Update on Tendon Surgery
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Zone 2: “No Man’s Land”

- Used to be avoided
- The “modern era of flexor tendon repair” began in the late 1960’s
- Bunnell and others advocating minimal touch, delicate handling

Areas of focus for last 40 years
- Repair strength
- Rehab protocols

Zone 2 Remains A Challenge

- Areas of continued research
  - Repair Techniques
    - Materials
    - Suture Configuration
  - Rehab Methods
  - Biology
**Latest Info and Evidence**

**Materials**

**Barbed Suture**

- Allows for knotless repair
- Increases tendon/suture interaction
- Reviews are mixed, but more are favorable than not
  - Less inflammation
  - Less adhesion
  - Less debris at repair site
- Need one size larger suture (3-0 traditional = 2-0 barbed)
- Maximum load no different
- Gap formation no different
- Greater work of flexion (energy expended moving tendon) (Ben-Amotz, JHS 2015)
- Greater likelihood of breakage (Maddox, JHS 2015)

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**Tendon Repair Keys**

- Repair strength is proportional to the number of crossing strands
- Stiffer suture gaps less (how about stainless steel?)
- Repair strength best when >7mm and < 12mm of tendon is grabbed
- Work of flexion increases when both slips of FDS are repaired

Myer and Fowler, Ortho Clinics 2016

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**Latest Info and Evidence**

**Suture Configuration**
Latest Info and Evidence

Suture Configuration

• Use a four strand grasping repair (at least)
• Choice of configuration...do what you do well
• Locking sutures.....up to you
• Core suture & epitendinous suture helps gliding

Latest Info and Evidence

Biology

“using pharmacology to modify the healing environment”

• TGF-Beta: involved in fibrosis.
  − A neutralizing Ab limits scarring in rat dermal wounds (Chang, PlastReconSurg 2000)
  − Next step: independently control fibroblasts, epitendon tenocytes and intrinsic tenocytes using 3 TGF-B isoforms

• VEGF: may allow for increased blood flow to tendon repair sites
  • VEGF expressing viral vectors in acellular allograft tendon


Tendons and Radius Fractures

Volar plates and their complications

− Late FPL rupture
− Extensor Tendons

Courtesy of Ryan Calfee, MD
Tendons and Radius Fractures
Safe Screw Length
Ljungquist, et al JHS 2015

The size of the longest screw should NOT exceed the width of the lunate on the lateral film.

Tendons and Radius Fractures
Bridge Plating Technique

Take Home Points
1. Placing plate distal to proximal from the 2nd MC was less likely to entrap tendons as compared to the 3rd MC.
2. Open the third incision (dorsal radial metaphysis) to check!!

Thank You

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