



# SCOPE THIS OUT

..... A Technical Pearls Newsletter for Orthopedists .....

## CuffMend™ Rotator Cuff Augmentation System With ArthroFLEX® Decellularized Dermal Matrix

The CuffMend™ rotator cuff augmentation system harnesses the power of ArthroFlex human dermal allograft to provide mechanical strength and biological support to partial- and full-thickness rotator cuff tears.<sup>1,2</sup> The CuffMend system offers an efficient, straightforward approach to augmentation, using TissueTak™ tendon anchors and PushLock® suture anchors to secure the ArthroFlex human dermal allograft to the tear site.

ArthroFlex dermal allograft is a biohospitable, acellular human dermal allograft intended for supplemental support and covering of soft tissue repairs. LifeNet Health's patented and validated Matracell® decellularization process renders the ArthroFlex dermal matrix acellular without compromising its biomechanical or biochemical properties. Matracell technology removes donor DNA from the dermal matrix, ensuring a biocompatible scaffold that retains its growth factors, native collagen scaffold, and elastin.<sup>3</sup>

ArthroFlex human dermal allograft provides proven integration and supplemental support to the native tissue while reducing the incidence of retears.<sup>1,4-5</sup> ArthroFlex dermal allograft has been used clinically for more than 11 years and is supported by a large body of clinical evidence.

ArthroFLEX is a registered trademark of LifeNet Health.

### References

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## TissueTak Absorbable Tendon Anchors

TissueTak absorbable tendon anchors are part of the CuffMend™ rotator cuff augmentation system, which is used for augmenting partial- and full-thickness rotator cuff tears. Consisting of a low-profile, closed-loop design, the TissueTak tendon anchor securely attaches the ArthroFlex dermal allograft to the rotator cuff tendon. Once the graft is positioned on the rotator cuff using the graft spreader, rapidly deploy the tendon anchors into the graft for medial soft-tissue fixation.

- **Interlocking design:** Provides superior fixation in muscle and tendon compared to standard tissue staples<sup>1</sup>
- **Multifire inserter with 10 preloaded anchors:** Allows for quick and efficient medial fixation of the graft to the rotator cuff tendon
- **Degradation profile:** Optimal fixation strength during critical healing period<sup>2</sup>
- **PLGA anchor material:** Complete absorption in 12-18 months<sup>2</sup>

### References

1. Arthrex, Inc. Data on file (APT-04854). Naples, FL; 2020.
2. Via Surgical. Data on file (Via Surgical's FasTouch fastener complete mass loss rational [Kraitzer A]). Amirim, Israel; 2019.

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# Distal Extremities & Trauma

## Pilon Fusion Plating System

The Arthrex Pilon Fusion System was designed for treatment of distal tibia fractures that require not only fracture reduction but also primary ankle arthrodesis. Severe damage to the tibiotalar (TT) joint results in posttraumatic arthritis, pain, stiffness, and the need for secondary surgeries. The Pilon Fusion System provides another option to address these severe fracture patterns with primary TT arthrodesis of the articular surface to avoid secondary surgery and chronic pain. Additionally, the anterolateral and posterior plating options can be used for complex primary and revision ankle fusions where more fixation options and longer bridging techniques may be necessary.



## ALPHA Proximal Humeral Plate

The ALPHA plate is a unique, side-specific, anatomically designed option for fractures of the proximal humerus. Each plate features a:

- Proximal contour that helps prevent soft-tissue stripping of the deltoid and postoperative adhesions, in addition to preserving vascular supply to the bone
- Secondary, distal contour that creates a favorable structure for fractures featuring shaft extension
- 90° opposition from proximal cluster to anterior shaft that provides increased torsional stability
- Convergent screw pattern in the head allows for longer screws to be placed into subchondral bone of the humeral head



## Arthrex Humeral Nail System

The Arthrex Humeral Nail System provides two distinct options for humeral nailing. The short nail, designed to efficiently treat proximal third humeral fractures, features a trocar self-reaming tip to reduce operative time and offers four screw options proximally. The long nail comes in diameters of 7 mm, 8 mm, and 9 mm with lengths from 20 cm to 30 cm and has three proximal screw options. The long nail also features an internal screw that aids in fracture reduction and in-line compression. Screws that thread into the nails help prevent screw backout and create a locking construct for added stability. Simplified instrumentation helps make the system efficient and repeatable.



# Arthroplasty

## FxBridge™ Tuberosity Repair System

The FxBridge tuberosity repair system is used in conjunction with the Univers Revers total shoulder system to aid in reduction of proximal humeral fractures via soft tissue approximation of the greater and lesser tuberosity. This system and technique—which are supported by peer-reviewed literature—provide an optimal environment for tuberosity healing and improved post-op function.<sup>1</sup> Using the new 1.7 mm FiberTape® sutures in multiple colors eliminates some of the complexities of suture management while providing excellent compression.<sup>2</sup> The kit also includes a drill bit and free needle for a streamlined, reproducible technique that addresses the challenges presented in treating proximal humeral fractures. Look for the technique animation on Arthrex.com.



### References

1. O'Sullivan J, Lädermann A, Parsons BO, et al. A systematic review of tuberosity healing and outcomes following reverse shoulder arthroplasty for fracture according to humeral inclination of the prosthesis. *J Shoulder Elbow Surg.* 2020;29(9):1938-1949. doi:10.1016/j.jse.2020.03.032
2. Arthrex, Inc. Data on file (APT-2799). Naples, FL: 2015.

## Univers VaultLock® Augmented Glenoid

New to the shoulder arthroplasty portfolio, the Univers VaultLock augmented glenoid is the only implant with a variable backside radius and 15° and 25° half-wedges, which help preserve subchondral bone. The associated surgical technique features an intuitive, simple reamer for efficient glenoid preparation. Integration with the Virtual Implant Positioning™ (VIP™) preoperative planning software and Eclipse™ total shoulder system provides comprehensive clinical solutions for anatomic total shoulder arthroplasty.



## Titanium Humeral Head and Glenospheres

Titanium humeral heads are now available for both Eclipse™ stemless and Univers™ II/Apex stemmed anatomic shoulder replacements. These options are suited for treating patients who are sensitive to cobalt alloy. With the Eclipse titanium humeral heads, Arthrex offers the only anatomic stemless total shoulder replacement for nickel sensitivities on the market.

Titanium glenospheres for the Modular Glenoid System are now available, providing a solution for patients with suspected metal sensitivities who require reverse shoulder replacement.

*Titanium humeral heads and glenospheres are not available in all markets.*





# PRODUCT INFO

## Orthobiologics

### SynoJoynt™ 1% Sodium Hyaluronate

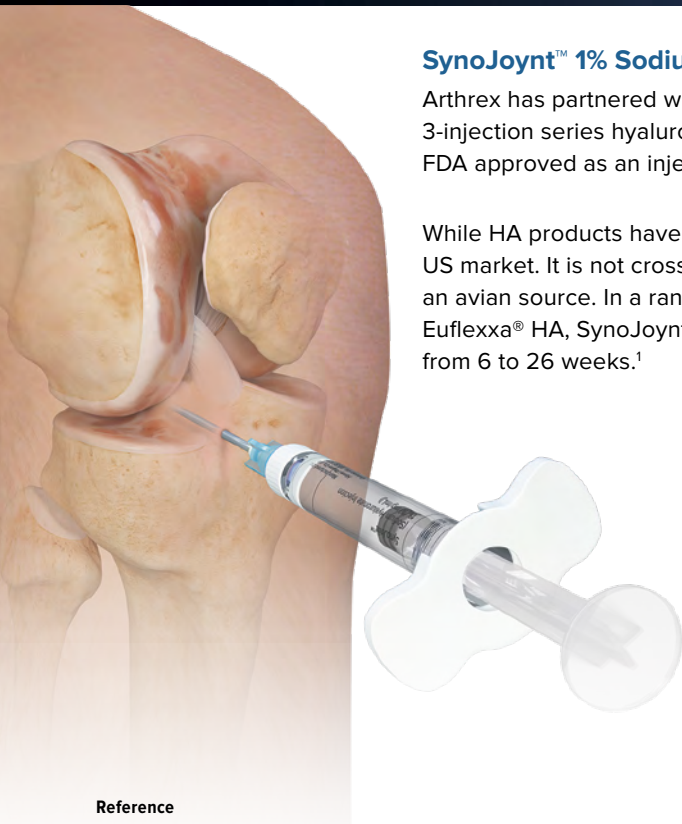
Arthrex has partnered with Hanmi Pharmaceutical to distribute SynoJoynt™ 1% sodium hyaluronate, a 3-injection series hyaluronic acid (HA) product. HA is a substance naturally found in healthy joints that is FDA approved as an injection treatment for pain associated with osteoarthritis of the knee.

While HA products have been on the market for some time, SynoJoynt HA is a new product for the US market. It is not cross-linked, has a high molecular weight (2,500,000 Da), and is not derived from an avian source. In a randomized, double-blinded clinical trial that directly compared SynoJoynt HA to Euflexxa® HA, SynoJoynt HA showed similar improvements in pain, stiffness, and function at timepoints from 6 to 26 weeks.<sup>1</sup>

#### Features and Benefits

- 3-injection series
- High molecular weight (2,500,000 Da)
- Non-avian source
- Non-cross-linked
- J code: 7331

Euflexxa is a registered trademark of Ferring B.V.



#### Reference

1. US Food and Drug Administration. Summary of safety and effectiveness data for SynoJoynt. Accessed January 11, 2022. <https://fda.report/PMA/P170016/17/P170016B.pdf>

### JumpStart® Antimicrobial Wound Dressing

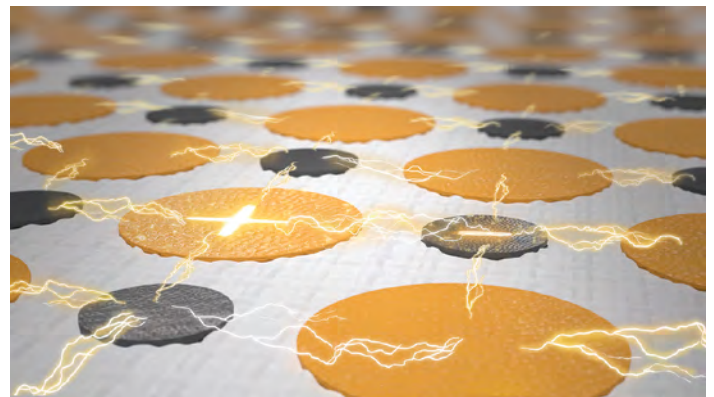
JumpStart wound dressing contains a dot-matrix pattern of embedded microcell batteries that generate microcurrents on the dressing surface in the presence of a conductive medium (such as sterile saline, water-based gel, or wound exudate). JumpStart dressings are provided on an ultra-thin, lightweight, polyester substrate and contain laser-cut fenestrations to allow easy passage of wound exudate into the absorbent layer or a secondary dressing. The flexible design easily contours to the body. JumpStart dressings may be applied directly over sutures, staples, Steri-Strip™ wound closure strips, and liquid skin adhesives.

#### Reduces Risk of Infection

- Kills a broad spectrum of pathogens, including multidrug-resistant and biofilm-forming bacteria<sup>1-3</sup>
- In preclinical studies, disrupted existing biofilm infection and prevented biofilm from forming<sup>4</sup>
- Prevents bacterial growth; sustained antimicrobial impact for up to 7 days<sup>5</sup>
- Demonstrated electricidal antimicrobial impact versus silver dressings<sup>2</sup>

#### Promotes Healing

- JumpStart dressings improve re-epithelialization compared to standard wound dressings<sup>6</sup>



#### References

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6. Blount AL, Foster S, Rapp DA, Wilcox R. The use of bioelectric dressings in skin graft harvest sites: a prospective case series. *J Burn Care Res*. 2012;33(3):354-357. doi:10.1097/BCR.0b013e31823356e4

# Knee & Hip

## New Quad Tendon ACL Implant Systems

Two new systems are now available. The comprehensive QuadLink™ implant system includes everything needed to perform an all-inside QuadLink ACL reconstruction: a QuadPro™ tendon harvester, both FiberTag® TightRope® RT and ABS implants, an 11 mm round concave ABS button, a FlipCutter® III drill, a PassPort Button™ cannula, FiberStick™ and TigerStick® sutures, and FiberWire® and TigerWire® sutures. The second implant system includes a QuadPro tendon harvester and a FiberTag TightRope implant.



### Market-Leading Technology

- The proprietary FiberTag TightRope implants, concave ABS button, QuadPro harvester, and FlipCutter III drill are all disruptive technologies, making the QuadPro implant system the most unique and comprehensive ACLR implant system in the world.

### Convenience and Reproducibility

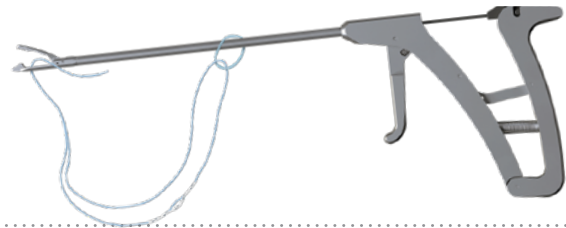
- These systems provide convenience and help make ACL reconstruction more reproducible. By consolidating 10 different Arthrex products typically used for the all-inside QuadLink technique into a single part number and package, Quad Tendon ACL Implant Systems save shelf space and simplify the procedure for staff.

## ACL Repair TightRope Implant and FiberRing™ Sutures

Eliminate many of the challenges of knot-tying ACL preservation techniques with the ACL Repair TightRope implant. The first knotless, tensionable device designed for ACL primary repair, the ACL Repair TightRope implant comes preassembled with FiberTape® suture for the *InternalBrace™* technique. Stitch torn ligament tissue using FiberRing sutures, then connect the sutures to the ACL repair TightRope implant for precise tensioning and retensioning of the ligament after cycling the leg. To accommodate various stitching techniques, FiberRing sutures are available in multiple sizes.



The *InternalBrace* surgical technique is intended only to augment the primary repair/reconstruction by expanding the area of tissue approximation during the healing period and is not intended as a replacement for the native ligament. The *InternalBrace* technique is for use during soft tissue-to-bone fixation procedures and is not cleared for bone-to-bone fixation.



## Proximal Hamstring Tendon Repair Using the SpeedBridge™ Technique

Proximal hamstring tendon avulsions often occur as an acute injury associated with overstraining of the hip and are common during activities such as waterskiing, soccer, and gymnastics.<sup>1</sup> This procedure is usually performed with the patient in a prone position and an incision is typically made in the gluteal crease. Retractors are placed in the surrounding muscles to allow access to the lateral facet of the ischial tuberosity and protect the neurovascular structures in the posterior region of the hip. The hip SpeedBridge implant system with PEEK SwiveLock® anchors contains the implants necessary for securing the proximal hamstring back to its native attachment site using a low-profile, knotless suture configuration. In addition to the SwiveLock anchors, this convenient implant system includes the required disposable instrumentation for anchor insertion as well as needles for passing the FiberTape suture and/or the #2 FiberWire® retention sutures to accommodate varying repair techniques. Gerhardt et al conducted a biomechanical analysis of the SpeedBridge construct and found that it is statistically stronger than a fully knotted technique with regards to elongation during cyclic loading and maximum load to failure.<sup>2</sup>

### References

1. Moatshe G, Chahla J, Vap AR, et al. Repair of proximal hamstring tears: a surgical technique. *Arthrosc Tech.* 2017;6(2):e311-e317. doi:10.1016/j.eats.2016.10.004
2. Gerhardt MB, Assenmacher BS, Chahla J. Proximal hamstring repair: a biomechanical analysis of variable suture anchor constructs. *Orthop J Sports Med.* 2019;7(2):2325967118824149. doi:10.1177/2325967118824149



# Shoulder & Elbow

## Updated UCL *InternalBrace™* System

The UCL *InternalBrace* system—developed in conjunction with Jeffrey R. Dugas, MD (Birmingham, AL)—is used to repair the medial ulnar collateral ligament (UCL) for patients who sustain a complete or partial avulsion from the proximal or distal UCL attachment without evidence of poor tissue quality that would otherwise require a reconstruction.

This system has been updated to allow for easier insertion of SwiveLock® anchors. Updates include removal of the black tap and the addition of a larger red tap to aid insertion of the second anchor.



## FiberTape® Cerclage Single-Use Instruments

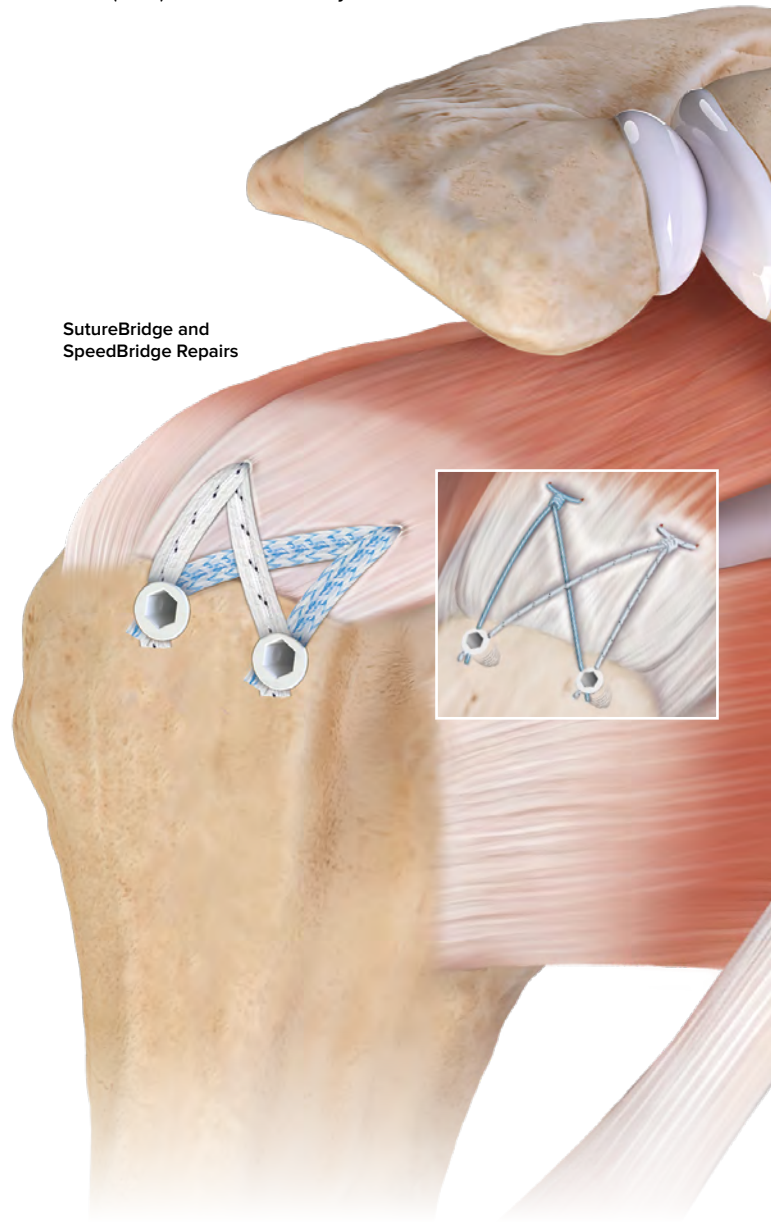
The FiberTape cerclage system—a nonmetallic, all-suture solution for circumferential fracture management—now features a portfolio of easy-to-use, disposable instruments. These single-use devices include 6 individually packed passing hooks and a suture tensioner, providing sterile, off-the-shelf instruments for every case. The passing hooks are available in various geometries to accommodate patient anatomy, surgical approach, and surgeon preference. Each passing hook features a retractable nitinol eyelet that extends beyond the surrounding tissue to enhance visibility and simplify suture loading. The tensioner features an intuitive design for a quick technique. Simply wrap the cerclage suture tails around the suture wings, fasten them inside the cleats, and turn the handle to deliver optimal tension. Built-in tension reference lines help to confidently deliver controlled and reproducible compression.



## Ten-Year Outcomes Data for Rotator Cuff Repair

Peter J. Millett, MD, and the Steadman Philippon Research Institute investigated the retrospective evaluation of double-row rotator cuff repairs for full-thickness rotator cuff tears. Patient-reported outcomes (PROs) were assessed for 91 repairs at a minimum of 10 years postoperatively, which included 47 knotted (*SutureBridge™*) repairs and 44 knotless (*SpeedBridge™*) repairs. With outcomes scores of  $93.1 \pm 10.8$  for ASES and  $87.5 \pm 14.2$  for SANE, using a knotted or knotless technique results in a very low chance (~5%) of revision at 10 years.

SutureBridge and SpeedBridge Repairs



### Reference

1. Johannsen AM, Arner JW, Elrick BP, Nolte PC, Rakowski DR, Horan MP, et al. Minimum 10-year outcomes of primary arthroscopic transosseous-equivalent double-row rotator cuff repair. *Am J Sports Med.* 2021;49(8):2035-2041. doi:10.1177/03635465211015419



# Imaging & Resection

## Synergy Matrix™ Core System

Arthrex is proud to introduce the latest innovation in the Synergy Integration™ solution product line with the release of the Synergy Matrix Core system. An in-room 4K OR integration platform, the Synergy Matrix Core system is designed to meet the needs of cost-conscious facilities by simplifying the installation process and focusing on key functionality. The value-driven platform expands on the success of the Synergy Matrix integration system by including the same Synergy Matrix touch panel with a simplified user interface. This approach provides uniformity and familiarity to staff while simultaneously leveraging the intuitive and easy-to-use Synergy Matrix interface.

Featuring an all-in-one switch assembly installed in each OR, the Synergy Matrix

Core in-room 4K OR integration platform allows for true 4K video and audio routing without cable pulls and operates completely independent of the facility's network.



## Benefits of DualWave™ Outflow Tubing Compared to Vacuum Suction

As an inflow and outflow fluid management solution, the DualWave arthroscopy pump provides superior performance and a consistent user experience. The pump proactively manages outflow, ensuring proper joint distention—the key to creating clear visualization during arthroscopic surgery—is maintained.

Historically, surgeons concentrate only on the inflow of fluid for distending and expanding the joint space, leaving outflow as an uncontrolled variable to which the pump must react. By generating suction from the peristaltic pump, the pump can be proactive, preventing a loss of distention while using less fluid than inflow-only systems, regardless of what waste management system is being used.



### Benefits of Pump-Controlled Suction

- Constant pump-controlled suction
- Consistent performance
- Stable distention
- 20% less fluid consumption<sup>1</sup>

### Disadvantages of Vacuum Suction

- Instantly on and instantly strong leads to joint collapse
- Manual control of shaver suction
- Inconsistent suction
- Unstable joint distention

### Reference

1. Arthrex, Inc. LA1-00003-EN. Naples, FL; 2015.

## SurgeonVault® System

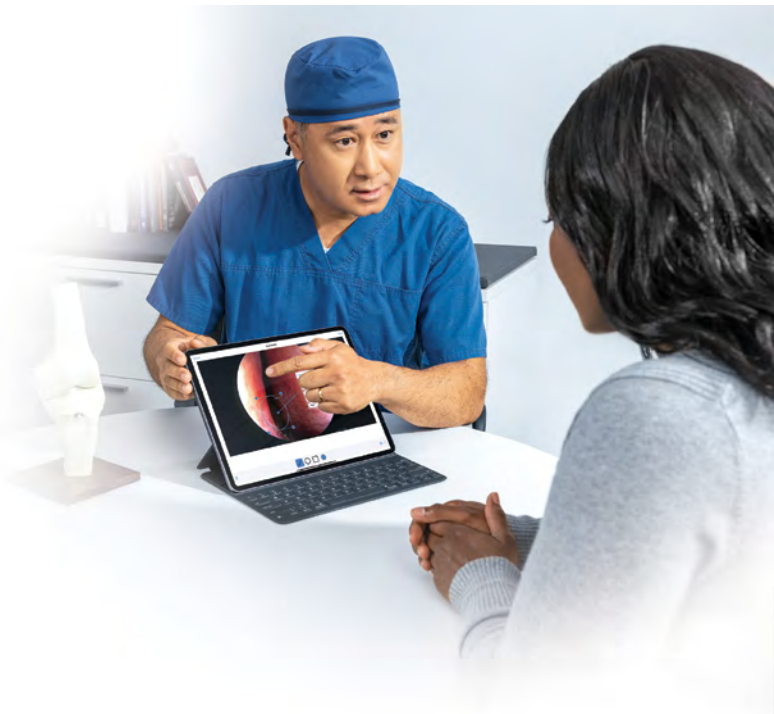
The SurgeonVault system is launching the next generation of secure, cloud-based surgical communications to make providing media-rich surgical reports to patients faster and easier. With several new features, surgeons will be able to customize content and create report templates quickly and simply. A new intuitive user interface creates a streamlined workflow for generating postprocedure patient reports.

Valuable features of the SurgeonVault system include:

- Surgeon profile
- Create cases using external media
- Drag-and-drop template sections
- Global templates with procedure overview
- Social media links
- Prepopulated library illustrations
- Content filtering
- Full iPad® and iPhone® functionality
- Customizable template sections

Improve communication with patients and colleagues while promoting efficiency and cost savings with the SurgeonVault system.

The new SurgeonVault platform will be available May 2022. Premium accounts providing access to top-tier SurgeonVault system features are currently available for individual or enterprise users.



## Arthroplasty Patient Outreach and Education

In today's demanding health care environment, Arthrex recognizes that surgeons are faced with challenges that transcend the OR. With the added pressure of declining reimbursement rates and increased patient expectations, it's becoming more difficult to educate patients, build trusting relationships, and guide positive experiences.

Synonymous with our approach to product development, we began researching how we could create innovative solutions. We found that 72% of patients choose physicians based on word-of-mouth referrals.<sup>1</sup> Furthermore, 77% of complaints about orthopedic surgeons on review sites such as Yelp are nonclinical.<sup>2</sup>

Companies like Amazon are setting standards around comparative information and immediate communication and gratification. Ninety-two percent of health care consumers say improving customer experiences should be a top priority and 90% would leave providers who can't deliver a satisfactory digital experience.<sup>3</sup> These statistics prove that health care consumers have newfound expectations of medical convenience, efficiency, and innovative technologies. Patients expect the same digital information experience whether they are ordering paper towels on Amazon or having surgery.

This led to the genesis of the Arthroplasty Patient Outreach and Education program. Our new portfolio of highly intentional tools is designed to help surgeons and their staff educate patients, enhancing relationships and improving patient communication and satisfaction. For example, as surgeons plan and prepare for

total shoulder replacement surgery, myVIP—an automated texting experience—provides patients with timely messages and links to educational landing pages at specific points in their surgical journey, minimizing anxiety and priming them for positive outcomes.

Our intentional, research-based design influences a new standard by ensuring patients are educated and informed—without creating additional work for you and your staff—and minimizing their anxiety. This program provides a digital channel for delivering accurate, educational information that can be shared with loved ones and enables you to focus on being a surgeon. Our internal analytics<sup>4</sup> show:

- 93% of patients said they would refer their surgeon to a friend or family member based on the presurgical texting experience alone
- On average, the elderly arthroplasty demographic visits each landing page more than 2.6 times
- 85% said they were satisfied with the communication and information regarding surgery

Based on the rapid adoption and success of the Patient Outreach and Education program, we are preparing to release a white paper on patient satisfaction early in 2022. This paper will provide even more evidence of how enhancing the patient experience is just as important as positive outcomes. To evaluate program effectiveness, patient-reported outcomes will be recorded at enrollment and for up to 3 months postoperatively. As we finalize the study design for accurately measuring patients' experiences, we are considering the Hospital for Specialized Surgery (HSS) satisfaction survey, the Press Ganey survey, the standard pre-op and post-op survey, and the delighted-terrible faces scale.

Arthrex understands performing surgery is only a fraction of your responsibility to patients, which is why we provide research-backed educational tools to support you start to finish.

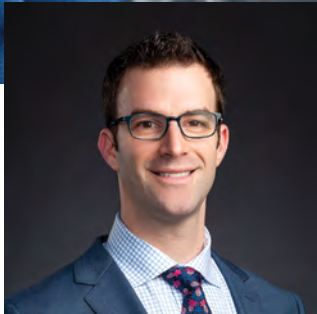
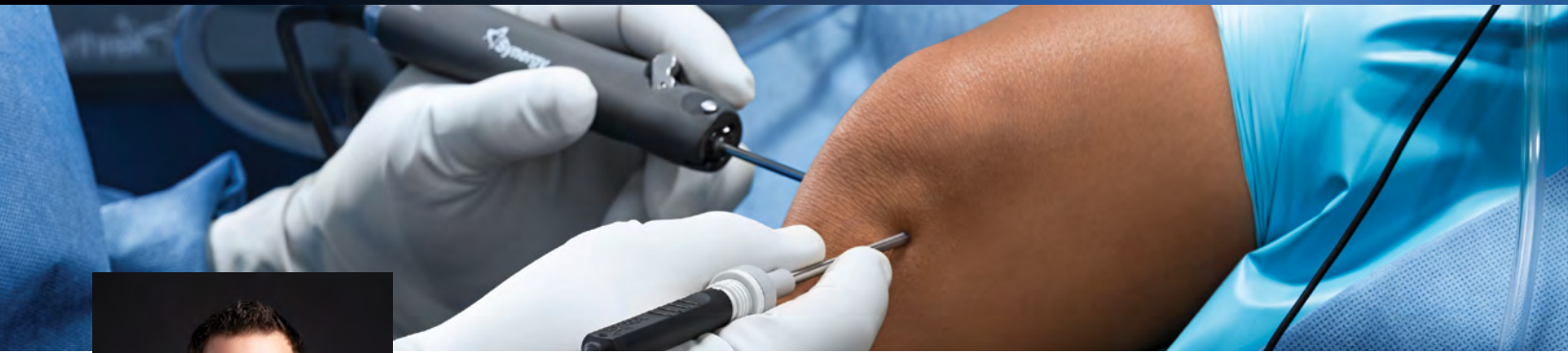
**Scan the QR code to watch the Arthroplasty Patient Outreach and Education video on Arthrex.com.**



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## The Future of Nano Arthroscopy: 10 Questions

Featuring *Evan Argintar, MD*  
(Washington, DC)

### What are your current applications for using Nano arthroscopy?

Nano arthroscopy can be used as an MRI alternative to help assess the size and location of osteochondral injuries. It is also an “incision-free” way to perform knee surgeries like meniscus debridement or repair and can be used in sports and trauma procedures.

### Have you used Nano arthroscopy to address tibial plateau fractures? What diagnostic benefits did you see?

Absolutely. Diagnostically, Nano arthroscopy allows direct visualization of the fracture, especially for compression-type variants. Nano arthroscopy helps optimize the tamping trajectory for joint-line elevation in compression-type tibial plateau fractures. Nano arthroscopy is also useful for diagnostic joint evaluation to assess if other structures, like the meniscus, need repair before formal arthrotomy.

### What is Nano arthroscopy’s future in the trauma space?

I believe Nano arthroscopy will become the gold standard for fracture reduction.

### Is Nano arthroscopy beneficial in diagnosing and treating diseased or damaged soft-tissue pathology?

Yes, the biggest benefit is intervention. Incision-free knee surgery leaves no evidence, is nearly painless, avoids general anesthesia, and may shorten recovery time and improve outcomes. With the addition of the Nano Sabre Shaver and the Apollo<sup>RF</sup> SJ50 probe, a full portfolio is now available to treat various pathologies.

### In which procedures have you used Nano arthroscopy to treat soft-tissue pathology?

Common pathologies paired with Nano arthroscopy are meniscal repair, meniscal debridement, ligament reconstruction, rotator cuff repair, and biopsy to name a few.

### Certain surgeons are hesitant to switch from traditional arthroscopes. What was the defining moment for you to switch to Nano arthroscopy?

I realized that Nano arthroscopy is more than just a smaller version of a traditional scope. The smaller size affords the surgeon opportunities to help patients with less pain, fewer risks, and possibly better clinical outcomes.

### What do you believe the future for Nano arthroscopy looks like?

I see the future being multiple hands-free, simultaneous perspectives, allowing surgeons to use both hands for instrumentation and to adopt other tools in the Nano arthroscopy portfolio, such as the NanoResection<sup>TM</sup> shaver line and the Apollo<sup>RF</sup> SJ50 probe.

### Does Nano arthroscopy enhance the patient experience? What are patients saying about the direct communication Nano arthroscopy allows?

The diagnostic aspects have completely changed the process of informed consent before surgery. Doctors should prepare for a more “social” surgery that is active and engaging. The doctor can show—rather than explain—pathology in real time with direct visualization.

### Are patients starting to contact you regarding Nano arthroscopy? What are frequently asked questions during a consultation?

Definitely. Patients are curious about recovery, and they prefer diagnostic and interventional Nano procedures. Additionally, patients want minimal exposure to narcotics, to avoid deeper anesthesia, and to undergo a successful procedure that minimizes restrictions (inherent with more traditional arthroscopy procedures) on activities of daily life.

### By using Nano instrumentation and resection tools, can you access all necessary pathology and maneuver within small joints more efficiently?

The NanoResection accessory line, particularly the Nano Sabre Shaver, makes everything easier. Now we can gain posterior access to the meniscus and perform the same procedures as traditional arthroscopic surgeries with smaller equipment. These devices are particularly helpful in hard-to-reach areas or in tight knees. The NanoResection shaver line is a game changer.



# What's in My Bag?



## Complex Glenoids and VIP™ Software Updates

Featuring Justin W. Griffin, MD  
(Virginia Beach, VA)

### What impacts have Arthrex augmented glenoid implants had in your practice?

Augments are crucial to providing the most bone-conserving procedure possible to my patients. Especially for active patients, I believe I can deliver a better outcome to meet their needs with an anatomic arthroplasty. Prior to having augmented solutions, more glenoid reaming or reverse shoulder was required to get the standard implants to seat on the face of the glenoid. In many active patients with a large amount of retroversion, I prefer an augmented polyethylene implant.

### How does the VIP system help you determine which glenoid implants to use?

The VIP system allows me to assess patient anatomy and determine which implant options are most suitable. In many cases, the system is instrumental in virtually trialing implants to determine what is best for each patient. Combining the anatomy assessment with their physical exam—and factoring patient expectations for after surgery—helps me determine if anatomic or reverse total shoulder replacement gives them the best chance of a positive outcome. The VIP system also allows me to see if there are any glenoid deformities that may be best addressed by either an augmented Univers VaultLock® or MGS glenoid baseplate.

### In cases of glenoid wear, what is your decision-making process for using a Univers Revers™ prosthesis rather than an anatomic prosthesis?

Patient age and activity level plays a large role in determining the best treatment options. I use a process of shared decision-making.

- Provided bone loss is  $<15^\circ$ , I would most likely plan to use a Univers VaultLock glenoid (no augment required). I do not feel the need in these cases to correct to  $0^\circ$ .
- For patients with  $16^\circ$ – $25^\circ$  of bone loss, the VIP system aids in deciding between a Univers VaultLock augmented glenoid, the augmented Univers Revers MGS baseplate, or a Universal Glenoid™ implant
  - A patient's active lifestyle often influences implant selection in my practice
  - Typically, for active patients younger than 50 years of age, I select an augmented Univers VaultLock glenoid and Eclipse™ prosthesis for an anatomic arthroplasty
  - For patients 50–65 years of age, I select a Univers VaultLock augmented glenoid and Eclipse prosthesis for an anatomic arthroplasty or, depending on the degree of deformity, a reverse implant
    - For both scenarios, there is also the consideration for using the Universal Glenoid implant for anatomic arthroplasty as it can be readily revised to a reverse in the event of cuff tear arthropathy later in the patient's life. When deciding to use the Universal Glenoid implant, I am evaluating how much total medialization of the glenoid has occurred, not just degrees.
- Lastly, for any situation in which a patient exhibits  $>25^\circ$  of retroversion with loss of the whole paleoglenoid, I would use the Univers Revers prosthesis with an augmented MGS baseplate.

### What are the advantages Arthrex augments provide compared to competitive systems?

The Arthrex system and instrumentation is very efficient and streamlined. Compared to other systems I have used, it is much more intuitive and easier to prepare the glenoid using Arthrex instruments.

### What excites you about future enhancements to the VIP system?

The January 2022 release of the next-generation VIP system is exciting because the planning portal has been rebuilt with an entirely different engine. Coupled with a sleek, modern look, the new user interface is intuitive and designed to make the planning experience an immersive and enjoyable one. The new software has rich, three-dimensional capabilities that allow me to appreciate all aspects of patient anatomy. This will be paramount as the VIP system is updated with new functionality to support treating patients' specific needs.



# What's in My Bag?



## FiberStitch™ System Solutions for Different Meniscus Tear Patterns

Featuring J. Lee Pace, MD  
(Plano, TX)

**You were an early adopter of the FiberStitch all-inside meniscal repair system, and you have experience using all four curves for typical and unique meniscus tear patterns. How do you determine which curve—12° up curve, 24° curve, reverse curve, or straight—to select?**

I use a combination of factors: tear location and tear type combined with the access or trajectory I have on the tear. The straight FiberStitch delivery needle is really nice when you have good access and a straight trajectory and can also be quite helpful in bringing together radial tears in the body of the meniscus as well as horizontal cleavage tears.

The original 12° up curve is a work horse for vertical tears in the posterior horn, and when things get tight, the 24° curve can really help you navigate the femoral condyle for placement on the superior aspect of the meniscus. There can still be issues accessing a very peripheral tear that a standard 12° implant cannot overcome. In these situations, the 24° curve is really a game changer to get suture placement in a vertical mattress fashion.

The reverse curve is good at getting to undersurface tears while minimizing skiving the needle too close to the tear when placing the needle in the meniscus. Considering portal placement and baseline patient characteristics, additional measures such as MCL fenestration or accessory portal placement may be required. Having four options has made it much easier to successfully navigate a repair for any tear type in any patient.

**FiberStitch implants are very versatile, so hybrid techniques can be completed using multiple curves for a repair. Have you used both the straight and another FiberStitch needle curve in a single case?**

I had a lateral meniscus tear with an extension just anterior to the popliteus in the vertical posterior horn. The compartment opened up nicely in varus, and I placed vertical mattress sutures above and below the meniscus using the straight FiberStitch needle (for the top) and the reverse curve FiberStitch needle (for the bottom) until I reached the most anterior aspect of the tear. At that point, I was unable to access the undersurface of the tear with the reverse curve. Thus, I used the 24° curve with what I call my “top-down” approach to the undersurface tear.

The top-down approach entails piercing the meniscus on the superior surface near the inner free margin such that the needle exits the inferior surface well anterior to the more peripheral undersurface tear. Then advance the needle to the inferior capsule, and deploy the first anchor here.

This will place a limb of suture below the meniscus tear, and when the sutures are tensioned, it can completely close the tear and lock out synovial fluid. Place the second pass more through the midsubstance of the meniscus but still on the superior surface. Advance the needle through the meniscus to the capsule and deploy the second anchor. Tension the sutures in standard fashion, and you have a nice anatomic reduction of the meniscus tear.



**The 12° up curve and 12° reverse curve offer unique options for superior and inferior approaches to the meniscus. What types of complex tears have you encountered that necessitated the use of both devices?**

Any large vertical tear or bucket-handle tear will benefit nicely from this combination. When you place a superior surface stitch, the meniscus can flip up a bit, creating a perfect trajectory for the reverse curve to penetrate the undersurface and pull it back down. This same principle applies to radial tears. To get 360° compression, use the regular 12° up curve on top and the reverse curve on the bottom. The superior aspect of the tear will not flip up after suture placement, so it may be easier to place the inferior stitches first and the superior stitches last.

**The all-suture FiberStitch implant eliminates hard plastic PEEK implants behind the meniscus and capsule. Have you noticed any reported differences between your patients with the FiberStitch implant and those with traditional PEEK-based implant systems?**

I have seen fewer failures due to loss of fixation on the capsule. The common mode of mechanical failure of any PEEK-based all-inside device is when the PEEK anchor does not flip enough on the posterior capsule to durably anchor it in place. Over time, the anchor migrates back inside the joint and the compression across the tear is lost. Almost every time I have seen a failed repair using an all-inside device, PEEK anchors sit in the joint when they should be on the posterior capsule. The FiberStitch implant eliminates this mode of failure as the anchor only has to bunch up when tension is applied to firmly anchor it in place. It does not have to reorient itself. I have encountered a couple meniscus tears that seemed irreparable at first glance; however, the patient was young and I wanted to avoid a meniscectomy. Upon a second-look arthroscopy, I realized the repair failed due to marginal tissue, not the FiberStitch implant. The soft anchors of the FiberStitch implant did not pull through the capsule and subsequently were not floating in the joint, which I have noticed when PEEK implants are used in a similar situation. This is the differentiating factor for the FiberStitch anchor.

# Pointers & Pearls



## Unicompartmental Knee Arthroplasty

Featuring Mark D. Campbell, MD  
(Phoenix, AZ)

### Why should I add unicompartmental knee arthroplasty (UKA) to my practice?

I usually perform arthroscopy in the surgery center. I believe anyone performing knee surgery should include UKA as an option. Arthritis is a natural progression in most patients who have had previous arthroscopic procedures, and UKA is an outpatient procedure appropriate for many patients who otherwise would need to undergo a total knee arthroplasty. With an excellent outcome, UKA can delay total knee arthroplasty for many years.

### If I decide to perform UKA, can the disposable cutting guide (DCG) make my transition easier?

The tibial cut, the most important part of the procedure, dictates all future cuts. Previous systems required the provider to set depth of resection, slope, and rotation. The DCG sets the depth resection and slope to match the patient's anatomy; the surgeon need only set rotation, greatly simplifying the most important step of the procedure.

### Why not just use the standard extramedullary resection guide?

The extramedullary resection guide can certainly be used; however, the DCG makes the extramedullary resection guide obsolete in all but a few special cases. The DCG removes some of the variables, allowing a more reproducible tibial resection.

### Are there any anatomical concerns that would lead you not to use the DCG?

Rarely, more severe deformity may be a contraindication to using the DCG. Most severe deformities are not passively correctable to neutral and, therefore, are not candidates for UKA. In rare instances, a severe deformity is passively correctable to neutral. Once the deformity is corrected, the resultant space between the femur and tibia can be significant. In these cases, a minimal tibial resection is desired. The DCG has a set tibial resection so using the extramedullary resection guide enables decreasing the tibial resection level.

### How do you insert the hook in a tight knee?

Since partial knee replacement candidates are passively correctable to neutral, there is always room to insert the DCG hook. The knee can feel very tight as the hook is inserted in flexion, which results in the weight of the femur closing down the flexion space. Simply having an assistant lift up on the femur will increase the space to place the hook in patients with tighter knees.

### How do you position the guide for setting the rotation and vertical cut?

The lateral border of the medial femoral condyle acts as an anatomic cutting guide. Placing an osteotome and then the metal ruler flush against the wall of the medial femoral condyle on the lateral side will perfectly set the rotation and position for the vertical cut.

### Can you use the DCG for lateral UKA? Does that change anything?

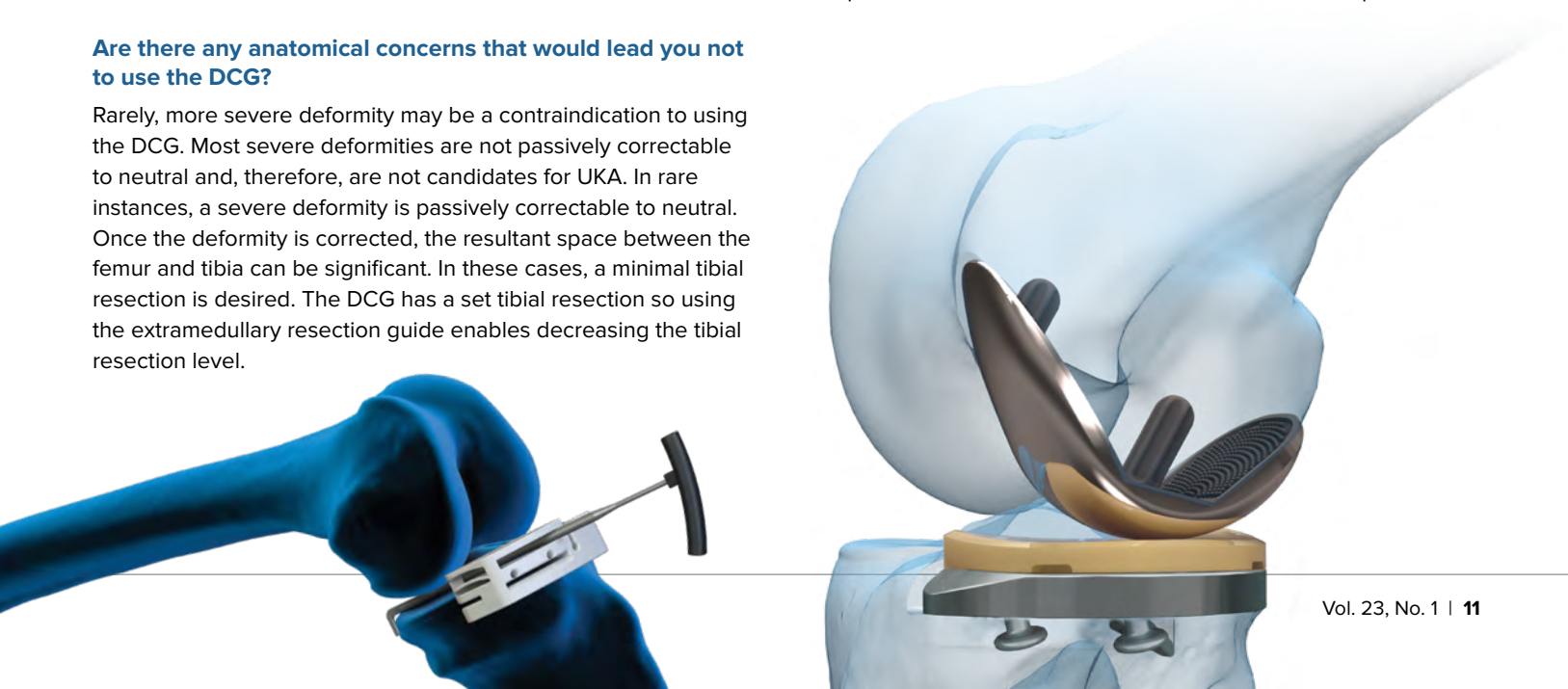
The DCG can certainly be used for lateral UKA. It is important, however, to check the initial space before any cuts are performed. Oftentimes, lateral arthritis has more tibial bone loss, and a surgeon may opt for a more minimal initial tibial cut, requiring the use of the extramedullary alignment guide.

### Can the DCG really help with bone removal?

Using a combination of stabilization pins and hook, the DCG captures the tibial bone cut. Usually, the entire resected bone can be removed with the guide, but occasionally soft-tissue attachments or an incomplete saw cut may make manual resection necessary.

### What can you do if a knee is still a little tight after using the DCG?

Additional tibial resection is possible if the knee is still tight. Although this can be done freehand, a 2 mm recut guide will allow a reproducible 2 mm increase in flexion and extension space.





# Pointers & Pearls

## The AutoCart™ Procedure: Perspectives From the US and EU

Featuring *Brian J. Cole, MD, MBA (Chicago, IL),*  
and *Professor Gian Salzmann, MD (Munich, Germany)*

**Dr. Cole, you have been involved with the GraftNet™ device since early 2019. What were your early expectations of the product?**

**Dr. Cole:** There is a lot of interest in harnessing the biologic properties of autologous tissues—including bone, cartilage, and soft tissues—to augment healing following common arthroscopic procedures. The GraftNet device was a collaboration between clinicians and engineers with the desire for a simple, efficient, and cost-effective way to harvest and collect the biologically active tissue that is normally discarded during a procedure. We developed a single-stage procedure that uses the GraftNet device to efficiently collect minced autologous cartilage to augment microdrilling or microfracture in the treatment of focal cartilage defects. This has been popularized as the AutoCart procedure.

**Where does the AutoCart procedure fit into your treatment decisions for patients with localized articular cartilage defects?**

**Dr. Cole:** Marrow stimulation as a first-line treatment of localized articular cartilage defects with healthy underlying bone has always been a part of my treatment algorithm for small- to medium-sized articular cartilage defects of the femur and tibia. Modifications such as microdrilling with the PowerPick™ instrument, proper defect preparation with complete debridement, creation of vertical walls, and gentle elimination of the calcified layer can lead to a successful outcome as soon as 4 to 6 months postoperatively for most patients. Like with other cartilage repair procedures, strict adherence to proper postoperative rehabilitation and attention to comorbidities is required to improve predictability. Marrow stimulation can be associated with greater outcome variability. Adjuncts such as a BioCartilage® scaffold, which can absorb and deliver growth factors from blood, and minced autologous articular cartilage as a homologous cellular component are believed to enhance predictability and duration of symptom relief. This is the basis of the procedure: the provision of a scaffold, growth factors, and viable autologous chondrocytes as a cost-effective, off-the-shelf option for treating symptomatic articular cartilage defects.<sup>1</sup>

**What technical pearls can you share for successful case and patient outcomes?**

**Dr. Cole:** I think it is important to adhere to basic principles of patient selection when considering any cartilage repair procedure, including identifying and treating relevant comorbidities (ie, malalignment and meniscal deficiency), following proper postoperative rehabilitation, and tempering patient expectations. Arthrex provides excellent educational courses at its headquarters in Naples, FL; your local Arthrex agency lab may also be available. In addition, technique videos are available on Arthrex.com.



Brian J. Cole, MD



Gian Salzmann, MD

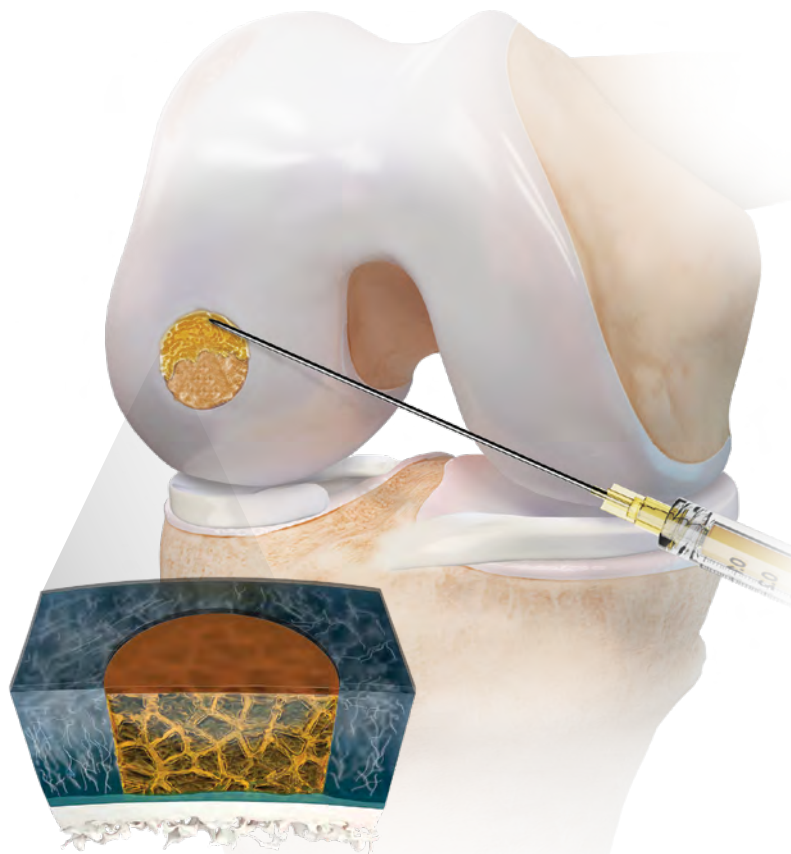
Basic principles of the procedure include using the GraftNet device and a 4.0 mm shaver on oscillate to acquire cartilage from the intercondylar notch near where a notchplasty was performed. We demonstrated that, using this technique, the cellular viability in the cartilage fragments exceeds 70%.<sup>2</sup> These three elements are combined in a 1:1:1 ratio to create a paste. This procedure can be performed arthroscopically in a dry field; take care to appropriately prepare the defect. Finally, placing autologous fibrin glue over the defect to seal the components in place was shown to keep the graft in situ during postoperative passive motion.<sup>3</sup>

**Dr. Salzmann, as the pioneer of the AutoCart procedure in the EU, how has using the GraftNet device changed your practice? How has your treatment algorithm changed over time?**

**Dr. Salzmann:** I enjoyed a steep learning curve and great exchanges with Arthrex, friends, and colleagues about this new method. This procedure has many advantages compared to other cartilage-regeneration procedures, such as MFX plus, and should be an important tool in a surgeon's toolbox for effectively treating articular cartilage lesions in a quick, cost-effective manner. Before using the AutoCart procedure, I had a pretty strict algorithm with a very heavy case load of autologous chondrocyte implantation (ACI). Many of my concomitant procedures were accompanied by microfracture. I've switched almost 100% of my ACI indications to the AutoCart procedure. I believe it has the same biologic potential—maybe even a little beyond that, since differentiated and location-specific cells are applied and boost autologous fluid.

My clinical and radiological results have been the same as they were with ACI, but only one intervention is required. The AutoCart procedure has replaced most of my microfracture cases and I now also treat small lesions (<2 cm<sup>2</sup>) lesions using AutoCart graft, which has a significantly higher biologic potential than microfracture and results in better durability.<sup>4</sup>

# Pointers & Pearls



## What advice would you give to colleagues who are beginning to use the AutoCart™ procedure?

**Dr. Salzmann:** If possible, complete one or two cases under guidance in the ArthroLab™ at Arthrex headquarters or visit an experienced user to watch some cases. Previous cartilage repair experience is very helpful, too. Do not hesitate to start by using arthroscopic assistance. Start with very clear indications and a single, isolated lesion with no comorbidities or previous surgeries; well-contained lesions at the condyles are a good starting place. In addition, instruct and train your team well. Your nurse has to know the procedure very well and the anesthetist needs to be briefed in detail that they have to withdraw the blood. In the EU, BioCartilage graft is unavailable. Instead, I collect cartilage from the defect using a Sabre shaver blade (no teeth). This results in a nicely minced, particle-sized cartilage graft that is easy to implant. Collect cartilage from the defect edge using an Arthrex Sabre shaver blade device (no teeth). This results in the best minced, particle-sized cartilage and a stable vital rim at the defect edge.



GraftNet™ device

## Who is the ideal patient?

**Dr. Salzmann:** The ideal cartilage repair patient has been defined in the literature. This definition, for me, also applies for the AutoCart procedure. Patients 40 years of age and younger tend to do better than older patients, with whom you have to be very selective. In addition, look for patients with a normal BMI, who do not have too much pain prior to surgery, and who are highly motivated to follow postoperative protocols.

The lesion should be fresh, well-contained, and, ideally, traumatic. The best outcomes are at the lateral femoral condyle, followed by the medial femoral condyle, trochlea, and patella. There is not much evidence on tibial plateau lesions, but these can also be addressed using the AutoCart procedure. No prior surgeries at the index joint is very good. No underlying comorbidity is best, but if there is one it can easily be treated during the same session.

## Why else should surgeons use the AutoCart procedure?

**Dr. Salzmann:** Most cases can be completed using arthroscopic assistance; it is a one-step procedure that allows the surgeon to react spontaneously during an intervention. The collected graft is purely autologous and the tissue is not substantially changed. You use location-specific cartilage, not cartilage from the non-weightbearing notch as with ACI. Your transplanted cartilage is not dedifferentiated and has a high quantity of chondrocytes (up to 10,000 cells per cartilage particle), when transplanting approximately 150 particles per 1 cm<sup>2</sup> defect.<sup>5</sup> You can also combine it with an underlying cancellous bone plasty and any co-intervention. After a learning curve, the procedure for a simple lesion can be completed in 20 minutes. In my experience, rehabilitation is faster than with ACI procedures, too.

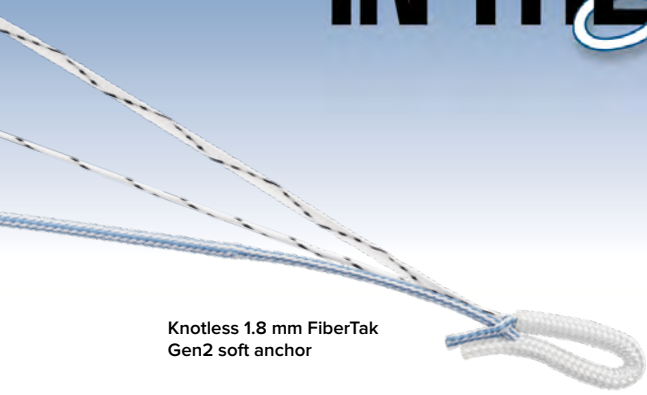
## Does your postoperative protocol vary depending on the location of the lesion?

**Dr. Salzmann:** For tibiofemoral lesions, it is 6 weeks with 15 kg weightbearing at the beginning and free range of motion as tolerated. For patellofemoral lesions, it is 6 weeks with 15 kg but full weightbearing after 3 weeks in extension. In general, I allow for no more than 30° of range of motion 2 weeks postoperative and increase by 30° every 2 weeks. Sometimes, that is decreased to 20° in the second week, 40° in the third and fourth weeks, and 60° in the fifth and sixth weeks. Most patients can bike and swim after 8 to 12 weeks, run after approximately 4 to 6 months, play tennis after 10 months, and play full-contact sports 12 to 16 months postoperatively.

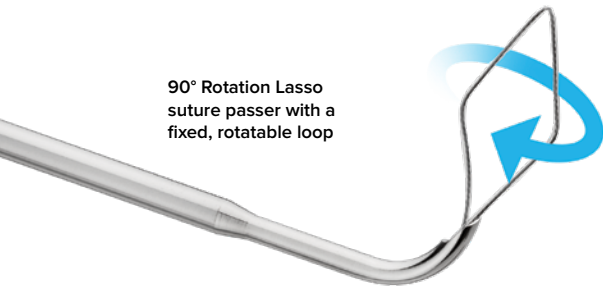
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# IN THE Loop



Knotless 1.8 mm FiberTak Gen2 soft anchor



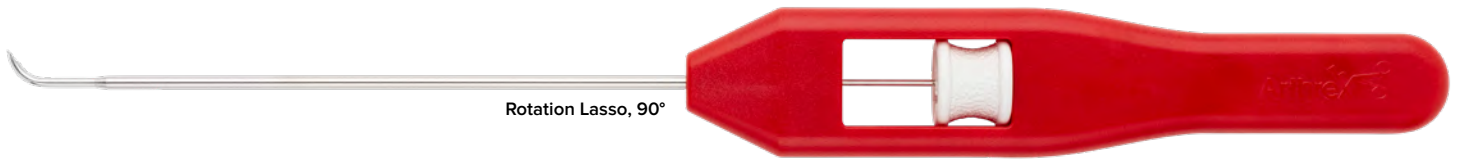
90° Rotation Lasso suture passer with a fixed, rotatable loop

## Fast and Efficient Suture-Passing With the Rotation Lasso Featuring the Knotless 1.8 FiberTak® Gen2 Soft Anchor

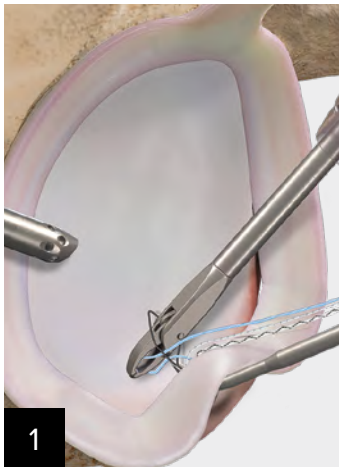
Glenohumeral instability techniques are trending toward small soft anchors and tensionable, knotless tissue fixation. The Rotation Lasso suture passer provides a fast, efficient method for suture passing and complements the anchor technology.

The Rotation Lasso suture passer features a deployable nitinol loop that can be rotated to ease suture retrieval. Retrieving the repair stitch through the loop saves a shuttling step in comparison to using the typical SutureLasso™ suture passer.

In three quick steps, use the Rotation Lasso to pass the Knotless FiberTak repair suture in the glenohumeral joint space. Pass the Rotation Lasso through the soft tissue and deploy it. Through a secondary portal, pull the repair suture through the fixed loop using a suture retriever. Withdraw the Rotation Lasso and pass the repair suture through the tissue.

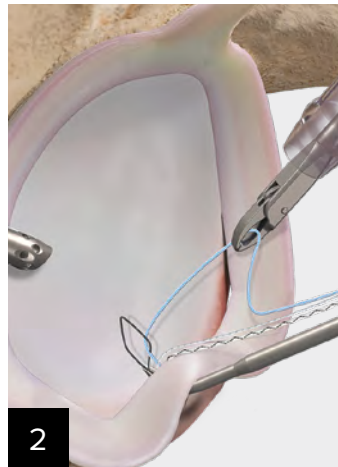


Rotation Lasso, 90°



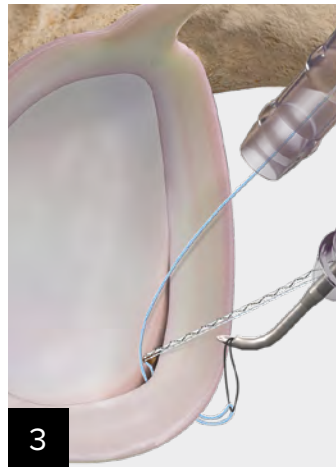
1

Using a suture retriever, pass the blue repair suture through the nitinol loop of the Rotation Lasso suture passer.



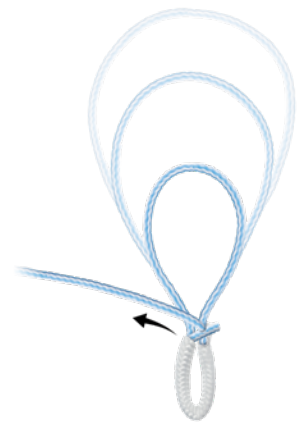
2

Retrieve the repair suture tail through a secondary cannula prior to removing the suture passer.



3

Keep the Rotation Lasso loop extended and retrieve it to pass the repair suture through tissue.



Knotless 1.8 FiberTak Gen2 soft anchor



# IN THE Loop



## Segmental Meniscus Reconstruction

Segmental meniscus transplantation serves as a robust repair option for restoring meniscal function and kinematics in patients with partial meniscal deficiency. Many of the meniscal deficiencies surgeons encounter are only partial or segmental in nature; a segmental meniscal allograft addresses this pathology while maintaining knee kinematics, restoring biology, and maximizing preservation of native meniscal tissue.<sup>1-3</sup> This is especially helpful for common areas of meniscal deficiency, particularly the posterior horn, middle horn, or both.

Using meticulously designed cutting and measuring instruments, surgeons can identify and outline the extent of damage to the meniscus and precisely trim the allograft meniscal segment to be transplanted.

This technique also uses suturing devices, including all-inside and inside-out devices, that facilitate restoration of meniscal kinematics and help to stabilize the meniscal segment. Multiple size and measurement options and precise trimming options allow for excellent matching of the allograft segmental meniscus.

Segmental meniscus transplantation provides an acceptable alternative for patients who have undergone meniscectomy and for whom function and circumferential mechanical aspects of a deficient meniscus are present. Ultimately, by restoring the tibiofemoral contact pressures in the knee, it may be possible to improve knee stability and prevent the onset of cartilage degeneration commonly observed following meniscectomy procedures.<sup>1,4</sup>

This technique summary was provided by Matthew T. Provencher, MD (Vail, CO).

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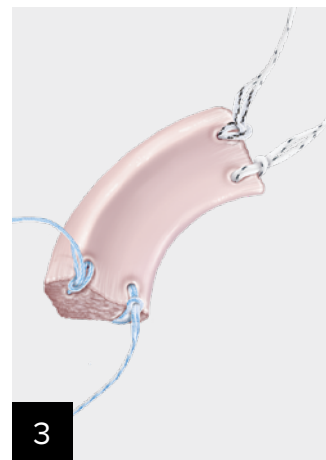
1

Once stable borders are created and the length and width of the defect are measured, use the ZoneNavigator™ device to approximate each quadrant of the defect.



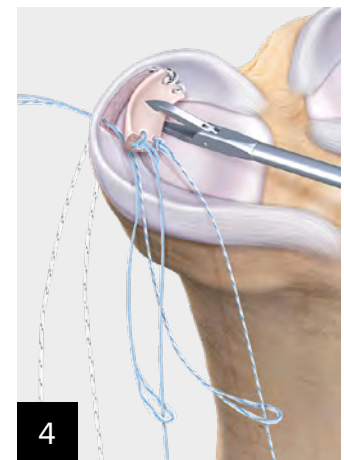
2

Advance the needle with 2-0 TigerLink™ SutureTape through the nitinol loop. Repeat for the posterior inferior quadrant. Repeat using FiberLink™ SutureTape for the anterior superior and inferior quadrants.



3

Transfer the defect measurements to the allograft and prepare accordingly. On the donor graft, use a cutting needle with attached nitinol loop to pass FiberLink and TigerLink SutureTape that correspond to the SutureTape that have been passed in the recipient site. Create a cinch configuration on each suture.



4

Deliver the segmental meniscus allograft to the defect, first assembling and passing the posterior and then anterior links. Advance the graft using a KingFisher® grasper while tensioning the suture tails. To complete primary fixation, tie the sutures over the capsule. The FiberStitch™ device may be used to complete all-inside fixation in the midbody of the graft by directly securing to the capsule.



## ACL Repair Using the *InternalBrace*™ Technique Compared to ACL Reconstruction Up to Two Years Follow-up

### Purpose

To report the clinical outcomes of pain, function, and quality of life for patients who have undergone ACL repair using the *InternalBrace* technique compared to ACL reconstruction.

### Methods

The inclusion criteria for this analysis were patients enrolled in the Surgical Outcomes System™ registry who underwent ACL repair using the *InternalBrace* technique or ACL reconstruction procedure. 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 2 years postsurgery. The number of patients included per group is shown to the right.

### Trend Conclusion

Based on these results, the pain, function, and quality-of-life scores of ACL repair with *InternalBrace* technique appear to trend toward similar outcomes to ACL reconstruction. However, no claims can be made on the potential of these results without further analysis to determine statistical significance.

The *InternalBrace* surgical technique is intended only to augment the primary repair/reconstruction by expanding the area of tissue approximation during the healing period and is not intended as a replacement for the native ligament. The *InternalBrace* technique is for use during soft tissue-to-bone fixation procedures and is not cleared for bone-to-bone fixation.



The views expressed in this newsletter reflect the experience and opinions of the presenting surgeons and do not necessarily reflect those of Arthrex, Inc.

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.

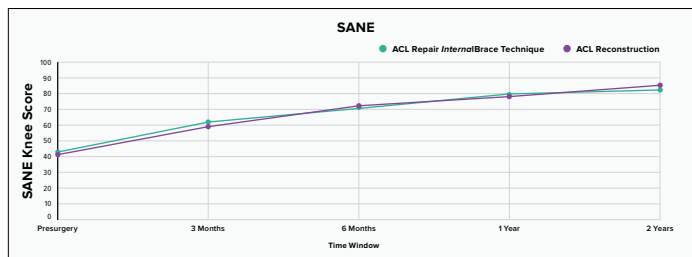
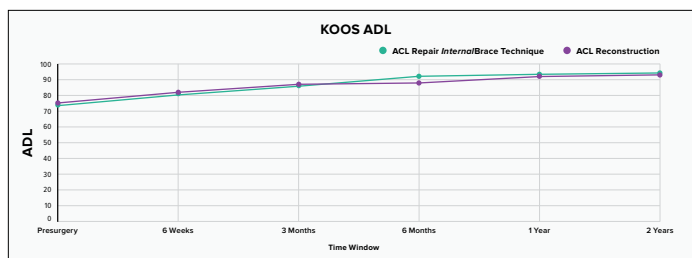
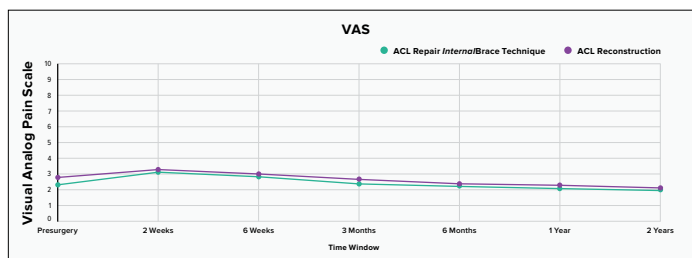
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## Results

Time Point	Number of Compliant ACL Repair Using the <i>InternalBrace</i> Technique Patients/ Total Patients	Number of Compliant ACL Reconstruction Patients/Total Patients
Presurgery	301/470	6669/10919
3 months	326/457	6779/10501
6 months	294/444	5868/10186
1 year	243/407	4956/9460
2 years	168/264	3492/7099



Scope This Out is an informational newsletter designed to educate orthopedic surgeons on new products, state-of-the-art surgical procedures, and "pearls" to assist in improving surgical skills.

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