Hip

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Introduction

- Unlike the shoulder joint, the hip joint is one of the most stable joints as the femoral head fits within the acetabulum like a ball in a socket. A complete examination should include the lumbar spine and knee as pain can often be referred from these areas to the hip.

Physical Examination

- ***Inspection*** should include any skin changes, swelling, or asymmetry of the muscle or bony contour surrounding the hip region. Foot position while standing may indicate femoral retroversion if there is excess external rotation of the foot while excess internal rotation of the foot may indicate femoral anteversion. Gait should be assessed with attention to abnormal gait patterns which may manifest as leg circumduction, trunk extension, or hip hiking. This may indicate leg length discrepancy, pain, or weakness of the hip extensors. Patients with antalgic gait may demonstrate pain with weight bearing and a shortened weight bearing stance on the affected leg. Single leg stance should be assessed to observe the presence of a "Tredelenbug sign" which would indicate weakness of the gluteus medius muscle. Patients may compensate for this by shifting their upper body over the affected lower extremity.
- ***Palpation*** of the hip region varies by location. Anteriorly, the rectus femoris, iliopsoas, sartorius, and adductor muscles may be palpated as well as the femoral artery. Posteriorly, the posterior superior iliac spine and ischial tuberosities may be palpated. The piriformis muscle is a flat and pyramid shaped muscle which originates anterior to the sacrum and attaches on the greater trochanter of the femur. This muscle can occasionally be palpated for presence of a muscle spasm or trigger point. Laterally, the iliac crest and greater trochanter should be palpated as the presence of bursitis may manifest by point tenderness over the trochanter. The tensor fascia lata and the gluteus medius and minimus muscles may cause tenderness laterally in which they insert into the greater trochanter.
- ***Range of motion*** *of* the hip is often assessed with the patient in supine position. While stabilizing the pelvis, internal and external range of motion can be assessed while prone positioning is preferred to assess hip extension. Symmetry along the hips may be the most

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R.J. Yong et al. (eds.), *Pain Medicine*, DOI 10.1007/978-3-319-43133-8_16

useful indicator of abnormal pathology as the normal range of motion can vary widely in the literature. The average range of motion needed for common daily activities include sitting (112° of flexion) and ascending stairs (67° of flexion). Functionally, the patient should have ranges of motion of 120° of hip flexion, 20° of abduction, and 20° of lateral rotation [1].

- The following are ***special tests*** that can be used to assess muscle tightness along the hip and lumbopelvic region.
  - Thomas test is useful for determining hip flexion contractures or tightness. The patient lies supine while the examiner assesses for excessive lumbar lordosis. The examiner passively flexes one of the patient's hips and brings the knee to the chest to flatten out the lumbar spine and holds the hip against the chest. If contracture or tightness is present, the patient's straightened leg rises off the table.
  - Ely test is used to identify tightness of the rectus femoris muscle. The patient lies prone while the examiner passively flexes the patient's knee. Upon knee flexion, the patient's hip on the same side may also flex, signifying a positive test and that the rectus femoris muscle is tight.
  - Ober's test is used to assess tightness of the iliotibial band and tensor fascia lata. The patient lies on their side with the affected thigh facing towards the examiner. The leg closest to the table is flexed to remove any lumbar lordosis and the upper leg is flexed at the knee while the examiner holds the ankle lightly with one hand and stabilizes the hip with the other. The upper leg is abducted and extended so that the thigh is in line with the body. If there is tightness of the muscles mentioned above, the leg will remain passively abducted and the test is considered positive.
- The following are ***special tests*** that can be used to assess for any periarticular or intra-articular hip pathology.
  - Stinchfield's test, also known as resisted active straight leg raise test, is performed with the patient lying supine with knee extended. The patient flexes their hip to 20–30° while the examiner provides resistance. Reproduction of groin pain is considered positive indicating potential for an intra-articular hip pathology.
  - FABERE test (Flexion, abduction, external rotation, and extension) is performed by laying the patient in supine position. The examiner then flexes, abducts, and externally rotates the hip being testing with the ankle resting on the contralateral knee. Pressure is applied in a posterior direction to the knee causing further external rotation of the hip. The test is considered positive if it provokes anterior groin pain while pain along the back on the contralateral side may indicate sacroiliac joint pathology.
  - Hip scouring, also known as the hip quadrant test, is performed by laying the patient supine and examiner flexing and adducting the hip to end range until resistance is felt. The examiner than moves the hip in a circular arc while applying compression into the hip joint while maintaining a flexed position of the hip. This attempts to load as much of the acetabular surface with the femoral head and any reproduction of pain, clicking, or locking is considered a positive test. Patients with femoroacetabular impingement may often present with pain with adduction and internal rotation of the hip.
  - Axial hip distraction is performed by laying the patient in supine position and the examiner abducting the hip to 30° and applying traction to the leg by holding the ankle. Relief of the patient's symptoms indicates potential intra-articular process due to compressive forces at the hip.

Questions

1. Trendelenburg sign is indicative of weakness of which muscle? Ipsilateral gluteus medius muscle
2. Thomas test is useful for determining tightness of which structure? Hip flexors (Iliopsoas muscle)

Reference

1. Magee DJ. Orthopedic physical assessment. Elsevier Health Sciences; 2013. p. 659–725.

Suggested Reading

Malanga GA, Nadler S, editors. Musculoskeletal physical examination: an evidence-based approach. Elsevier Health Sciences; 2006. p. 251–78.