

# What Are Knee Problems?

*Fast Facts: An Easy-to-Read Series of Publications for the Public*

## What Do the Knees Do?

The knees provide stable support for the body. They also allow the legs to bend and straighten. Both flexibility and stability are needed to stand, walk, run, crouch, jump, and turn. Other parts of the body help the knees do their job. These are:

- Bones
- Cartilage
- Muscles
- Ligaments
- Tendons.

If any of these parts are injured, the knee may hurt and not be able to do its job.

## Who Gets Knee Problems?

Men, women, and children can have knee problems. They occur in people of all races and ethnic backgrounds.

## What Causes Knee Problems?

Mechanical knee problems can be caused by:

- A direct blow or sudden movements that strain the knee
- Osteoarthritis in the knee, resulting from wear and tear on its parts.

Inflammatory knee problems can be caused by certain rheumatic diseases, such as rheumatoid arthritis and systemic lupus erythematosus (lupus). These diseases cause swelling which can damage the knees permanently.

## How Are Knee Problems Diagnosed?

Doctors diagnose knee problems by using:

- Medical history
- Physical examination
- Diagnostic tests (such as x rays, bone scan, CAT scan, MRI, arthroscopy, and biopsy).

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### Arthritis in the Knees

The most common type of arthritis of the knee is osteoarthritis. In this disease, the cartilage in the knee gradually wears away. Treatments for osteoarthritis are:

- Medicines to reduce pain, such as aspirin and acetaminophen
- Medicines to reduce swelling and inflammation, such as ibuprofen and nonsteroidal anti-inflammatory drugs (NSAIDs)
- Exercises to improve movement and strength
- Weight loss.

Rheumatoid arthritis is another type of arthritis that affects the knee. In rheumatoid arthritis, the knee becomes inflamed and cartilage may be destroyed. Treatment includes:

- Physical therapy
- Medications
- Knee replacement surgery (for a seriously damaged knee).

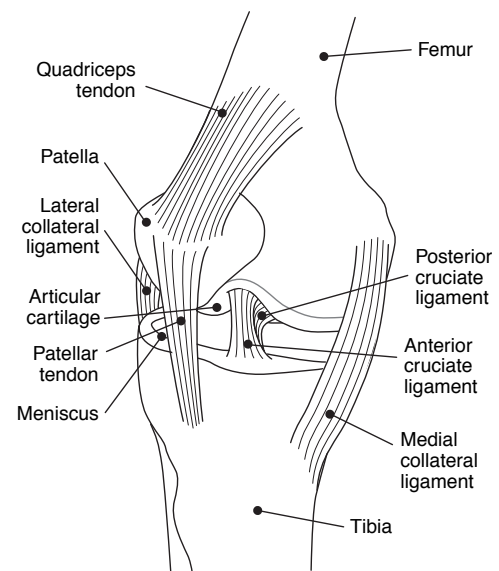
### Cartilage Injuries and Disorders

Chondromalacia (KON-dro-muh-lay-she-uh) occurs when the cartilage of the knee cap softens. This can be caused by injury, overuse, or muscle weakness, or if parts of the knee are out of alignment. Chondromalacia can develop if a blow to the knee cap tears off a piece of cartilage or a piece of cartilage containing a bone fragment.

The meniscus (meh-NISS-kus) is a C-shaped piece of cartilage that acts like a pad between the femur (thigh bone) and tibia (shin bone). It is easily injured if the knee is twisted while bearing weight. A partial or total tear may occur. If the tear is tiny, the meniscus stays connected to the front and back of the knee. If the tear is large, the meniscus may be left hanging by a thread of cartilage. The seriousness of the injury depends on the location and the size of the tear.

Treatment for cartilage injuries includes:

- Exercises to strengthen muscles
- Electrical stimulation to strengthen muscles
- Surgery for severe injuries.



**Lateral View of the Knee**

### Ligament Injuries

Two commonly injured ligaments in the knee are the anterior cruciate ligament (ACL) and the posterior cruciate ligament (PCL). An injury to these ligaments is sometimes called a "sprain." The ACL is most often stretched or torn (or both) by a sudden twisting motion. The PCL is usually injured by a direct impact, such as in an automobile accident or football tackle.

The medial and lateral collateral ligaments are usually injured by a blow to the outer side of the knee. This can stretch and tear a ligament. These blows frequently occur in sports such as football or hockey.

Ligament injuries are treated with:

- Ice packs (right after the injury) to reduce swelling
- Exercises to strengthen muscles
- A brace
- Surgery (for more severe injuries).

### **Tendon Injuries and Disorders**

The three main types of tendon injuries and disorders are:

- Tendinitis and ruptured tendons
- Osgood-Schlatter disease
- Iliotibial band syndrome

Tendon injuries range from tendinitis (inflammation of a tendon) to a ruptured (torn) tendon. Torn tendons most often occur from:

- Overusing a tendon (particularly in some sports). The tendon stretches like a worn-out rubber band and becomes inflamed.
- Trying to break a fall. If thigh muscles contract, the tendon can tear. This is most likely to happen in older people with weak tendons.

One type of tendinitis of the knee is called jumper's knee. In sports that require jumping, such as basketball, the tendon can become inflamed or can tear.

Osgood-Schlatter disease is caused by stress or tension on part of the growth area of the upper shin bone. It causes swelling in the knee and upper part of the shin bone. It can happen if a person's tendon tears away from the bone, taking a piece of bone with it. Young people who run and jump while playing sports can have this type of injury.

Iliotibial band syndrome occurs when a tendon rubs over the outer bone of the knee causing swelling. It happens if the knee is overused for a long time. This sometimes occurs in sports training.

Treatment for tendon injuries and disorders includes:

- Rest
- Ice
- Elevation
- Medicines such as aspirin or ibuprofen to relieve pain and reduce swelling
- Limiting sports activity
- Exercise for stretching and strengthening

- A cast, if there is a partial tear
- Surgery for complete tears or very severe injuries.

### Other Knee Injuries

Osteochondritis dissecans (OS-tee-oh-kon-DRI-tis DIS-secans) occurs when not enough blood goes to part of the bone under a joint surface. The bone and cartilage gradually loosen and cause pain. Some cartilage may break off and cause sharp pain, weakness, and locking of the joint. A person with this condition may develop osteoarthritis. Surgery is the main treatment.

- If cartilage fragments have not broken loose, a surgeon may pin or screw them in place. This can stimulate new blood flow to the cartilage.
- If fragments are loose, the surgeon may scrape the cavity to reach fresh bone and add a bone graft to fix the fragments in position.
- Research is being done to investigate cartilage and tissue transplants.

Plica (PLI-kah) syndrome occurs when bands of tissue in the knee called plicae swell from overuse or injury. Treatments for this syndrome are:

- Medicines such as aspirin or ibuprofen to reduce swelling
- Rest
- Ice
- Elastic bandage on the knee
- Exercises to strengthen muscles
- Cortisone injection into the plicae
- Surgery to remove the plicae if the first treatments do not fix the problem.

### What Kinds of Doctors Treat Knee Problems?

Injuries and diseases of the knees are usually treated by an orthopaedist (a doctor who treats problems with bones, joints, ligaments, tendons, and muscles).

### How Can People Prevent Knee Problems?

Some knee problems (such as those resulting from an accident) can't be prevented. But many knee problems can be prevented by doing the following:

- Warm up before playing sports. Walking and stretching are good warm-up exercises. Stretching the muscles in the front and the back of the thighs is a good way to warm up the knees.
- Make the leg muscles strong by doing certain exercises (for example, walking up stairs, riding a stationary bicycle, or working out with weights).
- Avoid sudden changes in the intensity of exercise.
- Increase the force or duration of activity slowly.

- Wear shoes that fit and are in good condition.
- Maintain a healthy weight. Extra weight puts pressure on the knees.

### **What Types of Exercise Are Best for Someone With Knee Problems?**

Three types of exercise are best for people with arthritis:

- Range-of-motion exercises. These exercises help maintain or increase flexibility. They also help relieve stiffness in the knee.
- Strengthening exercises. These exercises help maintain or increase muscle strength. Strong muscles help support and protect joints with arthritis.
- Aerobic or endurance exercises. These exercises improve heart function and blood circulation. They also help control weight. Some studies show that aerobic exercise can reduce swelling in some joints.

### **For More Information About Knee Problems and Other Related Conditions:**

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The information in this publication was summarized in easy-to-read format from information in a more detailed NIAMS publication. To order the Knee Problems Q&A full-text version, please contact NIAMS using the contact information above. To view the complete text or to order online, visit <http://www.niams.nih.gov>.

### **For Your Information**

This publication contains information about medications used to treat the health condition discussed here. When this publication was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration at 1–888–INFO–FDA (1–888–463–6332, a toll-free call) or visit their Web site at [www.fda.gov](http://www.fda.gov).