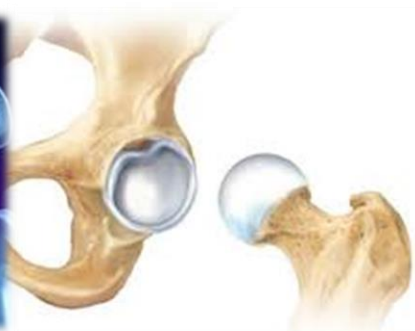


# Screening the lower quadrant: buttock, hip, groin, thigh, and leg

Dr. Mustafa Qamar  
Assistant Professor, SMC



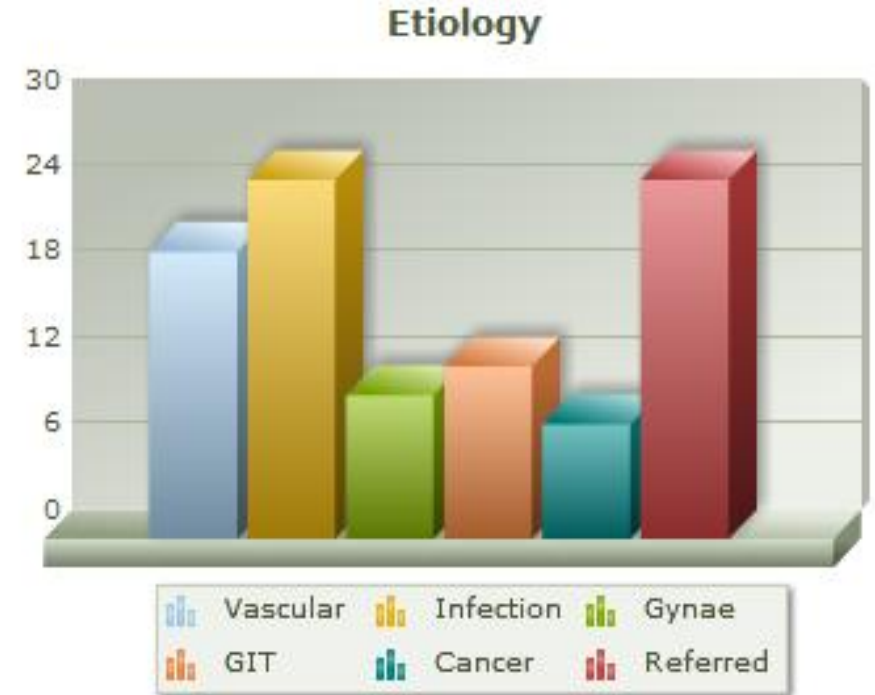


*Identification of the systemic causes of lower Quadrant pain*

# Etiology



- Vascular conditions
- Inflammatory conditions
- Gastrointestinal (GI) disease
- Gynecologic and male reproductive systems
- Cancer
- Pain may be referred from other locations such as the scrotum, kidneys, abdominal wall, abdomen, peritoneum, or retroperitoneal region.



*Review*

## Red Flag Histories Associated With the Lower Extremity

- Previous history of **cancer**
- Previous history of **renal** disease
- **Trauma**/assault
- History of **infectious** or inflammatory condition
- **Crohn's disease**
- **Diverticulitis**
- Pelvic inflammatory disease (**PID**)
- **Reiter's syndrome**





## Red Flag Histories Associated With the Lower Extremity

- Appendicitis
- Gynecologic disorder
- History of alcoholism
- Long-term use of immunosuppressant's
- History of heart disease
- History of AIDS
- History of hematologic disease



# Clinical Presentation



## Hip and Buttock

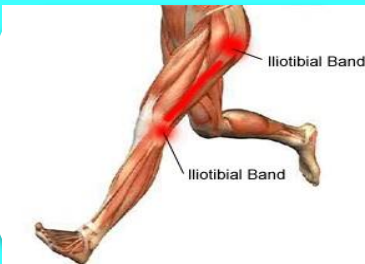
- Posterior deep within the **buttock** or anteriorly in the **groin**, sometimes with radiating pain down the **anterior thigh**.
- Pain perceived on the **lateral side of the hip** is usually not caused by an intra-articular problem, but more likely results from a **trigger point, bursitis, SI, or back problem**.
- With true hip joint disease, **pain will occur with active or passive** motion of the hip joint; this pain increases with weight bearing. Often, an antalgic gait pattern is observed



*Review*



Client may lean toward the affected side to compensate for the downward rotation of the pelvis.



Pain may radiate down the leg to the level of insertion of the iliotibial tract on the proximal tibia.



Pain with medial rotation and decreased hip medial range of motion is associated with hip osteoarthritis



# NEUROMUSCULOSKELETAL PRESENTATION

- **SI** joint dysfunction accompanied by an ipsilateral decrease in hip joint internal rotation of 15 degrees or more.
- Hip pain referred from the upper **lumbar vertebrae** can radiate into the anterior aspect of the thigh, whereas hip pain from the **lower lumbar vertebrae** and sacrum is usually felt in the gluteal region.
- Total hip arthroplasty may report hip or groin pain with activity, pain at rest, or both.





- Clinically, a history of "**start up**" pain may indicate a loose component. After 5 or 10 steps, the groin pain subsides. Pain may increase again after a moderate amount of walking.
- Pain on initiation of activity that resolves with continued activity should raise suspicion of a **loose prosthesis**.
- Persistent pain through the night suggests infection

# SYSTEMIC PRESENTATION

- **A non-capsular pattern** of restricted hip motion
- **Empty end feel** can be an indicator of infection or neoplasm.
- Hip rotation in the neutral position and perform the **log-rolling test**.
- Decreased range of motion is positive for an **intra-articular** source of symptoms. If normal hip rotation is present in this position but the motion reproduces hip pain, then an **extra-articular** cause should be considered.



# SYSTEMIC PRESENTATION

- The log-rolling test should be combined with **Faber's test** and the **scour** (quadrant) test to determine whether the hip is a possible source of symptoms.

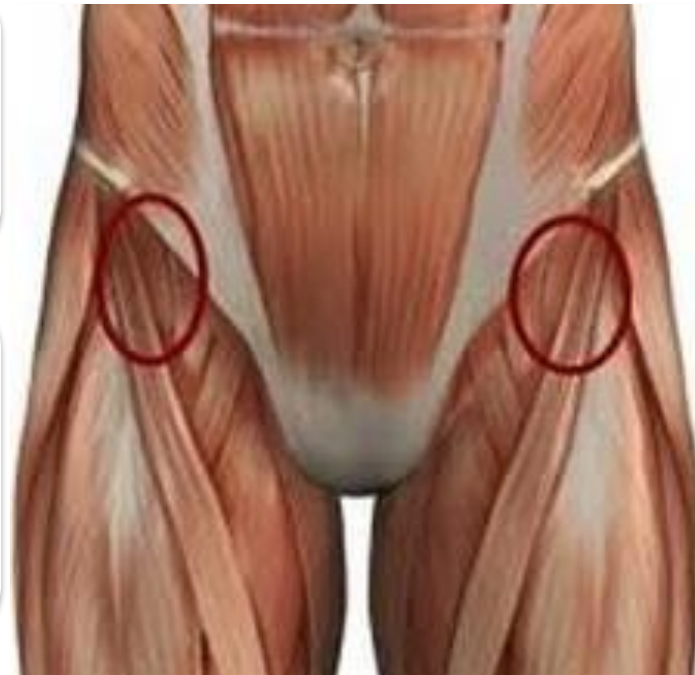


# Groin

Palpate enlarged lymph nodes

Painless, progressive enlargements  
of lymph nodes

Changes in lymph nodes without a  
previous history of cancer continue  
to represent a yellow or red flag.





# NEUROMUSCULOSKELETAL PRESENTATION



- Groin pain is a common complaint in **sports** that involve kicking and rapid change of direction
- Acute muscle strain or stress reaction (stress fracture).
- Older adults are more likely to experience hip, buttock, or groin pain associated with **arthritis, lumbar stenosis, or hip arthroplasty**.
- Arthritis is characterized by radiating pain to the knee, but not below, with decreased hip range of motion. Gait disturbances may be seen as arthritis progresses

*Review*



Hip and groin pain secondary to lumbar stenosis can manifest as low back pain that radiates to the lower extremities.

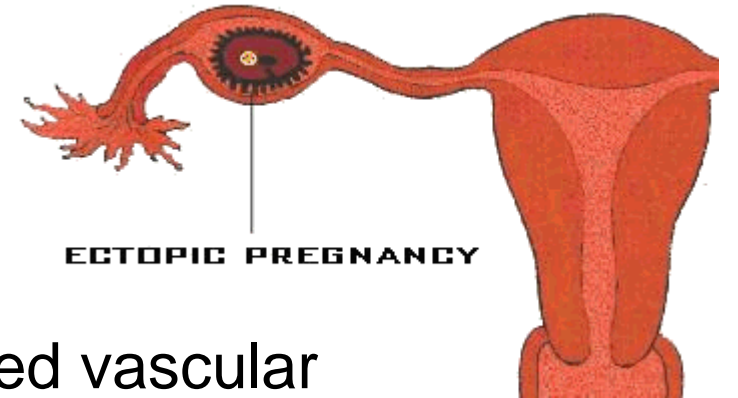


The pain begins and gets worse with ambulation.



Standing and walking may also increase symptoms

# SYSTEMIC PRESENTATION



- Look at the client's **AGE** (e.g., atherosclerotically induced vascular problems in the older adult), **PMH** (e.g., previous history of cancer, liver disease, hemophilia), and **GENDER** (e.g., ectopic pregnancy, prostate or testicular problems)

# Thigh

Anterior thigh pain is more common, but posterior thigh pain may occur, with ruptured abdominal aortic aneurysm.

Local anterior or posterior thigh pain occurs as a deep aching generated by soft tissue irritation or bone involvement.

Radicular pain is a sharp, stabbing pain that projects in dermatomal distributions caused by compression of the dorsal nerve roots.

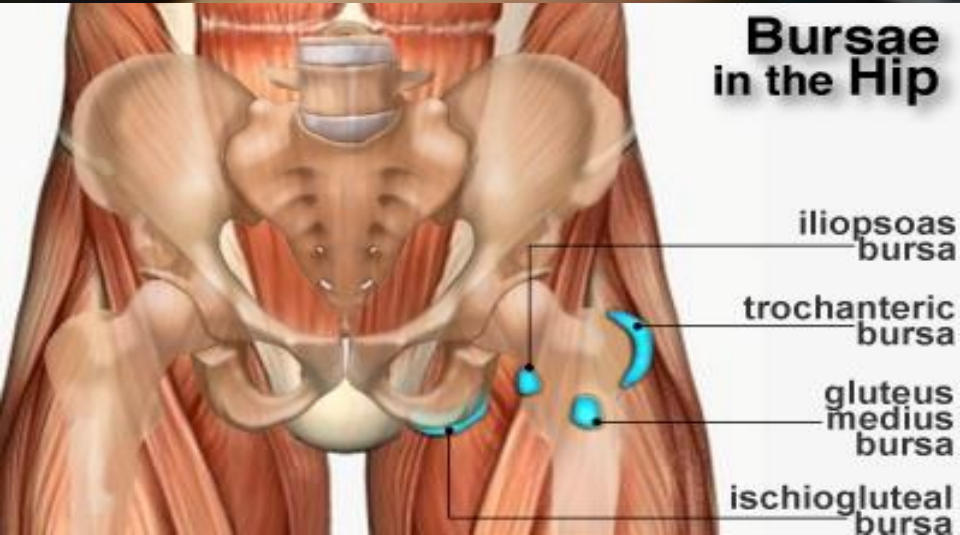
# NEUROMUSCULOSKELETAL PRESENTATION



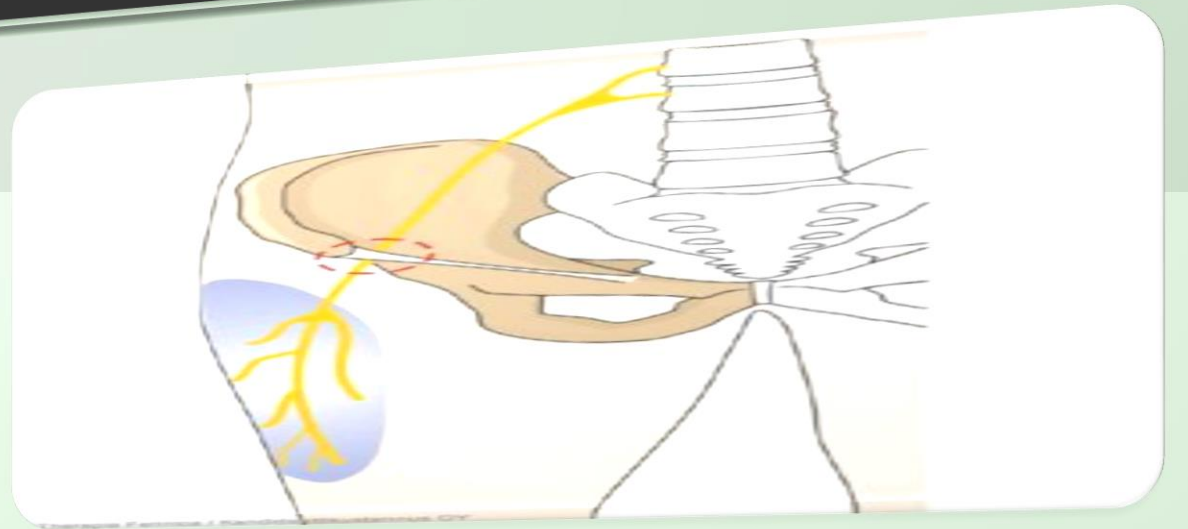
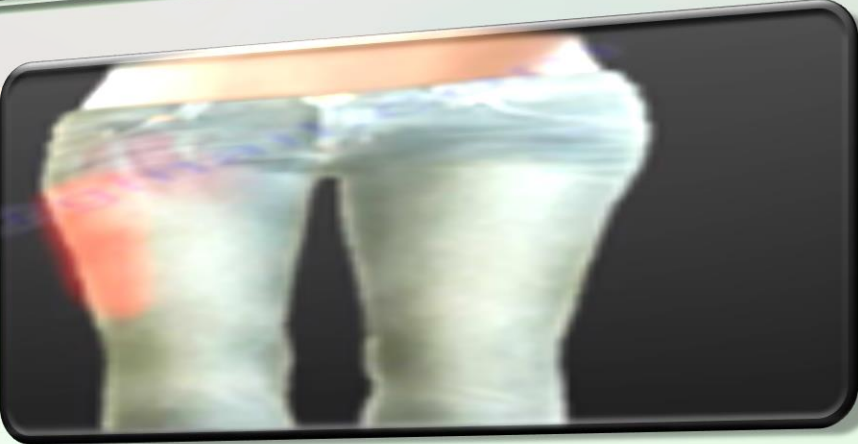
- The **lower lumbar** vertebrae and sacrum can refer pain to the **gluteal** and hip region, with pain radiating down the posterior or postero-lateral thigh.
- **Anterior thigh pain** is commonly disc related, resulting from L3-L4 disc herniation
- **Back and thigh pain**, a positive **reverse straight leg raising test**, and **depressed knee reflex** are described more often in clients with disc herniation at the **L3-L4 level**

*Revive*





- **Hyperreflexia or hyporeflexia**, decreased sensation to light touch or pinprick, and decreased motor strength can occur with soft tissue problems such as **bursitis**. However, clients with true nerve root irritation experience pain extending into the lower leg and foot.
- Clients with bursitis exhibit a **positive "jump" sign** when pressure is applied over the greater trochanter; no jump sign is seen with nerve root irritation



A common neuromuscular cause of anterior or anterolateral thigh pain is lateral femoral cutaneous nerve (LFCN) neuralgia. Entrapment or compression causes pain or dysesthesia, or both **meralgia paresthetica**.

Abnormal posture, chronic muscle spasm, tight fitting braces, corsets or pants, and thigh injury causes of injury to the LFCN

# SYSTEMIC PRESENTATION

- **Obstruction, infection, inflammation, or compression of the ureters** may cause a pattern of low back and flank pain that radiates anteriorly to the ipsilateral lower abdomen and upper thigh.
- **Murphy's percussion test** may be positive when the kidney is involved.
- Retroperitoneal or intra-abdominal tumor or abscess may also cause anterior thigh pain.

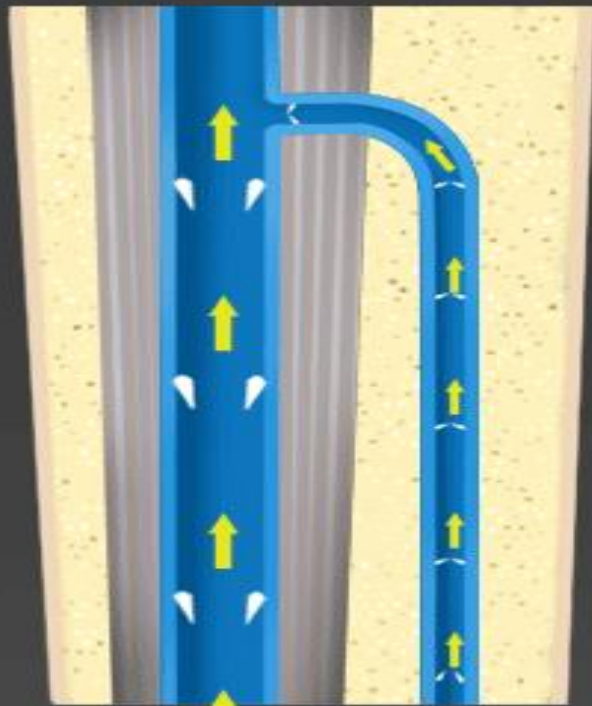
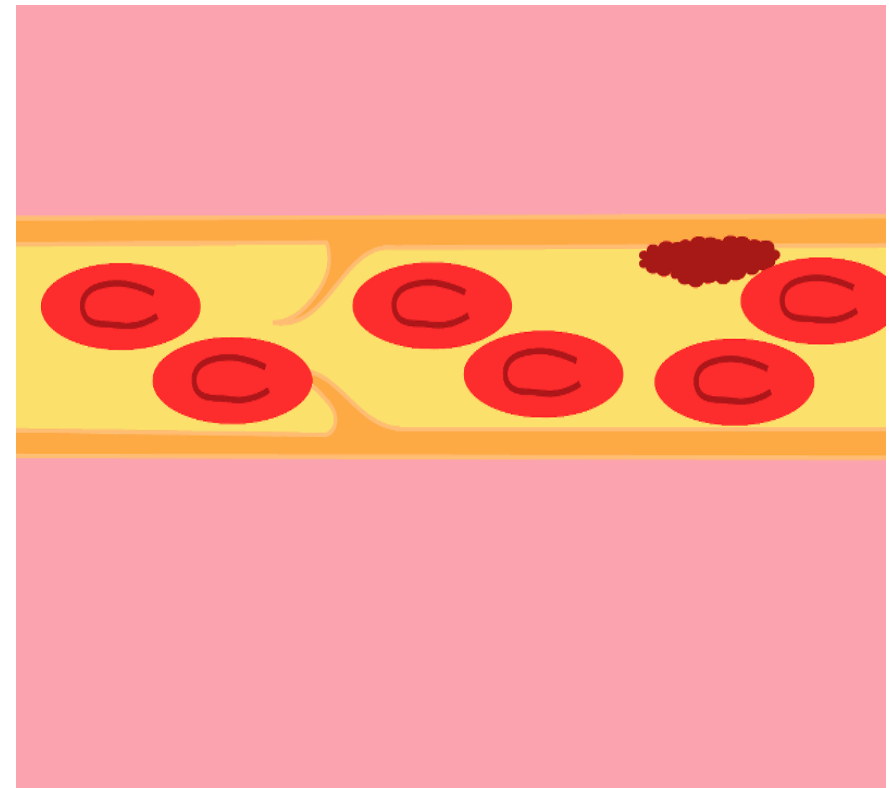




# Knee and Lower Leg

- Pain in the lower leg is most often caused by injury, inflammation, tumor, altered peripheral circulation, deep vein thrombosis (DVT), or neurologic impairment

are often described as tenderness with locking (g) or loading (poorly ring).



# Knee and Lower Leg

- Assessment of trigger points (TrPs) is also essential
- Burning and pain in the **legs and feet at night** are common in older adults.





# TRAUMA AS A CAUSE OF HIP, GROIN, OR LOWER QUADRANT PAIN

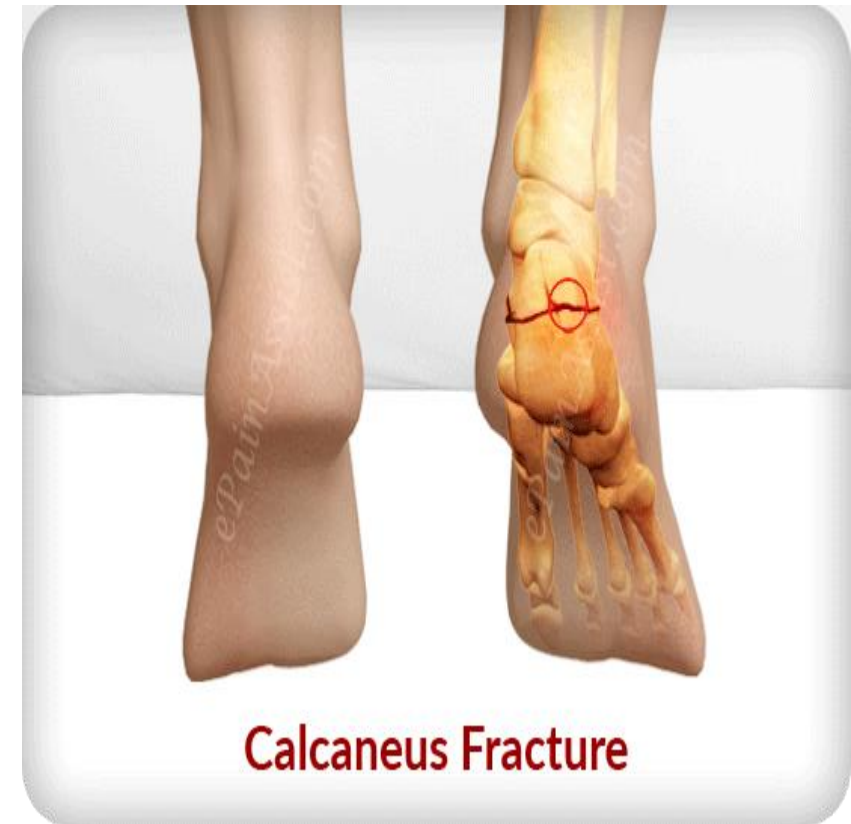
## Birth Trauma

- Birth trauma is one possible cause of **low back, pelvic, hip, or groin pain.**
- **Multiple births, prolonged labor and delivery, vacuum delivery.**

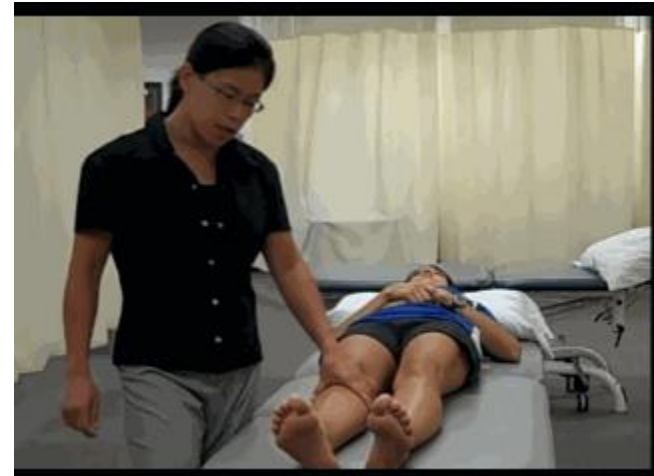


# Stress Reaction or Fracture

- An undiagnosed stress reaction or stress fracture is a possible cause of hip, thigh, or groin pain.
- Exercise-induced groin pain is the most common presentation.
- It occurs usually in a distance runner or military recruit or an older adult (hip fracture).
- Risk factors include changes in **running surface**, **use of inadequately cushioned footwear**, and the **presence of the female athlete triad** of disordered eating, osteoporosis, and amenorrhea



- Osteoporosis, in the postmenopausal woman can result in injury and fracture
- Pain on weight bearing is a red flag symptom for stress reaction or fracture
- The therapist can perform a **heel strike test**.
- The therapist can ask a physically capable client to hop on the uninvolved side and to do a full squat to clear the hip, knee, and ankle.



*Revere*



# Clinical Signs and Symptoms of Stress reaction / Stress Fracture

- Pain described as aching or deep aching
- Pain increases with activity and improves with rest
- Compensatory gluteus medius gait
- Localized tenderness
- Positive Faber's test
- Pain reproduced by weight bearing, heel strike, or hopping test



*Revive*

# Clinical Signs and Symptoms of Stress reaction / Stress Fracture

- Pain reproduced by rotational stress
- Thigh pain reproduced by the **fulcrum test**
- Increased tone of hip adductor muscles; limited hip abduction
- Night pain (femoral neck stress fracture)





# SCREENING FOR SYSTEMIC CAUSES OF SCIATICA



- Sciatica has many neuromuscular causes, both discogenic and non-discogenic; systemic or extra-spinal conditions can produce or mimic sciatica.

- Risk factors for a mechanical cause of sciatica include previous trauma to the low back, taller height, tobacco use, pregnancy, and work and occupational-related posture or movement

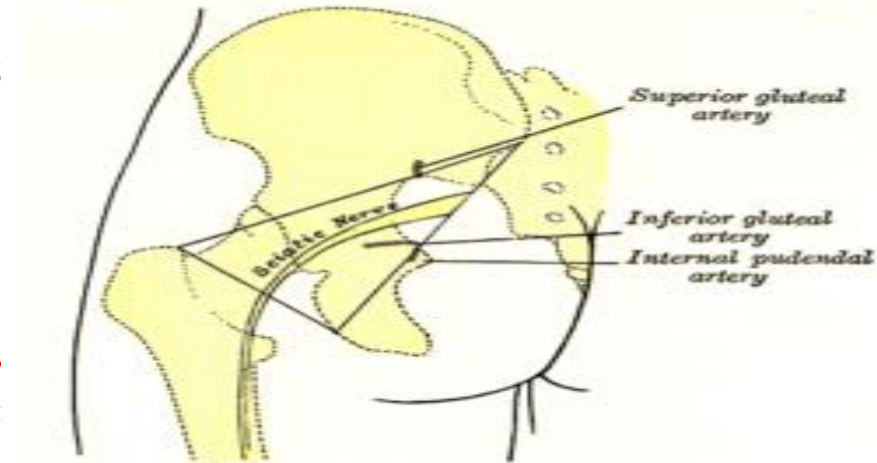
*Review*

# Risk Factors

- Arterial insufficiency
- Heavy smokers
- Atherosclerosis.
- Increasing age,
- Past history of cancer,
- co-morbidities



- **Total hip arthroplasty** is a common cause of sciatica because of the proximity of the nerve to the hip joint.
- Anyone with pain radiating from the back down the leg as far as the ankle has a greater chance that disc herniation is the cause of low back pain.
- Unremitting, severe pain and increasing neurologic deficit are red flag findings



## SCREENING FOR ONCOLOGIC CAUSES OF LOWER QUADRANT PAIN

- The therapist must **recognize signs and symptoms of cancer** recurrence and those associated with cancer treatment such as radiation therapy or chemotherapy.
- Advancing age as a key red flag for cancer. Anyone older than **50 years of age may need to be screened** for systemic origin of symptoms.
- Primary bone cancer occurs most often in adolescents and young adults, hence the new red flag: **age younger than 20 years, or bone pain in an adolescent or young adult.**



*Revive*





## Cancer Recurrence

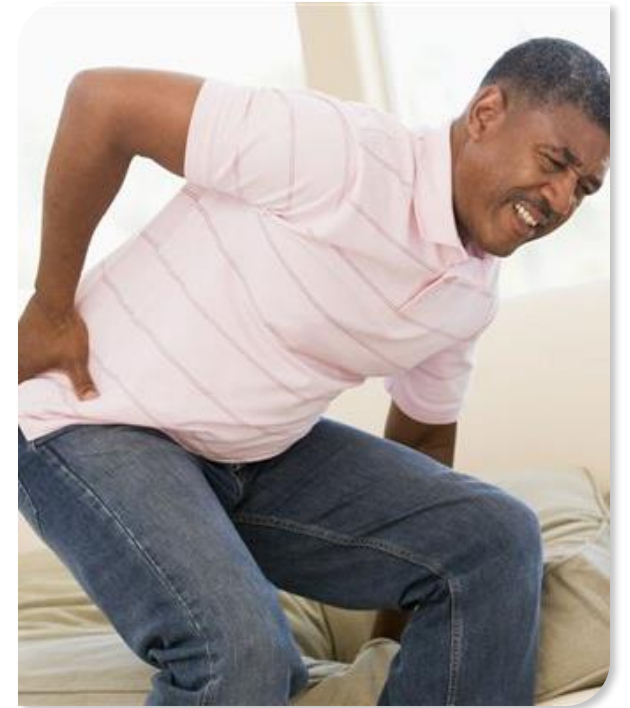
- Recurrence of colon (colorectal) cancer is possible with referred pain to the hip and/or groin area.

## Hodgkin's Disease

- Hodgkin's disease arises in the lymph glands, most commonly on a single side of the neck or groin, but lymph nodes also enlarge in response to infection throughout the body.
- Lymph nodes in the groin area can become enlarged specifically as a result of sexually transmitted disease.

# Spinal Cord Tumors

- Spinal cord tumors present as dull, aching discomfort or sharp pain in the **thoracolumbar area** in a belt like distribution, with pain extending to the groin or legs.
- Depending on the location of the lesion, symptoms may be **unilateral or bilateral** with or without radicular symptoms.
- The therapist should look for and ask about **associated signs and symptoms** (e.g., constitutional symptoms, bleeding or discharge, lymphadenopathy).
- A tumor is suspected if the client has painless neurologic deficit, night pain, or pain that increases when supine.



# Bone Tumors

Second decade of life and complains of chronic dull hip, thigh, or knee pain that is worse at night and is alleviated by activity and aspirin.

- Antalgic gait is present, along with point tenderness over the lesion with restriction of hip motion.

*Review*

## Osteiod osteoma

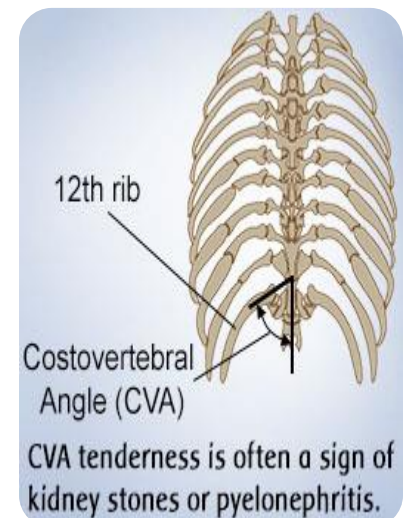


# SCREENING FOR UROLOGIC CAUSES OF BUTTOCK, HIP, GROIN, OR THIGH PAIN

pain usually begins in the costovertebral angle but may radiate to the upper thigh and groin, or it may be felt just in the groin and genital area.

A kidney stone down the pathway of the ureters causes pain in the flank that radiates to the scrotum or labia

Referred symptoms from can be distinguished from musculoskeletal hip pain by the history, the presence of urologic symptoms, and the pattern of pain.





# SCREENING FOR INFECTIOUS AND INFLAMMATORY CAUSES OF LOWER QUADRANT PAIN

- Anyone with joint pain of unknown cause who presents with current (or recent, i.e., within the past 6 weeks) skin rash or recent history of infection must be referred

## Clinical Presentation

- The clinical presentation can be deceptive in young people. The **fever** is not dramatic and may come and go. The athlete may dismiss excessive or unusual perspiration ("sweats") as part of a good workout.
- **Loss of appetite** associated with systemic disease is often welcomed by teenagers and young adults and is not recognized as a sign of physiologic distress.
- Laboratory tests may reveal an **elevated ESR**.
- Constitutional symptoms such as elevated nocturnal **temperature, sweats, and chills**, suggestive of an inflammatory process

*Review*

# Psoas Abscess

- Any infectious or inflammatory process affecting the abdominal or pelvic region can lead to psoas abscess and irritation of the psoas muscle.
- Hip pain associated with such an abscess may involve the **medial aspect of the thigh and femoral triangle areas**. Soft tissue abscess may cause pain and tenderness to palpation without movement.
- Once the abscess has formed, muscular spasm may be provoked, producing hip flexion and even contracture. **The leg also may be pulled into internal rotation.**
- Pain elicited by stretching the psoas muscle through extension of the hip, called the positive psoas sign, may be present.
- Systemic causes of hip pain from psoas abscess are usually associated with loss of appetite or other GI symptoms, fever, and



# SCREENING FOR GASTROINTESTINAL CAUSES OF LOWER QUADRANT PAIN

- Alternating abdominal pain with low back pain at the same level or alternating abdominal pain with hip pain is a red flag that requires medical referral.
- Symptoms that are unrelieved by physical therapy intervention are always a red flag.
- Symptoms that improve after physical therapy but then get worse again are also a red flag



# SCREENING FOR VASCULAR CAUSES OF LOWER QUADRANT PAIN

- Vascular pain is often throbbing in nature and exacerbated by activity.
- The client is older, often with a personal or family history of heart disease.
- Other risk factors include **hyperlipidemia, tobacco use, and diabetes**.

## Peripheral Vascular Disease

- Peripheral vascular disease (PVD) in which the arteries are occluded by **atherosclerosis** can cause unilateral or bilateral low back, hip, buttock, groin, or leg pain, along with intermittent claudication and **trophic changes** of the affected lower extremities.

*Review*





## Abdominal Aortic Aneurysm

- Abdominal aortic aneurysm (AAA) may be asymptomatic; discovery occurs on physical or x-ray examination of the abdomen or lower spine for some other reason.
- The most common symptom is **awareness of a pulsating mass in the abdomen**, with or without pain, followed by abdominal and back pain.
- Groin pain and flank pain may occur because of increasing pressure on other structures.

## Avascular Osteonecrosis

- Avascular osteonecrosis (septic necrosis) can occur without known cause but is often associated with various risk factors.
- Chronic use and **abuse of alcohol** is a common risk factor for this condition.

# Clinical Signs and Symptoms of osteonecrosis

- May be asymptomatic at first
- Hip pain (mild at first, progressively worse over time)
- Groin or anteromedial thigh pain possible
- Pain worse on weight bearing
- Antalgic gait with a gluteus minimus limp
- Limited hip range of motion (internal rotation, flexion, abduction)
- Tenderness to palpation over the hip joint
- Hip joint stiffness
- Hip dislocation

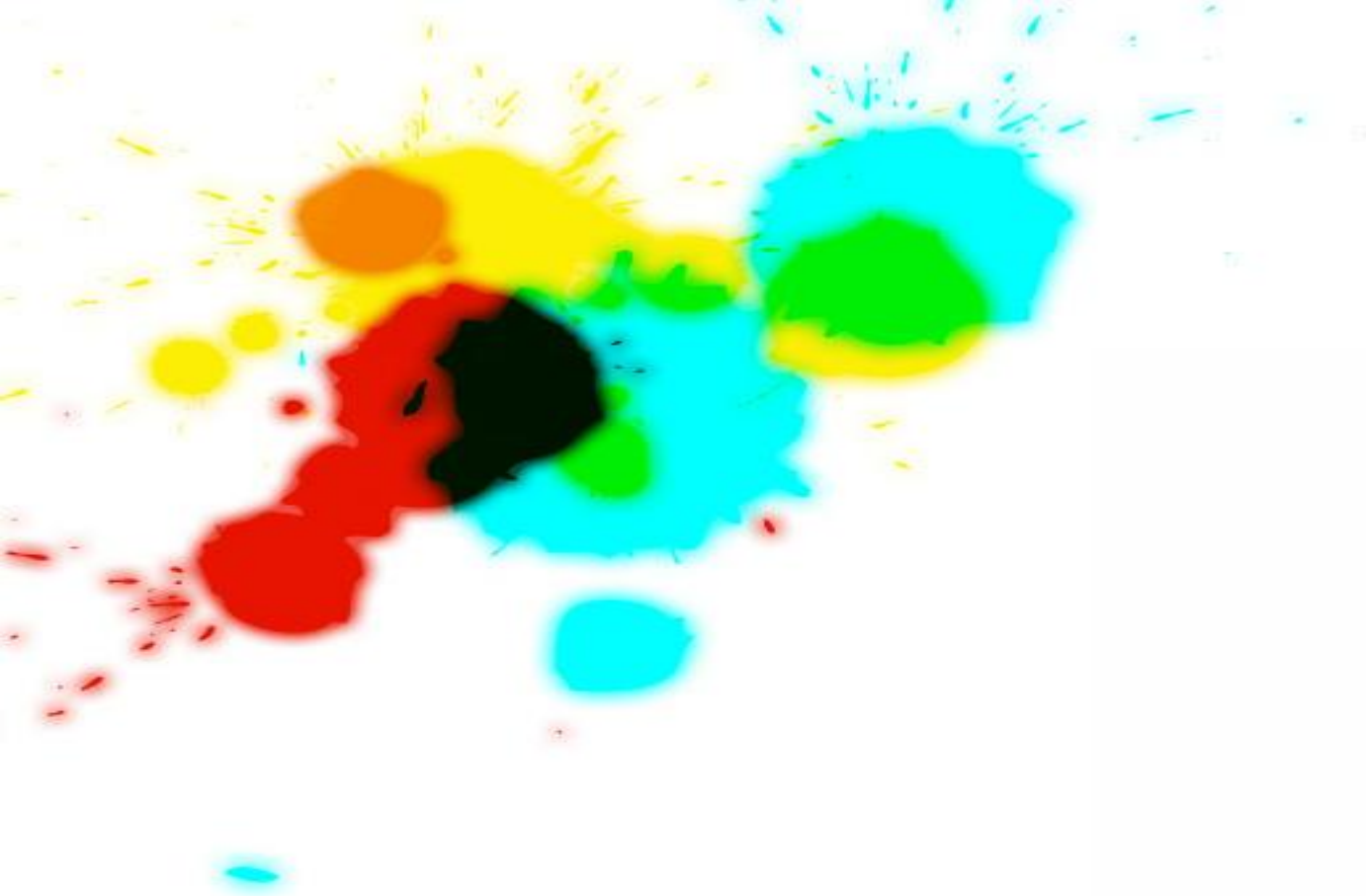
# SCREENING FOR OTHER CAUSES OF LOWER QUADRANT PAIN

## Osteoporosis

- Osteoporosis may result in hip fracture and accompanying hip pain, especially in postmenopausal women who are not taking hormone replacement therapy.

### **Clinical Signs and Symptoms of hip haemarthrosis**

- Pain in the groin and thigh
- Fullness in the hip joint, both anterior in the groin and over the greater trochanter
- Limited motion in hip flexion, abduction, and external rotation (allows most room for the blood in the joint capsule)



**THANK YOU**