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## KNEE INJURIES IN CHILDREN AND ADOLESCENTS

Knee injuries in children and adolescent athletes may be the result of acute, traumatic injuries, such as a sudden fall, or chronic, repetitive overuse injuries. Occasionally, a knee injury may be the result of a combination of both factors—an athlete may have a chronic problem that suddenly becomes worse due to an acute traumatic event. These injuries may result in various symptoms including pain, instability, swelling, and stiffness.



### WHAT ARE COMMON KNEE INJURIES?

#### PAIN SYNDROMES

One of the most common causes of knee pain in young athletes is called **patellofemoral pain** syndrome. This condition, involving pain in the front of the knee, is related to overuse of the patellofemoral joint the joint between the kneecap (patella) and thighbone. Though this condition is often called runner's knee, it can also be caused by a direct blow to the kneecap.

## KNEE INJURIES

Pain in the front of the knee can also be caused by patellar tendinitis (jumper's knee), which causes pain in the patellar tendon that connects the patella to the tibia (shinbone). The patellar tendon attaches to a bump on the tibia called the tibial tubercle. In growing athletes, pain in this area, called Osgood-Schlatter disease, is due to irritation of the growth plate.

#### LIGAMENT AND CARTILAGE INJURIES

One of the most common ligament knee injuries is a sprain of the medial collateral ligament (MCL). A sprain refers to a ligament injury and a strain refers to a tendon or muscle injury. All sprains are graded on a scale of one to three; grade three sprains are complete tears. An MCL sprain is on the inside (medial) side of the knee, and often occurs when an athlete is hit on the outside (lateral side) of the knee, forcing the knee inward. Most MCL sprains can be treated without surgery.

An injury to the [anterior cruciate ligament \(ACL\)](#) usually occurs as a result of a twisting or pivoting motion. This injury may cause susceptibility to repeat injuries and knee instability, and therefore often requires surgery. Occasionally, a twisting or hyperextension force to the knee may result in a tibial spine fracture. Essentially, this is the same mechanism that causes an ACL injury, but instead of causing injury to the ligament itself, the bone where the ligament attaches is pulled off. This fracture often requires surgery but may be treated in a cast.

Although rare in children, young athletes may injure their meniscus, a type of cartilage that cushions and stabilizes the joint. All knees have two menisci—the medial meniscus on the inside of the knee and the lateral meniscus on the outside of the knee. [Meniscal tears](#) usually result from a forceful injury and often accompany ligament tears such as [ACL tears](#). These injuries usually require surgery. In addition, some children are born with an abnormal meniscus, known as a discoid meniscus, which is bigger than a normal meniscus and more prone to tearing.

Young athletes may also injure their joint surface cartilage (articular cartilage), a type of cartilage that covers the ends of all bones that make up joints. This cartilage is extremely smooth and slippery and allows a person to move joints comfortably millions of times during their lives. A condition called osteochondritis dissecans (OCD) occurs in children and adolescents and may eventually result in damage to the articular cartilage. The problem starts in the bone immediately under and supporting the articular cartilage and may involve the articular cartilage. OCD in the knee is usually treated with a period of rest from athletic activity but may require surgery.

#### GROWTH PLATE INJURIES, FRACTURES, AND DISLOCATIONS

Knee fractures rarely occur in childhood sports, but with any knee injury in a growing child there is a possibility of a fracture related to one of the growth plates. Any of the bones of the knee joint—the bottom of the thighbone, the top of the shinbone, and the kneecap—can be broken. Therefore, a knee injury that impedes a child's ability to bear weight or does not improve within a few days should be evaluated by a physician. One particularly vulnerable area in a growing child is the tibial tuberosity, which is the bump on the front of the knee where the patellar tendon attaches. Fractures to the growth plate in this area often require surgery.

Dislocations or partial dislocations of the kneecap occasionally occur in children and adolescents. Sometimes there is a visible, obvious deformity of the knee, with the kneecap in a position toward the outside of the knee—or the athlete may simply feel something pop out of the joint and then pop back in. When this occurs, the patella should be placed back in the correct position as soon as possible.

#### WHEN SHOULD MY CHILD SEEK MEDICAL CARE?

Injuries in childhood sports are common, but luckily most knee problems heal with rest and do not need intensive medical intervention such as surgery. As a general guideline, any knee injury that results in a visible deformity or inability of the athlete to put weight on the leg should be brought to the attention of a medical professional. For all other knee injuries, it is appropriate for the athlete to rest for two or three days. Elevation and ice are helpful for the first 24 to 48 hours. If the problem persists for more than a few days despite rest, seek medical treatment.

#### CONTRIBUTING EXPERT

Kenneth Fine, M.D.