Volume 22, Number 2

SCOPE THIS OUT

A Technical Pearls Newsletter for Orthopedists

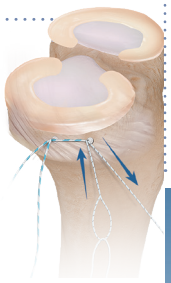
NanoSuite Procedure Room

By encompassing the line of innovative products supporting minimally invasive NanoScope™ technology, the Arthrex NanoSuite procedure room is designed to add clinical, operational, and financial value to your practice.

The single suite streamlines staff responsibilities and enhances the patient experience from diagnosis to procedure. A true market differentiator, the NanoSuite procedure room and nano technology may improve patient outcomes and lines of communication before, during, and after minimally invasive surgical procedures, both of which are essential to obtaining and retaining patients.

Arthrex will design and develop an all-encompassing project worklist, based on your needs, and then deploy resources for installation of your NanoSuite procedure room. We offer strategic financing solutions and provide both hands-on and virtual surgeon and patient educational resources.

Knee Capsule Repair Implant System



Meniscal extrusion is increasingly recognized as clinically significant.[1] Knee capsule repair is effective in reducing meniscal extrusion resulting from meniscotibial ligament insufficiency, thereby restoring the potential for improved load sharing across the medial compartment. The Knee Capsule Implant System, which includes two knotless SutureTak® percutaneous insertion anchors, a GAP™ (guided arthroscopic placement) drill guide, and three percutaneous K-wires, was designed to facilitate reproducible repair of the medial capsule. The GAP guide allows replicable placement of the implants 3 mm below the medial tibial joint line.

Reference

1. Berthiaume MJ, Raynauld JP, Martel-Pelletier J, et al. Meniscal tear and extrusion are strongly associated with progression of symptomatic knee osteoarthritis as assessed by quantitative magnetic resonance imaging. *Ann Rheum Dis.* 2005;64(4):556-563. doi:10.1136/ard.2004.023796

ACL TightRope® II Implant

Flat-out better adjustable-loop technology

As the first adjustable-loop cortical suspensory fixation implant to use a flat SutureTape design, the new ACL TightRope II implant offers better handling characteristics and is more resistant to graft abrasion and tissue pull-through than traditional round sutures.[1] The enhanced design capitalizes on the ACL TightRope implant's robust history, including biomechanical and clinical data confirming product safety and efficacy.[2]

Engineered for precise graft tensioning, the adjustable-loop mechanism allows for incremental retensioning of the graft construct after the implant has been secured on the cortex. The redesigned cortical button now incorporates a proprietary knotless fifth locking mechanism, increasing strength and resistance to cyclic displacement.[3] To accommodate various graft types and techniques, TightRope II implants are available in RT and BTB configurations loaded with an additional flipping suture or preloaded with FiberTape® suture for the *Internal*Brace™ technique, which is associated with improved patient-reported outcome measures (PROMs), less pain, and a higher percentage of and earlier return to preinjury activity level.[4] Available options for the ABS implant include standard and open.

References

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*Internal*Brace surgical technique is intended only to support the primary repair/reconstruction and is not intended as a replacement. *Internal*Brace surgical technique is intended only for soft tissue-to-bone fixation and is not cleared for bone-to-bone fixation.

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Five Questions With Arthrex President and Founder Reinhold Schmieding

In this interview, Arthrex President and Founder Reinhold Schmieding discusses Arthrex's expanding trauma portfolio and innovative NanoScope™ visualization system, the importance of Medical Education, and why the mission of Helping Surgeons Treat Their Patients Better™ is ingrained in Arthrex's corporate culture.

Arthrex continues to expand its trauma portfolio. What can health care professionals expect from Arthrex as the company moves further into this market?

Arthrex has responded to the needs of the trauma surgeons for over 12 years and this year marks the completion of our comprehensive trauma line of plates, screws, intramedullary nails, external fixation, and FiberTape® cerclage that help manage most fractures of the body in addition to repairing ligaments, tendons, and cartilage, and the biologic treatment of wounds to help address all injuries of the patient during the primary operation.

How do Arthrex innovations such as the NanoScope visualization system continue to revolutionize arthroscopic surgery and what's next in this space?

The NanoScope system also provides the trauma surgeon a new peel-pack option for visualizing intraarticular structures of the joint for trauma-related joint injury and repair and provides visual confirmation of intraarticular reduction of fractures and cartilage surfaces during fixation. The NanoScope system is also a revolution for the small joint surgeon, especially for wrist, elbow, and ankle arthroscopy. The new high-flow sheath facilitates use as a substitute for a standard 4 mm arthroscope for knee and shoulder procedures. The small diameter helps navigate into tight joint spaces and improves outcomes with less postoperative pain, scarring, and extravasation risk with faster recoveries.[1]

Arthrex recently expanded its campus to create one of the largest Medical Education facilities in the world. Why is Medical Education such an important part of Arthrex's mission?

As a private company, Arthrex is dedicated to providing a safe and ethical environment for surgeons to learn and practice new surgical skills on cadaveric specimens with knowledgeable instruction without having to experiment with new techniques and technology on their patients. Arthrex plans to educate over 30,000 surgeons around the world in more than 100 surgical skills labs in 2021.

What is Arthrex Experience (AX) and how does the team enhance the Medical Education visit for health care professionals?

The Arthrex Experience team orchestrates your visit to the Naples campus or provides a virtual visit agenda via Microsoft Teams with any department head at Arthrex. The Arthrex Experience Team orchestrates your visit to the Naples campus or provides a virtual visit agenda.

Why do visiting surgeons rank employee positive attitude and surgeon support culture as the most impactful part of their Medical Education visit?

As a private company dedicated to Helping Surgeons Treat Their Patients Better as its sole mission, all employees are aligned with this commitment. The positive attention surgeons receive during their visit is the foundation of our unique culture that is experienced by every visitor. Arthrex Proud runs deep within our employees, who have an average 10-year tenure with Arthrex, assuring every engagement with our surgeon visitors is a positive, memorable experience.

Reference
1. Arthrex, Inc. DOC1-000226-en-US B. Naples, FL; 2020.

FiberTag® TightRope® Implant

The FiberTag TightRope implant, the next generation of TightRope implant technology, offers improved performance and reliability while reducing overall graft preparation time. This new implant facilitates attachment of single-ended grafts, such as quadriceps tendon grafts, to the ACL TightRope RT and ABS implants. FiberTag suture is integrated into the TightRope implant for a strong, consistent connection between the suture and TightRope implant loop. The simplified suturing technique along with innovative packaging and the new GraftClamp graft preparation instrument make preparing QT grafts faster and more reproducible than ever.

Key Features and Benefits

Integrated FiberTag Suture: The FiberTag suture is prestitched onto the TightRope implant loop to aid in graft preparation and improve performance with quad tendon grafts. The TightRope implant and passing sutures are cleated on a small card to make graft preparation easier.

GraftClamp Instrument: The GraftClamp instrument simplifies quad tendon graft preparation. A slot in the instrument holds the suture card in place to allow a quick and easy SpeedWhip™ rip-stop technique.

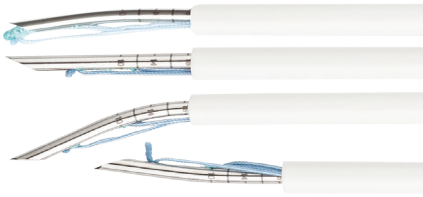
AVN/OCD Expandable Reamer System

The recently released AVN/OCD Expandable Reamer System provides a simple way to perform a core decompression to treat avascular necrosis in the femoral head and condyle through a small 5 mm-diameter bone socket.

To effectively remove necrotic bone, the expandable reamer can be incrementally adjusted inside the bone from 5 mm to 18 mm. Once the lesion is decompressed, it can be backfilled with a biologic or bone cement using the biologics delivery cannula included in the convenience pack.

Key Features and Benefits

- 5 mm outer-diameter shaft provides minimal bone removal to reach the decompression site
- Torque limiter prevents excessive torque at the tip of the device
- The cutting blade of the expandable reamer can be intraoperativley adjusted from 5 mm to 18 mm
- Laser markings on all instrumentation provide a reference to approximate the intraosseous drilling depth



FiberStitch™ Implant

The Knee team is pleased to announce new curve options available for the FiberStitch implant, an innovative all-inside meniscal repair system that replaces traditional PEEK implants with soft suture sheaths. The 2-0 coreless FiberWire® suture provides secure arthroscopic all-suture meniscus repair. The ergonomic handle is designed for single-handed implant delivery, and active implant-deployment technology minimizes needle exposure beyond the meniscus, eliminating the need to past-point the needle.

Key Features and Benefits

- Multiple delivery options include a 12° up curve, 24° up curve, 12° reverse curve, and straight option.
- Low-profile suture implants replace traditional PEEK plastic implants, and the low-profile 2-0 coreless FiberWire suture prevents tissue cut-through and minimizes friction against articular cartilage.[1]
- True one-handed delivery is possible with the ergonomic handle and easy implant-deployment wheel.
- Active implant deployment from the tip of the needle reduces needle exposure beyond the meniscus.
- Adjustable depth stop can be set with a single hand and convenient, 2 mm-increment markings allow setting adjustments from a minimum of 10 mm to a maximum of 18 mm.

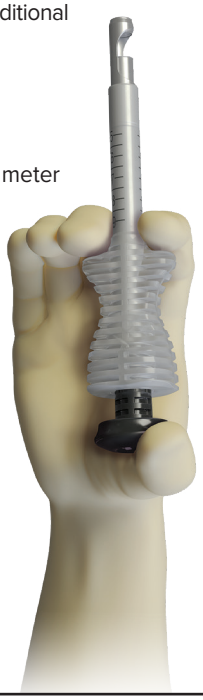
Reference
1. Bisson LJ, Manohar LM, Wilkins RD, Gurske-Deperio J, Ehrensberger MT. Influence of suture material on the biomechanical behavior of suture-tendon specimens: a controlled study in bovine rotator cuff. *Am J Sports Med.* 2008;36(5):907-912. doi:10.1177/0363546508314793

QuadPro™ Tendon Harvester

The QuadPro tendon harvester was developed from Arthrex's commitment to Helping Surgeons Treat Their Patients Better™. It was specifically engineered to allow for efficient, safe graft harvesting while reducing the morbidity and challenges associated with traditional harvesting techniques.

Key Features and Benefits

- Reproducible Graft Sizing:
  - Available in various sizes for appropriate graft diameter (8 mm, 9 mm, 10 mm, and 11 mm)
  - Sharp tip harvests a cylindrical graft
  - Transparent handle with laser-marked gradations determine graft length
- Minimally Invasive Technique:
  - Minimal incision and dissection required
  - Reduces procedure time and graft-site morbidity
- Graft Amputation:
  - Graft retrieved through amputation window in device after harvesting
  - Sharp cutting edge in window amputates graft when push rod is completely deployed



ACL Repair TightRope® Implant and FiberRing™ Sutures

The ACL Repair TightRope implant and FiberRing sutures, an innovative new technique to preserve the native anterior cruciate ligament during ACL primary repair procedures, was specifically engineered to optimize all aspects of the procedure, from stitching and suture management to fixation and construct tensioning. With the TightRope implant, precisely tension and incrementally retension the repair after fixation while eliminating the variability and concerns of traditional knot-tying techniques. FiberRing sutures are used to create luggage tag stitches in the ligament, and the ACL Repair TightRope implant is connected to these luggage tag stitches, enabling a knotless, tensionable ACL repair. FiberTape suture for *Internal*Brace™ technique comes preassembled.[1,2]

- **Control** the precise, tensionable, knotless repair with simplified suture stitching and suture management
- **Preserve** native neurovascular anatomy and proprioception while eliminating graft-site morbidity[3,4]
- **Restore** biomechanical strength, normal kinematics, and knee stability to improve functional outcomes[1,2]
- **Enhance** your repair with the *Internal*Brace technique to allow natural healing and early mobilization[5]

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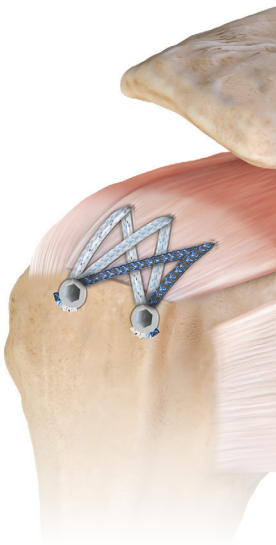
4. Bachmaier S, DiFelice GS, Sonnery-Cottet B, et al. Treatment of acute proximal anterior cruciate ligament tears-part 2: the role of internal bracing on gap formation and stabilization of repair techniques. *Orthop J Sports Med*. 2020;8(1):2325967119897423. doi:10.1177/2325967119897423
5. Heusdens CHW, Hopper GP, Dossche L, Roelant E, Mackay GM. Anterior cruciate ligament repair with independent suture tape reinforcement: a case series with 2-year follow-up. *Knee Surg Sports Traumatol Arthrosc.* 2019;27(1):60-67. doi:10.1007/s00167-018-5239-1

TensionTight™ Locking Button

With the TensionTight button, perform a knotless onlay biceps tenodesis using an arthroscopic suprapectoral or open subpectoral approach. A locking jaw in the large pec button allows suture to slide easily in one direction, reducing the tendon while locking in the other direction to secure the tendon against the humerus. A #5 uncoated FiberLink™ suture specifically designed to work with the TensionTight button is secured to the biceps tendon with a Loop 'N' Tack™ stitch.

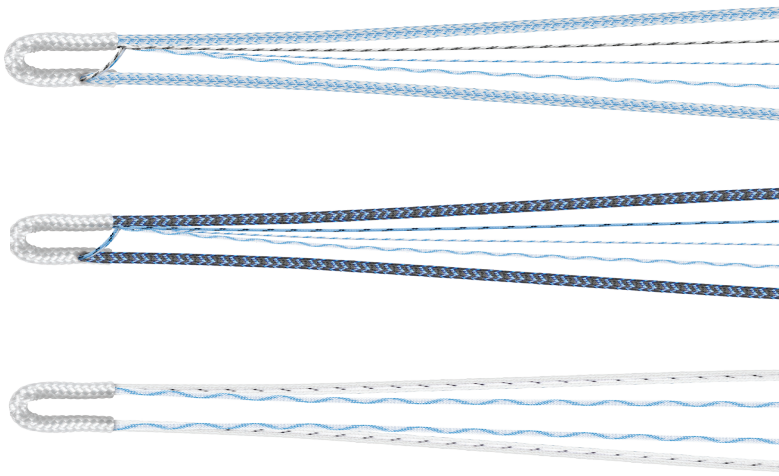
FiberTak® RC and Knotless FiberTak RC Soft Anchors

Self-punching 2.6 FiberTak RC soft anchors blend the latest soft anchor technology with 1.7 FiberTape® suture and include an option for sliding SutureTape or tensionable knotless fixation for rotator cuff repair.



Double-row fixation with three FiberTak RC and SwiveLock® anchors laterally achieves biomechanical strength equal to a traditional SpeedBridge™ repair.[1] The 2.6 self-punching anchors create an additional point of fixation on the medial row, which typically only accommodates two hard-bodied anchors. Self-punching inserters also eliminate the need to prepunch or predrill sockets prior to anchor insertion.

Low-profile 1.7 FiberTape suture maintains broad tissue compression and provides increased resistance to tissue pull-through. The tensionable knotless option allows for additional medial fixation or incorporation of biologics for rotator cuff repair.



Reference

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Arthrex AutoPose™ System for Adipose Tissue Harvesting

The AutoPose™ system is a comprehensive solution for safe harvesting and rapid processing of autologous fat to produce a sample of resized micro-fragmented adipose tissue (MFAT or microfat). The resulting preparation of washed MFAT is used to provide cushioning and support for natural healing. With the AutoPose Restore syringe, adipose tissue can be harvested and processed to yield up to 20 cc of washed microfat in 15 to 20 minutes. The system gently resizes tissue, avoiding centrifugation and maintaining the viability of a microfat graft that can be reintroduced through a 21-ga cannula. The AutoPose system includes AutoPose Access, AutoPose Restore, and the AutoPose Restore syringe stand.

AutoPose Restore:

- Dual-chamber syringe enables harvesting, purification, and microsizing of fat within a closed system
- Vacuum-lock syringe assists with adipose tissue harvesting
- Gentle processing and resizing through an 800-µm filter preserves cell viability within the graft tissue

AutoPose Access:

- Sterile, single-use device that guides the harvest of autologous adipose tissue
- Utilizes a vacuum cavity to lift and immobilize the dermis. Retractible piercing needle facilitates the introduction of cannulas to infiltrate and harvest the adipose tissue
- Vacuum regulator ensures strong vacuum sources do not exceed safe pressure

New Additions to Current Amnion Offerings: Biovance® Human Amniotic Membrane Allograft, CentaFlex™ Decellularized Human Placental Matrix, and Interfyl® Human Connective Tissue Matrix

Biovance is an allograft intended for use as a biological membrane covering that provides an extracellular matrix while supporting the repair of damaged tissue. Biovance serves as a natural scaffold and barrier with an intact basement membrane that has been found to support a high level of fibroblast and keratinocyte attachment.[1] Biovance requires no preparation and has a 10-year shelf life.

CentaFlex decellularized human placental matrix allograft is derived from human umbilical cord. CentaFlex has the strength to support repair, without the trade-off of an overly thick tissue. It serves as a cell-friendly structure to allow noninflammatory cell attachment, proliferation, and growth. CentaFlex can be quickly hydrated with a sterile fluid for maximum flexibility and easy handling, and it is terminally sterile with a 10-year shelf life.

Features of Biovance and CentaFlex

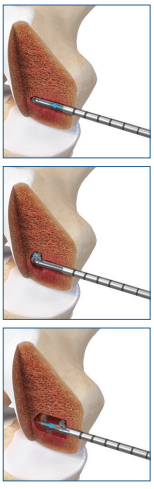
- Ambient room temperature storage
- Non-side-specific—can be applied in any orientation
- Available in multiple sizes for a variety of surgical application needs

Features of Interfyl Human Connective Tissue Matrix

Interfyl is a connective tissue matrix used to fill irregular spaces or soft-tissue deficits resulting from wounds, trauma, or surgery. Interfyl is suited for a variety of surgical applications when there is a need to replace or supplement damaged or inadequate integumental tissue. Interfyl particulate is minimally manipulated and retains the fundamental structure and functional characteristics of connective tissue. It is available in particulate and flowable formats with a 10-year shelf life.

Reference

1. Bhatia M, Pereira M, Rana H, Stout B, Lewis C, Abramson S. The mechanism of cell interaction and response on decellularized human amniotic membrane: Implications in wound healing. *Wounds.* 2007;19(8):207-217.

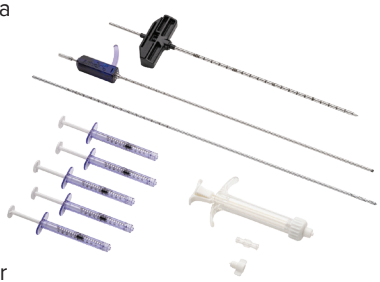


IOBP® Expanding Decompression Device

The IntraOsseous BioPlasty® (IOBP) procedure is principally dependent on the concepts of decompressing a bone marrow lesion and delivering a biologic graft to aid in the repair of the subchondral bone. The new IOBP decompression device expands the Arthrex portfolio to support new and innovative approaches to achieve this core decompression. The device provides 7 mm of decompression and is available in knee and hip lengths. The cutting feature operates similarly to the FlipCutter® II device and utilizes a trigger mechanism similar to the PowerPick™ instrument.

The new IOBP kits include the following components:

- Open-Tip 8-ga Delivery Cannula
- 7 mm Decompression Device
- 3.3 mm Guide Pin
- 14 cc Mixing Syringe
- 1 cc Delivery Syringes (qty. 5)
- Luer Cap
- Female-to-Female Luer Adaptor



Arthrex Trochanteric Nail System With Telescoping Lag Screw

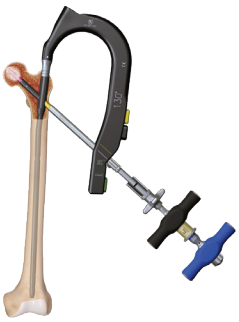
The new Arthrex Trochanteric Nail System addresses the shortcomings of current systems and consists of three nail types: short nail, long nail, and the innovative ES nail.

Locking Telescoping Lag Screw—Self-contained collapse within the lag screw prevents lateral lag screw irritation.

Biological Augmentation—Allows for delivery of orthobiologics (AlloSync™ Pure demineralized bone matrix, BoneSync™ filler, platelet-rich plasma) through the lag screw instrumentation, prior to final screw seating.

ES Nail Option—Combines the mechanical advantages of a long nail with the ease of a short nail. It extends through the isthmus of the bone, which can reduce distal-tip stress risers, potential "pendulum" effects, and risks of periprosthetic fractures associated with short nails. The ES hole is easily targeted through the nail jig.

Advanced Instrumentation—Designed to reduce operative pain points and facilitate operative workflow.



Features

- Lag screw locks through the inserter (no set screw required)
- Captured distal 5.0 mm screws
- Calibrated drill bits
- Jig removal through the more lateral impactor attachment hole
- Easy delivery of optional orthobiologics

Arthrex Antegrade and Retrograde Femoral Nail Systems

The Arthrex Femoral Nail System is targeted for use in intramedullary fixation of fractures of the femur. Consisting of antegrade and retrograde femoral options, each nail offers unique screw configurations, providing both versatility and diversity to our customers. Its innovative features offer superior solutions for femoral fractures.

Features

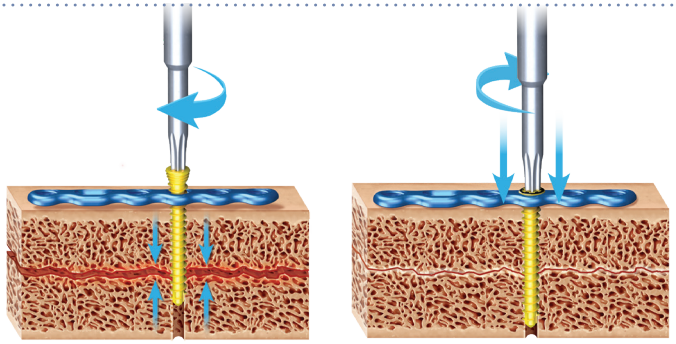
- Threaded screw holes to maintain screw position
- Axial compression capabilities
- Captured power screwdrivers

Arthrex Tibial Nail System

The Arthrex Tibial Nail System is designed to provide intramedullary fixation for various types of fractures, malunions, and nonunions of the tibia. The system uses one instrumentation tray that allows for either a parapatellar approach or suprapatellar approach. With the most distal combination of screws available on the market today, the configuration maximizes the working length of the nail.

Features

- Most distal screw cluster on the market with three distal screws at 5 mm, 13 mm, and 21 mm from the end of the nail
- Three proximal screw options, including a dynamic slot for compression or static positioning
- Threaded screw holes to maintain screw position in the two proximal static holes and the distal AP hole
- Up to 8 mm of intraoperative or postoperative compression
- Flexible suprapatellar sheath to minimize pressure on the patella
- Diameters: 8 mm-13 mm
- Lengths: 27 cm-39 cm in 1.5 cm increments
- 10° proximal Herzog bend and a 3° distal bend to facilitate implantation



KreuLock™ Locking Compression Screws

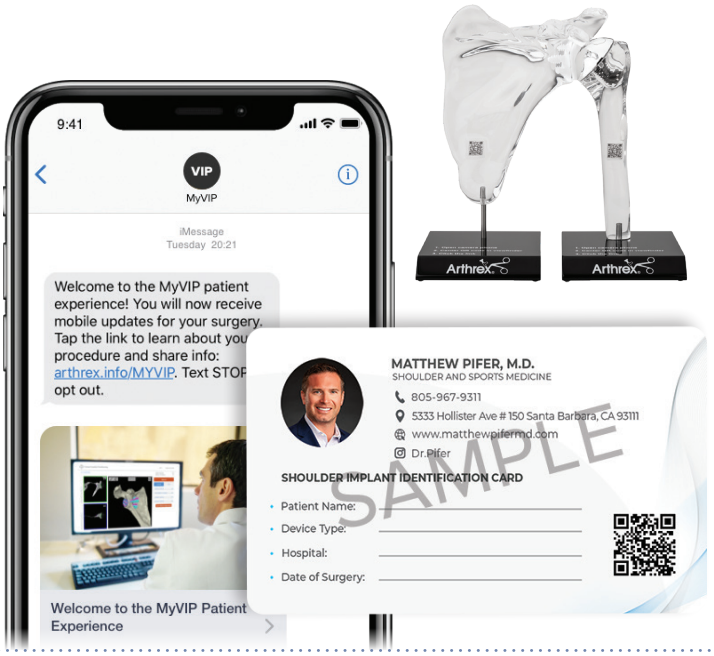
KreuLock locking compression screws combine the same proven technology found in our Headless Compression FT screws with a locking screw head to provide compression along the screw for treatment of fractures or fusions. Additionally, they are designed to bring the plate to bone.

Features

- Variable-Stepped Thread Pitch—allows for continuous compression as the screw is advanced
- Locking Head—mates with existing plates
- Available in both titanium and stainless steel

Patient Outreach and Education

Did you know 72% of patients choose physicians based on word-of-mouth referrals[1] and 91% always or sometimes conduct additional research even after receiving a referral from a health care provider?[2] Market data shows that health care consumer behavior mimics retail consumer behavior as they are researching medical information, seeking the best quality care providers, and making care decisions based on value, convenience, comfort, and recommendations from friends and family members.[3] In other words, health care consumers are interested in establishing a trusted relationship with premium brands.[2] As a surgeon, it's no longer enough to deliver quality health care. At Arthrex, we recognize that you are now also a brand, so we have developed tools and information to help you strategically position, protect, and manage your brand.



Team Arthroplasty has created a digital Patient Outreach and Education Kit that includes:

- Quarterly releases of curated and customizable social media posts to share on the platforms of your choice
- Reverse and anatomic total shoulder clinic models with interactive QR codes that link to educational content for patients
- Interactive clinic brochures intended to build trust through handwritten communication and to aid in shortening patients' decision-making process
- Automated presurgical patient texts that are directly linked with their case in our VIP™ software
- Surgeon-specific postoperative patient journey cards with a 3-flip holograph for sharing their positive experience with you and increasing word-of-mouth referrals

To develop these patient resources, we adopted our same innovative, research-based approach to product development. We conducted a pilot and survey of the MyVIP patient-facing text experience, with 90% of survey respondents saying they would refer their surgeon to a friend or family member based on the presurgical texting experience alone.

We recognize the additional challenges you face outside of the OR. We are committed to delivering valuable, consistent information that will help you create excellent patient experiences.

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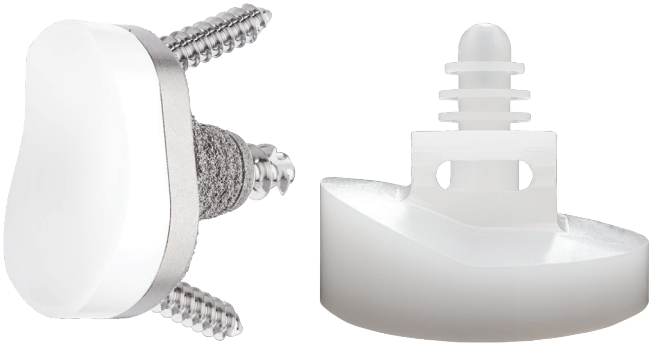
Treating Complex Glenoids in Shoulder Arthroplasty

True to Arthrex's approach of finding innovative solutions for challenging clinical issues, the Shoulder Arthroplasty team recognizes the complexities of glenoid morphology and is committed to finding the all-encompassing solution.

Indicated for both anatomic and reverse shoulder arthroplasty, the Universal Glenoid™ convertible baseplate system is ideal for patients with an intact cuff and medialized glenoid. Using the Virtual Implant Positioning™ (VIP) system, baseplate plans for anatomic arthroplasty can be readily revised to reverse arthroplasty should the patients' cuff fail.

The Univers Revers™ Augmented Modular Glenoid System provides surgeons with both full-wedge (10° and 20°) and half-wedge (15°, 25°, and 35°) options for treating glenoid bone loss in reverse shoulder arthroplasty. The wedge shapes can be positioned where needed and their modular posts range from 20 mm to 40 mm in length for all sizes of glenoid vaults.



Coming soon: Univers VaultLock® augmented glenoids (15° and 25° half-wedge implants) will provide bone-conserving options for posteriorly worn glenoids in patients requiring anatomic shoulder arthroplasty.

Using NanoResection™ Devices With the NanoScope™ System

Featuring Matt Daggett, DO, MBA *(Kansas City, MO)****, and Kevin Martin, DO*** *(Columbus, OH)*

Arthrex continues to revolutionize the world of arthroscopy, bolstering the NanoScope product line and helping lead the way toward less invasive surgery. With the launch of NanoResection devices, Arthrex offers a complete Nano operative arthroscopy system, including Nano instrumentation, high-inflow sheaths, bone-prep tools, NanoResection surgical devices, and Apollo$^{RF®}$ SJ50 probe.

The flagship product of the NanoResection line, the unique Nano Sabre shaver blade, measures 2.8 mm × 11 cm. Designed to fit the sutureless (<3.5 mm) parameters of a nano procedure, the Nano Sabre is extremely efficient when used in conjunction with NanoBiters.

NanoResection products operate with the ultralightweight small hub Nano shaver handpiece, which is less than half the weight and size of a standard handpiece. This lighter, more ergonomic handpiece provides superior control, thus increasing precision and providing a balanced grip and more control when using the NanoScope and Nano shaver handpieces.

Arthrex faculty member Matt Daggett, MD, recently began using the Nano Sabre with the rest of the NanoScope platform, and he is impressed with the functionality and ability the instruments provide in treating his patients less invasively.

"The Nano Sabre shaver is a perfect complement to the existing NanoScope platform. With the Nano Sabre, I can percutaneously perform consistent and efficient resection required of a resection tool. Despite its small size, it resects incredibly well, and the user quickly forgets that the Nano Sabre is so much smaller than a traditional resection device as it can be used anywhere in the joint."

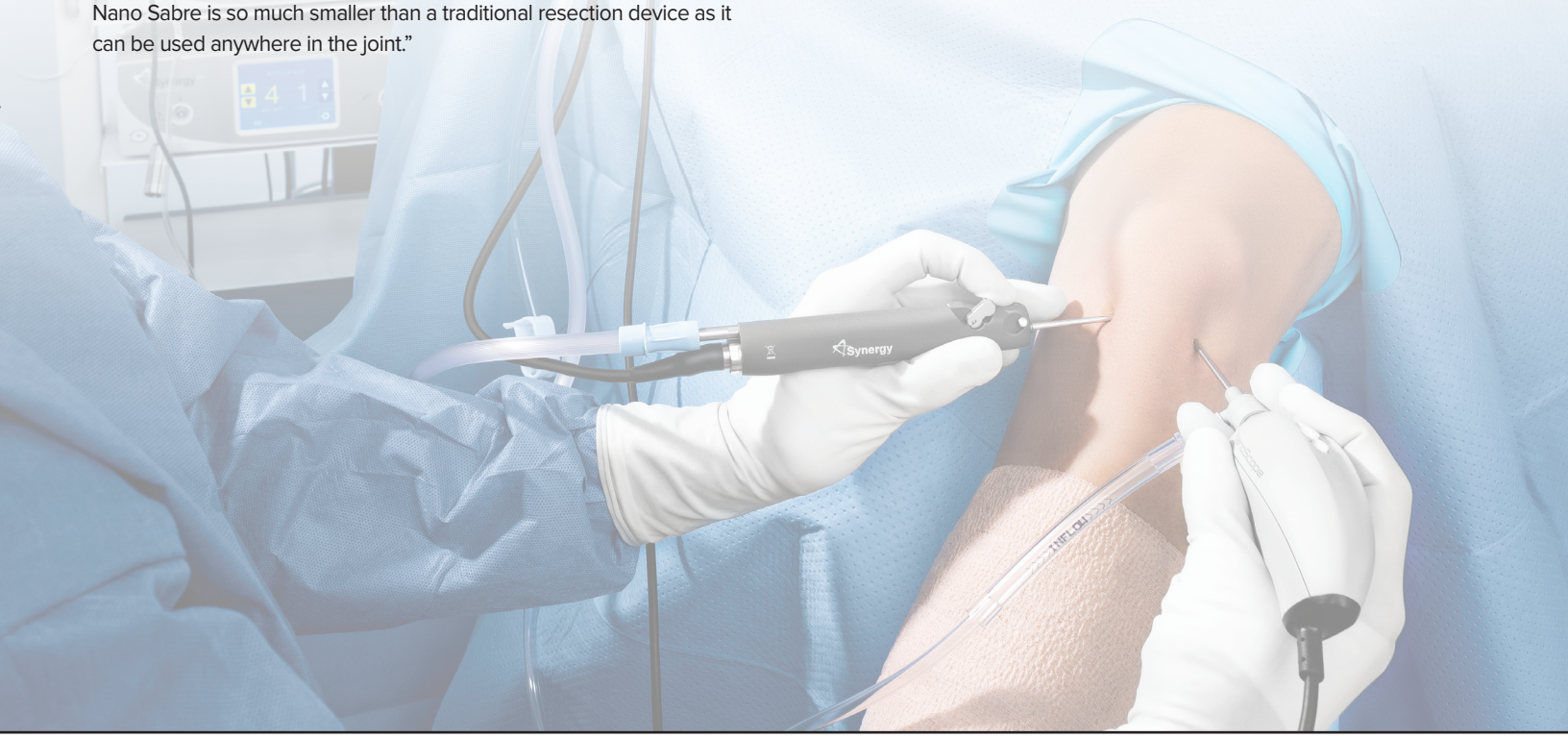
Dr. Daggett is similarly impressed by the improved ergonomics using the small hub Nano shaver handpiece with the NanoScope system.

"Together, the small hub shaver handpiece and Nano Sabre provide the ergonomics and feel that supplements the NanoScope camera and system. It is a tremendous addition to the Nano platform."

Arthrex faculty member Kevin Martin, DO, has been studying the use of the Nano Sabre with NanoScope system for the ankle.

"I use the NanoScope system for small joint arthroscopy in my foot and ankle practice, including for ankle, subtalar, and greater toe joints. Standard shavers have been difficult to manipulate in such small, restricted joints. The new Nano Sabre shaver is small enough to fit into small joints, thus causing less unintended trauma while ergonomically complementing the Nano system. I train residents and shaver safety is important, especially in such confined, small spaces."

When used with the NanoScope system in nano operative procedures, NanoResection devices can provide impressive results. The further development of the Nano operative platform continues to pioneer the new frontier for less invasive surgery.



What's in My Bag?

Knotless SpeedBridge™ Kits

Featuring Paul C. Brady, MD *(Knoxville, TN)*

Q: Can you explain why you prefer using tensionable Knotless SwiveLock® anchors with a double-pulley technique on the medial row? What are the advantages of this configuration?

A: This is a great configuration because it compresses the medial tissue down against the prepared bone bed, reestablishing the articular margin of the supraspinatus repair thus compressing the superior capsule against the prepared bone bed at the articular margin of the tuberosity. It also tensions the rest of the rotator cuff down, seating it in the perfect position to complete the SpeedBridge repair. Additionally, the medial bridge technique creates a watertight seal of the cuff down against the articular margin of the tuberosity, preventing synovial fluid from the joint from leaking in between the tendon and the prepared bone. I have used this technique for more than 15 years now with fantastic results, including extremely low revision repair rates, excellent short- and long-term clinical results, and no increase in postoperative stiffness or type 2 retears.

Q: While the SpeedBridge technique is the gold standard in rotator cuff repair, what stands out about the Knotless SpeedBridge Kits?

A: The great thing about the new kits is the tensionable knotless mechanism built into the tip, which replaces the #2 tip-retention suture. This gives me the option to use the tensionable knotless repair suture medially in an independent method or interconnected with the opposite anchor and laterally for additional simple suture fixation of lateral cuff tissue (or "dog ears"). Another great feature is the new #2 repair suture that has a machine-tapered transition, making for an easier conversion of the tensionable knotless mechanism and easier passing with the Scorpion™ suture passer.

Q: With the inclusion of four tensionable Knotless SwiveLock anchors, what other knotless repairs can be achieved?

A: Knotless SwiveLock anchors have a built-in tensionable knotless capability that supports preference-based enhancements, improves ability to address variability in tear patterns, and can be used to incorporate biologic products. For medial-row configurations, you can incorporate double-pulley, double-pulley ripstop, independent mattress ripstops, independent mattress stitches, or a layered knotless repair for delaminated tears. For the lateral row, there is also the option to use the knotless repair suture for additional security on the anterior and/or posterior cable of the tear (also known as dog-ear fixation).

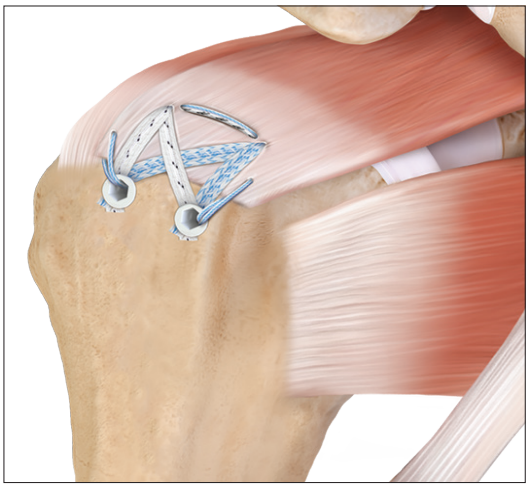
Q: You mentioned incorporating biologics into your repairs. How can these kits help?

A: Incorporating biologics is a lot easier with the tensionable knotless mechanism compared to traditional knot-tying methods. ArthroFlex dermal allograft can easily be incorporated over the repaired cuff for a "canopy graft" augmentation. I commonly use this technique for revisions or with poor-quality cuff tissue. The allograft can easily be secured using the knotless eyelet sutures from the medial and lateral anchors. Interpositional placement of AlloSync™ buttons can also be incorporated between the footprint and soft tissue and can lead to improved tendon-to-bone healing in rotator cuff tears.

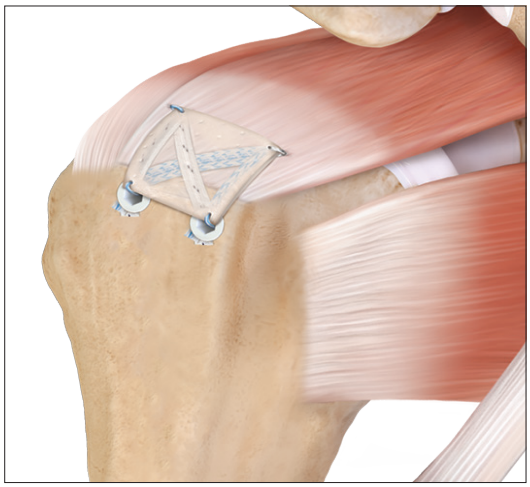
Q: Are there any other technique pearls that you have discovered while using the Knotless SpeedBridge Kits?

A: It's great to keep in mind that you need to use the same suture-management techniques for existing tensionable knotless anchors. When converting and tensioning the repair suture, make sure to pull from the same portal that you used when placing the anchor. For medial row anchors, I typically pass the FiberTape suture and the knotless mechanism separately to help prevent tangles or twists between the sutures. For an interconnected technique, leave the first bridge loop a little loose to ease conversion of the second bridge loop. Then you can tension both down and dial in your reduction. I typically hold my reduction with a grasper while alternately pulling the repair sutures to compress the medial bridge. You can then use a small, closed cutter to get final tension on the repair and cut the suture flush. During anterior/posterior cable fixation, I often use the Labral Scorpion suture passer laterally to get the repair suture underneath the cuff. Again, I use the closed cutter, putting it on the edge of the inserted anchor while I achieve final tensioning.

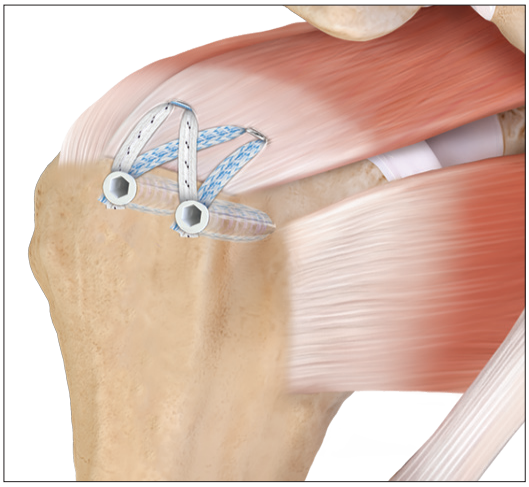
SpeedBridge repairs with SwiveLock anchors are adaptable and can conform to traditional rotator cuff repair techniques with the additional benefits of tensionable knotless suture fixation.



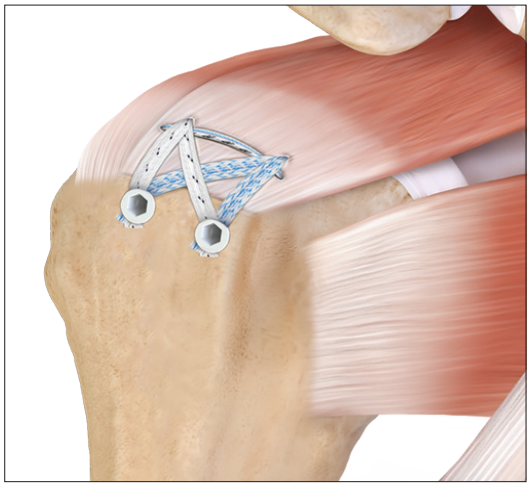
Double-Pulley With Dog-Ear Fixation



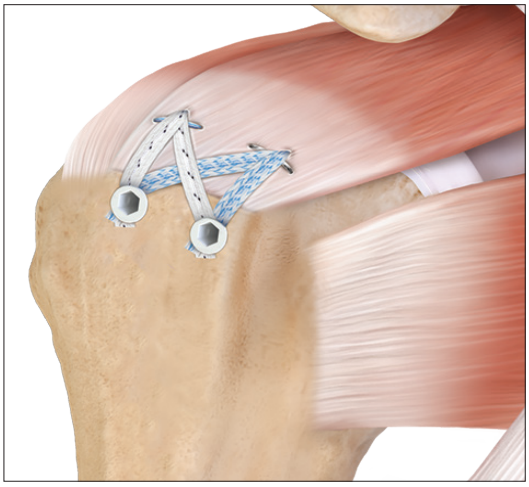
Canopy Augmentation



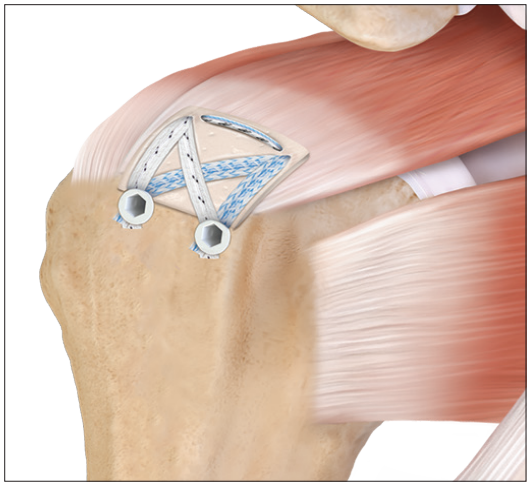
Independent Mattresses



Double-Pulley Ripstop

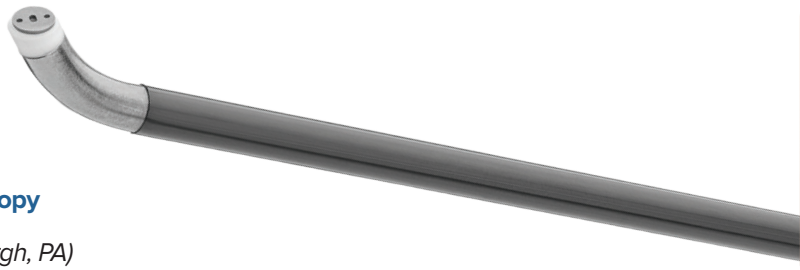


Independent Mattress Ripstops



Double-Pulley With ArthroFlex Dermal Allograft Augmentation

What's in My Bag?



Apollo[RF]® SJ50 Probe in Ankle Arthroscopy

Featuring Carl T. Hasselman, MD *(Pittsburgh, PA)*

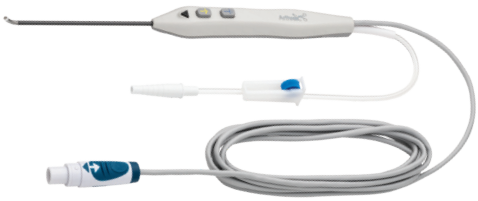
Q: What compelled you to use the Apollo[RF] SJ50 probe?

A: After performing ankle arthroscopic procedures for more than 20 years with various tools and found all of them lacking, I was skeptical at first but soon found many of the flaws with other devices were overcome. A curve built into the tip allows the probe to easily overcome the curvature of the talus, and I can easily work in the posterior ankle without a posterior incision. The suction device has not clogged during significant tissue ablation, and I don't get the "bubble collection" that is often seen with other tissue ablators. The ablation or coagulation option on the handle allows me to quickly shift between settings for cartilage or soft-tissue work, and I can do almost all my work with the factory settings. Adjustments are rarely needed to increase or decrease the probe's power. With the ergonomically designed handle, which is a very comfortable fit, I can easily maneuver around the ankle without feeling pressure points in my palm and fingers. There is such a difference between this probe and the others on the market that I find it hard to compare.

Q: How does using the Apollo[RF] SJ50 probe improve upon your previous treatment approach?

A: The Apollo[RF] SJ50 probe's versatility allows me to do most of my work with just that probe, whereas previously I bounced between the shaver and RF probe because neither could do all that I wanted during an arthroscopic procedure.

Most of the time, I use a shaver to debride an osteochondral defect, after which I can smooth the edges with the Apollo[RF] SJ50 probe's coagulation settings, and I use a shaver's burr tip to remove osteophytes, such as in an anterior cheilectomy of the ankle. The remainder of the time, I find the Apollo[RF] SJ50 probe can do all the soft-tissue work of a shaver and RF probe, saving costs for me in the OR. Finally, the speed and precision of the Apollo[RF] SJ50 probe has reduced time changing between the shaver and RF probe in the OR, and I can access hard-to-reach areas, one of the biggest reasons to switch between the shaver and previous probes. With the Apollo[RF] SJ50 probe, I use only one device instead of two for most procedures and spend less time in the OR.



Q: What procedures do you use the Apollo[RF] SJ50 for primarily and why?

A: I use the Apollo[RF] SJ50 probe in almost all my arthroscopic procedures because it can replace my shaver in almost all situations. Shifting from tissue ablation to coagulation with a finger movement allows me to do almost anything in the ankle. Last week I performed an ankle ligament reconstruction with talar OCD repair using the Apollo[RF] SJ50 probe to remove a very hypertrophic anterior tibiofibular ligament in seconds and gently smoothed the rough edges of the talar OCD repair quickly and simultaneously with just a shift of my wrist and finger. With the probe's curved tip, I performed a full synovectomy of the posterior ankle without fighting the curve of the talus. It was nice to be able to do all three quickly with just one piece of equipment and little effort on my part.

Q: In what instances do you use ablation? Coagulation?

A: Ablation is great for synovectomies and removal of hypertrophic soft tissues, while the coagulation is great for cartilage work or trying to get tissue that is opposed to the cartilage surface. With the 360° edge control feature, I can access tissue right next to the cartilage surface without creating that "burnt cartilage" look, which is that brownish or yellow discoloration of the cartilage often seen when using other RF probes and working close to the cartilage surface. The coagulation setting really keeps my cartilage looking as white as it was when I started to ablate tissue near its surface.

Q: Do you have any advice to surgeons who aren't used to using an ablation device during their ankle arthroscopies?

A: Using RF ablation during ankle arthroscopy is invaluable. I strongly suggest hesitant surgeons give the new Apollo[RF] SJ50 probe a try because it may reduce operation time. Try the probe first in a cadaveric lab, if possible, to get used to the feel of the device and its abilities to perform most functions of a shaver. Always try it first on tissue away from the cartilage surfaces to get "the feel" for its zone of penetration. Surgeons unfamiliar with RF devices should test the device on the various tissues of the ankle to assess the effect RF has on each tissue type.

SurgeonVault® Cloud-Based Surgeon Communication Tool

The SurgeonVault system is a secure, cloud-based surgical communication application that allows surgeons to provide media-rich surgical reports to their patients. Both nonpaid and paid subscription models for individuals or enterprises can be accessed through a local network or in the cloud.

Valuable features, such as case media access from any computer, robust report customization options, and secure email for sending reports, define the SurgeonVault surgeon communication tool.

Use the SurgeonVault system to:

- Import and manage case media
- Annotate case media
- Print case images
- Email case media
- Create customized patient report templates
- Share templates with colleagues
- Record a personalized patient video message
- Access case media from any computer at any time
- Securely send patient reports
- Send videos and files of any size

The SurgeonVault system works by downloading case media from the Synergy Camera Console Unit (CCU) either directly to an iPad or through the Synergy.net™ integration solution after completing a procedure. Data is stored either locally via the basic Synergy Surgeon App™ program or synchronized and stored in the cloud via the premium SurgeonVault application. Using the downloaded case media, patient reports can be created from templates within the SurgeonVault and securely emailed to patients. Embed personalized videos detailing procedures and outcomes in the patient report to create a superior patient experience as patients find personalized videos a most useful feature of the report.

The SurgeonVault application adds robust reporting features to improve, simplify, and personalize patient communication. Create customized patient reports using report templates and personalized content stored in the SurgeonVault content library. Adding surgical case media, diagrams or illustrations, and supporting documents, such as postoperative instructions, to the report template further enhances patient communication and education. Additionally, sharing report templates with colleagues who use the SurgeonVault web application promotes best practices in patient reporting and education.

Annotate case images to an AirPrint-compatible printer or email a password-protected, encrypted PDF. Case media can be emailed with or without annotations, which are often used to identify specific anatomical features on the images. Files can be stored locally, limiting the amount of stored media based on file size. Limitations for emailed files also apply with the Synergy Surgeon App program.

By using digital communication, offices can save on printer and paper expenses while enhancing office efficiency. Digital communication is more innovative and promotes best practices in patient communication, helping patients recall the details of the postoperative conversation.

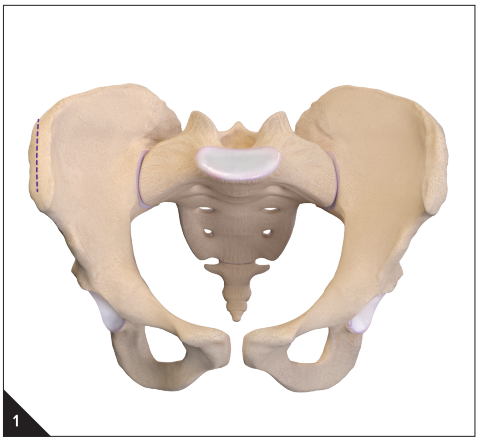
Alleviate common patient concerns by creating a custom report that describes the procedure and outcome, provides postoperative instructions, and answers frequent questions, often preemptively. Better patient communication means fewer questions and fewer phone calls, which means fewer patient calls and more efficient follow-up visits. Postoperative visits may go more smoothly, decreasing overall visit time and freeing up staff.

Ask your Arthrex representative to sign up for a free trial of the SurgeonVault application.

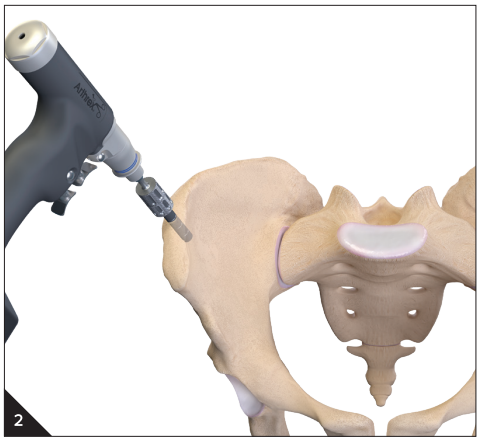
IN THE Loop...

OsteoAuger™ Bone Graft Harvesting System

The OsteoAuger bone graft harvesting system allows for the quick and efficient recovery of autologous bone from various anatomic sites. The system is used to morselize and collect the bone graft for reimplantation at the repair site. The new bone graft harvesters conveniently feature an AO connection, and can be easily disassembled from the reamer. The system includes a plunger to help remove the procured autograft from the harvester. Harvesters are available in 6 mm, 8 mm, and 10 mm sizes to accommodate various autograft harvesting sites.



Make a skin incision in line with the iliac crest, focusing the incision over the iliac tubercle. Do not stray anterior to ASIS as the lateral femoral cutaneous nerve course varies. The length of the incision should be slightly longer than the diameter of the selected bone graft harvester. After incising the skin, identify the raphe between the fascia of the external oblique anteriorly and the gluteus medius posteriorly. Incise directly on the iliac wing. Perform a limited subperiosteal dissection over the crest. Retractors can be used to facilitate exposure. Assemble the harvester and AO connection by threading the components together.



Place the tip of the bone graft harvester onto the exposed bone of the desired starting point. Angle the harvester 40 degrees medial from the parasagittal plane in line with the iliac wing. Under power, begin advancing the bone graft harvester into the bone to the desired depth. While reaming and during removal, continue drilling in forward to prevent unthreading the harvester with the AO connection. Additional passes may be made with the bone graft harvester by redirecting the harvester. Up to three additional passes may be made before removal of the harvested bone is needed.

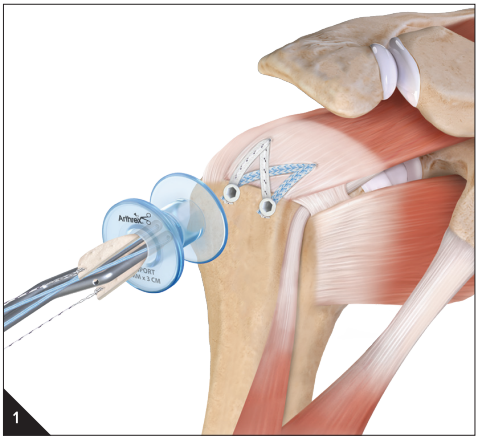
Disassemble the harvester by unthreading the trephine and AO connection.

Over a sterile basin, remove the morselized bone graft by inserting the plunger into the distal end of the harvester and pushing the graft out the proximal end.

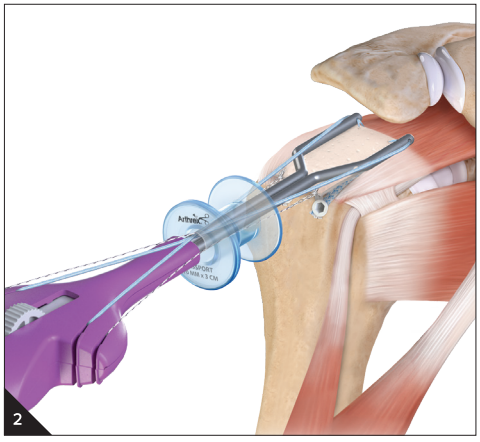
IN THE Loop...

CuffMend™ Rotator Cuff Repair Augmentation System

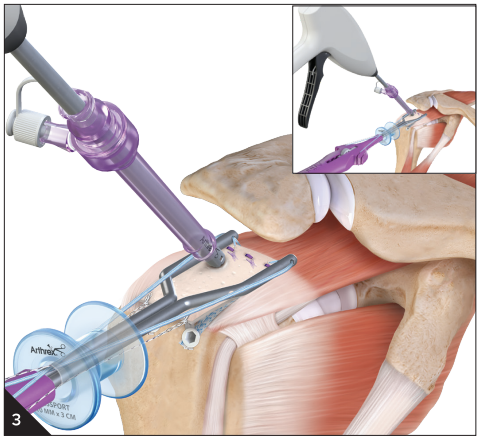
The CuffMend repair system provides an efficient, straightforward approach for augmenting partial- and full-thickness rotator cuff tears. This technique employs the benefits of the ArthroFlex dermal allograft, which provides mechanical strength[1] and added biology for the repair site. The system includes a graft spreader for introducing the graft and TissueTak™ tendon anchors for medial soft-tissue fixation to the rotator cuff tendon. Lateral bony fixation is accomplished with PushLock® anchors spanning the graft over the footprint. Acellular dermal grafts are a safe and effective solution for augmentation in rotator cuff repair.[2,3]



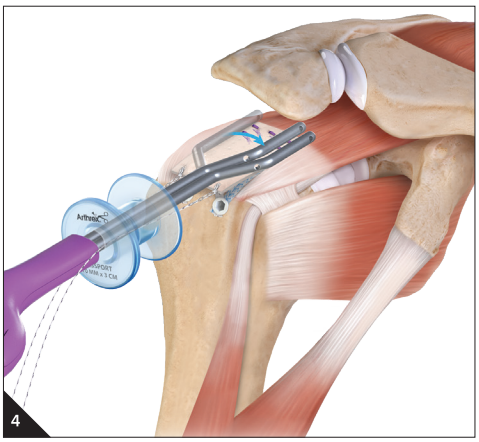
After graft preparation with suture placement, load the precut 1 mm ArthroFlex dermal allograft onto the graft spreader, introduce the allograft through the lateral PassPort Button™ cannula.



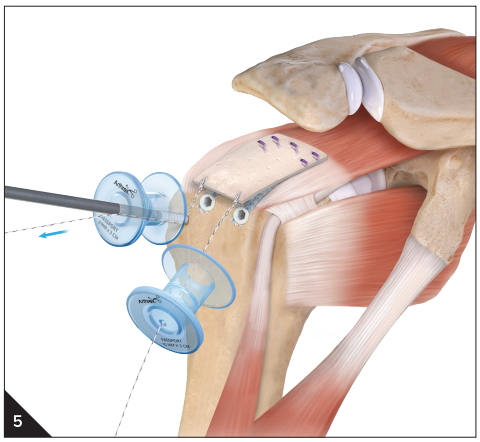
Once the graft spreader has been introduced into the subacromial space, slide its button forward to fully deploy the graft over the top of the rotator cuff.



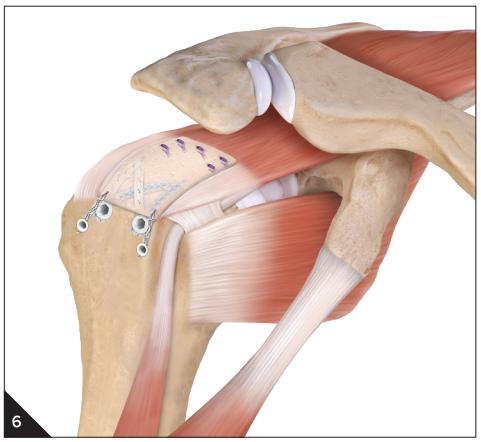
Confirm the desired positioning of the ArthroFlex graft and introduce the TissueTak tendon anchor inserter through a superior lateral cannula located just off the edge of the acromion. To fixate the graft to the surface of the rotator cuff tendon, consecutively deploy three to five tendon anchors into the medial portion of the graft.



Remove the FiberWire® sutures, holding the medial corners of the graft onto the graft spreader. Uncleat the lateral 0.9 mm TigerLink™ SutureTapes from the handle of the graft spreader. Retract the arm of the graft spreader and carefully remove the suture through the lateral PassPort Button cannula.



Create a bone socket lateral to the ArthroFlex graft using the punch for the 3.5 mm PushLock anchor. Load the suture tail from the 0.9 mm TigerLink SutureTape into the eyelet of the 3.5 mm PushLock anchor. Introduce the suture through the lateral portal into the prepared socket, taking care to not overtension.



Repeat for the second lateral anchor to complete final fixation of the graft.

References

1. Smith MJ, Bozynski CC, Kuroki K, Cook CR, Stoker AM, Cook JL. Comparison of biologic scaffolds for augmentation of partial rotator cuff tears in a canine model. *J Shoulder Elbow Surg.* 2020;29(8):1573-1583. doi:10.1016/j.jse.2019.11.028
2. Gilot GJ, Alvarez-Pinzon AM, Barcksdale L, Westerdahl D, Krill M, Peck E. Outcome of large to massive rotator cuff tears repaired with and without extracellular matrix augmentation: a prospective comparative study. *Arthroscopy.* 2015;31(8):1459-1465. doi:10.1016/j.arthro.2015.02.032
3. Bailey JR, Kim C, Alentorn-Geli E, et al. Rotator cuff matrix augmentation and interposition: a systematic review and meta-analysis. *Am J Sports Med.* 2019;47(6):1496-1506. doi:10.1177/0363546518774762

All-Inside ACL Reconstruction With GraftLink® Technique

Purpose

To report the clinical outcome of pain, function, and quality of life for patients who have undergone all-inside ACL reconstruction using GraftLink technique for graft preparation.

Methods

The inclusion criteria for this analysis were patients enrolled in the Surgical Outcomes System™ registry who underwent an all-inside ACL reconstruction performed using GraftLink technique for graft preparation. Standard patient-reported outcomes questionnaires for VAS, KOOS ADL, and SANE knee were administered at standard time points postoperatively. Results were reported from presurgery out to 5 years postsurgery. The number of patients included per time point is shown to the right.

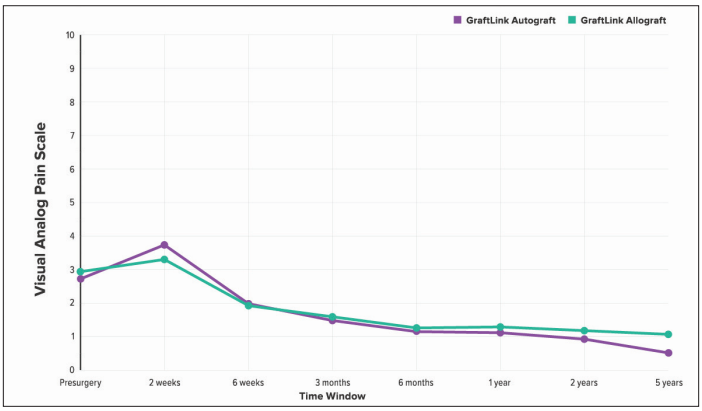
Trend Conclusion

Based on these results, the pain, function, and quality-of-life scores for all-inside ACL reconstruction with GraftLink technique trend toward favorable outcomes. However, no claims can be made on the potential of these results without further analysis to determine if there is statistical significance.

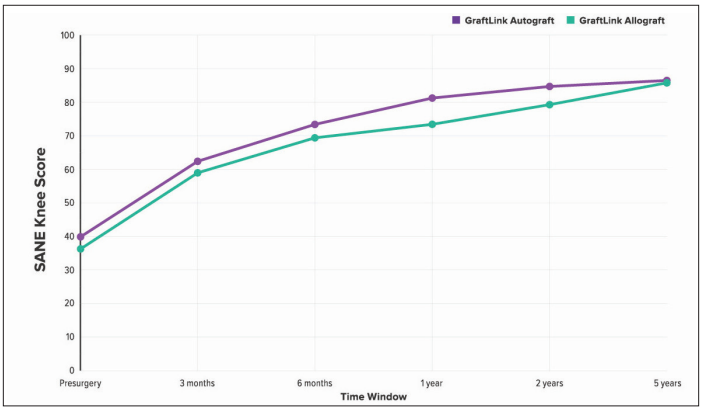
Time Point	# of Compliant Patients With GraftLink Autograft/Total # of Patients	# of Compliant Patients With GraftLink Allograft/Total # of Patients
Presurgery	527/673	332/488
1 year	333/580	245/423
2 years	262/496	175/314
5 years	65/146	47/86

Surgical Outcomes System
https://surgicaloutcomesystem.com

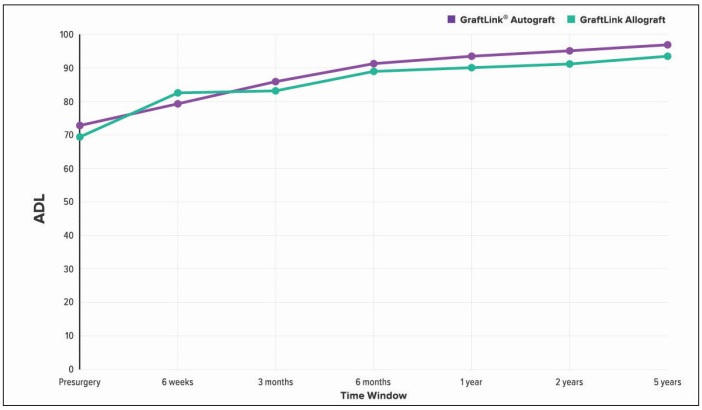
Results



VAS



SANE Knee



KOOS ADL

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Any 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 or outcomes.

Products may not be available in all markets because product availability is subject to the regulatory or medical practices in individual markets. Please contact your Arthrex representative if you have questions about availability of products in your area.