Knee related Sports Injuries in Children and Adolescents

Knee injuries in children and adolescents

The knee is a complex joint with many components, making it vulnerable to a variety of injuries. According to the British Journal of Sports Medicine, the knee joint is the most common site for injury among younger people, the injury often resulting in expensive (surgical) treatment, long-term rehabilitation and permanent functional impairment and disability. While the general risk for ligament injury is relatively low among adolescents and young adults, participation in organized sports increases the risk significantly. The risk is especially high in active young women.

According to the American Orthopaedic Society for Sports Medicine, 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 cause various symptoms including pain, instability, swelling, and stiffness.

Pain Syndromes

One of the most common causes of knee pain in young athletes is 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 and the thighbone). Though this condition is often called runners’ knee, it can also be caused by a direct blow to the kneecap.

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

Growth Plate Injuries and Fractures

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. 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.

Ligament and Cartilage Injuries

One of the most common ligament injuries is a sprain of the medial collateral ligament (MCL). 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 often requires surgery but may be treated with a cast.
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.

When first injured, the RICE method—rest, ice, gentle compression and elevation—can help speed recovery. If the problem persists for more than a few days despite rest, seek medical treatment. Be sure to seek treatment as soon as possible, especially if:

- Severe pain
- Begin limping
- Have swelling at the injury site

Treatment options

Non-surgical - many knee injuries can be treated with simple measures such as:

- Immobilization: a brace to prevent the knee from moving
- Crutches: to prevent weight bearing
- Physical therapy: specific exercises to help restore function and strengthen the leg muscles that support it
- Medications: Non steroidal anti-inflammatory medicines such as ibuprofen reduce pain and swelling

Surgical: Many fractures and injuries around the knee require surgery to fully restore function.

Prevention

Knee injuries can be devastating - especially if the ACL is involved. Injuries can take up to nine months to recover from because they need time to heal, restore mobility and function, rebuild muscle tissue and restore coordination. Additionally, returning to play can take even longer mentally because of concerns of reinjuring the joint.

*Basic Knee injury Prevention*

The following key points should be considered:

- Flexibility of the hip and thigh musculature - flexibility or stretching of the surrounding muscles is crucial. There are countless stretching exercises but the basic guideline of warming up prior to exercise is key: warm up until “you break a sweat”, stretch each muscle group two to three times and stretch after activity for your cool down.
- Strengthening of the hip and thigh: Focus on the hip extensors, hip flexors and hip adductors
- Avoid overtraining - incorporate days of rest between each exercise bout and progress either by increasing time of each exercise session or by adding a day of activity per week. Consider a variety of activities, often called cross training and alternate non-weight bearing activity on alternate days. Regardless of the activity, ensure proper technique and follow any equipment guidelines and recommendations as appropriate.