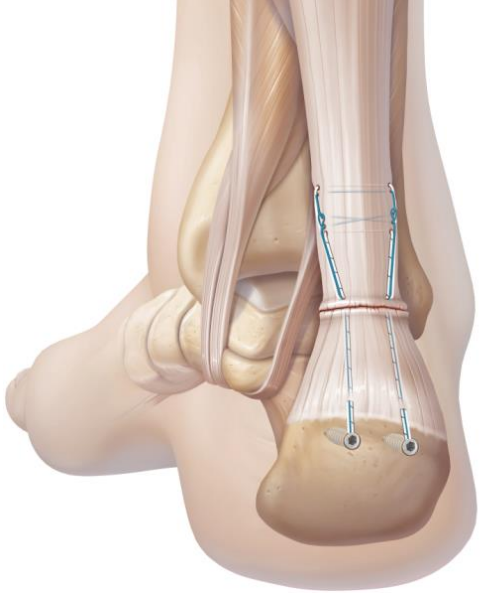


Scientific Evidence for Achilles Midsubstance SpeedBridge™

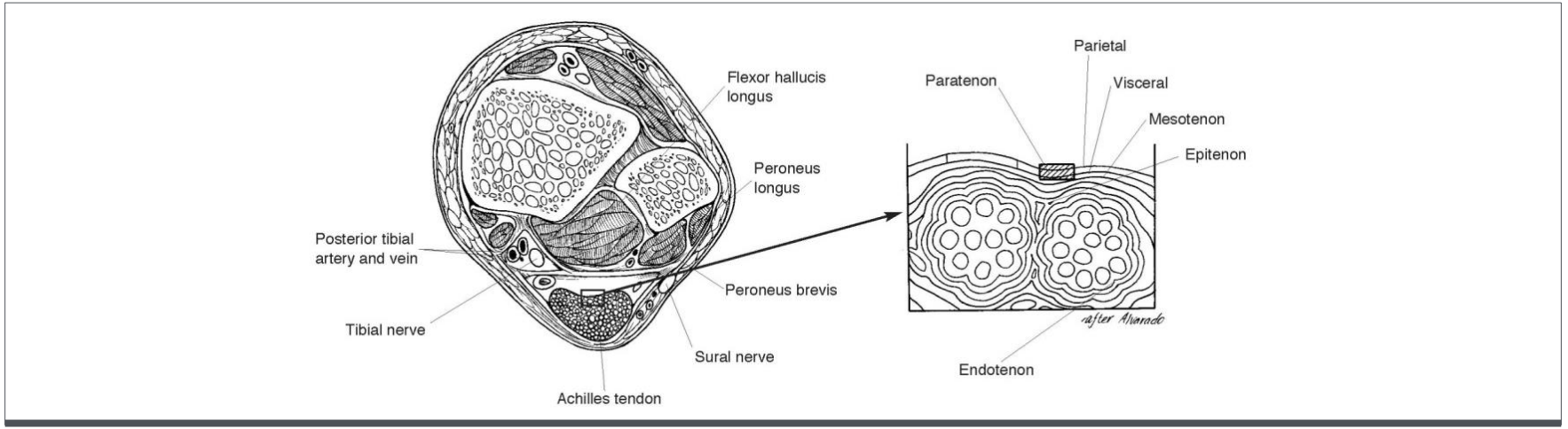
Arthrex®

Achilles Anatomy

Lacks a true synovial sheath

Paratenon has visceral and parietal layers

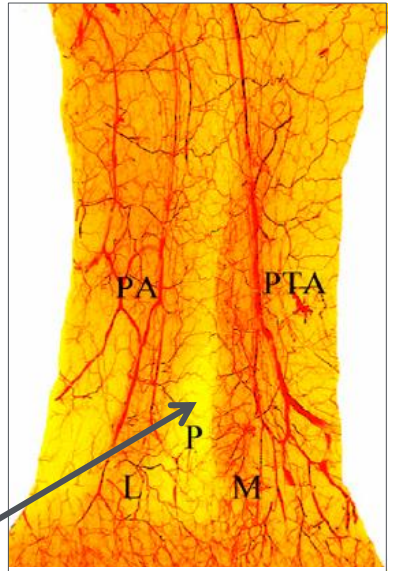
Allows for 1.5 cm of tendon glide



Anatomy: Blood Supply

- Musculotendinous junction
- Osseous insertion on calcaneus
- Multiple mesotenal vessels on anterior surface of paratenon
- Critical for preservation for tendon healing?
- Most ruptures occur in watershed area 4 cm proximal to the calcaneal insertion

A long longitudinal incision in the midline for an open repair has the risk of poor wound healing due to poor blood supply



JBJ S; VOLUME 92-A d NUMBER 5 d MAY 2010 DIGITAL VASCULAR MAPPING OF THE INTEGUMENT ABOUT THE ACHILLES TENDON

Achilles Tendon Healing

- Mice with ruptured Achilles treated either with mobilization or immobilization (Palmes et al, J of Orthopaedic Research 2002)
  - More **rapid restoration** of load to failure in **mobilized group**
  - After 112 days, the **mobilized** group regained **original tendon stiffness**, whereas the tendons after immobilization reached only about half the values seen in the control tendons

Early mobilization of the Achilles tendon supports tendon strength

Conservative vs. Surgical

112 patients

Casted x 8 wks

21% rerupture

Surgery + early functional rehab in brace

1.7% rerupture
5% infection
2% sural nerve inj.

No difference in functional outcome if complications were avoided

Acute rupture of tendon Achilles. A prospective randomised study of comparison between surgical and non-surgical treatment.
Moller M, et al. J Bone Joint Surg Br. 2001 Aug;83(5):863-8

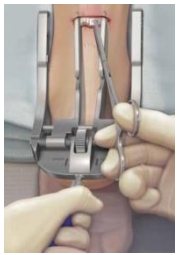
Open vs. PARS

270 patients

Krackow

82% return to baseline activities after 5 months

PARS



98% **return to baseline activities after 5 months**

No significant differences between groups in rates of rerupture, sural neuritis, wound dehiscence, infection, or reoperation

Clinical Outcomes and Complications of Percutaneous Achilles Repair System Versus Open Technique for Acute Achilles Tendon Ruptures. Foot Ankle Int. 2015 Jun 8 ePub; Hsu AR, Jones CP, Cohen BE, Davis WH, Ellington JK, Anderson RB

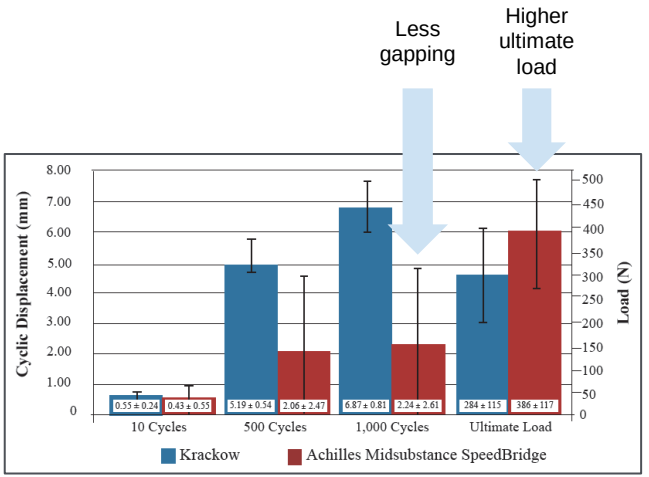
Krackow vs. Midsubstance

Achilles Midsubstance SpeedBridge™:

- Less displacement at 1,000 cycles
- Ultimate load of 386 ± 117 N

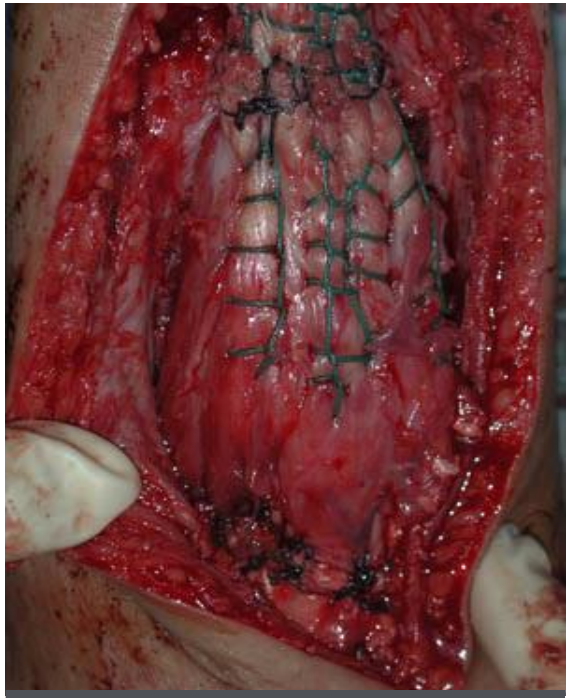
The Krackow repair

- More displacement at 1,000 cycles
- Ultimate load of 284 ± 115 N, as



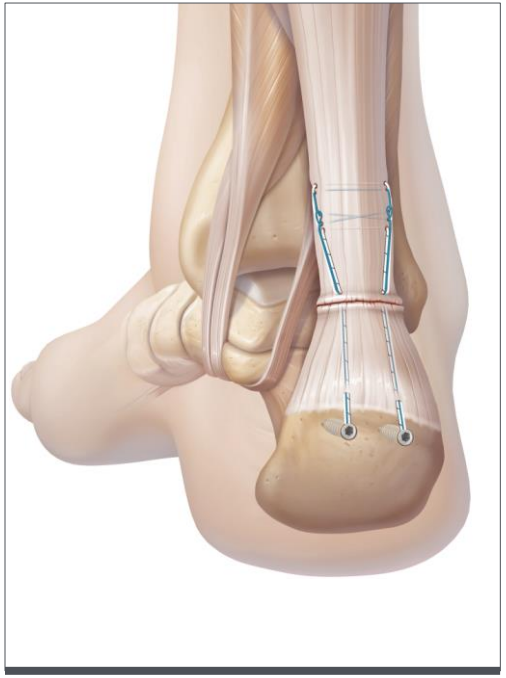
Arthrex Whitepaper

Krackow / PARS / Achilles Midsubstance SpeedBridge™



PARS Achilles SpeedBridge™

- ✓ Possibly reduce wound problems
- ✓ Possibly preserve blood supply and sheath to reduce scar adhesions
- ✓ Possibly reduce risk of rerupture
- ✓ Knotless
- ✓ As strong as open repair
- ✓ Possibly reduce OR time
- ✓ Possibly early mobilization leads to better outcomes and happier patients …



Achilles Midsubstance SpeedBridge™
12 and 15 weeks post-op

Postoperative Regime

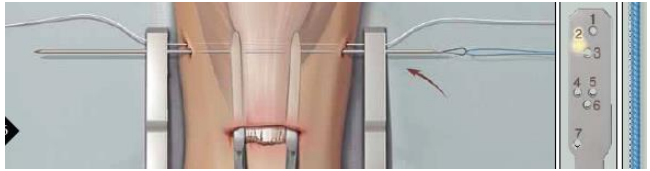
0-1 weeks	Postoperative walking boot is applied with an Achilles wedge. Weightbearing is allowed as tolerated. Isometrics in boot are encouraged. Boot may be removed for bathing on postoperative day 2. Daily dressing changes as needed until drainage stops or sutures/clips are removed.
1 week	Physical therapy is started with gentle mobilization and modalities. Weightbearing with boot only, active dorsiflexion of the ankle is encouraged, no passive dorsiflexion.
2 weeks	Sutures/clips (if present) are removed. One section is removed from Achilles wedge every 2 weeks. Compression sock is encouraged. Progressive resistive plantar flexion exercises are begun.
4 weeks	Passive dorsiflexion is allowed to neutral. Begin low-resistance cycling, seat height adjusted to avoid passive dorsiflexion beyond neutral.
6 weeks	May remove boot for weightbearing PT, no dorsiflexion past neutral.
8 weeks	May discontinue boot. May begin passive dorsiflexion beyond neutral.
12 weeks	May begin eccentric strengthening, progressive impact, loading, and speed work. Progress to sports-specific activity as tolerated.

McWilliam JR, Mackay G. The Internal Brace for Midsubstance Achilles Ruptures.
Foot Ankle Int. 2016 Jul;37(7):794-800

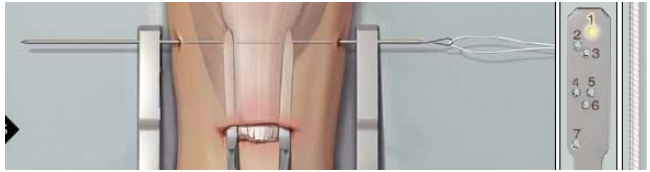
PARS Midsubstance SpeedBridge™

Video:
Midsubstance SpeedBridge™

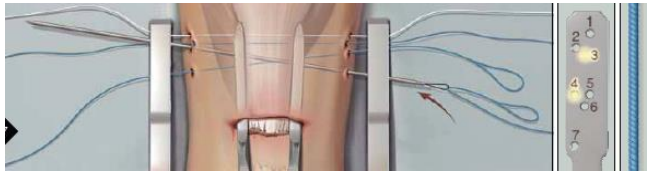
PARS – Surgical Technique



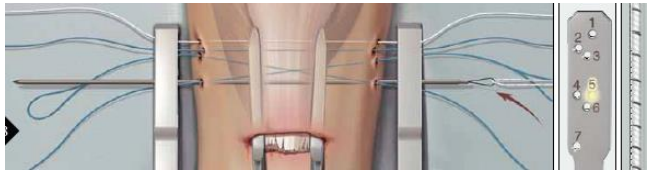
- Pass the guide pin with nitinol loop through the #1 hole
- The white FiberWire® is pulled through the leg, leaving tails on both sides of equal length



- Pass the guide pin with nitinol loop through the #2 hole
- Blue FiberWire®

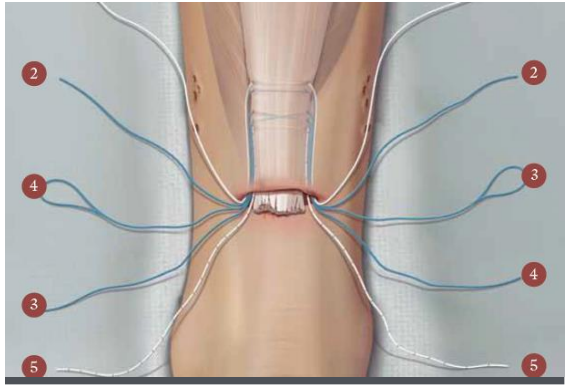


- Pass the guide pin with nitinol loop through the #3 and #4 holes
- Green FiberWire® with loops
- Note: Make sure there is one looped end on each side of the leg

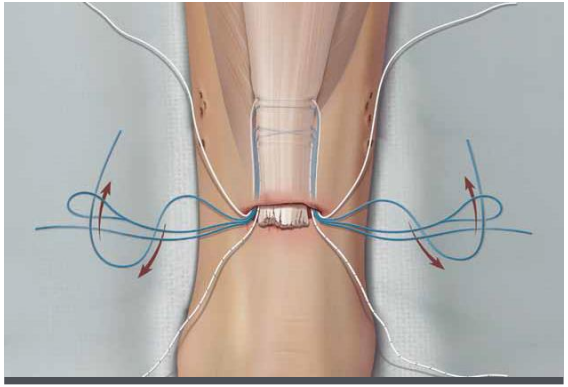


- Pass the guide pin with nitinol loop through the #5 hole
- White/black TigerWire®

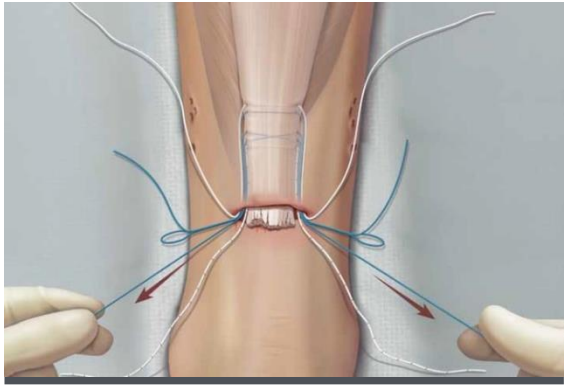
PARS – Surgical Technique



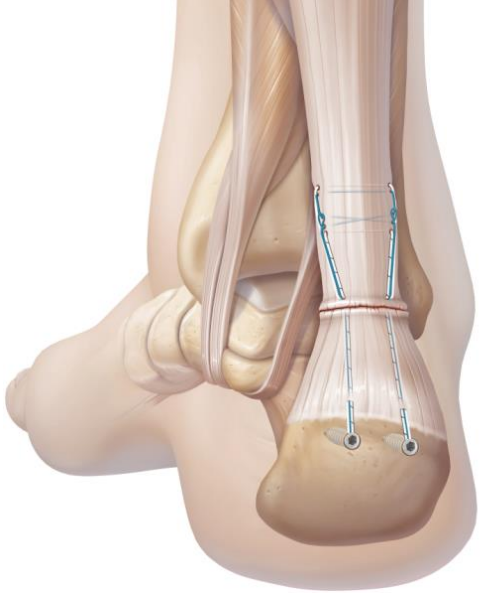
Organize the sutures the way they were originally placed through the jig.



Pass the #2 blue suture UNDER the #3 and #4 looped sutures and back through the loop of the blue looped suture.



Pull the #2 suture through the Achilles tendon to the other side by pulling on the nonlooped side of the blue looped sutures (#3 and #4).



Thank you for your attention.