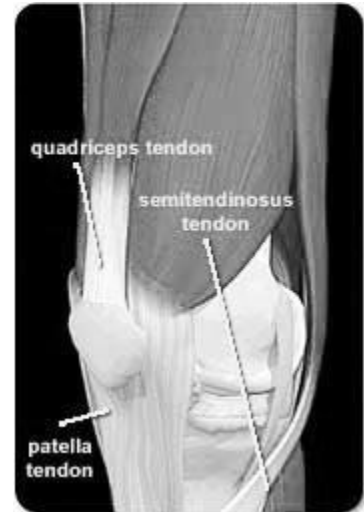


Anterior Cruciate Ligament (ACL):

Anterior cruciate ligament (ACL).

Surgery for **Anterior Cruciate Ligament (ACL)** involves reconstructing or repairing the ACL. ACL reconstruction surgery uses a graft to replace the ligament. The most common grafts are autografts using part of your own body, such as the tendon of the kneecap (patellar tendon) or one of the hamstring tendons. Another choice is allograft tissue, which is taken from a deceased donor. Repair surgery typically is used only in the case of an avulsion fracture (a separation of the ligament and a piece of the bone from the rest of the bone). In this case, the bone fragment connected to the ACL is reattached to the bone.



ACL surgery is usually done by making small incisions in the knee and inserting instruments for surgery through these incisions (arthroscopic surgery). In some cases, it is done by cutting a large incision in the knee (open surgery).

ACL surgeries are done by orthopedic surgeons.

Knee arthroscopic surgery

Definition

Knee arthroscopic surgery is a procedure performed through small incisions in the skin to repair injuries to tissues such as ligaments, cartilage, or bone within the knee joint area. The surgery is conducted with the aid of an arthroscope, which is a very small instrument guided by a lighted scope attached to a television monitor. Other instruments are inserted through three incisions around the knee. Arthroscopic surgeries range from minor procedures such as flushing or smoothing out bone surfaces or tissue fragments (lavage and debridement) associated with osteoarthritis, to the realignment of a dislocated knee and ligament grafting surgeries. The range of surgeries represents very different procedures, risks, and aftercare requirements.

While the clear advantages of arthroscopic surgery lie in surgery with less anesthetic, less cutting, and less recovery time, this surgery nonetheless requires a very thorough examination of the causes of knee injury or pain prior to a decision for surgery.

Purpose

There are many procedures that currently fall under the general surgical category of knee arthroscopy. They fall into roughly two groups—acute injuries that destabilize the knee, and pain management for floating or displaced cartilage and rough bone. Acute injuries are usually the

result of traumatic injury to the knee tissues such as ligaments and cartilage through accidents, sports movements, and some overuse causes. Acute injuries involve damage to the mechanical features, including ligaments and patella of the knee. These injuries can result in knee instability, severe knee dislocations, and complete lack of knee mobility. Ligament, tendon, and patella placements are key elements of the surgery. The type of treatment for acute injuries depends in large part on a strict grading system that rates the injury. For instance, grades I and II call for rest, support by crutches or leg brace, pain management, and rehabilitation. Grades III and IV indicate the need for surgery. Acute injuries to the four stabilizing ligaments of the knee joint—the anterior cruciate ligament (ACL), the posterior cruciate ligament (PCL), the medial collateral ligament (MCL), and the lateral collateral ligament (LCL)—as well as to the "tracking," or seating of the patella, can be highly debilitating.

Treatments of these acute injuries include such common surgeries as:

- Repairs of a torn ligament or reconstruction of the ligament.
- Release of a misaligned kneecap. This involves tendon surgery to release and fit the patella better into its groove.
- Grafts to ligaments to support smoother tracking of the knee with the femur.

Pain management surgeries, on the other hand, are used to relieve severe discomfort of the knee due to osteoarthritis conditions. These treatments aim at relieving pain and instability caused by more chronic, "wear and tear" kinds of conditions and involve minor and more optional surgical procedures to treat cartilage and bone surfaces. These include arthroscopic techniques to remove detached or obtruding pieces of cartilage in the joint space such as the meniscus (a fibrous cushion for the patella), to smooth aged, rough surface bone, or to remove parts of the lining of the joint that are inflamed.

Treatment distinctions between arthroscopic surgery for acute injuries and those for pain management are important and should be kept in mind. They have implications for the necessity for surgery, risks of surgery, complications, aftercare, and expectations for improvement. Arthroscopic surgery for acute injuries is less controversial because clear dysfunction and/or severe instability are measurable indications for surgery and easily identifiable. Surgery indications for pain management are largely for chronic damage and for the milder grades or stages of acute injuries (severity Grade I and II). These are controversial due to the existence of pain management and rehabilitation alternatives. Arthroscopic surgery for pain management is currently under debate.

Demographics

More than five and a half million people visit orthopedic surgeons each year because of knee problems. Over 600,000 arthroscopic surgeries are performed annually; 85% of them are for knee surgery. One very common knee injury is a torn anterior cruciate ligament (ACL) that often occurs in athletic activity. The most common source of ACL injury is skiing. Approximately 250,000 people in the United States sustain a torn or ruptured ACL each year. Research indicates that ACL injuries are on the rise in the United States due to the increase in sport activity.

The incidence of ACL injuries in women is two to eight times greater than in men. While the exact causes are not clear, differences in anatomy, strength, or conditioning are thought to play major roles. Women also seem to be more prone to patella-femoral syndrome (PFS), which is the inability of the patella to track smoothly with the femur. PFS is due primarily to development of tendons that influence the ways in which the knee tracks in movement. It can also be due to misalignments to other parts of the lower body like foot pronation. Other ligament surgeries can be caused by injury or overuse.

Knee dislocations are a focus of recent research because of their increasing frequency. Incidences range from 0.001% to 0.013% of all patients evaluated for orthopedic injuries. Many of these injuries heal without treatment and go undetected. Many people with multiple traumas in accidents have knee dislocations that go undiagnosed. Knee dislocations are of special concern, especially in traumatic injury, because their early diagnosis is required if surgery is to be effective. Knee dislocations in the morbidly obese individuals often occur spontaneously and may be associated with artery injury. This surgery involves complications related to the obesity. Finally, knee dislocations have been reported to occur in up to 6% of trampoline-associated accidents.