

HEALTHLINE

Physician Appointments and Wellness Programs

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► COMPUTER-ASSISTED, PARTIAL KNEE REPLACEMENT ◀

What is computer-assisted, partial knee replacement?

In conventional knee replacement, the entire knee joint is replaced with artificial joint components. In partial knee replacement, the surgeon replaces just the arthritic portion of the knee, implanting replacement parts that work with the remaining natural structures of the knee. Advanced surgical groups have begun using sophisticated computer systems to check the alignment of the joint and make positioning of the components more exact.

Partially arthritic knees are more likely to have major destruction of the medial (inner side) and sometimes also patella-femoral (knee cap) compartments. Such knees often have a functional lateral (outer side) compartment. Traditionally, patients with knees in such conditions would have undergone a total knee replacement, including replacement of the healthy lateral component and its associated ligaments such as the ACL (anterior cruciate ligament) and PCL (posterior cruciate ligament). Partial replacement allows these patients to retain the healthy portion of their knee.

Why should I consider partial knee replacement?

Conventional, total knee replacement brings with it discomfort during the period right after the operation and substantial need for rehabilitation during recovery. While these are realities for any form of joint replacement,

partial knee replacement is a less invasive approach. Patients who undergo partial replacements can usually return to function more quickly. In addition, preserving the healthy compartments of the joint results in a more natural feel.

What does partial knee replacement involve?

In the partial-knee operation, the surgeon will make an incision in the knee and remove the diseased portions of the bone, cartilage, and ligaments. Using careful measurements, the team will then replace these structures with very precisely designed artificial joint components made of high-tech plastics and metal alloys. The effect is to resurface the meeting places of the bones of the joint – the femur (thigh bone), tibia (lower leg bone), and patella (knee cap).

What difference does the computer assistance make?

One of the reasons that partial knee replacement has not been available to more patients at more centers is that it is technically difficult to do. The replacement components must be aligned very precisely with the natural portions of the knee for the repaired knee to function properly. The surgeon must have a high level of training and experience for a top-quality result.

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The computer system creates an image of the patient's joint during the operation, and it coordinates reference points on the natural knee to those on the joint implants. This permits the surgeon to finely adjust the position of the components with certainty, so that he or she can orient the replacement joint to function optimally with the bones, muscle, ligaments, and other structures around them. This system should soon allow more orthopedic centers to offer partial knee replacement with assurance of good results.

Will I be asleep during a partial knee replacement?


No, patients often have local anesthesia during the surgery, but can be sedated to alleviate fears.

Is this considered a minimally invasive knee surgery?

Yes, but that term can mean different things in the hands of different orthopedic surgical groups. Often it refers to the use of a smaller incision. However, minimal invasiveness actually involves a number of other factors, including the amount and kinds of manipulation to surrounding tissue, the reconstructive techniques used, the length of the surgery, control of bleeding, and other factors. We always minimize the invasiveness of the surgery to the extent we can while still permitting the highest-quality, mechanical result.

What will it be like after the surgery? Will I have a lot of pain?

Joint replacement is an established procedure and one of the most common types of major surgery. Still, any replacement of a joint is a substantial operation that requires a rehabilitation period. After your surgery, you



can expect varying amounts of swelling, numbness, pain, and stiffness in the joint. This expected part of the healing process is addressed with medications and a disciplined program of mobilization exercises, both in the hospital and on an outpatient basis. While recovering, you may walk with crutches, a walker, or a cane. Physical therapy will continue until you can walk without assistance or reach whatever goal is appropriate for you.

How quickly will I be back on my feet after a partial knee replacement?

Recovery varies for all patients, but having a partial knee replacement rather than a total replacement generally means a faster return to activities. Typically, the recovery period for a partial knee is four to six weeks; whereas recovery can sometimes take two to three months with a total knee replacement.

Will this be a durable fix for my knee over time?

Yes, replaced knee joints have the potential to offer decades of durability and function, although factors such as your activity level and weight will affect this outcome.

A small percentage of patients will experience problems with the replaced joints related to infection, loosening, misalignment, or imbalance of surrounding tissue. These cases are the exception and can be remedied through revision surgery.

Will I be able to return to a higher activity level than I had before?

This depends very specifically on you, your overall condition, and your goals. Certainly, your knee replacement should help to restore your mobility and alleviate your pain.

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High-impact activities are still to be avoided, but many patients with a knee replacement return to active pastimes and such forms of exercise as biking and walking.

How do I know if I need a knee replacement?

Orthopedic centers offer knee replacement to patients who have extensive arthritis in the joint, causing severe pain and stiffness. Patients selected have significantly impaired lives due to the condition of their knees, and they are individuals who have not been able to get relief from nonsurgical treatments.

Your doctor will want to find out as much as possible about your health and the condition of your knee. You will undergo imaging studies, including x-rays and MRI scans, to diagnose the severity and location of your arthritis. Your orthopedic surgeon will then discuss with you whether knee replacement is right for you and what type of knee replacement operation you may be a candidate for.

Is it ever possible to have both knee joints replaced at the same time?

Yes, this is sometimes an option. You will need to discuss this with your surgeon.

Is computer-assisted, partial knee replacement an established procedure?

Partial knee replacement in which at least one compartment of the natural knee is spared, is an accepted procedure, available at leading orthopedic centers. Internationally recognized leaders in knee replacement at Jefferson are now utilizing the computer-assisted refinement to this operation. Under careful guidance, and close collaboration with

biomedical engineers, they have had success with this operation in a series of patients and are confident about offering this innovation to qualifying individuals.

*For an appointment with a Jefferson physician, more information or health information and education programs, please call **1-800-JEFF-NOW** (1-800-533-3669) or visit our website at **www.JeffersonHospital.org***

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