Knee Pain

Anatomy and Physiology

Injuries to the knee are the most common reason people see an orthopedic physician. The structure and stress placed upon the knee make it vulnerable to a variety of injuries. The largest joint in the body is the knee. It is comprised of the lower end of the femur and the upper end of the tibia. The patella (kneecap) slides in a groove on the end of the femur, and covers the joint. Several large ligaments support the knee on either side. The meniscus and cartilage cushion the knee and act as a shock absorber during motion.

Muscles

In addition to these structures, there are two groups of muscles at the knee. The quadriceps muscle in front straightens the leg from a bent position. The hamstring muscles, in the back, bend the knee.

B] Ligaments

Ligaments are strong, elastic bands of tissue that connect bone to bone.

They provide strength and stability to the joint. Four ligaments connect the femur and tibia:

- The medial collateral ligament (MCL) provides stability to the inner (medial) aspect of the knee.
- The lateral collateral ligament (LCL) provides stability to the outer (lateral) aspect of the knee.
- The anterior cruciate ligament (ACL), in the center of the knee, limits rotation and the forward movement of the tibia.
- The posterior cruciate ligament (PCL), also in the center of the knee, limits backward movement of the tibia.

Tendons

Tendons are tough cords of tissue that connect muscle to bone. In the knee, the quadriceps tendon connects the quadriceps muscle to the patella and provides power to extend the leg. The patellar tendon connects the patella to the tibia.