

Primary Care for Hip Pain and Other Orthopedic Issues

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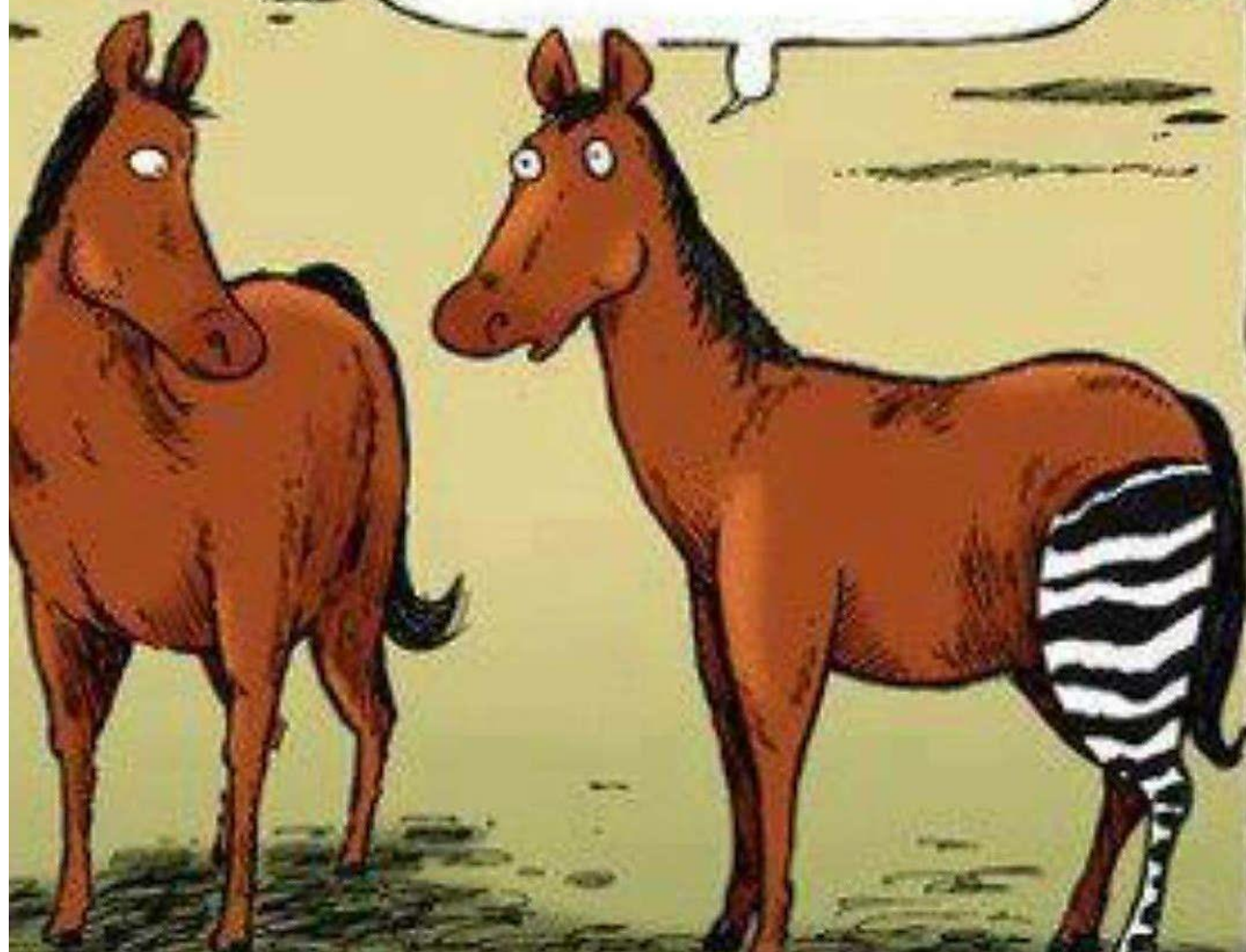
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Learning Objectives

- 1. Review the many diagnostic categories that can cause hip pain.**
- 2. Debate what can be done within the primary care setting and when it is appropriate to refer.**
- 3. Discuss ways to promote the advancement of musculoskeletal care in correctional facilities.**

I CAN'T SAY I'M
ENTIRELY PLEASED WITH
MY HIP REPLACEMENT.



Differential Diagnosis (categories)

- Lumbar radicular or somatic pain
- Sacroiliac joint related pain
- Coccydynia
- Neuralgia - Sciatic/ Pudendal
- Enthesopathy
- Sacral bone stress injury
- Middle Cluneal Neuralgia
- Low lumbar vertebrae,
- L4-S1 intervertebral joints, discs and facet joints
- Sacrum and sacroiliac joint
- Coccyx and sacrococcygeal joint
- Medial ilium
- Ligaments – iliolumbar, long dorsal, sacrotuberous & sacrospinous

- Iliolumbar
- long dorsal
- Sacrotuberous
- sacrospinous
- Thoracodorsal fascia
- Multifidus, erector spinae
- coccygeus/posterior pelvic floor
- Gluteus maximus & fascia
- Lumbosacral nerve roots
- Sciatic nerve
- Middle cluneal nerves
- Pudendal nerve
- Perineal ramus

- Lumbar radicular or somatic pain
- Superior Cluneal Neuralgia
- Enthesopathy
- Ilium
- Insertions of quadratus lumborum
- Insertion of abdominal wall onto iliac crest
- Upper gluteus maximus
- Gluteal fascia
- Posterior aspects of gluteus medius
- Gluteus minimus
- Superior cluneal nerves
- Superior gluteal nerve

- Lx radicular or somatic pain
- Hip Joint Related Pain e.g., OA, FAIS, dysplasia, instability
- Musculotendinous injury
- Deep Gluteal Syndrome
- Mid/Sup Cluneal Neuralgia
- Hip Joint
- Acetabular column
- Femoral head & upper neck
- Gluteus maximus & fascia
- Posterolateral aspects of gluteus medius & minimus

- Piriformis
- obturator internus
- gemelli
- Obturator internus
- obturator externus
- trochanteric bursae
- Vascular structures of the deep gluteal space
- Middle & superior cluneal nerves
- Deep gluteal space – sciatic, posterior femoral cutaneous,
- superior & inferior gluteal, pudendal,
- nerves to obturator internus
- quadratus femoris

- Obturator externus
- Proximal hamstring origins
- Adductor magnus origin
- Ischiogluteal bursa
- Sciatic nerve
- Posterior femoral cutaneous nerve
- Inferior cluneal nerves

Kind of a long list...



Orthopedic View of the World

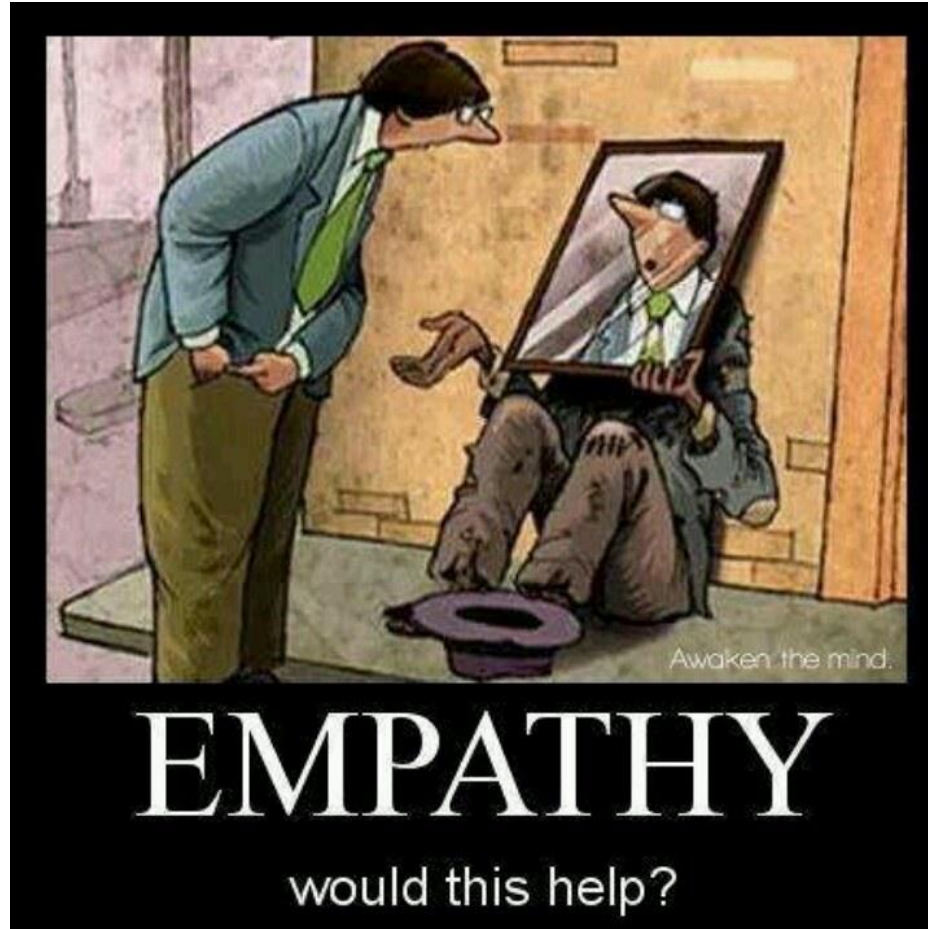


- Typical teaching of orthopedic topics starts with an anatomic lecture and anatomy illustrations.
- Followed by orthopedic pathology.
- Followed by orthopedic treatments.
- Then “other causes” as things to watch out for – almost as an afterthought.
- But our patients appear to us with Patient Oriented problems - the things that the patient actually experiences:
 - Pain
 - Weakness
 - Reduced ability

Patient Oriented Problems

- Things such as blood pressure and LDL cholesterol are not felt by the patients. They are OUR markers, that WE associate with other problems.
- The patient experiences weakness or difficulty speaking, then WE call it a cerebral vascular accident.
- The patient only cares about recovering speech and strength. Then, avoiding recurrence.

Primary Care View of the Patient



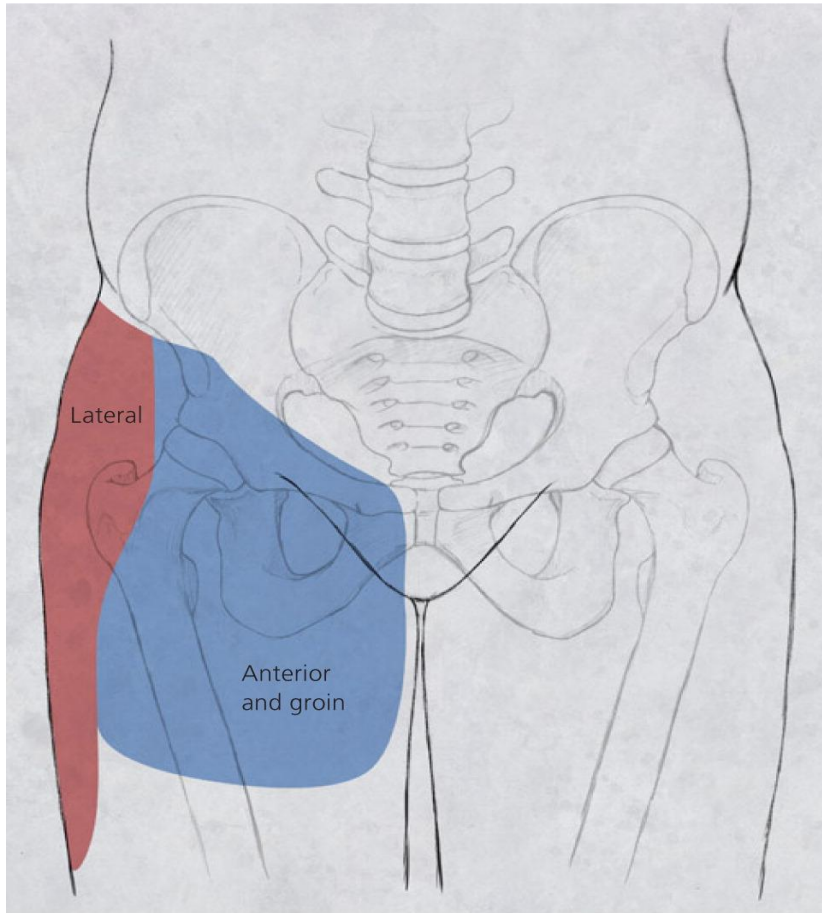
Seeing the Patient as Yourself

- Our patients want us to understand how and what they FEEL.
 - Then they want us to figure out what they have.
 - Then they want to know what might be done about it.
-
- Today I'm not going to start with what's articular or orthopedic.
 - Today I'm going to start with what's not orthopedic.

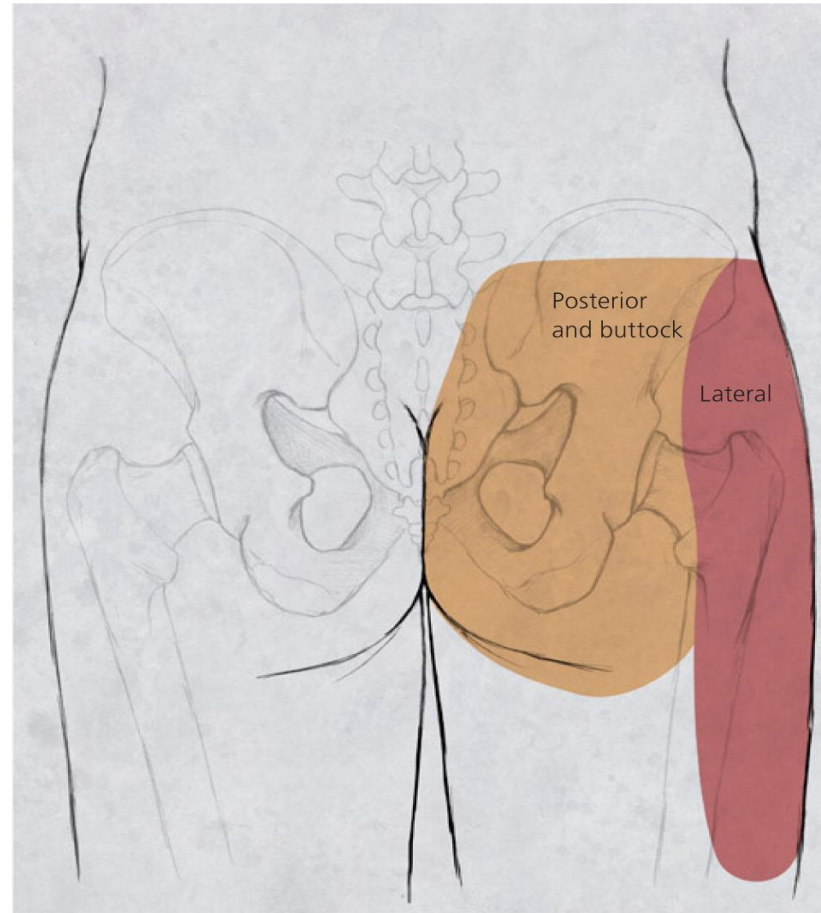
Rather than starting with orthopedic options,
lets sort this out by:



Anterior view



Posterior view



Anterior Hip Area Pain



Anterior Hip Area Pain

Extra-Articular:

- Intra-abdominal or intrapelvic pain associated with urinary or bowel
- Symptomatic cyclic pain associated with menses
- Ectopic pregnancy
- Anterior muscle, tendon and ligament strains, tendinosis, etc.
- Sports and other hernias
- Anterior femoral cutaneous nerve entrapment, etc.



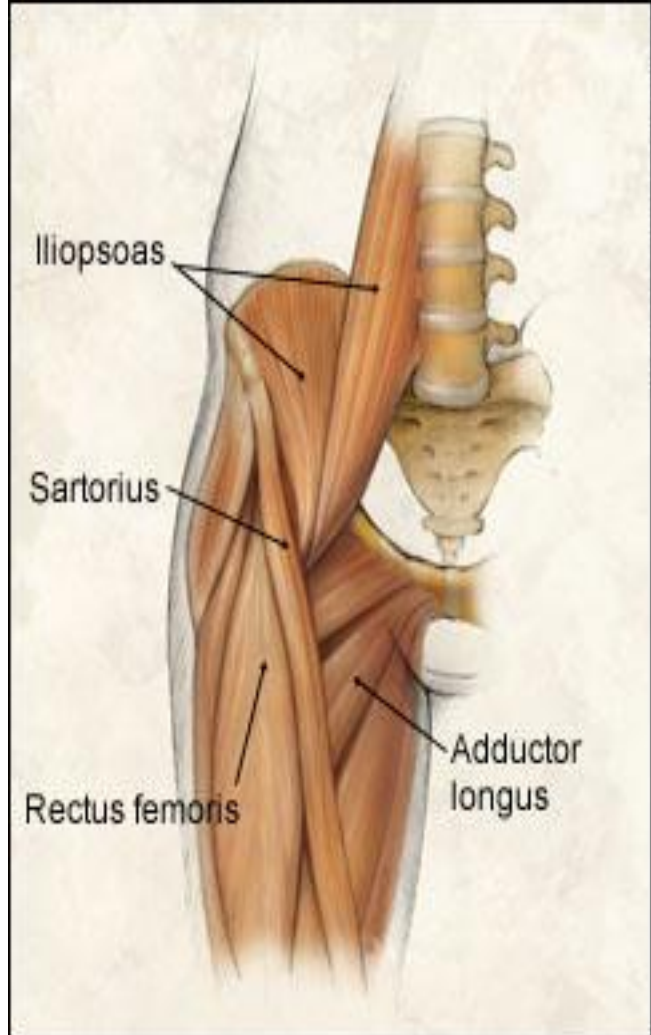
Anterior Hip Area Pain

INTRA-ABDOMINAL OR INTRAPELVIC

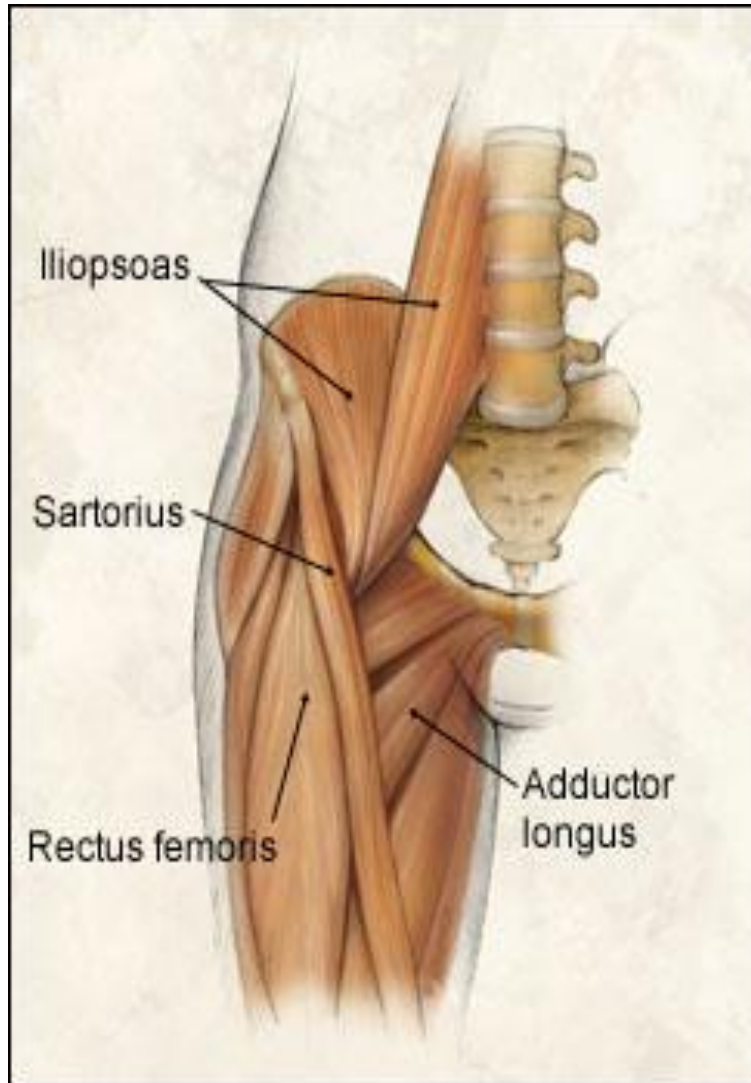
- Referred pain from intra-abdominal problems can present as anterior hip pain.
- The abdomen should be thoroughly examined for gastrointestinal causes of pain such as a mass, appendicitis or hernia.
- Or pain originating in the bladder (e.g., from a mass or infection)
- Or the female reproductive system (e.g., from ovarian cysts, endometriosis, ectopic pregnancy, etc.)
- Imaging or other testing may be guided by history and physical findings.

Anterior Hip Area Pain

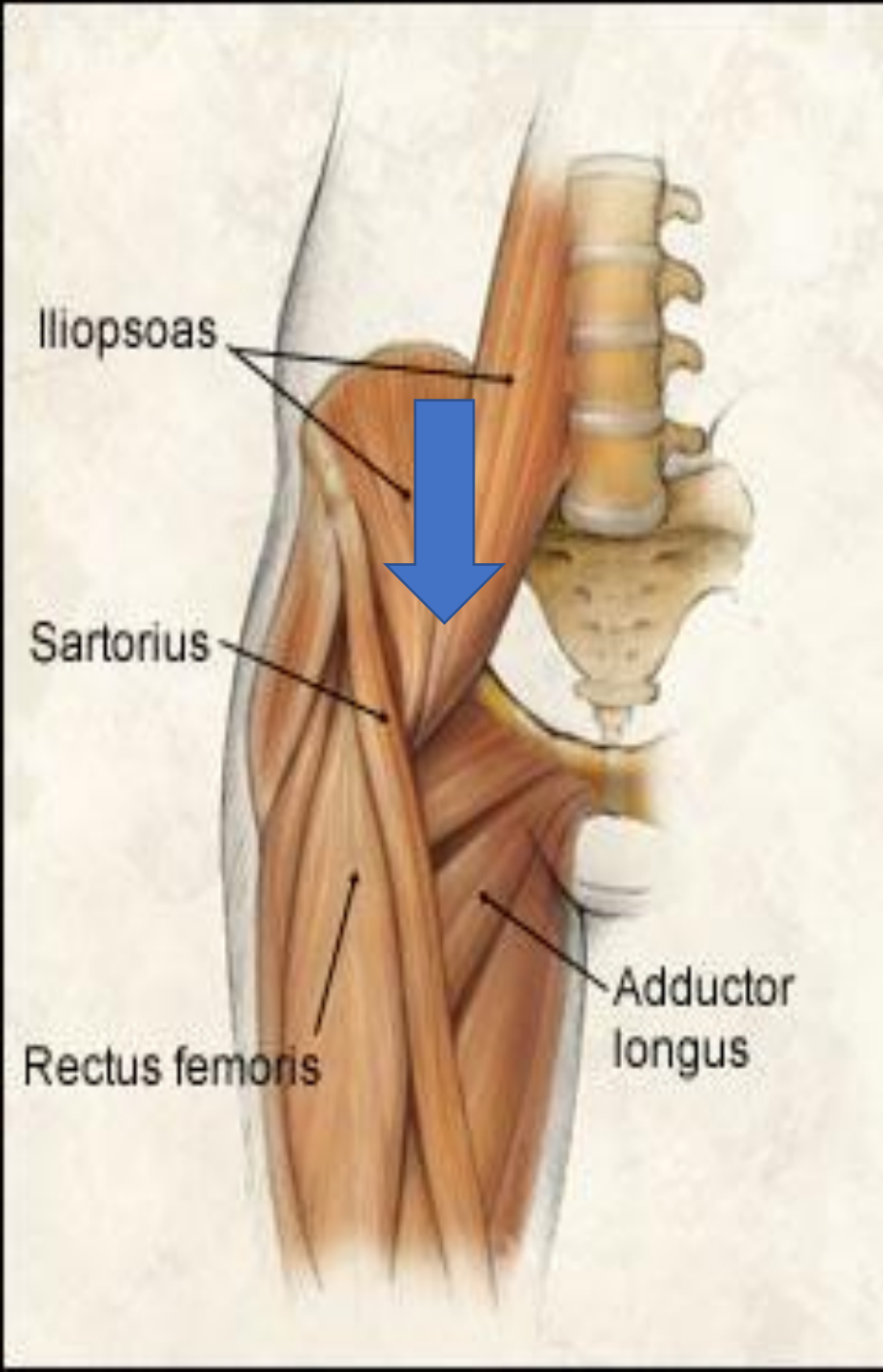
MUSCULAR/TENDONOUS



- A strain is an acute injury to a muscle.
- A sprain is an acute injury to a ligament.
- Tendinosis (“tendonitis”) is the term for acute inflammatory or chronic degenerative tendon or peritendon changes secondary to overuse or misuse.
- Enthesopathy is pain at a muscle/bone attachment.
- The anterior hip muscles most likely to be injured - rectus abdominis, iliopsoas, adductor longus and rectus femoris. Commonly the injuries occur at the muscle-tendon junction.



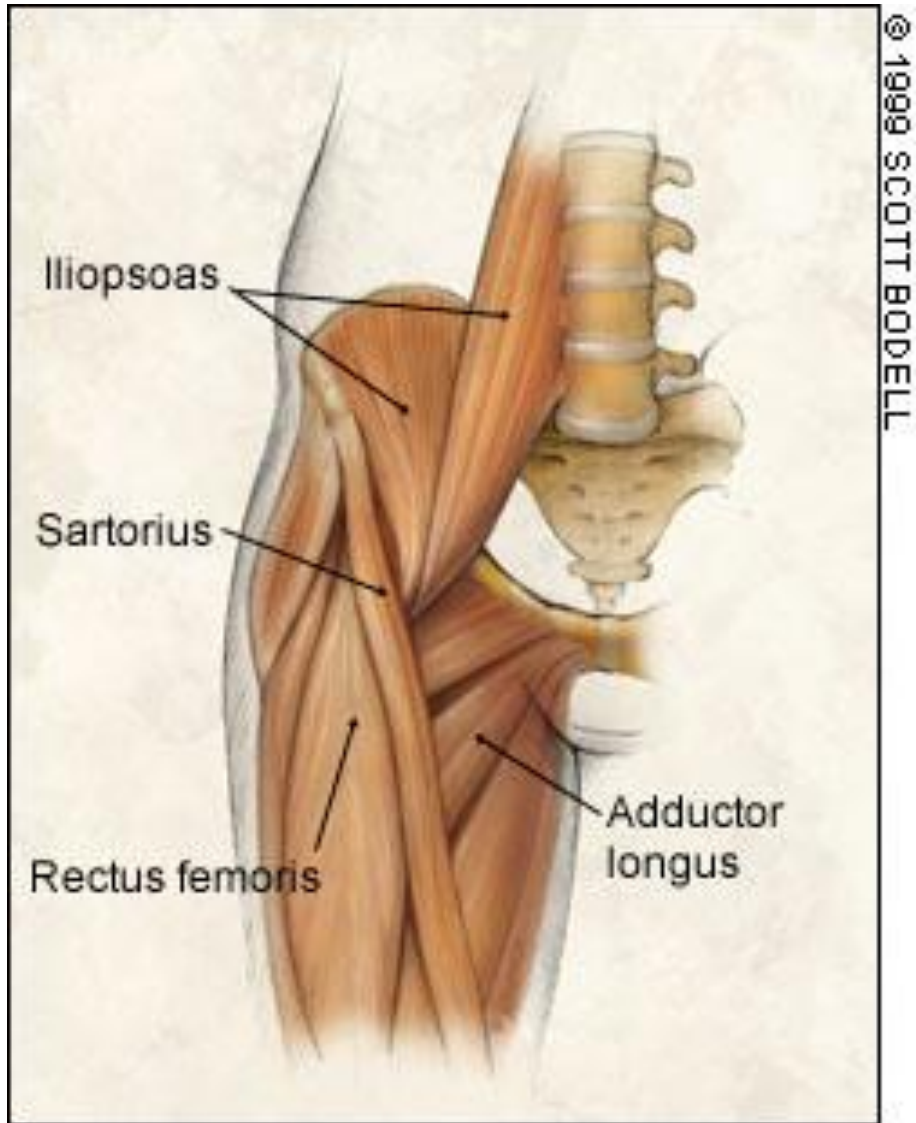
- Acute injuries generally present abruptly with pain that increases with continued activity, swelling and ecchymosis.
- Chronic injuries (tendonitis) often present insidiously with increasing activity intolerance in a setting of relative overuse.
- The physical examination may reveal swelling or ecchymosis, along with local tenderness or crepitus (tendonitis) when more superficial structures are involved.
- Findings also include pain and loss of flexibility during passive stretch, and pain and weakness during muscle contraction against resistance.



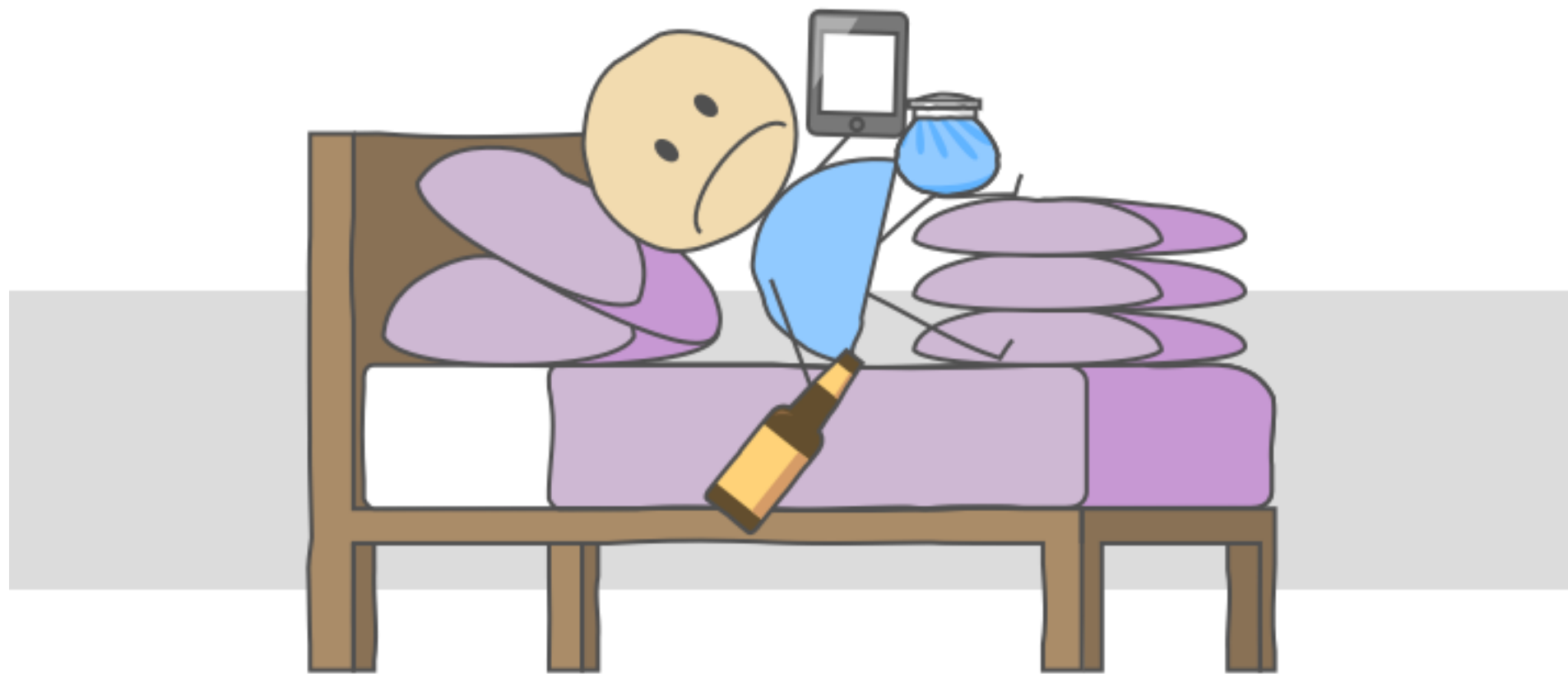
In patients with iliopsoas tendinosis, which is also known as, "internal snapping hip," a "snap" or deep "clunk" may be felt or heard over the tendon at the hip flexor crease as the hip moves from flexion to extension.

The clunk is secondary to snapping of the iliopsoas tendon medially to laterally across the femoral head or, less frequently, the iliopectineal eminence.

Inflammation of the iliopsoas bursa may also be present.



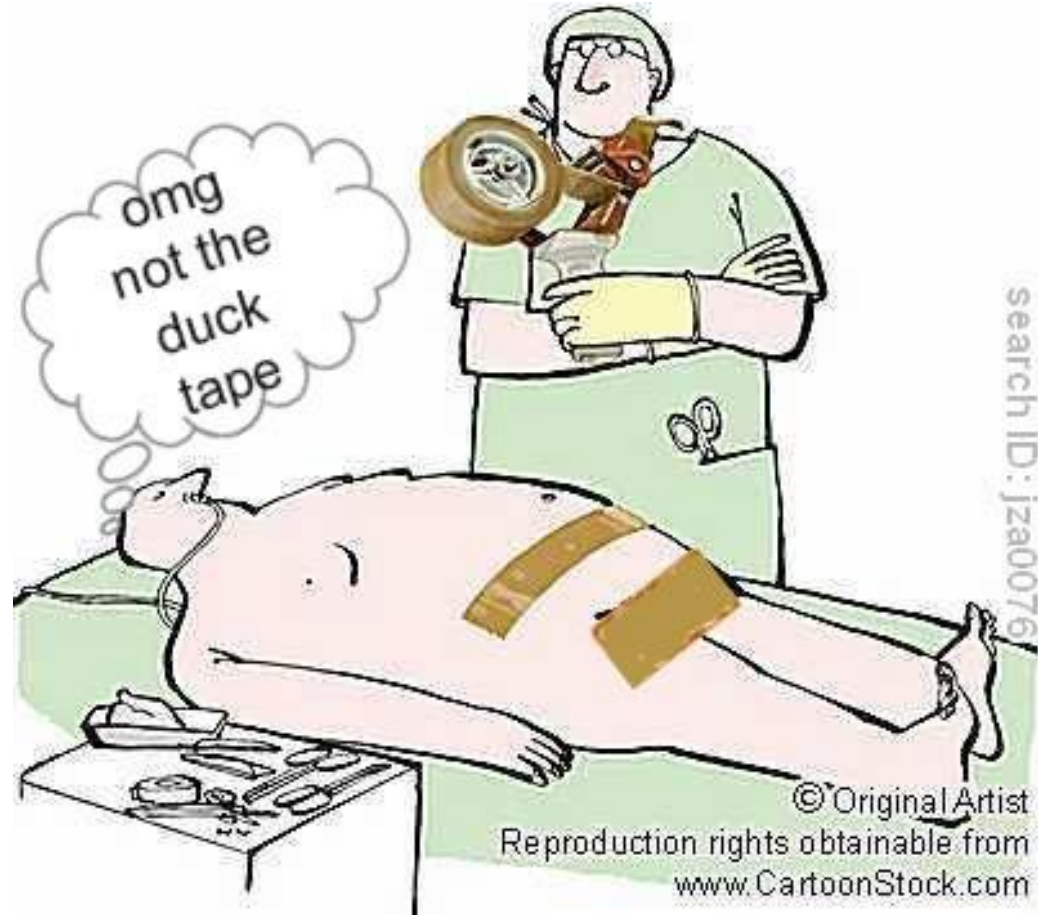
- Rectus abdominus strains are tender over the abdominal wall superficially, and pain increases with trunk flexion.
- Rectus femoris strains are tender anterior and slightly lateral of the hip. Pain is increased with knee extension and hip flexion.
- Iliopsoas strains. The iliopsoas starts deep in the pelvis and inserts just anterior to the true hip joint. It might be tender at this point if the strain is here. It is tender to hip flexion and internal rotation. (FABER test)
- Adductor longus strains are the typical “groin strain”. It is tender sublingual at the inner thigh and tender to hip adduction.



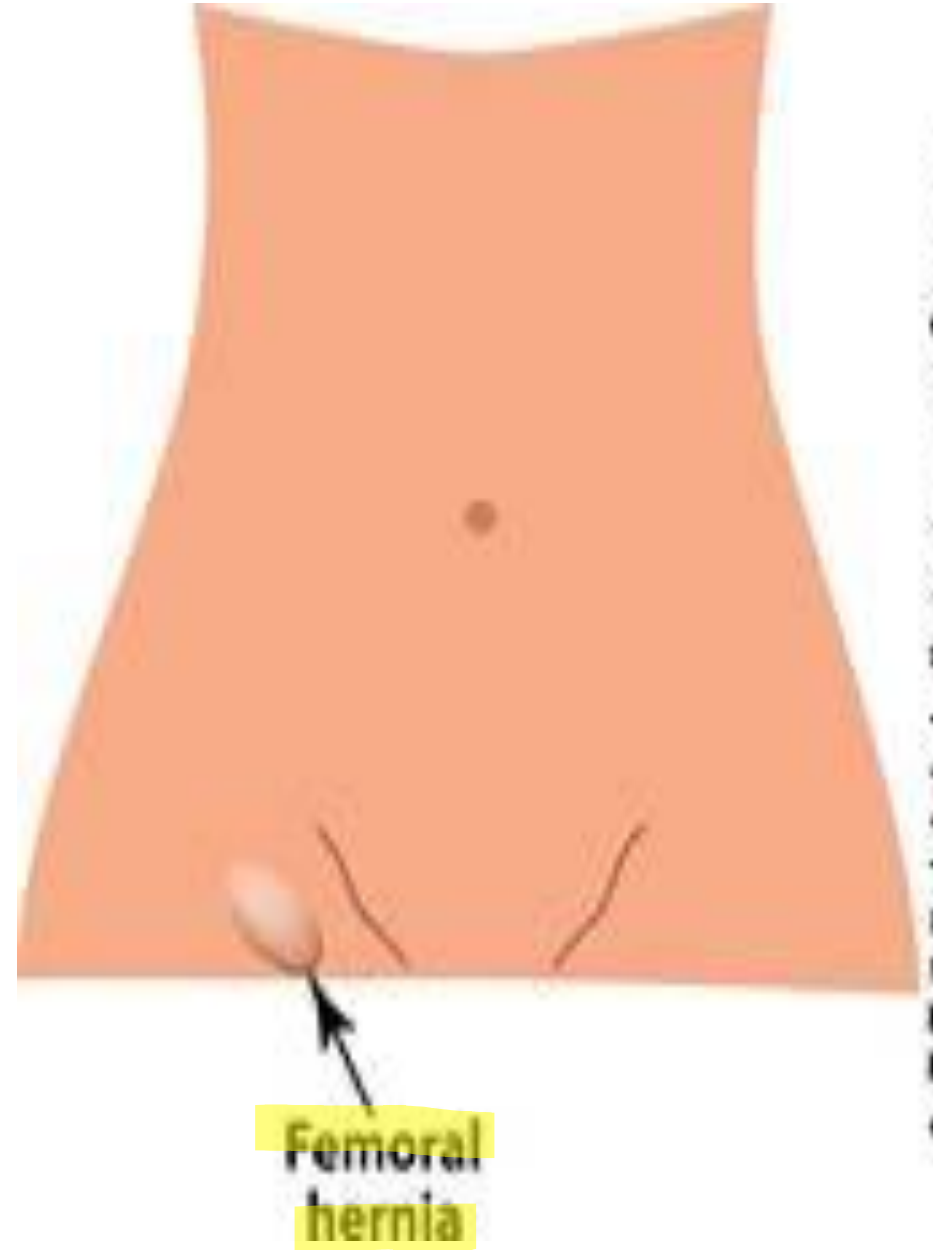
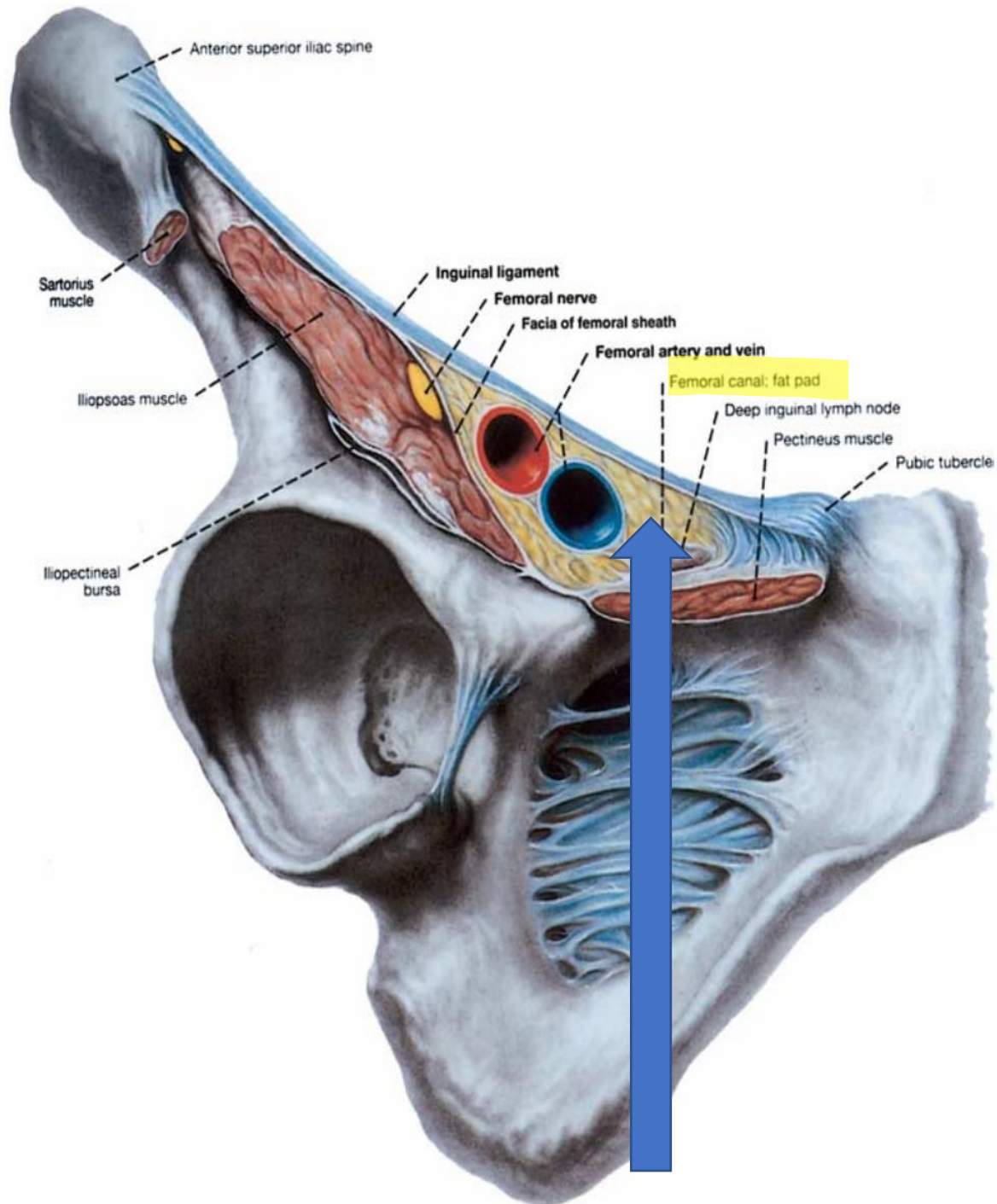
- For acute strains, treatment initially consists of rest, application of ice (for superficial strains), compression and avoidance of painful activity. Crutches are helpful if ambulation causes significant pain. Gentle pain-free stretching and the use of ice, heat and other treatment measures should follow.
- Strengthening exercises, general endurance training and sports-specific activity should precede a full return to sports participation.
- Surgical treatment is generally not required for return of adequate function - even for complete tears. Muscle tissue is not amenable to surgical repair (only the capsule/fascia/tendon), and most injuries occur at the muscle-tendon junction.

- Tendinosis requires similar conservative treatment, although the initial period of disability is generally not as great. Rehabilitation should also include scrutiny of the training program that led to the problem, correcting poor technique that may be causing tissue overload and addressing regional biomechanical dysfunction.

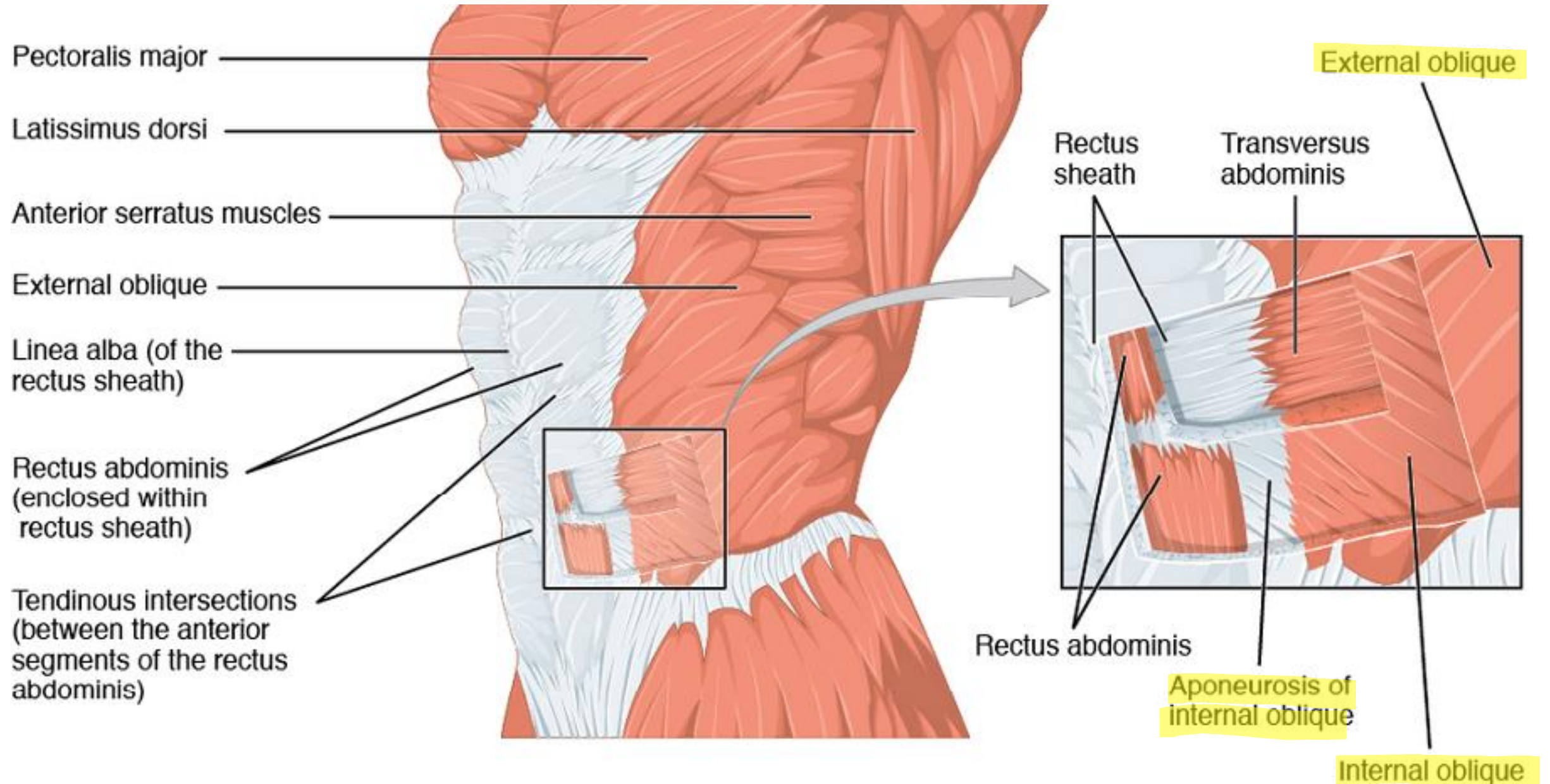
Anterior Hip Area Pain HERNIA



- It is widely accepted that femoral and inguinal hernias can cause anterior hip pain.
- However, increased attention is being given to nonpalpable hernias, often referred to as “sports hernias.” Sports hernia is a tear of the oblique aponeurosis, with or without herniation, injury or avulsion of the internal oblique muscle or fascia, tearing of the external oblique muscle and aponeurosis with ilioinguinal nerve entrapment, or fascial obturator nerve entrapment.
- It is particularly common in soccer, rugby, hockey and other “cutting” and sprinting sports. There is tenderness at or near the superficial inguinal ring. It is commonly diagnosed based on history and clinical findings. Ultrasound or MRI may be useful in confirming.



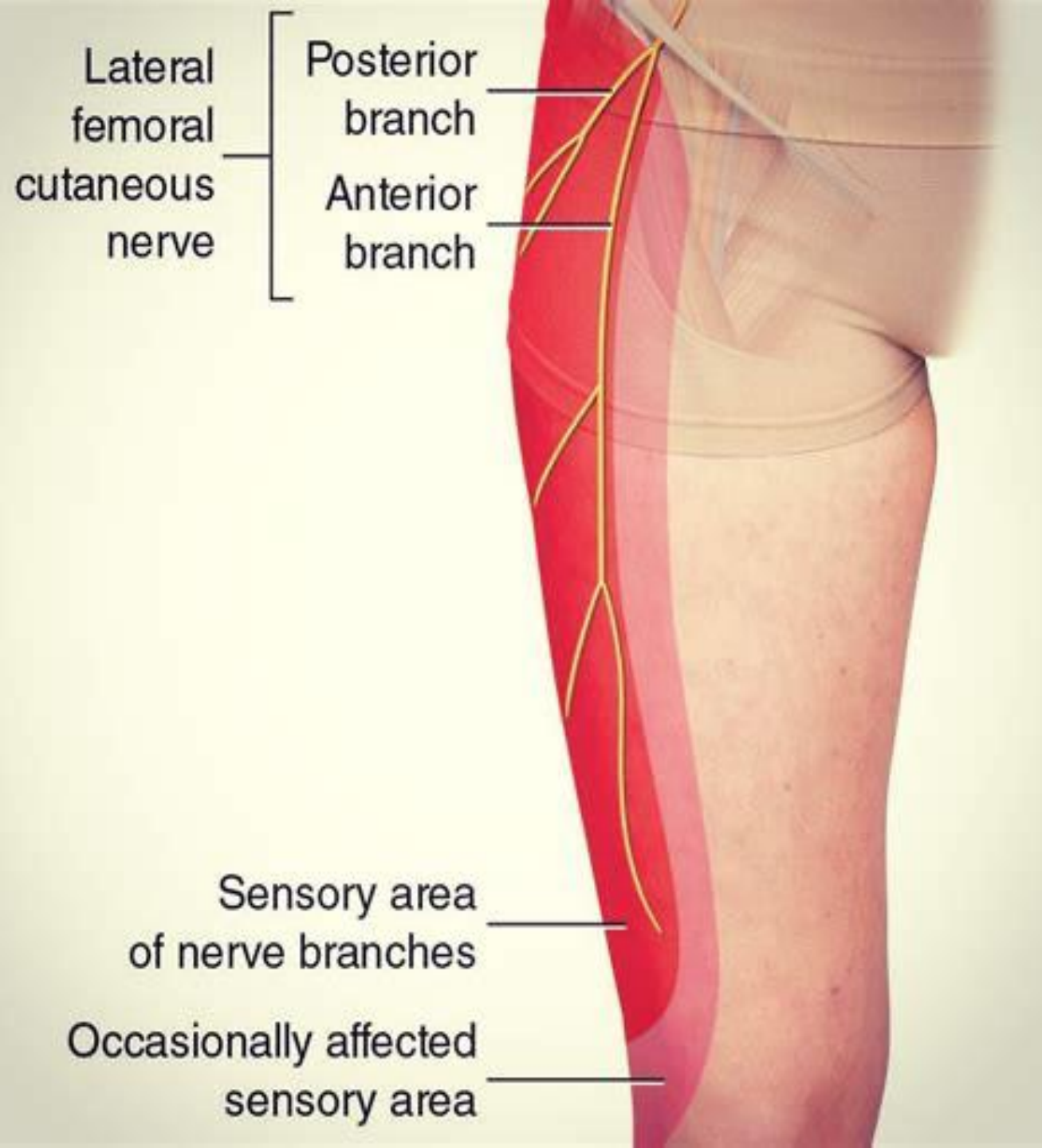
Sports Hernia



Anterior Hip Area Pain

ANTERIOR FEMORAL CUTANEOUS NERVE ENTRAPMENT

- Also known as Meralgia Paresthetica. The most common cause is nerve entrapment at the lateral border of the rectus muscle. It is caused by compression of an anterior cutaneous nerve as it courses through the abdominal wall musculature and aponeuroses. Intra- or extra-abdominal pressure or scar formation causes traction on the nerve, leading to nerve irritation and, potentially, nerve ischemia.
- Weight loss, stretches and physical therapy can be helpful. Trigger point injection is sometimes tried.



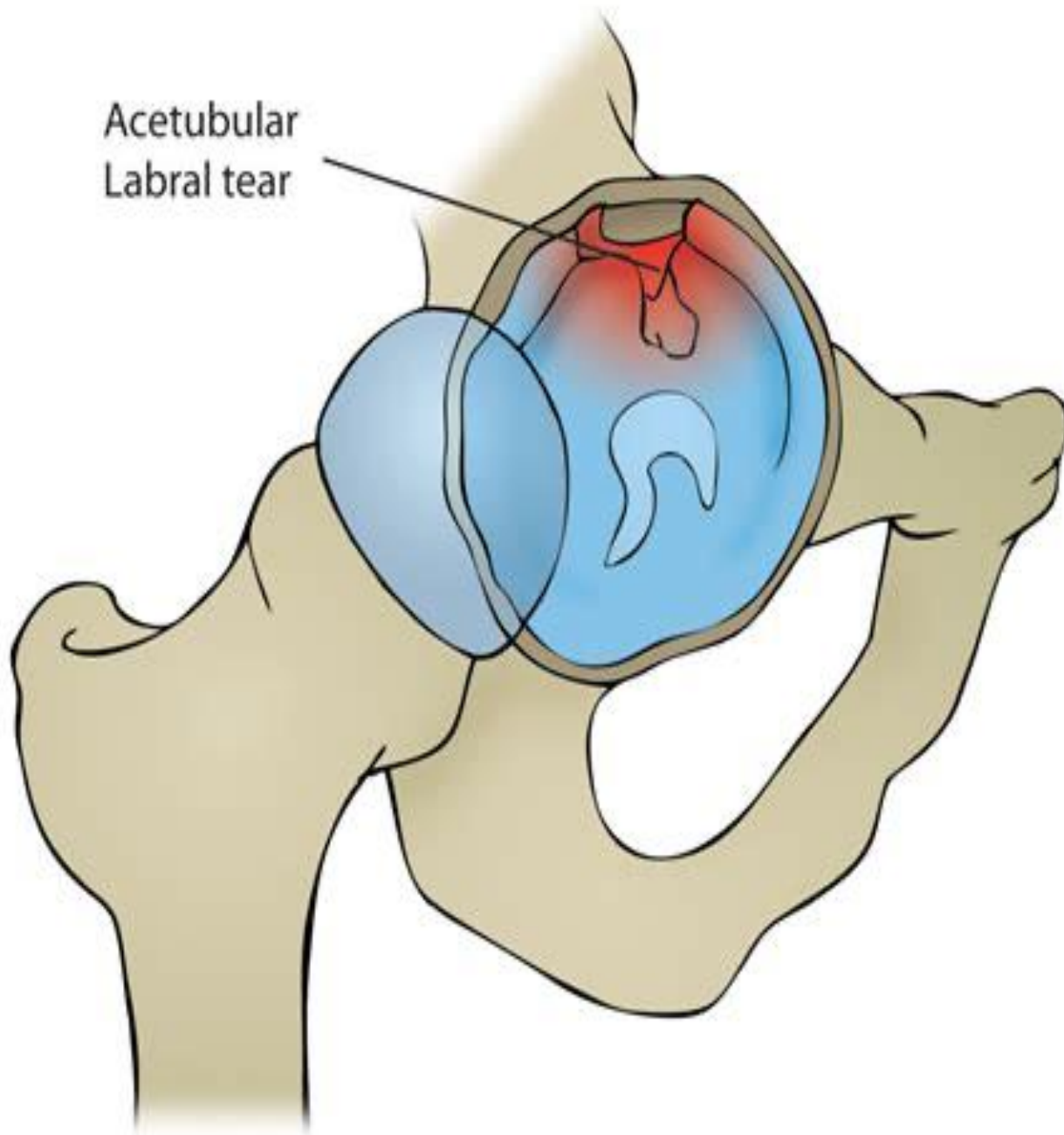
Anterior Hip Area Pain (PERI-ARTICULAR) FLEXOR TENDONOPATHY

- The anterior equivalent of proximal hamstring injury is proximal flexor tendon strain, tear or enthesopathy. Pain and possibly tenderness over the hip bony prominence, anterior superior iliac spine, anterior inferior iliac spine, or pubic symphysis can be found on exam.
- Sometimes pain can be reproduced with hip flexion strength testing. Young, athletic patients with acute injury (vs. gradual onset) and pain with hip range of motion are the most common.
- For chronic pain, gentle stretching and occasionally local injection can be helpful.

INTRA-ARTICULAR LABRAL TEARS

- Patients with acetabular labrum tears may present with anterior hip pain and a history of a sports-related or traumatic injury. They may also be associated with repetitive motions.
- Labral tears may cause a popping, catching, or clicking sound associated with activities such as dance, gymnastics, hockey, basketball, and soccer.
- Physical examination for labral tears should include flexion adduction internal rotation and flexion abduction external rotation tests.

Acetubular
Labral tear



INTRA-ARTICULAR: LABRAL TEARS

- A standing radiograph should be the initial imaging test.
- 3-tesla MRI is as sensitive and specific as magnetic resonance arthrography and does not require a procedure for contrast injection.
- Labral tears and femoroacetabular impingement are often comorbid conditions in young active patients. These patients are more likely to benefit from surgical intervention for these conditions, especially those with both conditions.
- The indications for unimpinged labral repair include patients with symptoms that have persisted despite non-surgical treatment. Contra-indications to labral repair include significant hip osteoarthritis.

*I used to do the "Twist and Shout,"
but then I got a hip replacement
and I was fine.*



The elephant in the room is finally answering
the call



"No, this is the elephant."

INTRA-ARTICULAR: OSTEOARTHRITIS

- In adults over 50, osteoarthritis of the femoroacetabular joint is the most common cause of anterior hip pain. Patients may have pain with sitting and ambulating and may have an antalgic gait. Physical examination maneuvers such as flexion and internal or external rotation may reproduce pain, and range of motion may be decreased.
- Standing anteroposterior radiography of the pelvis is the radiologic test of choice and will show joint space narrowing and osteophyte formation. However, presence of these findings does not always correlate with symptom severity.
- Anesthetic injection of the hip joint may help differentiate an intra-articular cause of pain from other causes (e.g., lumbar spine or extra-articular pain), and corticosteroid injection may be briefly therapeutic for intra-articular pain. Joint replacement may be indicated, depending on age, clinical presentation and level of functional impairment.

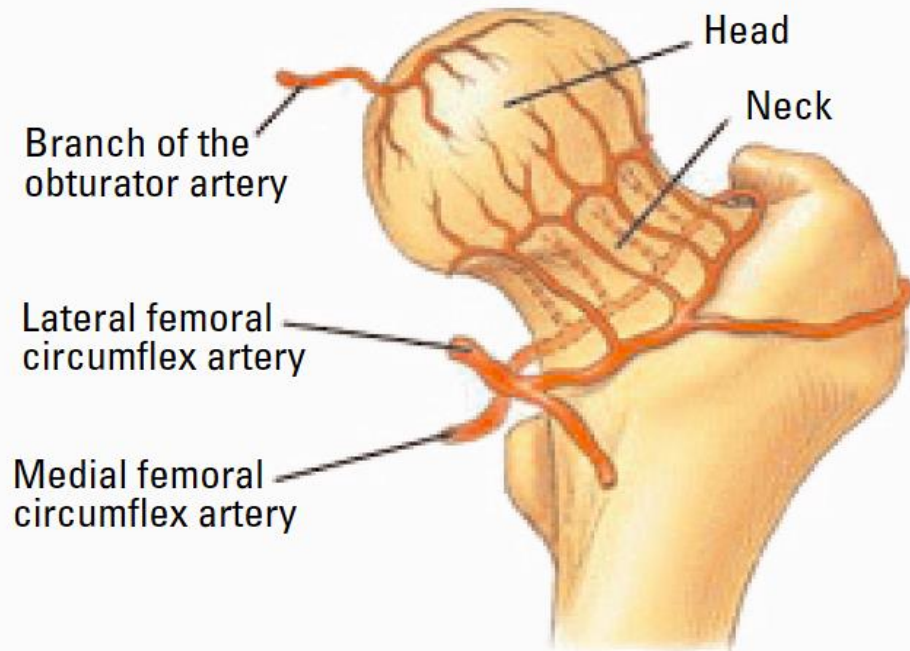
- The American College of Rheumatology (ACR) introduced a 2019 a Guideline for Managing Patients with Degenerative Joint Disease of the Hip (as well as knee and hand).
- The panel made strong recommendations for a comprehensive approach that includes exercise, self-efficacy programs, weight loss, tai chi, and assistive devices (e.g., canes), as well as topical, oral, and intra-articular steroids.
- The panel made conditional recommendations in favor of education, cognitive behavior therapy, and other forms of exercise. They made conditional recommendations in favor of acetaminophen, duloxetine (Cymbalta), and acupuncture.

- They made strong recommendations **against** the use of transcutaneous electrical nerve stimulation, bisphosphonates, glucosamine, hydroxychloroquine (Plaquenil), methotrexate, biologics, platelet-rich plasma or stem cell injections, chondroitin, and intra-articular hyaluronic acid (hip).
- The panel made conditional recommendations against many other measures, including topical capsaicin, botulinum toxin, prolotherapy, colchicine, opioids, fish oil, vitamin D, massage, and wedged insoles or modified shoes.

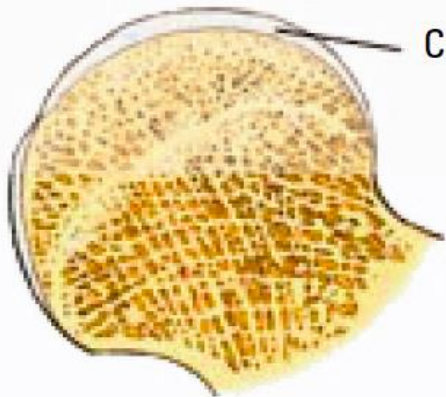
INTRA-ARTICULAR: AVASCULAR NECROSIS

- Avascular necrosis of the femoral head is a type of osteonecrosis due to disruption of blood supply. This commonly presents in middle-aged to older adults.
- Risk factors: alcohol use, smoking, systemic corticosteroid use, hemoglobinopathies, chemotherapy, metabolic syndrome, obesity, femoral neck fracture or dislocation of the femoral head. Chronic steroid use and excessive alcohol consumption represent the bulk of non-traumatic etiologies, contributing to more than 80% of them.
- Early detection can be joint sparing, but no physical exam or x-ray finding is specific. Late-stage disease may be visible on a radiograph, but earlier diagnosis often requires MRI or computed tomography.

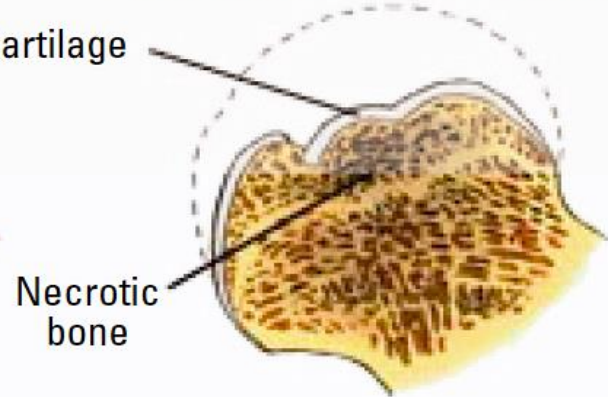
AVASCULAR NECROSIS



Normal Head



Avascular Necrosis Head



Anterior Hip Area Pain

HIP FRACTURE

- Hip fractures cause significant morbidity and increased mortality. Women experience 80% of hip fractures, and the average age is 80 years. Most hip fractures are associated with a fall, although other risk factors include decreased bone mineral density, reduced level of activity, and chronic medication use.
- Patients typically have pain in the groin and are generally unable to bear weight
- Exam: displaced fractures have external rotation and abduction, and the leg will appear shortened. Plain radiography usually confirms the diagnosis. If an occult hip fracture is suspected and plain radiography is normal, MRI should be ordered.

Anterior Hip Area Pain

HIP FRACTURE

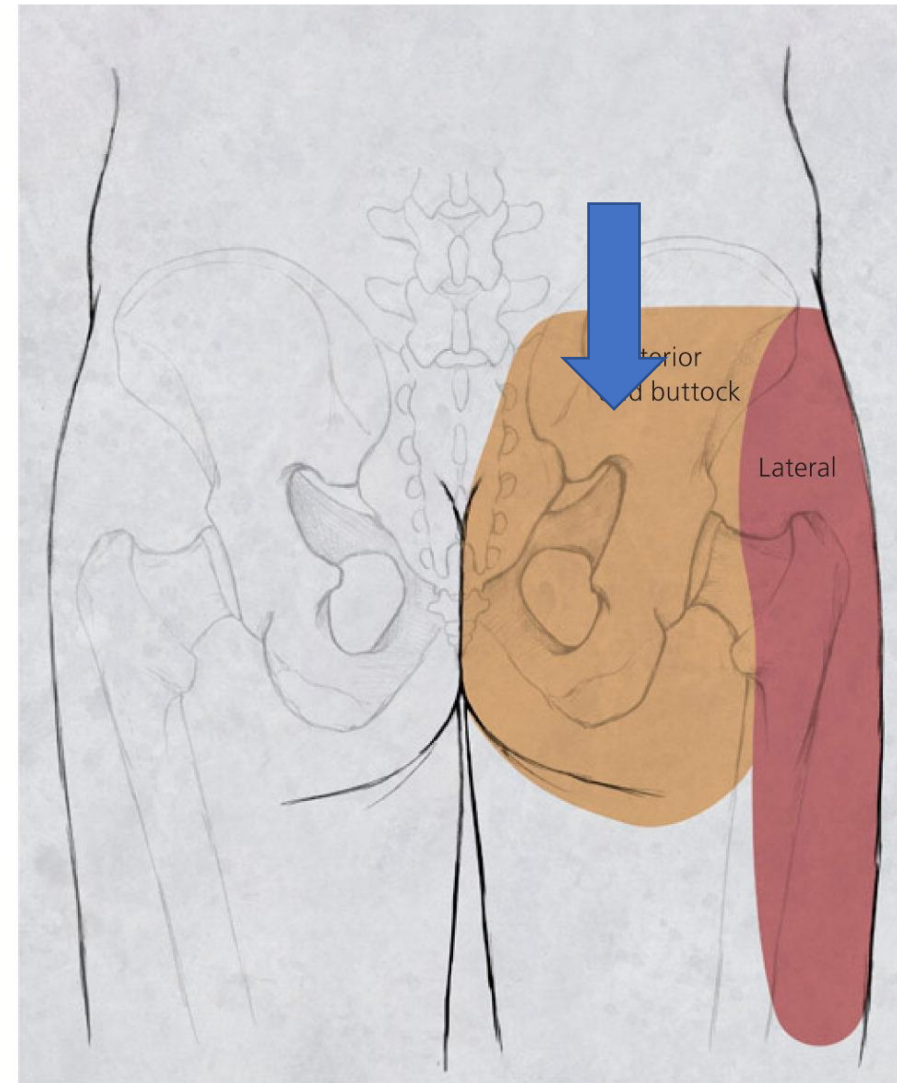
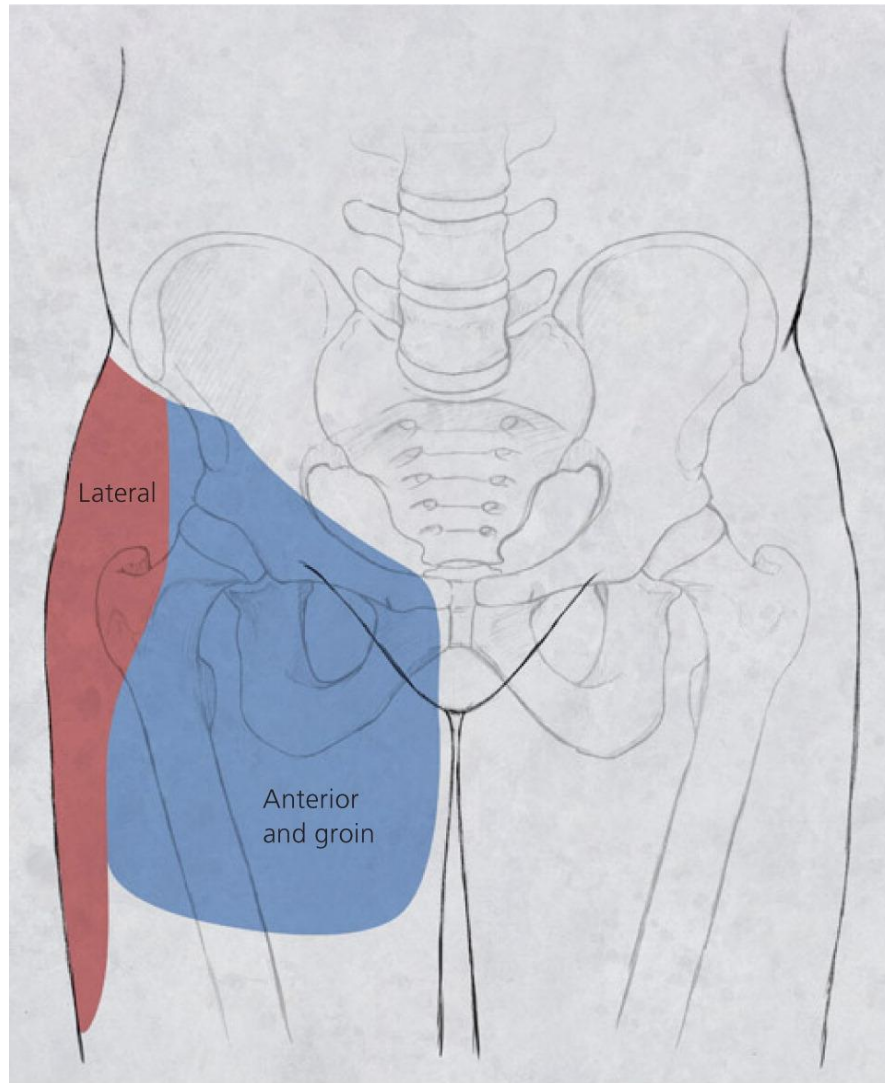
- Medications associated with hip fractures:
- Psychoactive medications, including selective serotonin reuptake inhibitors and benzodiazepines (risk of falls).
- Long-term use of proton pump inhibitors, corticosteroids, aromatase inhibitors, loop diuretics and higher dosages of levothyroxine are associated with an increased of fracture (osteopenia).
- Hormone replacement therapy with estrogen (HRT) was associated with decreased risk of hip fracture (OR 0.80, 95% CI 0.65-0.98) (Calcif Tissue Int. 2020 Jul;107(1):1-9.)

Guess what area is next!



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Posterior Hip Area Pain



Posterior Hip Area Pain

INTRA-ABDOMINAL/PELVIC

- A reverse of anterior pain, the pain generator is generally in posterior peritoneal or retroperitoneal spaces.
- Renal/ureteral
- Uterine
- Appendix
- Colonic – IBD, diverticulitis
- Neoplastic

Posterior Hip Area Pain

DEEP GLUTEAL SYNDROME (Sciatica/piriformis)

- Patients with deep gluteal syndrome have deep buttock pain that is aggravated by sitting (especially in a car) and sciatica symptoms.
- The sources of these non-discogenic sciatic and other nerve entrapments vary.
- The most common sites are beneath the piriformis muscle (67.8%), sciatic foramen (6%), ischial tunnel (4.7%).
- The seated piriformis stretch test may reproduce this pain.

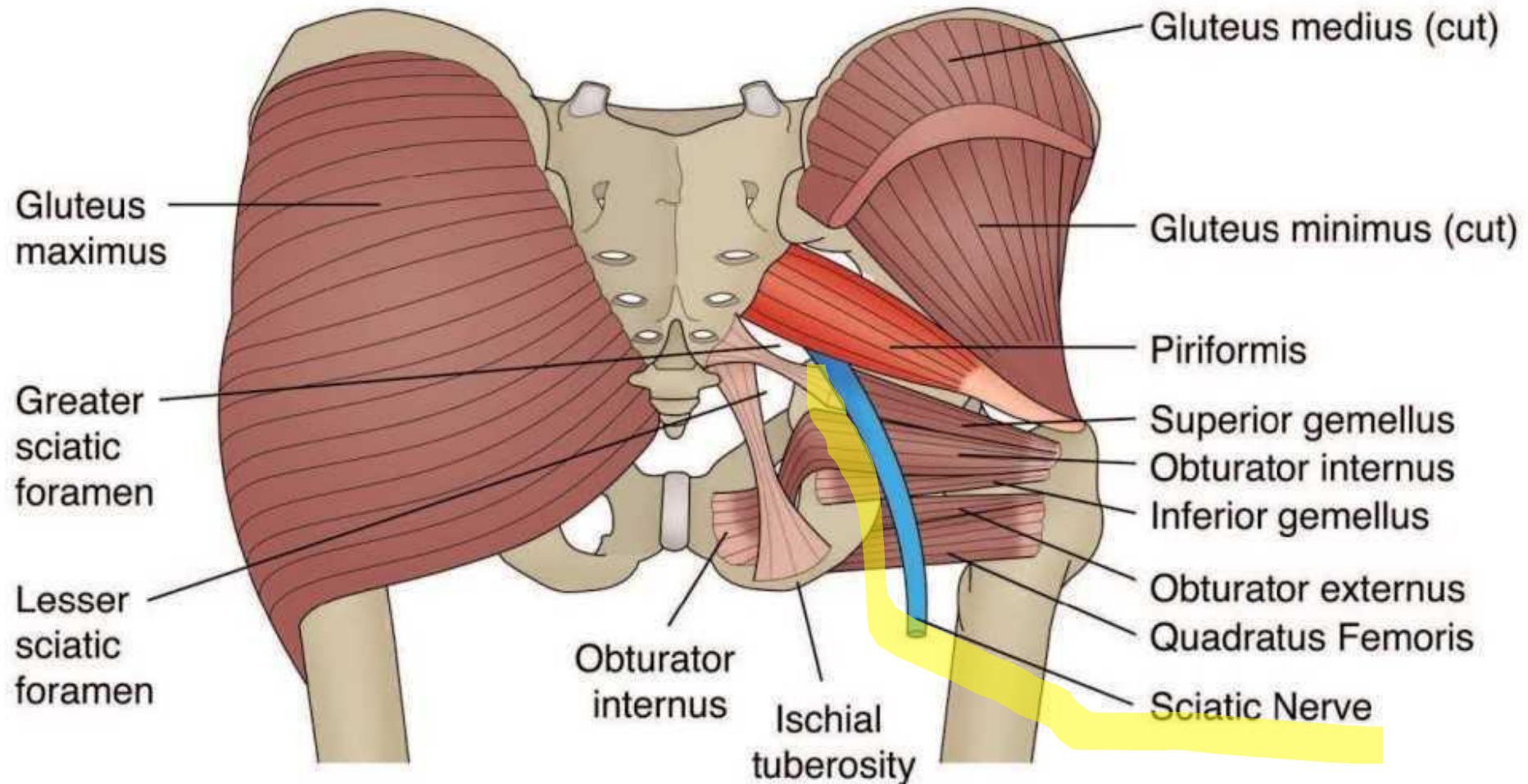
Seated Piriformis Stretch Test

**Seated
Piriformis
Stretch**



Posterior Hip Area Pain

DEEP GLUTEAL SYNDROME (including piriformis syndrome)



FABER TEST

(Flexion – ABduction – External Rotation)



DEEP GLUTEAL SYNDROME TREATMENT

- Piriformis stretching is most helpful, along with general hip/pelvis stretching and strengthening. Surgery is occasionally done in attempt to release the nerve, with mixed results.

LYING PIRIFORMIS STRETCH

TIP

Keep your hips on the ground. Push gently on your leg for a deeper stretch.

Hold for 20 to 30 seconds. Release and repeat on the other side.



Posterior Hip Area Pain

ISHIOFEMORAL IMPINGEMENT

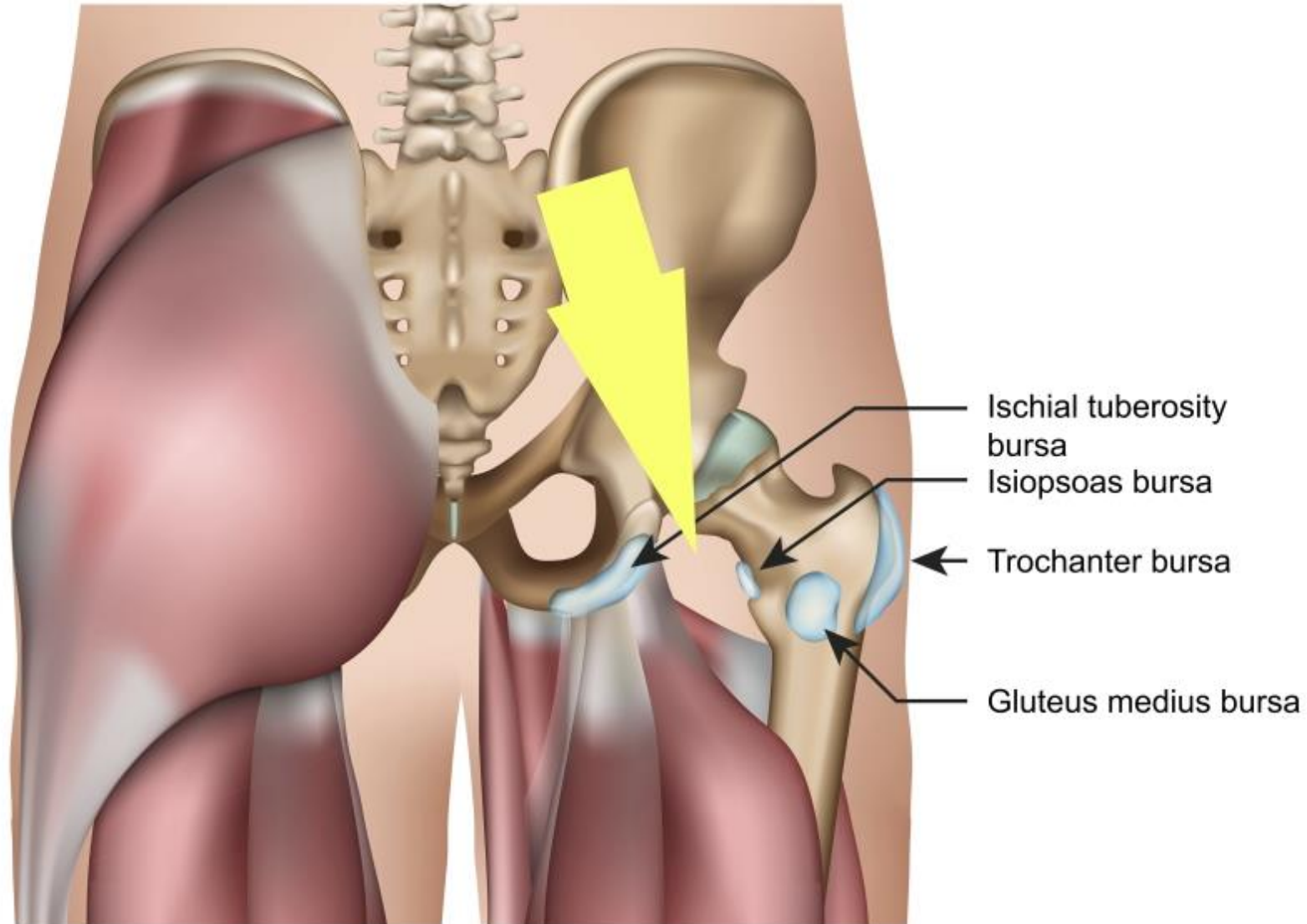
- Ishiofemoral impingement is impingement of the quadratus femoris muscle and nerve between the proximal femur at the level of the lesser trochanter and the ischial tuberosity. Patients have deep buttock pain, worsened with activities requiring a long stride, such as running. The long-stride walking test is the most sensitive and specific test for this condition. The patient is instructed to take a long step on the unaffected leg with the hip pointed forward. This narrows the space between the lesser trochanter and ischium on the posterior (affected) hip.

ISHIOFEMORAL IMPINGEMENT

Etiology

- The etiology of IFI is multifactorial and potential sources of ischiofemoral engagement include anatomic variants of the proximal femur or pelvis, functional disorders as hip instability, pelvic/spinal instability, or abductor/adductor imbalance, ischial tuberosity enthesopathies, trauma/overuse or extreme hip motion, iatrogenic conditions, tumors and other pathologies.

ISHIOFEMORAL IMPINGEMENT

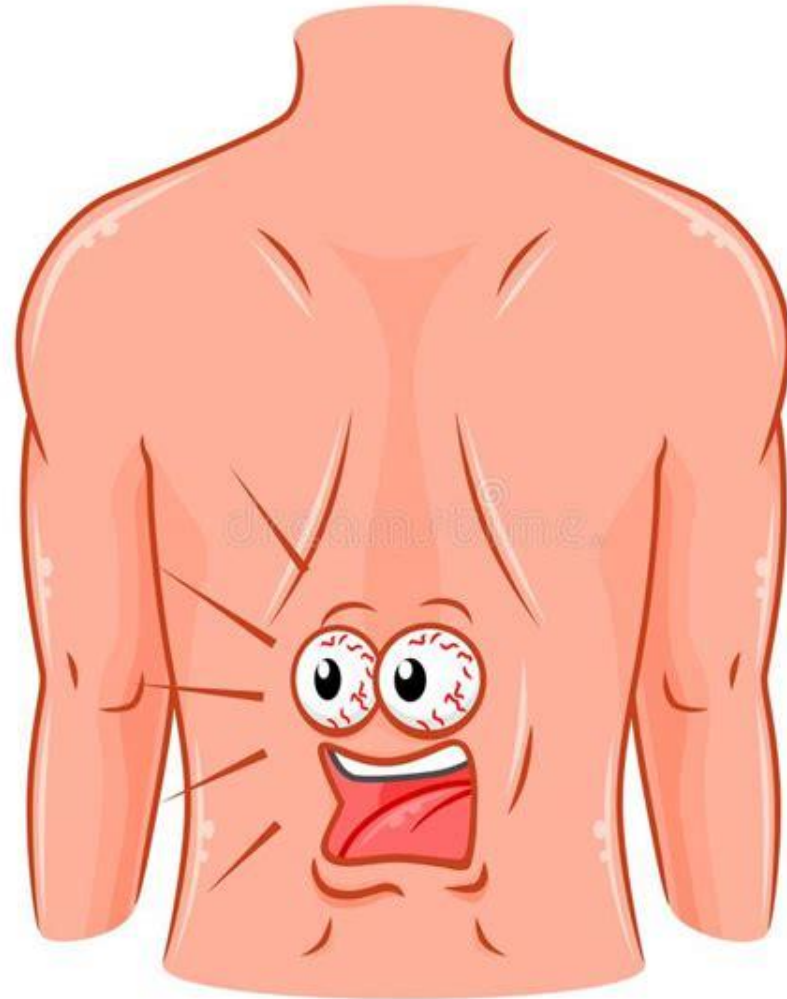


ISHIOFEMORAL IMPINGEMENT

- Physical therapy is often helpful.
- Several treatment strategies have been reported for benign IFI, and most of them have good short- to medium-term outcomes with a low rate of complications. However, there are no comparative studies to assess the superiority of one technique over another.
- Eight studies (47.1%) utilized non-surgical treatment including injection and prolotherapy, followed by endoscopic surgery (5 studies, 29.4%) then open surgery (4 studies, 23.5%). (Knee Surg Sports Traumatol Arthrosc. 2020 Sep;28(9):2772-2787.)

Posterior Hip Area Pain

LUMBAR SPINE



Posterior Hip Area Pain

LUMBAR SPINE

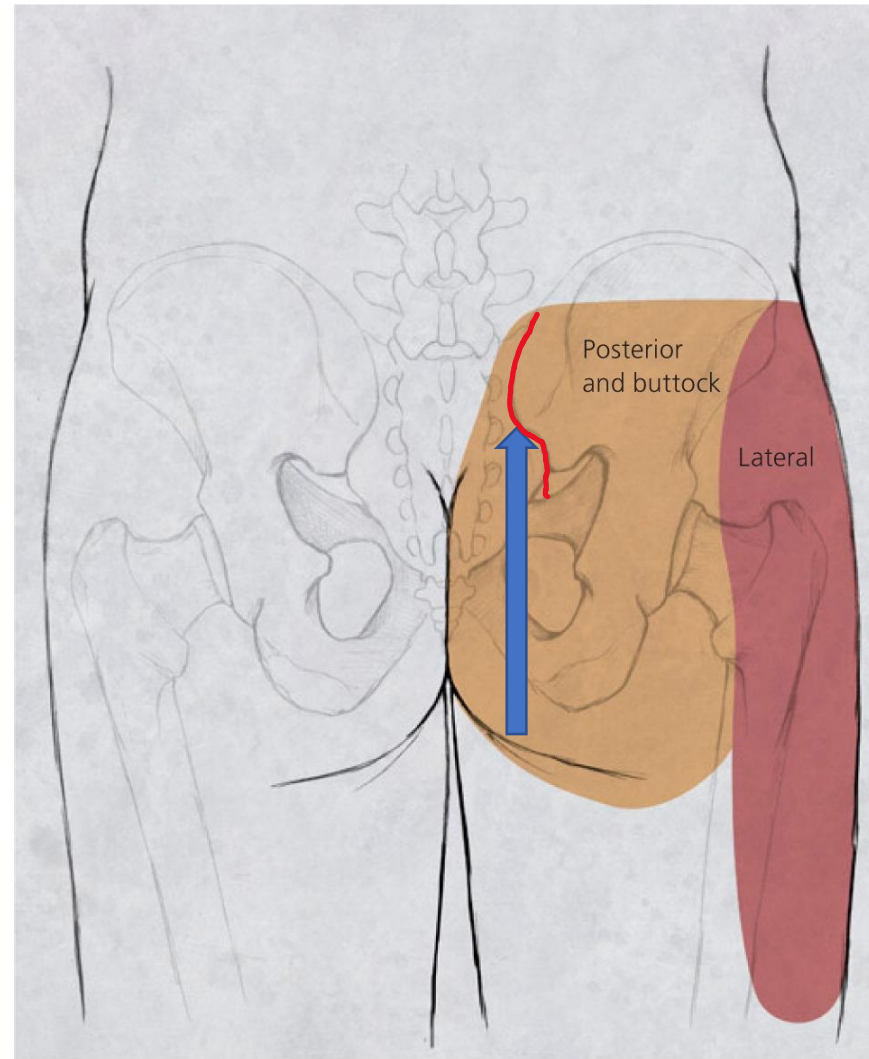
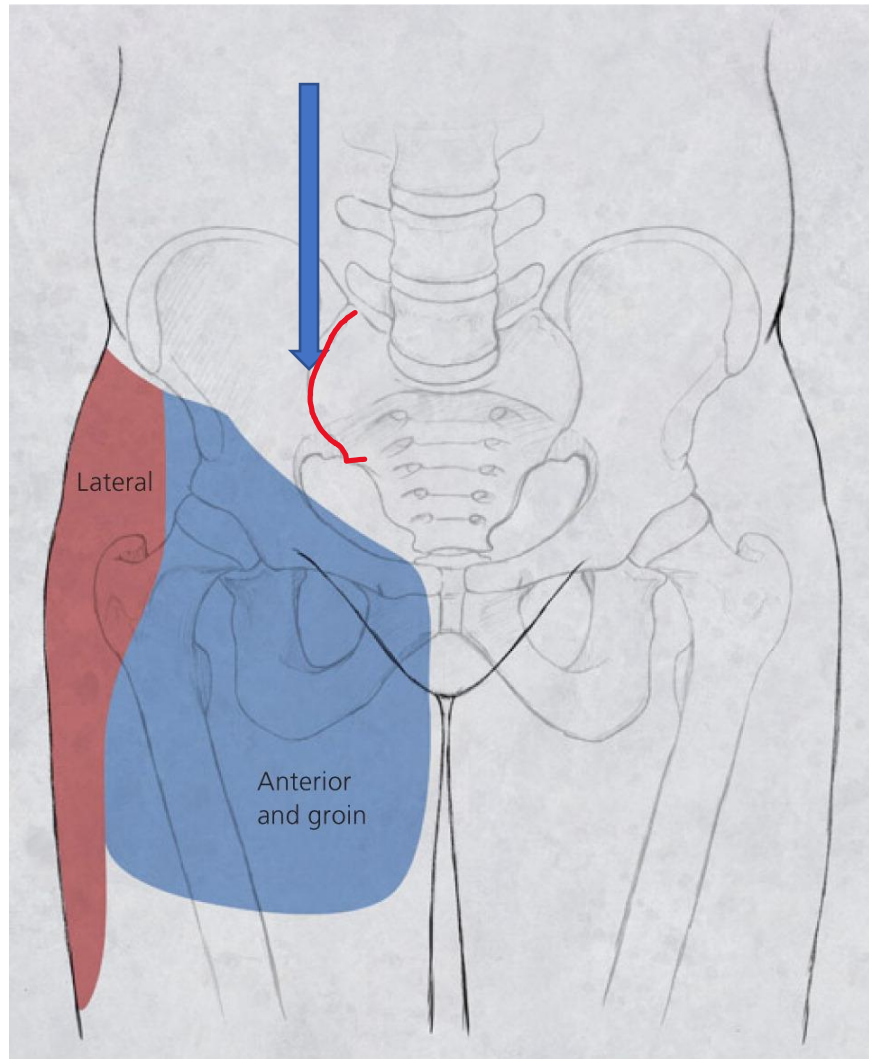
- It is not unusual for lumbar spinal issues to present as posterior hip pain.
- Pain from the lumbar spine, discs, nerve roots or musculature can be perceived to be in the posterior hip/buttock area. Patients may report previous lumbar spinal problems.
- Radiography of the lumbar spine may show degenerative disease.
- Hip joint injection may help differentiate. Nerve conduction study and MRI can help identify disk herniation and/or nerve entrapment.
- Physical therapy and other conservative care a first line.

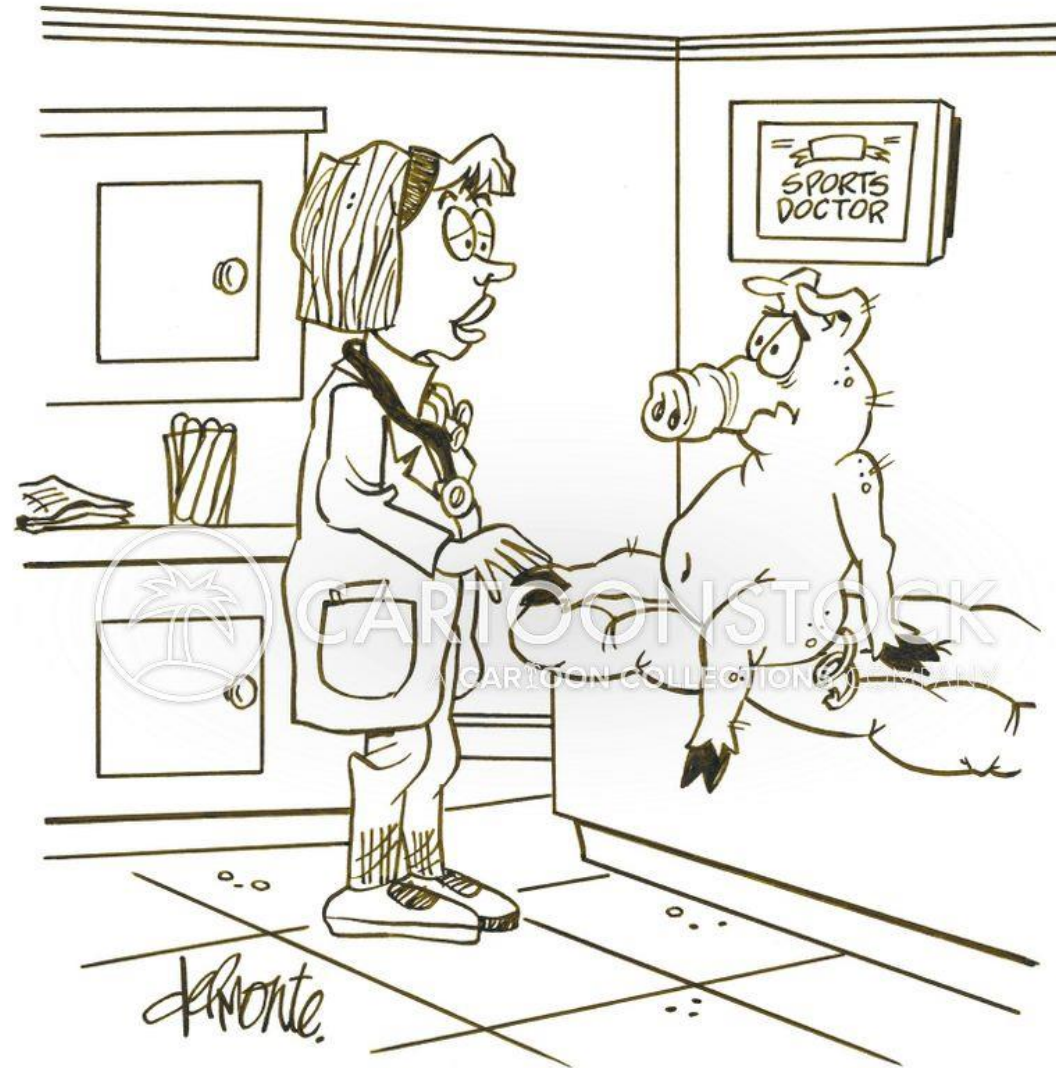
Posterior Hip Area Pain

SACROILIAC JOINT PATHOLOGY

- Sacroiliac joint dysfunction and/or arthritis may also present as posterior hip pain.
- The most common physical examination finding is tenderness to palpation over the sacroiliac joint. Sacroiliac pain typically does not occur above the L5 level, which would indicate a lumbar spinal etiology of pain.
- Radiography may show sacroiliac joint arthritic changes. Manual or image-guided injections may be a helpful diagnostic and therapeutic tool. If diagnosis is uncertain, MRI can show inflammation or arthritis at the sacroiliac joint.

SACROILIAC JOINT



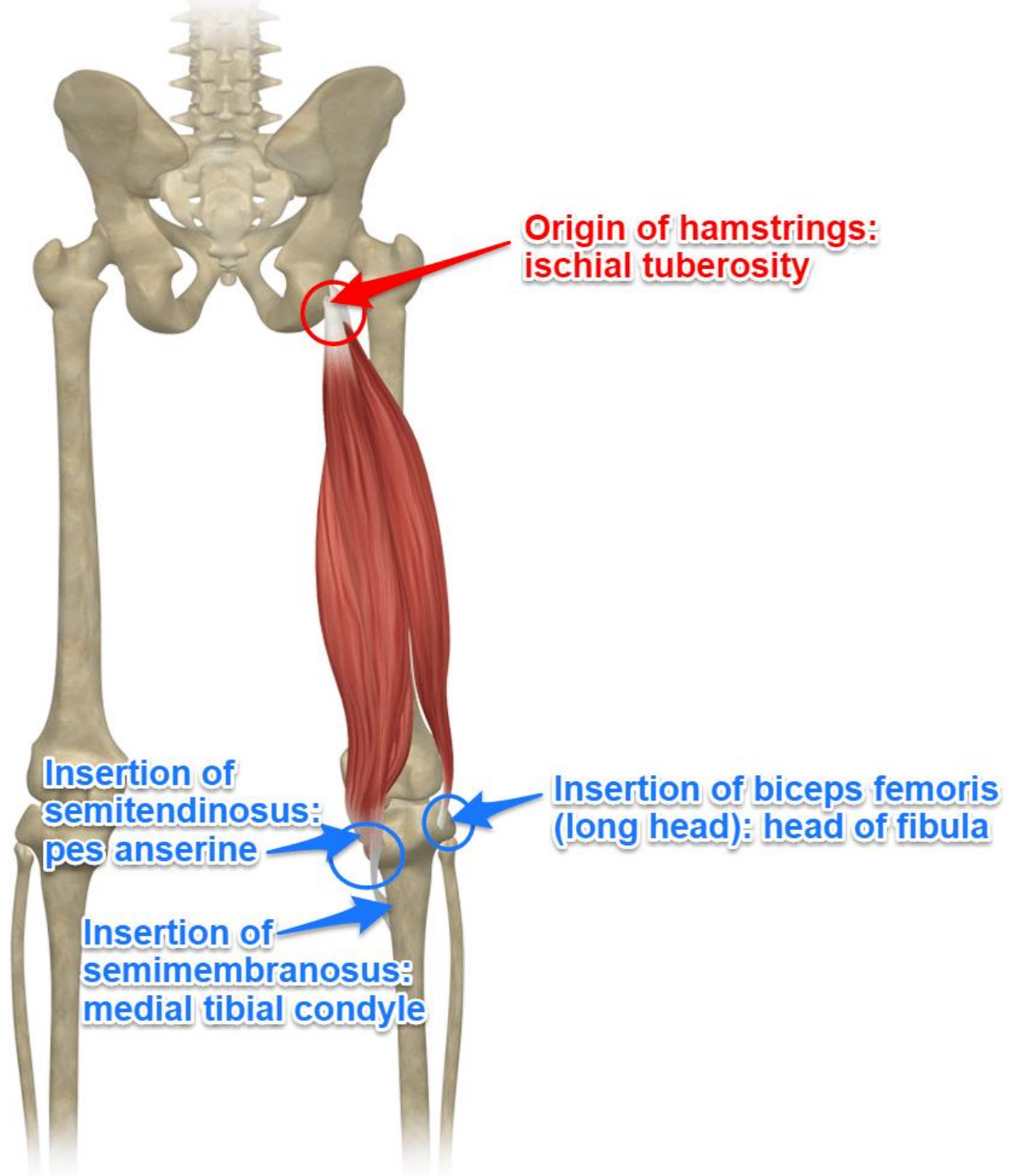


"Well, Mr. Swine, it looks like you pulled a hamstring."

Posterior Hip Area Pain

HAMSTRING PATHOLOGY

- Posterior hip/buttock pain around the ischium may be indicative of a proximal hamstring strain, enthesopathy, tear, or avulsion. Patients may have a history of sports-related or overuse injury. These are generally tender to palpation and hamstring stretch.
- A complete hamstring tear or avulsion often causes ecchymosis of the posterior thigh.
- Hamstring tendinopathy or partial tears are exacerbated by hamstring stretch testing. Patients with acute, complete tears should be referred to an orthopedic surgeon. If it is unclear whether the patient has a hamstring injury, MRI may be helpful in determining the diagnosis. For chronic pain, gentle stretching and occasionally local injection can be helpful.



The final part of the trifecta:



Lateral Hip Area Pain

- Greater trochanteric pain syndrome.
- Gluteus medius tendinopathy or tear
- Lateral hip snapping
- Iliotibial band syndrome
- Trochanteric fracture

Lateral Hip Area Pain

GREATER TROCHANTERIC PAIN SYNDROMES

- Also called trochanteric bursitis or GTPS, is an inflammation of the bursa and/or muscle attachments of the greater trochanter. Overuse, trauma, or infection can cause inflamed and irritated bursae or other structures around the greater trochanter.
- Symptoms include chronic, persistent pain on the outside of the hip that can radiate down the outside of the leg.
- Treatment largely involves managing the symptoms through weight loss, physical therapy, and over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs). In some cases, corticosteroid injections into the bursa work well to relieve pain.
- Surgery can sometimes help.



Lateral Hip Area Pain

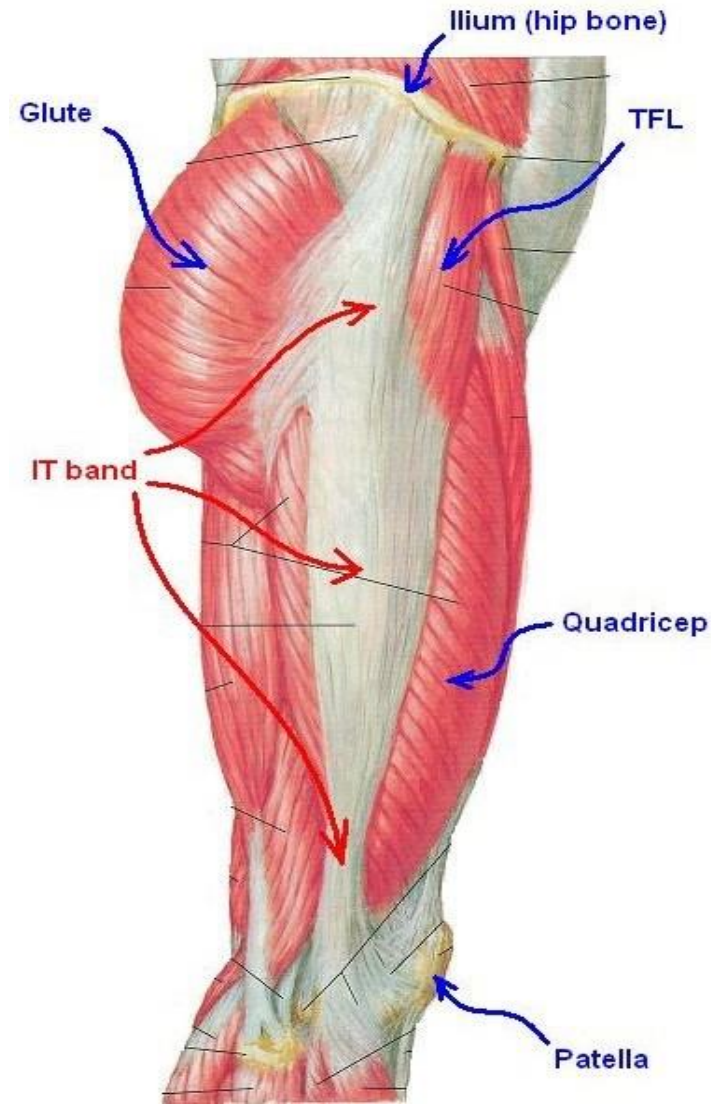
SNAPPING HIP

- Snapping hip syndrome, also known as *coxa saltans* (or *dancer's hip*) a palpable snapping sensation (+/- pain) over the lateral hip.
- External snapping hip is most commonly attributed to the iliotibial band moving over the greater trochanter.
- Internal snapping hip most commonly occurs as the iliopsoas tendon snaps over underlying bony prominences.
- More common in women
- ITB and/or Piriformis stretching are mainstays



Lateral Hip Area Pain

Iliotibial Band Syndrome



Lateral Hip Area Pain

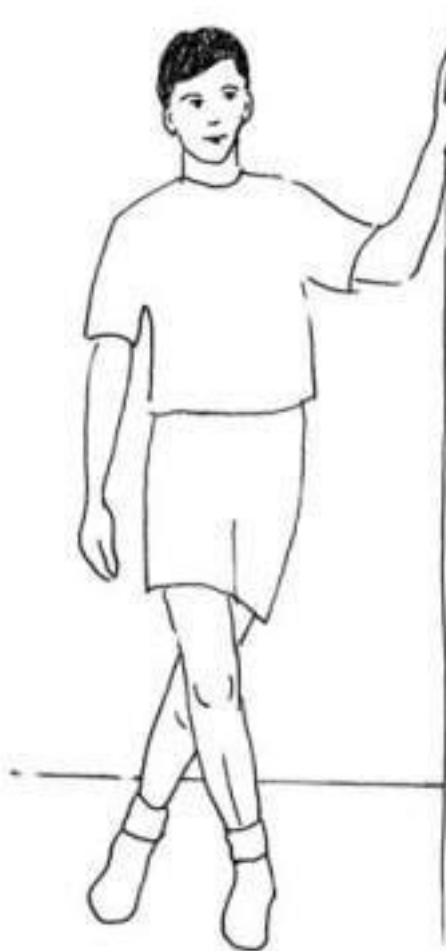
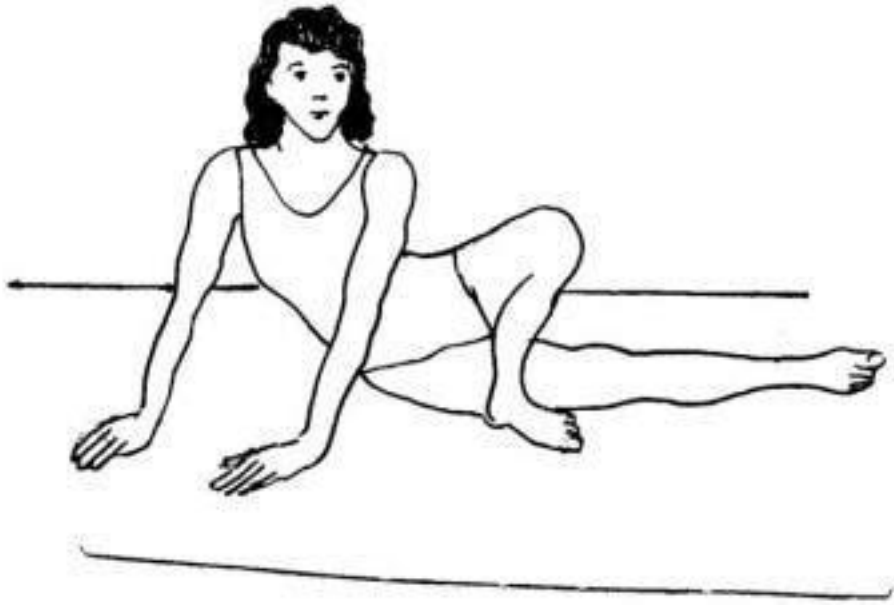
Iliotibial Band Syndrome

- Pain with hip movement of the iliotibial band over the greater trochanter.
- The ITB or underlying complex can become irritated here and/or at the lateral knee
- Symptoms are often reproduced by a combination of hip flexion, abduction, and external rotation.
- ITB stretching, icing, massage can be helpful.



Lateral Hip Area Pain

Iliotibial Band Syndrome



Lateral Hip Area Pain

TROCHANTERIC FRACTURE

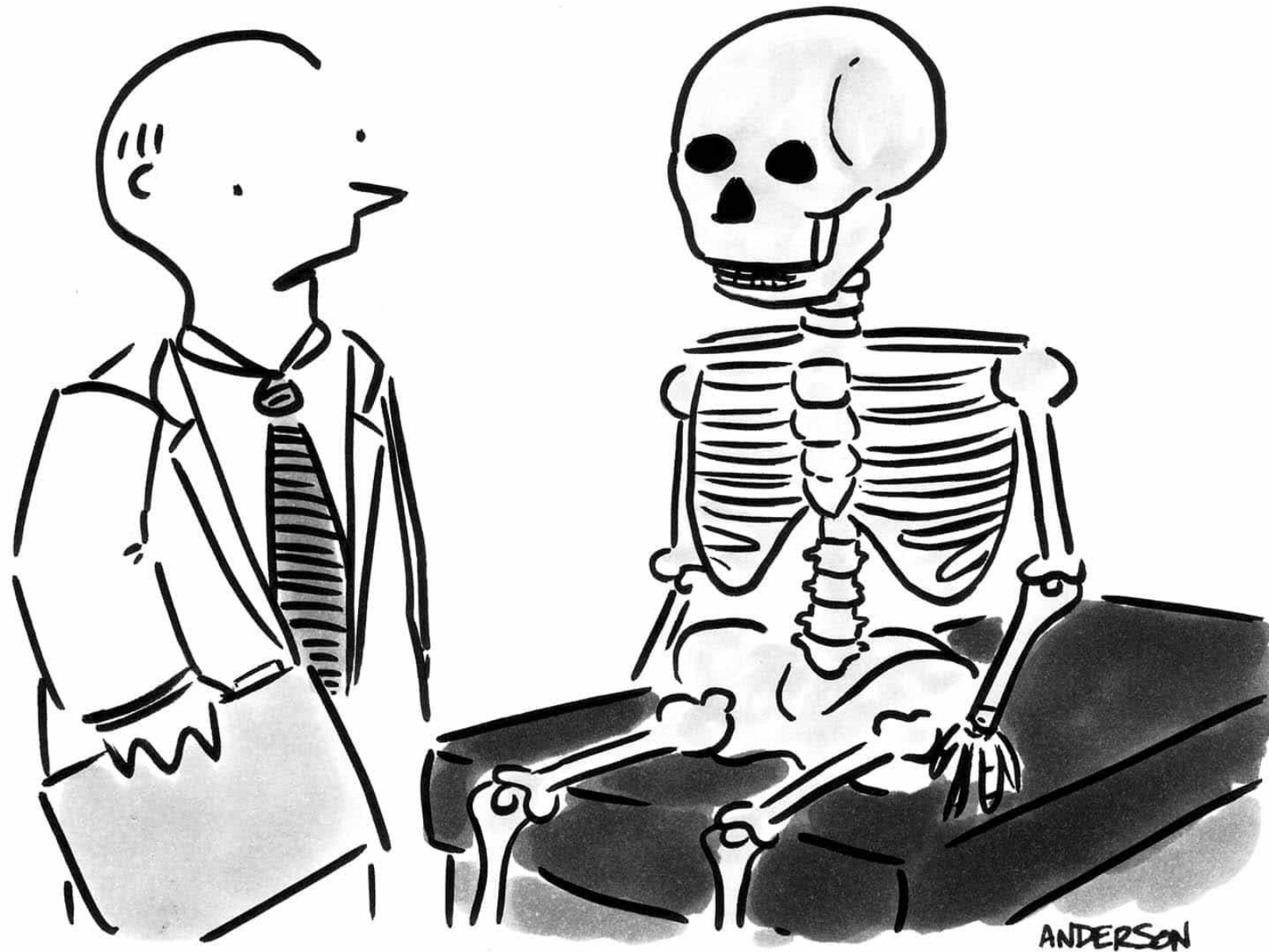
- Isolated fractures of the greater and lesser trochanters, particularly in young patients, are typically avulsion fractures caused by forceful muscle contraction.
- Lesser trochanteric fractures generally cause pain in the groin, but may also present with knee or posterior thigh pain.
- Greater trochanteric fractures cause lateral hip pain that increases with abduction and tenderness over the greater trochanter.
- Most trochanteric fractures heal conservatively, unless significant displacement (>1 cm) is present. The patient should remain non-weightbearing for three to four weeks. Many patients are able to return to full activity as soon as two to three months

BONE PAIN

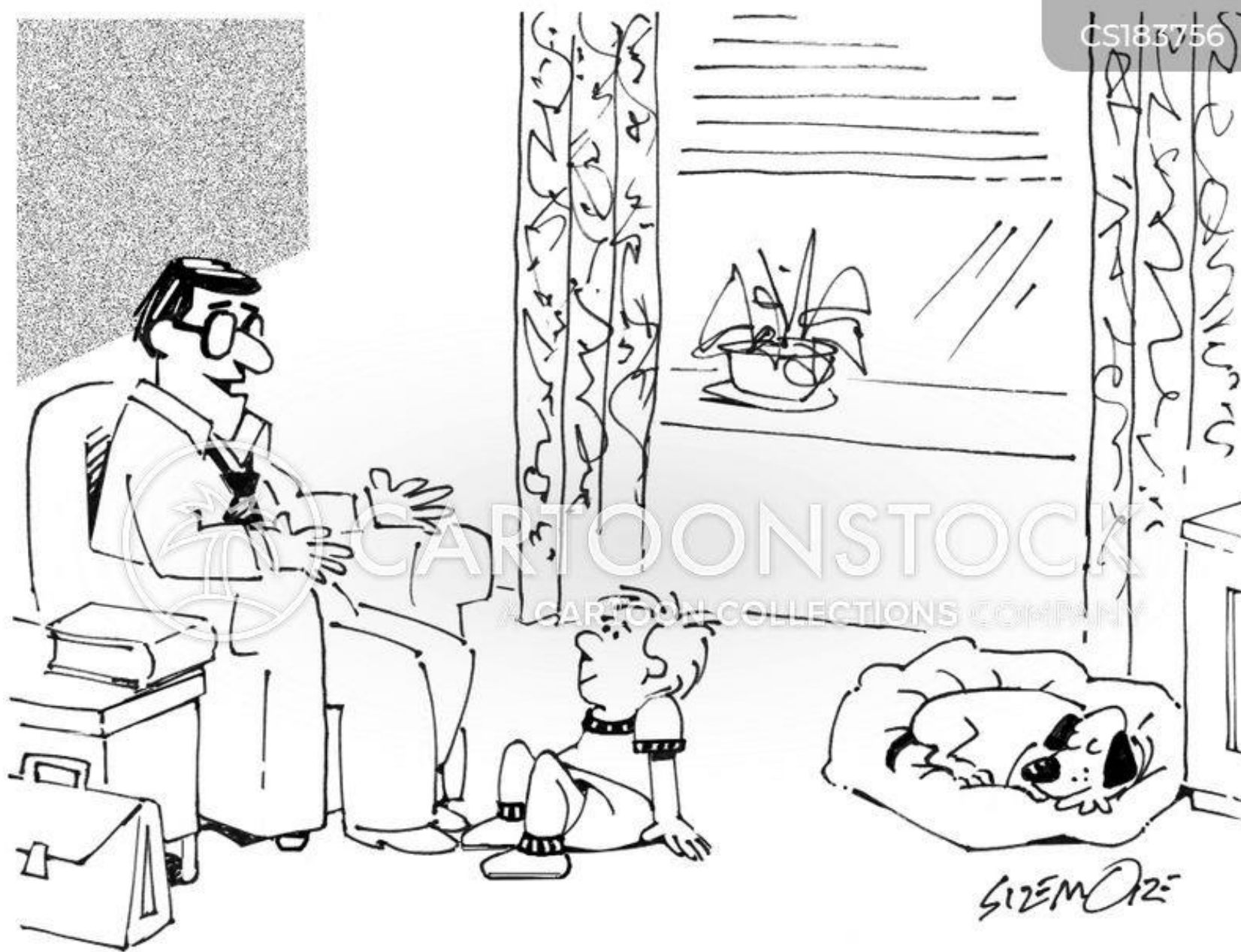
- The localization of a bony pain generator is less predictable, depending on the location of pathology and possibly pathologic or traumatic fracture. Index of suspicion can depend on circumstance (Hx cancer, runner).
- Neoplastic: Pain disrupting sleep is not unusual.
 - Colorectal, prostate, breast, kidney are most common
 - Osteochondroma, desmoplastic, giant cell, hemangioma
 - Primary cancers within bones include leukemia and multiple myeloma, osteosarcoma, chondrosarcoma, Ewing's sarcoma and soft tissue sarcomas.

BONE PAIN

- Osteomyelitis: Bone infection. Look for fevers, malaise, diabetes, immune compromise, open bone injury, overlying skin ulcer, etc
- Osteochondritis Desiccans: Death of an injured area of articular cartilage with underlayment collapse. Previous injury resulting in damage to underlying blood supply.
- Stress fractures: Overuse. Runners or hikers/recruits increasing distance in training are common causes. Treated with relative, pain-free rest. Negative x-ray might be positive if repeated in 1-4 weeks (osteoclastic activity). Bone scan or MRI might be useful to confirm.



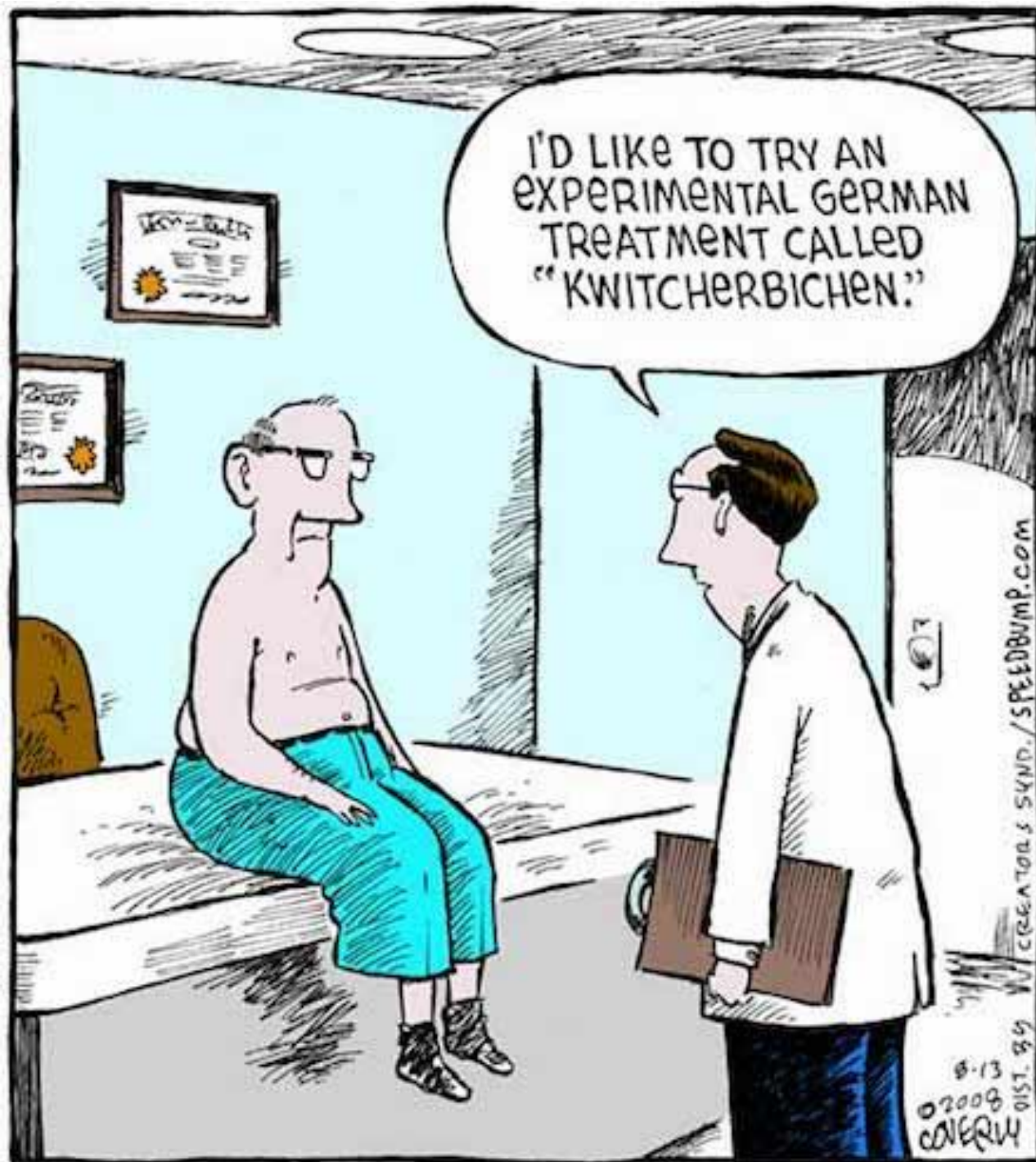
"Still, let's do an x-ray just to be sure."



"So, Freddie, the moral of my story is business ethics are nice, but a successful man knows when to flex."

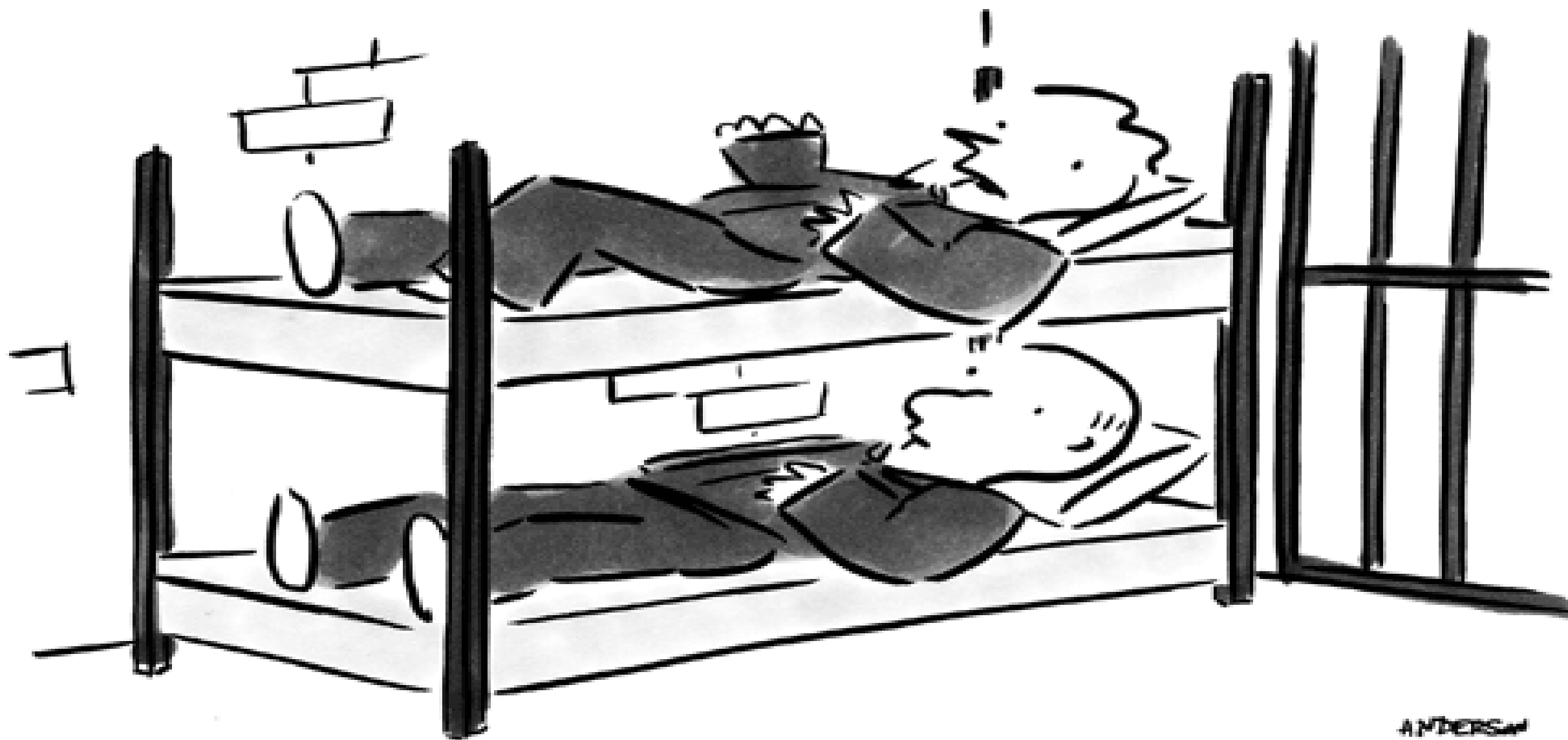
MORAL OF THE STORY

- Hip pain can come from a dizzying array of causes.
- Location of the perceived pain can help to sort it out.
- History, examination and plain film x-rays can be the most effective and efficient way to get to diagnosis and relief to the patient.
- Because of the very wide variety of causes, it is best for the patient evaluation to start in PRIMARY CARE.
- Sending the case early to Ortho may end in an inefficient investigation of non-ortho causes. It may result in unnecessary or harmful interventions.



Useful References

- Simon's Emergency Orthopedics, Scott Sherman MD et al, Eighth edition, 2019
- Practical Office Orthopedics, Edward Parks MD, 2018
- The American Family Physician, Musculoskeletal Medicine series (various)
- Evaluation of the Patient with Hip Pain. John J. Wilson, MD, MS, and Masaru Furukawa, MD, MS. *Am Fam Physician*. 2014;89(1):27-34
- UpToDate 2022
- The Sports Medicine Patient Advisor, Third edition, Piere Rouzier MD, 2010.



ANDERSON

"I prefer to think of it as a gated community."