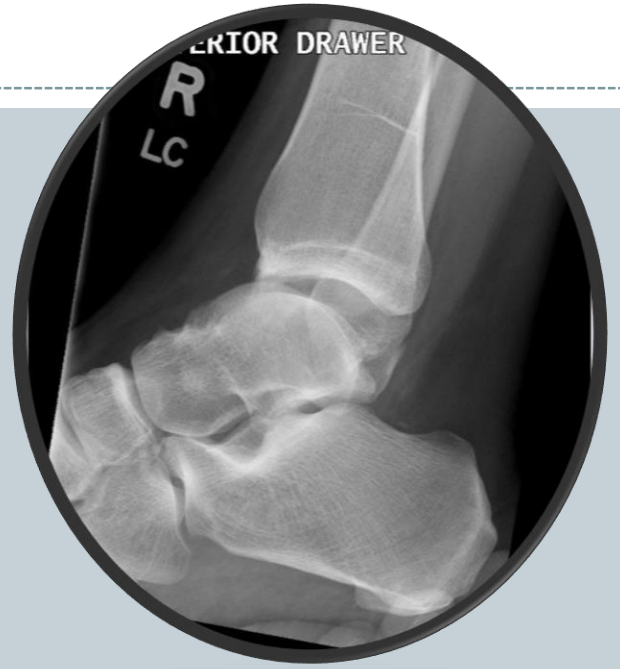
Primary Care Orthopedics: **Top 5(ish)** -Foot & Ankle



UPSTATE ORTHOPEDICS

UPSTATE UNIVERSITY HOSPITAL AT COMMUNITY GENERAL

AOFAS

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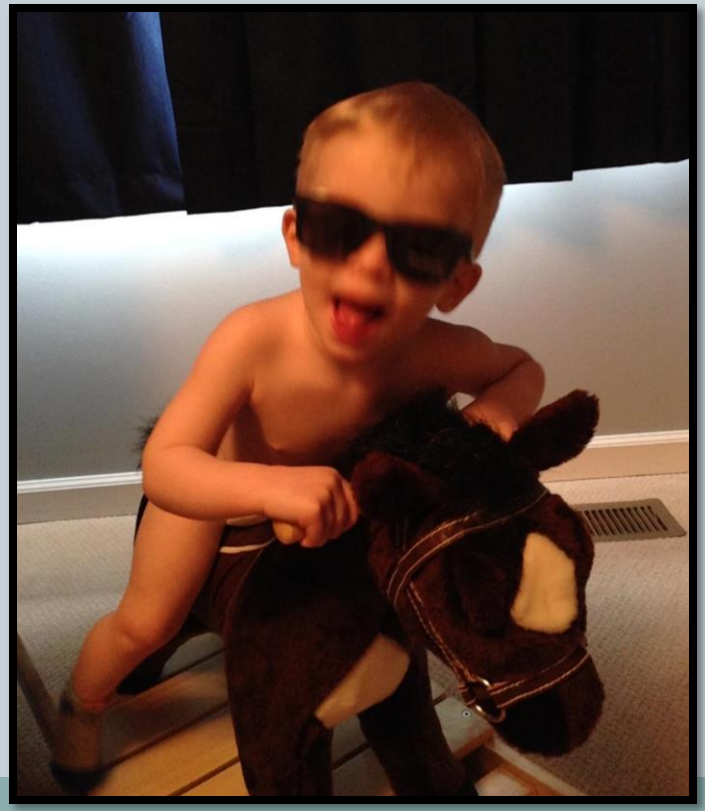
ORTHOPEDIC FOOT & ANKLE SURGERY
SYRACUSE, NEW YORK
MAY 29, 2019

DISCLOSURES

- No consultant arrangements
- No patents

- Nothing related to this talk



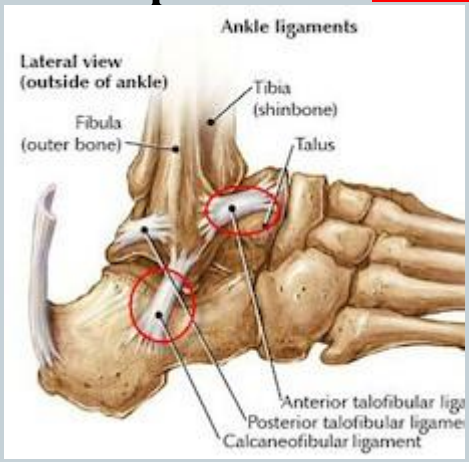
The Top 5 (ish)

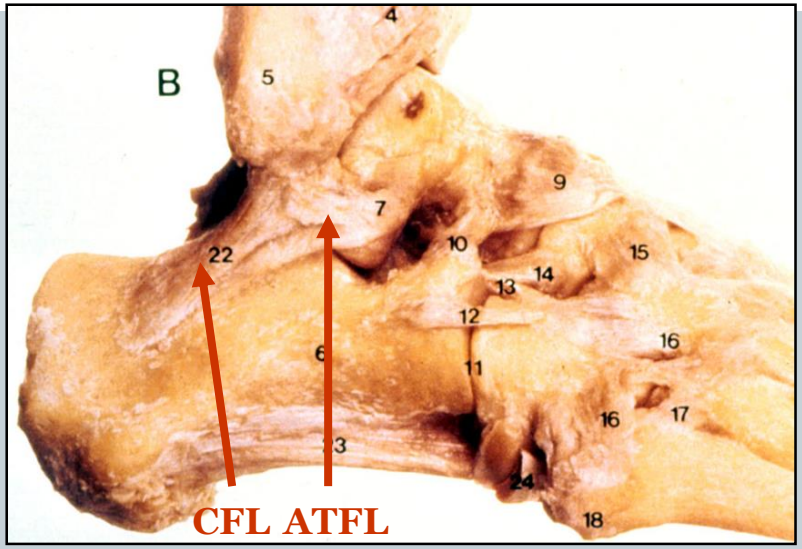
1. Ankle Sprains
2. Heel Pain - Plantar Fasciitis
3. Ankle Fractures
    1. 5^{th} Metatarsal Fractures
4. Achilles Tendon Injuries
    1. Achilles Tendonitis
5. Forefoot Pain
6. Bunions

#1 Ankle Sprains

ANKLE SPRAIN

- 25,000 sprains daily!



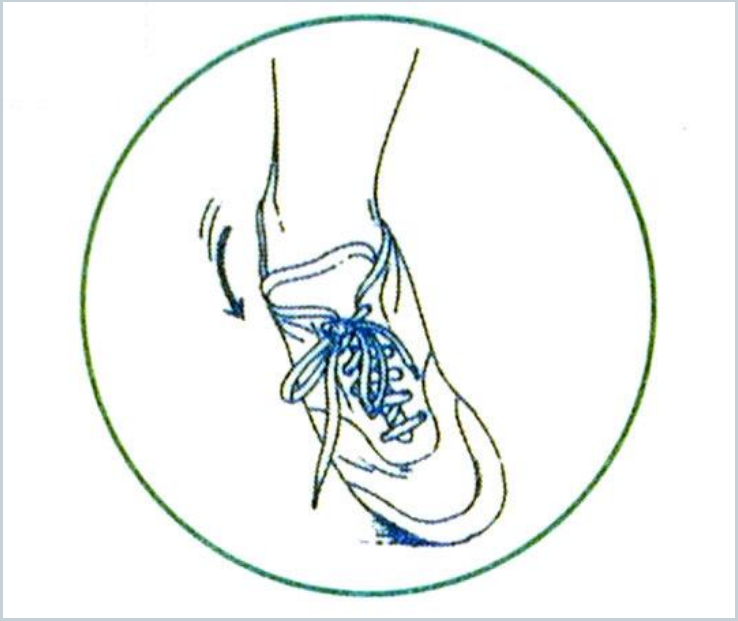


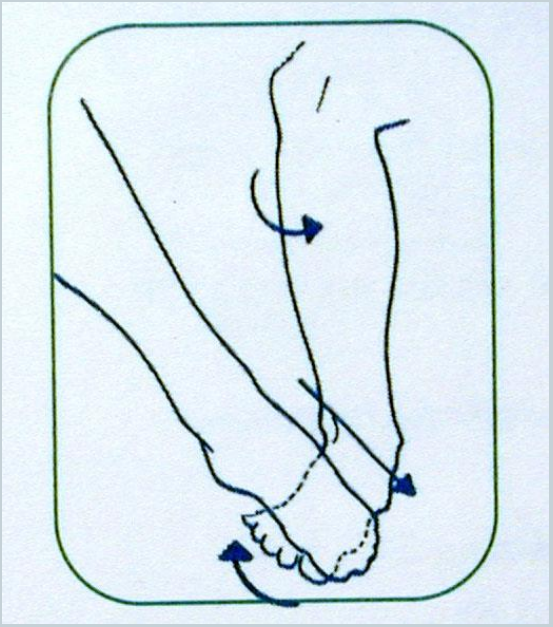
- 7-10% all admissions to ER
- 80% involve *LATERAL* ligament complex

- *IF RX, 80-90%* better @ 3 mos
- 10-20% NOT: something else is going on

ANKLE SPRAIN

- HX: Usually inversion

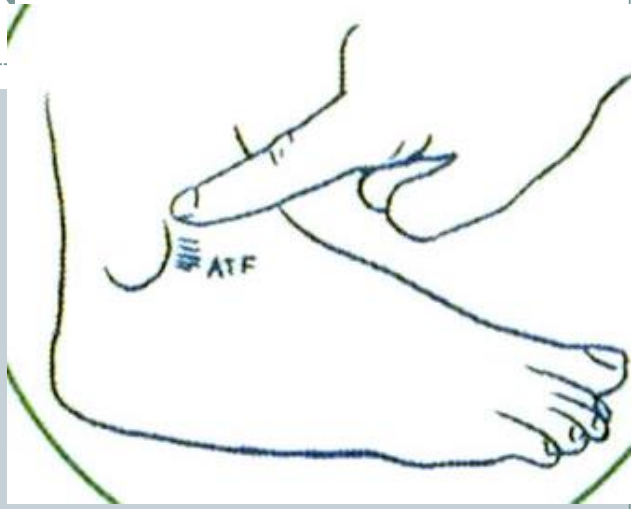


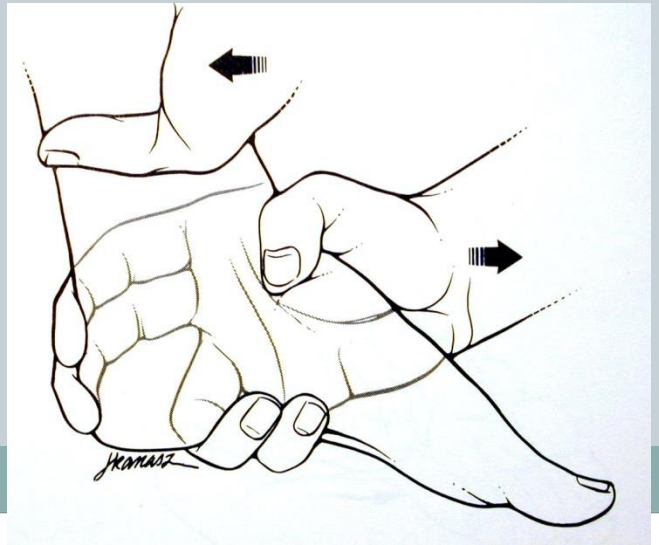


  - Can hear/feel a ‘pop’

ANKLE SPRAIN

- When to seek care
  - inability to bear wt 4 steps
  - Significant swelling/bruising
  - Tenderness over inner/outer bump





Anatomy

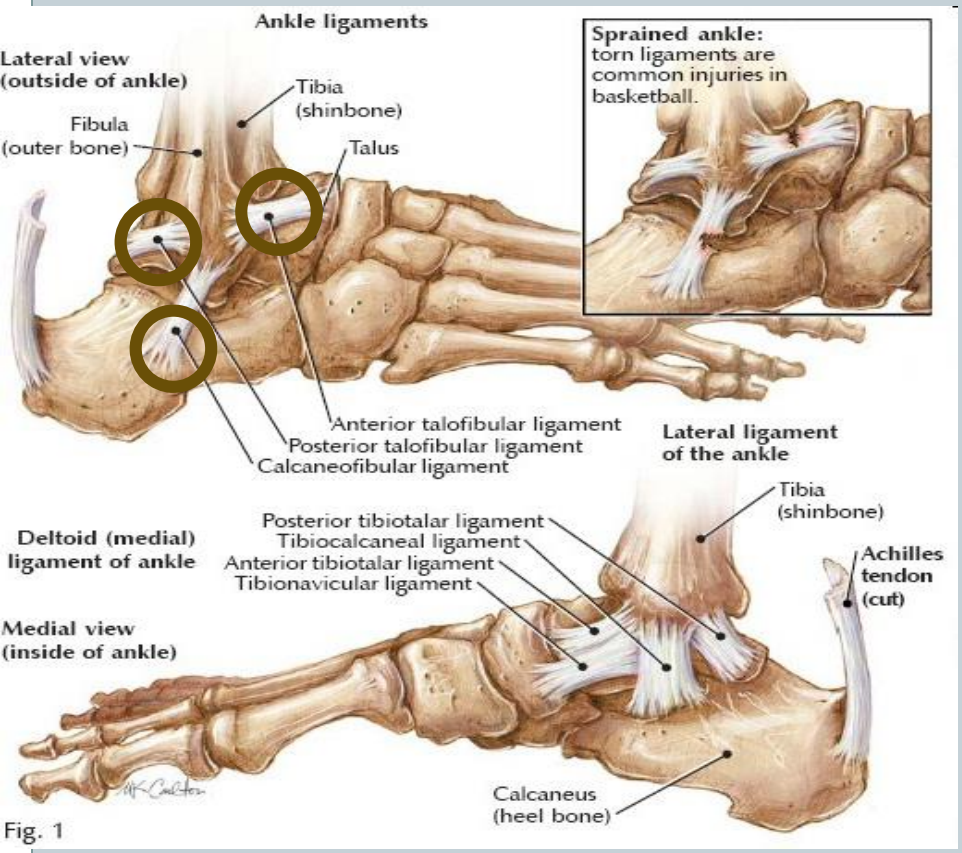
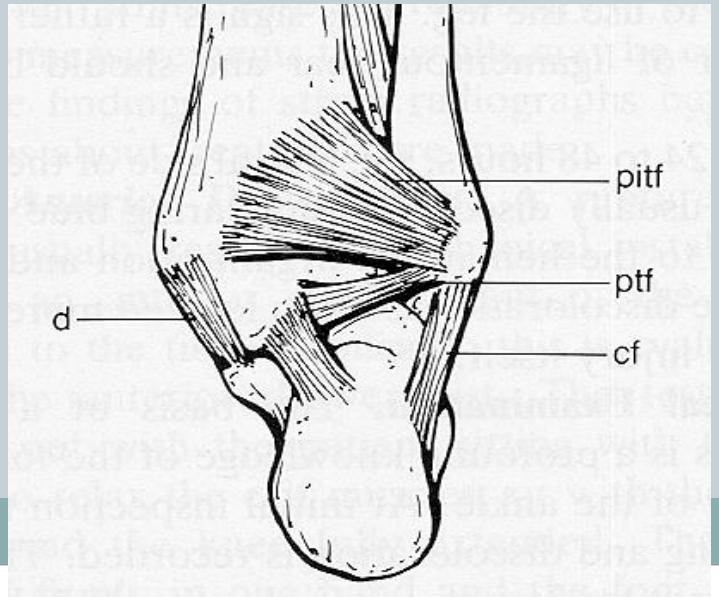


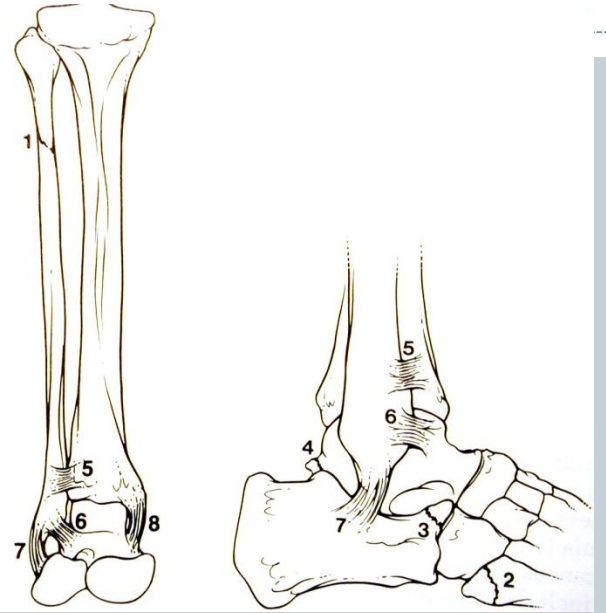
Fig. 1

Ankle Sprains:

- ATFL almost always involved
- CFL 50-75%
- PTFL <10%



ANKLE SPRAIN



- Xrays – Gold Standard

- OTHER TESTS: MRI, CT, BScan ONLY @ Rx failure!
- *You RARELY need an MRI, and NEVER ACUTELY!*

ANKLE SPRAIN RX

GOAL is to minimize chronic Symptoms

Severity: Graded 1 thru 3

- Stage 1 (immediate PRICE protocol):

  Protection (brace/crutches; SLC 2 wks if Gr 3)

  Rest (limited WB)

  Ice (72 hrs.)

  Compression (initial splint 2-3 wks, or ace wrap)

  Elevation (Minimize edema, NSAIDS)

ANKLE SPRAIN

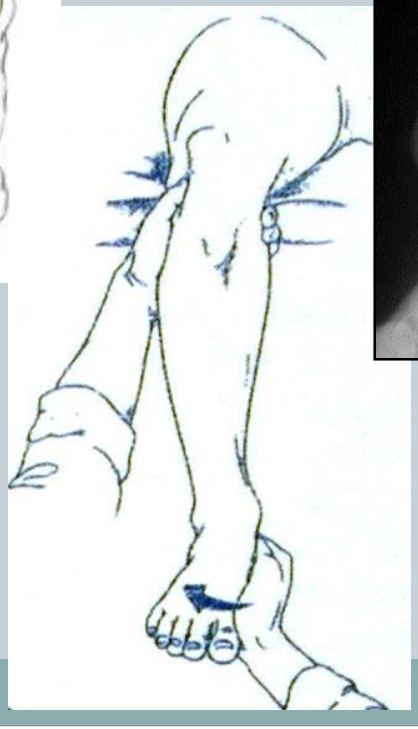
- Stage 2 (after able to WB):
  - PT program
    - G-S stretching, heel/toe walk, peroneal strengthening
- Stage 3 (4-6 wks after injury):
  - Begin agility, endurance, proprioceptive exercise
  - Sports return: 'The Hop Test'
    - Initial use of brace until fully rehabilitated

Treatment

- Delayed repair as efficacious as early repair
- Early mobilization
  - Positive effect on local metabolic activity
  - ? Speeds healing process
- Cost

THE SYNDESMOTIC SPRAIN
"High Ankle Sprain"

- Anterior TTP well above ankle
- Positive squeeze test
- Pain with ER



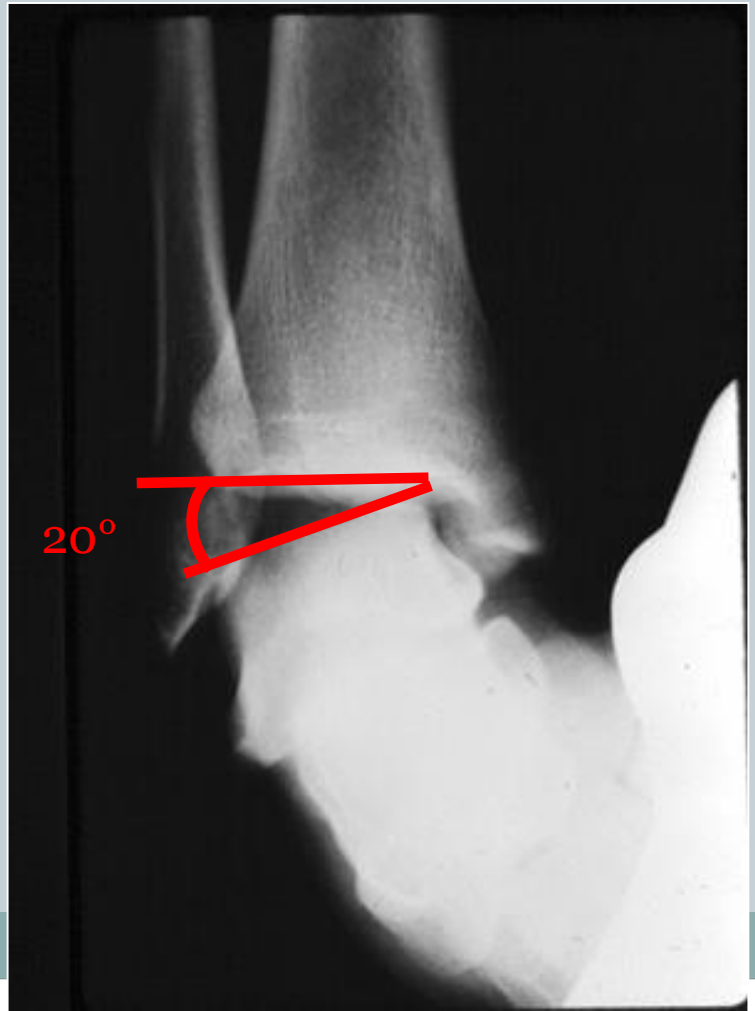
PROLONGED RECOVERY

Splint/Cast, Refer

NON-OPERATIVE RX

Radiology

- Talar Tilt Stress Radiograph

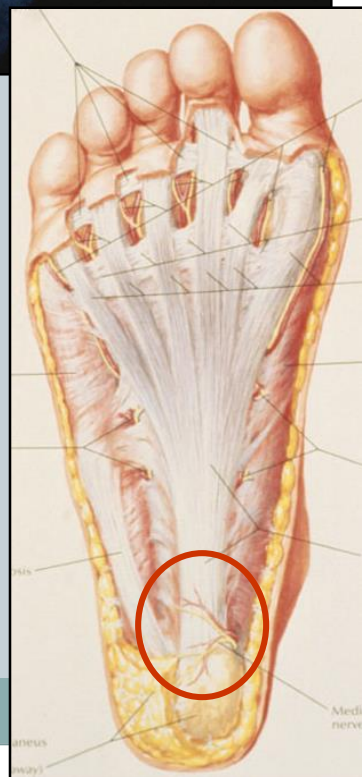


Heel Pain

1. PLANTAR FASCIITIS

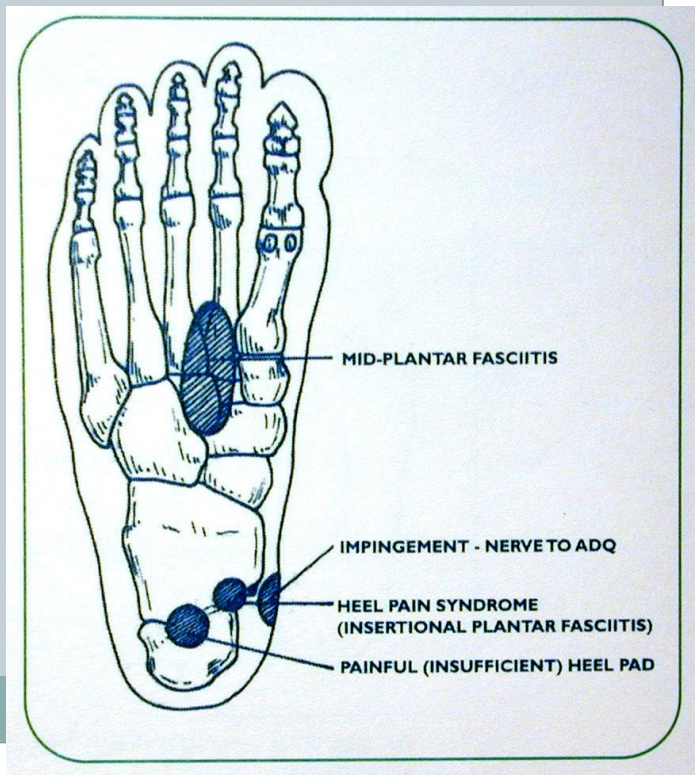
- MOST common problem

- Posteromedial heel pain
- Inflamed fascial origin: medial tuber
- *Especially*: F, obese, tight GS, high arch



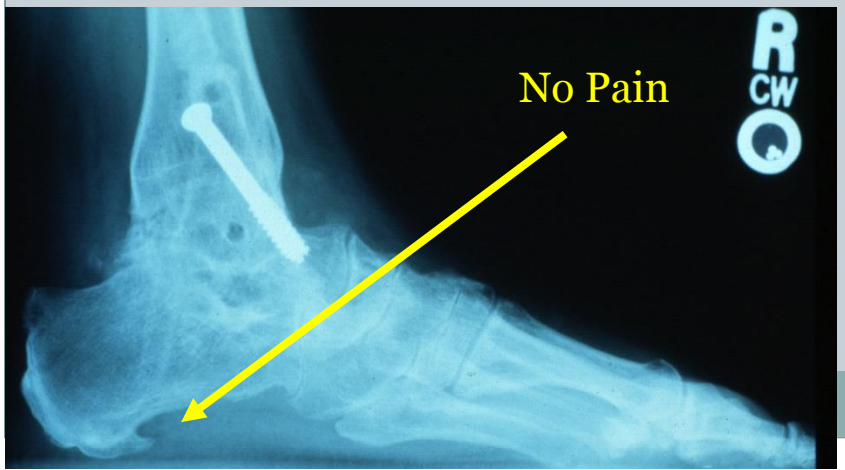
PLANTAR FASCIITIS

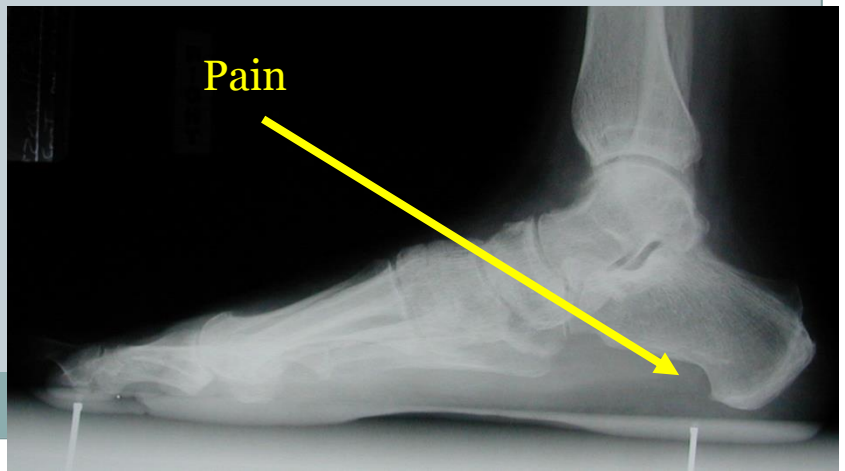
- HX: Worst in AM (FIRST steps) & after sitting
  - Warms up with activity (stretching)
  - Friends/family that have had it



PLANTAR FASCIITIS

- XR: usually negative
- NOTE! 'Heel spurs' mean NOTHING (50%)



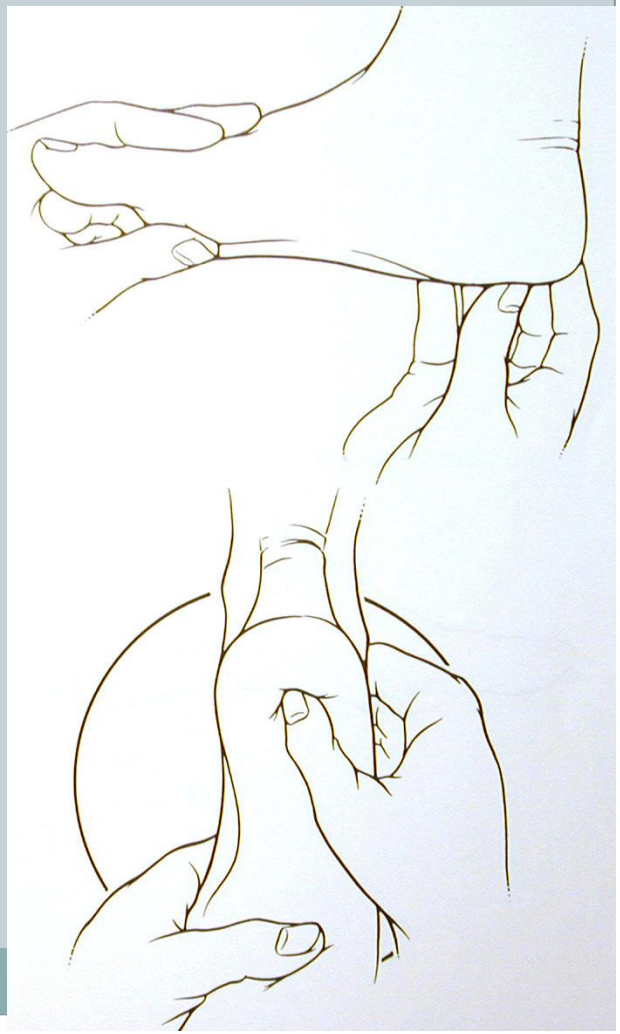


PLANTAR FASCIITIS

- RX: 95% better W/O surgery @
- Slow response : *6-10 mos*
  - Plantar fascial stretch, calf stretch.
  - cushioned shoewear (SAS)
  - silicone heel cup, NSAIDS
  - Custom Orthotic
    - Injection
    - Shockwave treatment
    - Surgery last resort

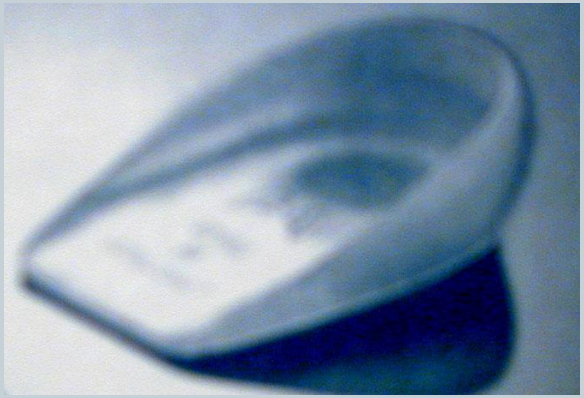
HEEL Pad Syndrome

- HX/PE: *Central*, plantar pain/tenderness *w/o* pain along plantar fascia
- Heel pad atrophy!
  - Normal with aging process
  - Repeated injection
- Worse *with* activity/WB



HEEL PAIN

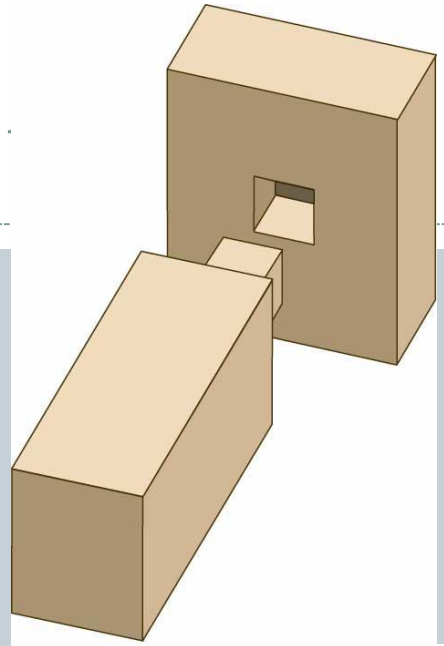
- Treatment:
  - Well-cushioned shoes
  - NSAIDS
  - Wt loss, Activity Modification
  - Heel pad
  - Orthotics inserts
  - Advise *against* injection



Ankle Fractures

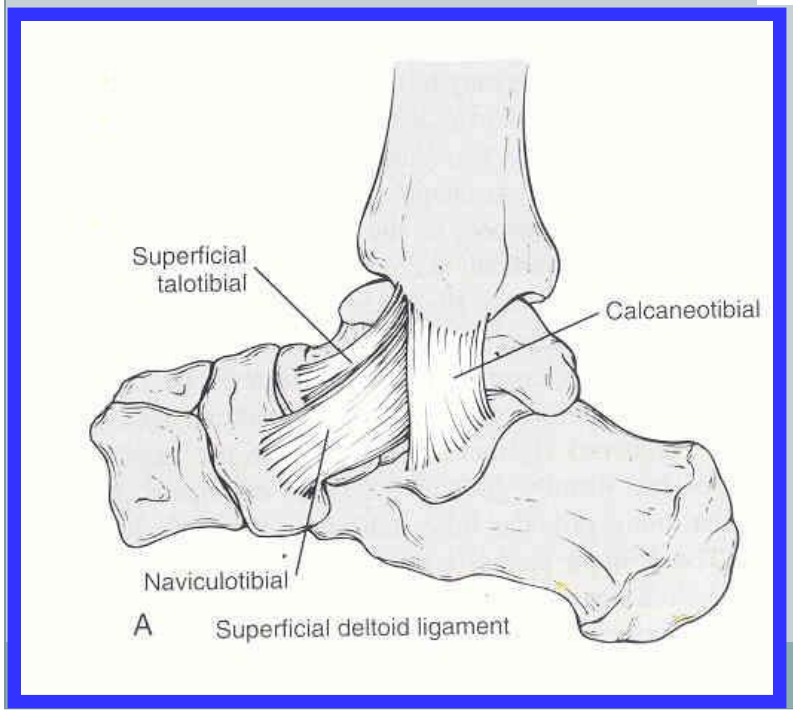
Epidemiology

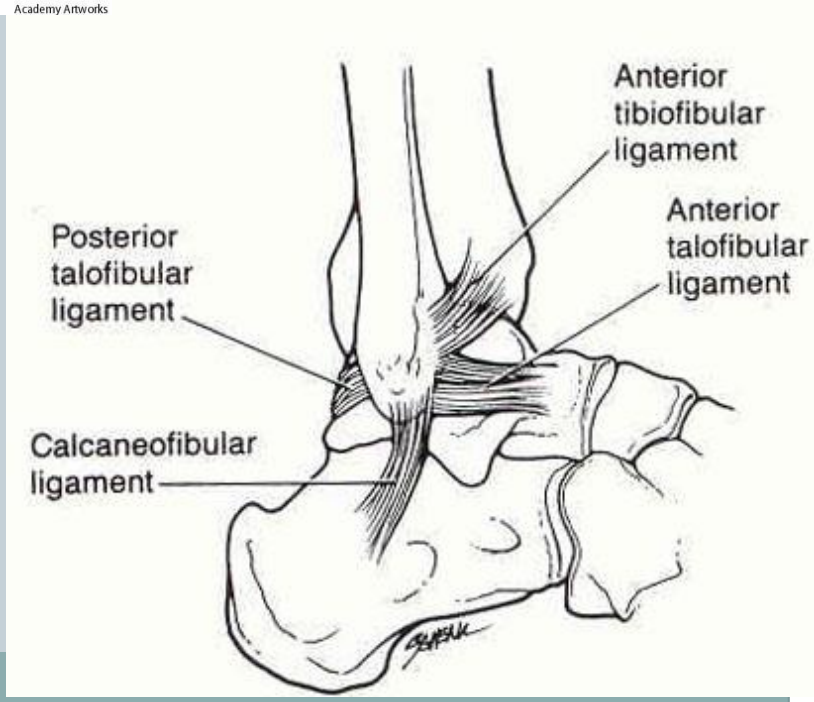
- Most common weight-bearing skeletal injury
- Incidence of ankle fractures has doubled since the 1960's
- Highest incidence in elderly women
- Monomalleolar 68%
- Bimalleolar 25%
- Trimalleolar 7%
- Open 2%



Academy Artworks

Mortise – a usually rectangular cavity in wood, stone or other material, prepared to receive a tenon & thus form a joint
Tenon – the end of the first member
Mortise – the hole in the second member





xrays

Other Imaging Modalities

- Stress Views
  - Gravity stress view [Michelson CORR 2001]
  - Manual stress views
- CT
  - Joint involvement
  - Posterior malleolar fracture pattern
  - Pre-operative planning
  - Evaluate hindfoot and midfoot if needed
- MRI
  - Ligament and tendon injury
  - Talar dome lesions
  - Syndesmosis injuries

Outcome

- ***Position of the mortise at union and stabiltiy of talus are critical factors!***
- Obtain an anatomic reduction
- Hold to union
- If loss of position is noticed,
- re-reduce if possible

Outcome

- Stable ankle fractures without lateral talar shift treated conservatively have 90% good to excellent results
- Operative fixation of unstable ankle fractures have 85-90% good to excellent results
- 2 year follow up
  - 80-90% have unlimited ability to work, walk and participate in leisure activities
  - 20-30% report swelling or stiffness
  - 41% have reduced dorsiflexion (Lindsjo, Clin Orthop, 1985)

Outcome

Egol JBJS 2006

- At one year following surgery, patients are generally doing well
- Most have few restrictions and little pain
- There is a significant improvement at one year compared to six months → Recovery may take up to one year, let patients know this
- Younger age, male sex, absence of diabetes, and lower ASA class are predictive of functional recovery at one year

Egol JBJS 2003

- By nine weeks, the total braking time of patients who have undergone fixation returns to the normal baseline value


6/15/1982
32 YEAR
M
ANKLE 3-MORE VIEWS 73610
R
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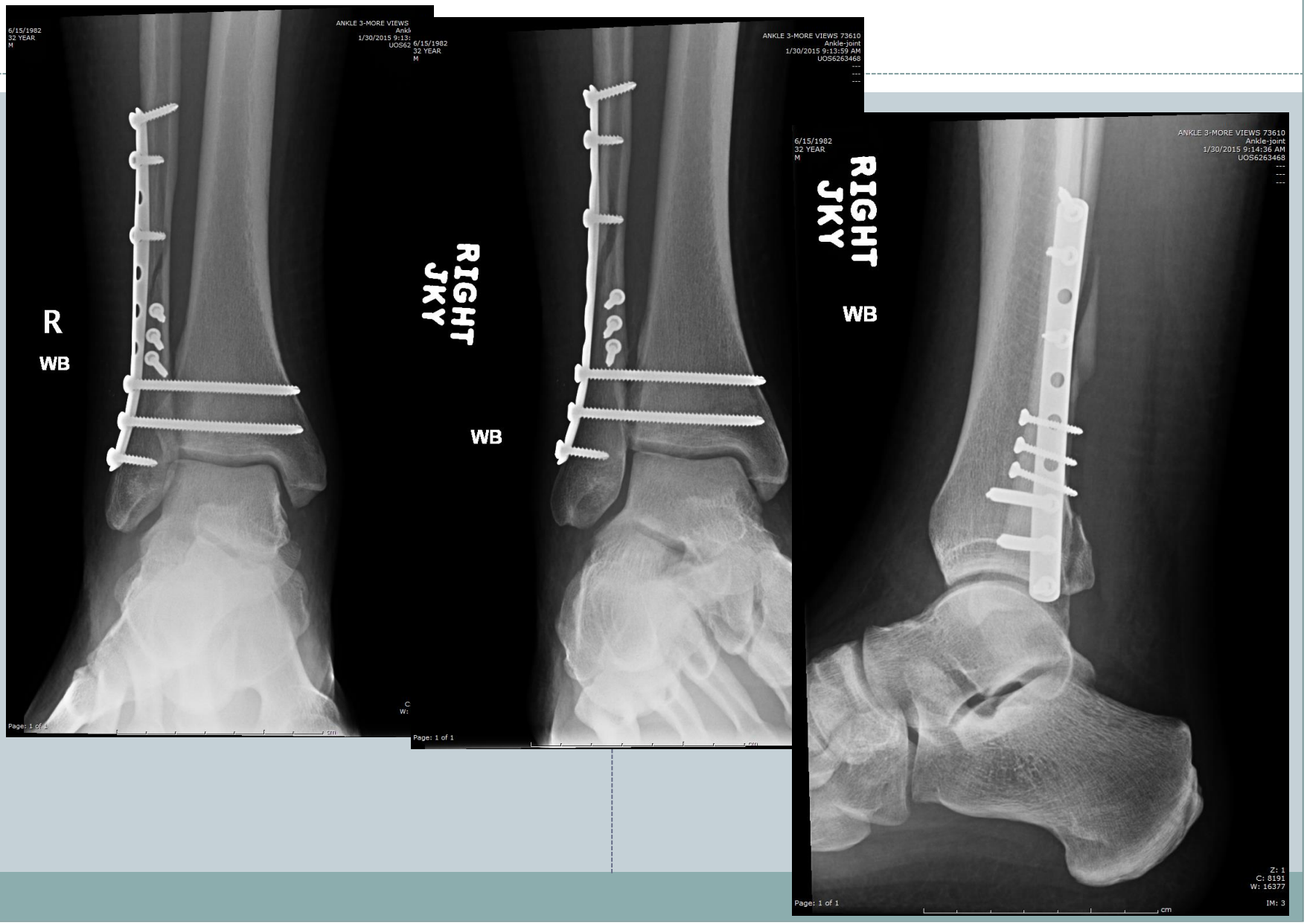
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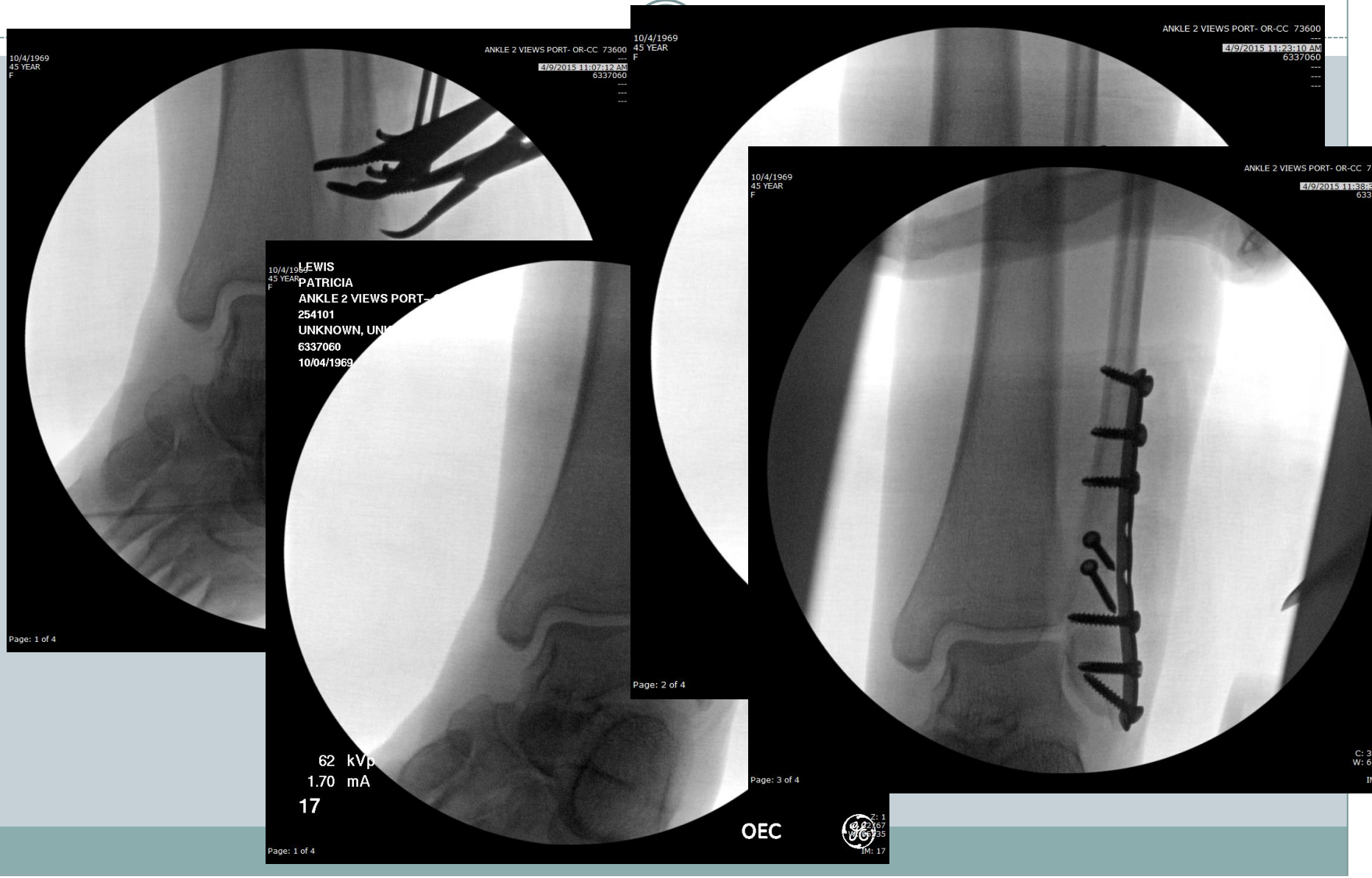
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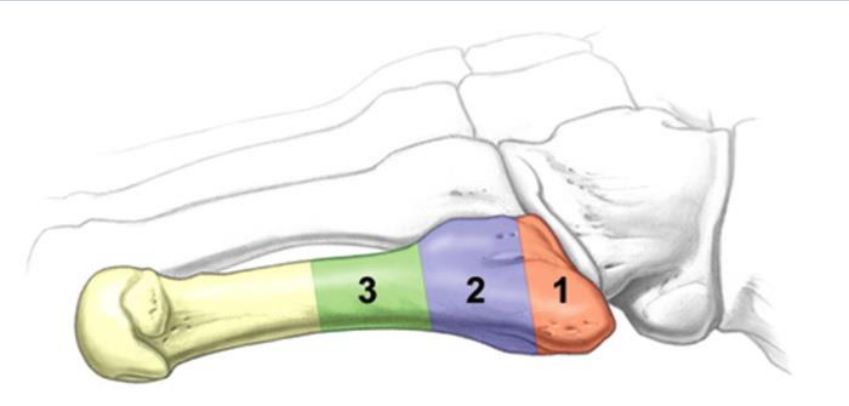
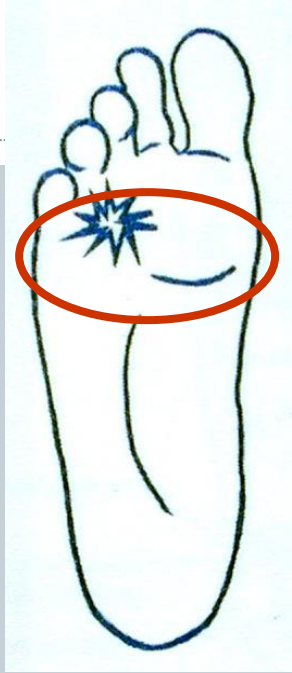
Stress Testing

5th Metatarsal Fractures



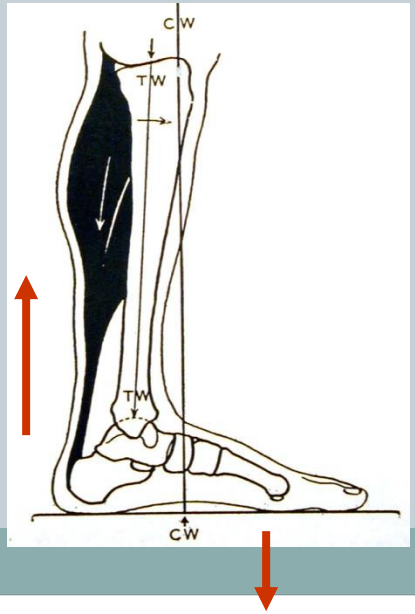
- Often inversion injury
- Associated with ankle sprains
- Zone 1&3 – Nonop management
  - WBAT in CAM boot
- Zone 2 – Jones Fx
  - High rate of nonunion - ~27%
  - Nonop – Cast
  - Op – ORIF w IM Screw

4. METATARSALGIA
MTP synovitis



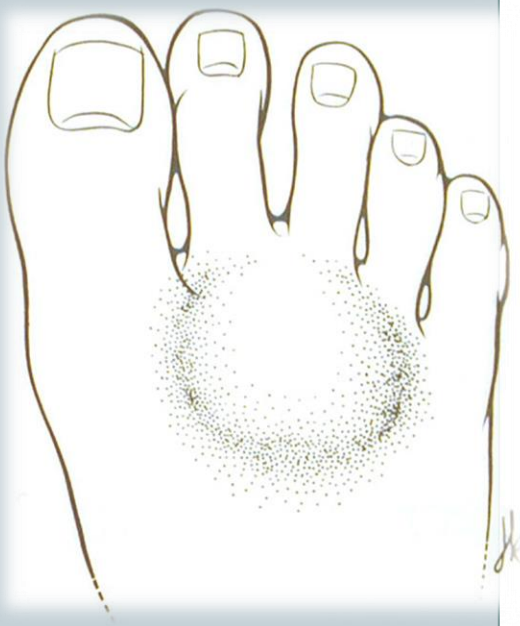
- Pain under MT head(s)
- Frequently diffuse, bilateral

- Multiple causes (1° mechanical):
  - High heels or arches
  - Claw toes
  - Overuse
  - Fat pad atrophy
  - Plantar keratosis (IPK)
  - Tight Achilles



METATARSALGIA

- HX: ‘feels like balled up sock in the shoe’
  - Worse with WB (walking, activity)
  - 1 joint, 2, 3 or more
  - May be due to long metatarsals
  - Often due to overuse – distance runner/walker



METATARSALGIA

- RX: *decrease* pressure
  - File down the callus
  - Well-cushioned, low heeled shoes
  - Orthotic
  - Metatarsal bar, rocker bottom shoe

METATARSALGIA

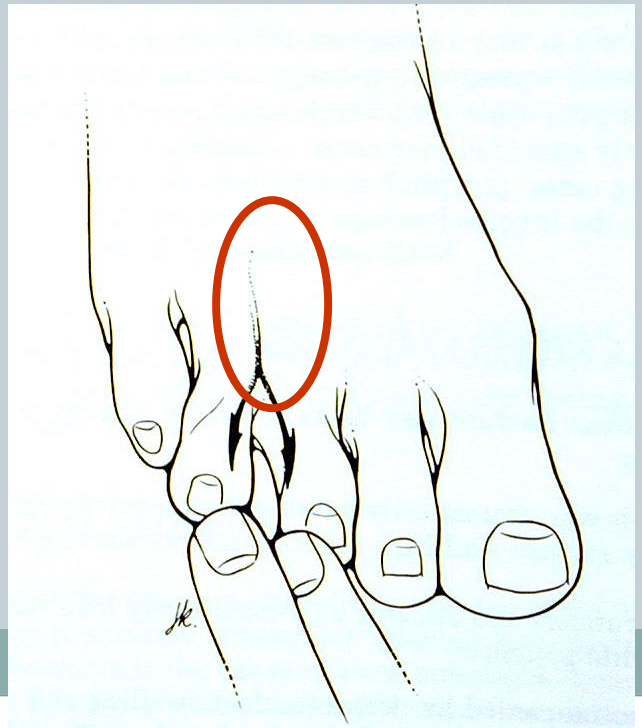
- Treatment: rarely required
  - Only when focal and recalcitrant after 6-8 mos
  - Surgery rare…generally not much else that can be done beyond judicious activity/shoewear
  - EDUCATE pts to avoid their frustration

2. MORTON'S NEUROMA

- Overdiagnosed
- Repetitive irritation → many causes
- Female/Male = 5/1 (?shoes)
- 3/4 IS = 2/3 IS
- *RARE* > *1 site*
  1/2 *or* 4/5 IS

MORTON'S NEUROMA

- History: pain at base of toes dorsal/plantar
  - 'Walking on pebble/marble'
  - Numbness/burning in webspace
  - Relief by shoe removal/massage



MORTON'S NEUROMA

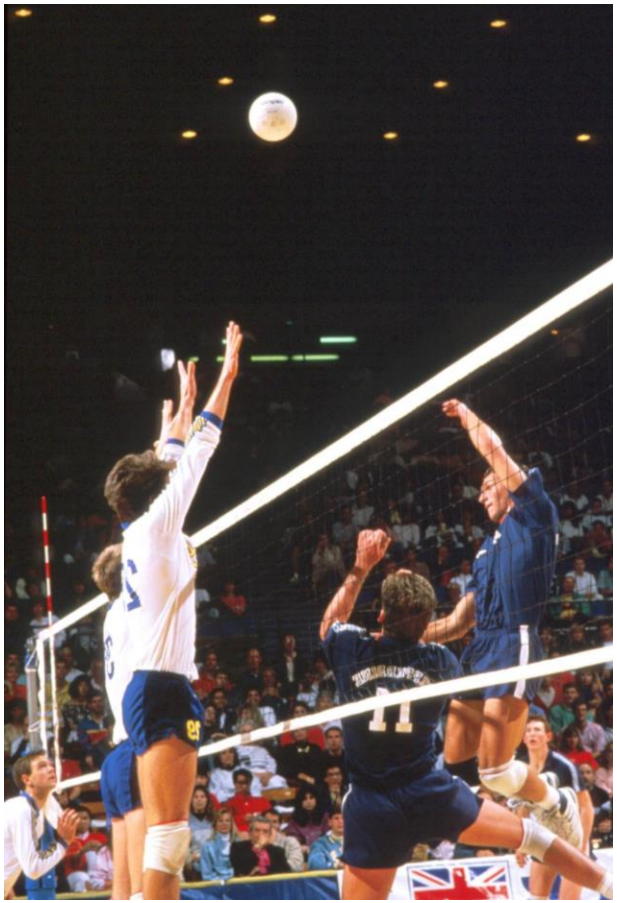
- XR: exclude stress fx, MTP synovitis
- OTHER TESTS: MRI NOT useful, over-used
- RX: *wide* toe box shoe, *lower* heel
  - Metatarsal pad
  - NSAIDS
  - Injection @ 6 weeks (50%)
  - EtOH injection *unproven*

Achilles tendon ruptures

- Most common tendon rupture of the lower extremity
- Frequency increasing with emphasis on fitness in middle age
- Peak incidence 3rd to 5th decade
- Prodromal sx's in 10%

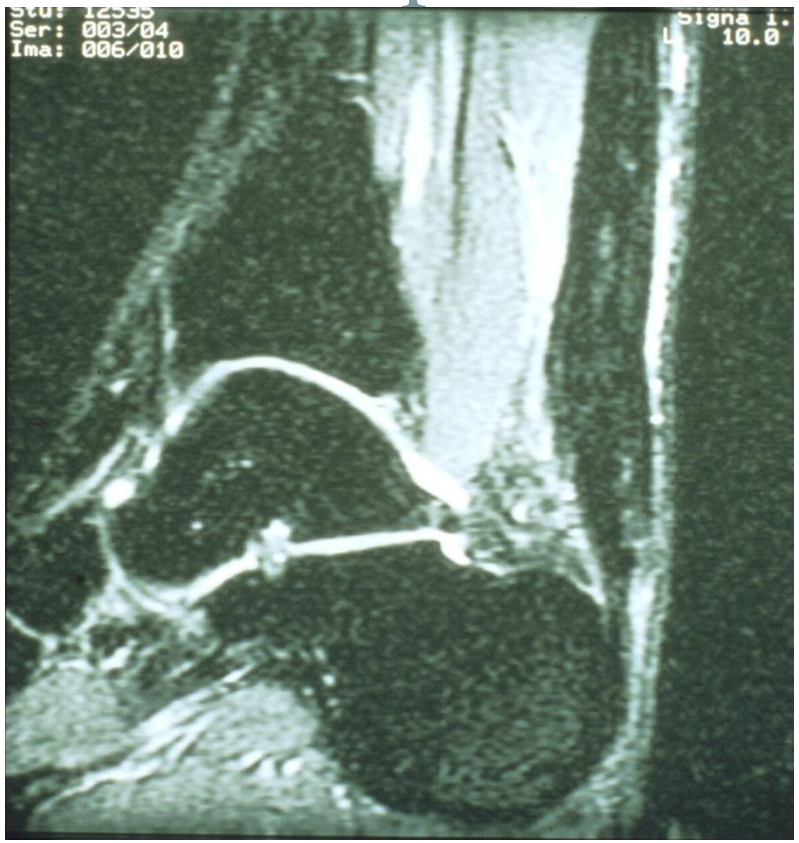
Mechanism of Achilles rupture

- Direct blow to posterior ankle
- Crushing injury
- Laceration
- Indirect "overloading"
  - Unexpected or violent dorsiflexion
  - Push off with knee extended (lunge)



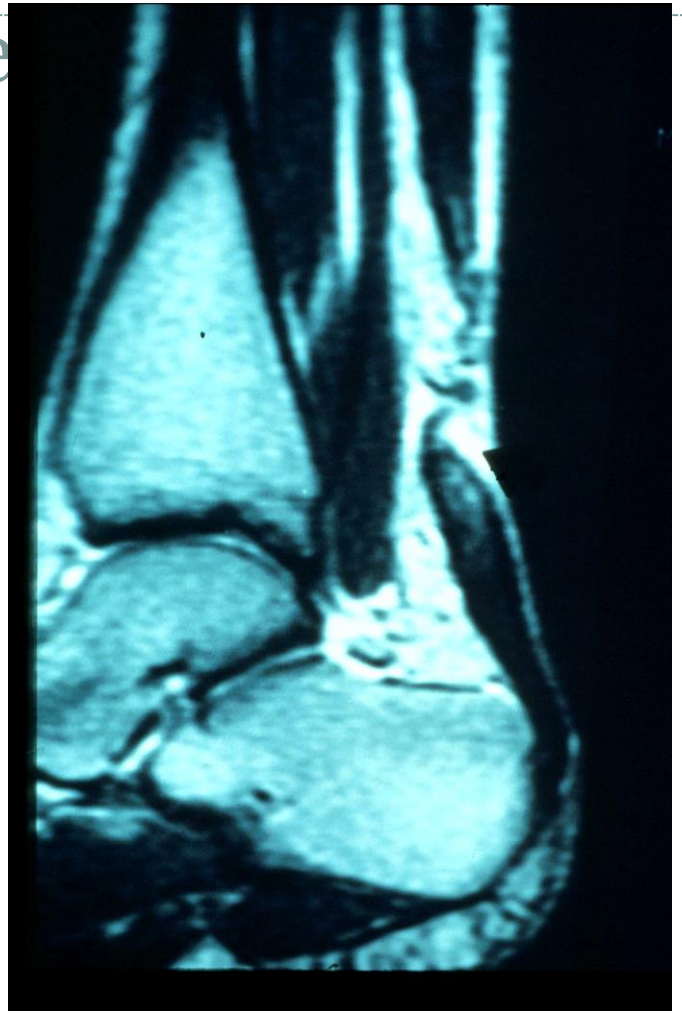
Other risk factors for rupture

- Intratendinous degeneration
- Fluoroquinolones
- Steroid injections
- Inflammatory arthritis



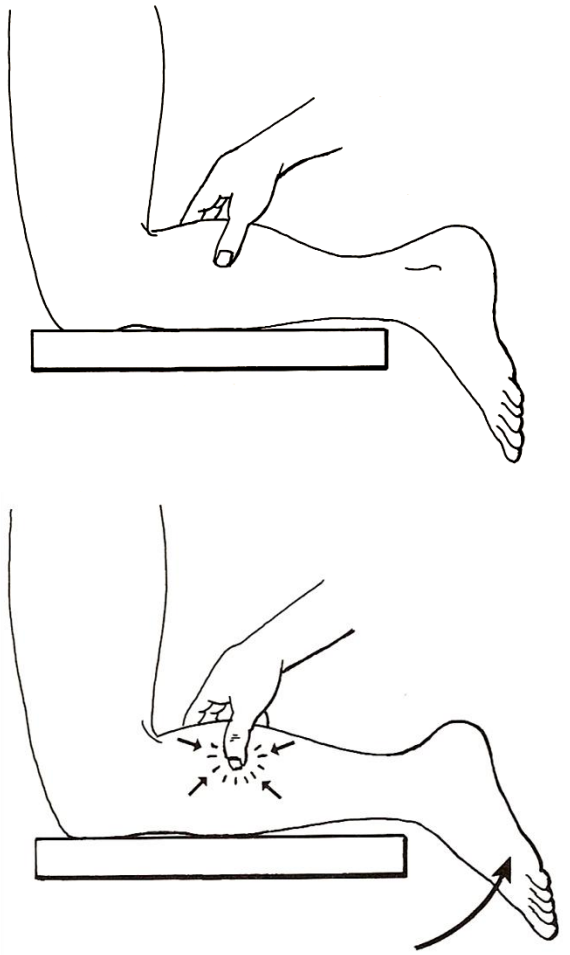
Vulnerable

- 2 to 6 cm proximal to calcaneal insertion
  - Proximal blood supply from muscle, distally from calcaneus
  - Decreased # and size of blood vessels in this zone (Carr, JBJS-B 1989)
- Peritendinous circulation may be disrupted by chronic tendinitis
  - Watershed zone supplied by mesotenon on ventral surface



Physical e

- Palpable gap
- Excessive dorsiflexion
- Weak plantarflexion
- “Thompson” test
  - Calf squeeze causes passive plantarflexion
    - *J Trauma, 1962*
- Initial Dx missed 20%



Operative versus non-operative management?

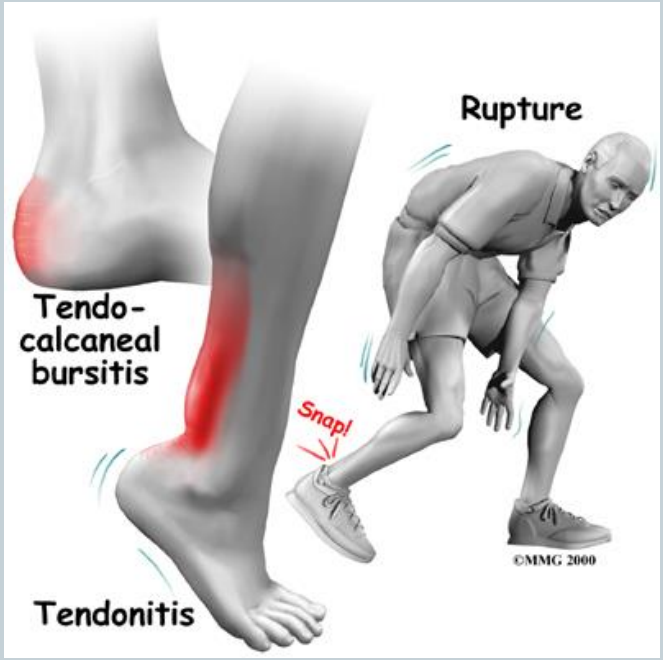
- Recent evidence supporting nonoperative management
- EBM challenges expert opinion that operative tx results in better restoration of strength

- I believe
  - slightly higher rerupture rate in nonop
  - higher complication rate in operative tx

6. ACHILLES 'TENDONITIS'

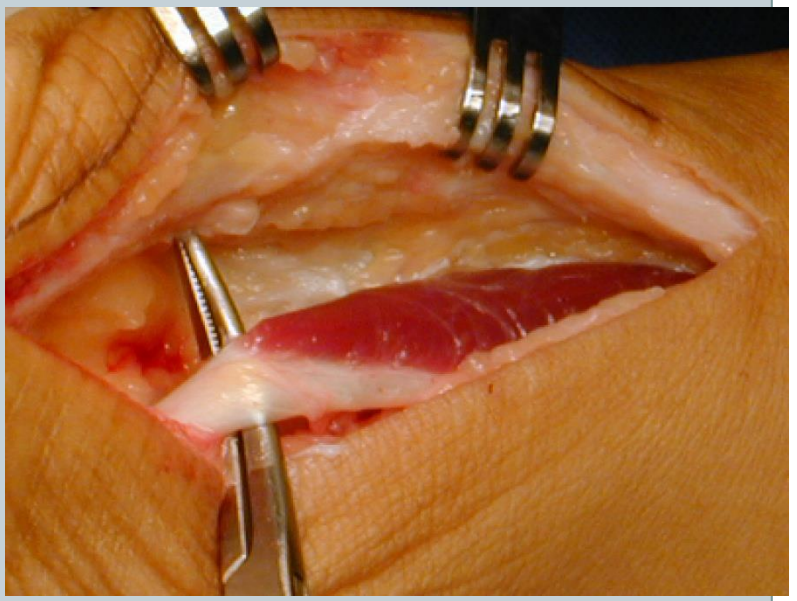
2 kinds: insertional *OR* midsubstance

- HX: 'pain in the back of heel'
  - Worse with stairs, after prolonged activity
  - ***Night Pain***
  - May be both sides
  - Often history of overuse - running



ACHILLES TENDONITIS

- Treatment: can take *8-12 months* to improve
  - RICE, NSAIDS
  - PT: DAILY stretching, modalities
    NIGHTLY DF splint
  - **Shoe lift (1cm) / heels!**
  - ? SLC for short period
  - *NEVER inject (in, or near)!*



Haglund's Syndrom

- Prominent superolateral calcaneus
- Pain, pressure from shoe

5. Bunions = Hallux Valgus

5. BUNIONS, *BUNIONS*

If the Shoe Won't Fit, Operate on the Foot?

Continued From Page 1

Ankle Society who responded to a recent survey by the group said that they had treated patients with problems resulting from cosmetic foot surgery. The society will soon issue a statement condemning the procedures, said Rich Cantrall, its executive director.

The American Podiatric Medical Association is also likely to formally discourage medically unnecessary foot operations, said Dr. Glenn Gastwirth, executive director of the group.

"I think it's reprehensible for a physician to correct someone's feet so they can get into Jimmy Choo shoes," said Dr. Sharon Dreeben, an orthopedic surgeon in La Jolla, Calif., who is chairwoman of the foot and ankle society's public education committee.

But advocates for the procedures say that critics simply do not understand the importance of high heels. "Some of these women invest more in their shoes than they do in the stock market," said Dr. Suzanne M. Levine, an Upper East Side podiatrist who is widely quoted in women's magazines and has appeared on network television promoting the procedures.

"Take your average woman and give her heels instead of flats, and she'll suddenly get whistles on the street," Dr. Levine said. "I do everything I can to get them back into their shoes."

Foot fashion and function have, of course, long been in conflict. Chinese

Sacrificing Toes for Style

A procedure to shorten toes is usually coupled with the removal of a corn or bunion caused by walking in poorly fitting shoes.

High-heeled narrow shoes force the toes to curl against the front of the shoe. The joints of the longest small toes may permanently bend and rub against the inside of the shoe, causing corns.

After removing the corn, a surgeon may shorten the toe in one of several ways. Frequently, one end of a bone is cut off.

The remainder of the segment is wired to the next bone to form one piece. After about four weeks the segments have permanently fused, so the toe has two bones instead of three.

Source: Dr Suzanne M. Levine

The New York Times

Women are having parts of their toes lopped off to fit into Manolo Blahniks.

per, pictures of Dr. Levine with celebrities like Oprah Winfrey, Katie Couric, Diane Sawyer and Joan Lunden, and framed copies of articles in which she is quoted. Dr. Levine has medium-length blond hair, a striking resemblance to the singer Deborah Harry, and often wears fashionable high heels. A public relations firm

Marilynn K. Yee/The New York Times

Simone Levitt's toes have been numb since she had collagen injections in the pads of her feet two years ago. The collagen, which Ms. Levitt of New York thought would let her walk more freely in heels, damaged nerves.

beautiful women who want to look their best, she said. To prove her point, she walked into an examining room where Jennifer Cho, a 27-year-old Manhattan lawyer was waiting to

The answer, Dr. Positano said, is that "you don't walk on your face." The foot is a complex network of 26 bones, 33 joints, 107 ligaments and 19 muscles that must support more than 100,000 pounds of pressure for

Society is beginning a study to measure how common the operations have become.

Critics say that one factor compelling the increase they are seeing in such procedures is a push by doctors to expand their practices in areas not covered by managed care. "People are making a lot of money off of this, because patients pay in cash," said Dr. Dreeben, the California surgeon.

Dr. Levine said that insurers pay for many of her procedures, because patients are in pain. "I'm not looking to make a killing," she said. "I make a living."

Dr. Reese finally found 2-inch heels that she could briefly wear while walking down the aisle at her daughter's wedding in July. She quickly changed into a pair of ballet slippers that she had dyed black and

If Shoe Won't Fit, Fix the Foot? Popular Surgery Raises Concern

By GARDINER HARRIS

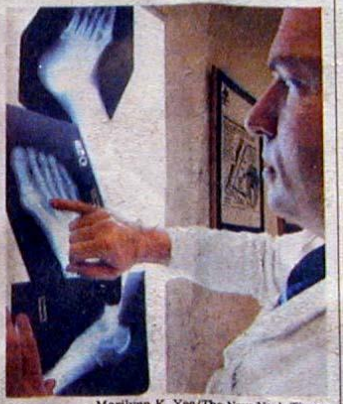
Days after her daughter's engagement a year ago, Sheree Reese went to her doctor and said that she would do almost anything to wear stilettos again.

"I was *not* going to walk down the aisle in sneakers," said Dr. Reese, a 60-year-old professor of speech pathology at Kean University in Union, N.J. She had been forced to give up wearing her collection of high-end, high-heeled shoes because they caused searing pain.

So Dr. Reese, like a growing number of American women, put her foot under the knife. The objective was to remove a bunion, a swelling of the big-toe joint, but the results were disastrous. "The pain spread to my other toes and never went away," she said. "Suddenly, I couldn't walk in anything. My foot, metaphorically, died."

With vanity always in fashion and shoes reaching iconic cultural status, women are having parts of their toes lopped off to fit into the latest Manolo Blahniks or Jimmy Choos. Cheerful how-to stories about these operations have appeared in women's magazines and major newspapers and on television news programs.

But the stories rarely note the perils of the procedures. For the sake of better "toe cleavage," as it is known to the fashion-conscious, women are risking permanent disability, according to many orthopedists and



Marilynn K. Yee/The New York Times

Dr. Rock Positano, of the Hospital for Special Surgery, shows a bunion, often a cause for foot surgery.

podiatrists.

"It's a scary trend," said Dr. Rock Positano, director of the nonoperative foot and ankle service at the Hospital for Special Surgery in Manhattan. Dr. Positano said that his waiting room is increasingly filled with women hobbled by failed cosmetic foot procedures, those done solely to improve the appearance of the foot or help patients fit into fashionable shoes.

More than half of the 175 members of the American Orthopaedic Foot &

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CURRENT NEWS IN MUSCULOSKELETAL HEALTH & DISEASE

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Samuel R. Baker, MD, says being active made him a better surgeon.
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Physician assistants are playing an increasing role in U.S. orthopedic practices.
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Prolonged menstrual cycle disruptions may affect bone mineral accrual.
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Questioning contracts

Cosmetic foot surgery gaining popularity

Some patients are demanding cosmetic foot surgery just to fit into and look attractive in narrow-toed high-heeled shoes. Foot surgeons are alarmed by this trend and emphasize that the goals of foot surgery should be pain relief and restoration of function and quality of life.

"There is a difference of night and day between a woman who has painful feet and requires surgery and a woman who has painless feet who wants surgery," said **Glenn B. Pfeffer, MD,** current president of the American Orthopaedic Foot and Ankle Society (AOFAS).

In response, the AOFAS has issued a position statement warning against the practice. "The AOFAS recommends that surgery not be performed simply to improve the appearance of the foot. Surgery should never be performed in the absence of pain, functional limitation or reduced quality of life."

Patients are seeking procedures that range from bone excisions to silicone implants in the balls of the feet.

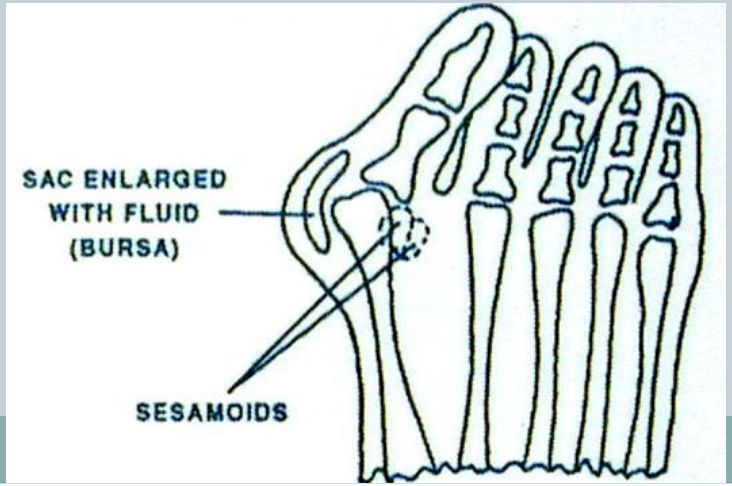
Some orthopedic foot specialists question whether this is truly a trend or merely headline grabbing by certain groups. "It has always been there, it just seems that now it has gone into a new dimension," said **Carol Frey, MD,** of Manhattan Beach, Calif. "I think it is now being used as a marketing tool. We used to call it prophylactic surgery."

Both Frey and Pfeffer said they are concerned about the impact of the negative attention the media hype may be garnering. Since many of the national reports focus on some of the bad surgical results or the narcissistic nature of purely cosmetic surgeries, many patients with reasonable foot complaints may be discouraged from seeking surgical intervention.

MAKE SHOE FIT FOOT, NOT V/V

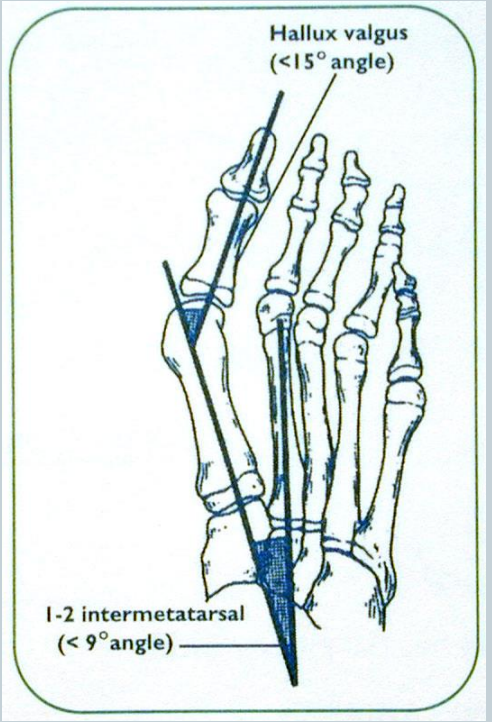
HALLUX VALGUS

- Hereditary
- SHOES (F/M = 9/1!)
- HX: pain/swelling @ site, worse w/ tight shoes
- PE: 1st MTP
  swollen, impinge 2nd ray
  crossover



‘BUNION’

- XR: standing foot
  - Alignment, mechanics, arthritis, fx
- OTHER TESTS: no
- RX: *proper shoe fit*
  - *Wide* toe box
  - Heels < 1 inch
  - Soft upper, fit *end* of day



‘BUNION’

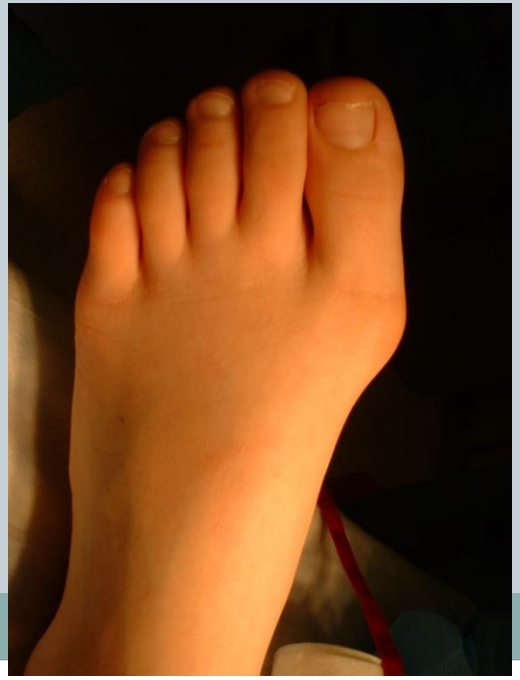
- Orthotics & Splints of high cost and ? benefit

- Other RX: NSAIDS, stretching, HAPAD

When to Refer a BUNION

ONLY 3 INDICATIONS TO FIX!!!!

Progressive deformity, pain, shoeability

Remember…

- ***NEVER*** **SURGERY FOR**: aesthetics, ‘prophylaxis’, implants, killer shoewear
- Worse deformity = Worse outcome
  - Longer surgery, Longer recovery

Bunions - remember

- Expectations

7. STRESS FRACTURES

- The bane of the runners' existence

Metatarsal Stress Fracture

- Runner, athlete, dancer
- Training errors, worn out shoes
- Elevation 1st met, stress transfer to lesser
- Dancers – 2nd met due to pointe position
- Cavovarus – 5th met

Metatarsal Stress Fracture

- Localize tenderness
- Xrays, bone scan/MRI
- Rest, boot, cast
- Cross-train, pool
- Surgery
  - Non-healing with closed Tx
  - 5th metatarsal
    - IM screw
    - Varus heel – Closing wedge calcaneal osteotomy

THANK YOU

"The human foot is a masterpiece of engineering…and a work of art."

– Leonardo da Vinci, *The Notebooks* (c. 1508-1518)