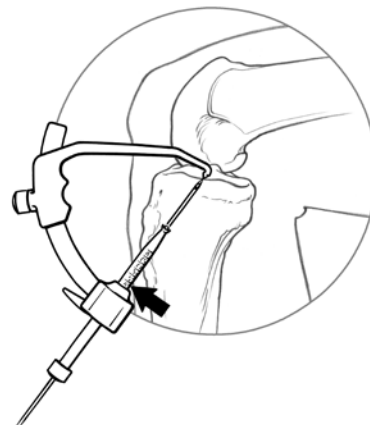


- 2 Continue the notchplasty until the over-the-top position is identified.

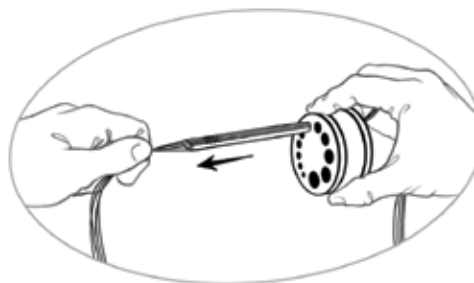


- Using either the Point-to-Point (21-4026) or the Point-to-Elbow (21-4027) ACL Arm, position the Atlantech A-Tech Guidewire Aimer (21-4023) for optimal placement of the tibial tunnel. Slide the ACL Bullet (21-4025) forward until it engages the cortex medially, adjacent to the tibial tubercle. Advance the 2.4mm Drill Tip Guidewire (in ACL Disposables Kit) through the Bullet and tibia so that it enters the joint through the ACL footprint.

**Note:** Usually a setting of 40–45 degrees results in appropriate tibial tunnel length. The actual tunnel length can be noted by the calibrations on the Bullet (on the concave side of the tibial guide arc).



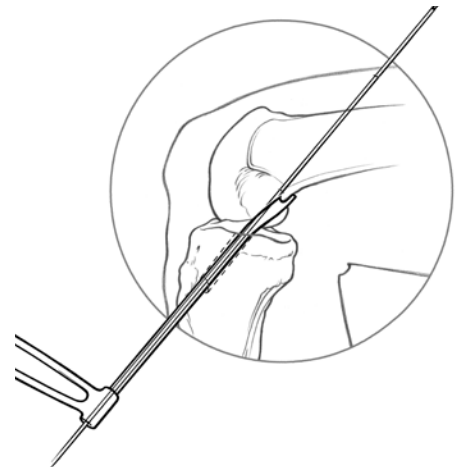
- Use the Multi-Sizing Block (21-2010) to determine the diameter of the hamstring graft and to select the appropriate size of Cannulated 4-Flute Drill Bit (parallel-sided tibial drill) and Ligament Tunnel Drill Bit (headed reamer femoral drill).



- Remove the Tibial Guide and over-drill the Drill Tip Guidewire with an appropriately sized 4-Flute Drill Bit, creating the tibial tunnel. Remove the Drill Bit and Guidewire. Use an ACL Tunnel Rasp (21-2006) to chamfer the tibial tunnel edges. Use the Cannulated Bone Tunnel Plug (in ACL Disposables Kit) to plug the tibial tunnel to help maintain joint distention and minimize fluid loss.

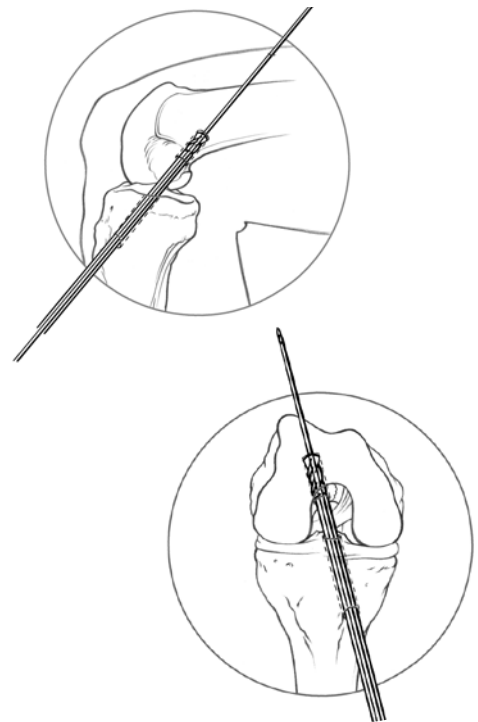


- 6 Extend the knee and via the tibial tunnel introduce the appropriate A-Tech Femoral Aimer, positioning the tip at the over-the-top position on the femur. Flex the knee to 90 degrees. Drill a 2.4mm Drill Tip Passing Pin (in ACL Disposables Kit) through the Femoral Aimer, into the femur and out through the anterolateral cortex. Remove the Aimer, leaving the Passing Pin.

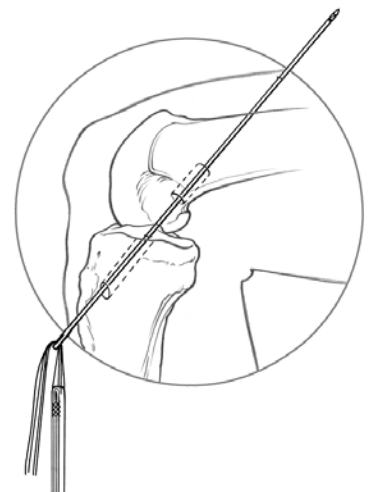


- 7 With an appropriately sized Cannulated Ligament Tunnel Drill, over-drill the Passing Pin to a depth of at least 20mm (minimum depth of graft insertion in the femoral socket.)

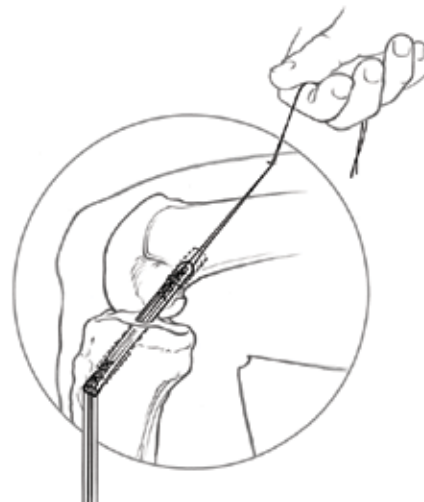
**Note:** A ligament tunnel drill is designed to protect the Posterior Cruciate Ligament (PCL) and is calibrated so that the appropriate length femoral socket can be drilled arthroscopically.



- 8 Thread the graft suture through the eyelet of the Passing Pin and withdraw the Passing Pin proximally out through the anterolateral thigh.



- 9 While grasping the graft suture superiorly, carefully advance the graft through the tibial tunnel, and into the femoral socket. Seat the graft securely.

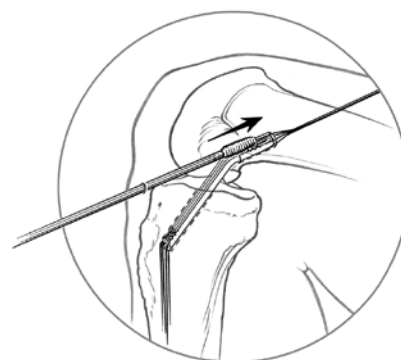


- 10 Flex the knee beyond 90 degrees. Through the anterior medial portal, and under direct vision, place the Tunnel Expander (160-007) into the femoral socket adjacent and parallel to graft, anteriorly. Place an A-Tech Controlled Flexion Guidewire in place.

While maintaining knee flexion beyond 90 degrees, advance the Bilok Tapered Interference Screw over the Guidewire and into the femoral socket. Remove the Guidewire before the interference screw is fully inserted in the socket.

**Guideline:** Screw diameter for femur should be same size as (normal bone) or 1mm less than (hard bone) the diameter of femoral socket and equal in length to the femoral socket drilled.

**Tip:** Maintain tension on graft proximally and distally during screw insertion to prevent graft rotation.

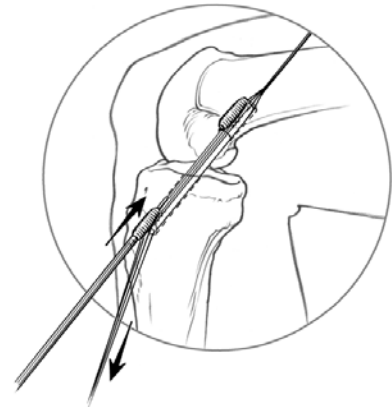


- ① Place the Tunnel Expander (160-007) into the tibial tunnel adjacent and parallel to the graft, anteriorly. Place an A-Tech Controlled Flexion Guidewire through the Tunnel Expander into the tibial tunnel and alongside graft. Remove the Tunnel Expander leaving the A-Tech Controlled Flexion Guidewire in place. Advance the Bilok Parallel-Sided or Tapered Interference Screw over the Guidewire and into the tibial tunnel.

**Guideline:**

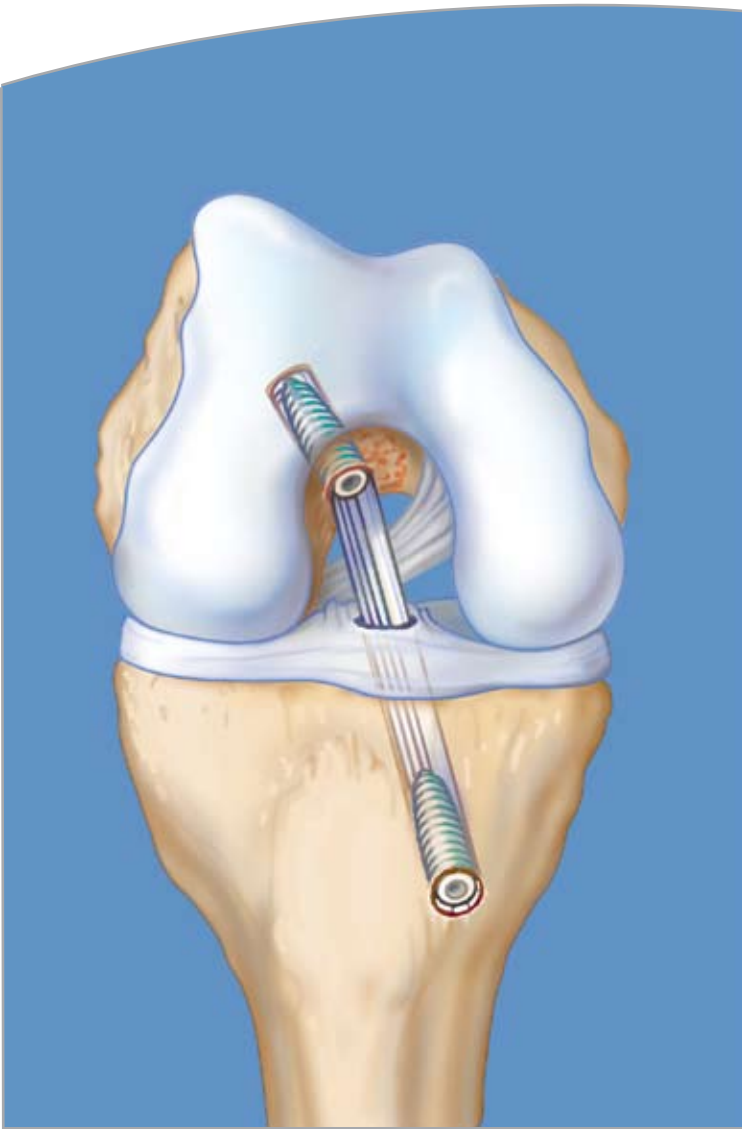
**For Joint Line Fixation** use the longest parallel-sided screw, which matches the tunnel and graft diameter.

**For Distal Tibial Cortex Fixation** use the longest tapered screw, which matches the tunnel and graft diameter.



## Postoperative Care

Postoperative management for each of the potential pathologic conditions is determined by the individual physician preference.



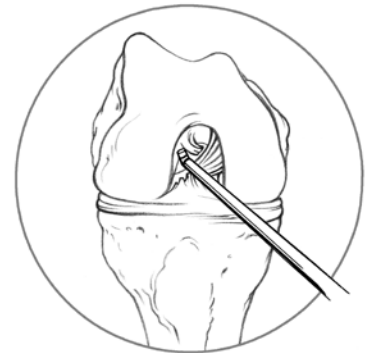
## ACL Reconstruction using 'Anteromedial Approach' and Bilok interference screws

- Technique for BPTP and Hamstring Grafts

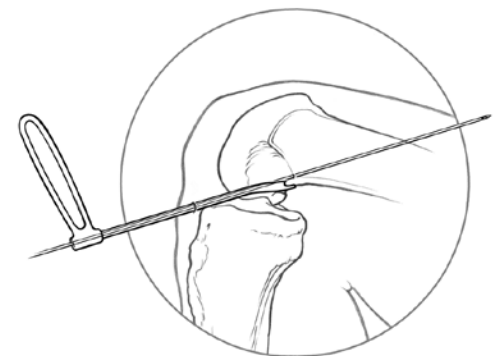
## Procedure

- 1 Position the patient so that the knee can be flexed beyond 90 degrees. Establish a low anteromedial portal.

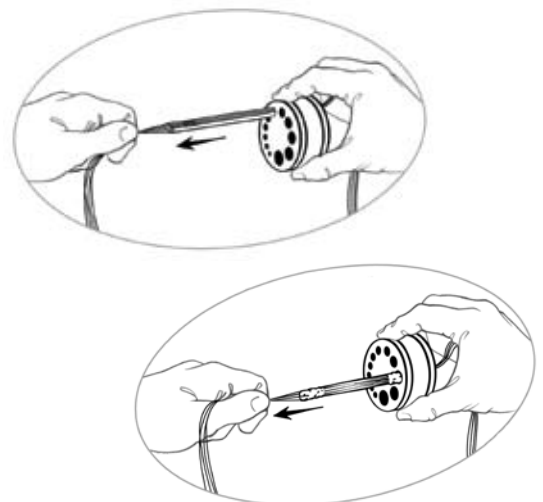
- 2 Through the anteromedial portal, initiate the femoral notchplasty by debriding the soft tissue with an ArthroWand of choice. Continue the notchplasty until over-the-top position is identified.



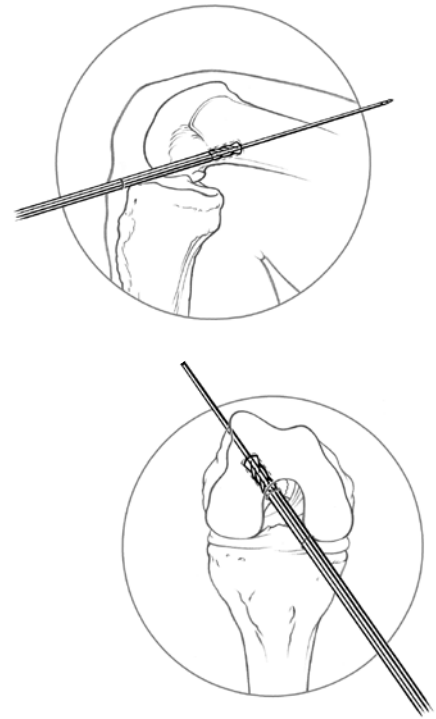
- 3 Flex the the knee beyond 90 degrees. Via the anteromedial portal, position the appropriate A-Tech Femoral Aimer at the over-the-top position on the femur. Drill a Drill Tip Passing Pin (in ACL Disposables Kit) through the Femoral Aimer, into the femur and out through the anterolateral cortex. Remove the Aimer, leaving the Passing Pin.



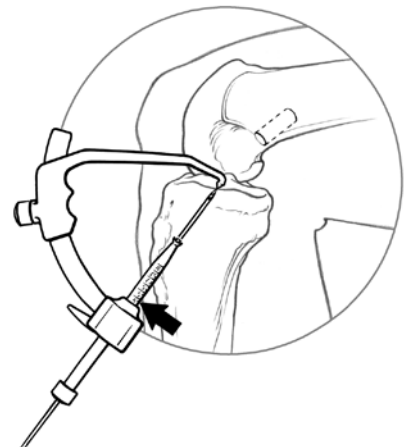
- 4 Use the Multi-Sizing Block to determine the appropriately sized Cannulated Drill Bit to be used.



- 5 Drill over the Passing Pin with an appropriately sized Cannulated Ligament Tunnel Drill to a depth equal to the insertion portion of the graft. Remove the Passing Pin.



- 6 Using either the "Point-to-Point" (21-4026) or the "Point-to-Elbow" (21-4027) ACL Arm, position the Atlantech A-Tech Guidewire Aimer (21-4023) for optimal placement of the tibial tunnel. Slide the ACL Bullet (21-4025) forward until it engages the cortex adjacent to the tibial tubercle. (Giving consideration to the graft type being used, ensure that an adequate tunnel length will be produced by noting the calibrations on the Bullet) Advance the Drill Tip Guidewire (in ACL Disposables Kit) through the Bullet and tibia so that it enters the joint through the ACL stump.

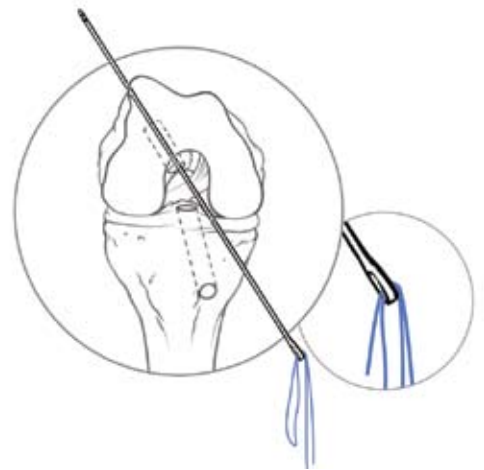


- 7 Remove the Tibial Guide and over-drill the Drill Tip Guidewire with an appropriately sized 4-Flute Drill Bit, creating the tibial tunnel. Remove the Drill Bit and Guidewire. Use an ACL Tunnel Rasp (21-2006) to chamfer the tibial tunnel edges.

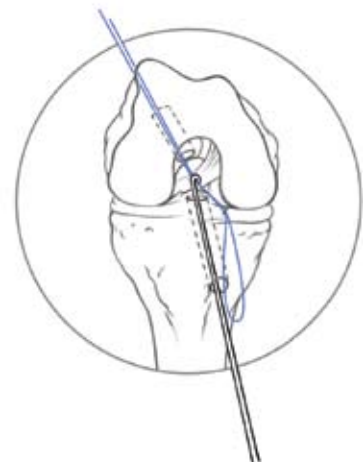


- 8 Through the anteromedial portal, thread the loose ends of a #1 monofilament “passing suture” through the eyelet of the Passing Pin. Pull the Passing Pin out through the lateral thigh, leaving the loop of the “passing suture” outside of the anteromedial portal.

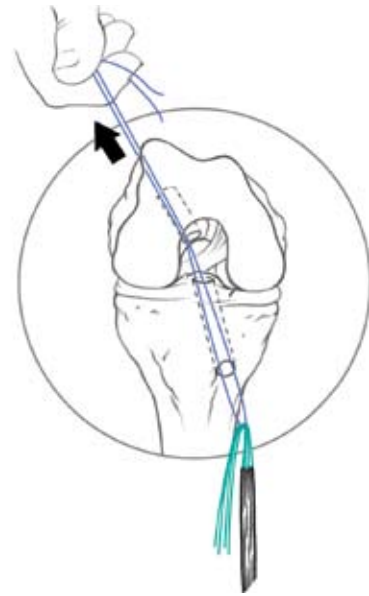
**Tip:** A #1 Prolene (non-absorbable) or PDS (absorbable) suture is recommended.



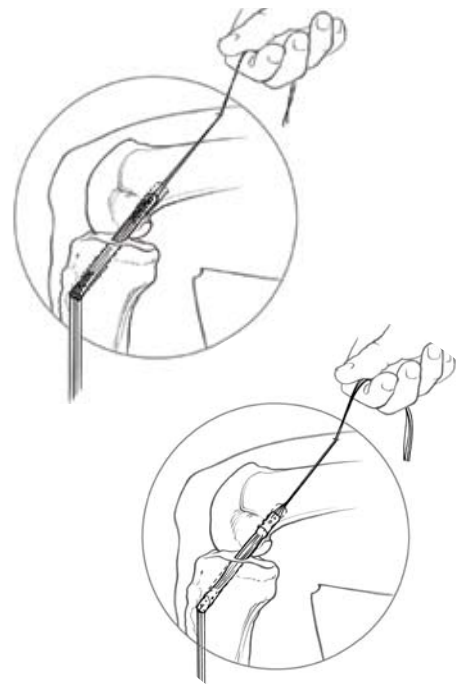
- 9 Introduce a grasper or suture hook through the tibial tunnel and retrieve the loop from within the joint.



- 6 Thread the graft sutures through the “passing suture” loop and pull the loose ends of the “passing suture” out through the lateral thigh.



- 11 While grasping the graft sutures, advance the graft through the tibial tunnel, and into the femoral socket. Seat the graft securely.



- 12 For BPTB Interference Screw placement, follow Step 11 of the BPTB Interference Screw technique.

For Hamstring Interference Screw placement, follow Step 11 of the Hamstring Interference Screw technique.

## Bilok Screw Placement Guidelines

	Tap	Femur	Tibia
<b>BPTP Graft</b>	<p><b>USE TAP THAT IS THE SAME SIZE AS SCREW</b> i.e. if screw is 8mm, use 8mm tap</p> <p><b>USE TAPERED SCREWS</b></p>	<p><b>Soft Bone</b></p> <ul style="list-style-type: none"> <li>• 1mm smaller than the size of the tunnel</li> </ul> <p><b>Normal Bone</b></p> <ul style="list-style-type: none"> <li>• 2mm smaller than size of the tunnel in good bone</li> </ul>	<ul style="list-style-type: none"> <li>• 1mm smaller than size of tunnel</li> </ul>
<b>Hamstring Graft</b>	<p><b>NO TAPPING FOR HAMSTRING GRAFT, USE TUNNEL EXPANDER</b></p>	<p><b>Normal Bone</b> use Tapered screw the same size as the tunnel</p> <p><b>Hard Bone</b> use Tapered screw 1mm smaller than the tunnel size</p>	<p><b>Normal Bone</b> use a Parallel sided screw the same size as the tunnel</p> <p><b>Oversizing for Soft Bone</b> Can oversize by up to 2mm if needed</p>



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 order entry fax 888-994-2782  
**arthrocaresportsmedicine.com**

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