

# Orthopaedic Connection

## Knee Joint Anatomy

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*Transforming patient information into patient understanding.*

The knee is the body's biggest joint. Lots of things go wrong with it and it is one of our most often injured joints. For these reasons and a few others I thought it would be interesting to 5 or 6 of you (joke!) how the knee actually works. A non medical person's insight, if you will, of the knee's anatomy and how it functions. OK, let's get started.

### **Bony Structure**

The knee has just 3 bones - seems simple enough, right? The end of the thigh bone (femur), the upper end of the leg bone (tibia), plus the kneecap (patella).

### **Outer Tissue Structures**

The knee joint is held together by a complicated network of muscles, ligaments and tendons.

**Key Point:** But no muscles actually cross the knee joint.

These tissues serve as shock absorbers, helping the knee withstand strain from walking, running, jumping, many sports (contact and noncontact), lifting large objects, etc. Kind of makes your knee a little sore already doesn't it? Read on.

### **The Major Ligaments**

ACL is the abbreviation for anterior cruciate ligament. Unless you live in a cave, you have almost surely heard of it. It is the most famous (infamous?) of all the knee ligaments.

The ACL is deep in the knee starting in the front of the tibia and passing upwards to the femur. It is thick and strong, about the size of a pencil. It crisscrosses another lesser known ligament the PCL or posterior cruciate ligament. Together they keep the knee from sliding forward and backwards.

The other 2 major ligaments are superficial. One is larger, broad and flat. It is on the inner or medial side and is called the medial collateral ligament (MCL).

The last major ligament is smaller and thicker and is on the outer or lateral side of the knee. It is the lateral collateral ligament (LCL).

ACL and MCL have the dubious distinction of being injured way more than the PCL and LCL.

### **The Tendons**

There are a bunch of tendons which connect to muscles above and below the knee. These cross the knee in front and in back. Never mind the tendons names, it will get too confusing.

### **On The Inside**

Hang on, we're getting there! The two important things to know about the inside of the knee joint are:

- The substance covering the articular portion of the femur, tibia and patella is fairly thick, slippery, keeps the bones apart. It is a good cushion for the joint.
- The two menisci or "cartilages" as patients call them are shims that are quarter moon shaped. They stabilize the knee and also cushion it somewhat.

I think this might be a good place to stop. Next week I will cover a few things about what happens when these structures are damaged and some points about how to prevent knee injuries.

You have been a good class, so I am letting you out a little early this week.

### **Gratiot County Herald Archive and Office Website**

I hope what you have read has raised questions. No problem!

Please log onto [www.orthopodsurgeon.com](http://www.orthopodsurgeon.com). It has a huge amount of musculoskeletal information in the Website and the Archive of all previous GCH articles.

Check it out and be amazed what you can learn.

Good health. Good life. All the best to you. Be well.

Dr. Haverbush