

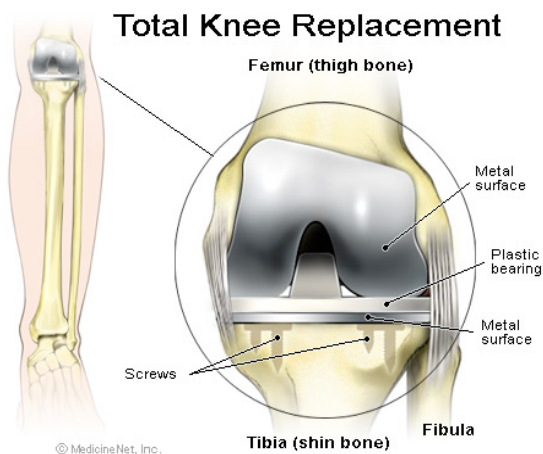
# Total Knee Replacement

Robert Farley-Biomedical Engineering-University of Rhode Island

The knee is the largest and most commonly used joint in the body. It is made up of the bottom of the femur, top of the tibia and the patella. The femur and tibia are connected by ligaments, PCL, MCL, ACL and meniscus. All other parts are connected by synovial membrane which secretes synovial fluid which lubricates the joint.

The most common reason for one to get a knee replacement is arthritis. Arthritis is an infection to joint fluid and tissues. The three most common kinds of arthritis are traumatic, osteoarthritis, and rheumatoid.

The procedure is to replace the bottom of the femur with a metal shell. The same is done with the tibia, except a metal plate is screwed into the top of the tibia. On top of the metal plate is a plastic sheet that acts as cartilage. A metal button is attached to the plastic sheet and acts as a flexion point.



The surgery usually lasts about 2-3 hours. After the surgery the patient is taken to a waiting room where vital organs are monitored. Because physical therapy is such a big part of the recovery process it is usually encouraged 48 hours after surgery. New technology however allows for CPM 's which stretch out the joint and drastically reduce recovery time.

Life after surgery can be lived as normal but has to be monitored. Constant exercise is encouraged to strengthen the muscle and the joint. Swimming is the best form of exercise for the joint because it puts the least amount of strain on the knee. Running and any sort of contact sport is discouraged because it could damage the joint. Patients are expected to monitor their knee for any soreness, redness, or irritation because infection is common.

Arthritic Knee. 6 Nov. 2008

<<http://www.sydneyboneandjoint.com.au/images/kneexray.gif>>.

Knee diagram.

<[http://www.aclsolutions.com/images/seif\\_knee%20anatomy01.jpg](http://www.aclsolutions.com/images/seif_knee%20anatomy01.jpg)>.

Total knee replacement. American Academy of Orthopedic Surgeons. 6 Nov. 2008

<<http://orthoinfo.aaos.org/topic.cfm?topic=a00389>>.

Total knee replacement. MedicineNet.com. 6 Nov. 2008

<[http://www.medicinenet.com/total\\_knee\\_replacement/page3.htm](http://www.medicinenet.com/total_knee_replacement/page3.htm)>.