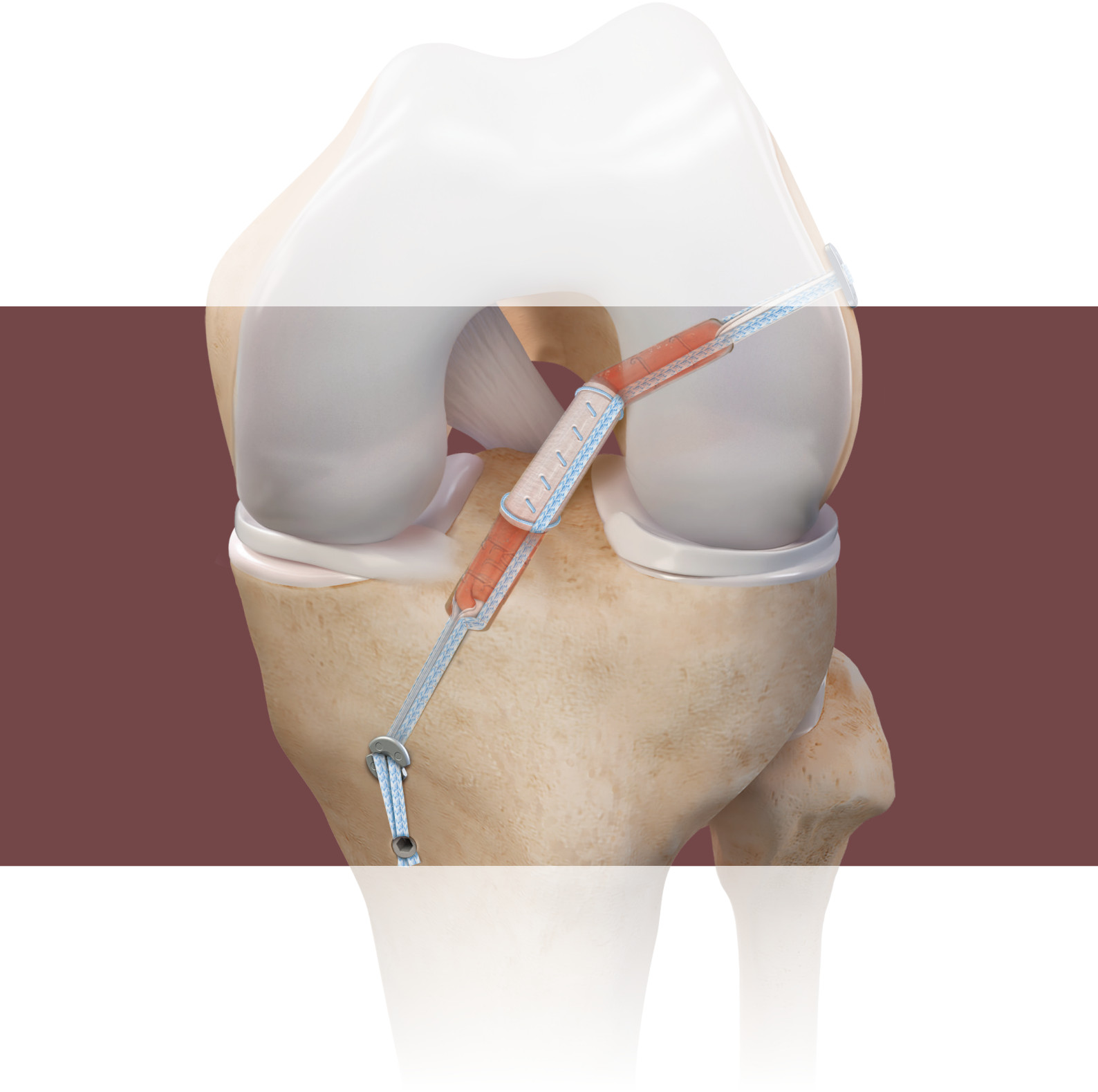
BioACL™

Surgical Technique



Arthrex®

BioACL™ Surgical Technique

Introduction

The BioACL technique harnesses the patient's own biology and combines it with the highest quality biologic scaffolds to maximize the healing potential of your anterior cruciate ligament (ACL) reconstructions.

Key Features of the BioACL Technique

Customized PRP concentrate from bone marrow aspirate (BMA) from the Arthrex Angel System

- Incorporates customized platelet-rich plasma concentrate (cPRP) from bone marrow aspirate (BMA) prepared using the Angel® system, autologous bone collected using the GraftNet™ autologous tissue collector, and bone tunnel augmentation with AlloSync™ Pure demineralized bone matrix (DBM).
- Bone marrow is a rich source of platelets and nucleated progenitor cells. The Angel device is the only system to provide cPRP from BMA with adjustable cellular levels.

GraftNet autologous tissue collector

- The suction-activated GraftNet device is designed to collect autologous tissue for a multitude of applications. When connected to an arthroscopic shaver, the GraftNet device can easily collect resected bone during ACL tunnel drilling. This autologous bone can then be combined with the DBM and cPRP from BMA mixture to accelerate femoral and tibial tunnel remodeling.

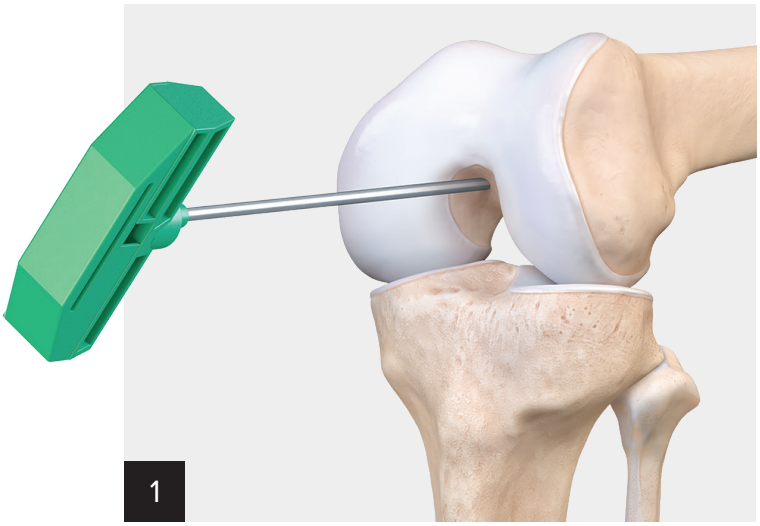
AlloSync Pure DBM

- AlloSync Pure DBM resists irrigation and can be used in a fluid environment when hydrated. AlloSync Pure maximizes osteoinduction for bone remodeling and is the optimal scaffold for cPRP from BMA.[1]

Soft-tissue augmentation with a collagen scaffold

- A collagen scaffold can contain regenerative qualities and act as a barrier or wrap. In ACL reconstruction, a collagen scaffold can provide additional biological support to soft tissues.

BMA Harvest - Arthroscopic Distal Femur Harvest Technique



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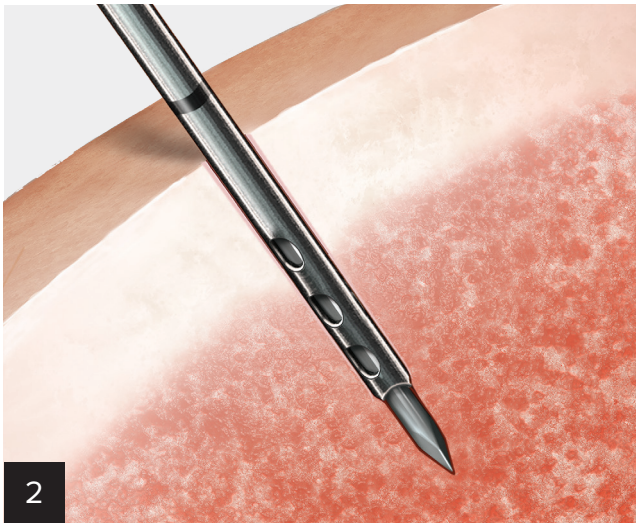
Bone marrow aspiration should be performed before drilling any tunnels. Under arthroscopic visualization, insert the needle into the apex of the femoral notch to a depth of 3 cm. Turn off the arthroscopic fluid before removing the trocar and attaching the syringe. Slowly aspirate the bone marrow.



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To obtain the desired volume, it may be necessary to rotate the needle 90° or withdraw it 5 mm when aspirating; do not withdraw the needle past the 2 cm mark. Aspiration can also be done from the Iliac crest and proximal tibia.

Angel® cPRP System Processing

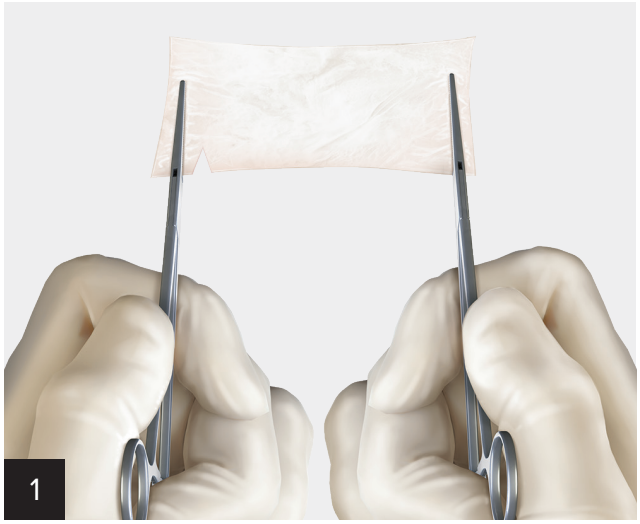
1

After the Angel cPRP system has been assembled and the operator has connected the heparin-flushed bone marrow filter to the “whole blood in” compartment, the citrated bone marrow aspirate may be introduced. The Angel system can process 40 mL to 180 mL of whole blood, BMA, or a mixture of both in a single cycle.

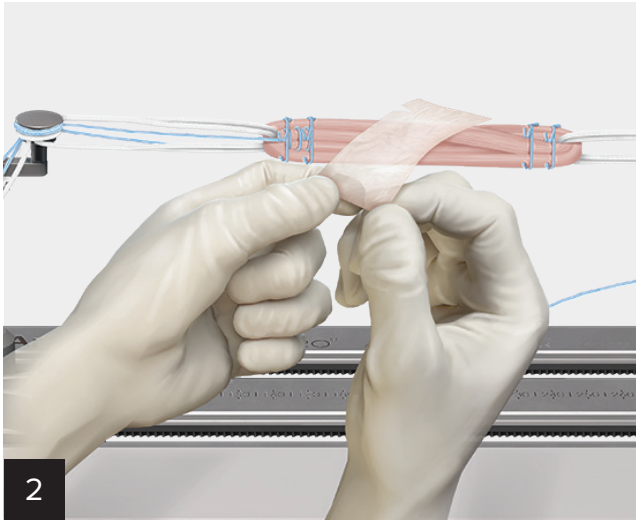
2

After processing, the cPRP from BMA will be dispensed into the PRP collection syringe. To increase the volume of the PRP syringe by expanding with platelet-poor plasma (PPP), simply pull back on the plunger of the syringe. If PP is desired, it may be withdrawn from the port on the PPP compartment.

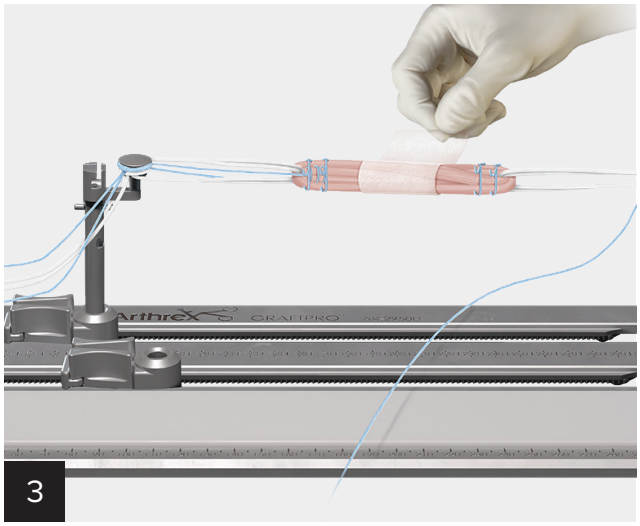
Autograft GraftLink® Construct Augmentation With Collagen Scaffold



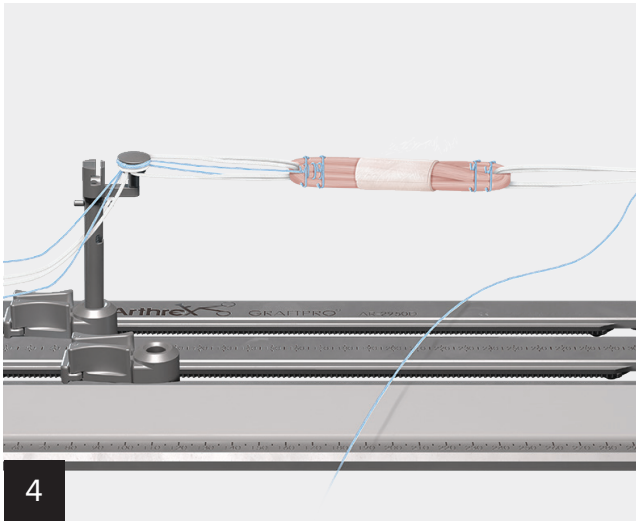
An approximately 3 cm × 6 cm collagen scaffold is used to augment an autograft GraftLink construct. The 3 cm width of the graft will allow you to cover the intra-articular segment of the ACL graft. The length of the scaffold is sufficient to wrap the GraftLink construct three times.



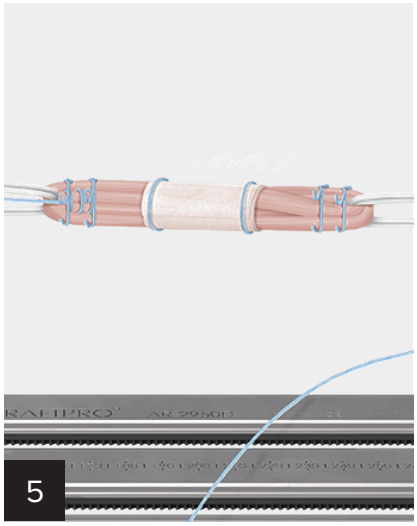
An absorbable monofilament suture can be used to secure the collagen scaffold to the GraftLink construct. Place the scaffold in the center of the soft-tissue graft.



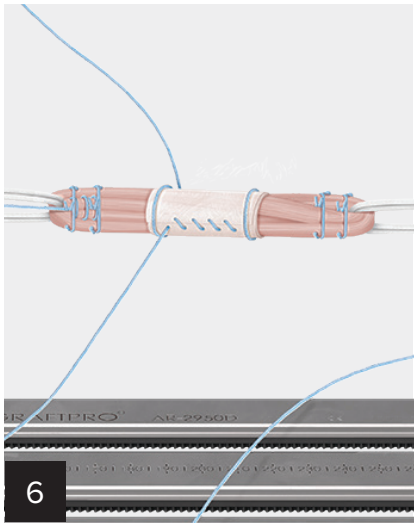
Moisten the collagen scaffold while wrapping the soft-tissue construct for optimum handling.



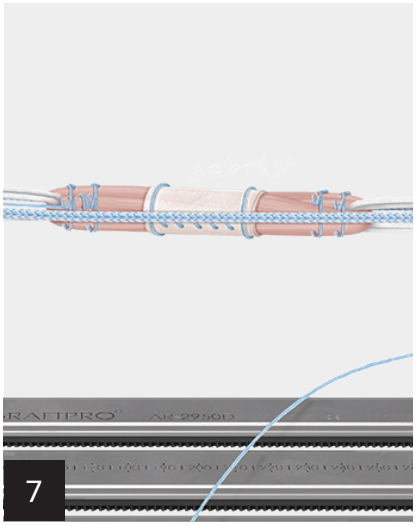
Carefully wrap the GraftLink construct with the collagen scaffold to complete three passes around the soft-tissue graft.



Suture circumferential wraps on both ends of the collagen scaffold using absorbable monofilament sutures. This creates a watertight construct around the GraftLink construct.

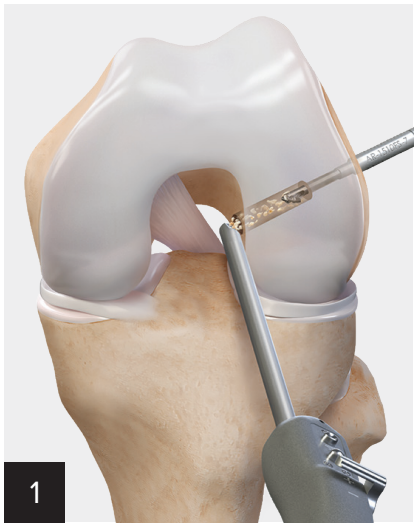


Finally, create a running stitch along the free edge of the collagen scaffold.



The preparation of the collagen scaffold augmentation for the GraftLink construct is now complete.

Autograft Bone Collection With the GraftNet™ Device



Attach the GraftNet device to the shaver to harvest the bone debris from the femoral tunnel. The bone debris may also be collected from the tibial tunnel in a similar fashion.

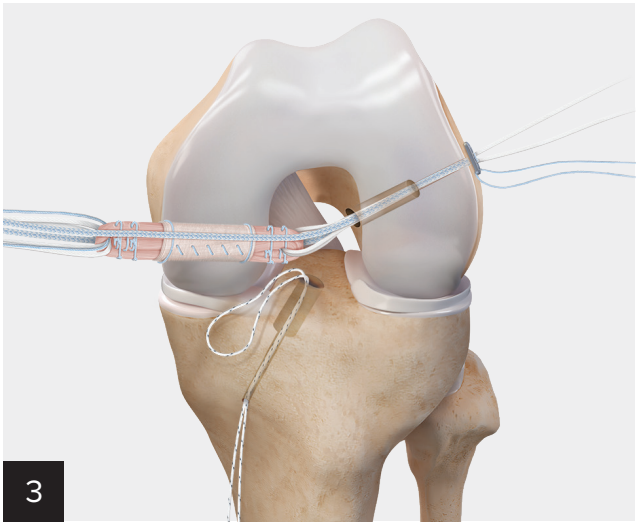
Autograft bone may be collected using the GraftNet device. Drill the femoral tunnel in retrograde fashion using the Flipcutter® III device. Place a shaver in the lateral portal during drilling.

Following collection of the bone graft, disconnect the tissue collector from the shaver and suction. Disassemble the GraftNet device and withdraw the plunger to access the autologous tissue.

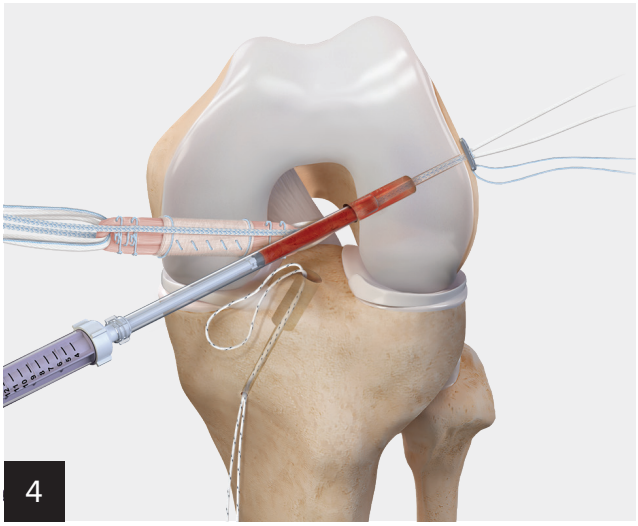
Composite Graft Preparation With AlloSync™ Pure and Bone Marrow Concentrate

Prepare the composite graft for bone tunnel augmentation by mixing the autograft bone collected from the GraftNet™ device with 5 cc of AlloSync Pure DBM and 5 cc of bone marrow concentrate (BMC).

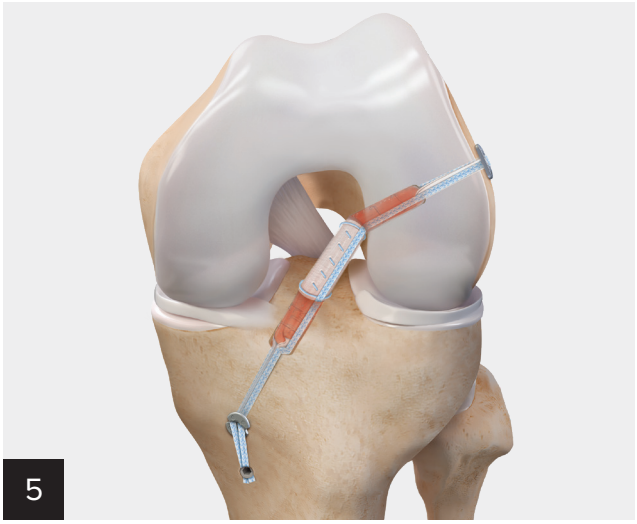
Load the composite graft mixture into the BioXpress™ graft delivery device.



Lengthen the femoral TightRope® II implant to allow room for composite graft delivery into the tunnel. Advance the TightRope implant's shortening strands and FiberWire® passing suture through the femoral socket, advancing the button out of the femur. Ensure the button seats firmly on the femoral cortex.



The composite graft is then delivered into the femoral tunnel using the BioXpress device through the medial portal. We recommend fully filling the tunnel with the composite graft for proper graft impaction. The BioXpress device can then be delivered through the lateral portal for tibial tunnel filling.



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Use the ACL GraftLink® technique to deliver the GraftLink into both the femoral and tibial tunnels.

Ordering Information

Product Description	Item Number
Arthrex Angel® cPRP and BMA Tray	ABS-**10062T**
GraftNet™ Autologous Tissue Collector	ABS-**1050**
AlloSync™ Pure Demineralized Bone Matrix, 5 cc	ABS-**2010-05**
BioXpress™ Graft Delivery Device, angled tip cannula	ABS-**10053-15-45**
ACL TightRope® II RT Implant, w/ *Interna*lBrace™ ligament augmentation repair	AR-**1588RT-IB**
ACL TightRope II RT Implant, w/ double loaded passing sutures	AR-**1588RT-2J**
TightRope II Implant, w/ *Interna*lBrace ligament augmentation repair	AR-**1588BTB-IB**
BTB TightRope II Implant, w/ double loaded passing sutures	AR-**1588BTB-2J**
ACL FiberTag® TightRope Implant	AR-**1588RTT**
TightRope II ABS Implant	AR-**1588TN-20**
TightRope II ABS Implant, open	AR-**1588TN-21**
ACL FiberTag TightRope ABS Implant	AR-**1588TNT**
TightRope ABS Button, round, concave, 11 mm	AR-**1588TB-3**
TightRope ABS Button, round, concave, 14 mm	AR-**1588TB-4**
TightRope ABS Button, round, concave, 20 mm	AR-**1588TB-5**
ACL Backup Fixation System, secondary fixation w/ BioComposite SwiveLock® anchor 4.75 mm × 19.1 mm	AR-**1593-BC**
ACL Backup Fixation System, secondary fixation w/ PEEK SwiveLock® anchor 4.75 mm × 19.1 mm	AR-**1593-P**

Products advertised in this brochure/surgical technique guide may not be available in all countries. For information on availability, please contact Arthrex Customer Service or your local Arthrex representative.

References

1. Kay JF, Khaliq S, Neubauer P. Effective design of bone graft materials using osteoinductive and osteoconductive components. American Association of Tissue Banks. https://www.aatb.org/sites/default/files/2003Abstract13.pdf. Accessed January 23, 2018

Arthrex®

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience, and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level and/or outcomes.

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