Primary Care Orthopedics

What We Will Cover

- Shoulder pain
- Hip Pain
- Knee Pain
- Foot Pain

A Quick Word On Treating Pain

- Young Patients

Defined as age <60 and absence of CKD/HTN/CAD/GI bleeding

NSAIDS work great, and are generally well tolerated

- Older patients

Age >60, or medically complicated patients with kidney, GI, CV disease

Topical NSAIDS- aspercreme or diclofenac

Acetaminophen

Duloxetine

Shoulder Pain

- An 84 yo woman presents for evaluation of shoulder pain. She reports that for the last few months she has had increasingly severe shoulder pain . She has had pain in the anterior shoulder, especially when she lifts a bag of groceries. Yesterday she felt acute, severe pain when lifting a heavy bag of groceries. Today the pain is much less than it has been for many months. Clinical picture as shown

What is the most likely diagnosis?

A) Humeral fracture
B) Osteoarthritis of the shoulder
C) Supraspinatous tendon rupture
D) Rupture of the long head of the biceps
E) Triceps rupture

Biceps Tendon Rupture

- Common in the elderly due to long term degenerative tendinosis usually from impingement, strongly associated with rotator cuff disease
- No need for surgical intervention
- Conservative management, tear usually has little impact on function

- Clin Sports Med 2001; 20:505.

- A 79 yo man presents for evaluation of R shoulder pain. The pain has been present for 2 weeks. It is most painful when he abducts his arm. The pain is especially bad at night, when he can't on his right side. On exam he has a negative drop test. Positive pain with abduction from 30-90 degrees and a positive empty can sign. What is the most likely diagnosis?

A) Complete rotator cuff tear
B) Bicipital tendonitis
C) Suprspinatous impingement
D) Deltoid tendonitis

What treatment do you recommend?

A) Ibuprofen
B) Ibuprofen and Physical therapy
C) Physical therapy
D) Corticosteroid injection and physical therapy

Corticosteroid Injections

- Randomized trial of steroid injections (all participants did ROM exercises and took NSAIDS)

3 groups- group 1 -40 mg methylpred and lignocaine inj 1and 2, group 2- 40 mg methylpred and lignocaine 2nd inj only lignocaine groups- only 2 injections of lignocaine

Group one had better pain scores/sleep /functioning during the 1st month

Clin Rheumatol. 2004;23(6):496.

More on Corticosteroid Injections

- Meta-analysis of 10 studies (seven corticosteroids vs placebo, three corticosteroids vs NSAIDS)
- NNT 3.3 steroids vs placebo
- NNT 2.5 steroids vs NSAID
- Minimal risk

Br J Gen Pract. 2005 Mar;55(512):224-8.

Supraspinatous impingement

- Physical therapy is the cornerstone
- Can use Ice initially
- If severe pain, especially difficulty sleeping- strongly consider corticosteroid injection to help with initial pain and allow PT
- As always, beware NSAIDS in the elderly
- If worsening pain with PT, then image (plain films to look for OA/anatomic changes that are making PT less effective)

A 77 yo woman presents with bilateral shoulder pain and stiffness. It has been present for 2 weeks. She has also noticed stiffness in her hip area over the same time period.

What would be the most appropriate tests?

A) ESR

B) Bilateral shoulder films

C) Hip and shoulder films

D) Shoulder MRI

E) Shoulder Ultrasound

CHARACTERISTICS OF POLYMYALGIA RHEUMATICA

- Older patient
- Normal physical examination
- Aching and stiffness

Polymyalgia Rheumatica (PMR) Key Features

- Epidemiology - age > 60
- Aching/stiffness in shoulder girdle/neck/thigh
- Symptoms worse in morning
- Possibility of co-existant giant cell arteritis
- Lab - elevated ESR
- Diagnostic response to steroids

Polymyalgia Rheumatica: Treatment

- **Low dose prednisone 10 mg/day. Often start at 20 mg a day for a few days then cut dose quickly**
- **May need to treat for two or more years**

Differential Diagnosis of Shoulder Problems Based on History and Examination

- Profound stiffness
  - Polymyalgia rheumatica
- Pain & Limited range of motion
  - Adhesive capsulitis
  - Glenohumeral osteoarthritis
- Mostly weakness
  - Myositis
  - Cervical radiculopathy
- Mostly pain with movement
  - Rotator cuff pathology
  - Acromioclavicular osteoarthritis

Dx in 101 pts with shoulder pain over 18 months in an IM clinic

Diagnosis	Percent
Rotator Cuff Disease	62
Myofascial Pain	22
Adhesive Capsulitis	10
AC Joint OA	4
Bicepital Tendonitis	3
RA/OA/RSD/PMR	1 each

Anderson, Kaye. West J Med 1983; 138:268

Hip Pain

- A 60 yo woman has been having pain she describes as R hip pain. She can't sleep well at night, as it hurts to sleep on her right side. Her pain is very bothersome when she first gets up in the morning, and is especially bad when she has been sitting for awhile and gets out of a chair and starts walking.

What is the most likely diagnosis?

A) RA
B) Osteoarthritis
C) Trochanteric bursitis
D) Labral tear

Trochanteric Bursitis Pearls (Greater Trochanteric Pain Syndrome)

- 15% of women, 7% of men age 50-70
- Risk factors- female, knee pain, LBP
- Pain increases with ambulation, prolonged standing, upright activity, rising from a chair, climbing stairs, ascending inclines, and with direct pressure when lying on the painful side.
- Key point- where the pain is- LATERAL hip pain

- A 28 yo woman presents for evaluation of groin pain. She is an avid soccer player, and has noticed pain over the last week in her right groin. It is worse with running. She describes it as a sharp pain. She has no pain at night , no disturbance with sleeping. Exam: Right hip exam: pain with hip flexion, adduction, and internal rotation . There is no swelling/inguinal mass.
- What is the most likely diagnosis?

A) Osteoarthritis
B) Rheumatoid arthritis
C) ITB syndrome
D) Labral tear

Hip Pain

- Lateral pain- Usually greater trochanteric pain syndrome, or ITB tightness (often occur together)
- Anterior pain- Hip pathology from OA, osteonecrosis often radiates to the groin

Age of patient- older patients OA/osteonecrosis more likely, younger patients/athletes- labal tear or Femeroacetabular impingement . “Sports hernia” can present as anterior hip/groin pain

Knee Pain

- A 58 yo woman with type 2 diabetes presents with knee pain. She reports that she has had pain in her R knee over the past 3 weeks. The pain is worse when she gets out of a chair, and it is worse when she goes up or down stairs. PE: Patient has valgus deformity. No knee swelling, no joint line tenderness. Tenderness 3 cm below medial joint line. What is the most likely diagnosis as the cause of pain?

A) Medial compartment OA
B) Patellar tendonitis
C) Per Anserinus pain syndrome
D) Fibromyalgia

Pes Anserinus Pain Syndrome

- Risk Factors: Female , Diabetes, Obesity, Knee malalignment, OA.
- Clinical Features:

Medial knee pain

Tenderness over the upper medial tibia between the pes anserinus and the tibial joint line

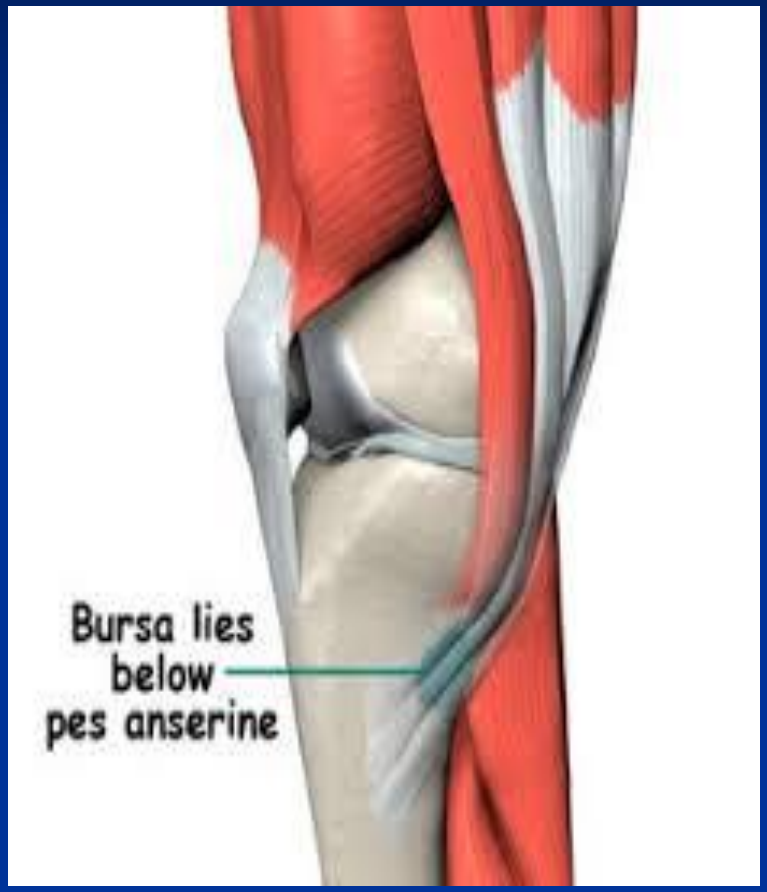
Absence of local swelling or induration

Therapy: Quad strengthening exercises

NSAIDS (Topical!), corticosteroid injections

Weight loss

Where To Inject?



68 yo male with 1 day history of severely painful, warm, swollen right knee. Hx of painful swollen great toe several years ago that was never evaluated by a doctor. No recent trauma. Small but scratch over his right knee from bumping it on a picnic table a few days ago. No surrounding erythema. No recent surgeries or systemic illnesses. No fevers or chills. PMHx: Stage 3 CKD, HTN, CAD, type 2 DM. Meds: ASA, metoprolol, 70/30 insulin, atorvastatin.

What is your next step in management?

A. Check CBC, ESR, start antibiotic for possible septic joint
B. Arthrocentesis with cell count, crystals, GS and CX
C. Intra-articular steroid injection
D. High dose NSAIDS
E. Arthrocentesis with above labs PLUS intra-articular steroid injection.

68 yo male with 1 day history of severely painful, warm, swollen right knee. Hx of painful swollen great toe several years ago that was never evaluated by a doctor. No recent trauma. Small but scratch over his right knee from bumping it on a picnic table a few days ago. No surrounding erythema. No recent surgeries or systemic illnesses. No fevers or chills. PMHx: Stage 3 CKD, HTN, CAD, type 2 DM. Meds: ASA, metoprolol, 70/30 insulin, atorvastatin.

What is your next step in management?

A. Check CBC, ESR, start antibiotic for possible septic joint
B. Arthrocentesis with cell count, crystals, GS and CX
C. Intra-articular steroid injection
D. High dose NSAIDS
E. Arthrocentesis with above labs PLUS intra-articular steroid injection.

Is this inflamed joint gout?

- Diagnostic tool to predict gout
  - 2010 Arch Internal Medicine, 328 patients, mono-articular arthritis.
    - Evaluated by family physicians, underwent synovial analysis.
- Scoring values:
  - Male sex (2 points)
  - Previous patient-reported arthritis attack (2 points)
  - Onset within one day (0.5 points)
  - Joint redness (1 point)
  - First metatarsal phalangeal joint involvement (2.5 points)
  - Hypertension or at least one cardiovascular disease (1.5 points)
  - Serum uric acid level greater than 5.88 mg/dL (3.5 points)

PMID: 20625017 E.

Is this inflamed joint gout?

- Diagnostic tool to predict gout
  - Our patient had a score of 6
- Probability of gout
  - High $\geq$ 8 points
    - Prevalence of gout 82.5%
    - Seems reasonable to treat as gout
  - Low $\leq$ 4 points
    - Prevalence of gout 2.2%. Essentially rules out gout
    - Consider RA, psoriatic arthritis, pseudogout, etc.
  - Intermediate > 4 to < 8 points
    - Prevalence of gout 31.2%
    - Most benefit from synovial analysis

Inflamed Joint

- Differential diagnosis
  - Inflammatory arthritis
  - Crystal arthropathy
  - Septic joint
- Arthrocentesis when possible
  - Cell count, crystals, gram stain, culture
- Steroid use in the setting of a septic joint?
  - No data to guide whether intra-articular steroids will improve or worsen a joint if it turns out to be septic.
  - Small studies in children with septic arthritis, tx with systemic steroids shortened duration of fever, joint pain.

PMID: 18304331, 21307717

Issues in Urate Gout

- Most common form of inflammatory arthritis in men over 40; > 5 million affected; rare in women pre-menopause
- 1st attack after years of hyperuricemia
- 1st MTP involved at some time in 90%; almost any joint can be affected
- *A serum uric acid above 6.8 mg/dl is abnormal even if your lab says 8.5 mg/dl is normal!*
- *Uric acid level may go down to normal during attack*
- Certain groups i.e. Pacific Islanders have genetic predisposition to gout

Acute Urate Gout

Interval Hyperuricemia

Tophaceous Gout

Options for Treatment of Acute Gout

- **NSAIDS:** Maximum dose for 5-7 days; Naproxen 500 mg BID x 5 days
- **Oral Prednisone/Prednisolone:** 35 mg/day for 5-7 days or 40 mg with 7-10 day taper
- **Intramuscular Corticosteroids:** Depomedrol 120 mg or triamcinalone 60 mg IM are options
- **Intra-articular steroids**
- **Colchicine:** 1.2 mg followed in one hour by 0.6 mg. Start within first 24 hours
- **Anakinra IL-1 inhibitor:** not FDA approved. 100 mg SC daily time 1-3 days

72 yo male with moderate knee pain for the past few months. No recent trauma to the knee. He has been told he likely has some arthritis but has never had x-rays. He reports some mild swelling of the right knee as well as knee instability with occasional "catching" sensation. On a few occasions he felt like his knee gave out and he almost fell. Based on his history you are thinking he may have a meniscal injury.

Which of the following exams is most sensitive and specific for diagnosing meniscal tears?

A. McMurray's Maneuver
B. Thessaly test
C. Apley Grind test

72 yo male with moderate knee pain for the past few months. No recent trauma to the knee. He has been told he likely has some arthritis but has never had x-rays. He reports mild swelling of the right knee as well as knee instability with occasional "catching" sensation. On a few occasions he felt like his knee gave out and he almost fell. Based on his history you are thinking he may have a meniscal injury.

Which of the following exams is most sensitive and specific for diagnosing meniscal tears?

A. McMurray's Maneuver
B. Thessaly test
C. Apley Grind test

Physical Exam: Meniscal Injury

- Thessalay Testing
  - Pt stands on affected knee only
  - Knee flexed at 20 degrees
  - Pt internally/externally rotates knee several times
  - Positive: pain or locking or catching sensation
  - Sensitivity 90%, Specificity 96%
- McMurray's maneuver
  - Sensitivity 50%, specificity 60-97%
- Apley Grind test
  - Sensitivity 38%, specificity 84%

Based on your patient's history and physical exam you think he likely has some osteoarthritis and a meniscal tear. Other than some acetaminophen he has not tried any other treatments.

What would you recommend next?

A. MRI right knee
B. X-ray right knee
C. MRI with arthrogram of right knee
D. Physical Therapy
E. Surgery referral

Based on your patient's history and physical exam you think that he likely has some osteoarthritis and a meniscal tear. Other than some acetaminophen he has not tried any other treatments.

What would you recommend next?

A. MRI right knee
B. Xray right knee
C. MRI with arthrogram of right knee
D. Physical Therapy
E. Surgery referral

When do we need x-rays?

- Acute vs. Chronic knee injury
- Acute knee Injury
  - Use the Ottawa Knee rules
- Chronic knee pain
  - X-rays generally not needed for diagnosis of OA
  - Image if considering surgical intervention

Ottawa Knee Rules

- Acute knee injury PLUS (one or more):
  - Age 55 or older
  - Tenderness at head of fibula
  - Isolated tenderness of patella
  - Inability to flex to 90 degrees
  - Inability to bear weight both immediately and in ED (4 steps, limping is okay)
  - 99% sensitive for identifying patients who have a fracture.
- AP, lateral PLUS sunrise (axial) if concern for patellar fracture.

Do we need X-ray to diagnose OA?

- Clinical findings suggestive of OA
  - Pain PLUS
    - Age > 55 - Bony enlargement
    - Morning stiffness < 30 minutes - No palpable warmth
    - Crepitus - Bony tenderness

	Sensitivity	Specificity
Pain + 3 findings	95%	69%
Pain + 4 findings	84%	89%
X-ray	77%	89%
Pain + X-ray + 1 finding	92%	75%

*If using xray to eval for OA, get weight bearing films.

What if concerned about meniscal tear?

- Acute tear
  - Generally associated with trauma
  - Consider imaging and surgical referral based on severity of symptoms.
- Chronic tear
  - Conservative therapy first
  - Consider imaging if symptoms worsening or severely limiting function.

Chronic Meniscal Injury

- If osteoarthritis present
  - NEJM 2013, 351 pts, ≥ 45 yrs, mild-mod OA + tear
  - PT alone vs. meniscectomy followed by PT
  - Pain and function similar at 6 and 12 months

PMID: 23506518

- If no osteoarthritis present
  - NEJM 2013
  - 150 pts, 35-65 yrs, non-traumatic medial tears
  - Partial meniscectomy vs. sham arthroscopy
  - All underwent same post-op PT program
  - At 12 months, no significant between-group difference

PMID: 24369076

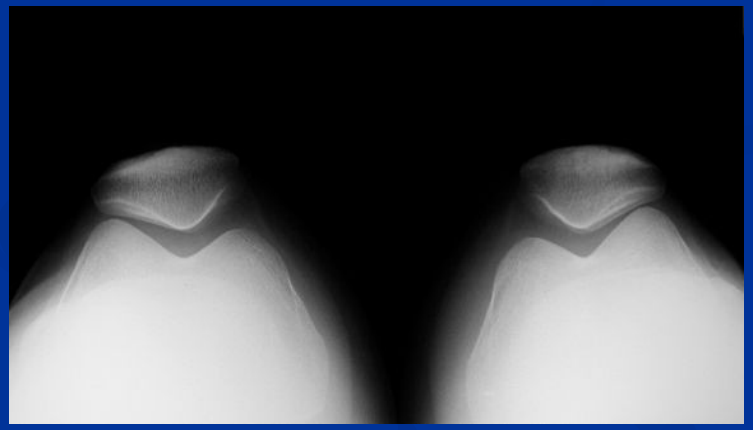
- 29 y/o woman recently post partum has tried to go back to exercise but finds her knees ache. Has trouble getting off the couch because of knee pain and going down stairs is also painful. Walking level ground is not a problem. No previous issues with the knees prior to pregnancy
- Exam is unremarkable except for some patellofemoral crepitus

Next step is:

A. Check RF/CCP
B. X-ray knees
C. MRI knees
D. Physical therapy

Patellofemoral Pain Syndrome

- AKA: Chondromalacia patella
- Often occurs in young women
- **Symptoms:**
  - Pain with getting up from sitting position
  - Pain gong down stairs
- **Causes:**
  - Tight IT band
  - Weakened quadriceps (VMO)
  - Excessive foot pronation
  - Other joint malalignment
- **Treatment**
  - NSAIDs, CS injection
  - PT - VMO strengthening, IT band and hamstring stretches



Foot Pain

- A 53 y/o woman complains of pain and numbness b/w her right 3rd and 4th toes. Present especially with wearing shoes. Feels best in bare feet.
- Exam shows no tenderness of MTP joints, no callous formation but a click is felt when palpating the 3rd and 4th MTP interspace while transverse loading the MTPs of the right foot

- **The next step is to:**

A. MRI scan of foot
B. Wear wide toed shoes
C. Refer to podiatry
D. AP/oblique X-ray of foot

Morton's Neuroma

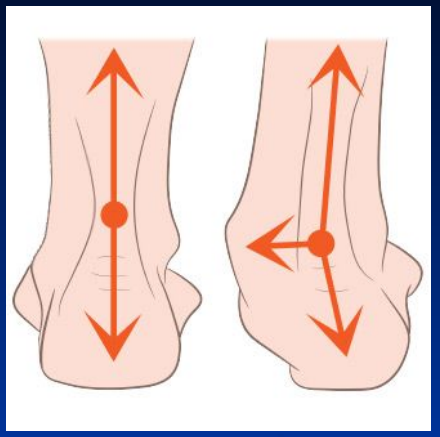
- Pain and parathesias into toes with wt bearing in shoes
- Most common in 3rd/4th MTP interspace
- Perineural fibrosis of branches of Plantar nerve
- Tenderness/nodule at interspace
- Mulder's sign (click with transverse loading)
- Treatment with Metatarsal bar/pad, wide toe box shoes, steroid injection from dorsal surface NOT plantar due to risk of fat pad atrophy, surgical removal if necessary

UpToDate

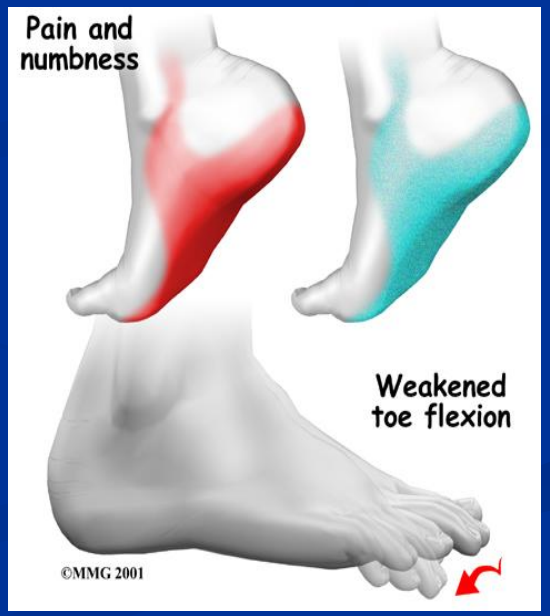
Plantar Fasciitis

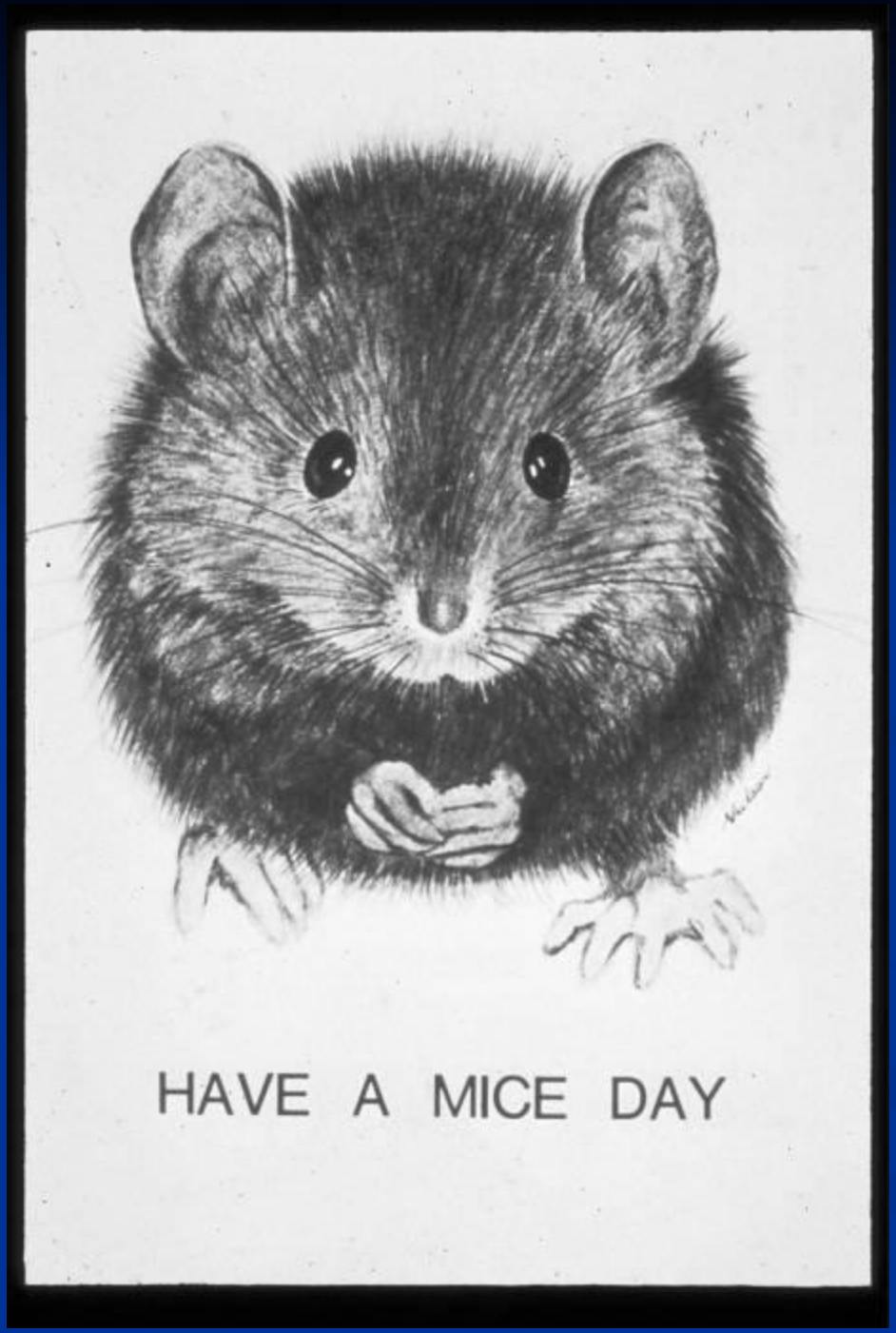
- **Cause:** Strain of plantar fascia as it inserts into
  medial calcaneus: poor shoes, overweight, *underlying spondyloarthropathy*
- **Symptoms/Signs:** Heel pain with first step in the morning or after sitting. Pain localized to medial inferior calcaneous
- **Treatment**
  - Step 1 - Wt loss, shoes/heel cup, PF/Achilles stretches, NSAIDs
  - Step 2 - Add posterior night splint
  - Step 3 - Walking boot/referral to podiatry

Tarsal Tunnel Syndrome



- Posterior tibial nerve entrapment at medial malleolus often due to excessive foot pronation
- Symptoms include pain, burning, numbness at heel or into first 3 toes depending on which of 3 branches affected; Tinels sign under medical malleolus
- Diagnosis can be confirmed using EMG
- Treatment includes fixing foot pronation, surgical release if needed




HAVE A MICE DAY