TO ALL SMALL JOINT SURGEONS: 
OUR COMMITMENT TO YOU

To enhance your educational training and product knowledge, we have established a quarterly newsletter to keep you updated on all Arthrex Small Joint products and recent upgrades to current offerings. We will include information on the latest surgical techniques, scientific data supporting these new techniques, as well as tips and pearls for how best to use the many systems we offer.

We will also have information on our cadaver lab courses in each of our lab facilities across the country in Naples, FL; Scottsdale, AZ; Los Angeles, CA; and updates on regional training at distributor facilities.

Please take time to review the newsletter and hopefully you will find it informative. Please feel free to contact our product development team and make suggestions for topics you would like to see covered in future issues.

We look forward to continue establishing relationships with all small joint surgeons and serving those who have helped us build our growing business.

Thanks for your support!

Pete Denove
Group Manager - Small Joint

1370 Creekside Boulevard, Naples, Florida 34108-1945
800-934-4404 • Fax: 800-643-9310
www.arthrex.com
DEAR FOOT AND ANKLE SURGEONS,

As the leader in orthopaedic sports medicine surgical procedures, Arthrex now applies 25 years of experience to addressing surgical problems encountered by foot and ankle surgeons. Their challenge to us was, can you take some of your 3,000 innovative products for arthroscopic and minimally invasive orthopaedics, make them smaller and stronger with new materials and designs to solve specific surgical challenges of foot and ankle surgeons?

The answer has been a resounding Yes!

Over the past five years, Arthrex has dedicated research and engineering resources exclusively to solving surgical problems for foot and ankle surgeons with innovative products and cadaveric surgical skills education programs.

Arthrex is proud of its contribution to small joint surgery and the advancements we have made together with leading foot and ankle surgeons throughout the world. Arthrex now has over 250 products used in foot and ankle surgery with over 75 new products in the pipeline for release this year. We are rising to the challenge of producing new, innovative products that will meet and exceed expectations for foot and ankle surgeons with state of the art materials, engineering and medical education in the future.

Reinhold Schmieding
President & Founder
Arthrex Inc.
Q. What has been your standard approach to treating the athlete with syndesmotic repair?
A. Our standard approach for unstable and diastased syndesmotic injuries has been percutaneous or open reduction with two-screw fixation. Screw removal is typically performed at 12 weeks. Due to the risk for screw breakage, we ask the individual to remain partial weight-bearing in a boot until that time.

Q. How has the TightRope helped you treat this injury?
A. The use of the TightRope has enabled us to avoid screw removal and the concern for screw breakage. We have also used the TightRope in conjunction with a screw and have found this to be beneficial in the event of premature screw breakage or if removed prior to completion of ligament healing - we still have syndesmotic protection.

Q. What technical pearls can you offer for using the TightRope Syndesmosis Kit?
A. Ask your hospital and/or Arthrex representative to keep a minimum of two stainless steel and two titanium kits in the operating room at all times. These cases are often done at unexpected times. Assuming no fibular fracture, we recommend the use of two TightRopes. In the event of ORIF of a fibular fracture with syndesmotic injury, we typically use one TightRope through the hole of the plate that approximates a distance of 2.5 - 3.5 cm proximal to the joint.

In seating the button on the far cortex (tibial), it is helpful to separate the strands of the FiberWire® medial to the fibular button and guide the tibial button down like a “puppet on strings”.

One may wish to place a TightRope at the time of screw removal to insure a longer period of syndesmotic protection - this can oftentimes be done utilizing the screw hole itself.

Q. Describe your results.
A. We have utilized this device in all types of patients varying in age, occupation, degree of injury, etc. We have had success in the elite athletic population as well. We have no known cases of failure - all have maintained reduction of the syndesmosis and none have required removal. It has enhanced our rehab program to allow for earlier range of motion, pool therapy, etc.

Q. Are there instances where screws should be used in conjunction with a TightRope?
A. The use of a screw with the TightRope may be beneficial in cases of significant diastasis and instability of the syndesmosis. I will place a four-cortice cortical screw first, bring the syndesmosis into proper apposition and then place the TightRope.

Q. What other areas could possibly be treated with this device?
A. I believe that the TightRope will have applications for other ligament injuries of the foot, such as Lisfranc, particularly as smaller diameter devices become available. In the case of the Lisfranc, the TightRope can mimic the damaged Lisfranc ligament, coursing from the medial cuneiform to the base of the second metatarsal.
Log-on to www.arthrex.com to view the latest surgical techniques!

**THE ARTHREX**

**TIGHTROPE®**

**Fixation System**

Four stranded loop of 
#2 or #5 FiberWire®
between two titanium 
or stainless steel buttons

**TightRope Plus –**
**Ankle Syndesmosis Repair**
- Added “pull through” suture for easier medial button placement
- Demonstrates fatigue life over two times that of standard metal screws
- Eliminates broken screw complications
- Achieves strong anatomical and flexible fixation
- Comes with #5 FiberWire

**Mini TightRope – Hallux Valgus and Lisfranc Repair**
- Intermetatarsal angle correction without osteotomy
- Does not shorten 1st metatarsal
- Stabilizes metatarsal cuneiform joint
- Earlier potential for rehab and return to normal footwear
- No need for routine removal
- Comes with #2 FiberWire

Walk with Confidence...
...offers the surgeon the advantage of exact sizing PIPJ implants every time, without leaving pin material across the DIPJ

Advantages
- Exact sizing every time. Drill, measure and cut the pin the exact length of the proximal and middle phalanx (PIPJ fusions)
- Distal pin migration minimized due to mobile DIP joint
- Pin material allows bending of the toe after implantation ("flexed toe fusion")
- Superior shear strength compared to other absorbable pins
- Clinical outcomes equivalent to metal pins

Indications
- Arthroplasty and/or fusion of the proximal, middle and distal phalanx of the toe
- Fusions of the phalanges and metacarpals

Bioabsorbable Experience
- Over 1,000,000 bioabsorbable implants successfully placed since 1994
- More surgeons worldwide trust Arthrex for their bioabsorbable implants

Formula
- 100% PLLA (poly(L-Lactide))
- Documented material safety
**Trim-It Drill Pins 1.5 mm and 2 mm**

The **Trim-It** Drill Pin offers the surgeon the advantage of an all-in-one system.

Pin placement made easier. By using a standard quick-connect pin driver, the surgeon can drill and place the pin in one step.

The bioabsorbable portion of the pin is seated in the pin driver during the drilling phase. The metal tip (2 mm) is drilled past the far cortex and cut off with the Bone Cutting Forceps or Hot Loop Cutter.

In cases of extra hard bone stock, or if using the 1.5 mm **Trim-It** Drill Pin, a metal predrill pin K-wire is used to create a pilot hole. The Graduated Bone Tamp in the disposables kit is used to countersink the pin below the skin surface. It's that simple!

The 1.5 mm **Trim-It** Drill Pin is recommended for hammertoe use only.

**Trim-It Drill Pin Benefits:**
- Pin seats in any standard pin driver
- Quick and easy placement techniques
- Superior shear strength compared to other absorbable pins
Hallux rigidus and limitus are debilitating conditions that usually affect older populations, but can affect younger patients in a number of situations.

The AnaToemic Phalangeal Hemiprosthesis is an ideal option in these cases where a joint sparing procedure is preferable to arthrodesis and an immediate gain in ROM is desired.

- **2.4 mm Profile Head** - Requires minimal resection of the phalanx
- **Grit-Blasted Phalangeal Surface** - Promotes bony ongrowth without revision headaches
- **Phalangeal Reamers** - Creates a perfectly congruent mating surface for the prosthesis
- **Pilot Punch** - Accurately and reliably puts the prosthesis where the surgeon wants
- **Cobalt-Chrome** - Smooth and hard to minimize the chance of osteophytes recurrence
- **Straightforward Technique** - Simplified instrumentation minimizes guesswork and maximizes consistency
The ProStop Advantage

Subtalar ProStop Arthroereisis Implant

The titanium, subtalar ProStop Arthroereisis Implant is indicated for use as an adjunct with soft tissue (FDL tendon transfer and posterior tibial tendon repair, Kidner) and bony (calcaneal osteotomy) reconstructive procedures for the correction of flatfoot deformities. The implant, along with the other procedures listed, preserves function and supports the restoration of normal anatomy.

The concave back end offers the surgeon easier access with a guide pin, in the event that implant removal is required. The color-coded and laser-marked instrumentation is easy to use and comes with trial sizers already on a shaft.

Scientific Rationale

In recent years, numerous scientific investigators have shown promising results with arthrodesis. Biomechanically, sinus tarsi implants have been shown to improve arch mechanics and alignment while clinically they have enhanced the results of flatfoot correction.

1. Schon Lew et al., Union Memorial Hosp., October 2005
2. Vora AM, et al. JBJS, August 2006
3. Atangio GA et al., Clin Biomech, October 2004
5. Needleman RL, Foot Ankle Int, January 2006
6. Gutierrez PR, Foot Ankle Int., November 2005

Features and Benefits:

• Better Fit
  Contour of the titanium implant supports the anatomy of the tarsal canal

• Safer
  Soft threads are easier on bone

• Concave Back
  Allows easy guide pin access

• Straightforward Instrumentation
  One piece color-coded trial implants support easy and accurate placement

• Implants
  Wide range of sizes

Implants

ProStop Arthroereisis Implant, 7 mm x 12 mm  AR-4207-12
ProStop Arthroereisis Implant, 8 mm x 12 mm  AR-4208-12
ProStop Arthroereisis Implant, 9 mm x 14 mm  AR-4209-14
ProStop Arthroereisis Implant, 10 mm x 14 mm  AR-4210-14
ProStop Arthroereisis Implant, 11 mm x 16 mm  AR-4211-16
ProStop Arthroereisis Implant, 12 mm x 16 mm  AR-4212-16
**Bio-Compression Screw**

**Features:**
- Headless
- Absorbable
- Self-compressing
- Straightforward technique
- 20 mm, 22 mm, 24 mm and 26 mm lengths
- 2.7 mm distal, 3.7 mm proximal diameters x 20 mm
- Solid enhanced PLLA amorphous copolymer

**Procedure:**

1. **Remove the medial eminence, create osteotomy and shift metatarsal head.** Fix with one guide wire at the desired location of the screw and another guide wire parallel and to the side. Trim excess bone from medial side.

2. **Use the Depth Device to estimate the appropriate screw size.** This determines the drill/tap that will be used.

3. **With the appropriate size cannulated drill, drill the dorsal cortex under power.** Stop when the plantar cortex is felt.

4. **Drill the plantar cortex by hand.** The first laser line should just come to the dorsal cortex, as shown. Guide wire may be removed.

5. **Tap the drill hole** with the appropriate size tap until the back of the threads are just at the dorsal cortex, as shown. Note: Tapping may not be necessary in very soft bone.

6. **Insert the screw** until the back is flush with the dorsal cortex. Excess screw length may be trimmed with a Hot Loop Cutter. Normal post-op protocol should be observed.

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**Chevron Fixation - Average Force to Failure**

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Force N of</th>
<th>N of Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthrex 2.7 mm Bio-Compression Screw</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>2.4 mm Cannulated Metal Screw</td>
<td>150</td>
<td>200</td>
</tr>
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</table>

*data on file*
SUTUREBRIDGE™ IMPROVES REPAIR STRENGTH FOR ACHILLES TENDON REATTACHMENT

More surgeons are converting to a SutureBridge construct for reattachment of the Achilles tendon, following a resection for Haglund’s or retrocalcaneal exostosis. This double row technique creates a larger contact ‘footprint’ for the Achilles tendon on the back of the heel, improving strength and allowing surgeons to feel more comfortable with early return to activities for these patients.

While there are different technique variations for different situations, the basic construct for the Achilles SutureBridge consists of two 5.5 mm Bio-Corkscrew® FT anchors proximally, and two 3.5 mm Bio-PushLock® anchors distally.

The Bio-Corkscrews are placed into the cancellous bone of the posterior tubercle with a mattress or comparable FiberWire stitch through the Achilles. One suture end from each knot is placed through the eyelet/tips of the PushLock, tension is adjusted, and the anchor is placed inferior to the Achilles attachment and below the proximal anchor. The other PushLock is placed in the same manner on the other side of the tendon/heel. The sutures are cut at the cortex. The finished result looks similar with knots lying down and an ‘M’-shaped footprint compressing the tendon to good cancellous bone.

An Arthrex-sponsored study at the University of Connecticut took place in March to look at the biomechanics of the construct in terms of initial compression pattern, compression during cyclic loading and ultimate load to failure. **Preliminary results indicate that the average load to failure for the SutureBridge is more than double that of a conventional two-anchor repair.**

"In a prospective study of 26 patients with calcific insertional Achilles tendinosis who failed conservative treatment, James R. McWilliam, M.D., found that patients’ AOFAS scores increased 18 points after receiving an Achilles detachment and repair with an immediate weight-bearing regimen. During an average two-year follow-up, he also discovered that 92% of the patients reported good or excellent results with the procedure. They also repaired the Achilles using the SutureBridge technique. Surgeons immediately cast patients in a neutral position. “With the tendon fixed in such a way as to allow neutral casting, there’s much less postoperative tension,” McWilliam said. “It also allows patients to be weight-bearing early."

"The surgeons allowed patients limited weight-bearing to perform activities of daily living."
- Gina Brockenbrough, Orthopedics Today, 2006

<table>
<thead>
<tr>
<th>Achilles SutureBridge vs. Two-Anchor Construct Peak Load Comparison*</th>
<th>Peak Load</th>
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</thead>
<tbody>
<tr>
<td>Average Peak Load</td>
<td></td>
</tr>
<tr>
<td>SutureBridge</td>
<td>300 N</td>
</tr>
<tr>
<td>Two-Anchor</td>
<td>200 N</td>
</tr>
</tbody>
</table>

*data on file

"Note: Bio-Tenodesis Screws may be substituted for the PushLocks distally, according to surgeon preference."
With greater pull-out, stronger suture and cost conscious pricing, our soft tissue anchors are growing quickly in popularity.

If there is an anchor that you want to try out for the first time, please let your rep know.

<table>
<thead>
<tr>
<th>Product Tested</th>
<th>Part Number</th>
<th>Type of Test</th>
<th>Tested on</th>
<th>Results</th>
<th>Mode of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini Bio-SutureTak®</td>
<td>AR-1322BNF</td>
<td>Axial Pull-Out</td>
<td>30lb/ft³ sawbone</td>
<td>119.8 +/- 4.8N</td>
<td>(6) FiberWire breakage</td>
</tr>
<tr>
<td>Micro Bio-SutureTak</td>
<td>AR-1320B</td>
<td>Axial Pull-Out</td>
<td>30lb/ft³ sawbone</td>
<td>116.3 +/- 13.8N</td>
<td>(4) eyelet break</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) anchor pull-out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) FiberWire breakage</td>
</tr>
<tr>
<td>Small Bone FASTak™</td>
<td>AR-1322-752SF</td>
<td>Axial Pull-Out</td>
<td>30lb/ft³ sawbone</td>
<td>10.5 +/- 5.8 N</td>
<td>(6) FiberWire breakage</td>
</tr>
<tr>
<td>V-Tak®, 2.2 x 7 mm</td>
<td>AR-8735B</td>
<td>Axial Pull-Out</td>
<td>30lb/ft³ sawbone</td>
<td>102 +/- 22N</td>
<td>(3) suture loop breakage</td>
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<tr>
<td>(polysulfone)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) suture pull-out</td>
</tr>
<tr>
<td>Mitek Mini Quickanchor</td>
<td>212033</td>
<td>Axial Pull-Out</td>
<td>30lb/ft³ sawbone</td>
<td>44.2 +/- 1N</td>
<td>(3) anchor pull-out</td>
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<td>Mini Bio-SutureTak</td>
<td>AR-1322BNF</td>
<td>Axial Pull-Out</td>
<td>Cadaver Metatarsal</td>
<td>75 +/- 31N</td>
<td>FiberWire breakage and anchor pull-out</td>
</tr>
<tr>
<td>V-Tak, 2.2 x 7 mm</td>
<td>AR-8735B</td>
<td>Axial Pull-Out</td>
<td>Cadaver Scapholunate</td>
<td>35.6 +/- 12.4N</td>
<td>(3) suture slip</td>
</tr>
<tr>
<td>(PLDLA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) suture pull through tissue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) pin pulling through bone</td>
</tr>
<tr>
<td>Mitek MiniLoc</td>
<td></td>
<td>Axial Pull-Out</td>
<td>Cadaver Scapholunate</td>
<td>32.7 +/- 15.6N</td>
<td>(3) anchor pull-out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(5) suture break or pull-out</td>
</tr>
<tr>
<td>Mitek MicroFix Quickanchor</td>
<td>212855</td>
<td>Axial Pull-Out</td>
<td>Cadaver Phalanx</td>
<td>37.50 +/- 6.71N</td>
<td>(4) anchor pull-out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) suture break</td>
</tr>
</tbody>
</table>
**TightRope Plus (Ankle Syndesmosis)**

*(AR-8924DS - Titanium and AR-8925DS - Stainless Steel)*

A second suture has been added to the original TightRope product. The suture may offer the surgeon added ease of flipping the medial button during placement.

**Bio-Compression Screw Instrumentation Set (AR-5025S)**

**Bio-Compression Screw Implants:**

- Bio-Compression Screw, 20 mm  AR-5025B-20
- Bio-Compression Screw, 22 mm  AR-5025B-22
- Bio-Compression Screw, 24 mm  AR-5025B-24
- Bio-Compression Screw, 26 mm  AR-5025B-26

**Elbow/Ankle Arthroscopy Set (AR-8650S)**

This set of instruments was designed by small joint arthroscopists to aid small joint patients and to finally eliminate the need to borrow awkward instruments from the shoulder set. The complete set of hand instruments includes ring-handled graspers and punches, as well as rasps, curettes, osteotomes, elevators and Chondro Picks for the daily work of the small joint arthroscopist.

**QuickPass™ Tendon Shuttles (AR-8090S & AR-8090L)**

Designed to ease the passage of tendon grafts through bone tunnels, these tendon shuttles reduce surgical steps and save valuable surgical time. Once the tendon is introduced, the nylon mesh constricts the tendon and increases its hold under tension, much like a finger trap. These simple, yet valuable aids, save the time and trouble of whipstitching a tendon to pull it through a tunnel.

**Small Joint OATS® Set (AR-8981-06S, 08S, 10S)**

The Small Joint OATS (Osteochondral Autograft Transfer System) Set provides a cannulated reamer for removal of osteochondral defects in a safe controlled manner. Donor harvesting and delivery is done with the blue harvester. Packaged sterile and complete, this disposable kit is ready for your next talar or metatarsal OATS case.
4-0 AND 2-0 FIBERLOOP®

FiberLoop is a suture option for multi-stranded tendon repairs and for the SpeedWhip™ technique of whipstitching tendons and tendon grafts. This technique enables a surgeon to create a perfectly symmetrical whipstitch in half the time of a conventional technique. All FiberLoop products are sterile and single use.

<table>
<thead>
<tr>
<th>FiberLoop, FiberWire</th>
<th>Length</th>
<th>Needle Type</th>
<th>Diameter</th>
<th>Model Number</th>
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<tr>
<td>4-0 FiberLoop, 4-0 FiberWire</td>
<td>6 inches</td>
<td>Tapered Needle</td>
<td>17.9 mm</td>
<td>AR-7229-12</td>
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<tr>
<td>4-0 FiberLoop, 4-0 FiberWire</td>
<td>10 inches</td>
<td>Tapered Needle</td>
<td>17.9 mm</td>
<td>AR-7229-20</td>
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<tr>
<td>2-0 FiberLoop</td>
<td>30 inches</td>
<td>Diamond Point Needle</td>
<td>48 mm</td>
<td>AR-7232-01</td>
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<tr>
<td>2-0 FiberLoop</td>
<td>24 inches</td>
<td>Diamond Point Needle</td>
<td>26.2 mm</td>
<td>AR-7232-02</td>
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<tr>
<td>2-0 FiberLoop</td>
<td>30 inches</td>
<td>Diamond Point Straight Needle</td>
<td>64.8 mm</td>
<td>AR-7232-03</td>
</tr>
</tbody>
</table>

1.5 MM K-WIRE (AR-4160K)

New graduated K-wires are now available to aid surgeons in small joint repairs. The K-wires are 1.5 mm in diameter, 100 mm long, and have laser lines every 10 mm. The stainless steel K-wires are available in nonsterile packs of five.

Arthrex K-wires are indicated for use in temporary fixation of bone fractures, bone reconstructions, and as guide pins for insertion of other implants. The benefit of the laser line allows you to see how deep you have drilled and possibly eliminate the depth guide step. These K-wires are ideal as a secondary point of fixation and are a great accessory item for all small joint cases.
FOOT AND ANKLE MASTER COURSE

This program designed for foot and ankle specialists introduces the latest surgical techniques for reconstruction of the foot and ankle using minimally invasive strategies.

Two Locations:

Naples, FL  Arthrex Surgical Skills Training Center  
Arthrex Corporate Headquarters  
1370 Creekside Boulevard, Naples, Florida  
•  November 10

Los Angeles, CA  Arthrex Surgical Skills Training Center  
The Kerlan-Jobe Orthopaedic Clinic  
6801 Park Terrace Drive, Suite 120, Los Angeles, California  
•  August 4

Naples  
Foot & Ankle Symposium  Arthrex Surgical Skills Training Center  
Arthrex Corporate Headquarters  
1370 Creekside Boulevard, Naples, Florida  
•  October 19-20  

Must be currently enrolled in an accredited MD Foot and Ankle Fellowship to attend the course.

For more information contact your Arthrex sales representative. 
Need to find your sales representative? Call Arthrex Customer Service at 1-800-934-4404

<table>
<thead>
<tr>
<th>Small Joint Product Development Team</th>
<th>Toll-free: 800-933-7001</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
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<td>Group Product Manager</td>
<td>1171</td>
</tr>
<tr>
<td>Karen Gallen</td>
<td>Engineering Manager</td>
<td>1194</td>
</tr>
<tr>
<td>Ian Funk</td>
<td>Product Manager</td>
<td>1249</td>
</tr>
<tr>
<td>Leda Cugini</td>
<td>Product Manager</td>
<td>1328</td>
</tr>
<tr>
<td>Michelle Morar</td>
<td>Project Engineer</td>
<td>1255</td>
</tr>
<tr>
<td>Kimberly Seiss</td>
<td>Marketing Associate</td>
<td>1177</td>
</tr>
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