Pain Management for Primary Care

Series: Eleven

Joint Pain Conditions

Module 11-2

Hip Pain

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Hip Pain

By the end of the module, you will be able to:

- Describe the overall scope of clinical hip pain.
- Describe basic hip joint anatomy and physiology.
- Identify basic hip pain clinical examination components.
- Discuss common clinical hip problems and how they relate to evidence-based management.

We will review:

Topic One: Scope of Hip Pain

Topic Two: Anatomy and Physiology Review

Topic Three: Clinical Examination

Topic Four: Common Conditions and Evidence-Based Management Pathways

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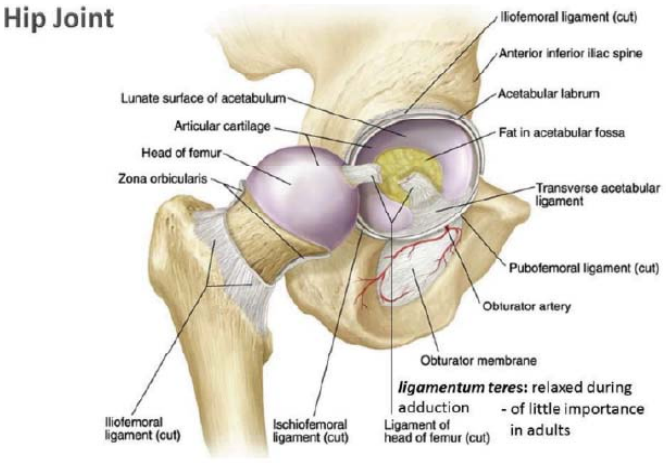
Topic One

Scope of Hip Pain



Hip pain is common and increases with age, especially in individuals over 60.

- Hip joint refers to the ball-and-socket joint consisting of the femoral head articulating with the acetabulum.
- Mechanical hip pain, of musculoskeletal origin, is localized and aggravated by loading.
- Referred hip pain is poorly localized and may not increase by loading.
- Pain at rest or without physical provocation should raise the suspicion of rheumatologic, infectious, or cancer.

Notes

Emphasize that hip pain is a common clinical condition that increases in prevalence with age, including perhaps 15% of those over 60

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Emphasize that hip pain is a common clinical condition that increases in prevalence with age, including perhaps 15% of those over 60

Patients who report 'hip pain' may point to the lateral aspect of the proximal thigh, the buttock, or the groin.

Hip pain can be generated from the hip or referred to/from the low back, thigh, buttocks, or groin.

Notes

One way to start thinking about hip pain is to determine if the pain is intra- or extra-articular.

Extra articular pain can be from the lumbar spine or knee.

Often myofascial pain of the piriformis muscle (Piriformis syndrome or greater trochanter syndrome), causes hip pain

Knowledge Check

Symptoms for 'hip pain' may present at the lateral aspect of the proximal thigh, _____, and/or _____.

a. Groin, hip abductor

b. Buttock; hip abductor

c. Groin; buttock

d. Lumbar spine, femur

Knowledge Check – Answer

Symptoms for 'hip pain' may present at the lateral aspect of the proximal thigh, _____, and/or _____.

a. Groin, hip abductor

b. Buttock; hip abductor

c. Groin; buttock

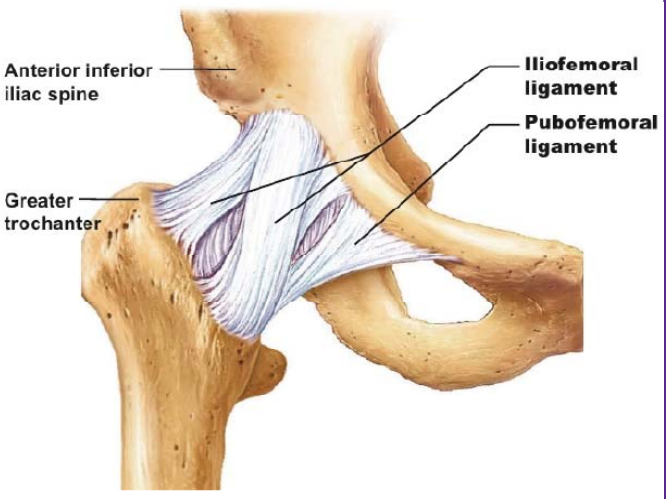
d. Lumbar spine, femur

Notes

Groin pain is a well-known referral pattern for interarticular hip pathology from avascular necrosis to femoral head stress fx to acetabular tear to DJD.

Topic Two

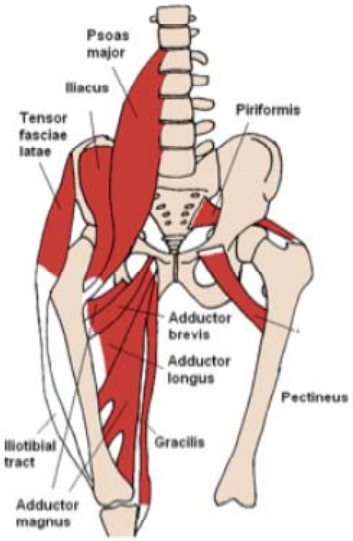
Anatomy and Physiology



Mention that sometimes patients come in with 'snapping hip syndrome', which is a ligament passing tightly over a bony prominence,

The snapping sensation can be so strong that the patient complains that they have "dislocated" their hip, but hat doesn't happen without trauma because of the strong bony and ligamentous structure.

Hips are surrounded by muscles groups that are important in normal gait.



Notes

Mention that the hamstrings extend the hip and flex the knee

And that of the four quadriceps, (the vastus lateralis, medialis, intermedialis and rectus femoris) only the rectus femoris is the only quad

continued

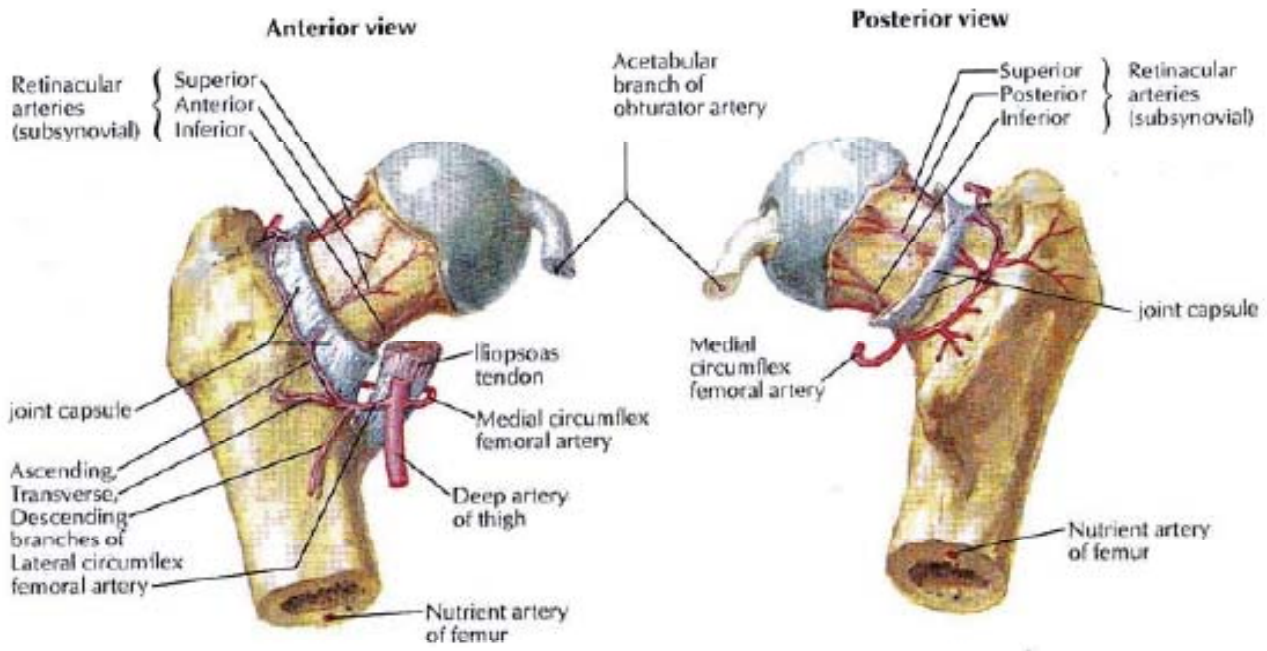
in addition to crossing the knee also crosses the hip since its origin is at the Anterior Inferior Iliac Spine, which can cause both hip pain and knee pain.

Facilitator may demonstrate a pathological gait:

Stand on the right leg and keep your foot on the floor, then activate your gluteal muscles. Note that the superior aspect of these muscles pulls the top of the pelvis down sideways in order to hold your pelvis even/parallel to the floor.

When these abductor muscles are weak, the pelvis drops on the side opposite to the stance leg (positive Trendelenburg sign). So during normal gait the body is not able to maintain the center of gravity on the side of the stance leg and when lifting the opposing leg they cannot maintain balance, leading to instability.

Blood supply is most vulnerable at the femoral neck.



Notes

Note that blood supply to the femoral neck is vulnerable.

The circulatory map shows why it's important to perform imaging when the history and exam suggests avascular necrosis.

Knowledge Check

The _____ is NOT associated to the hamstring muscle.

a. Bicep Femoris
b. Rectus Femoris
c. Semitendinosus
d. Semimembranosus

Knowledge Check – Answer

The _____ is NOT associated to the hamstring muscle.

a. Bicep Femoris
b. Rectus Femoris
c. Semitendinosus
d. Semimembranosus

Rectus Femoris is a Quadriceps muscle.

Knowledge Check

The relationship between blood supply and the femoral head is important, due to the immediate impact of a(n) interruption or _____ of blood supply to the femoral head can lead to _____.

a. Abundance; Generative Hip Disease

b. Lack; Avascular Necrosis

c. Abundance; Ketosis

d. Lack; Blood Hemorrhaging

Knowledge Check - Anatomy and Physiology – Answer

The relationship between blood supply and the femoral head is important, due to the immediate impact of a(n) interruption or _____ of blood supply to the femoral head can lead to _____.

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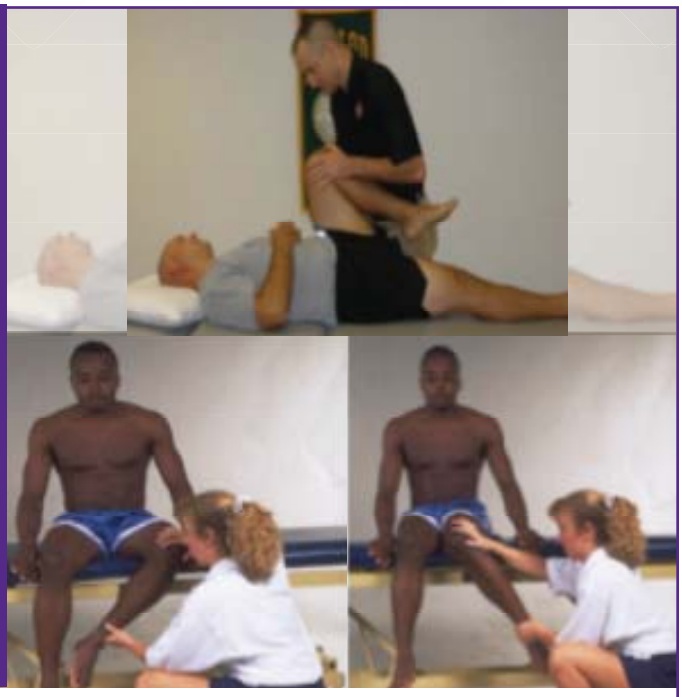
Topic Three

Physical Exam



The hip has 3 planes of direction, with 2 motions each:

Flexion and extension—flexion tested with the knee flexed in supine; extension measured in prone.

External rotation and internal rotation—tested in seated position, ensure that the trunk remains stable and upright

Abduction and adduction—measured in supine.

Physical Exam is key, and pay attention to pain behaviors.

Notes

Always look for:

Grimace
Groan
Guarding
Over reaction
Inconsistencies
Give-way weakness
Shaking

Never forget the OPQRSTU mnemonic:

Onset of pain

Provocation/Palliation

Quality/ Character

Region/ Radiation

Severity/ Intensity

Timing (continuous, intermittent)

U You / Impact

Notes

Is the the pain in the hip/groin area itself?

Are there clear mechanical aggravating and easing factors? Might there be referred pain origins?

Any signs of systematic disease (rheumatoid arthritis, infectious disease, metastasis, etc)?

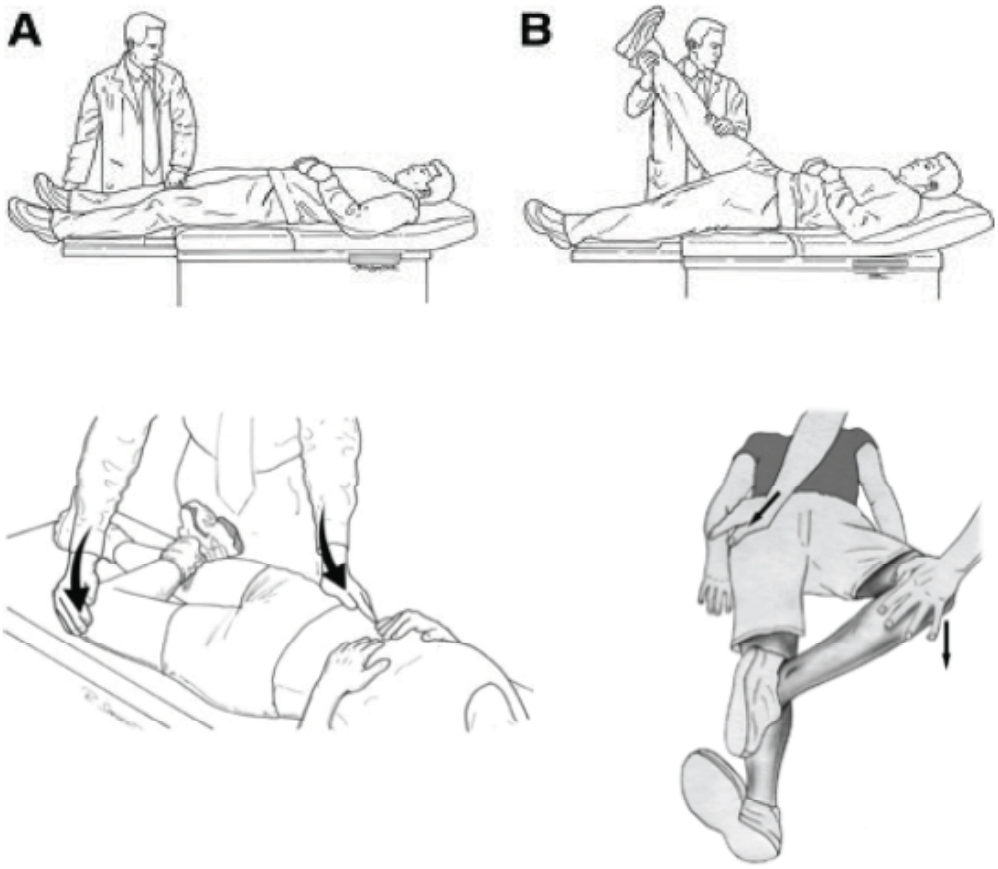
History, Trauma, fall, twisting injury site of pain commonly anterior groin/inguinal, but can be in greater trochanter or buttocks region,

Mechanical symptoms, Painful clicking, clunking, catching, locking, giving way,

Keep in mind that all ages can have myofascial pain in the gluteal region, the lateral hip, or even the proximal anterior thigh at the quad.

Myofascial pain does not follow the aggravating/easing pattern of inflammatory conditions. Often it comes and goes, often it hurts when at rest, particularly sitting, often doesn't stop a person from activities but just never goes away, waxes and wanes.

Look at gait, range of motion, test reflexes and pulse and interpret provocative pain tests carefully.



Notes

Image shows special tests (as discussed in video):

Top one is Thomas test may detect a hip flexion contraction

Lower one is FABER (Flexion ABduction External Rotation) or Patrick's test that may detect hip labral injury or an Sacroiliac joint problem

Other tests include:

- McCarthy test: bilateral hip flexion may suggest labral tear
- Fitzgerald test: very similar to FABER without pressing the hip
- Ober test: hip extension may detect iliotibial band (ITB) problem

You may recall abnormal gait with a Trendelenburg Sign (A "hip drop" during gait due to weakness of hip abductors often found as a result of hip pain)

Neurological exam includes:

- Sensation – dermatomes, peripheral nerves
- Motor function and strength
    - Basic motor function should be assessed, but may be insufficient as the lower extremity musculature is stronger than typical examiner's hand assessment
    - Functional strength tests – squat, step up, step down
- Reflexes may need to be assessed if there is a suspected proximal referral

Knowledge Check

During a hip clinical exam, observations such as muscle atrophy, muscular weakness, major alignment asymmetry, _____, _____, and _____are discussed between the provider and patient.

a. Gait abnormality; Loss of ROM, (especially internal rotation); Difficulty weight bearing

b. Gait abnormality; drug history; Difficulty weight bearing

c. Loss of ROM (especially internal rotation), Gait abnormality; pregnancy history

d. weight loss history; Loss of ROM (especially internal rotation); Gait abnormality

Knowledge Check – Answer

During a hip clinical exam, observations such as muscle atrophy, muscular weakness, major alignment asymmetry, _____, _____, and _____are discussed between the provider and patient.

a. Gait abnormality; Loss of ROM, (especially internal rotation); Difficulty weight bearing

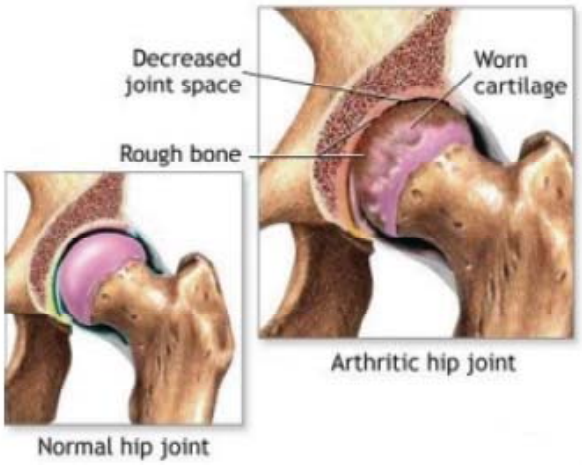
b. Gait abnormality; drug history; Difficulty weight bearing

c. Loss of ROM (especially internal rotation), Gait abnormality; pregnancy history

d. weight loss history; Loss of ROM (especially internal rotation); Gait abnormality

Topic Four

Common Conditions and Management



Different diseases appear at different ages.

- Hip Osteoarthritis is most common in the elderly.
- Congenital Hip Disorders appear in the very young.
- Slipped Capital Femoral Epiphysis (SCFE), Legg-Clave-Perthes Disease (LCP)
- Trochanteric Bursitis can appear at all ages.
- Avascular Necrosis of the hip can be idiopathic but more frequently is associated with a corticosteroids, alcoholism and systemic disease (Lupus and Rheumatoid Arthritis).

Notes

Repeat that hip conditions vary by age:

Young: mechanical pain, trauma, congenital (slipped capital femoral epiphysis, Legg-Calve-Perthes disease), labral tear, stress fracture

Middle age: Osteoarthritis, Femoroacetabular impingement

Old: Osteoarthritis primarily painful in the morning, warm shower and moving helps it get moving, returns to stiffness at rest.

All ages: Trochanteric bursitis will hurt upon palpation right on the middle of the lateral greater trochanter

Also frequently seen in clinic is myofascial hip pain of the muscles that attach at the greater trochanter (gluteus medius/minimis/maximus, piriformis, superior gemellus, obturator internus, inferior gemellus, and quadratus femoris.

You may discuss in greater detail:

Osteoarthritis:

Age is the most common predisposing factor for hip osteoarthritis

There is moderate to strong evidence that physical workload, high-intensity sporting activities, and being overweight are risk factors for hip OA (Bierma-Zeinstra, Nat Clin Pract Rheum, 2007)

Lifetime risk of hip osteoarthritis appears to be higher for women (28.6%) than men (18.5%) (Murphy, Osteoarth Cartilage, 2010)

In regards to race, no clear evidence that hip OA is more prevalent in African-Americans (Allen, Osteoarth Cartilage 2009)

Clear genetic component exists. Reduced expression of a gene normally expressed in articular cartilage is associated with increased incidence of hip OA (Evangelou, Ann Rheum Dis 2013)

Avascular necrosis of the hip--There are many theories about what causes avascular necrosis and it can be idiopathic. Proposed risk factors include, chemotherapy, alcoholism, excessive steroid use, post trauma, decompression sickness, vascular compression, hypertension, capsulitis, arterial embolism and thrombosis, damage from radiation, bisphosphonates, sickle cell anemia, and in Gaucher's disease. Rheumatoid arthritis and Lupus are known antecedents of AVN.

Imaging helps.

- Plain films are valuable for most hip disorders, especially in children.
- Hip MRIs are beneficial in early diagnosis of inflammatory, infectious, or AVN.
- The value of contrast MRI for labral tears is questionable given the established rate of labral tears in asymptomatic.

Notes

Plain films have good value for disorders involving bony structure and magnetic resonance angiography (MRA) may follow

You may discuss in greater detail:

Congenital hip disorders;

SCFE—is a fracture of the growth plate and is a pathology of adolescence, usually causes hip and groin pain, often can cause thigh and knee pain. One in five cases involve both hips, resulting in pain on both sides of the body. SCFEs often occur in obese adolescent males, especially young black males, although it also affects females. Symptoms include the gradual, progressive onset of thigh or knee pain with a painful limp. Hip motion will be limited, particularly internal rotation.

LCP-- is a childhood hip disorder initiated by a disruption of blood flow to the femoral head causing avascular necrosis. Over time, healing occurs by new blood vessels infiltrating the dead bone and removing the necrotic bone which leads to a loss of bone mass leading to some degree of collapse and deformity of the femoral head and sometimes secondary changes to the shape of the hip socket. Most commonly found in children between the ages of 4 to 8 but it can occur in children between the ages of 2 to 15. It is more common in boys, hyperactivity, small stature for age, delayed bone age, and some minor congenital anomalies.

Multiple treatments are available. Exercise and patient activation offer best long term results.

- Exercise therapy is the foundational treatment for hip pain.
- Active physical therapy is better than passive in hip Osteoarthritis.
- Image guided intra-articular steroid injection may offer transient relief for trochanteric bursitis (Beware Avascular Necrosis).
- Hip replacement is indicated in trauma and must be used judiciously for Osteoarthritis.
- Other therapies like visco-supplementation, Prolotherapy and acupuncture have not been shown to be particularly effective.

Notes

Any history of trauma should be referred to orthopedic surgeon to exclude the need for surgery.

Suspicion for other systemic diseases may be referred to rheumatologists or neurologists.

If you suspect trochanteric bursitis a steroid injection may help facilitate physical therapy, otherwise physical therapy and exercise are best.

Knowledge Check

Given recent research evidence, _____ and _____ are interventions confidently recommended by providers for hip pain.

a. Strength Training; Aerobic Exercise
b. Physical Therapy; Cardio Kickboxing
c. Physical Therapy; Aerobic Exercise
d. Yoga; Plyometrics
e. Acupuncture; Kettle bell Training

Knowledge Check – Answer

Given recent research evidence, _____ and _____ are interventions confidently recommended by providers for hip pain.

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Notes

A physical therapist will do a thorough neuromusculoskeletal exam to determine the contributing factors and then apply an evidence-based matching treatment.

They can also prescribe and teach the appropriate aerobic exercise.

Summary

Be confident in performing physical exams while determining the differential diagnosis for hip pain.

Recall that different ages have different hip problems, and many hip pains are referred from the back, SIJ, buttocks and knee.

Use imaging to exclude surgical conditions and then reassure your patient that exercise, active physical therapy and life style changes work best.

Hip Pain Clinical Examination

http://vimeo.com/115659963

Notes

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The history should determine if the complaint is neuromusculoskeletal or needs referral to some other specialty. Second, listen for red flags such as complete inability to bear weight on the femoralacetabular joint or night pain. Then the single goal of the history is to make a primary and secondary hypothesis or differential diagnosis.

The goal of the tests & measures is to 1) confirm the primary differential (or go in a different direction), AND 2) determine the contributing factors to the pain.

Exam starts with observation as noted on the slide, followed by palpation, range of motion, manual muscle tests, functional tests—as at the bottom bullet. Last are some special tests that can screen for inter-articular pain.

Thorough history and basic exam are invaluable

Observe the patient for signs of injury, muscle atrophy, major alignment changes, skin changes. Make sure the patient is appropriately covered but that the lower extremities are exposed

Note their ability to bear weight and gait; watch how they move the affected lower extremity

Check range of motion and motor strength

Basic walking and small squatting and perhaps standing balance is very valuable and low risk

The clinical exam should choose the tests & measures that will do 2 things 1) confirm the history's differential, and 2) find the contributing factors (joint hypo or hypermobility, muscle quality/length (trigger points), and strength/motor control/neuro or disuse atrophy/improper motor patterns.

If the patient has any distal neuro signs, the lumbar spine must be ruled out via lumbar neuro screen (dermatomes, myotomes, and muscle stretch reflexes).

Then—observe posture and gait and look at area of complaint, targeted deep palpation, range of motion, manual muscle tests, functional tests (step up or squat or whatever activity causes the patient pain), and provocative tests.

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