

SCOPE THIS OUT

..... A Technical Pearls Newsletter for Orthopedists

Patient-Specific Guides for Knee Osteotomy

As a pioneer in the osteotomy space, Arthrex is dedicated to the continuous innovation of these challenging procedures. Building on that legacy, new patient-specific instrumentation (PSI) for osteotomies combines preplanning software and 3D-printed guides for use with existing Arthrex osteotomy systems, providing the ability to simulate corrections virtually, predict outcomes, and select implant size with high accuracy.¹

Further, a preplanned, patient-specific approach to knee osteotomy enhances fixation stability, reduces operative time and radiation exposure, and supports long-term clinical outcomes.^{1,3}

System Features

- Simple virtual interface for CT uploads and PSI guide development
- Shipped with patient-specific nylon tibial model for guide placement confirmation in the OR
- Available for 4-hole plate and iBalance® HTO, ContourLock™ HTO, and ContourLock DFO systems



References

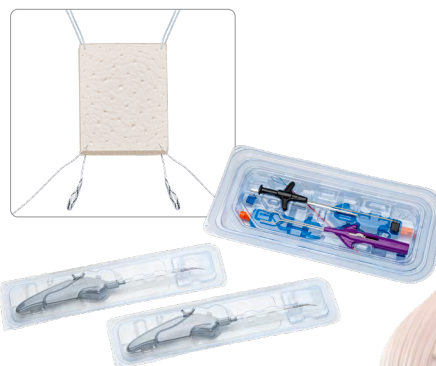
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Improved Procedural Efficiency With CuffMend™ Rotator Cuff Augmentation

With multiple launches across the CuffMend rotator cuff augmentation portfolio, rotator cuff augmentation is becoming more efficient, offering an ideal solution for treating full- and partial-thickness rotator cuff tears.

Recent Launches

- **SpeedFLEX™ Implant:** Leveraging the well-established benefits of the ArthroFlex® dermal allograft, the SpeedFLEX implant is a 510(k)-cleared device that streamlines back-table graft preparation by providing a presutured graft.
- **FiberStitch™ RC Simple:** Building on the knotless, all-suture fixation of the FiberStitch RC implant, the FiberStitch RC Simple features a simple stitch configuration, with one implant beneath the cuff and one above the graft, instead of the traditional double-mattress configuration, reducing the number of graft passes and tensioning steps.
- **CuffMend Implant Systems:** The updated implant system provides all the instruments and implants needed for CuffMend rotator cuff augmentation and is designed to complement the SpeedFLEX implant. A dedicated system is also available for the Autograft Tissue Compression System, which uses the biceps tendon as an autologous graft option.
- **OsteoTak™ Implant:** This knotless, all-suture option for lateral fixation features an all-in-one drill guide and inserter.



ArthroFlex is a registered trademark of LifeNet Health.

Shoulder Arthroplasty

Introducing the Anatomic Proximal Humeral Plating System

Arthrex is proud to announce the launch of the Anatomic Proximal Humeral Plating System, an extension of the Proximal Humeral Plating System and lateral plate offerings. The anatomic plates are anatomically contoured to the humeral shaft to avoid the deltoid and pectoralis major insertions for use with a deltopectoral approach.

■ Anatomic Design for Complex Fractures

Treat a wide range of proximal humeral fracture patterns and patient anatomies with 13 variable-angle locking screws and 7 plate lengths, left- and right-specific, from 92-265 mm.

■ KreuLock™ Compatibility

Leverage proven KreuLock technology with a comprehensive screw portfolio that includes locking and nonlocking options for secure fixation and intraoperative flexibility.

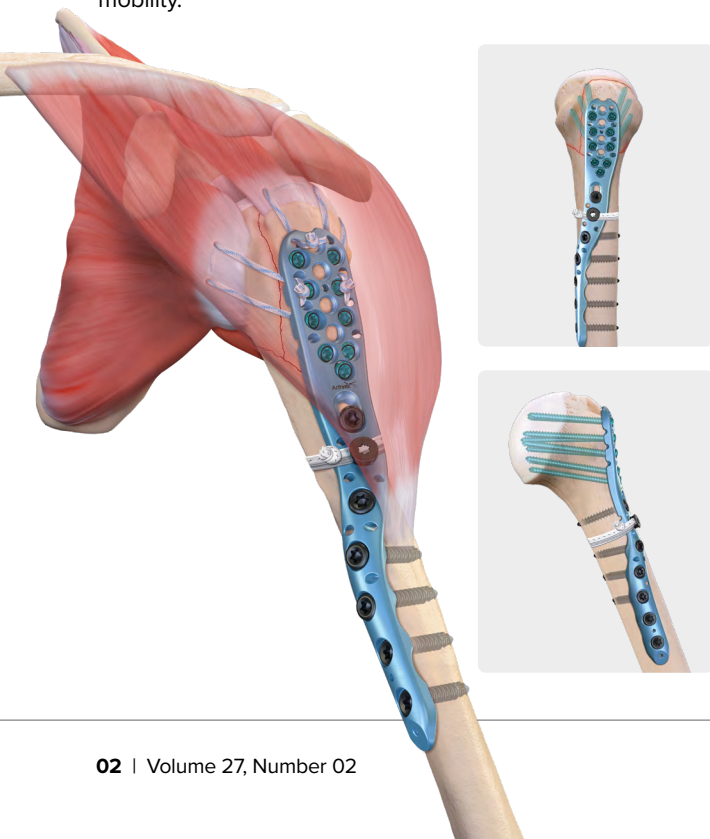
■ FiberTape® Cerclage Button Integration

Optional cerclage buttons thread directly into any distal screw hole and are designed to help maximize fixation stability.

■ Streamlined Instrumentation

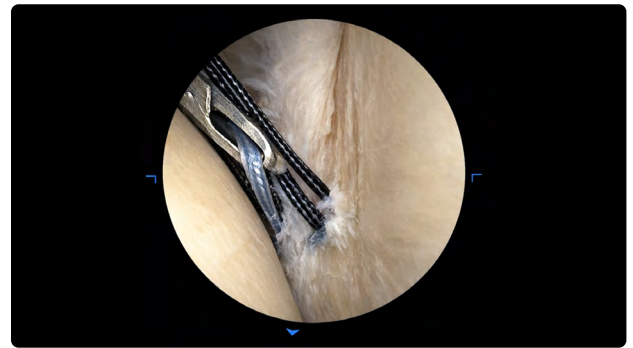
Designed to simplify the surgical workflow and reduce turnover time with a 2-tray system consisting of the Proximal Humeral Plating System and General Instrument trays.

The Arthrex Proximal Humeral Plating System addresses unique challenges with precision-engineered implants designed to provide stable fixation without compromising mobility.



Imaging and Resection

NanoNeedle™ Scope HD30*: See What You've Been Missing



The future of Nano arthroscopy has arrived. Introducing the all-new NanoNeedle scope HD30, the next evolution in visualization designed to help surgeons see more, move less, and work with greater confidence. For the first time, NanoNeedle scope technology features a true 30° viewing angle, bringing the familiar perspective of standard arthroscopy to an ultra-minimally invasive platform and allowing surgeons to look around structures with enhanced spatial awareness.

The NanoNeedle scope HD30 pairs breakthrough visualization with a redesigned ergonomic handpiece for improved comfort, balance, and control during every procedure. Integrated image capture, video recording, and horizon adjustment controls keep essential functions directly at the surgeon's fingertips, while an integrated fluid management system and quick-connect sheath support a cleaner setup and efficient workflow.

From visualization and ergonomics to workflow and control, the NanoNeedle scope HD30 is redefining what is possible in Nano arthroscopy. See what you've been missing.

*Pending FDA clearance



NanoNeedle ScopeHD30°

Upper Extremities

Arthrex Radial Head Replacement System



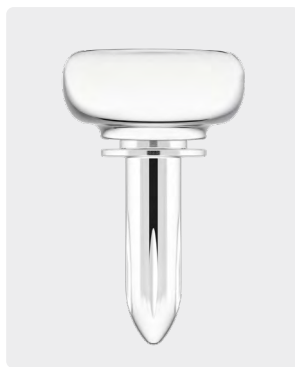
The Arthrex Radial Head Replacement System is the first system to offer both free-floating and press-fit stem options paired with a circular, nonanatomic radial head design. A single, streamlined instrumentation platform supports both stem styles, providing surgeons with flexibility and simplifying workflow for surgical facilities.

Designed with efficiency in mind, the system features several specialized instruments. The shoehorn elevator facilitates axial alignment of the radial shaft for canal preparation and implant insertion, while side-loading trials support reproducible and simplified trialing. Dedicated removal tools simplify revision procedures, including tools to disengage the Morse taper and a threaded stem extractor that allows for controlled removal of the stem when needed.

The Radial Head Replacement System is the latest addition to the Arthrex Elbow portfolio, now the most comprehensive on the market. From the recently launched Elbow Plating System and the Radial Head Replacement System to advanced soft-tissue repair solutions and biologics, Arthrex provides surgeons with a complete set of solutions for treating elbow pathology and trauma.



Press-fit stem



Free-floating stem

FiberTak® SpeedFix™ Implant Systems



The FiberTak SpeedFix technique provides a streamlined, two-anchor, double-row construct optimized for small rotator cuff tears. Arthrex now offers dedicated single-use implant systems that consolidate the implants and instruments required for the procedure, reducing setup time and standardizing the workflow.

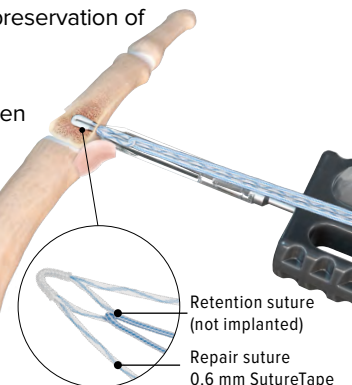
There are two system configurations available that incorporate standard or tensionable Knotless FiberTak® RC and SwiveLock® SP anchors, providing solutions for multiple repair configurations. Procedure-specific instrumentation provided in each kit includes a drill, crown-tooth drill guide, HD Scorpion™ needle, FiberLink™ suture, and MegaLoader device. Integrating the principles of double-row fixation with a comprehensive, procedure-specific implant solution, the FiberTak SpeedFix system offers a reproducible and efficient approach for managing small rotator cuff tears.

Introducing the Nano FiberTak® Anchor: Small Anchor. Big Possibilities.

The Nano FiberTak anchor brings the benefits of Arthrex all-suture anchor technology to the small bones of the hand and wrist. Designed with a 1 mm drill diameter and 10 mm depth, the Nano FiberTak anchor minimizes bone removal while providing reliable soft-tissue fixation in anatomically constrained spaces.

The anchor is preloaded with 0.6 mm SutureTape, offering a broad, low-profile suture configuration. It is an ideal solution for a variety of hand and wrist procedures, including collateral ligament repairs, FDP tendon fixation, and reconstructive applications where preservation of bone stock is a priority.

The Nano FiberTak inserter has been reinforced with a clear sleeve that also serves as a depth stop. When the anchor is fully seated in bone, the sleeve deploys and makes an audible click to confirm the appropriate depth has been reached.



Foot & Ankle and Trauma

Arthrex Variable Angle Proximal Tibial Plating System

Designed with anatomic contours and precise fixation in mind, the Arthrex Variable Angle Proximal Tibial Plating System is a versatile and reliable solution for treating proximal tibia fractures.

- Comprehensive plate offerings include medial **(a)**, posteromedial **(b)**, and 2 lateral plate styles (standard **(c)** and high **(d)**), optimized to fit patient anatomy
- Unique high lateral plate allows for a row of 2.7 mm variable-angle locking (VAL) KreuLock™ screws for enhanced coverage of the tibial plateau
- All plates are equipped with advanced VAL capabilities and are compatible with KreuLock locking compression screws
- Novel PercuLock™ system provides a minimally invasive approach for percutaneous screw insertion
- Address both bony and soft-tissue pathologies with a comprehensive system that integrates biologics, NanoScope™ visualization, and plate eyelets for soft-tissue repair

New Lapidus I-Beam Plate

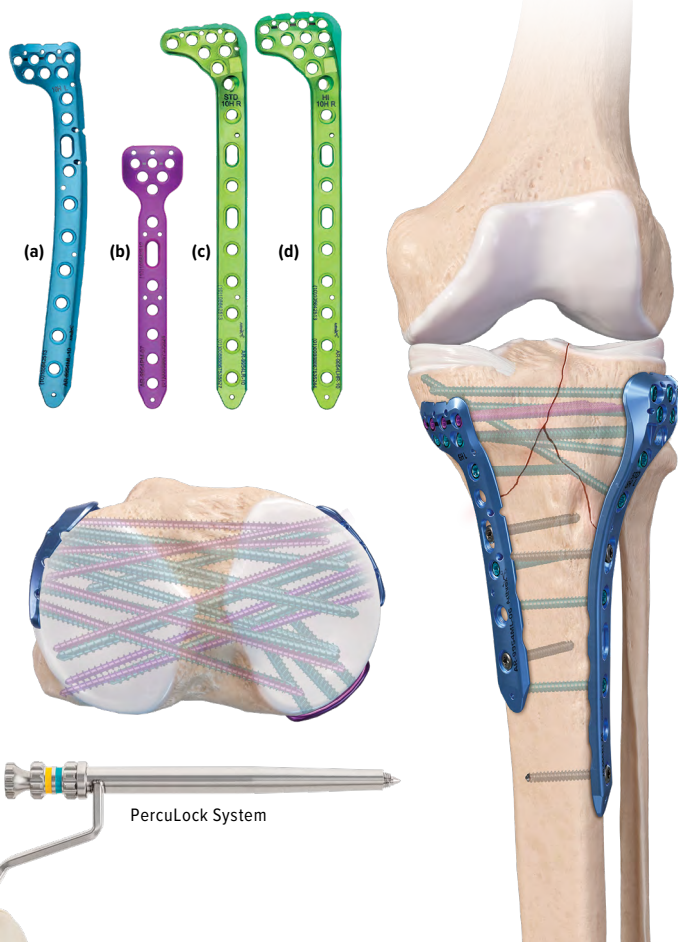


Engineered for efficiency and anatomical precision, the new Lapidus I-Beam plate offers left- and right-specific contouring and fits naturally along patient anatomy. At the same time, the robust I-Beam design delivers enhanced strength and rotational stability where it matters most.¹

- Patented internal-beam technology for strength and multiplanar stability
- Low-profile and anatomically contoured
- Specialized sterile instrumentation included with plates
- Compatible with KreuLock™ locking compression screws

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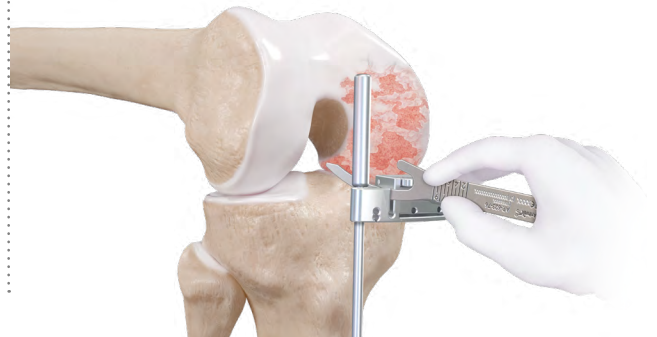


PRODUCT INFO

Knee Arthroplasty

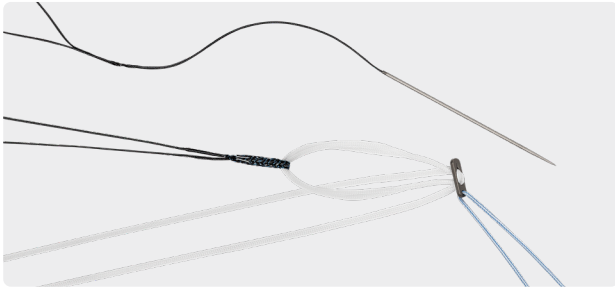
iBalance® UKA Efficiency System Instrumentation

Introducing a new single-tray set of UKA instrumentation designed to simplify procedures and improve efficiency for surgeons and ambulatory surgery centers. This streamlined surgical technique incorporates a patient-specific, reusable tibial cutting guide to help create an appropriately sized implant space tailored to each patient's anatomy. The technique also maintains independent flexion and extension gap-balancing capabilities, providing surgeons with greater confidence in achieving precise implant placement.



Knee and Hip

FiberTag® TightRope® II PF and CL Implants



Designed for patellofemoral and collateral ligament procedures, FiberTag TightRope II PF and CL implants use a downsized 1.7 mm FiberTag implant with a size 0 FiberLoop® suture. This construct was specifically developed to maximize the graft-to-bone contact area with the smaller graft limbs commonly used in extra-articular procedures.

Additionally, all four implant configurations are constructed with the same 1.9 mm TightRope tape-braid loop and tensioning tails as the existing TightRope II implant family.

The line includes various configurations of tensioning tail orientation (RT vs conventional) and needles (straight vs curved). These implants are all compatible with the existing tenaculum and FiberTag TightRope suturing technique. This variety of tensioning orientations and needle configurations offers maximum versatility for surgeon preference and procedure-specific requirements.

Atraumatic Hip Access Needle

The atraumatic hip access needle is the newest addition to the comprehensive Hip Arthroscopy portfolio. The needle's unique design features a spring-loaded, blunt-tip inner stylet that retracts upon resistance and protracts once resistance clears. This helps to protect critical structures, reducing the risk of damage to the labrum and chondral surfaces during portal placement in hip arthroscopy procedures. The needle is available in 14 ga and 17 ga variations to accommodate surgeon preference.

The atraumatic needle is highlighted in the new, all-in-one Atraumatic Hip Access Disposable Kits, which also include the FlushFit cannula system, two nitinol guidewires, a standard access needle, and the choice of a SafeCut™ or CapsuleCut™ capsulotomy blade.

By consolidating these essential joint access tools into one convenient package, the kit helps support procedural efficiency and safety.



Orthobiologics

Bioelectric Wound Care for Surgical Incisions and Everyday Wounds



From surgical incisions to everyday wounds, JumpStart® antimicrobial wound dressings and PowerHeal® bandages offer bioelectric wound care solutions for both clinical and at-home applications. Both products use the same advanced microcurrent-generating technology to support the body's natural healing process and provide antimicrobial protection.¹

JumpStart dressings are designed for the management of surgical incision sites, ulcers, and full-thickness wounds. When exposed to Energel® conductive fluid or similar gels, microcell batteries composed of elemental silver and zinc generate low-level electrical currents. This technology has demonstrated broad-spectrum bactericidal activity against antibiotic-resistant strains of wound isolates within 24 hours.¹⁻³

PowerHeal bandages extend bioelectric wound care beyond the clinical setting. These FDA-cleared bandages are designed for at-home use on minor burns, abrasions, cuts, scrapes, blisters, and superficial wounds. Available in adhesive and nonadhesive configurations, PowerHeal bandages offer flexible options for wounds of different sizes, locations, and care needs. They provide patients with convenient over-the-counter access to advanced wound care technology throughout the healing process while helping minimize visible scarring.^{4,5}

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Feature Article



How Endoscopy Changed My Approach to Spinal Pathology

Prof. Dr. med. Mazda Farshad
Zurich, Switzerland



When I adopted ultra-minimally invasive endoscopic spine surgery, I expected it to change my surgical technique. What I did not anticipate was how profoundly it would change the way I evaluate spinal pathology and decide which procedure a patient truly needs.

Before endoscopy, I often approached pathology through the framework of the surgical techniques available to me. In the cervical spine, for example, foraminal stenosis or a disc herniation causing radiculopathy frequently led to an anterior cervical discectomy and fusion (ACDF) or anterior cervical discectomy and disc replacement (ACDR). Although ACDF and ACDR remain excellent and necessary procedures for many patients, endoscopy has made me reconsider whether fusion or disc replacement are always required to achieve adequate decompression.

Today, I begin with a different question: Can I treat the symptomatic pathology directly while preserving the patient's anatomy and motion?

For appropriately selected patients, posterior endoscopic cervical foraminotomy (PECF) and posterior endoscopic cervical discectomy (PECD) allow me to decompress the affected nerve through a much smaller working corridor, without implants or elimination of motion at the treated segment. Since adopting these techniques, I have reduced the number of ACDFs in my practice by approximately 50%.

This does not mean that endoscopy has replaced fusion. Patients with instability, deformity, significant axial pain, central pathology, or other specific indications may still benefit most from fusion. Instead, endoscopy has helped me recognize a substantial group of patients whose pathology can be treated effectively with a more targeted, motion-preserving procedure.

Endoscopy has been more than an additional surgical technique—it has changed my philosophy of spine care. I no longer ask only which surgery can treat the pathology. I ask how precisely I can address it, how much normal anatomy I can preserve, and whether I can achieve the necessary decompression without sacrificing motion.

Regulatory Roundup

NEW

Each issue, Regulatory Roundup spotlights recent noteworthy regulatory approvals, keeping you informed on Arthrex products and innovations that meet the highest global standards of safety and efficacy.

LATAM

- Synergy Vision™ Imaging System
- FiberStitch™ 1.5 Implant



Australia

- SuturePatch Suture Construct
- Elbow Plating System



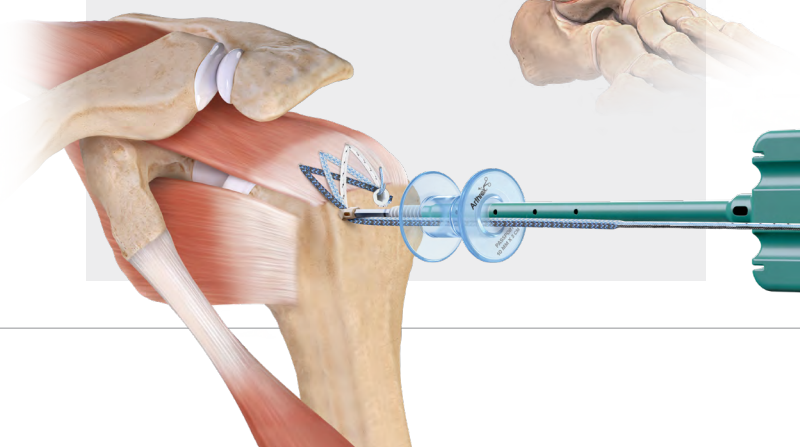
Japan

- Pilon Fusion Plates
- Knee FiberTak® Non-SP Anchor



Singapore

- Knotless SwiveLock® SP Anchor



Pointers and Pearls



ACP Max™ System Formulation Options

Tyler Slayman, MD
Iowa City, IA

What makes the ACP Max system a valuable part of your biologics workflow?

The ACP Max system gives me flexibility. One of the things I appreciate most about the system is that it allows clinicians to think more intentionally about platelet-rich plasma (PRP) formulation. PRP is not a single product—the final preparation can vary based on factors such as platelet concentration, final volume, and cellular profile. Rather than simply asking, “Am I using PRP?”, the ACP Max system allows me to ask, “Which PRP formulation best fits my procedural objective?” The platform supports multiple formulation options within a single system, which makes the ACP Max system a valuable and versatile tool in my biologics workflow.

What makes the high-monocyte formulation clinically interesting?

The high-monocyte formulation adds some nuance. The introduction of this type of PRP formulation helps move the conversation beyond “leukocyte rich” or “leukocyte poor” and toward a more specific discussion about cellular profile. The ACP Max system’s high-monocyte regimens were designed to concentrate platelets and monocytes above circulating levels while reducing neutrophils below baseline. With the high-monocyte formulation, the ratio of monocytes to neutrophils is essentially inverted, resulting in around 6 monocytes for every neutrophil.^{1,2} Monocytes are believed to modulate both pro- and anti-inflammation and tissue remodeling.^{3,4} Immediately following tissue damage or disease, monocytes and resident macrophages can increase inflammation to recruit other cell types to the site and fight infection or repair tissue.^{3,4} Once the tissue is ready for repair, the monocytes can switch to an anti-inflammatory phenotype and begin orchestrating the repair and reduction of inflammation processes.^{3,4} Monocyte-rich PRP has become my preferred formulation because it allows me to harness the benefits of both leukocyte-rich and leukocyte-poor PRP in a single, balanced formulation.

How do leukocyte-rich formulations fit into your decision-making?

Leukocyte-rich PRP adds another formulation option with the ACP Max system when platelet concentration and cellular composition are important considerations. In the evaluated leukocyte-rich regimens, platelet fold change increased across the preparations, with reported platelet concentrations of 3.89×10^5 ,⁵ 6.88×10^5 ,⁶ and 8.21×10^5 over baseline. I like having that range because it allows clinicians to think more intentionally about the characteristics of the final product. Rather than viewing PRP as a single category, the ACP Max system gives me the flexibility to consider whether there is a need for a moderate- or higher-platelet concentration, alongside the desire to tailor the concentration of specific white blood cells and red blood cells to best align with the procedural plan. I also appreciate that the ACP Max system offers both double- and single-spin leukocyte-rich options. The single-spin approach provides an efficient workflow while still producing a leukocyte-rich formulation, giving clinicians another practical option when balancing preparation characteristics with procedural efficiency.

What is the biggest takeaway for clinicians exploring PRP formulations?

Start with the end goal in mind. One of the most important lessons I’ve learned is that PRP is not a single product; it represents a range of formulations with distinct characteristics. The ACP Max system gives physicians access to multiple preparation options within one platform, with consistent and reliable processing across protocols. My advice is to understand the formulation you want to create and intentionally select the preparation that best aligns with your procedural objectives. That thoughtful approach can help clinicians make the most of the technology while supporting an efficient, consistent workflow.

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ACP Max Spin Regimens



Single-Spin
Leukocyte-Rich



Leukocyte-Rich



Large-Volume



High-Monocyte



Pointers and Pearls



New *BunionBrace*™ Medial Capsule Repair

Edward Haupt, MD
Jacksonville, FL

My Experience and Evolution

I used a variation of the *BunionBrace* medial capsule repair technique to treat a traumatic medial collateral ligament (MCL) rupture in a professional surfer. I believe in the technology (SutureTape augmentation) because I augment ankle ligaments and other repairs elsewhere, especially with my sports background.

Even when optimal bony correction is achieved, a medial eminence resection or medial capsular repair is often still necessary. Historically, the techniques have relied on soft-tissue shortening, because there has been no implant mechanism strong enough to allow early rehabilitation. The primary advantage of this technique is that I can rehabilitate patients more quickly with confidence in the anchor system, and I expect fewer failures long-term.

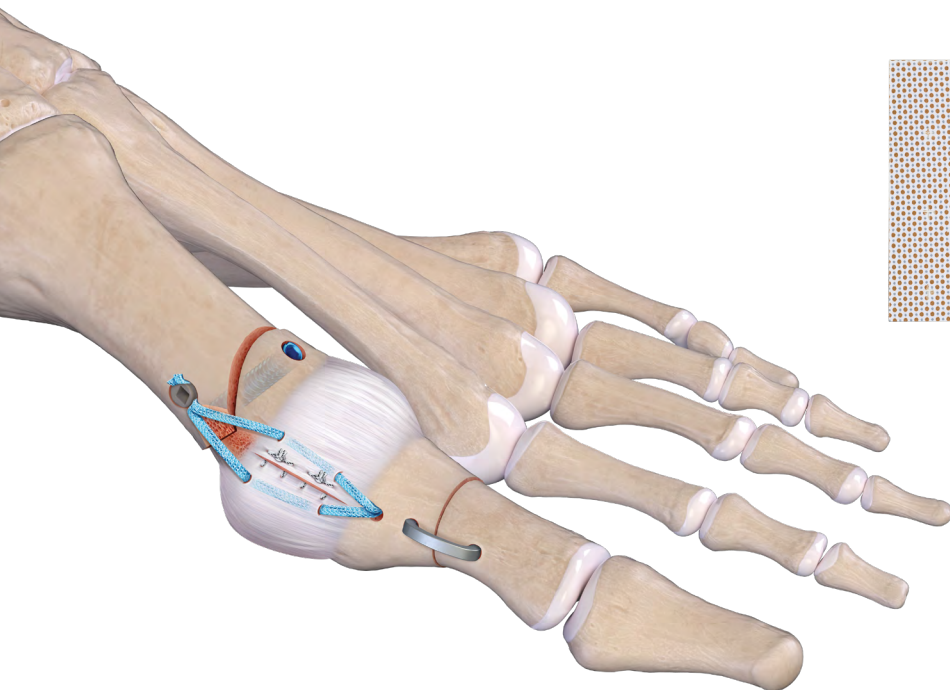
Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes

Tips and Pearls

- I would not do a T-shaped capsulotomy because I think it makes it harder to close the leaflets and more likely to rupture; hence, I do an L-shaped capsulotomy.
- Place the anchor entry point along the midline ridge in the proximal phalanx, just distal to the ligament stump, like you would do for an anterior cruciate ligament (ACL) reconstruction. This position also allows for an Akin osteotomy, as the screw can enter proximal with the osteotomy distal.
- Check isometry of the joint before drilling the second tunnel.
- Make sure drill tunnels are precise, one-pass tunnels, as there is little available real estate. Use the spacer and an assistant to hold the proximal phalanx steady during drilling and implantation of the FiberTak® anchor. The smaller guides make this easier.

Technical Pitfalls to Avoid

- Don't attempt to add any correction with the augment. The augment maintains and helps protect your anatomic repair; it should not do the work.
- I use the spacer to position the capsule in neutral alignment during the repair. It is removed before the SwiveLock® anchor is secured and no one is touching the foot or holding the toe. If you do not like the position of the toe, it should be corrected before augmentation. Attempting to achieve additional correction with the augment may result in loss of range of motion.



What's in My Bag?



All-Suture Instability Solutions: From Bankart Repair to Bone Loss

Rachel M. Frank, MD
Denver, CO

How has all-suture, knotless fixation changed the way you approach shoulder instability across the continuum of care?

It has made my instability workflow more anatomic, efficient, and adaptable.¹⁻³ I can preserve more glenoid bone, avoid knot stacks, and still build a secure repair with the ability to fine-tune the tension across the capsulolabral tissue. Additionally, the ability to sequentially retension has changed my practice—I can keep the tension on my initial 1 or 2 anchors a bit “loose” to allow easier passing of the suture lasso for subsequent anchors, and then retension all anchors at the end, removing creep from the system and providing for an anatomic, robust repair.⁴

When choosing fixation, how do you weigh glenoid preservation, ease of use, operative efficiency, and tension control against traditional knotted hard-body anchors?

Those factors are central to my decision. In instability, every millimeter of glenoid bone matters, so a small all-suture anchor footprint is appealing. When that is paired with knotless tensionable repairs and a streamlined instrumentation set, it can reduce friction in the case without compromising the repair strategy.

For primary Bankart repair, how does the Knotless 1.8 FiberTak® implant system support a glenoid-preserving repair while still allowing you to achieve the fixation and tension you want?

The 1.8 mm all-suture anchor gives me a small footprint on the glenoid, which is critical in the instability patient population. I can place more anchors without compromising the bone or biology and increase the biomechanical stability of the repair.¹ The knotless mechanism lets me sequentially tension the repair and adjust the capsulolabral shift until the bumper and tissue apposition look right arthroscopically. This streamlined, convenient option helps my staff by providing implants and instruments in a single system, and I appreciate having three distinct color options for easy identification.

How often are you enhancing a Bankart repair with the addition of remplissage? How have soft anchors and tensionable technology changed this procedure?

Remplissage adds an important posterior constraint to the construct. Recent level 1 evidence supports that combining remplissage with Bankart repairs can reduce the risk of redislocation to as low as 4% in patients with subcritical glenoid bone loss (<15%).⁵ Interconnecting the Knotless FiberTak anchors lets me compress the infraspinatus and capsule broadly into the Hill-Sachs defect, which helps convert an engaging lesion into a more stable, extra-articularized surface. With Knotless FiberTak

anchors, the interconnected bridge construct provides a more efficient, knotless solution.³ I can place the remplissage anchors, complete the Bankart repair, and finalize the remplissage repair by only adding 5 minutes to my typical Bankart. Additionally, there are two size options that provide versatility based on bone quality. Further, I feel confident that the combination of excellent surgical technique along with the knotless technology allows for a reproducible way to insert and tension the anchors without having to scope the subacromial space, improving my OR efficiency.

How do you decide when to use Bankart repair alone, Bankart repair with remplissage, or bone augmentation (ie, bone block cerclage or Latarjet) as instability pathology progresses?

I start with the bone loss picture, which may be bipolar on both the glenoid and humeral head, tissue quality, sport, and recurrence risk. Patient-specific factors, including age, sex, baseline ligamentous laxity, and participation in contact sports, are important variables. A contained soft-tissue lesion may be appropriate for Bankart repair alone. If the Hill-Sachs lesion is engaging or near-track, remplissage becomes part of the plan. Once glenoid bone loss reaches a clinically meaningful threshold, I typically move toward bony augmentation procedures, including anterior glenoid reconstruction. While that threshold varies among surgeons, I generally consider 15% glenoid bone loss, and as little as 12.5% in high-risk or revision cases, sufficient to warrant this approach.

For glenoid bone loss, how does an arthroscopic, metal-free FiberTape® Cerclage approach support bone graft fixation while preserving subscapularis integrity?

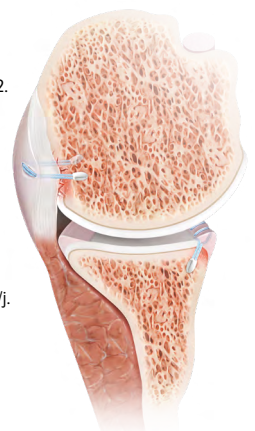
The value is that I can address meaningful bone loss arthroscopically while minimizing disruption to the subscapularis.⁶ A metal-free cerclage construct gives strong circumferential compression of the graft without relying on screw fixation, which can be helpful when I want stable fixation and less implant burden.^{7,8}

What is the main clinical message you want readers to take away about all-suture technology in shoulder instability repair?

All-suture technology is not just about using a smaller anchor. For me, it is about preserving bone, simplifying the workflow, reducing variability, improving tension control, and having a platform that can extend from straightforward Bankart repair to more complex instability pathology.¹⁻³

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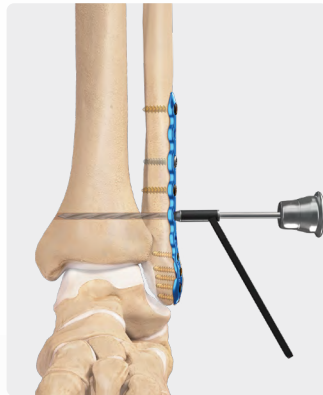


IN THE Loop...

Syndesmosis TightRope® PRO Implant

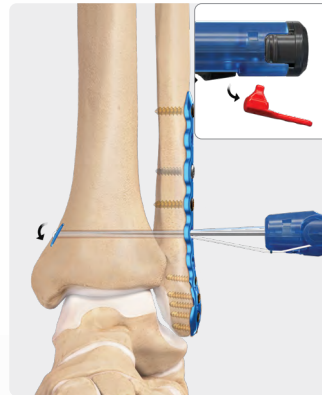
The Syndesmosis TightRope PRO implant features next-generation enhancements that provide a lower-profile construct and bone-conserving technique while maintaining the trusted knotless fixation construct.¹

The TightRope PRO implant integrates seamlessly into ankle fracture repairs with a reproducible 3-step technique: Drill. Deploy. Tension.



Drill

The smaller 3.2 mm drill bit allows for conservation of 25% more bone. The new drill guide allows for increased trajectory options and accommodates both cannulated and solid drill bits.



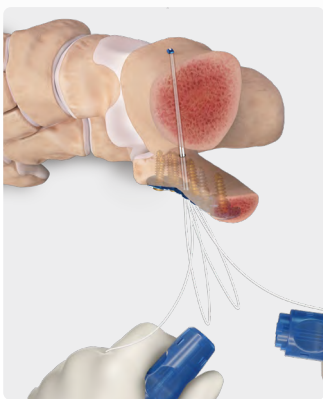
Deploy Medially

With the red tab facing toward the foot, insert the TightRope PRO implant. Remove the red tab and pull back on the switch to deploy the medial button.



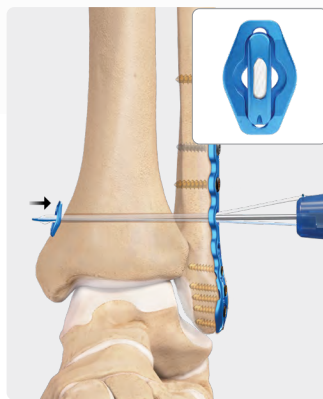
Deploy Laterally

While holding the blue handle in one hand, squeeze the raised black tabs at the back of the inserter with the other hand. Then, separate the inner rod from the blue handle by removing the inner deployment rod. Continue pulling the inner rod until the reduction suture is fully removed and the lateral button is brought toward the lateral cortex.



Tension

Twist the blue suture handles apart to release the TightRope loops and form independent tensioning handles. Tension the suture in line with the drill tunnel by alternating handles. After achieving the desired tension, cut the suture tails.



Note: In cases where an additional button footprint is desired, the universal TightRope washer may be used to increase the contact area on either medial or lateral cortices.

Reference

1. Sanders D, et al. *J Orthop Trauma*. 2019;33(11):531-537. doi:10.1097/BOT.0000000000001559



Subscapularis Series

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Recognition of Subscapularis Tears

Subscapularis (SSC) tears remain a frequently missed diagnosis, with meaningful limitations in both MRI and physical examination. MRI detection is inconsistent, with radiologists identifying only 56% of tears while shoulder surgeons correctly identify approximately 71.4% of tears, still missing nearly one-third of cases despite the benefit of clinical examination. Diagnostic accuracy improves with tear size; however, partial tears, which are the most common presentation, are often overlooked, with detection rates as low as 40% on MRI.¹

Physical examination is similarly limited. The bear hug test demonstrates greater sensitivity than the belly press test (46% vs 23%), but both miss more than 40% of tears overall and perform especially poorly in detecting partial lesions. Combining these tests does not significantly improve diagnostic accuracy. Across both modalities, smaller tears remain the primary diagnostic challenge, likely due to the absence of clear strength deficits or obvious imaging findings.²

Importantly, SSC tears commonly occur alongside other pathologies, including posterosuperior cuff tears and biceps disease, which can serve as key indicators of occult injury. Collectively, these findings highlight that neither MRI nor physical examination alone is sufficient for reliable diagnosis. Surgeons should maintain a high index of suspicion, avoid overreliance on imaging reports, and perform systematic arthroscopic evaluation to minimize missed pathology and optimize outcomes.^{1,2}

Outcomes After Subscapularis Repair

Arthroscopic subscapularis repair consistently results in significant improvements in patient-reported outcomes (PROs) and range of motion, regardless of whether tears are isolated or combined with additional rotator cuff pathology. In a large cohort, outcomes were comparable across isolated SSC, anterosuperior, and posterosuperior tear patterns, with healing rates exceeding 84% in all groups and no significant differences between them. However, SSC healing plays a critical role in combined tears. Unhealed SSC repairs were associated with worse functional scores, lower return-to-activity rates, and diminished strength, whereas healing status had less impact on outcomes in isolated tears.³

From a surgical technique perspective, fixation method does not appear to meaningfully impact outcomes. Patients who underwent arthroscopic SSC repair with either all-suture anchors (ASAs) or hard-body anchors (HBAs) demonstrated significant improvements in PROs, range of motion, and strength, and both anchor types were associated with similarly low failure rates at midterm follow-up. While ASAs showed trends toward greater forward flexion improvement and higher postoperative strength, healing rates and retear rates were comparable between constructs.⁴

Collectively, these findings reinforce that successful SSC repair, rather than implant choice, is the primary driver of clinical outcomes. Surgeons should prioritize achieving durable tendon healing, particularly in the setting of combined cuff pathology, where SSC integrity has a greater influence on functional recovery and return to activity.

Predictive Healing Index

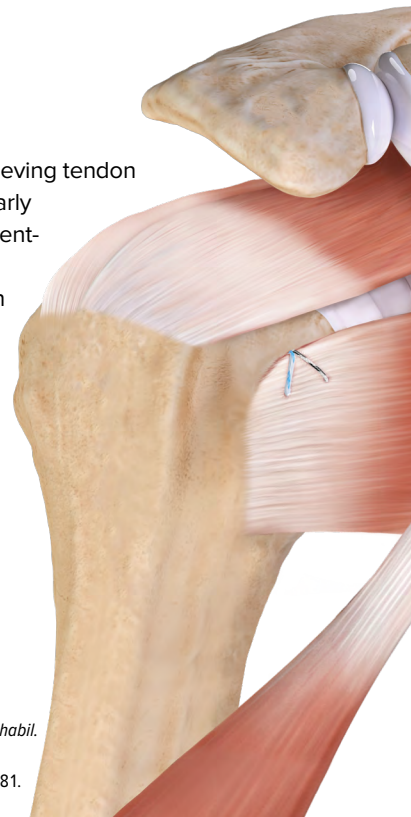
Emerging tools such as the Subscapularis Healing Index (SSC-HI) provide a framework to better preoperative risk stratification by identifying factors that influence healing potential, including tear size, fatty infiltration, BMI, and sex.⁵

Factor	Points of Each Parameter in SSC-HI	Points	Chance of Failure
		≥ 4	4%
		5-8	20%
		≥ 9	55%
Body mass index	2		
Female sex	3		
Supraspinatus fatty infiltration ≥ 3	3		
Subscapularis lower-part fatty infiltration ≥ 2	4		
Lafosse classification ≥ 3	5		

Successful SSC repair hinges on achieving tendon healing. Surgeons should prioritize early recognition, anatomic repair, and patient-specific risk assessment to optimize outcomes, particularly in patients with combined rotator cuff pathology, where SSC healing is critical to restoring shoulder function. Augmentation should also be considered for at-risk patients with higher SSC-HI scores.

References

1. Kilic AI, et al. *Arthrosc Sports Med Rehabil*. 2023;6(1):100825.
2. Kilic AI, et al. *Arthrosc Sports Med Rehabil*. 2023;6(1):100830.
3. Kilic AI, et al. *Orthop J Sports Med*. 2025;13(5):23259671251332638.
4. Gonzalez-Morgado D, et al. *Arthrosc Sports Med Rehabil*. 2024;7(2):101060.
5. Kilic AI, et al. *Am J Sports Med*. 2024;52(8):2071-2081.





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