NanoScope™ Imaging System

The Synergy NanoScope imaging system is the first medical-grade, 3-in-1, high-resolution, chip-on-tip single-use camera system to provide surgeons with needle-sized optics for unlimited access to the surgical site. The NanoScope combines the latest technologies in 1 mm imaging sensors, LED lighting, image management, and OR integration with an intuitive tablet control unit. The portability of the imaging system allows the surgeon to perform arthroscopy in the OR as a substitute or adjunct to traditional arthroscopy, in a treatment room, or in the physician’s office.

Arthrex helped pioneer operative arthroscopy and is once again at the forefront of nano-incision arthroscopy. The full line of percutaneous tools allows for quick atraumatic joint space access, direct visualization, and an operative technique that avoids the traditional portal closing technique. Additionally, a variety of 2 mm nano-scale instruments are available (see page 2) for tissue palpation, resection, extraction, and repair.

The NanoScope system may be used as an alternative to MRI imaging as well as second-look arthroscopy and for image-guided injections.

The convenient and compact imaging system helps improve efficiency and consistency for a ready-when-you-are experience.

NanoScope Camera Specifications
- 400 × 400 resolution with 120-degree field of view
- Auto focus from 3 mm × 100 mm
- Programmable buttons for video and image capture
- 1.9 mm scope

NanoScope Console Specifications
- Medical-camera control unit and camera card edge
- 13” 3-in-1 touchscreen camera control unit
- HDMI output to extend the video signal to in-room displays and integration systems
- Field software upgradable

Nano Arthroscopy Patient Prep Kit

The sterile prep kit includes all the essential accessories to complete a diagnostic arthroscopy in the clinic and in the procedure room. It eliminates the need for an extra assistant to gather sterile accessories.

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Nano Hand Instruments

Harnessing 20 years of excellence in designing arthroscopic hand instrumentation, Arthrex has engineered the next generation of instruments for diagnostic, resection, and extraction procedures. The NanoProbe is an articulating, retractable hook probe that enables surgeons to safely diagnose any potential pathology. The 2 mm NanoBiter, NanoScissor, and NanoGrasper are small, arthroscopic soft-tissue resection instruments designed for atraumatic insertion through tight joint spaces.

- All Nano instrumentation is designed for use in traditional arthroscopic operative theaters or procedure rooms, or to complement in-office arthroscopy.
- The low profile enables access to hard-to-reach pathology without sacrificing resection efficiency.
- Sterile, single-use packaging ensures unmatched cutting-edge sharpness for optimal resection on every procedure.
- Available in standard (130 mm) or small (70 mm) working lengths.

Nano Cannulas

The 2.7 mm Nano cannula features a flexible plastic dam to prevent fluid loss. The cannula is designed to facilitate the insertion of the NanoProbe and Nano resection and excision hand instruments as well as small-diameter shaver blades. The included Tegaderm™ skin adhesive is placed over the Nano cannula to maintain cannula position during instrument removal.

The NanoScope™ system is compatible as a secondary viewing portal with the new double-lumen PassPort Button™ cannula.

*Tegaderm is a trademark of 3M Medical.

Tissue and Fluid Outflow Cannula

The Nano arthroscopy outflow cannula can be attached to a sterile syringe or connected to outflow tubing for removal of resected tissue, loose bodies, and fluid.

Nano Small-Hub Shaver Handpiece, Blades, and Burrs

The Nano arthroscopy small-hub shaver handpiece, blades, and burrs allow for efficient minimally invasive tissue resection and debridement.

- Low-profile tip design facilitates easy introduction into most tight joint spaces without the need for a limb holder.
- Foot-control shaver handpiece is a high-speed, high-torque accessory.
- Small diameter and lightweight handpiece and blades make the NanoScope arthroscopy system one of the most versatile resection tools available.

PARS Quad Tendon Repair System

The minimally invasive PARS quad tendon repair system easily and consistently captures the distal aspect of the quadriceps tendon and uses 4.75 mm BioComposite SwiveLock® anchors for strong fixation on the superior pole of the patella.

- Anatomically contoured guide is reusable, while the suture and passing needles come packaged in a convenient kit.
- PARS system provides the option of transverse or locking sutures, or both.
- Color-coded FiberWire® sutures offer a more organized approach to identifying and securing matched pairs.
Superior Capsular Reconstruction Research

Superior capsular reconstruction reverses profound pseudoparalysis in patients with irreparable rotator cuff tears and minimal or no glenohumeral arthritis.


• This study concluded that performing arthroscopic SCR on patients with profound pseudoparalysis of the shoulder in massive, irreparable rotator cuff tears without arthritis reversed the condition in 90% of patients.
• While reverse shoulder replacement has been proposed to be the only reliable surgical option for this patient group, the authors found SCR “to be a valid joint-preserving option for improving function with a low rate of complications.”
• Nine of 10 patients were actively using their arms after their SCR procedure and 7 of 10 SCR grafts were fully healed at 1-year postoperative visits with no deterioration in the shoulder.
• The complication rate of SCR is less than that of rTSA, and while patients always have the option of rTSA, SCR is preferred for this treatment.

For more research, go to: https://arthrex.info/STOshoulder2

Remplissage Research

Remplissage using interconnected knotless anchors: superior biomechanical properties to a knotted technique?


• This biomechanical study comparing cyclic and ultimate loading for 2 double-mattress remplissage repairs confirmed that “the construct using interconnected, knotless sutures outperformed the knotted construct.”
• Using interconnected knotless sutures may improve the biomechanical strength of arthroscopic remplissage fixation methods for treating shoulder instability.
• The advantage of Knotless SutureTak® and Knotless Corkscrew® anchors is that they have an internal suture splice mechanism in the anchor body, which acts similar to a “Chinese finger trap” where the system holds tightly as tensile strength increases against the suture loop.
• The knotless anchors performed better, demonstrating superior resistance to clinical failure (788 ± 162 N [knotless] and 488 ± 227 N [knotted]).

For more research, go to: https://arthrex.info/STOshoulder1

FiberTag® TightRope® Implant

The new FiberTag TightRope implant facilitates attachment of single-ended grafts, such as quad tendon grafts, to the ACL TightRope RT and ABS implants. FiberTag suture is integrated into the TightRope implant for a strong, consistent connection between the suture and TightRope loop. A simplified suturing technique, along with innovative packaging and the new Graft Clamp graft preparation instrument, make preparing quadrect tendon grafts faster and more reproducible than ever.

Hip SwiftStitch™ Suture Passer

The 1.5 mm SwiftStitch suture passer allows for single-portal suture passing and retrieval during acetabular labral repairs. The crescent shape is ideal for hip anatomy and can be used for both mattress and simple suture configurations, making it one of the most versatile suture passers available.

FiberTak® Biceps Implant System

The FiberTak biceps implant system delivers an “all-suture” anchor designed for use in open, onlay-tissue fixation procedures, particularly proximal and distal biceps repairs. The implant is double-loaded with sliding SutureTape and includes 4 attached needles. The system includes a FiberTak biceps implant, drill guide, 1.9 mm drill, and a free curved needle.
• Minimal bone removal – Place the FiberTak biceps implant in a 1.9 mm drill hole with a depth of 18 mm.
• Strong and reliable implant fixation – Average anchor pullout strength is greater than 66 lbf.1
• Optimized for open procedures – Attached needles enhance OR efficiency and help to accommodate various stitch configurations for preparing the tendon.

Reference

For more research, go to: https://arthrex.info/STOshoulder2
FiberTape® Tendon Compression Bridge Kit

Successful repair of the subscapularis tendon plays a vital role in contributing to favorable outcomes following total shoulder arthroplasty procedures. Failure to adequately repair the subscapularis often leads to revision arthroplasty, including the potential removal of the original device and its replacement with a reverse shoulder prosthesis.1,2 The FiberTape Tendon Compression Bridge Kit provides surgeons with an easy-to-use subscapularis repair technique, regardless of which humeral stem they may be currently using.

- FiberTape suture provides a broader profile and better tissue cut-through properties than ordinary sutures3
- Outstanding tissue compression when used with reusable tensioning device
- Preconfigured knots and needles attached for efficiency
- May be used with subscapularis peel or lesser tuberosity osteotomy techniques
- Trusted SpeedBridge™ repair suture configuration
- May be used with any stemmed humeral implant

References

Universal Glenoid™ Convertible Baseplate

The Universal Glenoid convertible baseplate can be used with both Univers™ II/Apex anatomic and Univers Revers™ shoulder arthroplasty devices. Use the Virtual Implant Positioning™ (VIP) system to plan for these challenging cases and the Universal Glenoid convertible baseplate for anatomic arthroplasty for severely medialized/eroded glenoids. The baseplate can be seamlessly converted to reverse arthroplasty if the patient develops a deficient rotator cuff.

- Anatomically shaped
- Press-fit central fixation with porous coating
- Locking or compression 6.5 mm central screw
- Variable angle locking or compression 4.5 mm superior and inferior screws
- Two poly-thickness options for restoring joint line in anatomic arthroplasty
- Glenospheres available in both lateralized and distalized options for proper tensioning in reverse arthroplasty

Univers Revers™ Modular Glenoid System

The Univers Revers Modular Glenoid System is a significant addition to the Univers Revers system portfolio, providing surgeons with unsurpassed implant versatility for addressing varied patient glenoid anatomy during reverse total shoulder procedures. The Univers Revers Modular Glenoid System is indicated for use only with the Univers Revers humeral components.

- Two baseplate diameters (24 mm or 28 mm) to accommodate varied glenoid anatomy
- Choice of modular central post or central hybrid screw for robust glenoid vault fixation
- Multiple lengths of central post/screws for diverse glenoid vault depths
- Glenosphere sizes and offsets tailored to facilitate ROM and stability
- Incorporation of BioSync™ wedge for bony in-growth and enduring implant fixation
- Lateral augmentation within baseplate, allowing center of rotation (COR) to be adjusted laterally in 2 mm increments
- Optimized implant positioning via VIP™ system

References
**Newly Released DynaNite® SuperMX Staple**

Arthrex is excited to announce the release of the DynaNite SuperMX continuous compression staples. Offering the same benefits of continuous compression as the DynaNite Nitinol staples, the SuperMX Nitinol staples can be inserted quickly with the easy-to-use, reloadable delivery device.

- Wider bridge (4.5 mm) provides better rotational stability in midfoot and hindfoot procedures.
- Delivers 50% more compression than the same size DynaNite staple.
- Available in the following sizes: 15 mm × 15 mm, 18 mm × 15 mm, 18 mm × 18 mm, 20 mm × 15 mm, 20 mm × 20 mm, and 25 mm × 20 mm.

**Reference**


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**BioSurge™ System**

The Arthrex BioSurge system combines the superior matrices of the AlloSync™ bone grafting solutions line with the Angel® system’s proprietary technology.

- Angel system delivers customized platelet-rich plasma concentrate (cPRP) from bone marrow aspirate (BMA).
- Hydrated AlloSync bone grafts provide an optimal scaffold for BMA-derived cPRP, which is a rich source of platelets and nucleated and progenitor cells.

**Reference**


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**AlloSync™ Allograft Anatomic Reconstruction Wedges**

AlloSync allograft reconstruction wedges provide an alternative to autograft bone, which research suggests is equivalent to structural allografts in fusion rates for osteotomies and fusions of the foot.

- Anatomically contoured grafts for Cotton and Evans procedures
  - 8 profiles available for Cotton procedures
  - 12 profiles available for Evans procedures
- Reliable and precise correction

**Reference**


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**ArthroFX® Large External Fixation System**

The ArthroFX large external fixation system is designed to give surgeons a simple, efficient, and cost-effective solution for temporary or definitive fixation. The system is used to stabilize fractures with associated severe soft-tissue injuries, infections, or other conditions amenable to external fixation. The single-tray system contains:

- 11 mm carbon fiber rods
- 6 mm transfraction pins
- 4 mm and 5 mm Schanz pins
- Large combination clamps and multipin clamps with rod attachments

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**Evans Osteotomy**

Cotton Procedure

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Fracture Reduction Options

The FibuLock system allows minimally invasive fixation, but anatomic fracture reduction of the fibula is still required to restore length and rotation.

Percutaneous Reduction
- Often possible for very recent fractures
- Easier for minimally displaced fractures
- Difficult for delayed presentation fractures or if the fracture is very short and malrotated
- Don’t hesitate to make a mini-open incision if anatomic reduction is not possible percutaneously

Mini-Open Reduction
- Use fluoroscopy to mark the proximal and distal extent of the fracture.
- Begin with a 3 cm incision. Bias the incision more distal and anterior on the fibula to allow placement of the distal interlocking screws and palpation or visualization of the fibula in the incisura for anatomic syndesmotic reduction.

Formal Open Reduction
- The mini-open incision can be extended as necessary in more complex fractures of the fibula or when there is significant syndesmotic instability.
- Whatever incision is used, it will always be smaller and result in less stripping of vital blood supply than a formal plate ORIF incision.

Clamping the Fracture
- The clamp handles must be placed proximal to the fracture to avoid blocking the nail jig.
- Most surgeons prefer to provisionally clamp the fracture with the handles placed distally and then add additional clamps (normally 2 are required) oriented correctly before releasing the original provisional clamp.
- Recheck the fracture reduction and clamp grip after every step of canal preparation and nail insertion.
- If at any point reduction is lost, simply reduce and clamp the fracture again.

Entry Point and Trajectory

AP: Lateral to the edge of the malleolar fossa
Lateral: In line with the center of the canal

Take multiple AP and lateral fluoroscopy views to ensure the guidewire is angled towards the center of the canal. Note: Avoid placing the guidewire too lateral as reaming will violate the lateral cortex of the fibula. Once a good entry point and trajectory are established, advance the guidewire further into the fibula.
Entry Point and Trajectory (cont)

- Entry point and trajectory are key to a successful case. Spend time examining the radiographic anatomy of the distal fibula in different degrees of rotation before you introduce a wire.
- The tendency is to be too lateral. Inverting the hindfoot can help establish a more medial start point.
- Check your start point on both AP and lateral fluoroscopic views before advancing the guidewire.
- If you have a good start point but have too medial of a trajectory and hit the medial fibula wall with the wire, this can be easily fixed with the fracture finger:
  - Perforate the start point on the distal fibula with a 6.2 mm reamer. Remove the reamer and wire and insert the fracture finger. This will allow you to manipulate your trajectory within the fibula canal.
  - The gold guidewire can now be passed through the fracture finger.
  - Remember to pass the reamer again to complete preparation of the distal canal.

Syndesmosis TightRope® XP Fixation

- Syndesmotic stability can still be tested, with the jig in situ, with a traditional external rotation stress test, the Cotton test, or by direct visualization through your mini-incision or an accessory incision.
- Similarly, the reduction can be visualized and palpated through the mini-open incision, examined with fluoroscopy, and/or using an arthroscope.
- There are 2 levels of syndesmotic fixation options through the FibuLock™ system that accept TightRope XP fixation.
- If 2 TightRope XP implants are desired, drill both pilot holes (with the syndesmosis reduced) before the jig is removed. Once the jig is removed, the TightRope XP implants can be placed and tensioned.
- The TightRope XP design eliminates the need for a medial incision, allowing the button to sit underneath the medial soft tissues and periosteum.
- This eliminates operative time and risk to the saphenous nerve and vein when making the medial incision.
Autologous tissue has long been important in the treatment of orthopedic injuries. The use of this tissue has the potential to speed the healing process and it reduces the need to rely on synthetic materials or donor tissue.

Arthrex has made collecting autograft tissue simple and cost-effective with its suction-activated GraftNet™ autologous tissue collector. When connected in-line to an arthroscopic shaver and suction, the GraftNet device may be used to remove tissue debris from a surgical site. This recovered autologous tissue is collected in a sterile chamber, making access to autograft tissue as simple as Resect and Collect™.

To improve healing, the GraftNet device allows the surgeon to collect and harness the biologic capacity of healthy autologous tissue (bone, articular cartilage, synovium, fat pad, bursa, etc) that would otherwise be discarded during the normal course of routine surgeries.

When you remove an ACL stump or a subacromial bursa, for example, both are shown to have excellent cellular activity and other positive biologic factors. So, intuitively, having an efficient way to preserve that tissue for subsequent use at the surgical site as an adjunct to surgery makes sense.

For cartilage applications, you can use the GraftNet device to collect particulated, autologous articular cartilage to supplement a marrow stimulation procedure performed using the PowerPick™ device.

Alternatively, tissue collected with the GraftNet device can be mixed with BioCartilage® allograft to create a paste that is easy to work with. This single-stage, cost-effective method produces a matrix-augmented autologous chondrocyte transplantation graft to treat osteochondral lesions of the knee, hip, or talus.

The GraftNet system also works well during ACL reconstruction for collecting autologous bone graft while simultaneously reaming the femoral tunnel. The bone graft can be used to backfill BTB harvest sites or as needed to fill bone tunnels.

I use the 5.0 mm bone cutter on aggressive oscillate to obtain the proper particulate size for many of these procedures. Further work is being done to highlight the various methods to recover and prepare these grafts for surgical use. There is a need, of course, to continue to study these potential applications for their clinical efficacy, but the basic science and decades of clinical evidence supporting autologous tissues being used in surgery provide an excellent foundation of research and support for a multitude of indications. The greatest value of using the GraftNet device is that it provides a simple, cost-effective harvest, and collects autologous tissue to use as a surgical adjunct to potentially improve surgical outcomes for patients.

**Bone**
- When preparing an ACL tunnel for BTB reconstruction, use the GraftNet device to recover bone that can be used to backfill the harvest site.
- A suction wand may be helpful to recover bone in a nonarthroscopic environment.
- Once recovered, mix the autograft bone with ACP or cPRP from BMA processed with the Arthrex Angel® system.

**Cartilage**
- Autograft OATS® procedures are the benchmark when treating small, symptomatic articular cartilage lesions.
- Attach the GraftNet tissue collector and run the bone-cutter device in oscillate mode to resect and particulate an osteochondral autograft. The autograft tissue may be mixed with BioCartilage matrix before delivery to the defect site.
- Data indicate chondrocytes maintain excellent viability (>90%) and metabolic activity!1

Reference
Knotless 1.8 FiberTak® Soft Anchor Glenoid Labrum Repair

The Knotless 1.8 FiberTak suture anchor is the latest addition to the tensionable knotless anchor family. This innovative anchor provides surgeons the benefits of soft anchors combined with knotless soft-tissue fixation. At only 1.8 mm, this suture anchor is the smallest knotless anchor on the market providing 48 lb of secure, low-profile, knotless suture fixation. The Knotless 1.8 FiberTak soft anchor can be implanted with simple, reproducible insertion and passing techniques through a straight or curved delivery system for full access around the glenoid through standard arthroscopic portal placement. Suture tension can be controlled and adjusted under direct visualization using a knotless mattress, simple, or interconnected suture configuration.

1. Prepare the pilot hole using the 1.8 mm drill through the FiberTak spear and insert the anchor. Remove the inserter handle and confirm the anchor is set in cortical bone by gently pulling on all 3 sutures until a solid end point is achieved.

2. Using a curved SutureLasso™ suture passer, pass the white/blue repair suture through the capsulolabral tissue inferior to the anchor location.

3. Retrieve the white/blue repair suture and round-looped side of the white/black shuttle suture through the anterosuperior portal. Load the repair suture through the loop of the shuttle suture. Fold the white section of the repair suture in half (at the purple mark) and crease the suture with your fingers.

4. Pull the SutureTape side of the white/black shuttle suture through the same portal where the anchor was inserted to transfer the repair suture back into the anchor. Advance the shuttle suture with repeated light tugs until the repair suture is passed through the suture splice locking mechanism and back out of the cannula.

5. Pull the free end of the repair suture until the desired tension on the repair is achieved. A tissue grasper can be used to position the labrum in the desired location while applying tension on the repair. Cut the suture flush using a mini suture cutter.

6. Completed glenoid labrum repair by Peter J. Millett, MD, MSc (Vail, CO) using 4 Knotless FiberTak soft anchors.

To view the video: https://arthrex.info/STOITLfibertak

Reference
IntraOsseous BioPlasty™ (IOBP) Treatment Algorithm of Osteochondral Lesions

Drs. Philbin and Bishai discuss the treatment of subchondral bone marrow lesions using the IntraOsseous BioPlasty (IOBP) surgical technique. The IOBP™ procedure is the biologic treatment of acute and chronic bone pathologies with the intent to restore normal bone anatomy and function. The IOBP technique includes the direct application of bone marrow using the Arthrex Angel® cPRP and bone marrow processing system.

Q: What are your applications for using the IOBP technique and how do these patients present on clinical exam?

Dr. Bishai: Bone marrow lesions can play a big role in a patient’s pain. When I see an MRI where the patient clinically presents differently from a traditional articular-type pathology, I like to look for an opportunity to take care of the subchondral bone. One way to address that bone in these patients is to use the IOBP system. It gives me an opportunity to heal the stress fracture and it’s less invasive with no plate or screws, letting biology heal the patient.

Q: What patients are ideal candidates for the IOBP procedure?

Dr. Bishai: In the knee, patients with acute on chronic or early chronic patients that present with symptoms that have not disappeared with nonoperative treatment such as NSAIDs, unloader braces, and activity modifications.

Dr. Philbin: In the foot and ankle, osteochondral lesions are a main indication (whether or not the cartilage cap is intact, and whether treating retrograde or antegrade). It may be used on patients presenting with precollapse avascular necrosis, and patients who have bone marrow lesions that have not improved over time. It is used as a treatment in early-stage arthritis, where patients have a big bone marrow lesion underneath the arthritis, but not at end-stage arthritis.

Q: Which patients may not be ideal candidates for the IOBP procedure?

Dr. Philbin: I would say someone that doesn’t have good structural integrity, for example, osteochondral lesions where they have an uncontained lesion, where the portion of the side is not intact. Or patients with avascular necrosis that already have a collapse or someone with a true fracture. Also, patients who present with significant arthritis on both sides of joints are not recommended for an IOBP procedure.

Dr. Bishai: Similarly, patients with significant arthritis or with malalignment are not ideal candidates for an IOBP procedure.
Q: From where do you aspirate? How is the Arthrex Angel® system unique and what are the main features of the system that you appreciate?

Dr. Bishai: In the knee, I typically aspirate from the medial side of the proximal tibia. It is easy to collect a nice volume and then load it into the Arthrex Angel system. The great thing about the Angel system is that it is customized and automated, it gives me the highest concentrations, and it is reproducible.

Dr. Philbin: In the foot and ankle, I take the aspiration from the calcaneus. Another benefit to using the Arthrex Angel system is the aspiration syringes – they have a feature that locks the syringe, rather than having to constantly pull back on the plunger. It is something that other systems don’t have.

Q: Why use a flowable DBM to deliver Angel cPRP?

Dr. Bishai: Flowable DBM such as AlloSync™ Pure or gel makes the cPRP a little thicker so it flows better and finds its path in the bone. It provides osteoconductivity and osteoinductivity to help with the healing of these BMLs.

Dr. Philbin: That is right. I find that with other systems, it is hard to inject. With AlloSync Pure or gel, wherever you put it, it stays in place. It doesn’t wash away easily.

Q: What are the risks associated with the IOBP procedure?

Dr. Philbin: I feel there is very limited risk. It is the biological way of healing. You're not burning a bridge. If it doesn’t work, you can use it again or do something else.

Dr. Bishai: I couldn’t agree more. When I tell a patient we are going to use this procedure, I explain to them that everyone wants to know the failure rate. There are no true failures. If nothing else, we have given them healthier bone for a subsequent procedure.

Q: What are your post-op protocols after an IOBP procedure?

Dr. Bishai: I treat these patients the same as after a traditional knee scope. We do pressurize the bone a little bit, especially when injecting IOBP. So I advise patients that it will be more painful than a standard knee scope. I will prescribe stronger medication but I also perform an adductor canal block so they can use crutches for balance, but they don’t need to use them if they don’t want them. They can start therapy immediately so that weightbearing is tolerated and they can slowly start to be more active, letting everything heal. During this time, I recommend a DVT prophylaxis of aspirin 325 mg twice a day for 14 days and then transfer them to an anti-inflammatory medication.

Dr. Philbin: For a standard osteochondral lesion patient, they're generally non-weightbearing for about a month but we do get motion going quickly. For BMLs and AVN, patients are non-weightbearing for about 2 weeks after surgery. For arthritic lesions, patients can bear weight as tolerated as early as a week after surgery.

For more information on IOBP: https://arthrex.info/STOIOPB
Shoulder Labral Repair: Knotless vs Knotted Technique

Purpose
To report the early clinical outcomes of pain, function, and quality of life for patients who underwent shoulder labral repair with either a knotless or knotted technique.

Method
The inclusion criteria for this analysis were patients enrolled in the Surgical Outcomes System™ global registry who underwent a labral repair with either a knotless or knotted technique based on site data entry. Standard patient-reported outcomes questionnaires for VAS, ASES, and SANE were administered at standard time points postoperatively. Results were reported from presurgery to 2 years postsurgery. The numbers of compliant patients included per group are shown below.

<table>
<thead>
<tr>
<th>Time Point</th>
<th># of Compliant Knotless Patients/Total # of Patients</th>
<th># of Compliant Knotted Patients/Total # of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presurgery</td>
<td>778/1103</td>
<td>475/782</td>
</tr>
<tr>
<td>1 year</td>
<td>410/836</td>
<td>284/640</td>
</tr>
<tr>
<td>2 year</td>
<td>272/631</td>
<td>182/427</td>
</tr>
</tbody>
</table>

Trend Conclusion
Based on these results for shoulder labral repair, there appears to be a similar trend in pain, function, and quality-of-life scores for the knotless vs knotted technique. For this comparison, approximately 25% of the cases documented operative time. The average operative time was approximately 36 minutes less for cases using knotless technology. However, further statistical analysis is necessary to determine if these overall patient outcomes have statistical significance.

Reference