

## **Minimally Invasive Total Knee Replacement**

### **Description**

Total knee replacement (arthroplasty) is a surgery that is performed for severe degeneration of the knee joint. More than 300,000 people undergo the procedure each year. Minimally invasive total knee arthroplasty is one method of performing a knee replacement. It uses a smaller incision. Knees wear out for a variety of reasons. These include inflammation from arthritis, injury or simple wear and tear. A knee replacement is the resurfacing of the worn out surfaces of the knee. A surgeon replaces lost cartilage with metal and plastic. This is typically done through an incision down the center of the knee. The incision averages 8 inches to 10 inches long. Minimally invasive total knee arthroplasty is a different way of performing the surgery. It uses an incision that is only 4 inches to 6 inches long. This means that potentially there will be less damage to the tissue around the knee.

### **Risk Factors/Prevention**

Arthritis can run in families. Most knee arthritis is due to a lifetime of wear and tear. Nobody knows why some people get severe arthritis, while others don't. Nobody knows why one knee in the same person gets arthritis, while the other does not. Previous injury and obesity are some known causes of arthritis.

### **Symptoms**

Knee arthritis leads to pain. The pain often happens with activity. The knee can also hurt at rest. Patients often find it difficult to go up or down stairs, walk distances or get up from low seats. There may also be swelling, stiffness or a feeling of looseness.

### **Treatment Options**

The first steps in treating knee arthritis are activity modification, a program of regular exercise and weight loss. The muscles around the knee protect it during activity. Every step puts several times your body weight through your knee. Improved strength and decreased body weight will prolong the life of your knee. Soft knee braces and modifications of your shoe can sometimes help. Tylenol<sup>®</sup> or anti-inflammatories (NSAIDs) are usually the first medications recommended for arthritis. Some dietary supplements might also help. You may need to use a cane or walker. This can help you walk and improve your mobility.

The next step is injections. Steroids may be used to decrease inflammation. A lubricant may be used to improve the function of the knee. These can offer some relief. They can be repeated from time to time if they help.

### **Treatment Options: Surgical**

Surgery is the final step in the treatment of knee arthritis. A knee replacement can help to eliminate most of the pain from arthritis. It is indicated if the steps above have failed and the pain from the arthritis is limiting your lifestyle and activities.

Surgical options include knee arthroscopy (although this is rarely used just for arthritis), partial knee replacement and total knee replacement.

Total knee replacement can be performed in the traditional method (8 inch to 10 inch incision). Or it can be performed using newer techniques (4 inch to 6 inch incision). The goal of knee replacement is to provide a pain-free knee that allows relatively normal activities and lasts for as long as possible. In order to achieve these goals, it is extremely important that the knee replacement be inserted in the best possible position. The bone and ligaments are prepared very carefully to allow the knee to be functional and durable. Using the current techniques, 90 percent to 95 percent of knee replacements should last 15 years or longer.

The minimally invasive knee replacement technique attempts to accomplish all of this through a smaller incision. With the smaller incision come the potential benefits of a shorter hospital stay, a shorter recovery and a better looking scar. There is no reason to believe that the knee will function any better. Although there is no question that a knee can be put in through a smaller incision, it is still unknown whether it can be done as well. New ways to open the knee may be more important than the length of the incision. These are sometimes called "quad-sparing" because they protect the quadriceps (the muscle on the front of the thigh) and make the recovery easier.

Several early studies of MIS knee surgery have shown some benefits such as less blood loss, shorter hospital stays and better motion, while others have shown a higher rate of complications, suboptimal positioning of the knee implants and no real difference in the recovery. Unfortunately, we won't know if these new techniques affect the long-term function and durability of the knee replacement for 10 to 15 years. Long-term durability is much more important than whether you were in the hospital for 2 days or 4 days after surgery.



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### **Research on the Horizon/What's New?**

Advocates of minimally invasive knee replacement are working to address concerns about accurate positioning of the knee replacement. They are combining the small incision with computer-guided instruments. The potential benefits, risks and costs of this are not yet established.

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