



## KNEE PAIN

### Anatomy

**Conditions:** ACL Tear • Ligamentous Injury • Meniscal Tear • Arthritis

**Procedures:** Injections • Nonprocedural Treatments

**Surgery**



### ANATOMY

The bones of the knee, the **femur** and the **tibia**, meet to form a **hinge joint**. The joint is protected in front by the **patella** (kneecap). The knee joint is cushioned by **articular cartilage** that covers the ends of the tibia and femur, as well as the underside of the patella. The **lateral meniscus** and **medial meniscus** are pads of cartilage that further cushion the joint, acting as shock absorbers between the bones.

Ligaments help to stabilize the knee. The **collateral ligaments** run along the sides of the knee and limit sideways motion. The **anterior cruciate ligament**, or ACL, connects the tibia to the femur at the center of the knee. Its function is to limit rotation and forward motion of the tibia. (A damaged ACL is replaced in a procedure known as an ACL Reconstruction.) The **posterior cruciate ligament**, or PCL (located just behind the ACL) limits backward motion of the tibia.

These components of your knee, along with the muscles of your leg, work together to manage the stress your knee receives as you walk, run and jump.



### CONDITIONS

#### ACL Tear

The ACL is a ligament in the center of your knee that becomes damaged when twisted too far, such as in a skiing injury. ACL Reconstruction is performed using a combination of open surgery and arthroscopy. We do not perform such surgery at our clinic, but send patients to an appropriate orthopedic surgeon for evaluation and treatment. After the surgery, rehabilitation THERAPY is essential for optimal recovery.

#### Ligamentous Injury

Other ligaments can be involved such as the medial and lateral collateral ligaments and the posterior cruciate ligament. These may be handled with conservative methods and THERAPY. A thorough description of these injuries is impossible here, but an accurate diagnosis is necessary and should include a history and physical examination by a qualified physician. Diagnostic imaging with x-ray or MRI may be necessary to further clarify the injury.

#### Meniscal Tear



Two broad fibrous semicircular discs help provide cushioning at the level of the knee. The two are called menisci, and it is common for tears to occur in the meniscus, especially with rotational stress, also known as torsion. Symptoms may include pain, swelling at the knee, pain exacerbation with squatting and bending, and clicking and locking of the knee. Up to 1/3 of meniscal tears are associated with ACL tears. Diagnostic imaging such as MRI will help define the type of meniscal injury, and definitive treatment is through orthopedic surgery. We can evaluate your knee at our clinic and refer you to an appropriate specialist.

## Arthritis

Arthritis in the knee usually presents with pain and loss of range of motion. The pain usually worsens with walking, and is often worse along the medial side of the knees [towards the midline]. In advanced disease, a bow-legged posture often develops, as the medial side of the knee joint loses height faster than the lateral side. This causes the knees to 'bow' outwards. Treatment consists of MEDICATIONS, INJECTIONS, THERAPY, ORTHOTICS, and possibly SURGERY.



## PROCEDURES

### Injections

Injections can be performed for some of the common pathologies to help decrease inflammation and alleviate pain.

### Nonprocedural Treatments

#### PHYSICAL AND OCCUPATIONAL THERAPY

This type of therapy may consist of exercises to improve range of motion, strength and conditioning. A good therapist will examine you, assess your deficits and disease and formulate a plan based on optimizing function and minimizing pain. These exercises are specific for the nature of your injury and should be executed under the supervision of a physician who understands your case.

#### MODALITIES

Modalities include simple age-old treatments such as heat, cold and massage as well as newer treatment methods such as acupuncture, manipulation, and electrical stimulation. Your physician and therapists should formulate an optimal treatment protocol to maximize your healing potential. These modalities are often used in conjunction with Physical and Occupational therapy.

#### MEDICATIONS

Depending on the nature of your problem, Non-steroidal antiinflammatory drugs ['NSAIDS'], corticosteroids, and opioids [narcotic] medications may be used. If there is a muscular spasm, a muscle-relaxant may help alleviate that aspect of your pain. Narcotics should be minimized and used only for short periods if at all possible due to rapid tolerance and all the attendant risks associated with abuse of a controlled substance.

#### ORTHOTICS

An appropriate brace sometimes is necessary to stabilize the knee. The right brace for the right condition is essential, and this subject is too detailed for discussion here. Proper fit is also necessary to insure stability.



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## **SURGERY**

Dr. Sandhu performs minimally invasive surgeries which result in a rapid recovery and minimal risk to the patient. Although we do not perform large-scale open surgeries in our clinics, there are occasions where a problem requires surgical intervention.

We can help screen potential surgical candidates and send them for evaluation by the appropriate specialist. These surgeons are usually orthopedic surgeons or neurosurgeons with specialized training for the particular disease process involved.