E-Bulletin

CEDARS سيدرز
مستشفى جبل علي الدولي
JEBEL ALI INTERNATIONAL HOSPITAL
Always here for you

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The E - Bulletin is a service provided from the in-house team of physicians (Specialists, GP's & the CEDARS Training Center) at the ***CEDARS – Jebel Ali International Hospital*** in order to raise awareness about health issues.

Knee Injuries

While direct blows to the knee will occur, the knee is more susceptible to twisting or stretching injuries, taking the joint through a greater range of motion than it can tolerate.

If the knee is stressed from a specific direction, then the ligament holding it in place against that force can tear. Ligament stretching or tears are called sprains. These sprains are graded as first, second, or third degree based upon how much damage has occurred. Grade-one sprains stretch the ligament but don't tear the fibers; grade-two sprains partially tear the fibers, but the ligament remains intact; and grade-three tears completely disrupt the ligament.

Twisting injuries to the knee put stress on the cartilage or meniscus and can pinch it between the tibial surface and the edges of the femoral condyle, causing tears. Injuries of the muscles and tendons surrounding the knee are caused by acute hyperflexion or hyperextension of the knee or by overuse. These injuries are called strains. Strains are graded similarly to sprains, with first-degree strains stretching muscle or tendon fibers but not tearing them, second-degree strains partially tearing the muscle tendon unit, and third-degree strains completely tearing it.

There can be inflammation of the bursas (known as bursitis) of the knee that can occur because of direct blows or chronic use and abuse.

Acute knee injuries fall into two groups; those where there is almost immediate swelling in the joint associated with the inability to bend the knee and bear weight, and those in which there is discomfort and perhaps localized pain to one side of the knee, but with minimal swelling and minimal effects on walking.

Knee Injury Signs and Symptoms

Acute knee injuries can cause pain and swelling with difficulty bending the knee and weight-bearing. If the swelling occurs immediately, it may suggest a ligament tear or fracture. If the swelling arises over a period of many hours, meniscal or cartilage injuries may be the cause. However, injuries to the knee may involve more than one structure and the symptoms may not present classically.

Longer-term symptoms that point to knee problems will include pain and swelling in addition to other complaints. Inflammation in the joint may be caused by even minor activity. Swelling may be intermittent, brought on by activity, and may gradually resolve as the inflammation decreases.

Pain, too, may come and go and may not occur right away with activity but might be delayed as the inflammation develops. Pain can also be felt with specific activities. Pain while climbing stairs is a symptom of meniscus injury, where the cartilage is being pinched in the joint as it narrows with bending. Pain with walking down stairs suggests patellar pain, where the kneecap is being forced onto the femur.

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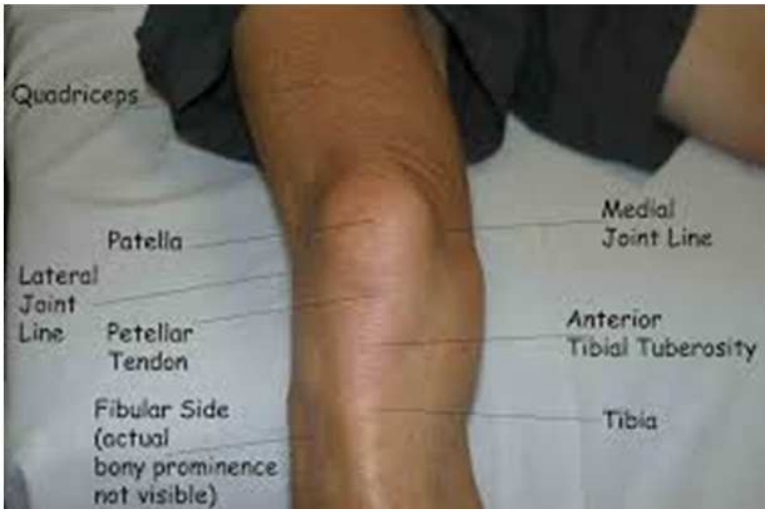
Knee Anatomy



Diagnosis of Knee Injuries

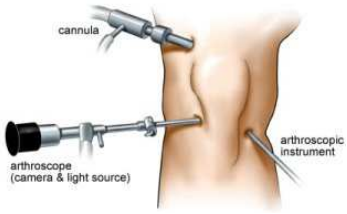
The initial evaluation by the physician or health-care provider will begin with a medical history.

Physical examination of the knee begins with inspection, in which the physician will look at the bones and make certain they are where they belong. With fractures of the kneecap or patellar tendon injuries, the kneecap can slide high out of position. Also, patellar dislocations, where the kneecap slides to the outside or lateral part of the knee, are easily evident on inspection. Looking at how the knee is held is also important. If the knee is held slightly flexed, it can be a clue that there is fluid in the joint space, since joint space is maximal at 15 degrees of flexion.

Doctor will also recommend X-Ray or MRI to further look into the injury.

Knee Injury Treatment

Almost all knee injuries will need more than one visit to the doctor. If no operation is indicated, then RICE (rest, ice, compression, and elevation) with some strengthening exercises and perhaps physical therapy will be needed. Sometimes the decision for surgery is delayed to see if the RICE and physical therapy will be effective. Each injury is unique, and treatment decisions depend on what the expectation for function will be. As an example, a torn ACL (anterior cruciate ligament) would usually require surgery in a young athlete or a construction worker, but the ACL may be allowed to heal with physical therapy in an 80-year-old who is not very mobile.



With the technology available, many knee injuries that require surgery can be treated surgically with an arthroscope, in which a camera is used and small punctures are made in the knee to insert instruments. Patients usually begin their post-op rehabilitation within days of the surgery.

If there is no rush to operate, then opportunity exists to strengthen the quadriceps and hamstring muscles beforehand. When a joint like the knee is injured, the muscles around it start to weaken almost immediately. This is also true after the surgery, which can also be considered a further injury. Strong muscles in the pre-operative state allow the potential for easier post-operative therapy

Diagnosis & Treatment of Specific Types of Knee Injuries

Muscle Tendon Injuries
Almost all of these strains are treated with ice, elevation, and rest. Sometimes compression with an Ace wrap or knee sleeve is recommended, and crutches may be used for a short time to assist with walking. Some anti inflammatory medicine is helpful to decrease swelling and inflammation.

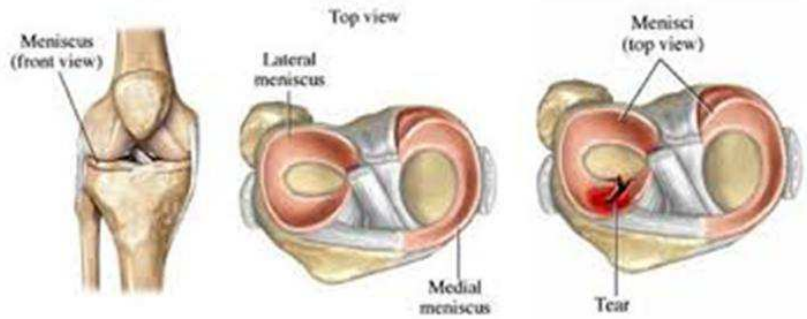
The mechanism of injury is either hyperextension, in which the hamstring muscles can be stretched or torn, or hyperflexion, in which the quadriceps muscle is injured. Uncommonly, with a hyperflexion injury, the patellar or quadriceps tendon can be damaged and rupture. This injury is characterized by the inability to extend the knee and a defect that can be felt either above or below the patella. Surgery is required to repair this injury.

Except for elite athletes, tears of the hamstring muscle are treated conservatively without an operation, allowing time, exercise, and perhaps physical therapy to return the muscle to normal function.

MCL and LCL Injuries
These ligaments can be stretched or torn when the foot is planted and a sideways force is directed to the knee. This can cause significant pain and difficulty walking as the body tries to protect the knee, but there is usually little swelling within the knee. The treatment for this injury may include a knee immobilizer, a removable Velcro splint that keeps the knee straight and keeps the knee stable. RICE (rest, ice, compression, and elevation) are the mainstays of treatment.

ACL Injuries
If the foot is planted and there is force applied from the front or back to the knee, then the cruciate ligaments can be damaged. Swelling in the knee occurs within minutes, and attempts at walking are difficult. The definitive diagnosis is difficult in the emergency department because the swelling and pain make it hard to test if the ligament is loose. Long-term treatment may require surgery and significant physical therapy to return good function of the knee joint. Recovery from these injuries is measured in months, not weeks.

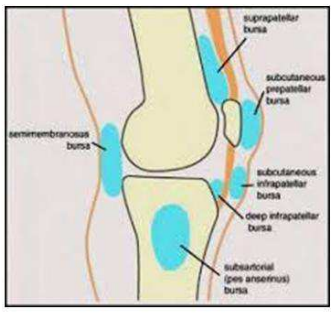
Meniscus Tears
The cartilage of the knee can be acutely injured or can gradually tear. Acutely, the injury is of a twisting nature; the cartilage that is attached to and lays flat on the tibia is pinched between the femoral condyle and the tibial plateau. Pain and swelling occur gradually over many hours (as opposed to an ACL tear which swells much more quickly). Sometimes the injury seems trivial and no care is sought, but chronic pain develops over time. There may be intermittent swelling, pain with walking uphill or climbing steps, or giving way of the knee that results in near falls. History and physical examination often can make the diagnosis and MRI may be used to confirm it.



Fractures

Fractures of the bones of knee are relatively common. The patella, or kneecap, may fracture due to a fall directly onto it or in car accidents, when the knee is driven into the dashboard. If the bone is pulled apart, surgery will be required for repair, but if the bone is in good position, a knee immobilizer and watchful waiting may be all that is required.

The head of the fibula on the lateral side of the knee joint can be fractured either by a direct blow or as part of an injury to the shin or ankle. This bone usually heals with little intervention, but fractures of this bone can have a major complication. The peroneal nerve wraps around the bone and can be damaged by the fracture. This will cause a foot drop, so do not be surprised if the physician examines your foot when you complain of knee problems. With jumping injuries, the surface of the tibia can be damaged, resulting in a fracture to the tibial plateau. Since this is where the femoral condyle sits to move the knee joint, it is important that it heals in the best position possible. For that reason, after plain X-rays reveal this fracture, a ct-scan is done to make certain that there is no displacement of the bones. Occasionally, this type of fracture requires surgery for repair.



Fractures of the femur require significant force, but in people with osteoporosis, less force is needed to cause a fracture of this large bone. In people with knee replacements who fall, there is a potential weakness at the site of the knee replacement above the femoral condyle, and this can be a site of fracture. The decision to operate or treat by immobilization with a cast will be made by the specialist orthopedic surgeon.

Bursa Inflammation

House maid knee (prepatellar bursitis) is due to repetitive kneeling and crawling on the knees. The bursa or space between the skin and kneecap becomes inflamed and fills with fluid. It is a localized injury and does not involve the knee itself. Treatment includes padding the knee and using ibuprofen as an anti-inflammatory medication. This injury is commonly seen in carpet installers and roofers.

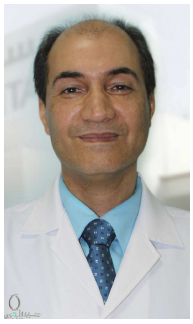
Patellar Injuries

The kneecap sits within the tendon of the quadriceps muscle, in front of the femur, just above the knee joint. It is held in place by the muscles of the knee.

The patella can dislocate laterally (toward the outside of the knee). This occurs more commonly in women because of anatomic differences in the angle aligning the femur and tibia. Fortunately, the dislocation is easily returned to the normal position by straightening out the knee, usually resulting in the kneecap popping into place. Physical therapy for muscle strengthening may be needed to prevent recurrent dislocations.

Patello-femoral syndrome occurs when the underside of the patella becomes inflamed if irritation develops as it rides its path with each flexion and extension of the knee, and it does not track smoothly. This inflammation can cause localized pain, especially with walking down stairs and with running. Treatment includes ice, anti-inflammatory medication, and exercises to balance the quadriceps muscle. More severe cases may require arthroscopic surgery to remove some of the inflamed cartilage and realign parts of the quadriceps muscle. ❖

Medical Consultant for October 2014



Dr. Farzad Ravari
Specialist Orthopedic Surgeon

Dr. Farzad Ravari is specialised in Traumatology (fracture & dislocation) by advanced techniques of AO, sports medicine, knee arthroscopic surgery, hip & knee joint replacement (arthroplasty), congenital deformity of upper & lower extremities, spine surgery. He graduated from Shahid Beheshti University of Tehran in 1998 and later worked as Chief of the Orthopedic Surgery Department in Mofateh Hospital, a hospital affiliated with the university.

From 1998 to 2004 he was Chief of Orthopedic Surgery Department of Torfeh Hospital, another hospital affiliated with Shahid Beheshti University. From 2004 to 2009 he was the attending orthopedic surgeon & consultant at Azadi Hospital.

He worked as a Specialist Orthopedic Surgeon in Arya Clinic, Dubai, for 10 years before joining the CEDARS team as Specialist Orthopedic Surgeon.