



Minimally Invasive Total Hip Replacement

Total hip replacement (also known as hip arthroplasty) is a common orthopaedic procedure and, as the population ages, it is expected to become even more common. Replacing the hip joint with an implant or "prosthesis" relieves pain and improves mobility so that you are able to resume your normal, everyday activities.

The traditional surgical approach to total hip replacement uses a single, long incision to view and access the hip joint. A variation of this approach is a minimally invasive procedure in which one or two shorter incisions are used. The goal of using shorter incisions is to reduce pain and speed recovery. Unlike traditional total hip replacement, the minimally invasive technique is not suitable for all patients. Your orthopaedic surgeon will discuss different surgical options with you.

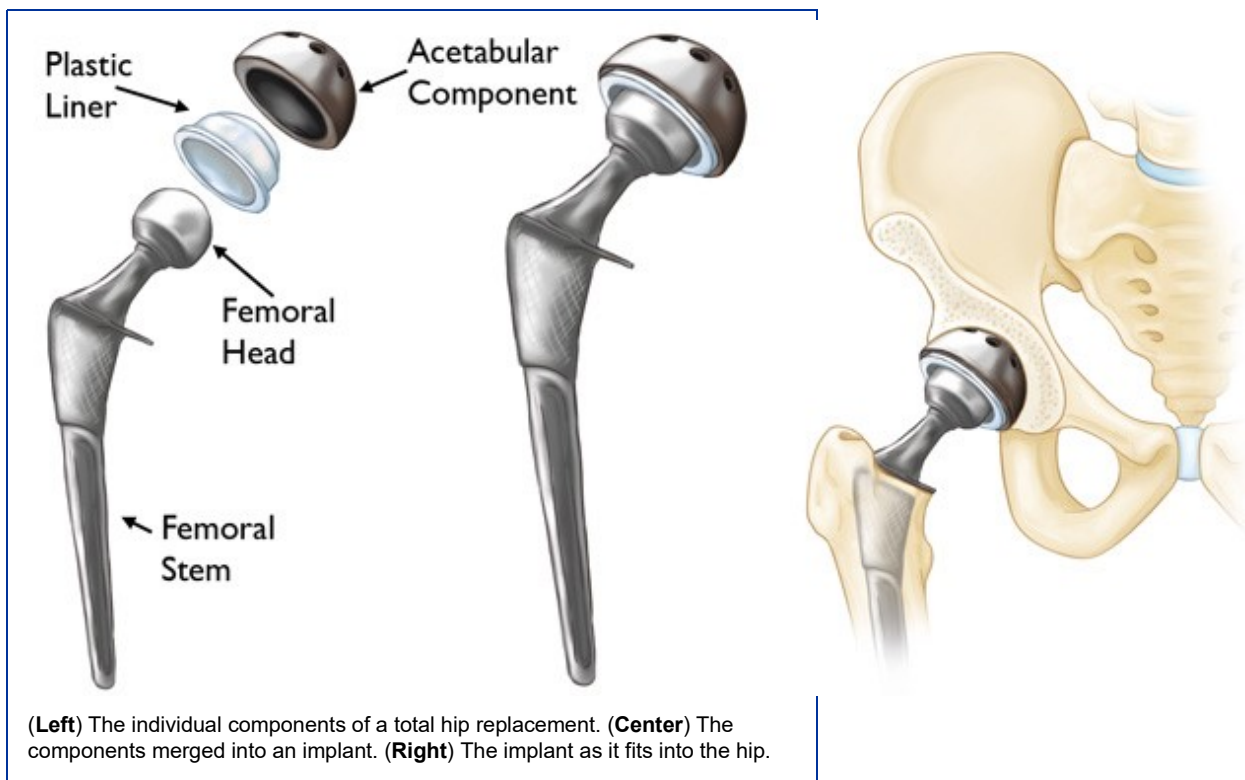
Description

During any hip replacement surgery, the damaged bone is cut and removed, along with some soft tissues. In minimally invasive surgery, a smaller surgical incision is used and fewer muscles around the hip are cut or detached. Despite this difference, however, both traditional hip replacement surgery and minimally invasive surgery are technically demanding and have better outcomes if the surgeon and operating team have considerable experience.

Traditional Hip Replacement

To perform a traditional hip replacement:

- A 10- to 12-inch incision is made on the side of the hip. The muscles are split or detached from the hip, allowing the hip to be dislocated and fully viewed by the surgical team.
- The damaged femoral head is removed and replaced with a metal stem that is placed into the hollow center of the femur, then a metal or ceramic ball is placed on the upper part of the stem. This ball replaces the damaged femoral head that was removed.
- The damaged cartilage surface of the socket (acetabulum) is removed and replaced with a metal socket. Screws or cement are sometimes used to hold the socket in place.
- A plastic, ceramic or metal spacer is inserted between the new ball and the socket to allow for a smooth gliding surface.



Minimally Invasive Hip Replacement

In minimally invasive total hip replacement, the surgical procedure is similar, but there is less cutting of the tissue surrounding the hip. The artificial implants used are the same as those used for traditional hip replacement. However, specially designed surgical instruments are needed to prepare the socket and femur and to place the implants properly.

Minimally invasive total hip replacement can be performed with either one or two small incisions. Smaller incisions allow for less tissue disturbance.

- **Single-incision surgery.** In this type of minimally invasive hip replacement, the surgeon makes a single incision that usually measures from 3 to 6 inches. The length of the incision depends on the size of the patient and the difficulty of the procedure.

The incision is usually placed over the outside of the hip. The muscles and tendons are split or detached from the hip, but to a lesser extent than in traditional hip replacement surgery. They are routinely repaired after the surgeon places the implants. This encourages healing and helps prevent dislocation of the hip.

- **Two-incision surgery.** In this type of minimally invasive hip replacement, the surgeon makes two small incisions:
 - A 2- to 3-inch incision over the groin for placement of the socket, and
 - A 1- to 2-inch incision over the buttock for placement of the femoral stem.

To perform the two-incision procedure, the surgeon may need guidance from x-rays. It may take longer to perform the two-incision surgery than it does to perform traditional hip replacement surgery.

The hospital stay after minimally invasive surgery is similar in length to the stay after traditional hip replacement surgery--ranging from 1 to 4 days. Physical rehabilitation is a critical component of recovery. Your surgeon or a physical therapist will provide you with specific exercises to help increase your range of motion and restore your strength.

Candidates for Minimally Invasive Total Hip Replacement

Minimally invasive total hip replacement is not suitable for all patients. Your doctor will conduct a comprehensive evaluation and consider several factors before determining if the procedure is an option for you.

In general, candidates for minimal incision procedures are thinner, younger, healthier, and more motivated to participate in the rehabilitation process, compared with patients who undergo the traditional surgery.

Minimally invasive techniques are less suitable for patients who are overweight or who have already undergone other hip surgeries. In addition, patients who have a significant deformity of the hip joint, those who are very muscular, and those with health problems that may slow wound healing may be at a higher risk for problems from minimally invasive total hip replacement.

Conclusion

Minimally invasive and small incision total hip replacement surgery is an evolving area and more research is needed on the long-term function and durability of the implants.

The benefits of minimally invasive hip replacement have been reported to include less damage to soft tissues, leading to a quicker, less painful recovery and more rapid return to normal activities. Current evidence suggests that the long-term benefits of minimally invasive surgery do not differ from those of hip replacement performed with the traditional approach.

Like all surgery, minimally invasive surgery has a risk of complications. These complications include nerve and artery injuries, wound healing problems, infection, fracture of the femur, and errors in positioning the prosthetic hip implants.

Like traditional hip replacement surgery, minimally invasive surgery should be performed by a well-trained, highly experienced orthopaedic surgeon. Your orthopaedic surgeon can talk to you about his or her experience with minimally invasive hip replacement surgery, and the possible risks and benefits of the techniques for your individual treatment.

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