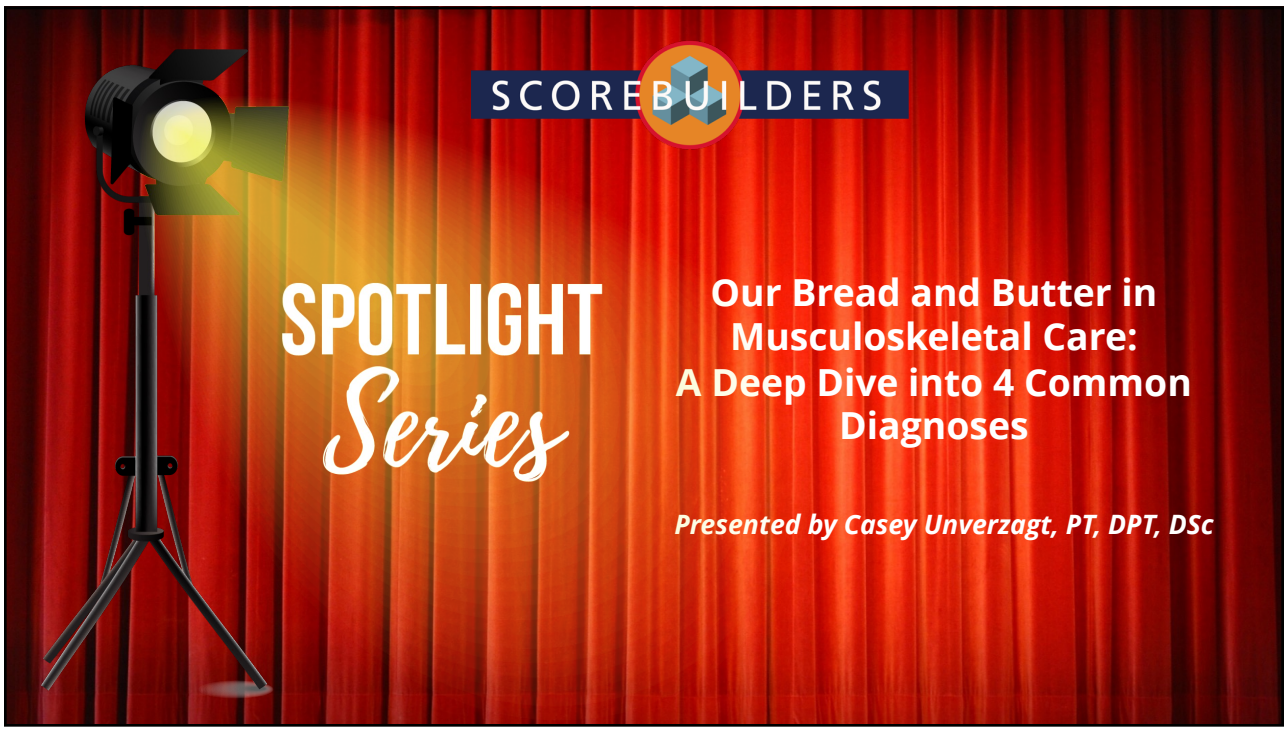


1

Casey Unverzagt

Board Certified in Orthopaedics & Sports (OCS/SCS)

Fellow American Academy of Orthopaedic Manual Physical Therapists (FAAOMPT)

Certified Strength & Conditioning Specialist (CSCS)

Baylor University

Evidence In Motion

WSE PHYSICAL THERAPY and SPORTS MEDICINE

BaylorScott&White HEALTH

2

It's Personal

3

Top 4 MSK Diagnoses

- Total knee arthroplasty
- Total hip arthroplasty
- Rotator cuff impingement/tear
- Plantar fasciitis

4

The Good News

This Isn't an Advanced Practice Examination

5

Say Goodbye to Your Bells and Whistles

And your new research

And your expertise

And your faculty's favorite topic

6

What Resources Are Available to Me

- PT Exam book
- Content Prompts (indirectly)
- Clinical Application Templates
- Critical Work Activities
- Class Notes
- Textbooks

Clinical Application Template Master - Gold

Diagnosis:

What condition produces a patient's symptoms?

An injury was most likely sustained to which structure?

Inference:

What is the most likely contributing factor in the development of this condition?

Confirmation:

What is the most likely clinical presentation?

What laboratory or imaging studies would confirm the diagnosis?

What additional information should be obtained to confirm the diagnosis?

Examination:

What history should be documented?

Important areas to explore include past medical history, medications, family history, current symptoms, current health status, social history and habits, occupation, leisure activities, and social support system.

What tests/measures are most appropriate?

Aerobic capacity and endurance: assessment of vital signs at rest and with activity, perceived exertion scale, pulse oximetry, auscultation of the lungs
Anthropometric characteristics: circumferential measurements
Arousal, attention, and cognition: examine mental status, learning ability, memory and motivation, level of consciousness
Assistive and adaptive devices: analysis of components and safety of a device
Community and work integration: analysis of community, work, and leisure activities
Cranial nerve integrity: assessment of muscle innervation by the cranial nerves, dermatome assessment
Environmental, home, and work barriers: analysis of current and potential barriers or hazards
Ergonomics and body mechanics: analysis of dexterity and coordination
Gait, locomotion, and balance: static and dynamic balance in sitting and standing, safety during gait with/without an assistive device, Berg Balance Scale, Tinetti Performance Oriented Mobility Assessment, Functional Ambulation Profile, analysis of wheelchair management
Integumentary integrity: skin assessment, assessment of sensation
Joint integrity and mobility: assessment of hyper- and hypomobility of a joint, soft tissue swelling and inflammation, assessment of sprain
Motor function: equilibrium and righting reactions, motor assessment scales, coordination, posture and balance in sitting, assessment of sensorimotor integration, physical performance scales

7

If You Only Remember Two Nuggets from Our Time Together, Let It Be…

ACTIVE OVER PASSIVE LEARNING

QUALITY OVER QUANTITY OF STUDYING

8

9

Interleaving Practice

- Interleaving is a learning technique that involves mixing together different topics or forms of practice, in order to facilitate learning.

ENJOY THE JOURNEY

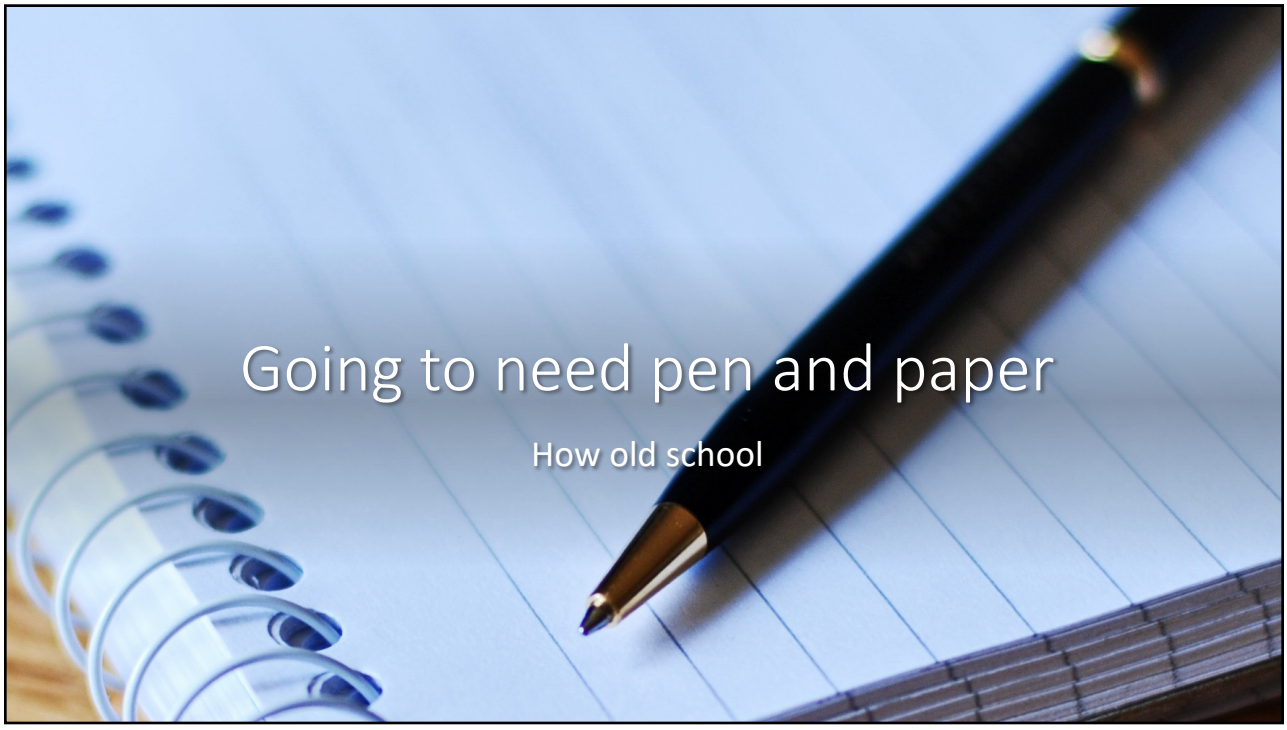
Keep an eye out for these boxes. You can pause the recording and answer them in the moment or come back and answer them later. The key is to VERBALIZE your understanding.

10

Where Are We Going

- Foundational principles
- Total knee arthroplasty
- Total hip arthroplasty
- Rotator cuff tendonitis/tear
- Plantar fasciitis
- Sample questions

11



12

13

Don't Be Special

100 different patients with 100 different therapists, what would be normal?

14

Rehab Progression is Cut and Dry

Pain→PROM→AAROM→AROM→Strength→Function

15

Special Tests Are Truly Special on the NPTE

16

Trust Your Book, Not Your Clinical Experience

17

The Federation Likes Frameworks

Diagnosis, Inference, Confirmation, Examination, Management, Outcomes, Relevant Pearls

18

19

Diagnosis

- Due to progressive and disabling pain
- Severe osteoarthritic changes
- Customary route to the operating room
  - Physical therapy
  - Cortisone injections
  - Debridement? Chondral surgery?
  - Viscosupplementation

ENJOY THE JOURNEY
1) Describe the layers of articular cartilage.
2) What is the healing potential of articular cartilage?

20

Inference

What is the most likely contributing factor in the development of this condition?

21

Inference

History of high-impact sports

History of trauma

Obesity

Varus/valgus deformity

Previous infection

Rheumatoid arthritis

Hemophilia

Calcium pyrophosphate dihydrate crystal deposition (CPPD/pseudogout)

Avascular necrosis

ENJOY THE JOURNEY

1) How does the Health Belief Model impact a patient's ability to lose weight?
2) What blood lab values are commonly associated with rheumatoid arthritis?

22

Confirmation

What is the most likely clinical presentation?	Laboratory or imaging studies	Outcome measures
• Insidious onset of severe knee pain and functional limitations • WB worse than NWB • Reduced ROM • Possible deformity • First steps painful after period of immobility	• Radiographs	• NPRS • LEFS • AIMS

23

Examination

- Pre & Post Op
  - Anthroprometric measurements
  - Assistive and adaptive devices
  - Gait, locomotion & balance
  - Joint integrity and mobility
  - Muscle performance
  - Pain
  - ROM
  - Self-care

ENJOY THE JOURNEY

1) What is the difference between swelling and effusion?
2) What is the healing potential of articular cartilage?

24

Management

Pre-Operative

- Focus on contributing factors
- Increase strength & ROM
- Increase aerobic capacity

Post-Operative

- Anticoagulation therapy & pain management
- Swelling & infection control
- Early weight bearing and ambulation training
- Restore ROM: extension prior to flexion
- Progressive strength program

ENJOY THE JOURNEY

1) What are the signs and symptoms of a localized infection?

2) Describe the gait patterns used with a walker and a single-point cane.

25

Outcomes

- Great (but a lot of work to get there)
- Full return to function 4-6 months
- No significant functional limitations

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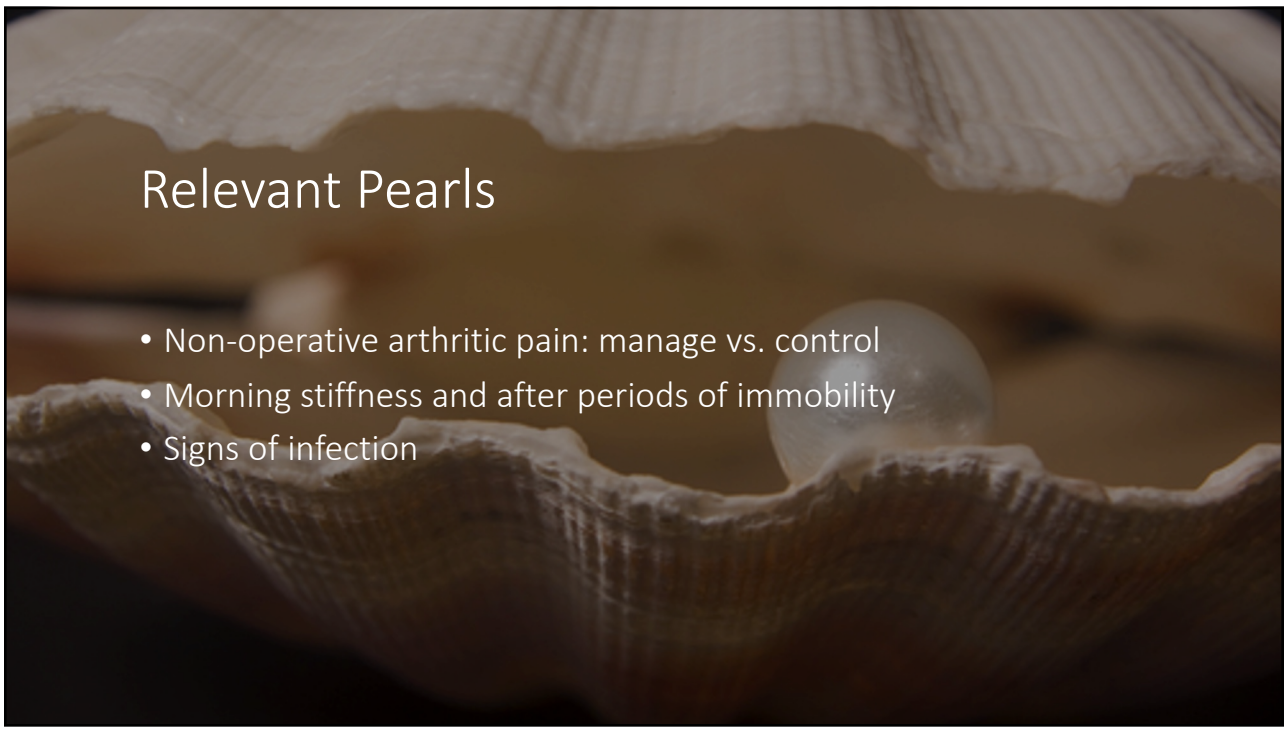
Relevant Pearls
• Non-operative arthritic pain: manage vs. control
• Morning stiffness and after periods of immobility
• Signs of infection

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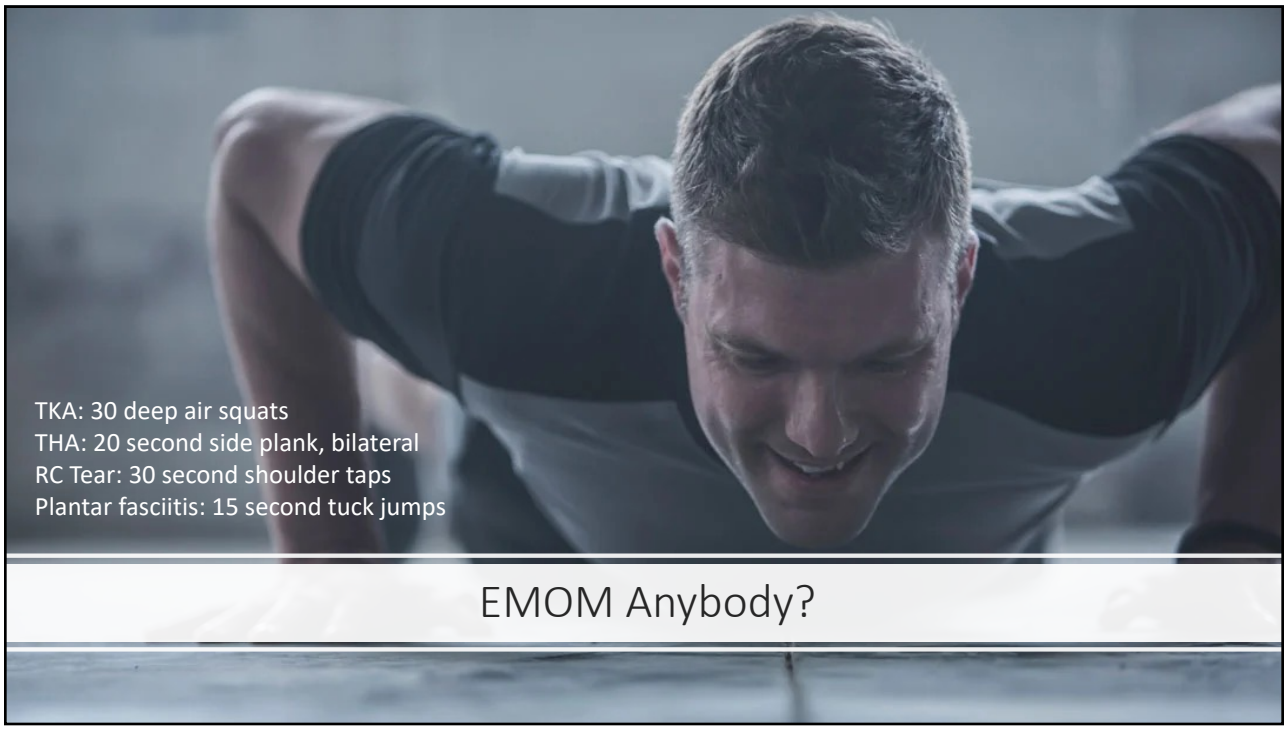
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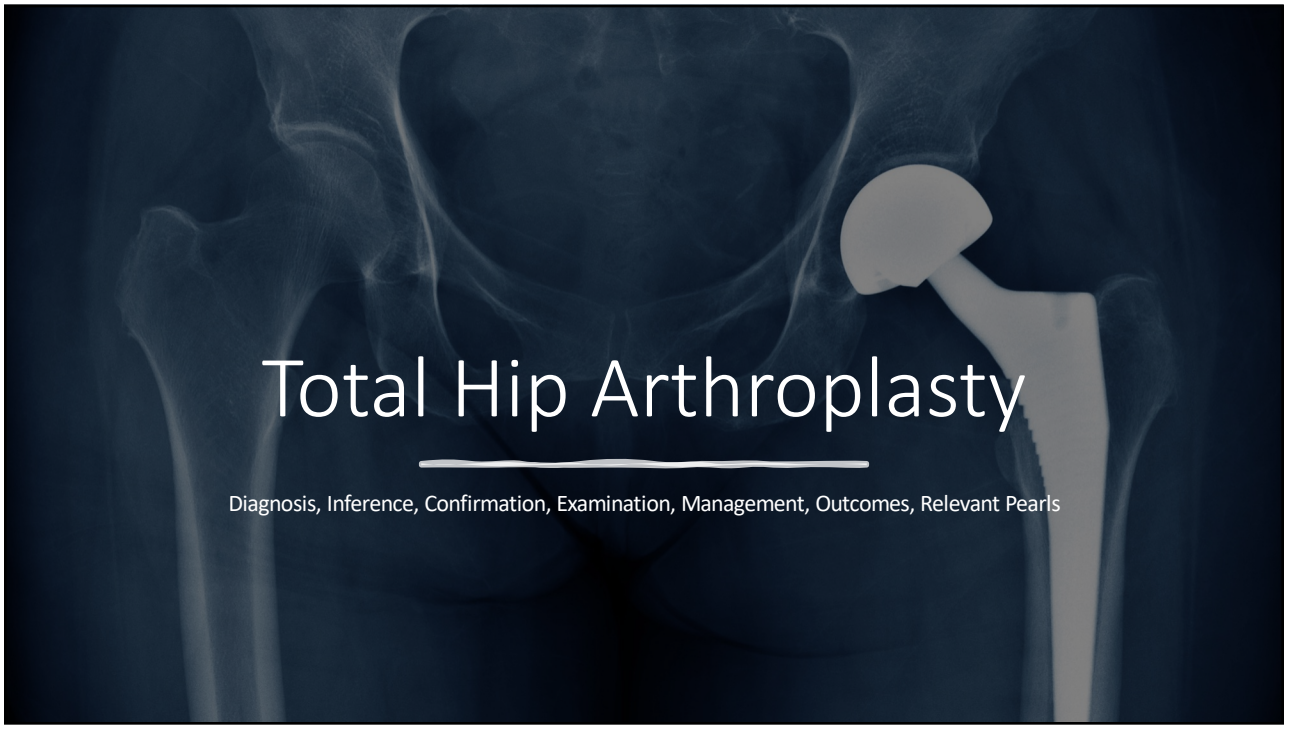

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Diagnosis

- Due to progressive and disabling pain
- Severe osteoarthritic changes
- Fracture
- Customary route to the operating room
  - Physical therapy

ENJOY THE JOURNEY

1) The hip often refers pain to the groin region. What else refers pain to this region and how can you tease this out during as part of your differential diagnosis?

30

Inference

What is the most likely contributing factor in the development of this condition?

31

Inference

Osteoarthritis

Obesity

Trauma

Rheumatoid arthritis

Avascular necrosis

Developmental dysplasia

Osteomyelitis

ENJOY THE JOURNEY

1) What are the early signs of AVN of the hip?

2) What factors increase a patient's risk of falls and subsequent hip fractures?

32

Confirmation

What is the most likely clinical presentation?	Laboratory or imaging studies	Outcome measures
• Insidious onset of lateral hip and groin pain • WB worse than NWB • Reduced ROM • Marked gait deviations • Typically >55 y/o	• Radiographs	• NPRS • LEFS • AIMS • HOS

33

Examination

- Pre & Post Op
  - Assistive and adaptive devices
  - Gait, locomotion & balance
  - Joint integrity and mobility
  - Muscle performance
  - Pain
  - ROM
  - Self-care

ENJOY THE JOURNEY

1) How will a loss of hip extension impact gait?

2) What devices could you recommend to a patient who has difficulty donning and doffing footwear?

34

Management

Pre-Operative

- Focus on contributing factors
- Increase strength & ROM
- Increase aerobic capacity

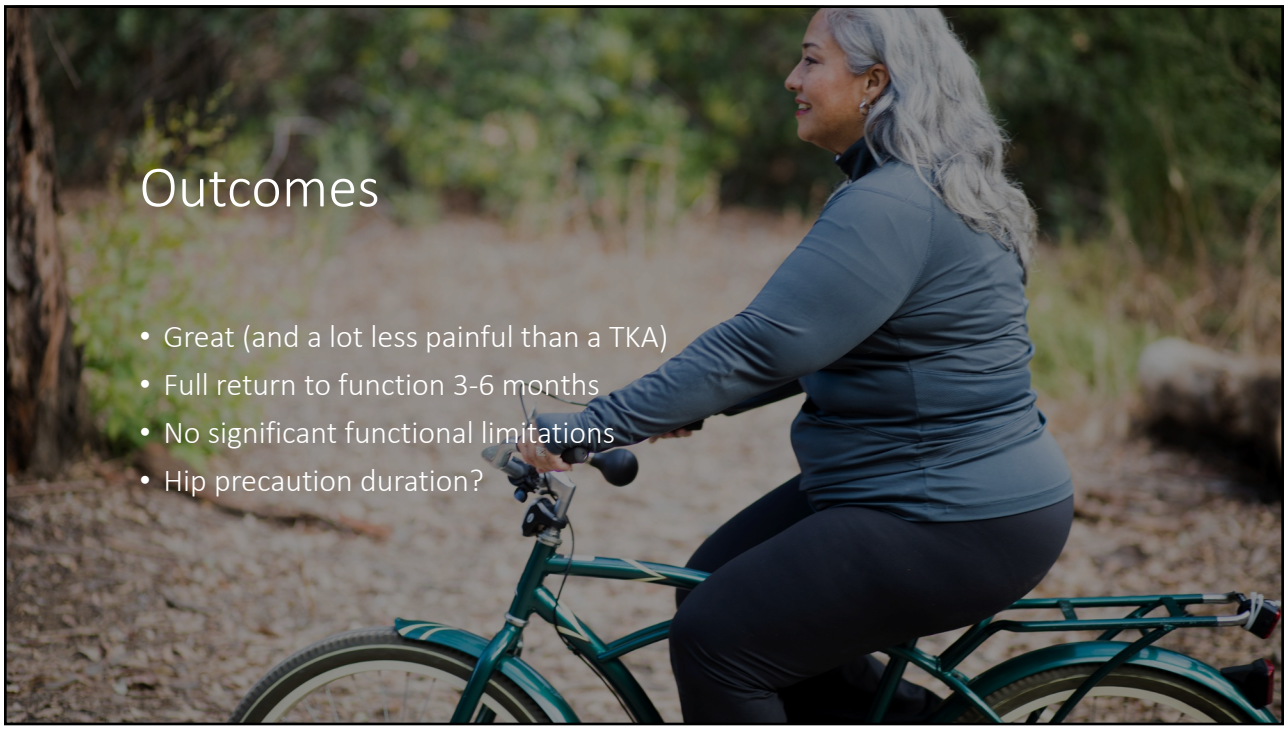
Post-Operative

- Anticoagulation therapy & pain management
- Infection control
- Early weight bearing and ambulation training depending on type of arthroplasty
- Progressive strength program
- Hip precautions depending on surgical approach

ENJOY THE JOURNEY

1) What are appropriate discharge criteria while in the hospital setting?
2) What might a home-care therapist assess that an outpatient PT might not?

35



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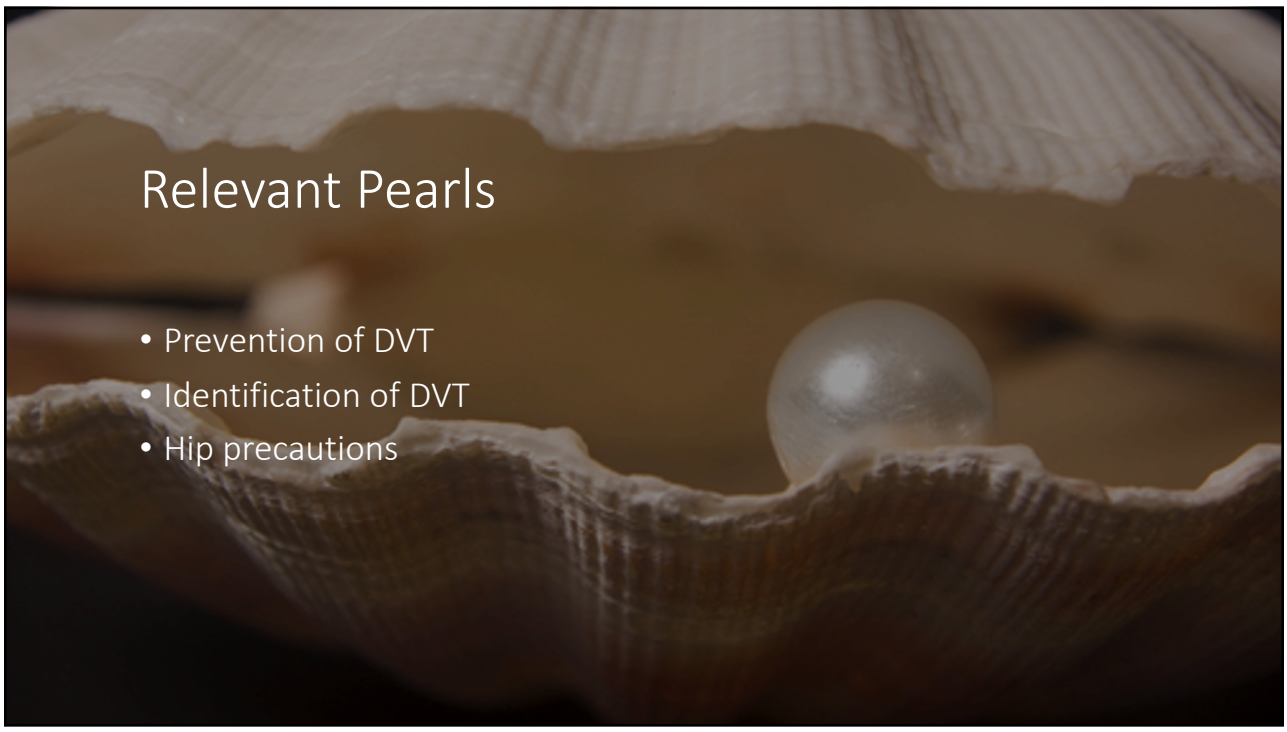
Relevant Pearls
• Prevention of DVT
• Identification of DVT
• Hip precautions

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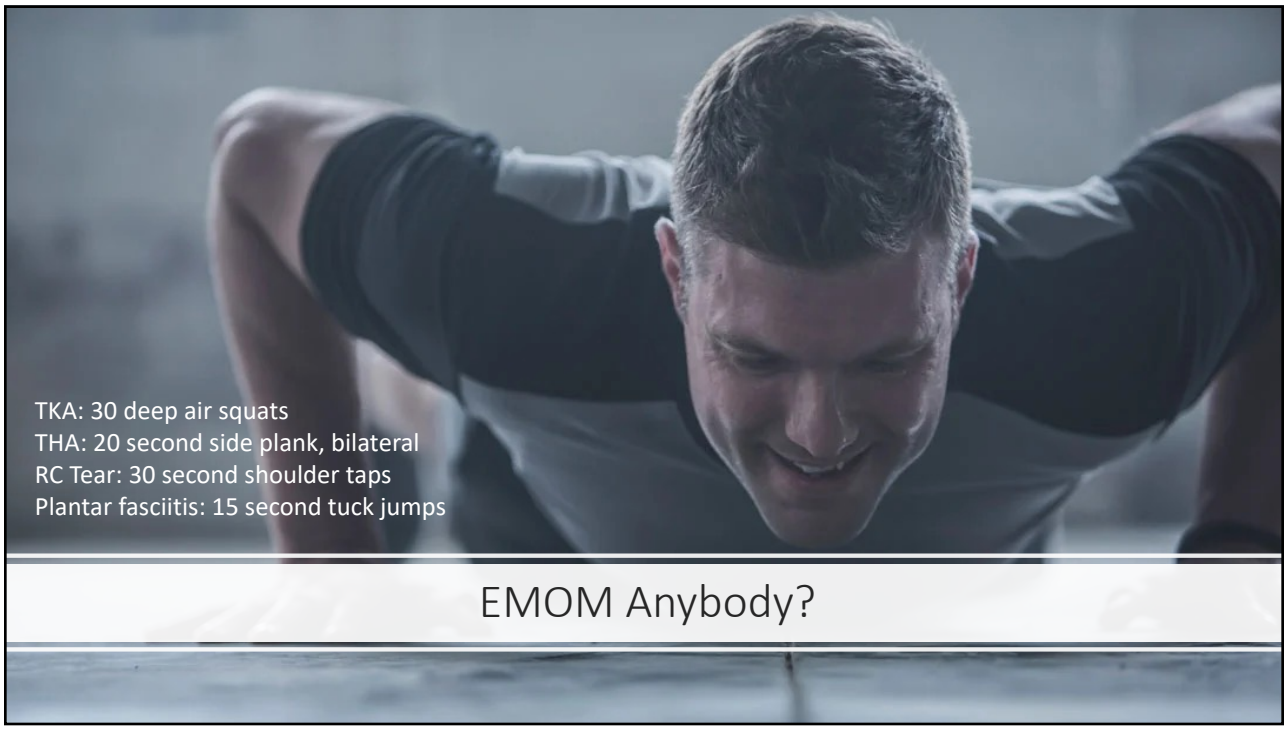
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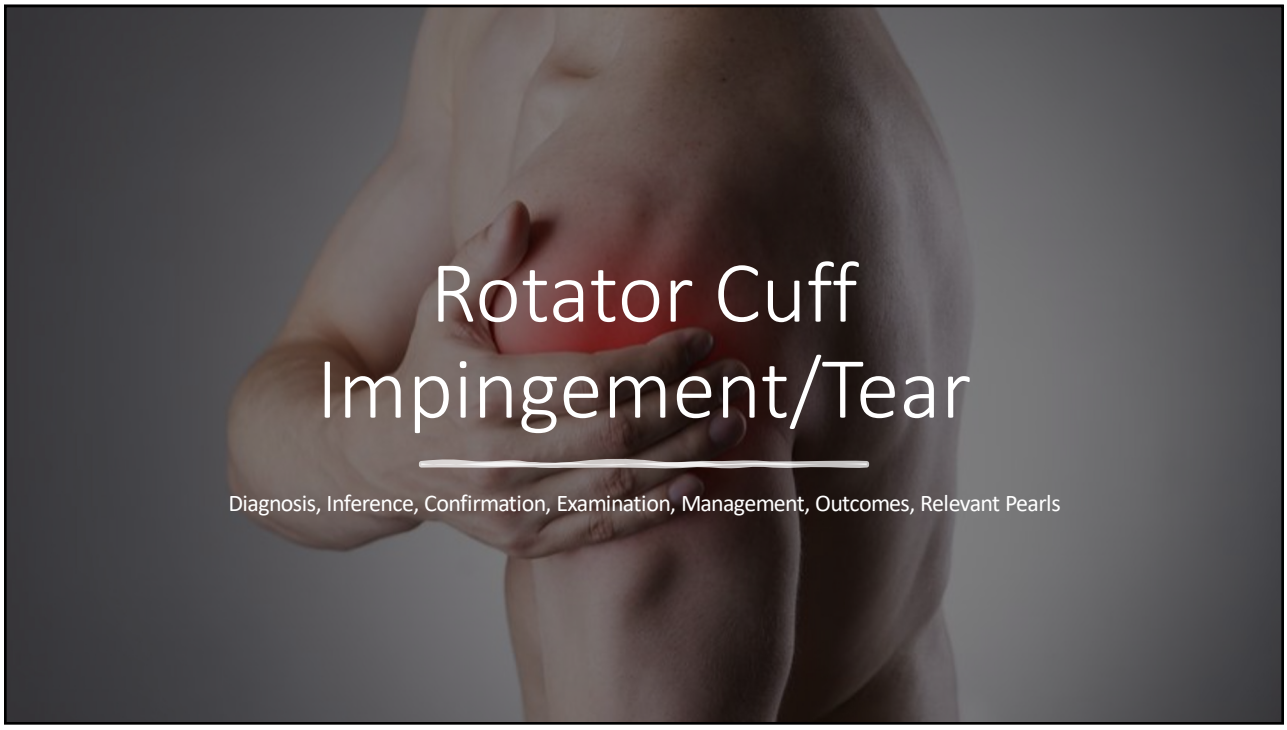

Rotator Cuff Impingement/Tear

Diagnosis, Inference, Confirmation, Examination, Management, Outcomes, Relevant Pearls

39

Diagnosis

Impingement

- Repetitive overhead movement
- "Spring diagnosis"
- Primary impingement: intrinsic or extrinsic factors within subacromial space
- Secondary impingement: due to poor biomechanics

Tear

- Traumatic
- Chronic degenerative pathology
- Supraspinatus→infraspinatus→subscapularis

ENJOY THE JOURNEY

1) What visceral structures can also refer pain to the shoulder?
2) Rotator cuff problems are often confounded by radicular problems at what nerve root level?

40

Inference

What is the most likely contributing factor in the development of this condition?

41

Inference

Age-related tissue elasticity

Age-related vascularity

Smoking

Diabetes

Fall

Large eccentric load

Overhead athletes???

ENJOY THE JOURNEY

1) How can you tease out a SAI vs. a rotator cuff tear?

2)What cervical pathology often mimics or contributes to rotator cuff dysfunction?

42

Confirmation

What is the most likely clinical presentation?	Laboratory or imaging studies	Outcome measures
• Impingement: Lateral shoulder pain, strong and painful MMT • Tear: Lateral shoulder pain, weak and painful MMT	• MRI	• NPRS • DASH • SPADI

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Selective Tissue Tensioning Examination

need to know

44

Examination

- Impingement
  - Pain
  - Joint integrity and mobility
  - PROM & AROM
  - Muscle performance
  - Special tests
- Post-Up Cuff Tear
  - Pain
  - PROM
  - Incision management
  - Special tests

ENJOY THE JOURNEY

1) What ROM would be limited with an acute RC tear of the supraspinatus?
2) What peripheral nerve innervates of the rotator cuff muscles?

45

Management

Subacromial Impingement

- Determine primary vs. secondary impingement

Post-Operative

- Arthroscopic or open procedure
- Infection control
- Maximum protection early on
- Follow standard MSK progression

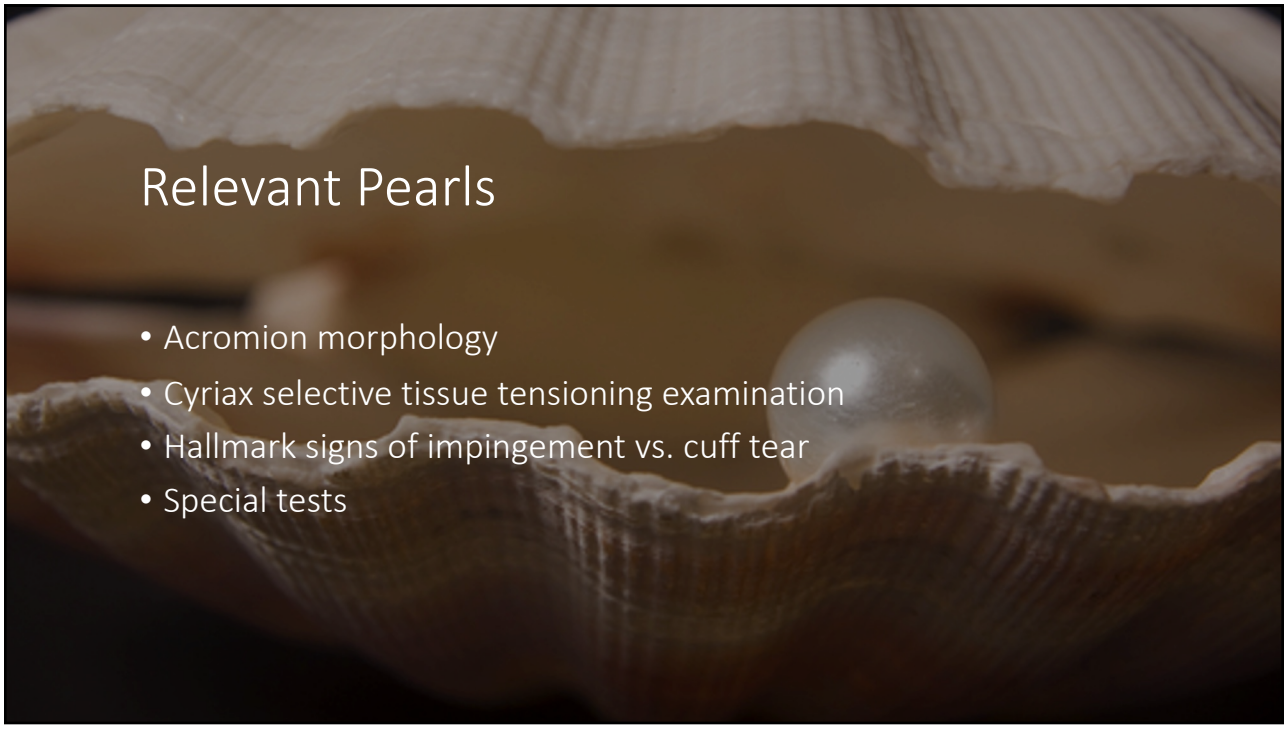
ENJOY THE JOURNEY

1) What is the healing potential of a tendons vs. a muscle?
2) Considering arthrokinematics, what direction would you mobilize the shoulder if you were looking to restore shoulder abduction? What about horizontal abduction?

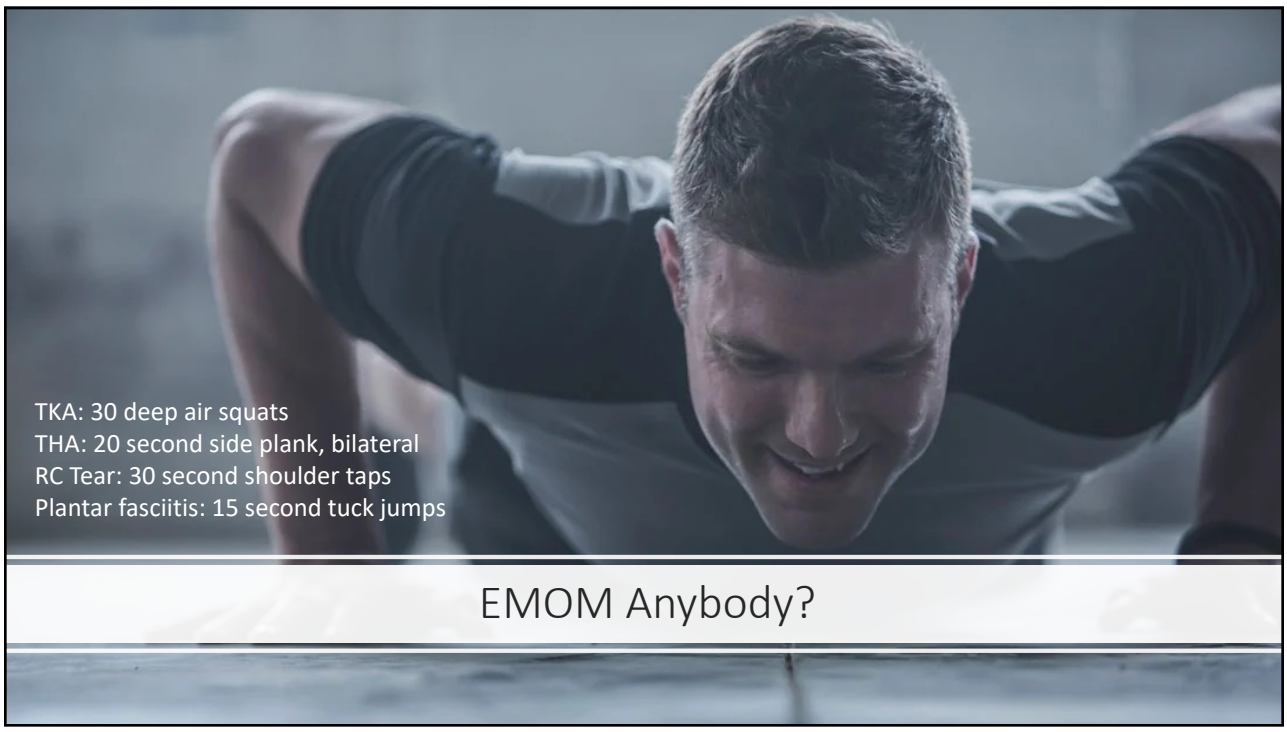
46


Outcomes
• Great (though rehab can be rough)
• Rehabilitation typically 3-4 months
• No significant functional limitations

47


Relevant Pearls
• Acromion morphology
• Cyriax selective tissue tensioning examination
• Hallmark signs of impingement vs. cuff tear
• Special tests

48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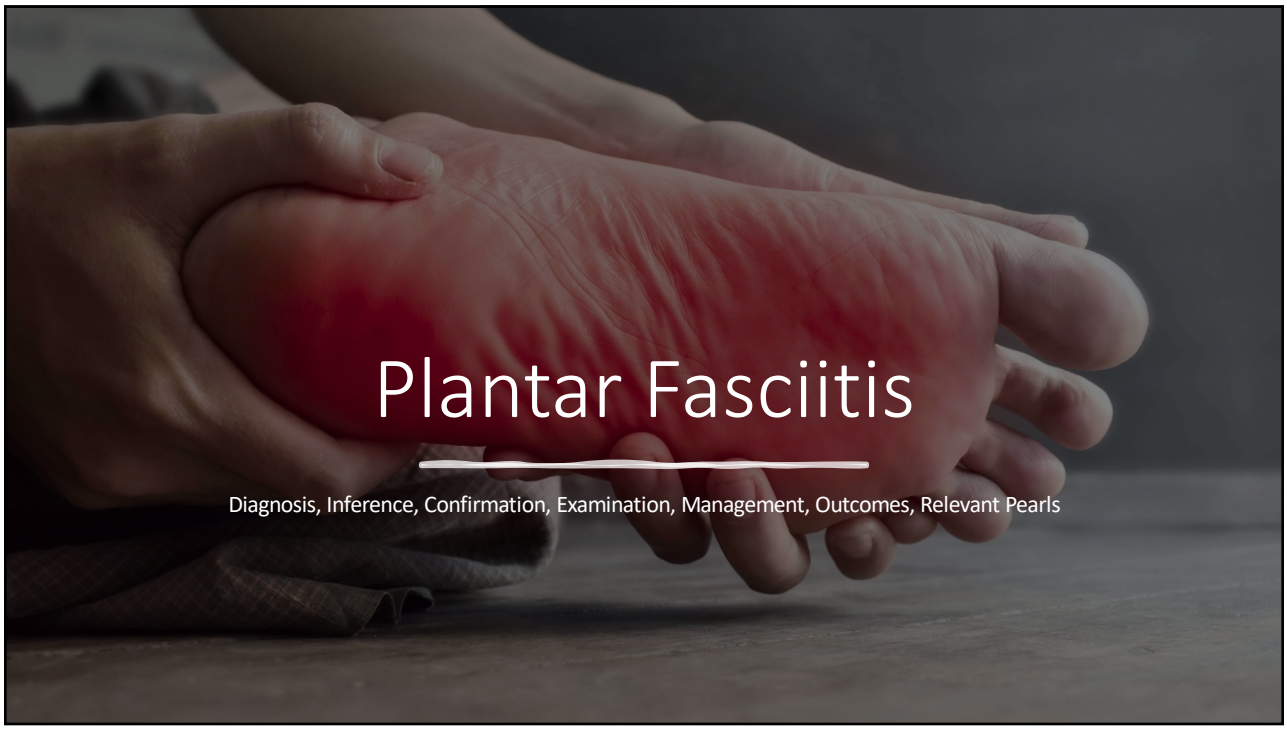

Plantar Fasciitis
Diagnosis, Inference, Confirmation, Examination, Management, Outcomes, Relevant Pearls

50

Diagnosis

- Inflammatory condition of plantar fascia
- Microtearing plantar aponeurosis
- Often chronic in nature (hmmm?)
- Associated inflammation of abductor hallucis, flexor digitorum brevis, and quadratus plantae

ENJOY THE JOURNEY
1) Describe the layers of plantar foot.
2) Describe the windlass mechanism and its impact on plantar fasciitis.

51

Inference

What is the most likely contributing factor in the development of this condition?

52

Inference

Excessive pronation

Gastrocsoleus tightness

Obesity

High arches

Runners, jumpers, dancers

Prolonged standing

Middle aged females

ENJOY THE JOURNEY

1) What peripheral nerve injury can mimic plantar fasciitis?

2) How does this condition differ compared to heel spurs and Sever's disease?

53

Confirmation

What is the most likely clinical presentation?	Laboratory or imaging studies	Outcome measures
• Marked heel pain with first steps in the morning • Pain after prolonged inactivity • Inverse bell-shaped pain • Medial plantar heel pain with possible radiating pain through arch and into calf	• Typically not necessary	• NPRS • LEFS • FAAM

54

Examination

- Gait analysis
- Joint integrity and mobility
- Muscle performance
- Pain
- Orthotic, protective and supportive devices
- Assistive and adaptive devices
- Range of motion

ENJOY THE JOURNEY

1) What is considered normal dorsiflexion ROM?

2) How should the clinician assess closed chain dorsiflexion ROM for this patient?

55

Management

Local steroid injections

Orthotics

Gastrocsoleus stretching program

Plantar fascia stretching program

Footwear modifications

Cryotherapy prn

Intrinsic foot strengthening

Night splints

ENJOY THE JOURNEY

1) Describe the stress-strain curve as it relates to the utilization of night splints.

2) What is the difference between a biomechanical and accommodative orthosis?

56

Outcomes

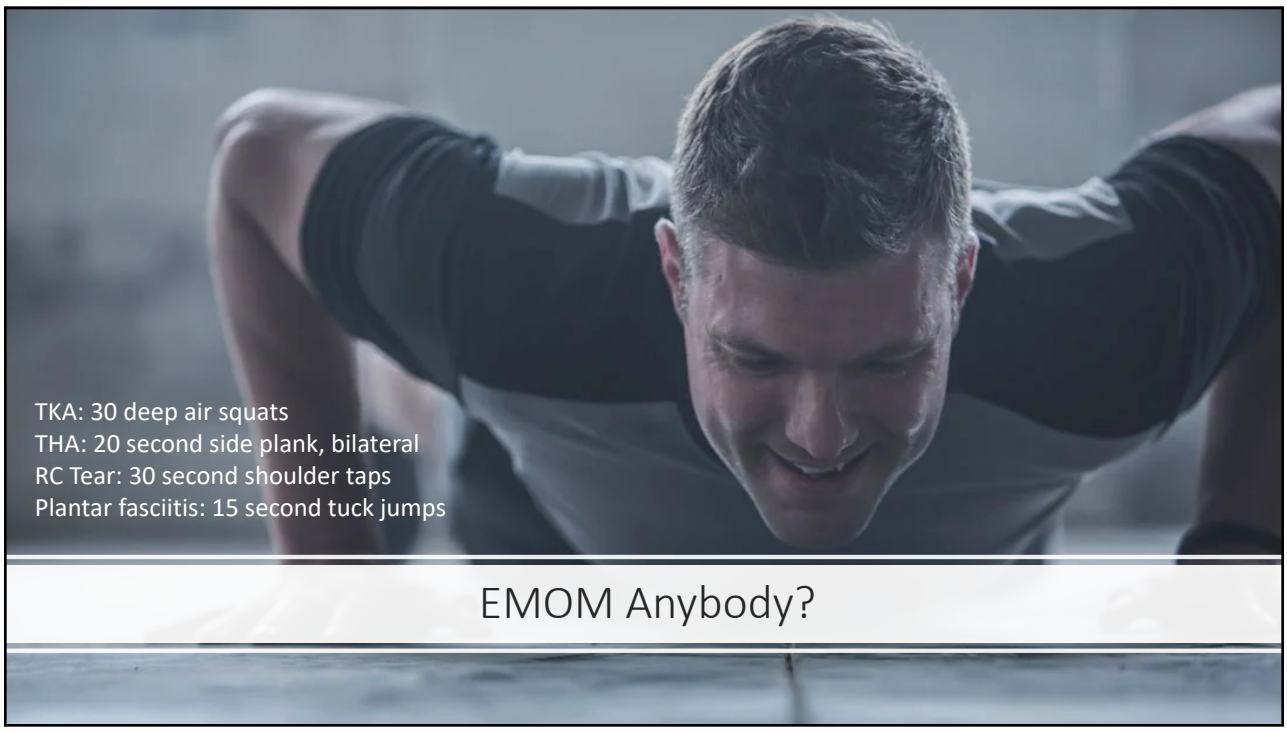
- Favorable
- Can be quite persistent at times
- Can develop bilaterally
- Surgical management rare

57

Relevant Pearls

- Stereotypical presentation
- Gastrocsoleus stretching is the hallmark treatment
- Bilateral should raise some concerns for systemic issues
- Orthotics can often trip people up

58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EMOM Anybody?

59


Success!

60

61

QUESTION 1

A physical therapist examines a 55-year-old patient with type 2 diabetes mellitus and recent development of heel pain. The patient has been diagnosed with plantar heel pain. Which of the following is **MOST** likely to be a contributing factor to the pain?

1. Supinated resting foot posture
2. Pronated resting food posture
3. BMI 24 kg/m^2
4. Decreased hamstring length

62

QUESTION 2

A patient presents to you 8 days following total hip arthroplasty via an anterior surgical approach. The patient describes a recent onset of chest pain and tightness over the past 6 hours and a feeling like as though their heart is racing. What should take priority during the initial evaluation?

1. Screening for possible infection
2. Screening for possible pulmonary embolism
3. Screening for possible deep vein thrombosis
4. Screening for myocardial infarction

63

QUESTION 3

A physical therapist attempts to improve a patient's knee flexion range of motion 4 weeks following total knee arthroplasty. Which of the following interventions is most likely to address the patient's ROM loss?

1. Multi-angle isometrics
2. Superior patellar mobilizations, grade III
3. Squats, 3 sets of 10 repetitions
4. Supine grade IV posterior tibial mobilizations

64

QUESTION 4

A patient presents to an outpatient physical therapy clinic following total knee arthroplasty. Upon examination, the patient demonstrates a positive extension lag. Which phase of gait is most likely to be affected?

1. Loading response
2. Midstance
3. Terminal stance
4. Pre-swing

65

QUESTION 5

A 68-year-old patient reports diffuse shoulder pain and difficulty rolling over at night after painting a shed the previous weekend. Examination reveals pain at 90 degrees of passive and active abduction. Mobility testing reveals decreased posterior and inferior capsular mobility. Resistive isometrics are strong and painful for flexion, abduction, and external rotation. Which condition is MOST likely associated with the described clinical presentation?

1. Adhesive capsulitis
2. Rotator cuff tear
3. Subacromial impingement
4. C5 radiculopathy

66

Answer Key

Question 1: 2 (Pronated resting foot posture)

Question 2: 2 (Screening for possible pulmonary embolism)

Question 3: 4 (Supine grade IV posterior tibial mobilizations)

Question 4: 1 (Loading response)

Question 5: 3 (Subacromial impingement)

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