TAKE TWO HEALTH
2503 Walnut Street #200
Boulder CO 80302
tel: 303-557-2250
fax: 303-325-7688
www.taketwohealth.com
Leto Quarles MD

**OrthoInfo Basics**

# About Your Knee

**Your knee is the largest joint in your body and one of the most complex. It is also vital to movement.**

Because you use it so much, it is vulnerable to injury. Because it is made up of so many parts, many different things can go wrong.

Knee pain or injury is one of the most common reasons people see their doctors. Most knee problems can be prevented or treated with simple measures, such as exercise or training programs. Other problems require surgery to correct.

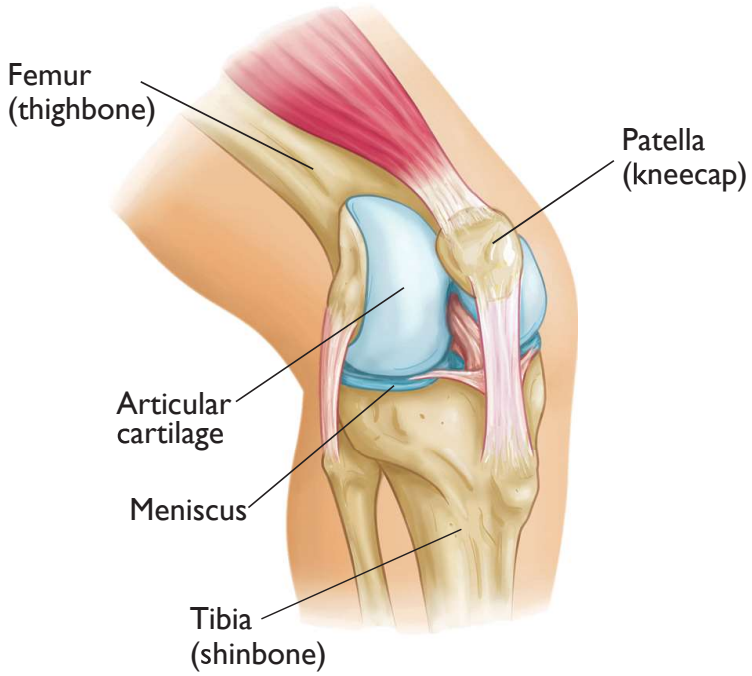
## What are the parts of the knee?

Your knee is made up of four main things: bones, cartilage, ligaments, and tendons.

**Bones.** Three bones meet to form your knee joint: your thighbone (femur), shinbone (tibia), and kneecap (patella). Your patella sits in front of the joint and provides some protection.

**Articular cartilage.** The ends of your thighbone and shinbone are covered with *articular cartilage*. This slippery substance helps your knee bones glide smoothly across each other as you bend or straighten your leg.

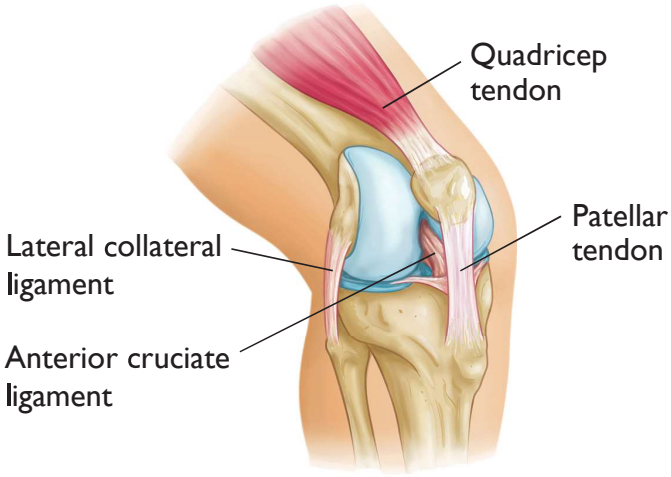
**Meniscus.** Two wedge-shaped pieces of *meniscal cartilage* act as "shock absorbers" between your thighbone and shinbone. Different from articular cartilage, the meniscus is tough and rubbery to help cushion and stabilize the joint. When people talk about torn cartilage in the knee, they are usually referring to torn meniscus.



## What are ligaments and tendons?

Ligaments and tendons connect your thighbone to the bones in your lower leg.

**Ligaments.** Bones are connected to other bones by ligaments. The four ligaments in your knee act like strong ropes to hold the bones together and keep your knee stable.




**Collateral ligaments.** These are found on the sides of your knee. The medial collateral ligament is on the inside and the lateral collateral ligament on the outside. They control the sideways motion of your knee and brace it against unusual movement.

**Cruciate ligaments.** These are found inside your knee joint. They cross each other to form an "X" with the anterior cruciate ligament in front and the posterior cruciate ligament in back. The cruciate ligaments control the back and forth motion of your knee.

**Tendons.** Muscles are connected to bones by tendons. The quadriceps tendon connects the muscles in the front of your thigh to your kneecap. Stretching from your kneecap to your shinbone is the patellar tendon.

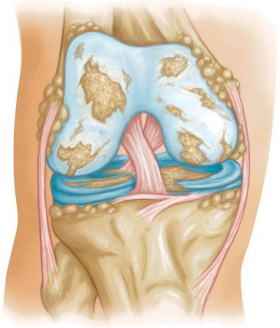
## What are the symptoms of a knee problem?

Pain and swelling are the most common signs of a knee injury. Your knee may catch or lock up.

Many ligament injuries also cause instability – the feeling that your knee is giving way.

## What are some common knee problems?

The knee is made up of many important structures, any of which can be injured. Some of the more common knee problems are described below.

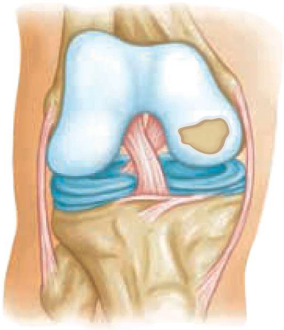


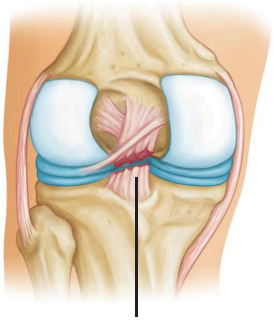
### Articular Cartilage-Osteoarthritis

Aging or injury can cause a gradual wearing away of the articular cartilage lining our joints. This is called osteoarthritis and most often causes pain and stiffness in the knee.

### Articular Cartilage-Chondral Defect

The joint surface can sometimes be damaged in a single, or focal, location. The rest of the joint may still be healthy.





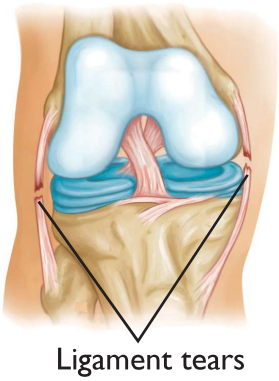
Ligament tear

### Posterior Cruciate Ligament (PCL)

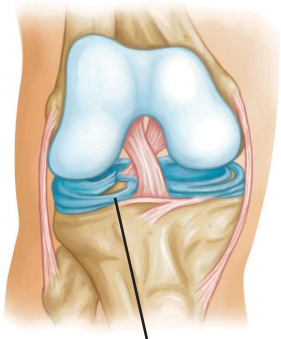
The PCL is often injured with a blow to the front of the knee while the knee is bent. This often occurs in sports and motor vehicle crashes. (Tear shown from back view of knee)

### Collateral Ligaments

Medial collateral ligament tears often occur as a result of a direct blow or twisting injury. Lateral collateral ligament tears occur less frequently than other knee injuries. They are typically caused by a blow to the inside of the knee.



Ligament tears



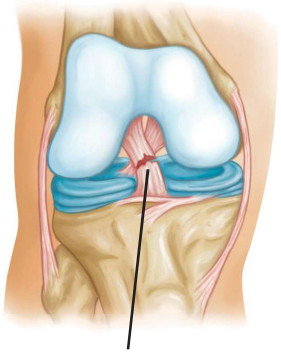
Meniscus tear

### Menisci

Meniscal tears can occur when twisting, cutting, pivoting or squatting. They may also occur as a result of arthritis or aging.

### Anterior Cruciate Ligament (ACL)

A quick cutting maneuver or landing from a jump incorrectly can tear your ACL. A sudden "pop" is sometimes heard at the time of injury.



Torn ligament

## For more information

For more information about your knee and common knee problems, visit *OrthoInfo* at **www.orthoinfo.org.**

*OrthoInfo* is the patient education website of the American Academy of Orthopaedic Surgeons (AAOS), and is a trusted source of information about musculoskeletal conditions. Our articles are developed by orthopaedic surgeons, and provide detailed information about a wide range of injuries and diseases, as well as treatment options and prevention topics.

AAOS does not endorse any treatments, procedures, products, or physicians referenced in this handout. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.

© 2019 American Academy of Orthopaedic Surgeons