

A patient with recurrent urinary tract infection secondary to chronic kidney stones, urethral stricture, or other genitourinary problems should have urologic evaluation prior to total knee replacement.

**PRECAUTIONS:**

Special precautions against infection are taken before, during and after surgery. Antibiotics are used perioperatively. A special surgical room and techniques for a sterile environment are used during surgery. Although the risk is very low, the occurrence of late infection can be catastrophic and may require the removal of the prosthesis. To minimize the risk, prophylactic antibiotics are given any time dental manipulation, urinary tract surgery or instrumentation or significant bowel procedures are performed. Any skin infection should also be treated with antibiotics as well, since late prosthetic implant infection may be related to skin infection.

**HOSPITALIZATION:**

Patients are admitted on the day of surgery and hospitalized for 2-3 days. During the hospital stay, the emphasis is placed on regaining knee motion and strength, and activities of daily living. The faster patients are able to return home, the better they often do. If more assistance is required or there is no one at home, a week or two in a rehabilitation facility will help in regaining independence. Therapy should begin at home with daily range of motion exercises and strengthening. This may be aided by the use of a physical therapist, but in the highly motivated patient, therapy may be done entirely on a home program. Straight leg raising, bending over a chair, and maintaining extension over a rolled towel beneath the ankle are used with ambulation and functional exercise such as an exercise bicycle to regain function.

**BLOOD TRANSFUSION:** Transfusions is generally not necessary. Blood count is monitored for a few days following surgery. Transfusion is generally necessary only in the patient with cardiac or pulmonary problems.

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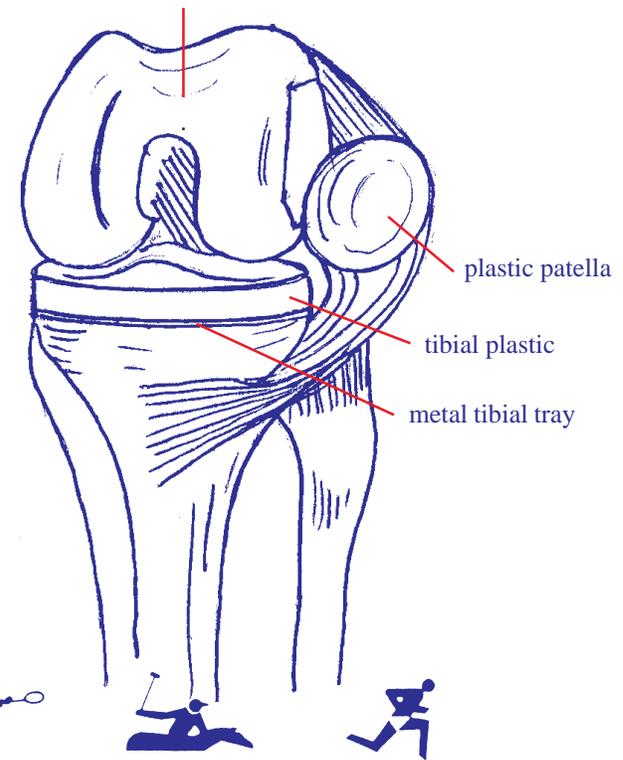
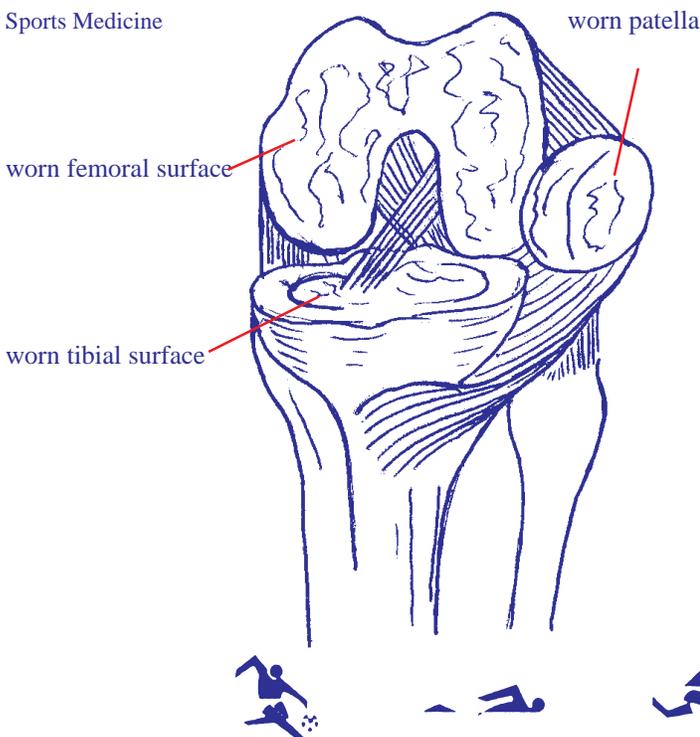
**KNEE JOINT REPLACEMENT SURGERY**

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A person with advanced arthritis of the knee joint resulting in severe pain is a candidate for total knee replacement. When knee pain interferes with daily activity, walking tolerance, and independence, it is time to consider this alternative. Many individuals choose a total knee replacement so they can maintain normal activities of daily living.

### **ARTHRITIS:**

The end of the femur and tibia form the knee joint. They are covered with a thin, smooth layer of cartilage. In the knee hyaline (surface) and meniscal cartilage cushion the joint and absorb shock. Normally this cartilage is lubricated by a few drops of synovial fluid. The lining of the joint which produces this fluid is synovium. With cartilage debris from wear, the synovium proliferates and produces excess fluid. Cartilage has poor healing capabilities; as it wears away, bone becomes exposed. Bone surfaces rubbing against each other cause pain, while cartilage has no sensation. There are no predictable or satisfactory methods for reversing the damage of arthritis. When nonsurgical alternatives cannot bring a suitable level of relief, total joint replacement is a realistic alternative.

### **PROSTHESIS APPEARANCE:**

A total joint replacement consists of three pieces. These are made of rugged polyethylene (high density plastic) and alloy metals. These pieces resurface the three bones which comprise the knee joint (femur, tibia and patella). The femoral component (the end of the thigh bone) is made of metal. The tibial component (the top of the shin bone) has a metal tray with a plastic insert which mates with the femoral component. The patella component (the kneecap) also has a plastic surface which mates with a groove in the femoral component. The knee replacement appears and functions much like a normal knee.

### **TOTAL JOINT FIXATION:**

There are two methods of securing the prosthesis to the bones. One relies on an in-growth of the patient's bone to anchor the device, and the other uses "cement". The cement is plastic polymer that serves as an adhesive. The method of fixation utilized is usually based on the patient's age and the quality and condition of the patient's bone. The design of the prosthesis also influences the method of attachment to the bone.

### **TOTAL KNEE FUNCTION:**

Replacement joints come in many different sizes, and are precision engineered to feel and move as much like a real joint as possible. Most people with an artificial knee joint are not aware of a difference between the feel of the implant and their original knee. The knee replacement allows for less bending than a normal knee. In the knee suitable for replacement, however, the range of motion is often improved postoperatively.

Design changes continue in existing prostheses in an effort to yield better function and longevity. A well implanted prosthesis, in a compliant patient, usually lasts for many years. Since many prostheses now used are improved designs, we can only guess at their longevity. Trauma, wear or loosening may make it necessary to replace a prosthesis. Revision replacements may have a shorter life expectancy than primary implants. Every effort must be made to prolong the life of the total knee which is implanted first. A maximum working life of 10-15 years is reasonable, and more is possible. The physical activity level and patient age are strongly related to the longevity of knee replacements. The main object of a total knee replacement is relief of pain. Other goals include the correction of deformity and restoration of stability. Prosthetic design constraints limit the range of motion to approximately 0-110°. It should be emphasized that total knee replacements are not done to allow patients to return to unlimited activities. Fitness may be maintained by swimming, bicycling, and walking. Golfing and even skiing in some individuals may be considered, but impact loading such as running or jumping should be minimized.

### **CANDIDATES FOR TOTAL KNEE REPLACEMENT:**

The ideal patient is over sixty years of age. Most are between 60 and 80 years of age. Younger patients tend to be more active leading to premature loosening of the replacement. Young age is a contraindication to total knee replacement. Extreme osteoporosis (softening of the bone) is also a relative contraindication to total knee replacement. In patients with a significant history of past infection in their knee, total knee replacement may be contraindicated because of the risk of reactivating the infection.