Summary of Procedure

Total Knee Replacement is a surgical procedure designed to relieve pain and restore function to the arthritic knee joint. In this surgery, the surfaces of the knee joint are removed and replaced with artificial parts. The surgery varies in its complexity, but usually takes about 2 hours to perform, and the hospital stay is usually 3-4 days. The recovery time also varies, and depends on many factors, especially the health of the patient, but usually patients can walk with only a cane (or less) by about three months.

The artificial parts can be fixed to the patient’s body with bone cement, or an uncemented prosthesis can be used, with the goal of having the patient’s bone grow into the metal, or a combination of both methods can be used. The post-operative period, especially the first 6 weeks, can be quite difficult, because the knee is very painful but must be moved aggressively to ensure a satisfactory outcome.

Complications of Knee Replacement Surgery

In general, knee replacement surgery is extremely successful, and the medical literature supports success rates, as measured by patient satisfaction with the procedure, of more than 90%. Unfortunately, as with all surgery, the success rate is not 100%, and there can be complications. Some of the most common complications are listed below, with a brief explanation of each one. (Note that not all possible complications have been listed.)

- **Infection.** Any time the skin is violated in an operation, a germ can enter the wound and cause an infection. Usually the body can fight the infection, but in the presence of an artificial material, such as a total joint prosthesis, the body often is unable to fight the infection. Infected total joint replacements are a disaster, because curing the infection often requires removal of the prosthesis followed by a long period of antibiotics. If the infection is successfully treated, the prosthesis may be reimplanted at a later time. Infections can occur immediately after the surgery, or they can occur at any time after the surgery if a germ travels through the body and settles into the joint. Fortunately, the infection rates are low; being approximately 1%, but this may be higher if the patient has diabetes or another condition which lowers the body’s resistance to infection. To prevent infection, we use antibiotics and careful sterile technique.

- **Bleeding.** All surgeries cause some bleeding. Knee replacement surgery can be associated with the loss of 1 or 2 pints of blood because the bony surfaces can bleed quite a lot. Patients commonly elect to give blood for themselves (autologous blood donation) or have family members donate blood for their use (directed donor blood) to minimize the risk of transfusion, although this may not be necessary if the patient has a high blood count to start with. If a transfusion is necessary, there is a small risk of transmission of diseases like HIV and Hepatitis, and there is a small chance of a poor match with the transfused blood.

Risks of Knee Replacement Surgery

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- **Blood Clots.** During any surgery, especially one on the legs, there is a risk of the blood clotting in the blood vessels instead of flowing normally. This is called a DVT, or deep venous thrombosis. A large clot can be associated with
substantial swelling of the leg, or there may be no signs at all. If the clot migrates through the blood vessels to the heart and lungs, it can cause a pulmonary embolus or PE, in which the important blood vessels in the heart and lungs are blocked, with potentially lifethreatening consequences. Blood clots are quite common in the legs after knee surgery, although PEs, fortunately, are not. All patients who undergo knee replacement surgery are at risk, although we try to minimize the risk with the use of blood thinners or devices that compress the legs to keep the blood flowing.

- Wound healing problems. Occasionally, the incision does not heal as quickly as the surgeon would like, or there may be a collection of blood under the skin (a hematoma) which causes continued drainage. Sometimes a second surgical procedure is needed to correct the problem, and persistent wound problems may indicate an infection.

- Angular deformities. During the surgery, the surgeon will make every effort make sure that the alignment of the limb is normal, or, in other words, that there is not an excessively bowed or knock-kneed appearance to the leg. In some situations, however, the leg may still appear crooked after surgery.

- Injuries to nerves, blood vessels, and other structures. There are several important blood vessels and nerves in the vicinity of the knee joint which are at risk during the surgery. Damage to these structures is rare. A nerve supplying the skin on the outside portion of the knee is routinely cut when the knee incision is made, and patients have different amounts of permanent numbness in this area, although function is not affected. It is also possible, though rare, to have a fracture of the bone of the thigh or leg during insertion of the prosthesis. This complication could prolong the surgery and increase recovery time.

- Medical problems related to anesthesia and surgery. Knee replacement surgery is usually done in an older group of patients, and these patients often have a variety of medical problems, including heart disease, diabetes, and the like. While anesthesia is usually very safe, there is always the risk of a complication such as a heart attack or stroke during or after the surgery. Lung problems, such as asthma, can be worse after surgery, especially in smokers, and pneumonia can be a serious complication as well. Medications given for anesthesia or pain can have varying effects as well, such as allergic reactions, nausea, vomiting, itching, constipation, or confusion.

- Stiffness. Although the artificial knee joint does not move as well as a normal knee, most patients regain a functional range of motion. Some patients have more difficulty with stiffness than others, and occasionally, a manipulation of the knee, under anesthesia, is needed to break up excessive scar tissue. Loss of motion can become permanent, so exercises are essential!

- Instability. Occasionally, the ligaments that are supposed to support the knee joint are insufficient. This can be treated with a brace or with a repeat operation. Sometimes the knee cap does not stay in place properly, although with better surgical techniques, this complication is less frequent now than in the past.

**Risks of Knee Replacement Surgery**

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usually become loose, and they can become painful. Some joints can become loose very soon after the initial surgery, and it is not always clear why. If the loose joint is very painful, revision surgery may be necessary, and it is usually a larger and more difficult procedure than the original knee replacement.

- Persistent pain or limp. While knee replacement surgery is generally very effective at relieving pain, some patients continue to experience pain in their knees, or they continue to limp. The pain or limp may come from the joint itself and is usually related to the unreplaced parts of the knee, like the tendons. Pain may also be related to scarring and stiffness, or to muscle weakness. In other cases, the pain is from the outside of the joint (bursitis), or is referred from other areas, especially the hip.

Studies have demonstrated that functional improvement often continues for 2 years or more, as muscles weakened from years of limited use start working properly again.

In conclusion, knee replacement surgery is a major operation, and while successful most of the time, there is definitely the risk of serious complications which can make a person significantly worse than if they had not had the procedure. As a result, any decision to proceed with the surgery should be carefully considered, and we usually do not recommend undergoing surgery unless simpler and safer measures, such as medications or the use of a cane, have failed to relieve symptoms. If a patient does elect to have surgery, he or she can be confident that we will do what we can to minimize the risks in order to achieve a successful outcome.

Department of Orthopedic Surgery
Kaiser Permanente Santa Clara Medical Center