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PAIN IN THE NECK, PAIN IN THE HIP: WHAT REALLY MATTERS

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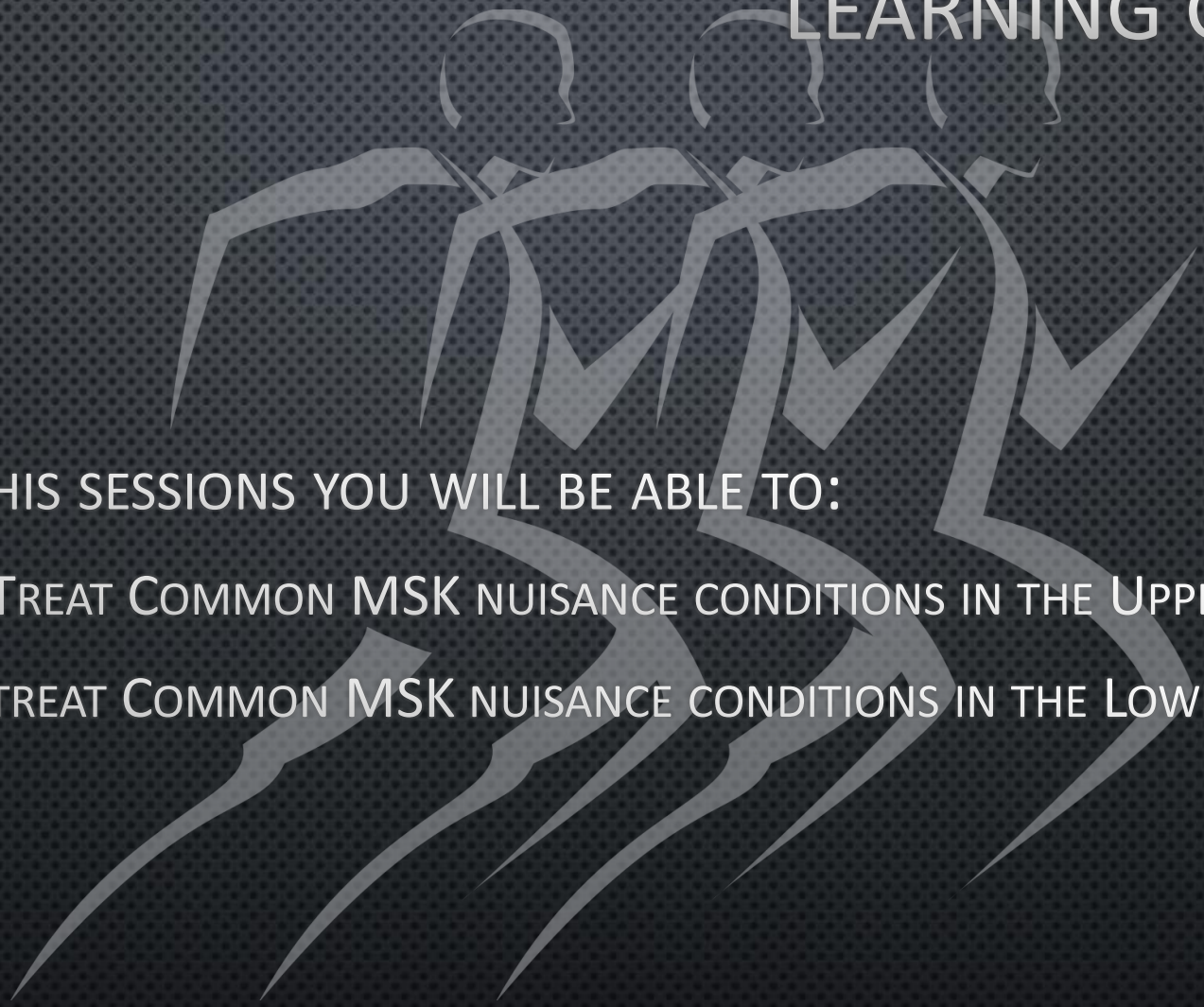
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American Academy of Physician Assistants

- Financial
- Splinting/Casting Workshop Director, PA's Guide to the MSK Galaxy

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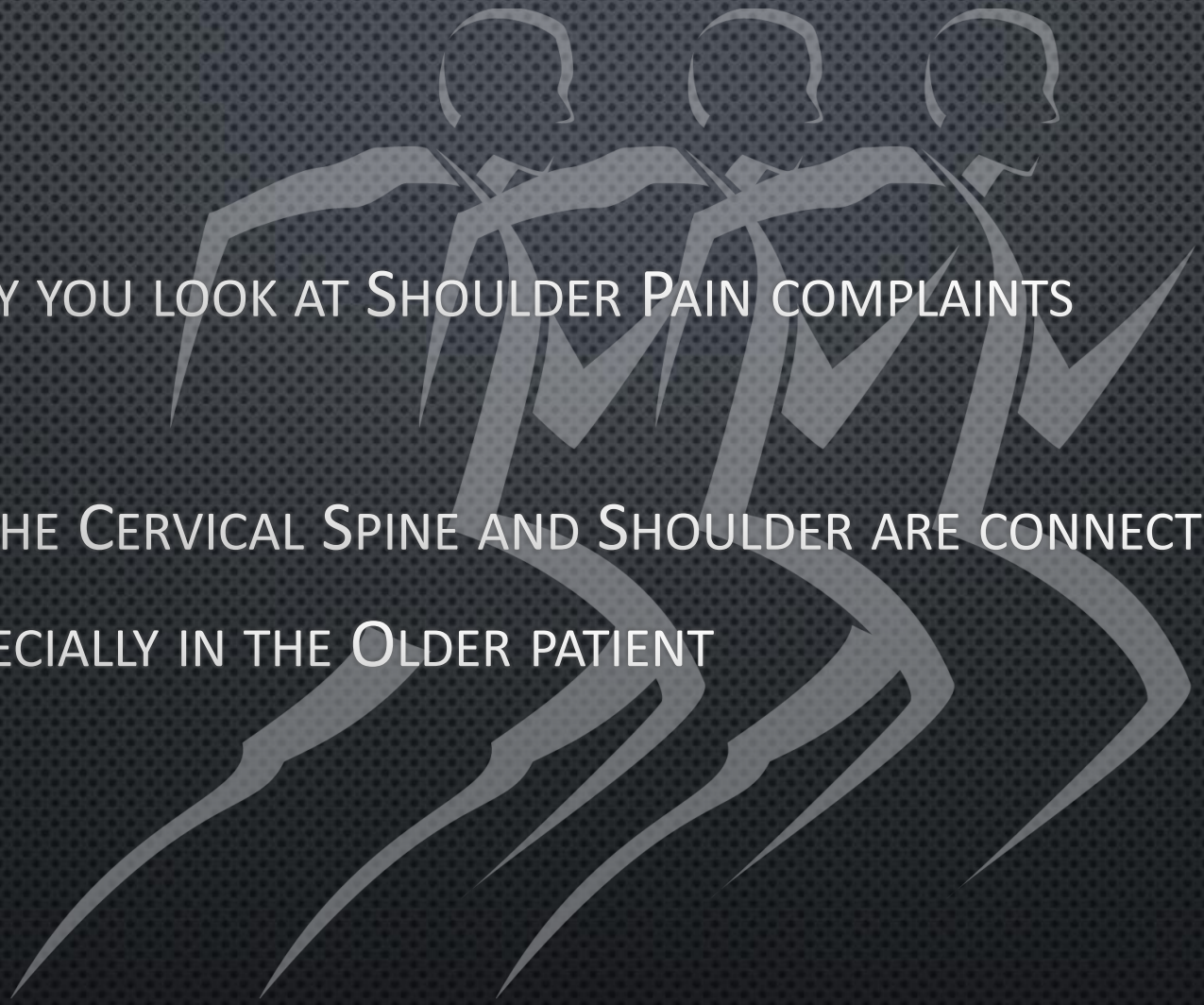
Learning Goals



At the end of this sessions you will be able to:

- Recognize and Treat Common MSK nuisance conditions in the Upper Extremity
- Recognize and treat Common MSK nuisance conditions in the Lower Extremity

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Change the Way you look at Shoulder Pain complaints

Consider that the Cervical Spine and Shoulder are connected…….

……especially in the Older patient

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SHOULDER

- Rotator Cuff Syndrome
  - *Rotator Cuff Tendonitis*
  - *Sub-acromial Bursitis*
  - *Sub-acromial impingement*
- Biceps Tendonitis
- Acromioclavicular Joint Arthritis



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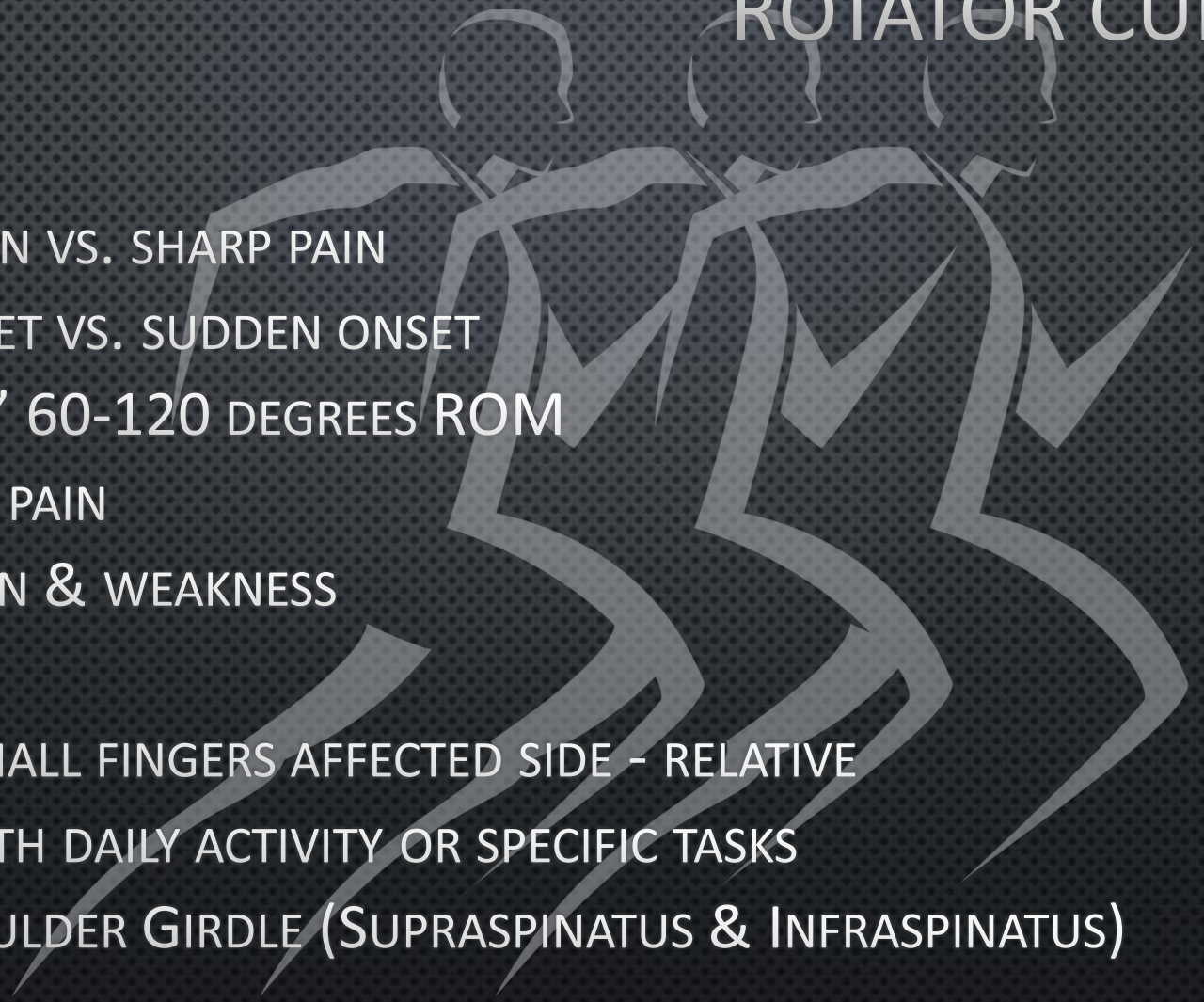
SHOULDER ANATOMY



Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D."

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Rotator Cuff Syndrome



Epidemiology

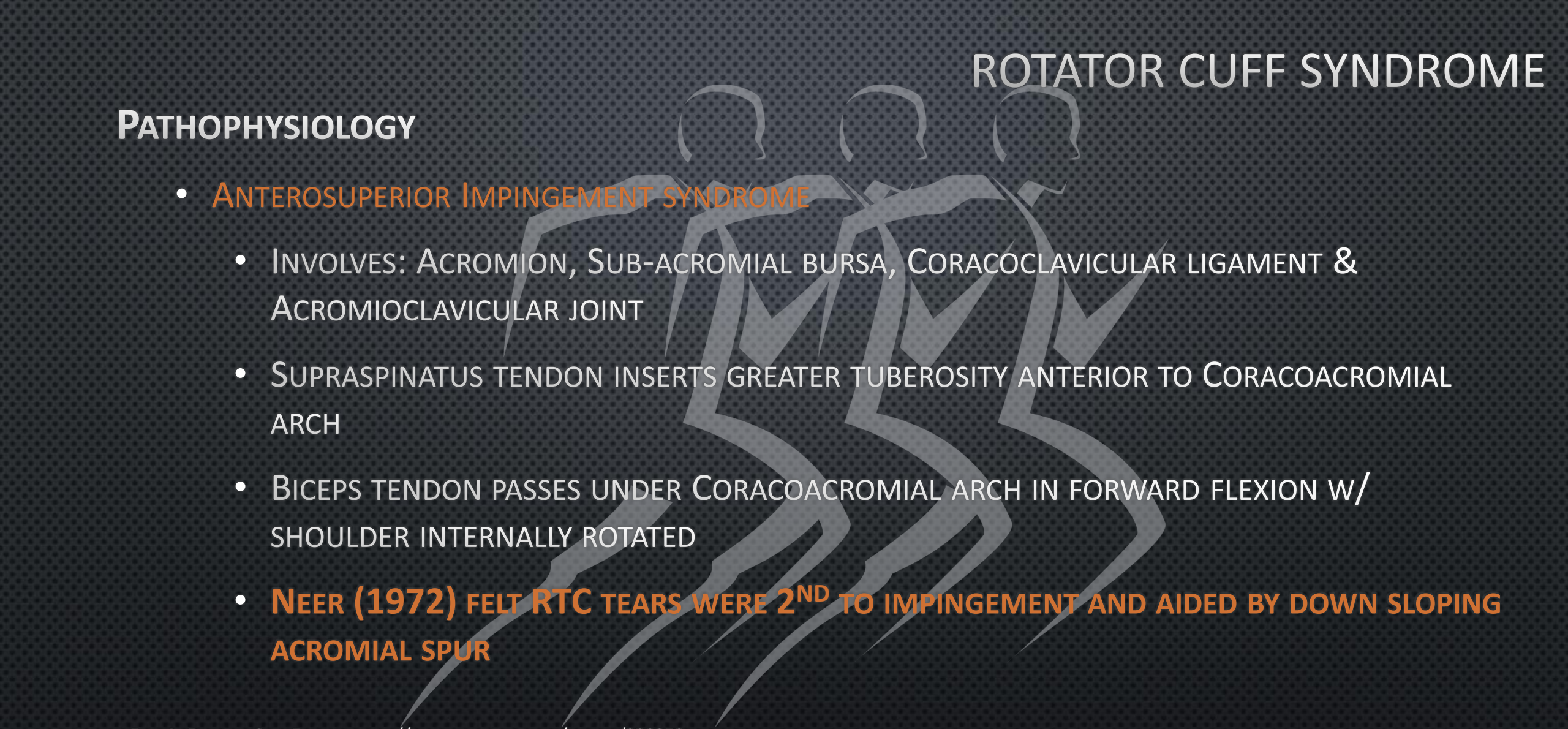
- All ages
- Dull achy pain vs. sharp pain
- Gradual onset vs. sudden onset
- "Painful arc" 60-120 degrees ROM
- Night / sleep pain
- Overhead pain & weakness
- Deltoid pain
- Numbness small fingers affected side - relative
- Weakness with daily activity or specific tasks
- Atrophy Shoulder Girdle (Supraspinatus & Infraspinatus)

Roy, A: Rotator Cuff Disease; http://emedicine.medscape/article/328253-overview

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ROTATOR CUFF SYNDROME

PATHOPHYSIOLOGY



- ANTEROSUPERIOR IMPINGEMENT SYNDROME
  - INVOLVES: ACROMION, SUB-ACROMIAL BURSA, CORACOCLAVICULAR LIGAMENT & ACROMIOCLAVICULAR JOINT
  - SUPRASPINATUS TENDON INSERTS GREATER TUBEROSITY ANTERIOR TO CORACOACROMIAL ARCH
  - BICEPS TENDON PASSES UNDER CORACOACROMIAL ARCH IN FORWARD FLEXION W/ SHOULDER INTERNALLY ROTATED
  - **NEER (1972) FELT RTC TEARS WERE 2ND TO IMPINGEMENT AND AIDED BY DOWN SLOPING ACROMIAL SPUR**

ROY, A: ROTATOR CUFF DISEASE; HTTP://EMEDICINE.MEDSCAPE/ARTICLE/328253-OVERVIEW

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Rotator Cuff Syndrome



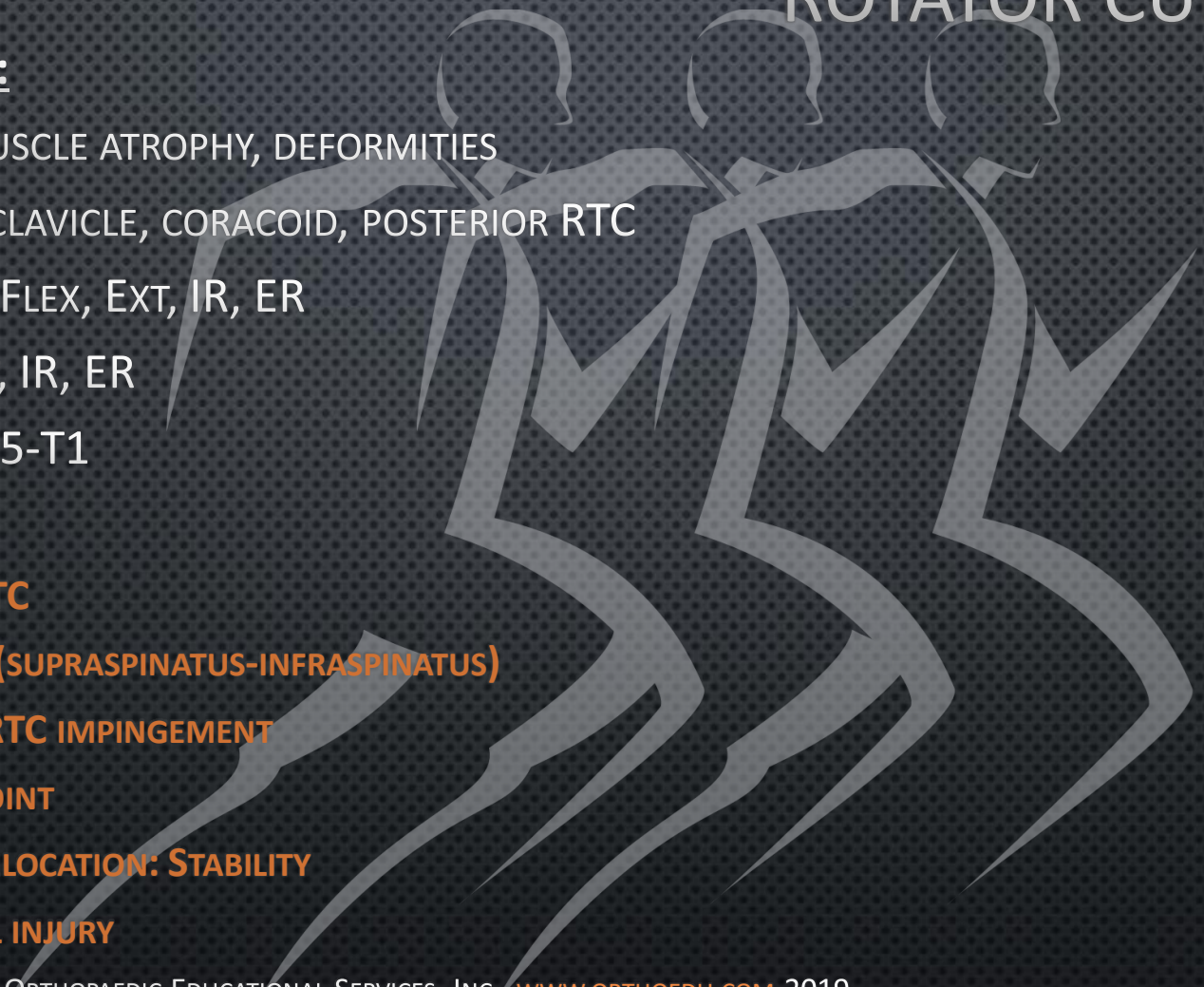
Presentation

- "Painful arc" 60-120 degrees ROM
- Night / sleep pain
- Overhead pain & weakness
- Deltoid pain
- Numbness small fingers affected side - relative
- Weakness with daily activity or specific tasks

Roy, A: Rotator Cuff Disease; http://emedicine.medscape/article/328253-overview

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ROTATOR CUFF SYNDROME



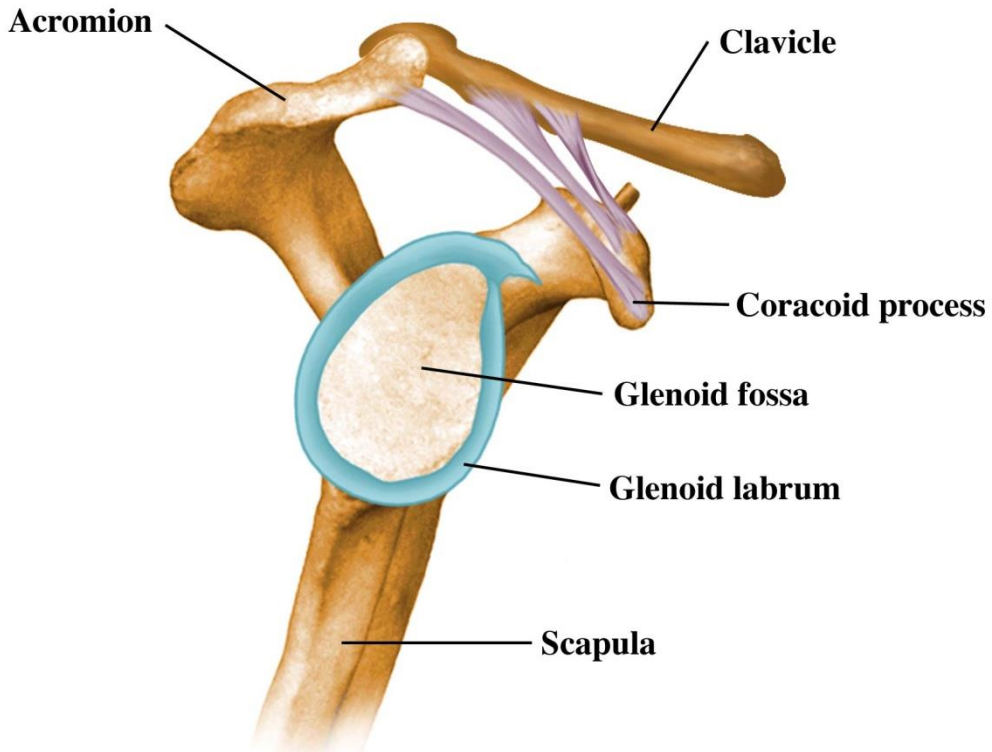
PHYSICAL EXAMINATION:

- INSPECTION: SKIN, MUSCLE ATROPHY, DEFORMITIES
- PALPATION: AC, SC, CLAVICLE, CORACOID, POSTERIOR RTC
- RANGE-OF-MOTION: FLEX, EXT, IR, ER
- STRENGTH: FLEX, EXT, IR, ER
- NEURO/VASCULAR: C5-T1
- **ORTHOPAEDIC TESTS:**
  - **SPEEDS: BICEPS/RTC**
  - **EMPTY CAN: RTC (SUPRASPINATUS-INFRASPINATUS)**
  - **NEER/HAWKINS: RTC IMPINGEMENT**
  - **CROSSOVER: AC JOINT**
  - **APPREHENSION/RELOCATION: STABILITY**
  - **OBRIEN'S: LABRIAL INJURY**

GOCKE TV: SHOULDER EXAMINATION, ORTHOPAEDIC EDUCATIONAL SERVICES, INC., WWW.ORTHOEDU.COM 2019

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SHOULDER ANATOMY



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Picture courtesy TGocke, PA-C

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Rotator Cuff Syndrome

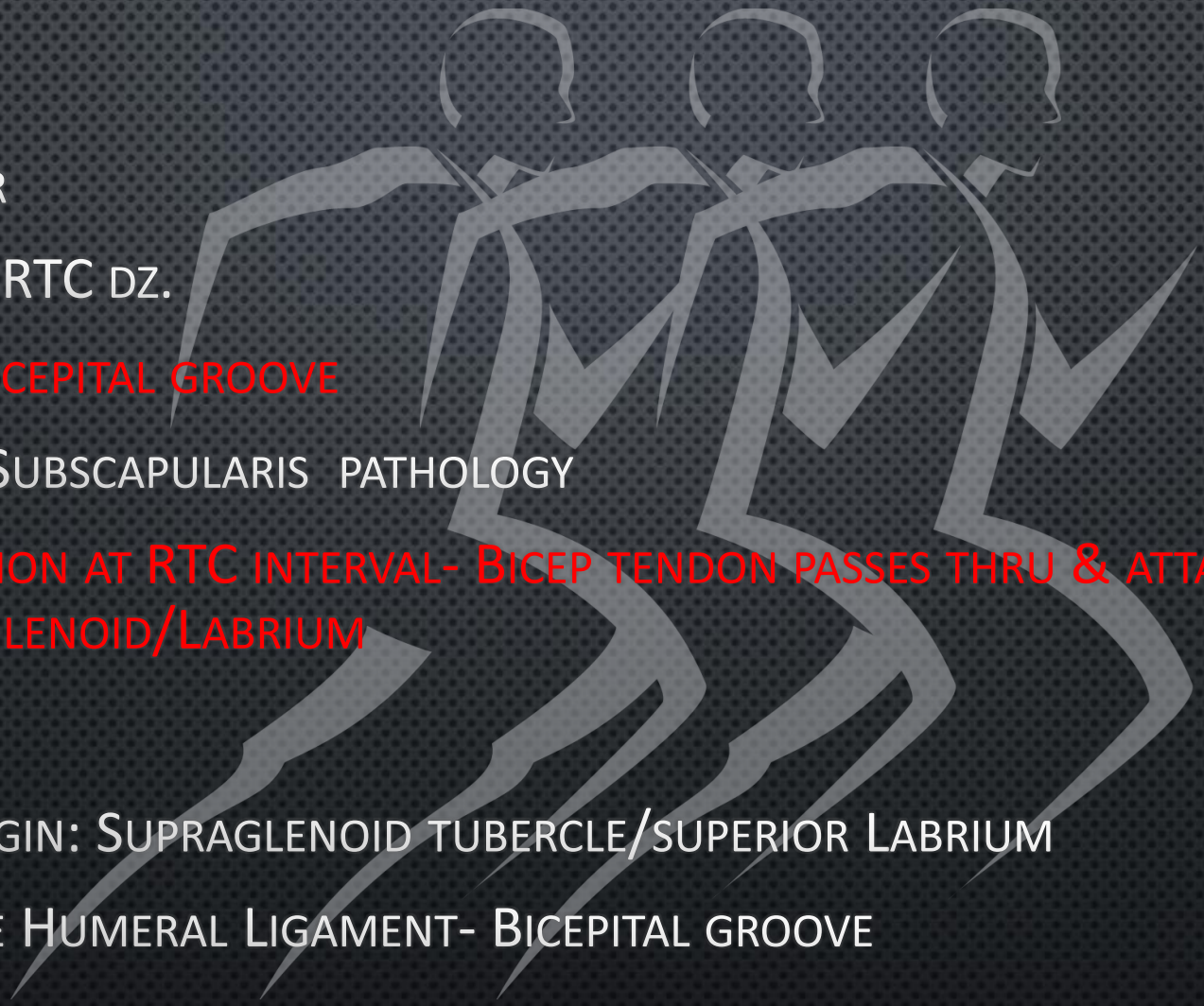


Treatment:

- **Identify condition/Manage Pt. expectations**
- Modification activities
- NSAIDS: oral vs. topical
  - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
- Therapy – strength/ROM
- Injection
- MRI – further diagnostic acute vs. failed therapies
- Surgery
  - Arthroscopy Sub-acromial decompression vs. Rotator repair

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Biceps Tendonitis



Epidemiology

- Pain generator
- Associated w/ RTC dz.
  - Stenosis Bicepital groove
  - RTC tear: Subscapularis pathology
  - Inflammation at RTC interval- Bicep tendon passes thru & attach on Superior Glenoid/Labrium

Anatomy

- Bicep Origin: Supraglenoid tubercle/superior Labrium
- Transverse Humeral Ligament- Bicepital groove

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Biceps Tendonitis



Clinical Presentation

- Anterior Shoulder pain & down Biceps tendon
- Elbow Flexion and Supination pain/Weakness
- Associated RTC symptoms

Exam

- Tender Bicep groove worse 10º internal rotation
- Positive Yergason test: pain with resistive supination
- Speeds Test: positive Biceps pain ? SLAP tear

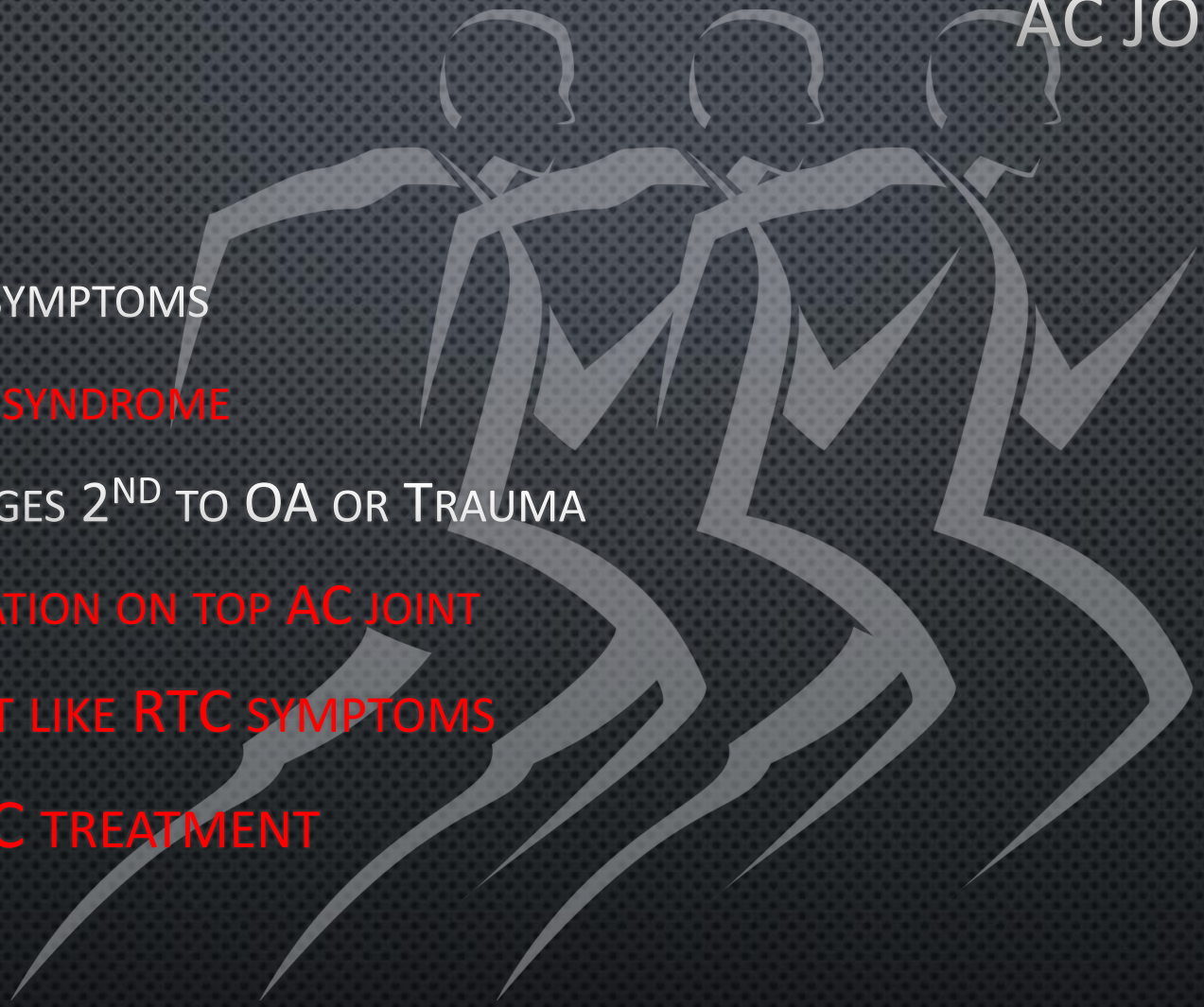
Treatment: Similar to RTC Impingement

Gocke TV: Shoulder Examination, Orthopaedic Educational Services, Inc., www.orthoedu.com 2019

Abbasi D, Keener J, Biceps Tendonitis, 2018 www.orthobullets.com/shoulder-and-elbow/3045/biceps-tendonitis

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AC JOINT ARTHRITIS



Epidemiology

- Pain generator
- Confused w/ RTC symptoms
  - Hurts like RTC syndrome
  - Arthritic changes 2ND to OA or Trauma
  - Pain with Palpation on top AC joint
- Presentation: just like RTC symptoms

Treatment: see RTC treatment

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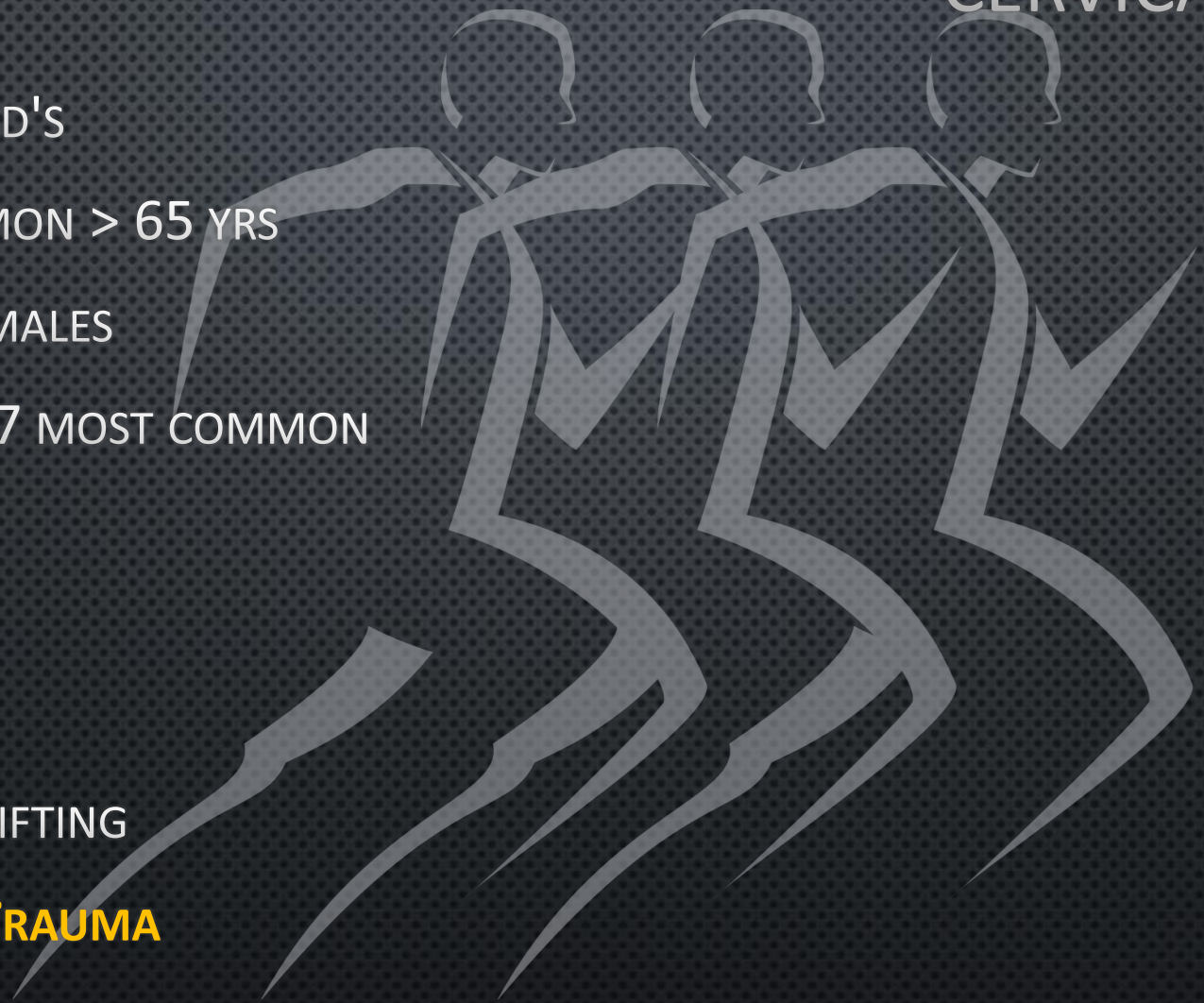
DON’T FORGET CERVICAL DISEASE



Photo courtesy TGocke, PA-C

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CERVICAL SPONDYLOSIS



EPIDEMIOLOGY

- 40-50 YR OLD'S
- MOST COMMON > 65 YRS
- MALES > FEMALES
- C5-6 & C6-7 MOST COMMON

RISK FACTORS

- DRIVING
- SMOKING
- REPETITIVE LIFTING
- **ATHLETICS/TRAUMA**

https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/spine_shoulder_and_pelvis_disorders/cervical_spondylosis_134,17

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Cervical Spondylosis



Central Canal Stenosis- Narrowing

- Causes Clinical Myelopathy & Radiculopathy
  - Compression Spinal Cord
  - Motor weakness
  - **Neck extension exacerbates symptoms**
  - Cord pinched between anterior deg. Disc & hypertrophic ligamentum flavum/ facet joints

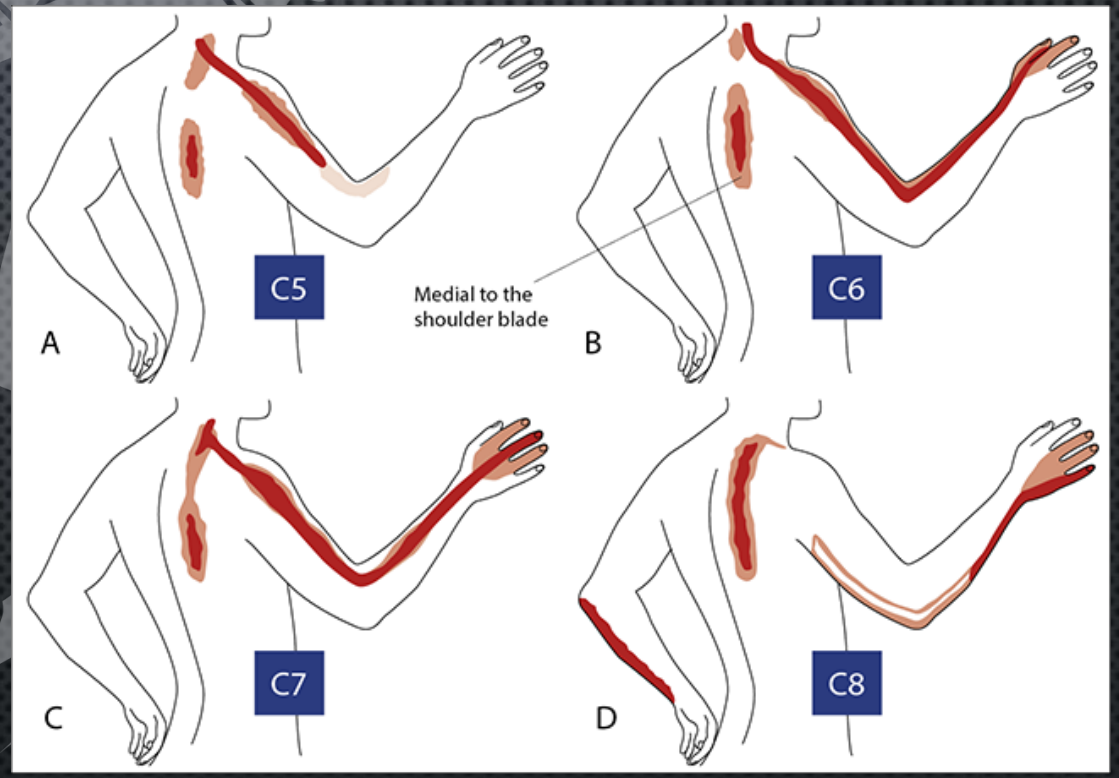
https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/spine_shoulder_and_pelvis_disorders/cervical_spondylosis_134,17

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CERVICAL SPONDYLOSIS

SYMPTOMS

- OCCIPITAL HEADACHES
- **TRAPEZIUS/PARASCAPULAR MUSCLE PAIN/SPASM**
- NECK PAIN
  - INSIDIOUS V. MOTION
  - DISCOGENIC V. MECHANICAL
- **RADIATION SYMPTOMS: SHOULDER – ARM - HAND**
- DERMATOMAL CHANGES- VARIABLE
- WEAKNESS – VARIABLE



HTTPS://WWW.ORTHOBULLETS.COM/SPINE/2030/CERVICAL-RADICULOPATHY

Steven Pasquini, PA-C Radiology Rapid Review: Cervical and Lumbar Patterns
https://smartypance.com/radiculopathy-rapid-review/

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Cervical Spondylosis

Exam

- C4: Radiates to scapula/Winged scapula
- C5: Deltoid patch, Deltoid/Bicep weakness, Biceps reflex
- C6: Thumb region, Brachioradalis/wrist extensors, Brachioradalis reflex
- C7: Index/Middle/Ring, Triceps/Wrist flexors/Triceps reflex
- C8: Hypothenar region, Finger ABD/ADD, no reflex

Tests

- Spurling's Test: Extend-Lateral flex-Rotate-Compress
- Overhead Arm Relief Test: Arm above head relieves symptoms

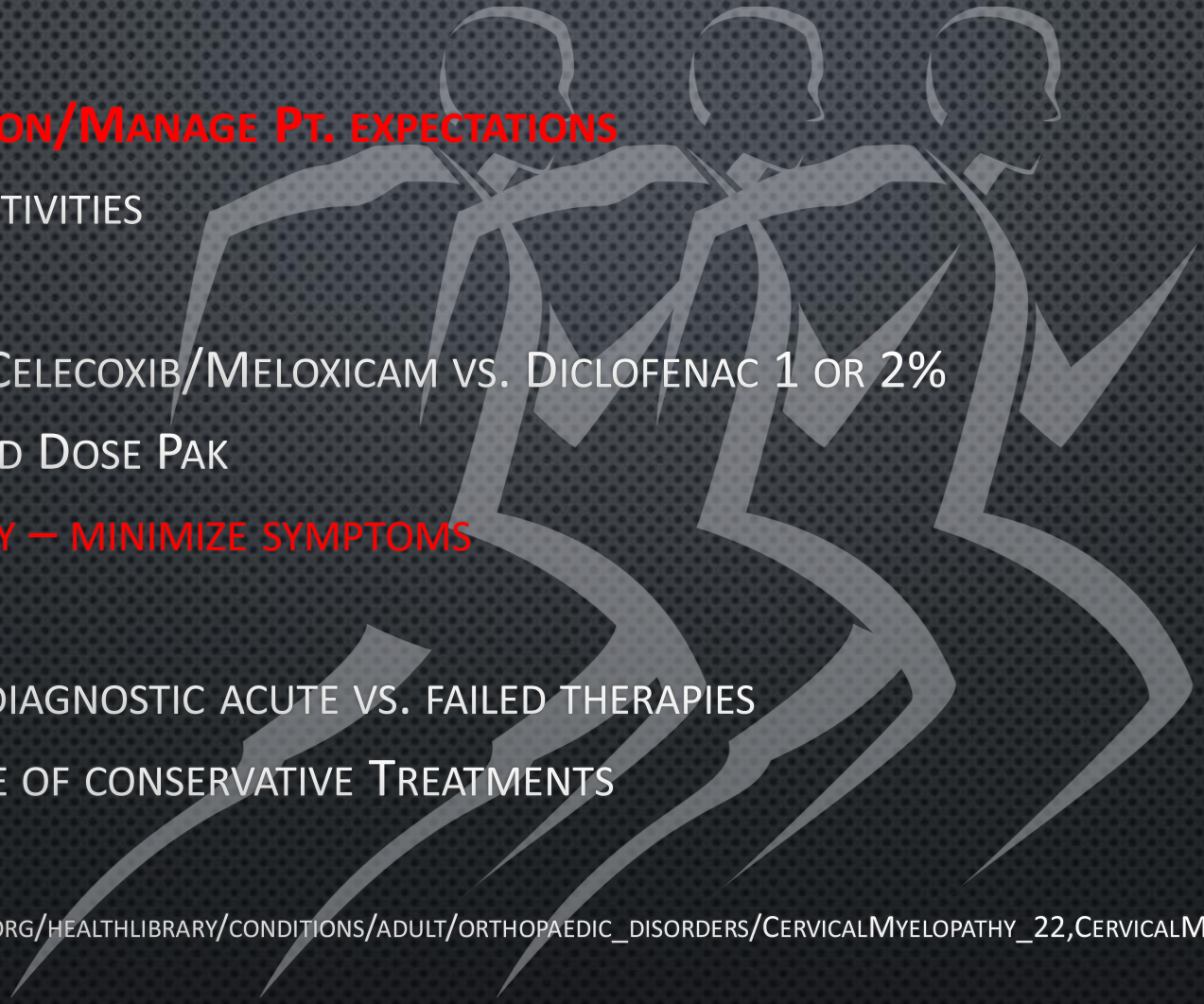
https://www.orthobullets.com/spine/2030/cervical-radiculopathy



Figure 1. Spurling Test for Cervical Radiculopathy

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Cervical Spondylosis



Treatment:

- **Identify condition/Manage Pt. expectations**
- Modification activities
- NSAIDS:
  - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
  - Oral Steroid Dose Pak
- **Physical Therapy – minimize symptoms**
- **Injection -**
- MRI – further diagnostic acute vs. failed therapies
- Surgery- Failure of conservative Treatments

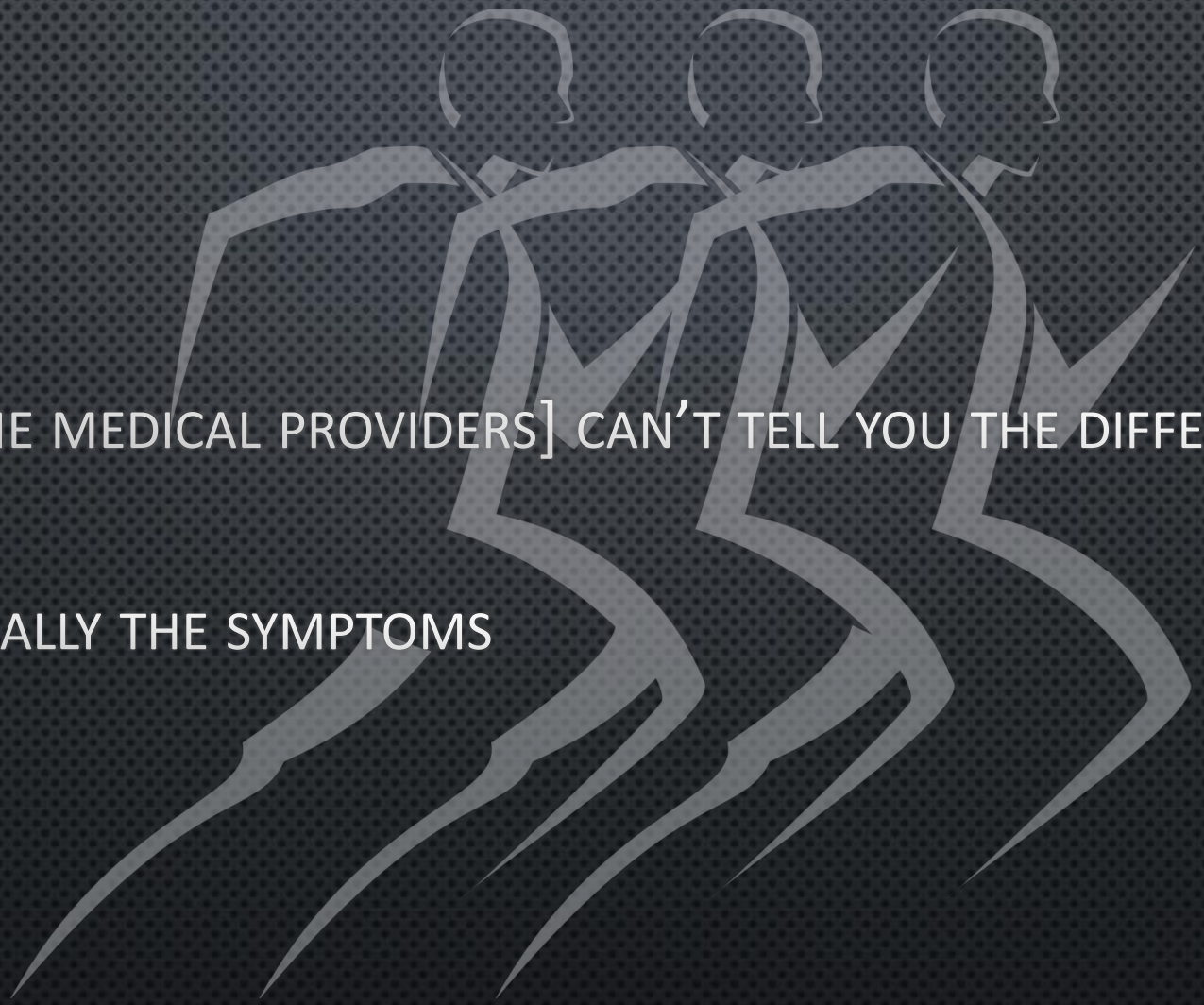
https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/orthopaedic_disorders/CervicalMyelopathy_22,CervicalMyelopathy

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HIP & BACK PAIN



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Patients [and some medical providers] can't tell you the difference between hip and back pain

.....especially the symptoms

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Think About Hip pain by location

- Anterior – True Hip joint pathology
- Lateral- Trochanteric Pain Syndrome, Gluteal/External Rotator tendons
- Posterior – Lumbar/Sciatic nerve Pathology

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ANTERIOR HIP PAIN

HIP JOINT AVASCULAR NECROSIS (AVN)

HIP JOINT OSTEOARTHRITIS



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HIP AVN

Epidemiology

- M>F, 35-50 yrs. of age
- Bilateral occurrence 80%
- Groin & Anterior/Lateral Thigh pain
  - Referred pain from Femoral nerve and Obturator nerve
- Idiopathic – most common
  - Intravascular coagulation
    - Coagulopathy involving intraosseous micro-circulation;
      - DECREASED BLOOD FLOW TO FEMORAL HEAD
      - LEADS TO CHONDRAL FX AND HEAD COLLAPSE
  - AVN 2ND TRAUMA
    - MICROVASCUALR INJURY TO FEMORAL HEAD BLOOD SUPPLY

Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:I217
Hatch D, Osteonecrosis Hip, 2018, www.orthobullets.com/recon/5006/hip-osteonecrosis

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HIP AVN

- Causes:
  - Irradiation
  - Trauma
  - Hematologic dz (Leukemia, Sickle Cell)
  - Scuba diving
  - ETOH
  - Hyper-coagulopathies
  - Lupus
  - IV Drug use
  - Drugs (protease inhibitors-HIV)
  - Idiopathic



Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:l217

Hatch D, Osteonecrosis Hip, 2018, www.orthobullets.com/recon/5006/hip-osteonecrosis

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HIP AVN



- Symptoms
  - Insidious onset
  - "Can't tie my shoe"
  - Pain intensified w/ stairs, inclines, Impact activity
  - Anterior Hip pain vs. Anterior Thigh Pain
- Exam:
  - Hip exam- FABER test, FADIR test, Stinchfield's test
  - Pain with ROM (advancing dz)

Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:l217

Hatch D, Osteonecrosis Hip, 2018, www.orthobullets.com/recon/5006/hip-osteonecrosis

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Radiology

- X-ray
  - Pelvis, Bilateral AP Hip & Frog lateral
  - MRI
    - Most sensitive and specific dx AVN
    - Edema predictive of worsening dz

HIP AVN



Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:I217

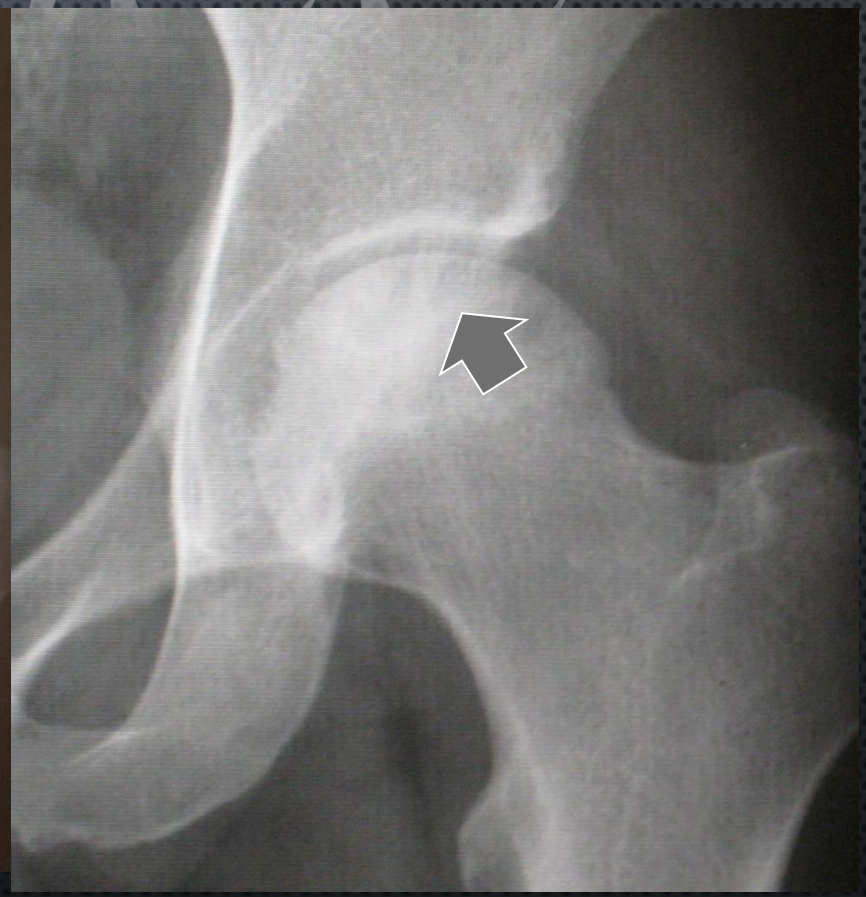
Hatch D, Osteonecrosis Hip, 2018, www.orthobullets.com/recon/5006/hip-osteonecrosis

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AVASCULAR NECROSIS

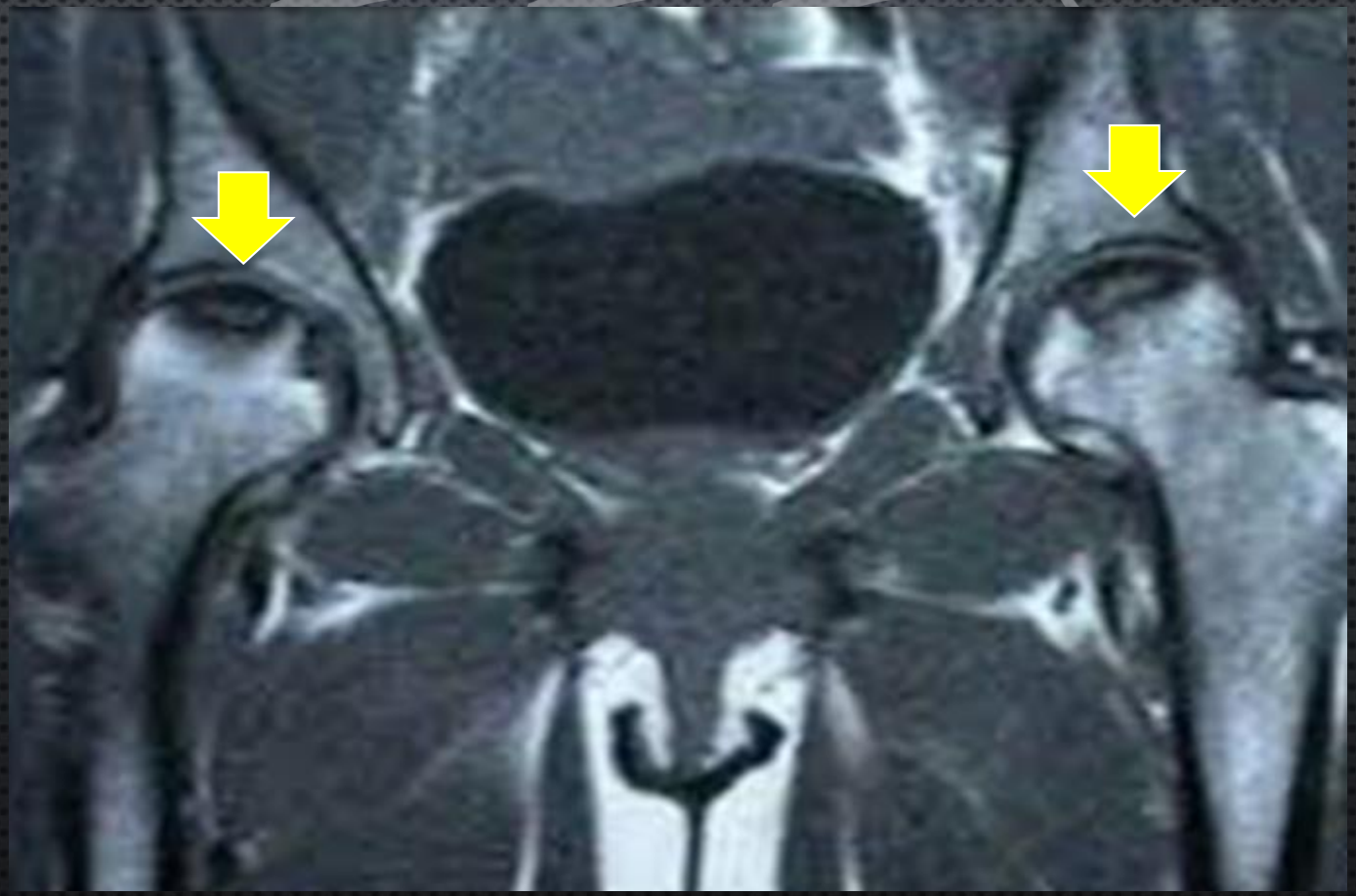
EARLY AVN X-RAY





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AVASCULAR NECROSIS



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HIP AVN

Treatment

- NSAIDS, Acetaminophen, Intra-articular injection
- Bisphosphonates
  - Indicated pre-collapse AVN
  - Alendronate (Fosamax) prevents femoral head collapse in hip osteonecrosis with subchondral lucency
    - Results research trials variable
- Decompression
    - Relief of intraosseous hypertension & decreases pain
    - Stimulates healing via angiogenesis
- Total Joint Arthroplasty

Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:l217

Hatch D, Osteonecrosis Hip, 2018, www.orthobullets.com/recon/5006/hip-osteonecrosis

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Hip Joint Osteoarthritis

- More Likely diagnosis of Older patients
- Gradual onset of symptoms
- Gradual decline in function-ability
- Limited Motion
- Consistent deep ache - worse standing/sitting
- Start-up pain, distal thigh pain
- Pain with hip motion & worse extremes of motion
- Radiographs
  - Diminished joint space
  - Subchondral cystic change femoral head



Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

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Hip Joint Osteoarthritis



Treatment:

- Identify condition/Manage Pt. expectations
- Modification activities
- NSAIDS:
  - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
- Physical Therapy – minimize symptoms
- Steroid Injection – US guided
- Surgery- Failure of conservative Treatments

Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

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LATERAL HIP PAIN

TROCHANTERIC PAIN SYNDROME

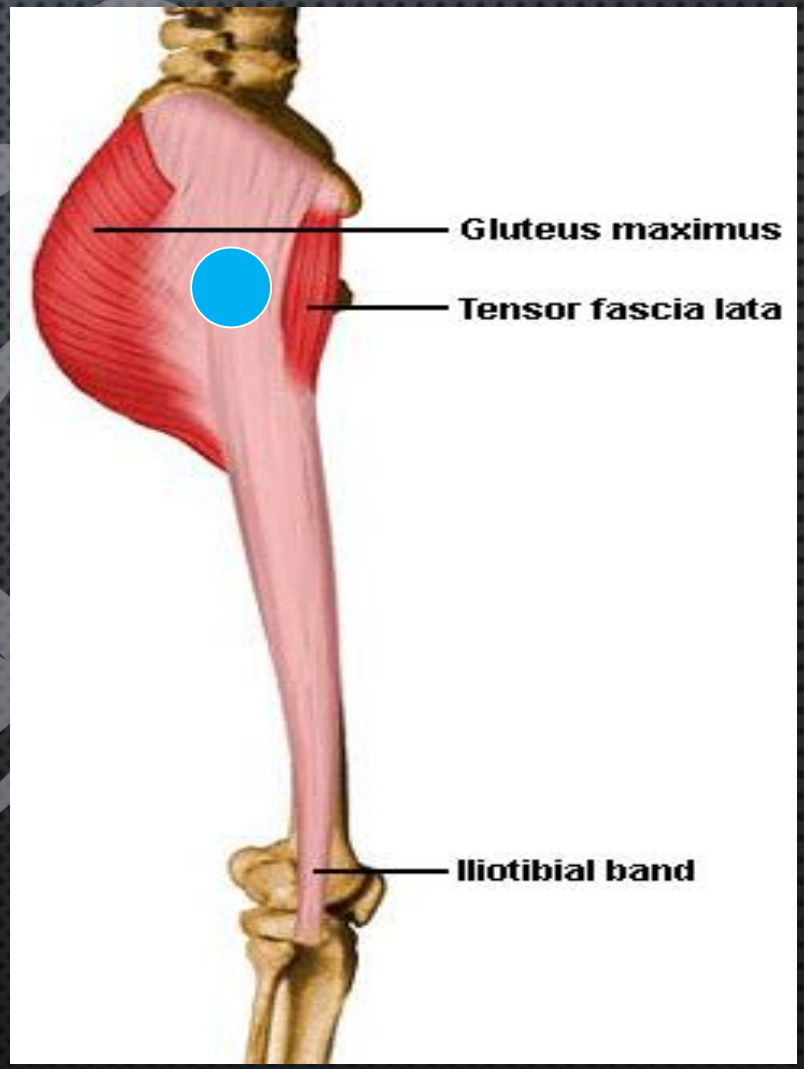
FEMOROACETABULAR IMPINGEMENT SYNDROME (FAI)



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Trochanteric Bursitis

- Trochanteric Bursa lies deep to the ITB & superficial to Gluteus medius tendon insertion @ greater trochanter
- Gluteus medius/minimus
  - Attach greater trochanter
  - ABDuct & Internal rotation
- AKA: Greater Trochanteric Pain Syndrome (GTPS)
- **Trochanteric bursitis = Gluteal tendinosis**
- Consider pts. with Trochanteric bursitis to have gluteal tendinosis/tear*



Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D."

Bird PA et al: Prospective evaluation of magnetic resonance imaging findings in patients with greater trochanteric pain syndrome; Arthritis Rheum 2001;44(9): 2138-2145

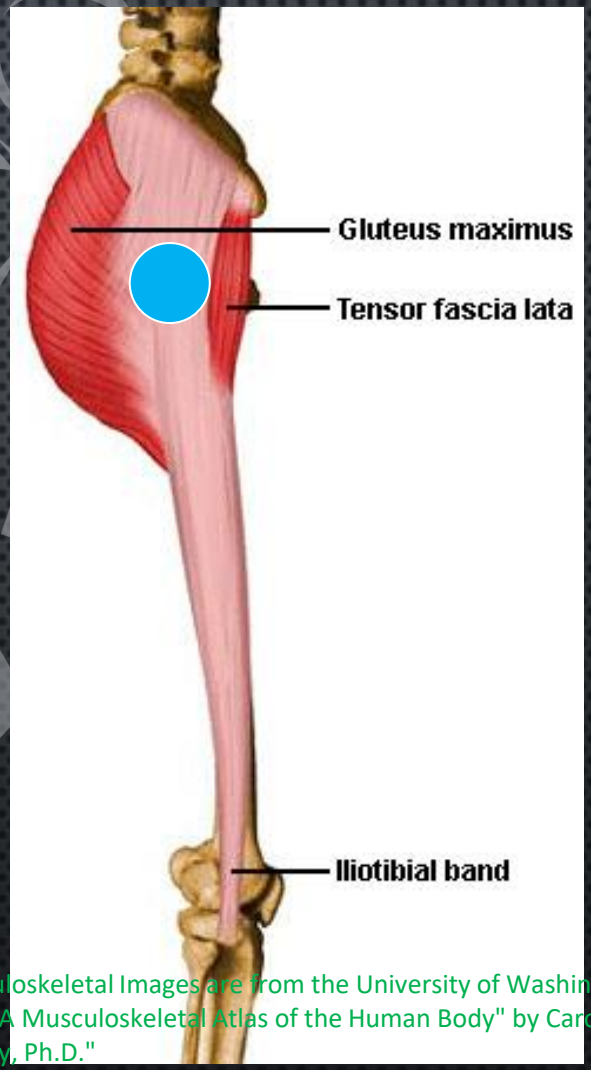
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TROCHANTERIC BURSITIS

CLINICAL PRESENTATION

- MECHANISM OF INJURY
  - REPETITIVE/CHANGE ACTIVITY
  - POOR FLEXIBILITY
  - SEDENTARY
  - BODY HABITUS
- SYMPTOMS
  - START-UP PAIN
  - PROLONGED SITTING
  - **SIDE SLEEPING POSITION**
  - **ISOLATED LATERAL HIP PAIN**

GROIN OR BUTT PAIN THINK SOMETHING ELSE



Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D."

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Trochanteric Bursitis

Physical Examination

- Inspection
  - Have the pt. stand and point to location of their pain
- **Palpation – tender lateral trochanter/hip**
- ROM/Strength – ABD pain/passive ADD pain
- Neuro/vascular – no changes
- Ortho exam –
  - Stichfield's Test- hip joint
  - Patrick/FABER- joint dysfunction
  - Ober Test- positive tight IT band
  - Tight Hamstrings/Hip flexors/Quads
  - **Consider lumbar spine exam too!!!**

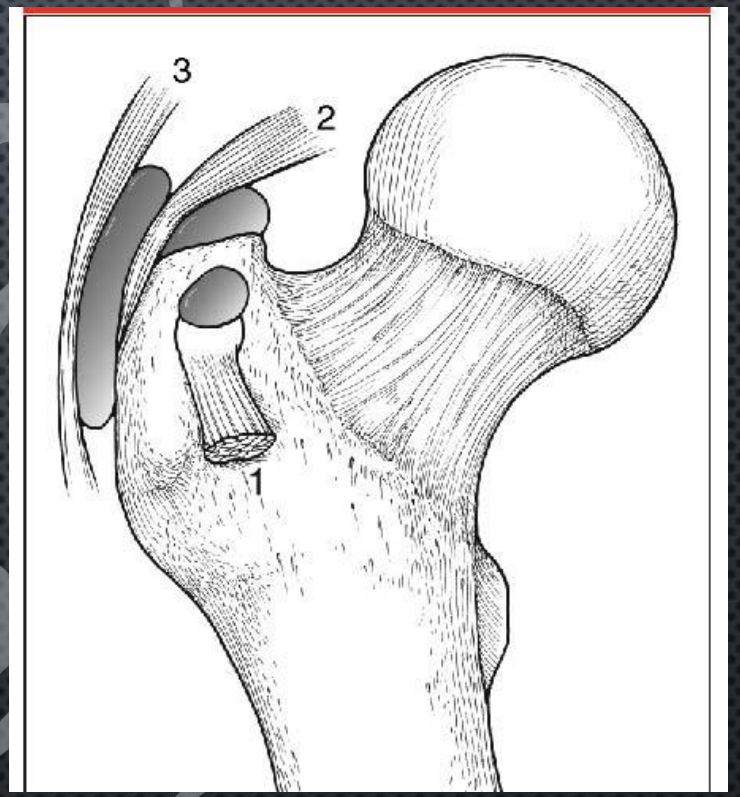


Illustration demonstrating the location of the trochanteric bursa between the gluteus medius (2) and the iliotibial band (3) as Trochanteric tendinobursitis. Joint Bone Spine 2006;73[4]:344-348. http://www.sciencedirect.com/science/journal/1297319X.)

Four Common Types of Bursitis: Diagnosis and Management.
Aaron, Daniel; Patel, Amar; Kayiaros, Stephen; Calfee, Ryan
journal of the American Academy of Orthopaedic Surgeons. 19(6):359-367, June 2011.

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TROCHANTERIC BURSITIS

TEAR SHORT ROTATORS

- MIMICS TROCHANTERIC BURSITIS
- NO RELIEF WITH INJECTION
- ISOLATES PAIN IN POSTERIOR ASPECT OF GREATER TROCHANTER

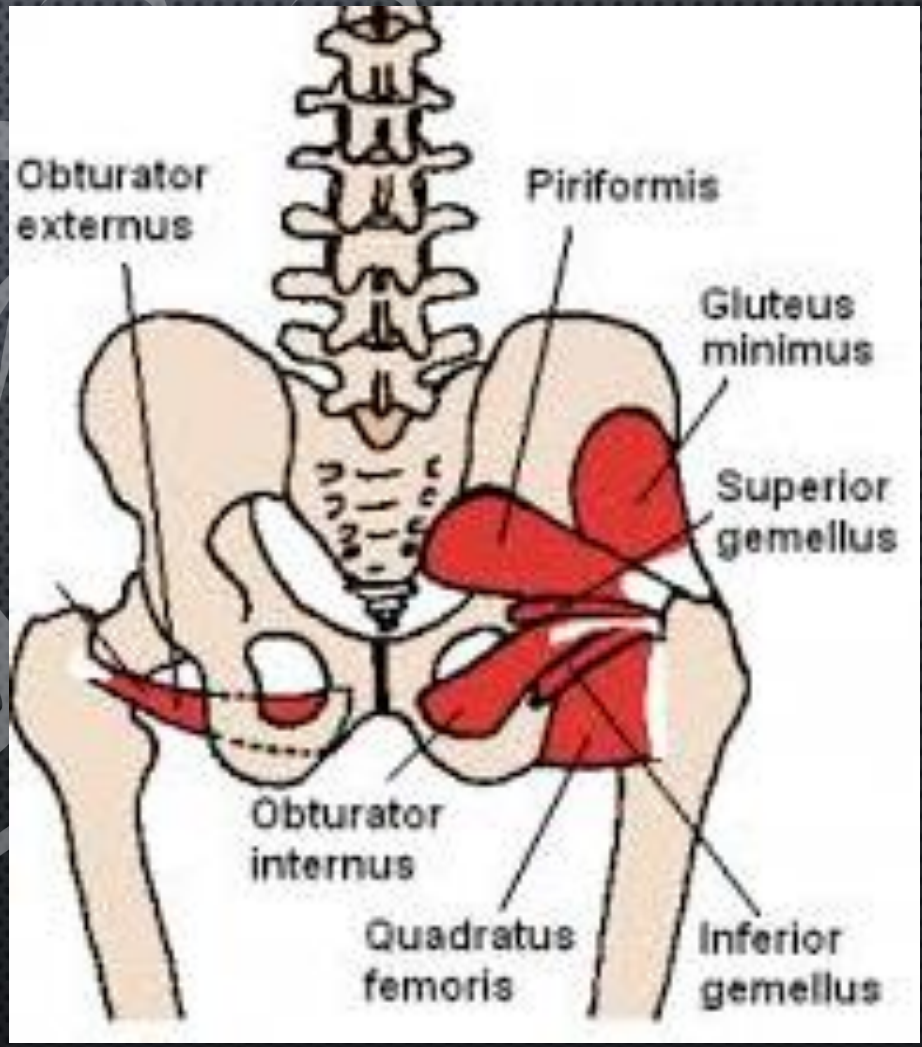


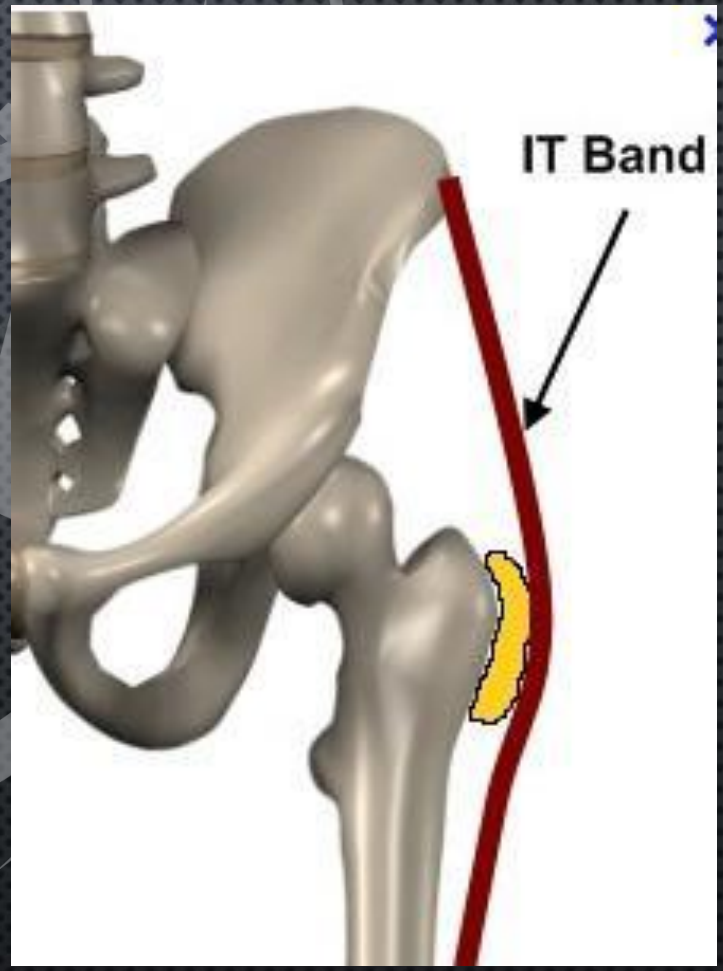
Image courtesy of Physio-pedia.com

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Trochanteric Bursitis

Treatment

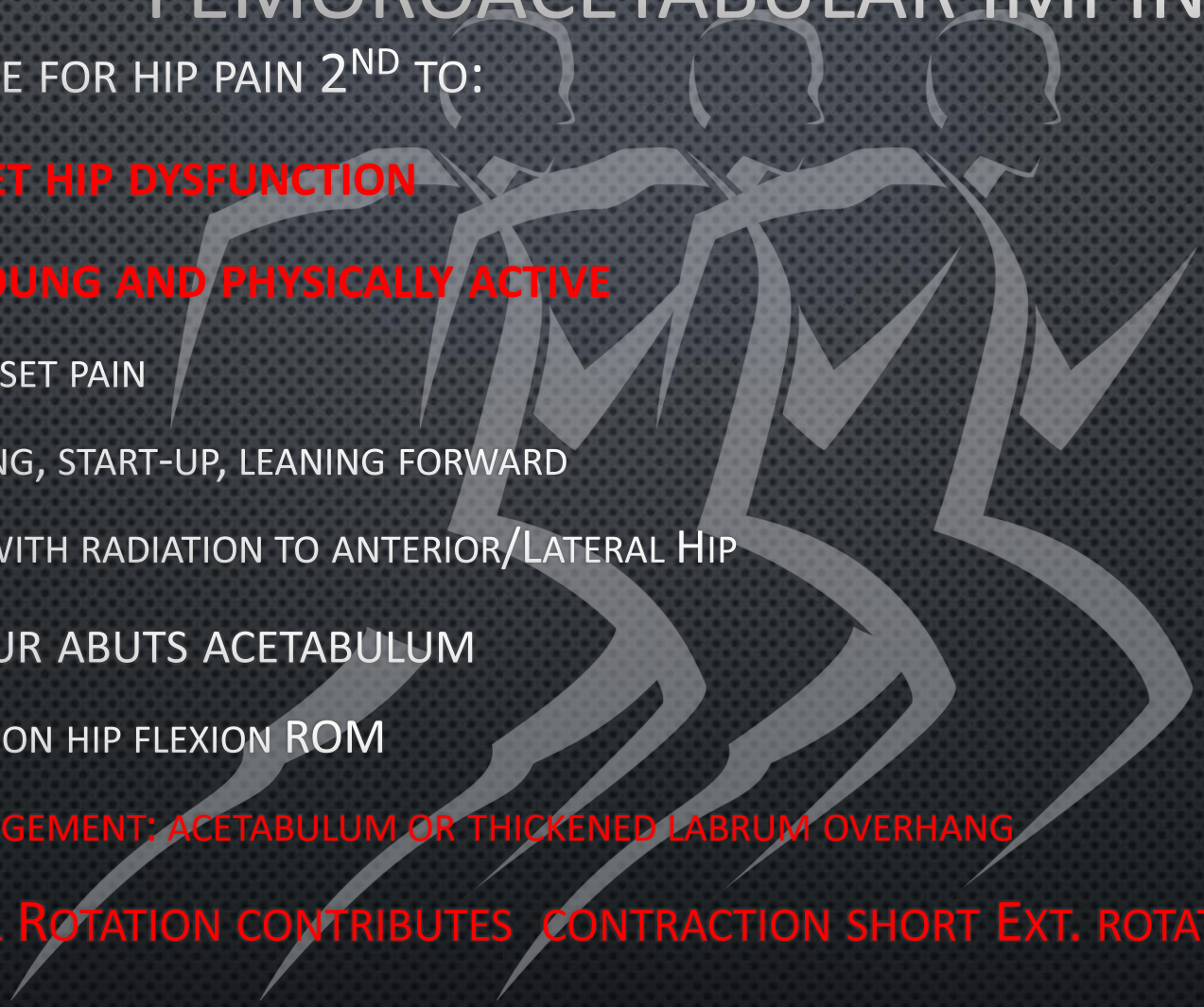
- Modify activities
- Improve flexibility
- NSAIDS – topical vs. oral
- Physical Therapy vs. HEP
- Injection
- **Reassess causes for pain symptoms:**
  - **Lumbar Radiculopathy**
  - **Femoroacetabular Impingement (FAI)**
  - **Hip Dysplasia**
  - **Gluteal tendon rupture/tear**



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Epidemiology

Femoroacetabular Impingement (FAI)



- Common cause for hip pain 2nd to:
  - **Early onset hip dysfunction**
  - **Affects young and physically active**
  - Insidious onset pain
  - Worse sitting, start-up, leaning forward
  - Groin pain with radiation to anterior/Lateral Hip
- Proximal femur abuts acetabulum
  - More common hip flexion ROM
  - Pincer impingement: acetabulum or thickened labrum overhang
- Decrease Internal Rotation contributes contraction short Ext. rotators & compresses Sciatic nerve

Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735

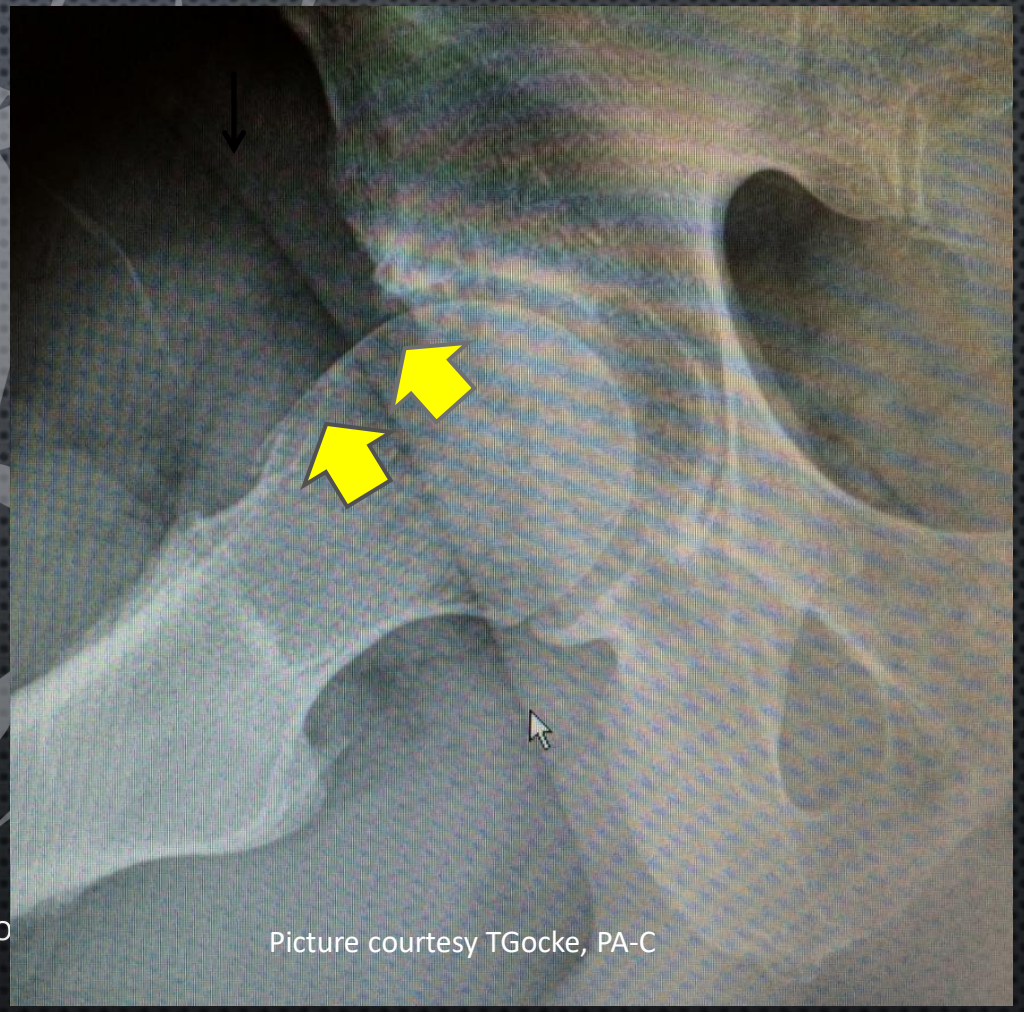
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FEMOROACETABULAR IMPINGEMENT (FAI)

IMPINGEMENT MECHANISMS

CAM IMPINGEMENT

- FEMORAL NECK IMPINGES ON ANTERIOR ACETABULUM
- CAM IMPINGEMENT: HEAD/NECK FEMUR TOO BROAD
- FEMORAL BASED DISORDER
- YOUNGER ATHLETIC MALES
- ANATOMICAL VARIATIONS:
  - DECREASED HEAD-TO-NECK RATIO
  - PREVIOUS SLIPPED CAPITAL FEMORAL EPIPHYSIS ?



Picture courtesy TGocke, PA-C

BASSETT AJ, TJOUMAKARIS FP, FEMOROACETABULAR IMPINGEMENT, OPERATIVE TECHNIQUES IN ORTHO
100735

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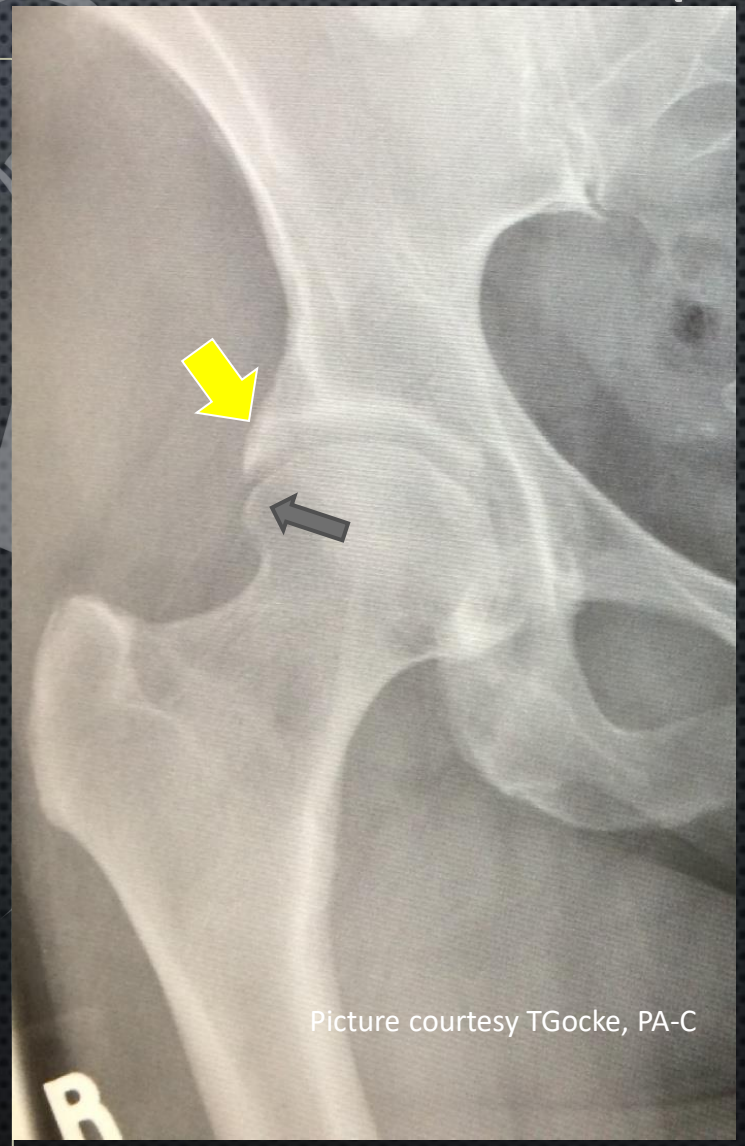
FEMOROACETABULAR IMPINGEMENT (FAI)

PINCER IMPINGEMENT:

- ACETABULAR BASED
- MORE OFTEN SEEN IN ACTIVE MIDDLE-AGED WOMEN
- ANATOMICAL VARIATIONS
  - SUPERIOR RIM OVERHANG
  - ACETABULUM RETROVERSION
  - ACETABULUM PROTRUSIO

CAM/PINCER IMPINGEMENT

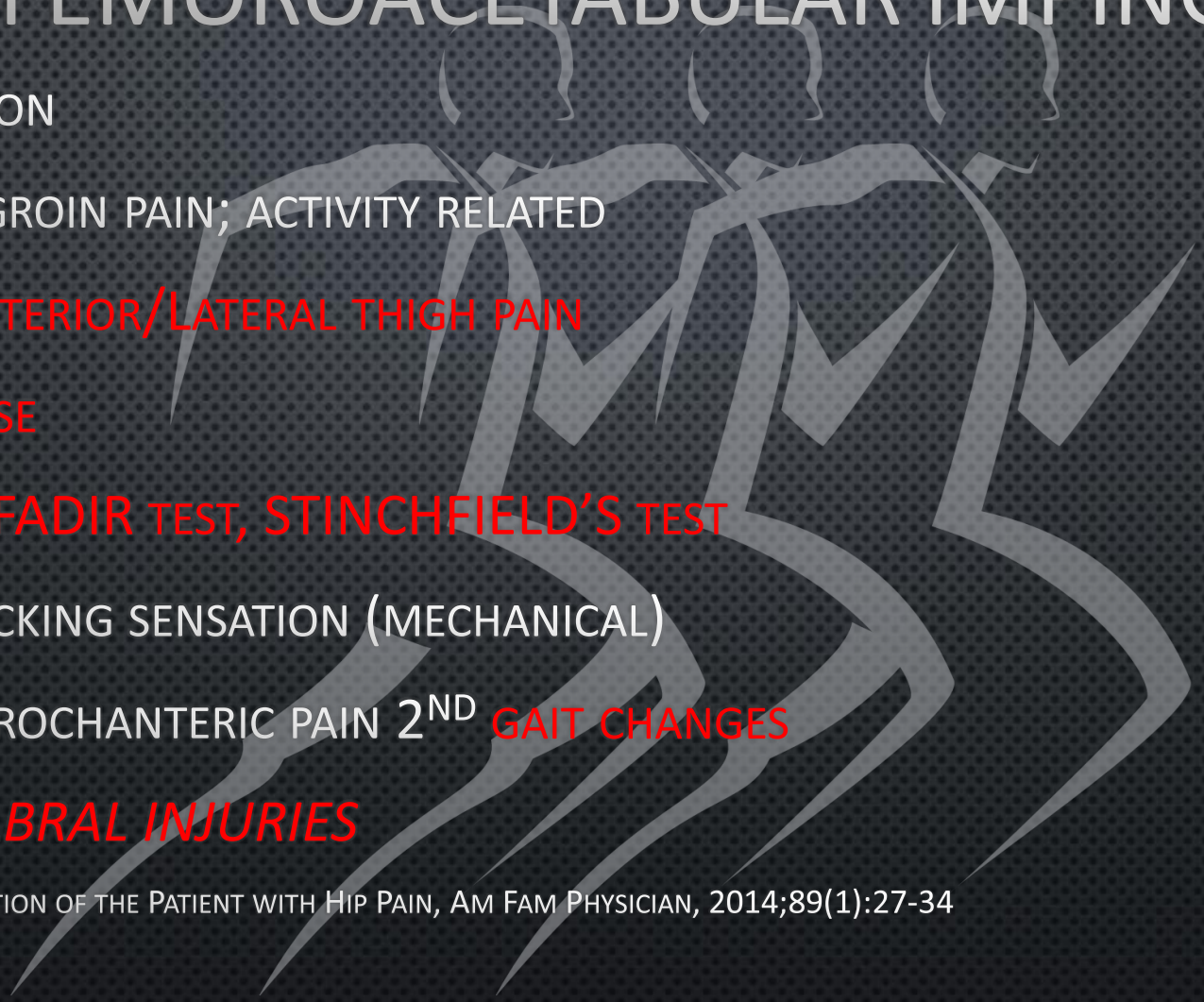
IMPINGEMENT COMES FROM CONTRIBUTIONS OF BOTH FEMUR & ACETABULUM/LABRUM



BASSETT AJ, TJOUMAKARIS FP, FEMOROACETABULAR IMPINGEMENT, OPERATIVE TECHNIQUES IN ORTHOPAEDICS, 2019;29(4), ARTICLE 100735

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Femoroacetabular Impingement (FAI)



Physical Examination

- Present w/ hip/groin pain; activity related
  - May have anterior/Lateral thigh pain
  - Flexion worse
  - FABER test, FADIR test, STINCHFIELD'S test
  - Catching/locking sensation (mechanical)
  - Gluteal or trochanteric pain 2nd gait changes

DON'T FORGET LABRAL INJURIES

Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

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Femoroacetabular Impingement (FAI)



Treatment

- Nonoperative
  - Conservative care – Just like Hip OA, AVN, Trochanteric Bursitis
  - Minimal symptoms
  - Minimal changes ADL and activities
  - Symptoms controlled with NSAIDS and activity modification
  - US guided Intra-articular Steroid Injection

Conservative Therapy fails – need surgery

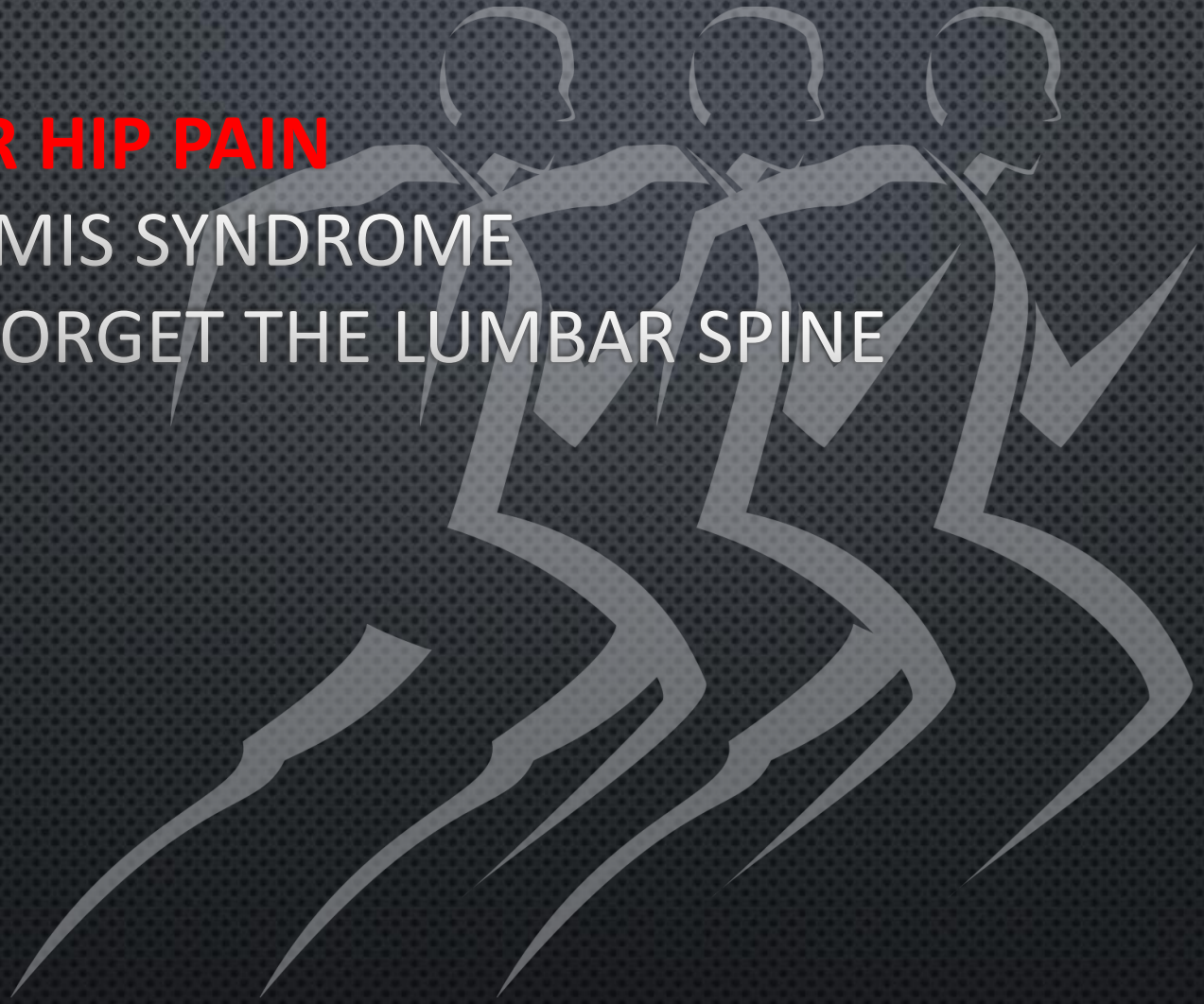
Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735

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POSTERIOR HIP PAIN

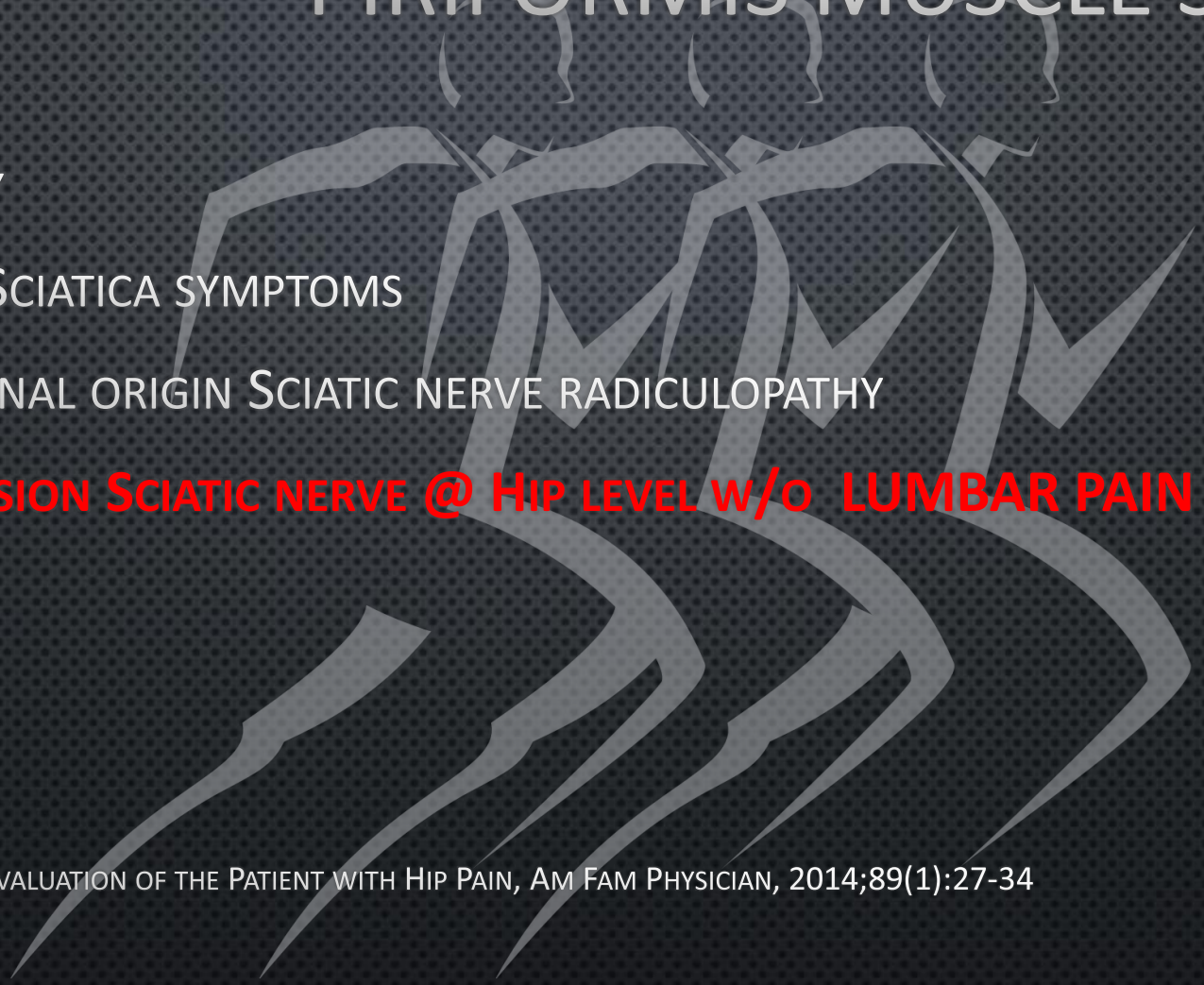
PIRIFORMIS SYNDROME

DON’T FORGET THE LUMBAR SPINE



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PIRIFORMIS MUSCLE SYNDROME

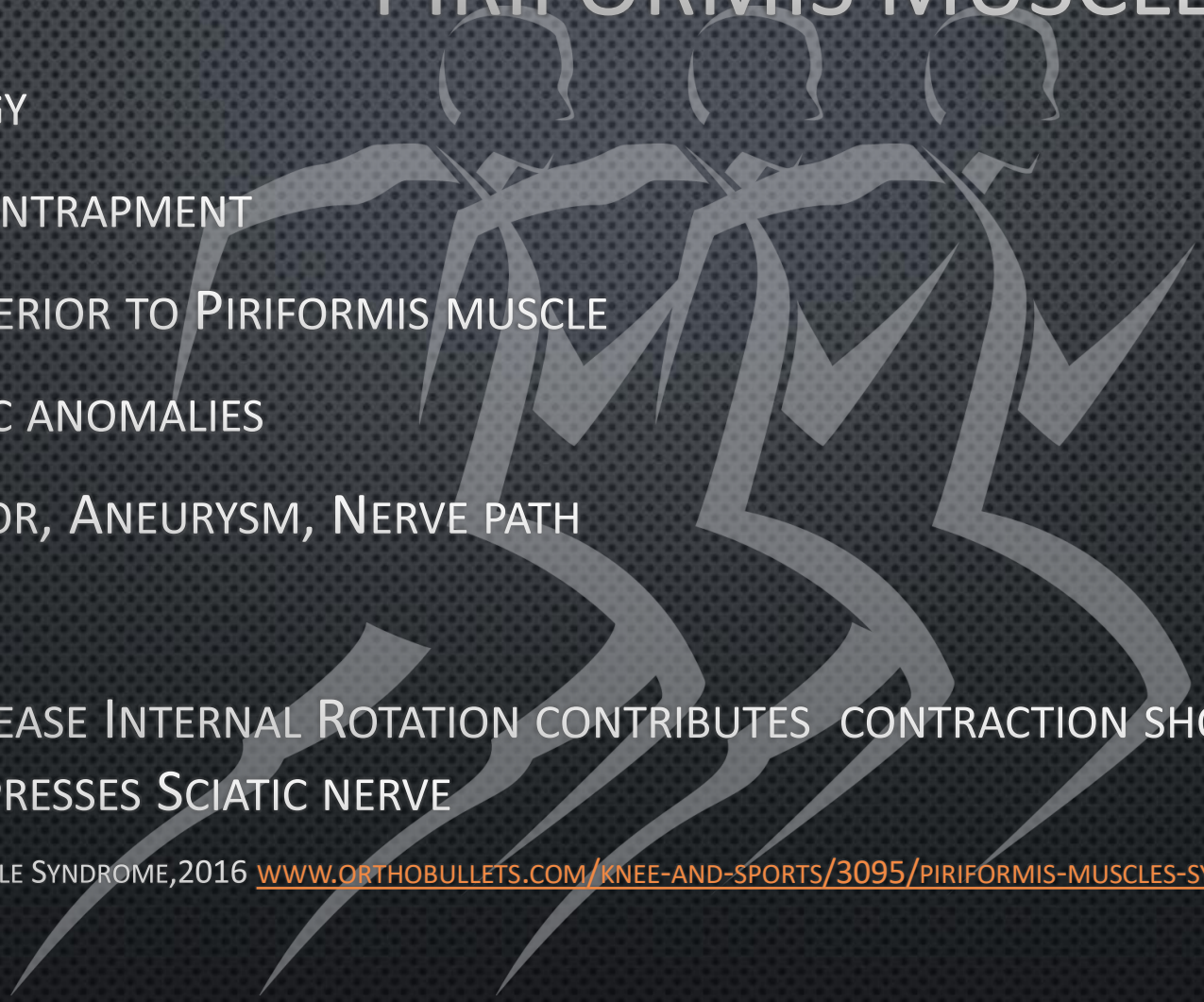


- Epidemiology
  - Imitates Sciatica symptoms
  - Extra-spinal origin Sciatic nerve radiculopathy
  - **Compression Sciatic nerve @ Hip level w/o LUMBAR PAIN**

Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

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Piriformis Muscle Syndrome



Pathophysiology

- Nerve entrapment
  - Anterior to Piriformis muscle
- Anatomic anomalies
  - Tumor, Aneurysm, Nerve path
- FAI
  - Decrease Internal Rotation contributes contraction short Ext. rotators & compresses Sciatic nerve

Abbasi D, Piriformis Muscle Syndrome,2016 www.orthobullets.com/knee-and-sports/3095/piriformis-muscles-syndrome

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Piriformis Muscle Syndrome

Physical Exam

- Symptoms:
  - Pain gluteal region mimics Sciatica
  - FADIR Test
    - Flexion-Adduction-Internal Rotation
    - Reproduces S/S- tension on Piriformis
- Imaging
  - X-ray Pelvis/hip pathology
  - MRI: Spine/Hip joint-tissue pathology

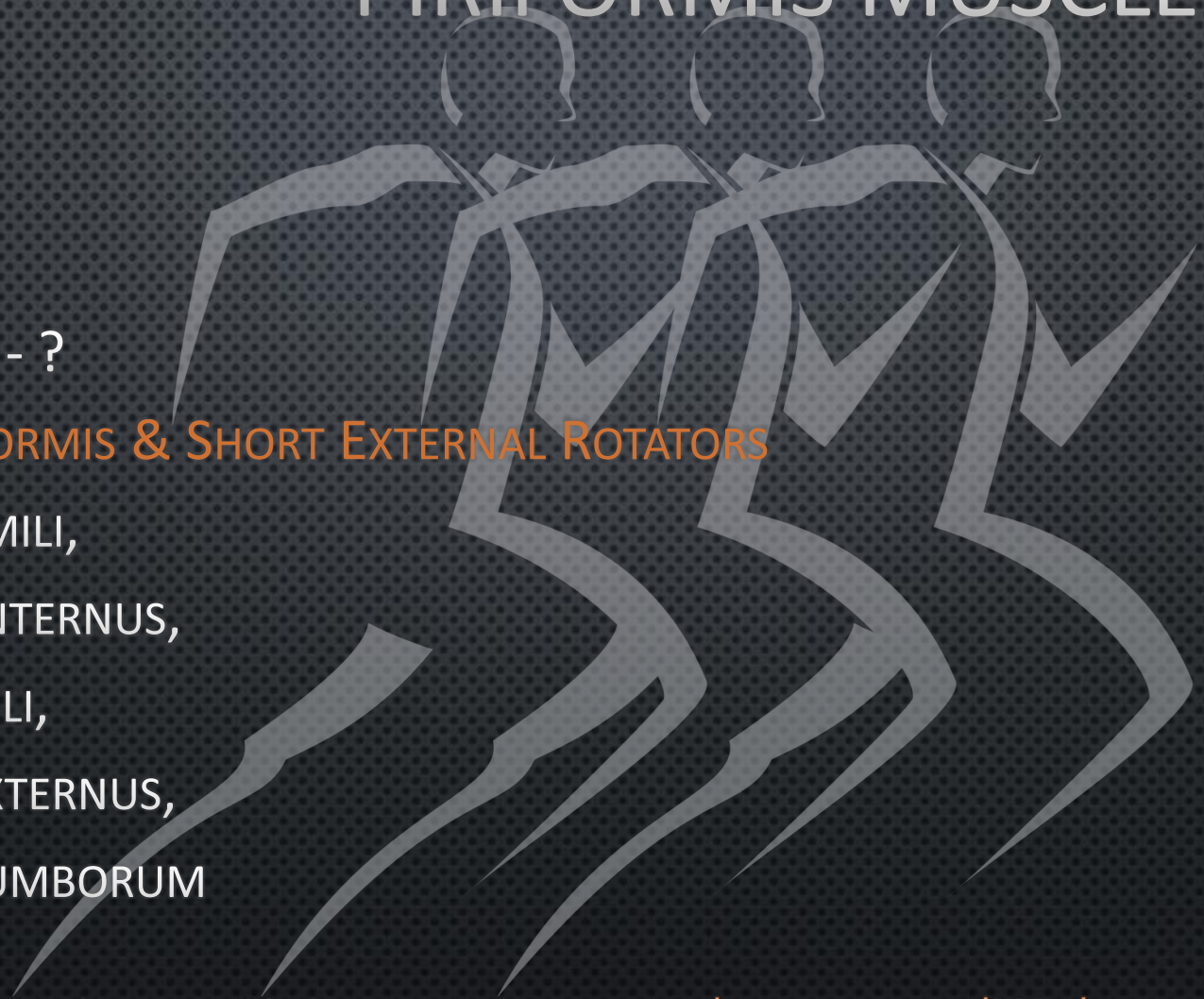


Image courtesy OrthoBullets.com

Abbasi D, Piriformis Muscle Syndrome,2016 www.orthobullets.com/knee-and-sports/3095/piriformis-muscles-syndrome

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PIRIFORMIS MUSCLE SYNDROME



Treatment

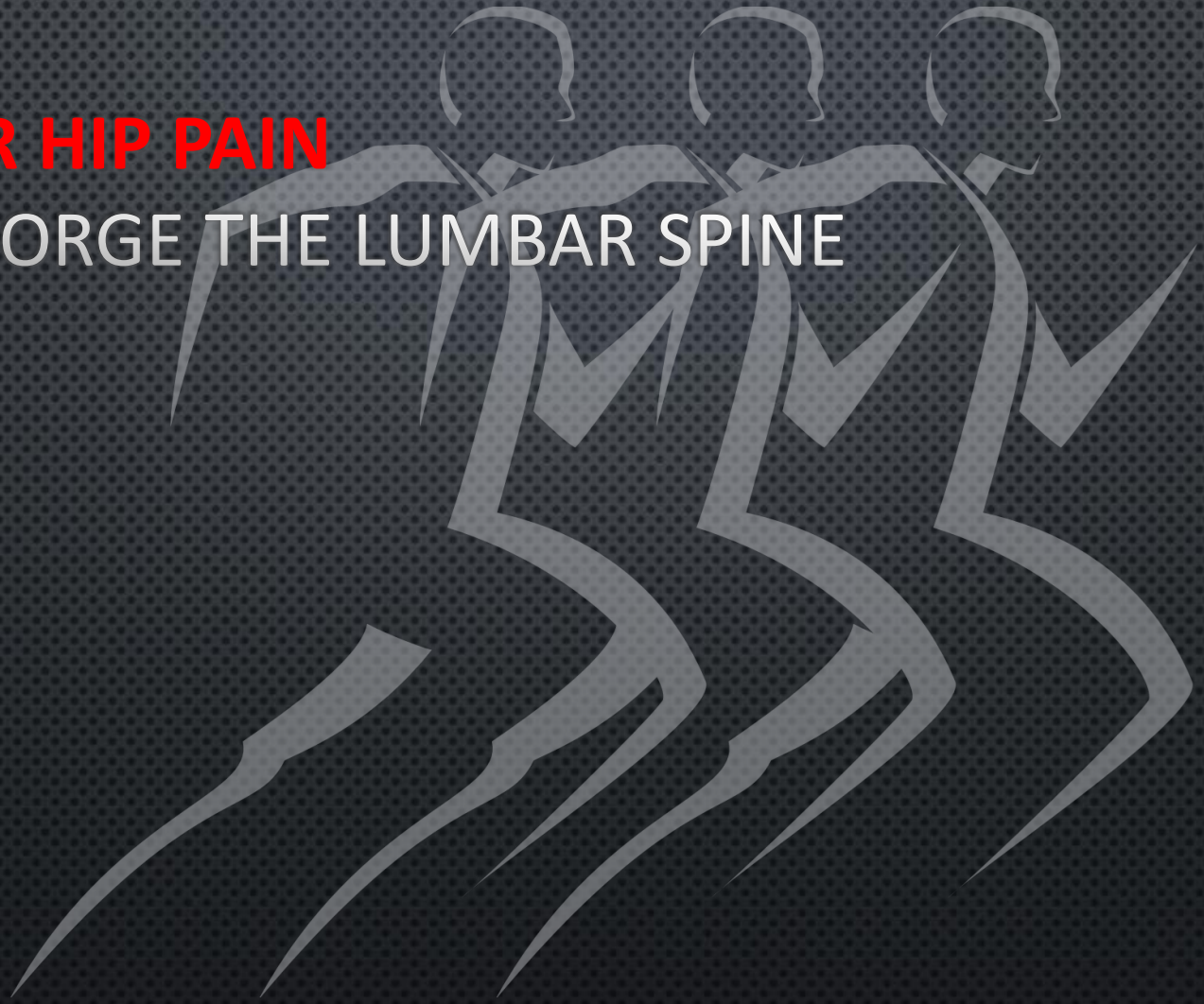
- Rest
- Ice
- NSAIDS
- Steroid Injection - ?
- PT- Stretch Piriformis & Short External Rotators
  - Superior. Gemili,
  - Obturator Internus,
  - Inferior Gemili,
  - Obturator Externus,
  - Quadratus Lumborum

Abbasi D, Piriformis Muscle Syndrome,2016 www.orthobullets.com/knee-and-sports/3095/piriformis-muscles-syndrome

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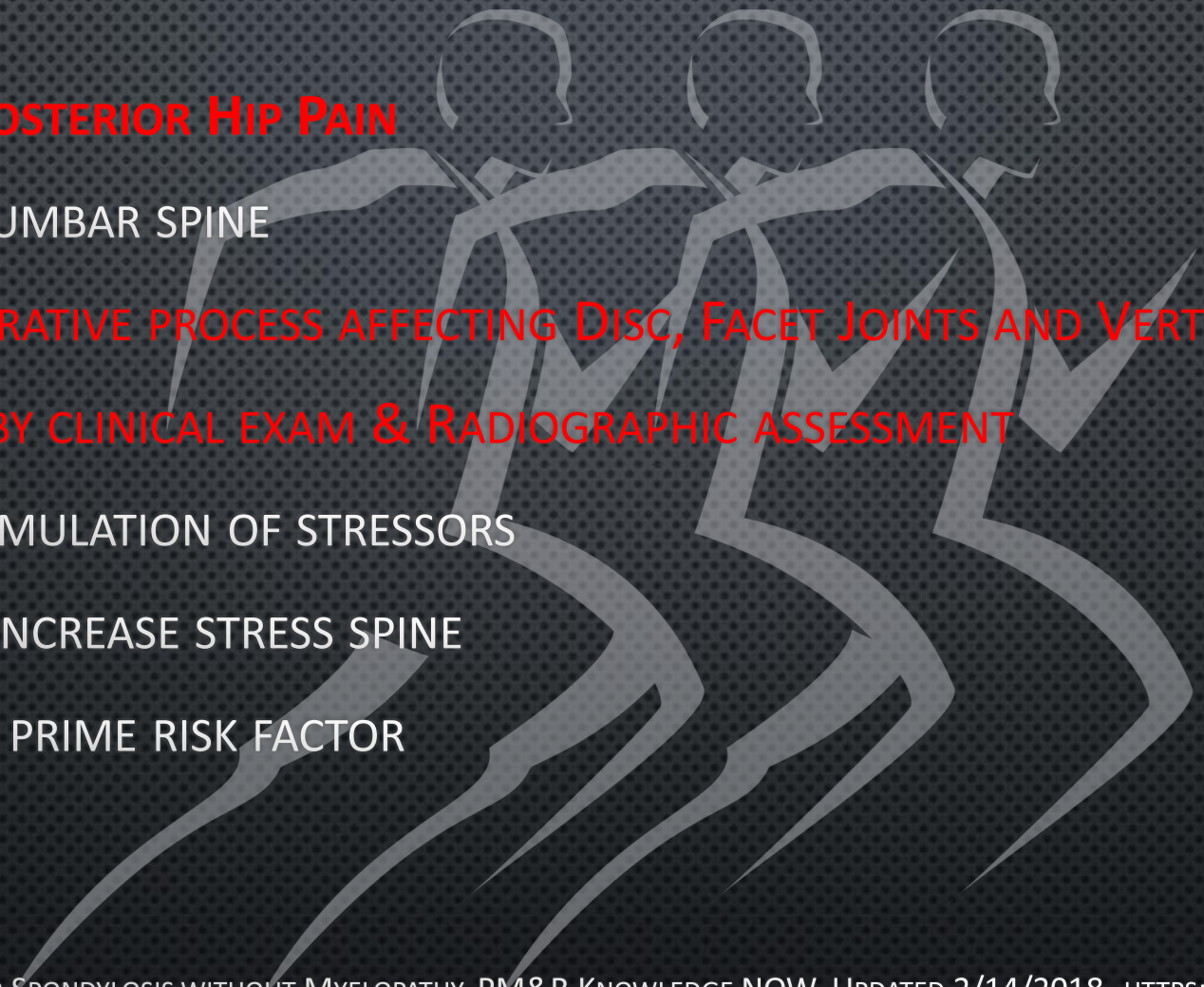
POSTERIOR HIP PAIN

DON’T FORGE THE LUMBAR SPINE



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Lumbar Spondylosis



Epidemiology

- **Complaints of posterior Hip Pain**
- Osteoarthritis Lumbar spine
- Defines a degenerative process affecting Disc, Facet Joints and Vertebral Bodies
- Diagnosis made by clinical exam & Radiographic assessment
- Results for accumulation of stressors
- Microtrauma – increase stress spine
- Increasing age is prime risk factor

Nagpal A, Swearingen A, Lumbar Spondylosis without Myelopathy, PM&R Knowledge NOW, Updated 2/14/2018, https://now.aapmr.org/lumbar-spondylosis-without-myelopathy/

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Lumbar Spondylosis



Presentation

- Gradual progression
  - Stiffness
  - Loss of mobility
  - Increased symptoms – Posterior Hip pain
- Pain: unilateral vs. Bilateral
  - Increased w/ Extension, rotation & Standing
  - Relieved w/ Lying flat and Flexion

S

nyder DL, Doggett D, Turkelson C, Treatment of Degenerative Lumbar Spinal Stenosis, Am Fam Physician. 2004 Aug 1;70(3):517-520

Genevay S, Atlas SJ. Lumbar spinal stenosis. *Best Pract Res Clin Rheumatol*. 2010;24(2):253–265. doi:10.1016/j.berh.2009.11.001

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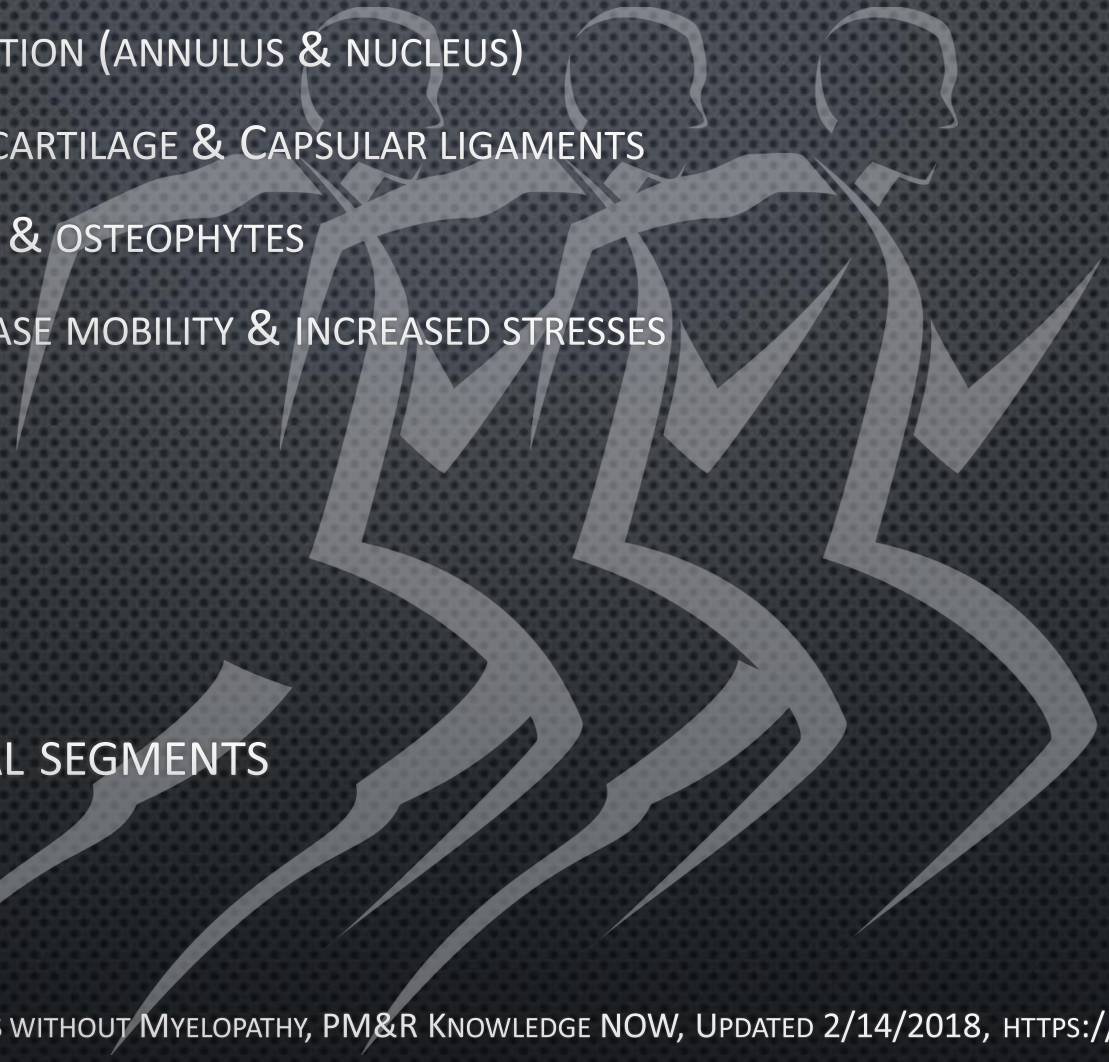
Lumbar Spondylosis

Disc Desiccation

- Decreased water absorption (annulus & nucleus)
- Stiffening of articular cartilage & Capsular ligaments
- Increased Microtrauma & osteophytes
- Stiffness leads to decrease mobility & increased stresses

Risk Factors

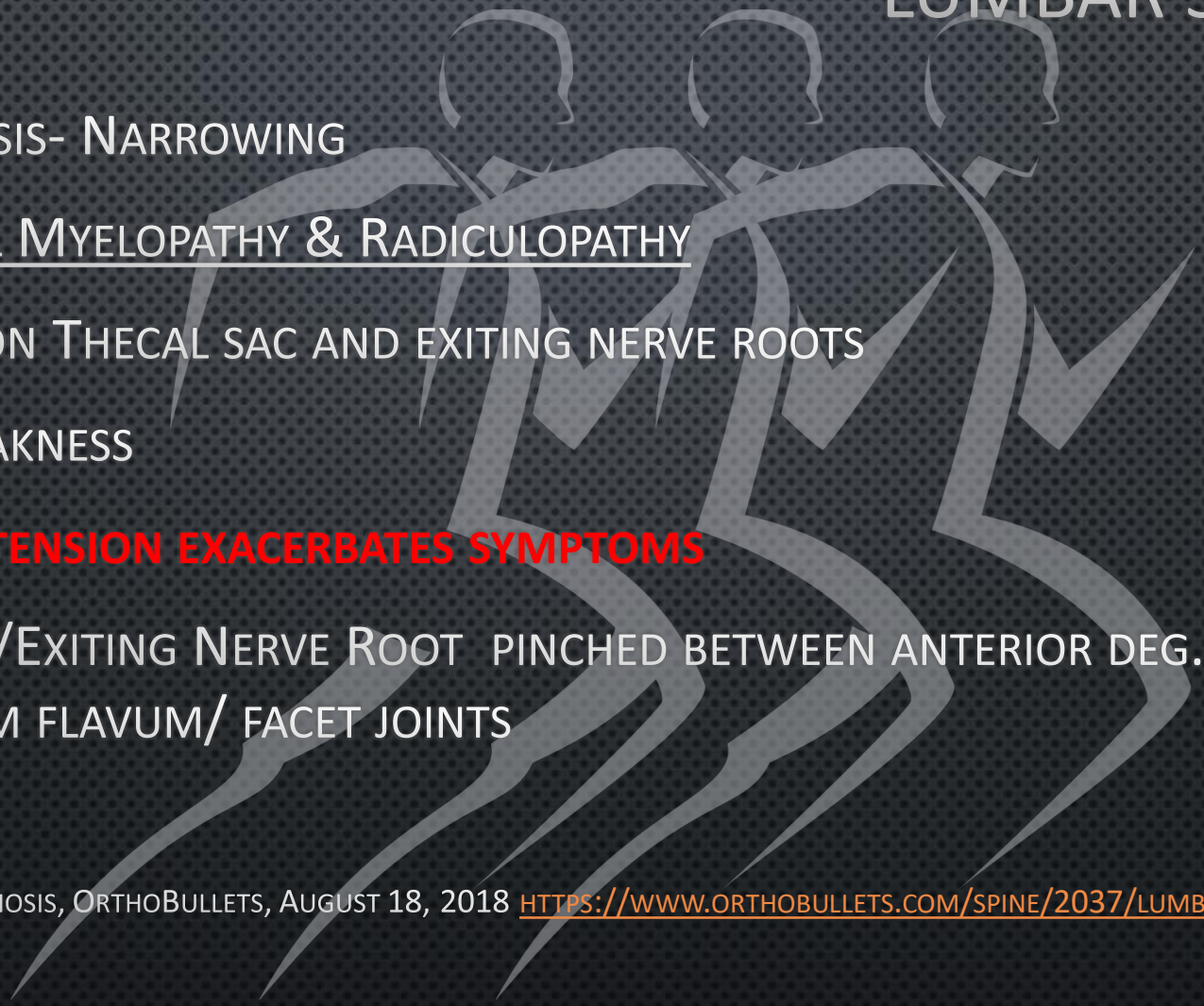
- Age
- Trauma
- Malalignment Vertebral segments
  - Vertebral Bodies
  - Facet joints



Nagpal A, Swearingen A, Lumbar Spondylosis without Myelopathy, PM&R Knowledge NOW, Updated 2/14/2018, https://now.aapmr.org/lumbar-spondylosis-without-myelopathy/

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Lumbar Spondylosis



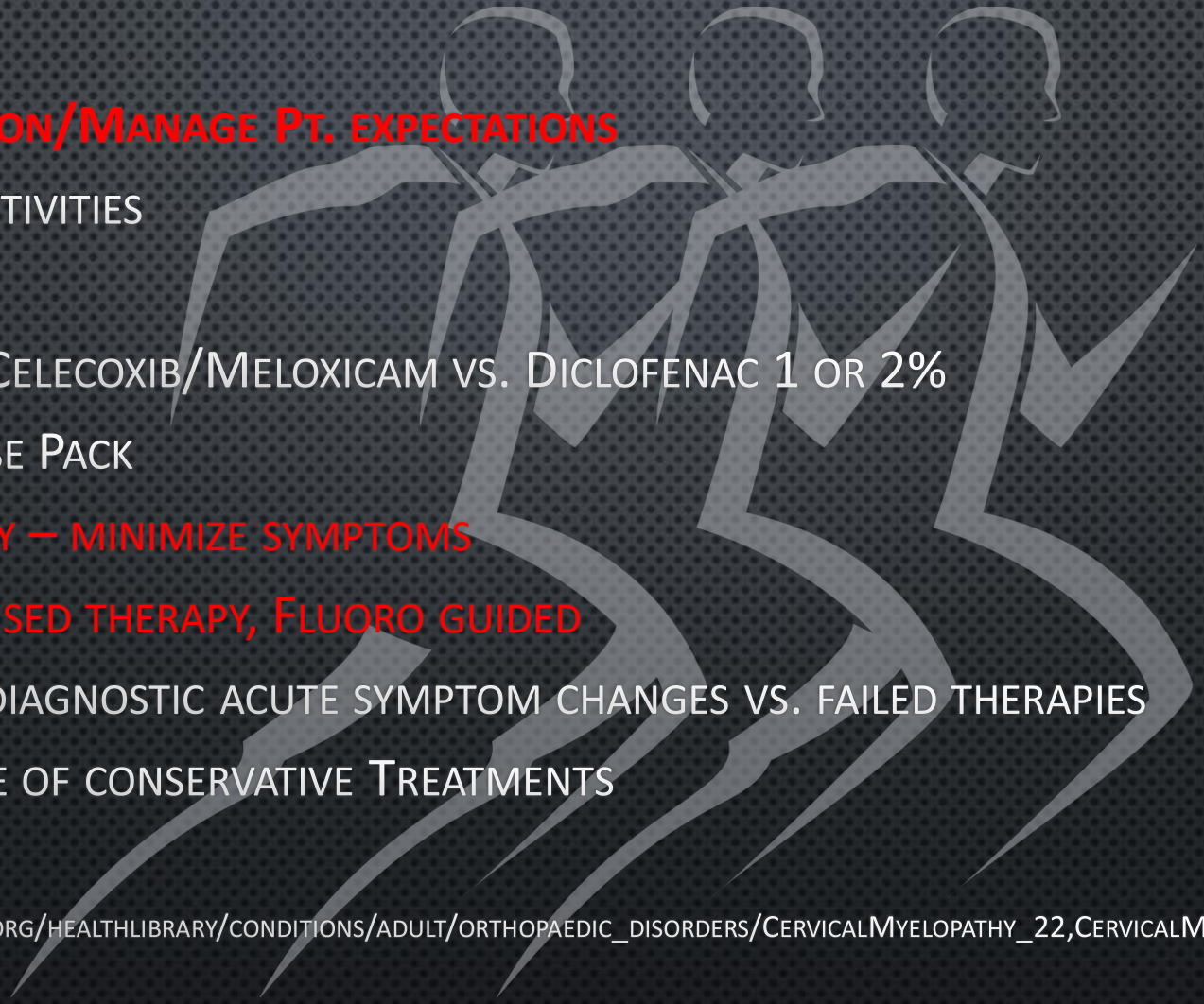
Central Canal Stenosis- Narrowing

- Causes Clinical Myelopathy & Radiculopathy
  - Compression Thecal sac and exiting nerve roots
  - Motor weakness
  - **Lumbar extension exacerbates symptoms**
  - Thecal Sac/Exiting Nerve Root pinched between anterior deg. Disc & hypertrophic ligamentum flavum/ facet joints

Ahn L, Moore D, Lumbar Spinal Stenosis, OrthoBullets, August 18, 2018 https://www.orthobullets.com/spine/2037/lumbar-spinal-stenosis?expandLeftMenu=true

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Cervical Spondylosis



Treatment:

- **Identify condition/Manage Pt. expectations**
- Modification activities
- NSAIDS:
  - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
  - Steroid Dose Pack
- **Physical Therapy – minimize symptoms**
- **Injection – focused therapy, Fluoro guided**
- MRI – further diagnostic acute symptom changes vs. failed therapies
- Surgery- Failure of conservative Treatments

https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/orthopaedic_disorders/CervicalMyelopathy_22,CervicalMyelopathy

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THANK YOU

www.orthoedu.com

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