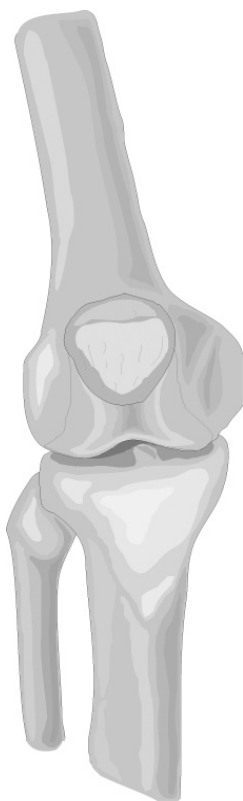


# **Minimally Invasive Surgery (MIS)**

**Total Knee Replacement  
Partial Knee Replacement**



**ORTHOPEDIC  
SPECIALISTS**

Minimally Invasive Surgery (MIS) of the knee is an evolving treatment option for patients with arthritis and other serious conditions affecting the knee joint. As the result of improved instrumentation and techniques, surgeons are now able to perform major orthopedic procedures through smaller, less traumatic incisions.

## **Arthritis**

Arthritis of the knee joint occurs when the smooth gliding surface of the joint (cartilage) wears away leaving roughened surfaces of the bones to grind against each other causing pain and stiffness. Later on, bone spurs and deformity may develop. Symptoms can also include swelling, instability, and difficulty with climbing stairs or walking distances. Treatment options include weight loss, medications, injection therapy with either steroids ( to decrease inflammation) or a lubricant (i.e. Synvisc or Hyalgan) to improve the function of the knee, assistive devices, such as a cane or brace, physical therapy, and surgery. Surgical treatment options include arthroscopy (rarely used for arthritis), partial knee replacement and total knee replacement.

When nonoperative measures have failed to provide adequate relief, knee replacement may be recommended. Traditional knee replacement typically involves an 8 to 12 inch incision over the front of the knee. The quadriceps tendon and muscle are split so that the procedure may be performed. Although this tendon is repaired at the end of the procedure, it is significantly weakened resulting in pain, weakness and a prolonged rehabilitation.

## **Minimally Invasive Surgery (MIS)**

MIS knee replacement has been developed to allow knee surgery to be performed through a 4 to 6 inch incision over the front of knee. In the case of MIS knee replacement the quadriceps tendon and muscle are not cut and this results in a decrease in the amount of trauma to the knee. This results in less pain, greater strength, and quicker recovery.

The artificial joints being used for MIS knee replacement are the same as those used for traditional knee replacement, but specially designed instruments are needed in order to prepare the bone surfaces. Implantation is the same and may involve pressed fit, screws, or bone cement. MIS knee replacement is more technically demanding and requires special training and considerable experience on the part of the surgeon.

## **MIS Partial Knee Replacement**

In cases where one portion of the knee is affected by arthritis, while the remaining parts of the knee are not, a partial knee replacement can be considered. This can be performed by MIS and a rapid recovery is usually seen. Unfortunately, most people have significant arthritis involving more than one part of the knee and a partial replacement will not be sufficient. Ask your surgeon if you are a candidate for this procedure.

## **Benefits of MIS Knee Replacement**

Patients generally see the following potential benefits:

- Less postoperative pain
- Less blood loss
- More cosmetic scar
- Better motion
- Shorter hospital stay
- Quicker recovery
- Earlier return to work
- Less rehabilitation
- Less cost

While early studies suggest MIS knee replacement is a safe and effective alternative to traditional knee replacement, the long-term benefits of these techniques have not been documented to represent an improvement over the traditional method.

## **Ideal Candidates for MIS**

MIS knee replacement is usually performed on patients with smaller legs/knees, no previous knee surgery, small amount of deformity, and over 90 degree arc of knee motion.

Longer incisions may be needed in muscular patients or very heavy patients. The larger the patient's femur (thigh bone), the larger the incision. Also complex cases such as previously operated knees may need more exposure. The decision to undergo a MIS knee replacement involves a thorough evaluation and discussion with the operating surgeon about the risks and benefits.

## **Future Directions of MIS**

Extensive research is currently underway to evaluate MIS procedures as they evolve. The use of computer assisted navigation (CAN) for MIS is rapidly expanding to allow more precise reconstruction of the knee with less direct visualization. In addition, new materials and implant designs continue to be developed to prolong the life-span of knee replacement.



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