



Musculoskeletal Pain in the Elderly: Challenges in Evaluation and Diagnosis

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Goals and Objectives

Goal:

- Describe common changes and pathologies of the musculoskeletal system with age and their evaluative challenges

Objectives:

- Outline normal physiologic musculoskeletal changes with age
- Review common musculoskeletal etiologies
- Discuss common pitfalls of diagnostic imaging and labs
- Identify red flags and outline an approach to multifactorial causes

Outline



1. Case Presentation
2. MSK changes with age
3. Challenges in HPI and exam
4. Challenges in laboratory and imaging evaluation
5. General Red flags
6. Case Presentation revisited

Case Presentation

CC: R foot pain



HPI: 79 yo F new patient. Not a great historian.

- Hasn't been to doctor in >2 yrs
- R foot has been bothering for about a month. Hurts to walk on it. No pain at rest. No trauma. No new swelling.
- Chronic knee pain R>L.
- Chronic low back pain. Back hurts to lie flat or walk. Feels better sitting. Back pain interfering with sleep in last few months.
- Lower extremities feel more stiff particularly in the morning and she has been feeling more tired.
- 15 lbs weight loss in last year
- Years of hand pain, having trouble preparing food now.
- Denies any f/c or otherwise feeling ill.

Case Presentation - Cont'd



PMHx:

- DMII, hypothyroid, HTN, chronic low back pain, DJD

Meds:

- metformin, glipizide, amlodipine, levothyroxine, atorvastatin, naprosyn, MVI, ASA

Soc Hx:

- Recently moved to the area to be closer to her children for more help. Lives independently in an apt. Widowed. Former smoker. Drinks 1 beer/day.

Case Presentation - Cont'd

Exam



AF, BP 145/90, HR 78, weight 160lbs, BMI 29

MSK:

UE - prominent DIP joint nodes

Back - paralumbar tenderness, mild lumbar spine tenderness

LE - 4/5 strength hip flex, 5/5 strength remainder. medial knee joint pain on palpation R>L.
moderate R knee effusion, mildly warm

Feet - pes planus and R>L hallux valgus. R 1st MTP a little red medially, ankle w/ no focal swelling/warmth/redness, pain posterior/inferior to medial malleolus on palpation

Neuro: 1+ DTRs throughout, neg babinski, neg straight leg raise b/l, abnormal monofilament testing

Ext: 1+ edema in b/l LEs up to mid shins, palpable DP pulses

Skin: diffuse red/brown discoloration on b/l shins

Gait: favoring R leg a bit



Pair up

- 1. Discuss possible differential**
- 2. What labs and/or imaging would you want**

Case Presentation - Cont'd

Differential:



MSK:

- Mechanical
- OA
- RA
- Gout/pseudogout
- Tendinopathy
- PMR
- Spinal stenosis
- Compression fracture.

Non-MSK:

- Venous insufficiency
- PAD
- Thyroid
- Malignancy
- Cognition

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MSK Changes with Age

Sarcopenia

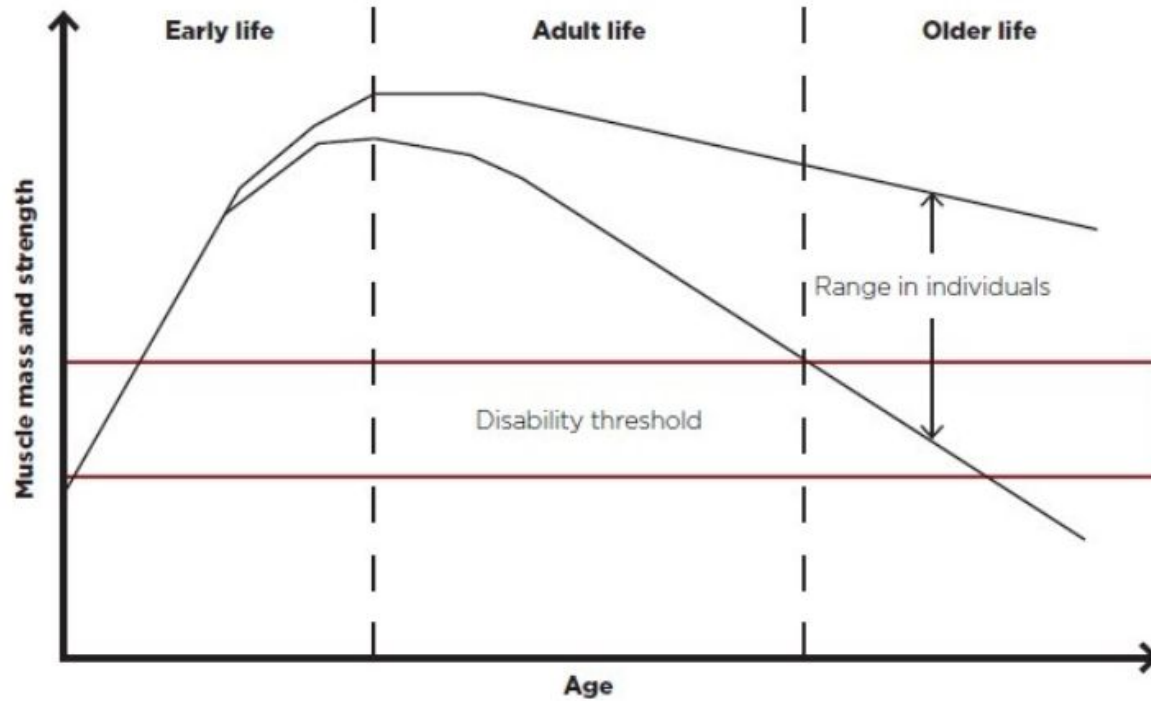


Figure 1. Range of functional capacity over life course.¹

MSK Changes with Age



- Muscle mass 30% of weight at 30 yrs old. 15% at 75 years old.²
- Muscle twitch strength loss of 20% at age 60 and 50% at age 80 compared to age 30.²
- 1.5% loss of muscle/day of inactivity as elderly²
- Cartilage thins and is more frail³
- Ligaments and tendons more rigid and brittle³
- Bone density decreases³

MSK Changes with Age



Figure 1.

Domains evaluated in CRAF index.

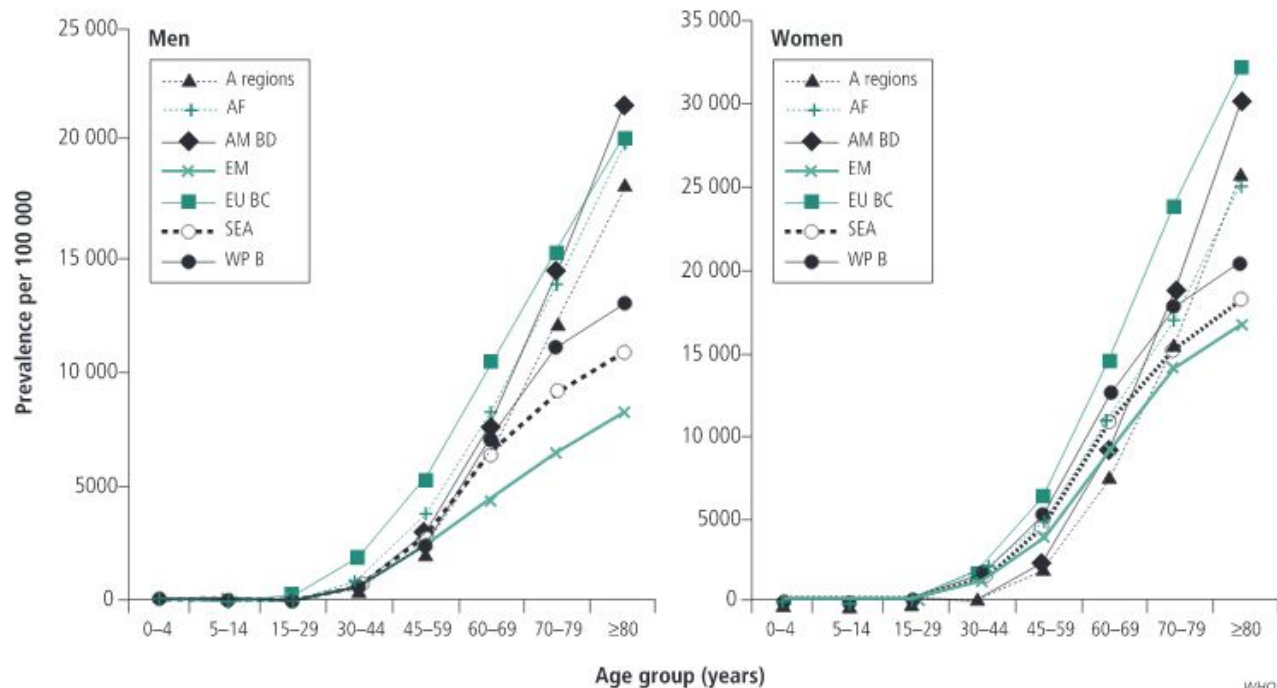
Common etiologies



- Osteoarthritis
- Tendonitis and bursitis
- Gout and Pseudogout
- Spinal Stenosis
- Osteoporotic fractures
- Rheumatoid arthritis
- Polymyalgia Rheumatica
- Complications from CVA, Parkinsons, etc

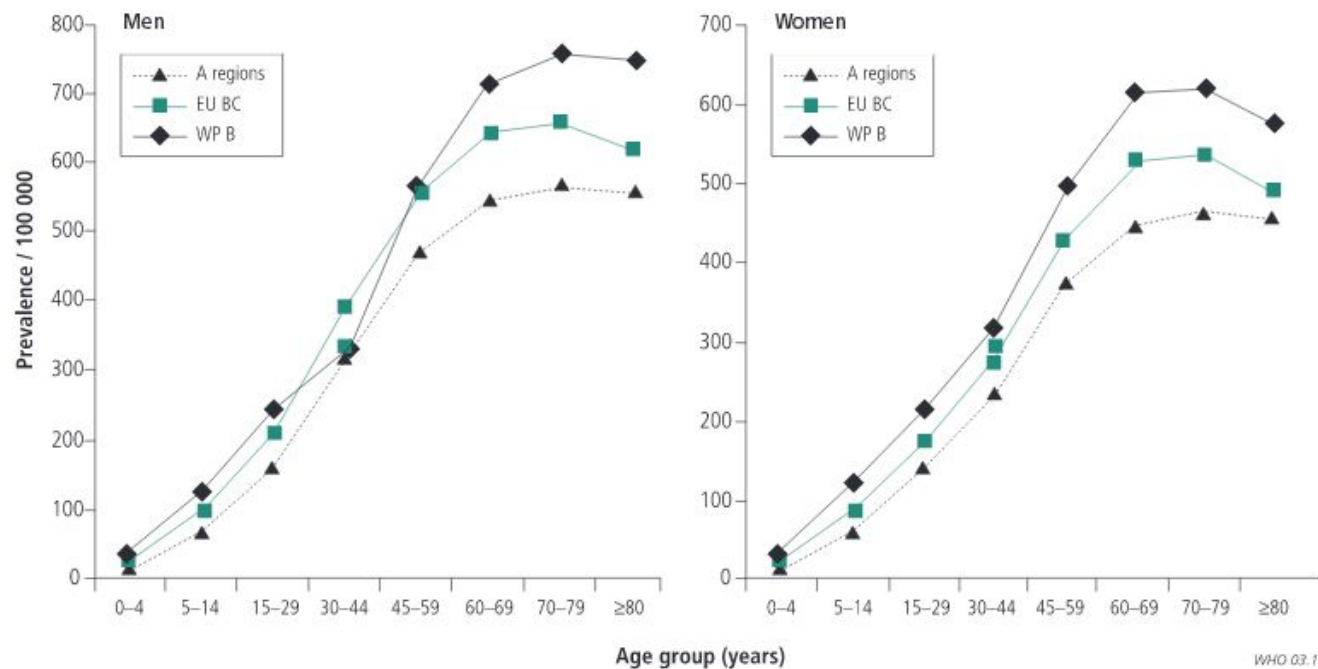
Knee OA

Fig. 1. **Prevalence of osteoarthritis of the knee, by age group, sex, and region, 2000** (16). A regions = developed countries in North America, Western Europe, Japan, Australia, and New Zealand. AF = countries in sub-Saharan Africa. AM BD = developing countries in the Americas. EM = countries in the Eastern Mediterranean and North African regions. EU BC = developing countries in Europe. SEA = countries in South-east Asia. WP B = countries in the Western Pacific region



Low Back Pain

Fig. 5. Prevalence of low back pain, by age group, sex, and region, 2000 (unpublished data, WHO, 2000). Key: see legend to Fig.1



WHO 03.154

Osteoporotic Fractures in Women

Fig. 3. Incidence of osteoporosis fractures in women, by age (reproduced by permission of Cooper & Melton (41))

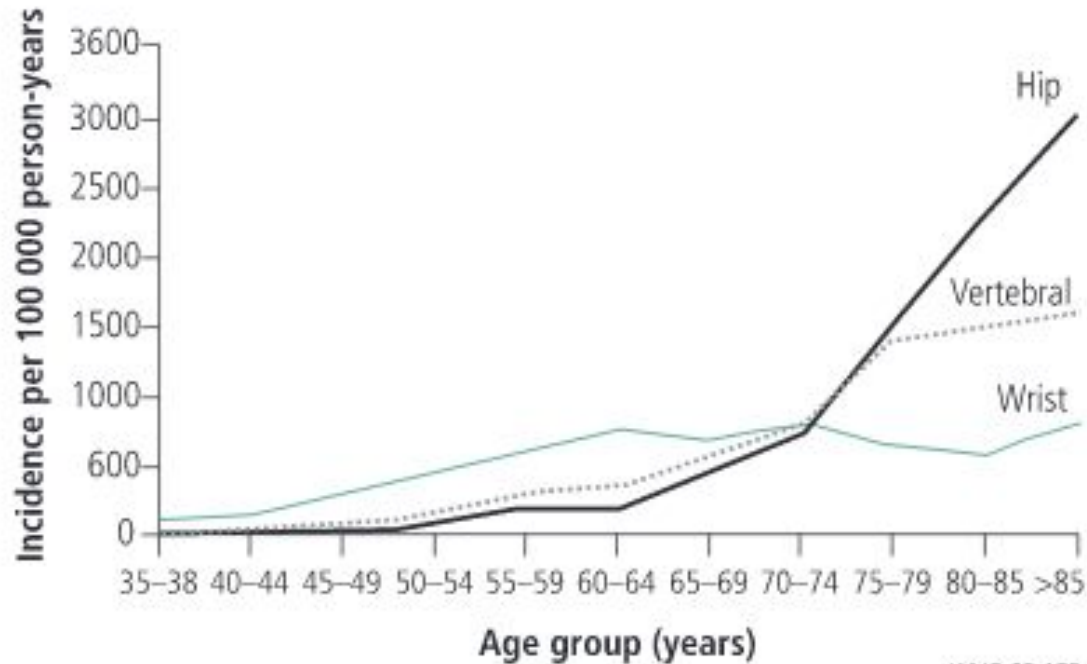
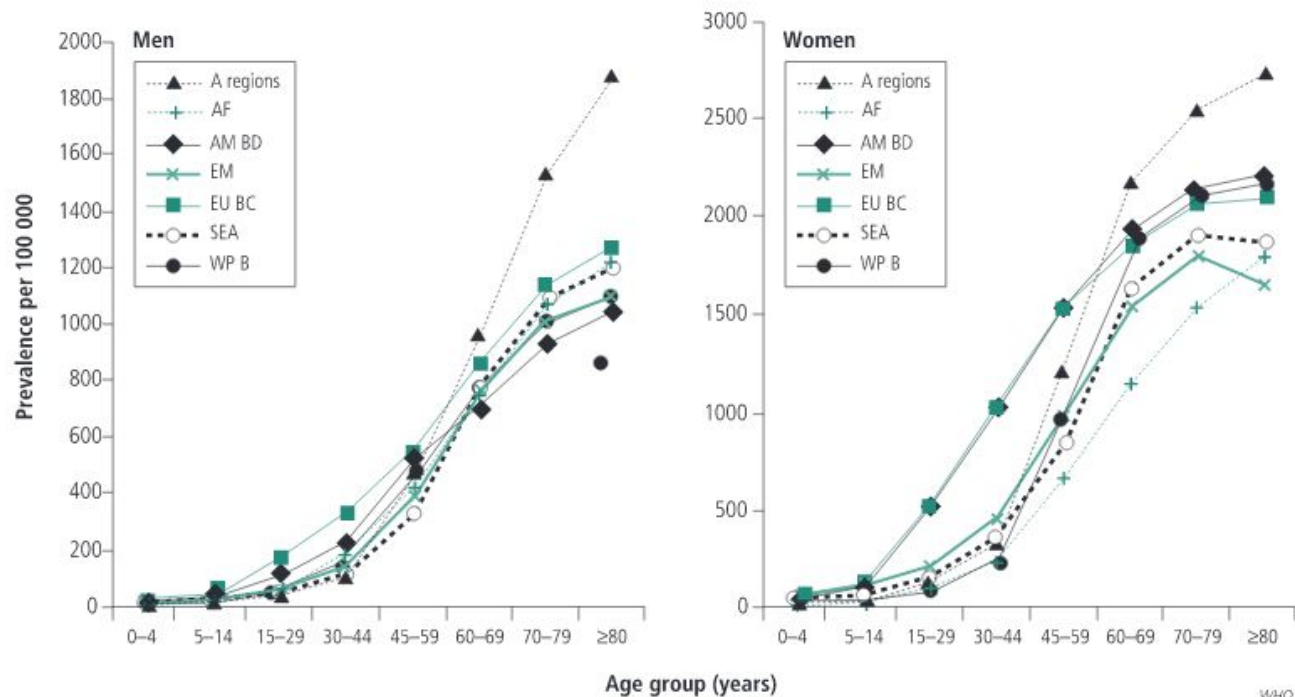


Fig. 2. Prevalence of rheumatoid arthritis, by age group, sex, and region, 2000 (29). Key: see legend to Fig. 1



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Challenges in HPI and Exam



- Underreporting of pain symptoms ⁶
- Atypical symptoms ⁷
- Cognitive impairment ⁸
 - Undertreatment
 - Alternate pain assessment
- Function, Function, Function ⁹
- Difficult exam with mobility issues
- Difficult to locate exact pain

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Differential:

Mechanical, OA, RA, gout, pseudogout, tendinopathy, PMR, malignancy, spinal stenosis, compression fracture.

Non-MSK - venous insufficiency, PAD, thyroid, malignancy, cognition

Labs: hct 38, BUN 12, Cr 1.3, A1c 8.1, TSH 2.0, WBC 7, ESR 38, CRP 2.8, RF 1:64, ANA 1:120, uric acid 7.4

Imaging:

B/I knee xray - severe OA

Lumbar spine xray - moderate degenerative changes, severe neural foraminal narrowing and facet arthropathy at many levels, no lytic lesions, no compression fracture

Right foot and ankle xray - moderate degenerative changes, no fractures



Pair up

- 1. How do you interpret these findings?**
- 2. What would you like to do for this patient?**

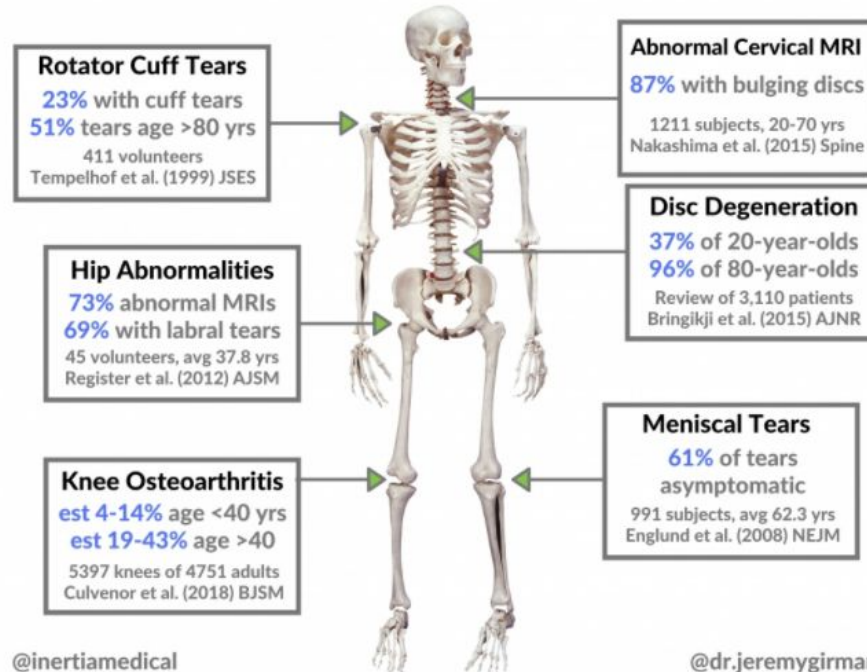
Challenges in Laboratory Evaluation



- Inflammatory markers ^{10, 11}
 - ESR, CRP
- Rheumatologic markers ¹⁰
 - RF, ANA
- Metabolic markers
 - Uric Acid ¹²

Challenges in Imaging Evaluation

How Many People Have Imaging Abnormalities But No Pain?



Challenges in Imaging Evaluation



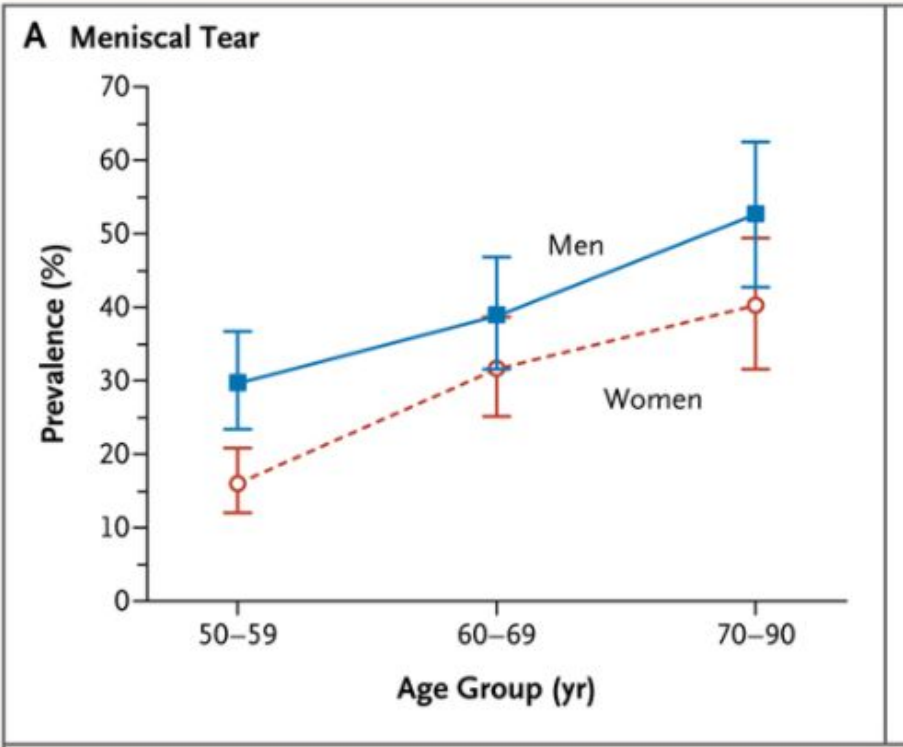
Back

- Pittsburgh Xray study of adults >65 yrs of age w/out chronic back pain vs with back pain ¹⁴
 - 95% had disc disease, 93% had facet disease, no correlation of severity with pain
- MRI of asymptomatic adults >60 yrs old ¹⁵
 - ~100% had DJD, ~21% radiographic evidence of spinal stenosis

Knee

- NEJM ~1000 patients age 50-90 received knee MRI. Majority of meniscal tears seen in asymptomatic patients, more than 50% of age 50-90 had meniscal tears/destruction ¹⁶

Challenges in Imaging Evaluation



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Red Flags



- Night pain
- Systemic signs (weight loss, f/c, sweats, etc)
- Neurologic findings
- Concern for specific etiologies: GCA/PMR, Charcot foot

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Case revisited



- Red flags: Weight loss, painful diabetic foot
- Inflammatory vs non-inflammatory
 - ?Consider trial prednisone, consider Rheumatology referral
- Triage multiple areas:
 - Low back pain - PT, pain control
 - Knee pain - tap knee, consider steroid injection
 - Foot pain - inserts and possible podiatry referral
- Control co-morbidities: compression stockings, change CCB, family assistance



Conclusions

- Red flags?
- Inflammatory vs non-inflammatory
- Importance of History and Exam (and thus time with patient)
- Judicious use of imaging and cautious interpretation of labs
- Prevention with activity!



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