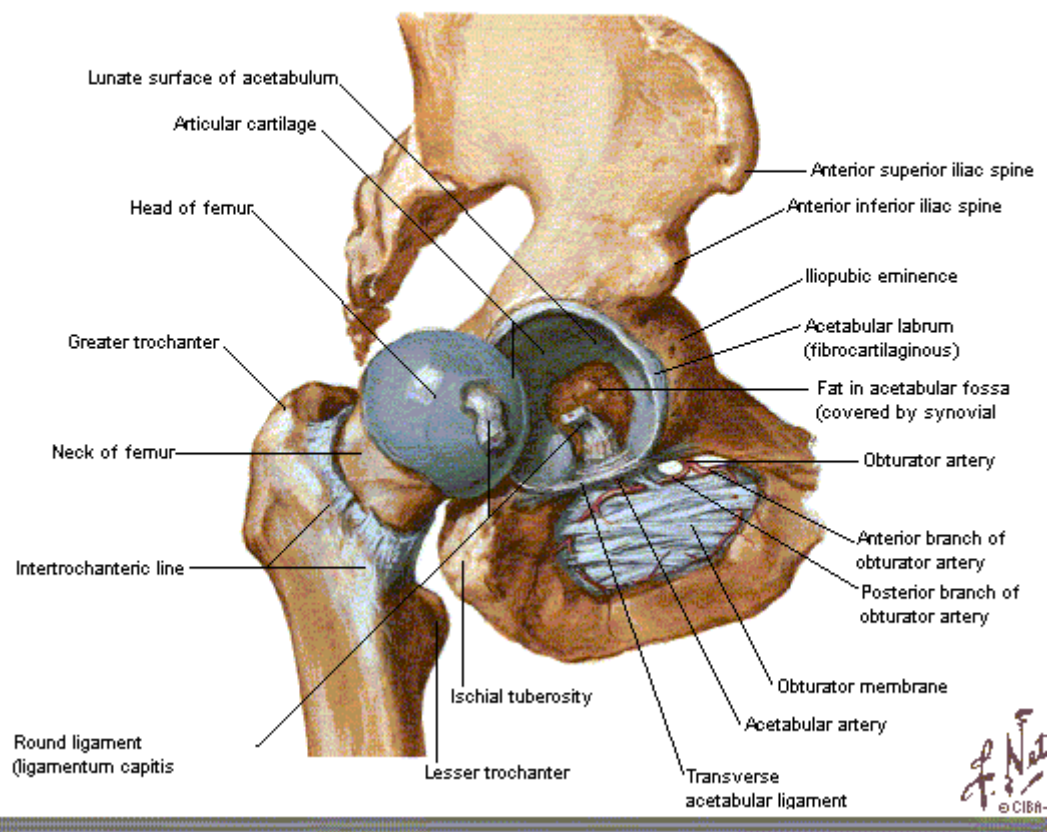


Hip

The **hip joint** is a multiaxial ball and socket synovial joint formed by the articulation of the rounded head of the femur and the cuplike acetabulum of the pelvis. It forms the primary connection between the bones of the lower limb and the axial skeleton of the trunk and pelvis. Both joint surfaces are covered with a strong but lubricated layer called articular hyaline cartilage. The cuplike acetabulum forms at the union of three pelvic bones and the joint may not be fully ossified (the process of forming bone) under the age of 25 years. The depth of the acetabulum is increased by a fibrocartilaginous rim called a labrum that grips the head of the femur and secures it in the joint.

The large head of the femur is completely covered in hyaline cartilage except for a small area called the fovea or pit. This is the site of attachment for an intracapsular ligament that attaches directly from the head of the femur to the acetabulum. The head of the femur is attached to the pelvis by a thin neck region (Neck of femur) that is often prone to fracture in the elderly, mainly due to the degenerative effects of osteoporosis.

Hip Joint [Opened] Lateral View

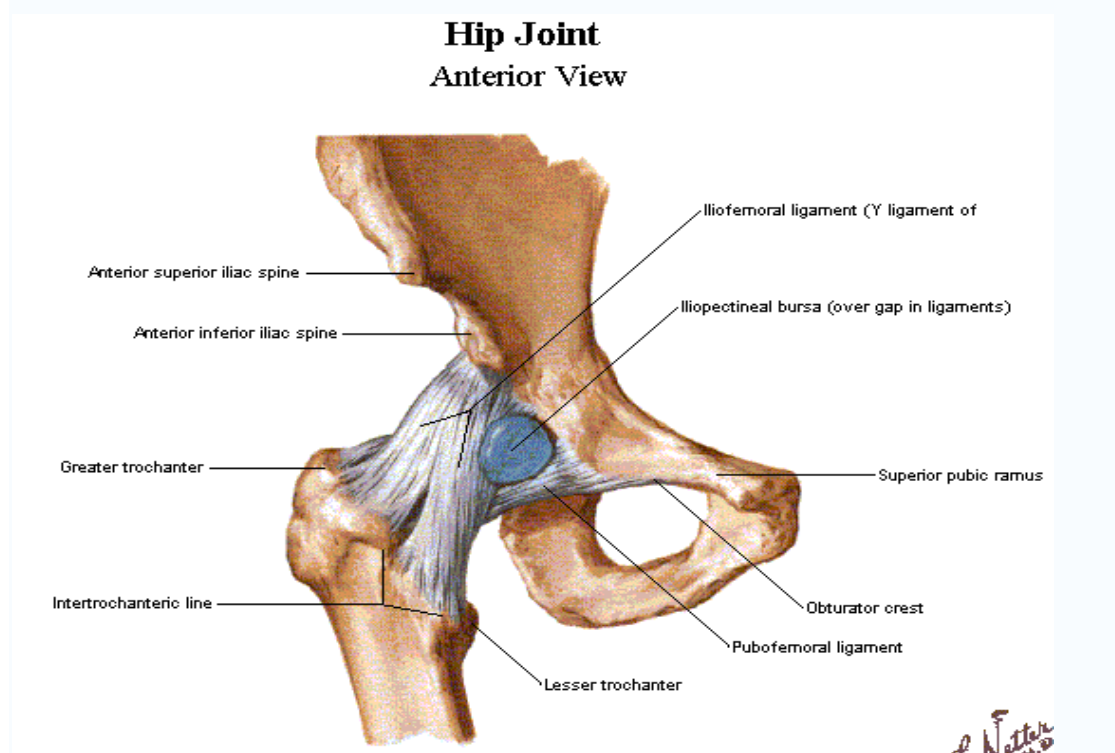


The strong but loose fibrous capsule of the hip joint permits the hip joint to have the second largest range of movement (second only to the shoulder) and yet support the weight of the body, arms and head. The capsule is attached proximally to entire periphery of the acetabulum beyond acetabular labrum. The capsule covers the femoral head and neck like a sleeve and attaches to the base of neck. The capsule has two sets of fibers: the longitudinal and circular fibers. The circular fibers forms a collar around the femoral neck called the zona orbicularis. The longitudinal retinacular fibers travel along the neck and carry blood vessel.

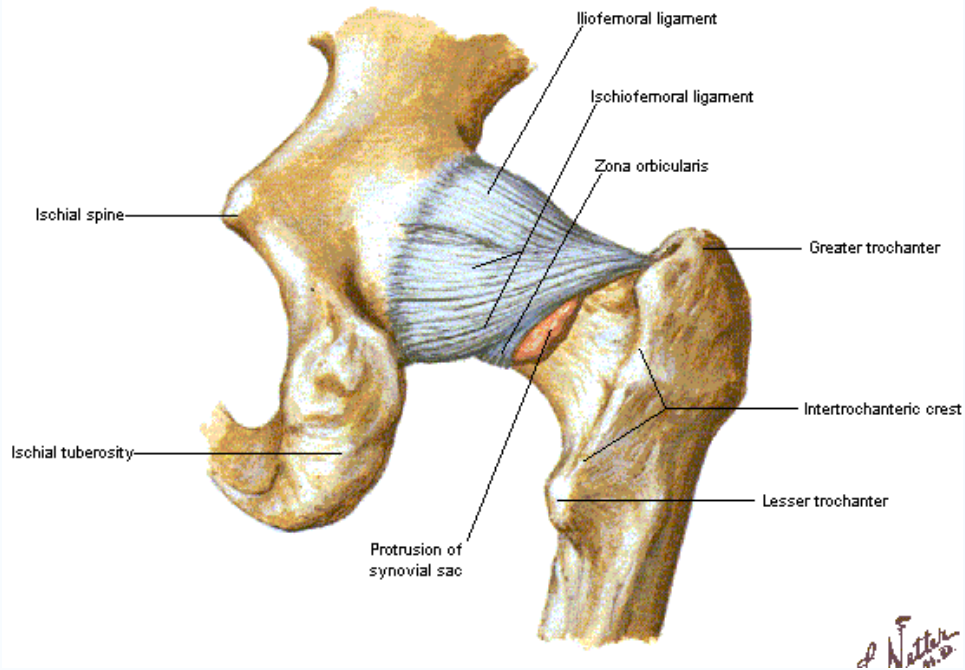
The hip joint is reinforced by three main ligaments.

- At the front of the joint, the strong iliofemoral ligament attaches from the pelvis to femur. This Y-shaped ligament is also known as the ligament of Bigelow. This ligament seeks to resist excessive extension of the hip joint. It is often considered to be the strongest ligament in the human body.
- The pubofemoral ligament attaches across the front of the joint from the pubis bone of the pelvis to the femur. This ligament is orientated more inferiorly than the iliofemoral ligament and reinforces the inferior part of the hip joint capsule. It also blends with the medial parts of the iliofemoral ligament.
- The posterior of the hip joint capsule is reinforced by the ischiofemoral ligament that attaches from the ischial part of the acetabular rim to the femur.

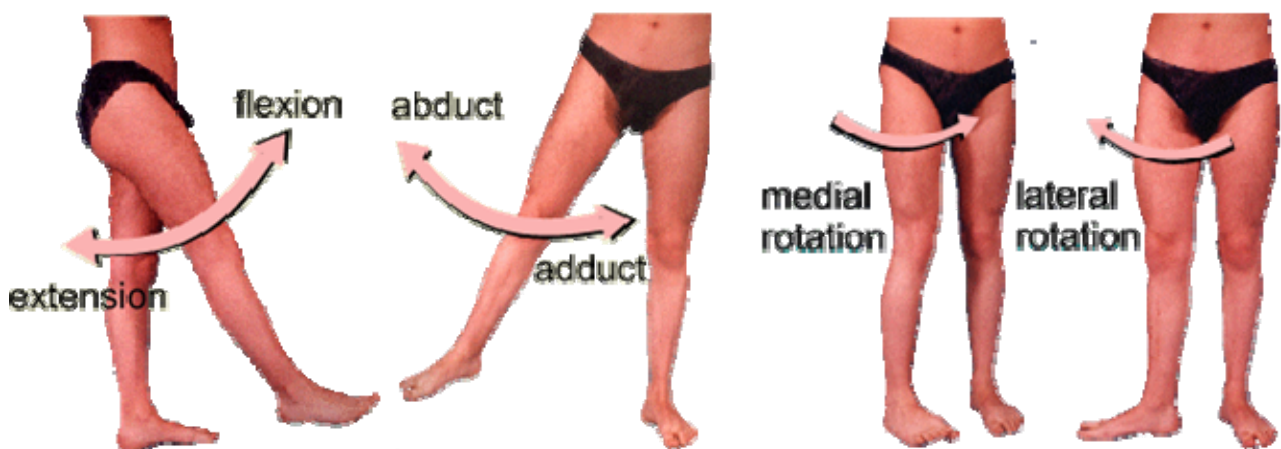
There is also a small ligament called ligamentum teres or the ligament of the head of the femur. The ligament is a triangularly shaped band with its base on both sides of peripheral edge of acetabular notch. This structure is not that important as a ligament but can often be vitally important as a conduit of a small artery to the head of the femur. This arterial branch is not present in everyone but can become the only blood supply to the bone in the head of the femur when the neck of the femur is fractured or disrupted by injury in childhood.



Hip Joint Posterior View



The muscles that cause movement in the hip can be divided into four groups according to their orientation around the hip joint: the extensors group, it includes gluteus maximus and hamstrings, the lateral rotator group, it includes obturator internus and externus, gemellus superior and inferior, quadratus femoris and piriformis. The adductor group includes pectineus, adductor brevis, longus and magnus. The flexor group includes iliopsoas, rectus femoris, tensor fascia lata and sartorius. The abductor group includes gluteus medius and minimus. These muscles produce flexion, extension, lateral rotation, medial rotation, abduction, and adduction. Many of the hip muscles are responsible for more than one type of movement in the hip, as different areas of the muscle act on tendons in different ways.



Common causes hip pain

Hip pain is common problem, and it can be confusing because there are many causes. It is important to make an accurate diagnosis of the cause of your symptoms so that appropriate treatment can be directed at the underlying problem. If you have hip pain, some common causes include:

- **Arthritis**
Arthritis is among the most frequent causes of hip pain, and there are many treatments available. If conservative treatments fail, hip replacement surgery is an option.
- **Trochanteric Bursitis**
Trochanteric bursitis is an extremely common problem that causes inflammation of the bursa over the outside of the hip joint.
- **Tendonitis**
Tendonitis can occur in any of the tendons that surround the hip joint. The most frequently encountered tendonitis around the hip is Iliotibial band (IT band) tendonitis.
- **Osteonecrosis**
Osteonecrosis is a condition that occurs when blood flow to an area of bone is restricted. If an inadequate amount of blood flow reaches the bone, the cells will die and the bone may collapse. One of the most common places for osteonecrosis to occur is in the hip joint.
- **Lumbar Pain - Referred Symptoms**
Many back and spine problems can cause symptoms around the buttocks and hip. The most common problems that refer pain to the hip region are herniated discs and sciatica.
- **Snapping Hip Syndrome**
Snapping hip syndrome is a word used to describe three distinct hip problems. The first is when the IT band snaps over the outside of the thigh. The second occurs when the deep hip flexor snaps over the front of the hip joint. Finally, tears of the cartilage, or labrum, around the hip socket can cause a snapping sensation.
- **Muscle Strains**
Strains of the muscles around the hip and pelvis can cause pain and spasm. The most common strains are groin pulls and hamstring strains.
- **Hip Fracture**
Hip fractures are most common in elderly patients with osteoporosis. Treatment of broken hips requires surgery to either replace the broken portion or repair it with a metal plate and screws.

Childhood Hip Problems:

- **Developmental Dysplasia**
When the hips are dislocated or out of position in infancy, the joint may not develop properly. While this is not usually painful as a child, it will lead to early arthritis and problems with walking.
- **Legg-Calve-Perthes Disease**
Also called Perthes disease, this is a problem similar to osteonecrosis (see above) but in childhood. If severe, it can lead to permanent damage to this hip joint and early arthritis.

What are the best treatments for hip pain?

Treatment depends entirely on the cause of the problem. Therefore, it is of utmost importance that you understand the cause of your symptoms before embarking on a treatment program. If you are unsure of your diagnosis, or the severity of your condition, you *should seek medical advice before beginning any treatment plan*.

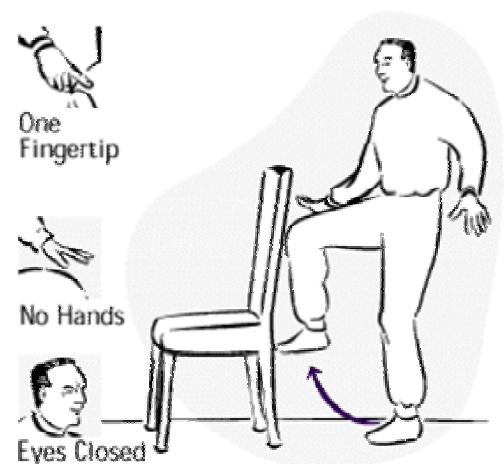
Some common treatments for hip pain are listed here. Not all of these treatments are appropriate for every condition, but they may be helpful in your situation.

- **Rest:** The first treatment for most conditions that cause hip pain is to rest the joint, and allow the acute inflammation to subside. Often this is the only step needed to relieve hip pain. If the symptoms are severe, crutches or a cane may be helpful as well.
- **Ice and Heat Application:** Ice packs and heat pads are among the most commonly used treatments for inflammation. So which one is the right one to use, ice or heat? And how long should the ice or heat treatments last?
- **Stretching:** Stretching the muscles and tendons that surround the joint can help with some causes of hip pain. A good routine should be established, and following some specific suggestions will help you on your way.
- **Anti-Inflammatory Medication:** Nonsteroidal anti-inflammatory medications, commonly referred to as NSAIDs, are some of the most frequently prescribed medications, especially for patients with hip pain caused by problems such as arthritis, bursitis, and tendonitis.
- **Physiotherapy:** Physiotherapy is an important aspect of treatment of almost all orthopedic conditions. Physiotherapist use different modalities to increase strength, regain mobility, and help return patients to their pre-injury level of activity.

Examples of some Hip strengthening exercises.

Hip flexion

1. Stand straight; holding onto a table or chair for balance.
2. Slowly bend one knee toward chest, without bending waist or hips.
3. Hold position.
4. Slowly lower leg all the way down.
5. Repeat with other leg.
6. Add modifications as you progress.



Hip extension

1. Stand 12 to 18 inches from table.
2. Bend at hips; hold onto table.
3. Slowly lift one leg straight backwards.
4. Hold position.
5. Slowly lower leg.
6. Repeat with other leg.
7. Add modifications as you progress.

