

Anatomy of Knee

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Overview

The knee joint is involved in almost every movement. Simple activities such as walking, bending, and turning to require the use of knee and hip joints. The knee is the body's largest joint and supports the body's weight. It's the place where three large bones meet: the tibia (shin bone), the femur (thigh bone), and the patella also known as the knee cap. The joint capsule of the knee is surrounded by many strong ligaments. This reinforces its structure and holds its bones in the correct alignment. Knees bear the weight of our body so they are vulnerable to injury and osteoarthritis too.

Tibia forms the base of the knee. This bone also called the "shinbone," is the large bone of the lower leg. The lower leg has a smaller bone, which is called the "fibula". It connects to the tibia just below the knee and it doesn't form part of the joint.

Just above this is the femur and it is also referred to as "thighbone." The thigh bone is the heaviest, largest and the longest bone in our body. The patella protects the front of the knee joint. It is also referred to as "kneecap."

Articular Cartilage

In the knee the surfaces of the bones are layered by a soft material called articular cartilage. This smooth tissue acts as a lubricant to reduce friction and protects joints from wear and tear. Healthy cartilage allows bones to glide smoothly as the knee flexes and extends.

Menisci

There are thick pads between the tibia and femur called "menisci." They are individually called as "meniscus." They are made of cartilage. These perform as cushions for the two rounded protrusions on the end of the femur called as the "condyles."

Cruciate Ligaments

A pair of strong bands of tissue called "cruciate ligaments" connect the tibia and the femur. "ACL" is the anterior cruciate ligament. "PCL" is the posterior cruciate ligament.

The ligaments cross each other just like an X right in the central part of the knee. The ACL doesn't let the tibia slipping forward. The PCL restricts it from slipping backwards.

These ligaments also limit the knee's rotation.

Collateral Ligaments

"Collateral ligament," are a set of another ligaments that can be found on the sides of the joint. They assist in stabilizing the knee and minimize the side-to-side movement.

Patella

The patella is in the front of the knee and is secured by the quadriceps tendon and the patellar ligament. The upper and lower part of the patella is connected by the quadricep tendon. When the knee flexes and extends it allows the patella to move.