Soft Tissue Overuse Injuries

- Rehabilitation > Rest
- Goal: Keep Running
- Medications: Limited
- Radiography: Rarely helpful
- Surgery: Last resort
Case 1: Heel pain, 40 y/o male
R heel pain extending into arch

- 4 weeks, insidious onset
- Worse with walking, first step in am
- No injury
- Runs 3x a week, plays co-ed soccer
simple, but not easy..
Most common cause of heel pain
- Usually age 40-60
- Bilateral up to 30%
- Younger/more common
- Suggests repetitive microtrauma as etiology
True etiology: unknown
Key to Dx:

• History
• Exam: Focal tenderness w/ toes in dorsiflexion
• Imaging: Limited use
• (Plantar fascia rupture: MRI)
Ddx: broad

- Heel Pad Syndrome
- Calcaneal Stress Fx
- PF Rupture
- Tarsal Tunnel Syndrome
- Posterior Tibial Tendonosis
- Cuboid Syndrome
Let’s talk Treatment: PF

• Orthotics
• Calf Stretches
• Tennis Ball
• Golf Ball-Half hour a day x 2 weeks
Orthotics

- Scant evidence custom > otc (2-6X cost)
- Pseudo-custom readily available
Thermoplastic (TPR) gel cushions impact and provides 44% energy return.

3-POD™ cushioning system

Stability cradle for balanced support

Forefoot impact zone

Low-friction top cloth helps prevent blisters. Silpure Antimicrobial reduces odor.
Let’s talk Treatment: PF

• Orthotics
• Tennis Ball, then Golf Ball-30 min a day x 2 weeks
• Calf Stretches
$40 Strassburg Sock “night splint”
other modalities..

- ESWL
- PRP
- Botox
- Radio and cryo therapy
Beyond PF..

• Is it heel pad syndrome?
• A calcaneal stress Fx?
• Cuboid syndrome?
heel pad fat atrophy
painful heel pad syndrome

- Occurs in marathon runners >35
- Focal Pain: Heel pad
- **Not** accentuated by dorsiflexion
Calcaneal Stress Fractures

• Cushioned shoes/ soft orthotics
• Gastroc stretches
• Exogen Bone Stimulator
• Cross training x 6-8 weeks
Ultrasound pulsed bone stimulator
Cuboid Syndrome

• Chronic inversion injury
• Subluxation of cuboid, ligamentous injury
• Pain not worse with first step
• Xray/MRI usually normal
• Exam shows TTP over cuboid
Treatment of Cuboid Syndrome

• Manipulation
• Tape strapping
• Orthotics
• Non WB cross training x 6 weeks
OH WOW!
PARADIGM
SHIFT!
The foot core system: a new paradigm for understanding intrinsic foot muscle function

Patrick O McKeon, Jay Hertel, Dennis Bramble, Irene Davis
Arch as “Core”

• **Strengthen intrinsic mm:**
  ▪ Isometric arch exercises
  ▪ Minimize time in orthotics
  ▪ Barefoot
Intrinsic Muscles of the Foot

- Lumbricals
- Flexor hallucis brevis
- Flexor digiti minimi brevis
- Abductor hallucis
- Quadratus plantae
- Flexor digitorum brevis
- Abductor digiti minimi
- Plantar aponeurosis (cut)
Short foot maneuver

Relaxed Foot Core

Contracted Foot Core

Short Foot Manoeuvre

Resting Foot Dome Length

Shortened Foot Dome Length

Resting Foot Dome Length
"I should stop running until that pain goes away."
Said no runner ever.
Rehab: Pool Running
altered gravity treadmill
Take it outside
Spawned two revolutions: 2009
Prospective comparison of running injuries between shod and barefoot runners.

Altman AR, Davis, I
shoe choice: comfort
26.2 why?
Because 26.3 would be crazy!!!
Case 2: 40 y/o male runner
R Achilles area pain x 2 months

- Intermittent pain and swelling
- Progressive, now constant
- Atraumatic, no weakness
Achilles Tendinitis/Tendonosis

- Dx: Palpate tendon
- Evaluate ankle dorsiflexion
- Ultrasound or MRI if rupture suspected
Pitfalls: Missed Rupture

- able to plantar flex their foot
- able to ambulate
- tendon is not painful
- examiner cannot palpate a defect in the Achilles tendon
Achilles Tendonosis

- Age, **male sex**, obesity
- Up to 3 months to remodel
- Try full length orthotics over heel cups
- No cortisone
- Quinolones in masters age male runners—think twice!
treatment

- Eccentric exercises
- foam roller, “stick”
- PT: ART or Graston technique
Eccentric Calf Raises
Main DDX

Retrocalcaneal Bursitis
(Corticosteroid: the bursa, not tendon!)
Fluids: 60 min or less
• For Athletes, the Risk of Too Much Water -
Consensus statement:

• Statement of the 3rd International Exercise-Associated Hyponatremia Consensus Development Conference, Carlsbad, California, 2015
Dehydration Myth

- 3-5% weight loss physiologic
- (Pros up to 10%)
- Over hydration far more dangerous
- Drink only to thirst
Exercise Associated Hyponatremia

- Longer events
- Newer/slower athletes
- Females
- NSAIDS
IMMDA: Position On NSAIDs

• Contraindicated during prolonged endurance events
NSAIDS

- Definite increased risk of EAH
- Possible increased risk of AKI, rhabdomyolysis, and adverse CV events
26 y/o rower and runner
“almost overnight” pain along lateral knee
Hx:

- Starts a few miles in, never at start
- Sometimes wakes up with it after a long run the day before
- Tried to change to cycling, didn’t help
ITBS—Broad Spectrum

• Affects football players, ballerinas, runners, soccer players, cyclists
• Usually tender over Gerdy’s tubercle
• Very common
ITBS Treatment

- ITB Stretches
- Foam Roller
Runner’s knee-A misnomer

• Patellar tracking disorder
• Named for runners, but common in cyclists, cleated athletes
Runner’s Knee: Easy Dx, Easy Tx

• Atraumatic
• Sudden onset
• ↑ after pronged knee flexion and inclines/declines
• History
• Knee exam: Focus on patellar grind test
• Note weakness of VMO
• Pes Planus/Morton’s Foot
• Proximal muscle rehabilitation is effective for patellofemoral pain: a systematic review with meta-analysis.
A robust body of work shows proximal rehabilitation for PFP should be included in conservative management.”
New paradigms: ITBS and Runner’s Knee
Normal pelvic tilt

Trendelenburg’s sign

Pelvis “drops” to the unsupported side

Contraction of gluteus minimus and medius on stance side prevents excessive pelvic tilt during swing phase on opposite side.
• Side Lying
• Hip Abduction
- One-leg Squat
• Lateral Band
• Walk
One Leg Deadlift
Pain is temporary. Internet results are forever.