

*Recognizing*  
The National  
Bone and Joint Decade  
2002–2011

*Questions  
& Answers*  
about . . .

Hip  
Replacement

*National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)  
National Institutes of Health  
Public Health Service • U.S. Department of Health and Human Services*

## For Your Information

This publication contains information about medications used to treat the health condition discussed here. When this publication was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medications is released.

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration at 1-888-INFO-FDA (1-888-463-6322, a toll-free call) or visit their Web site at [www.fda.gov](http://www.fda.gov).

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You can also find this booklet on the NIAMS Web site at [www.niams.nih.gov](http://www.niams.nih.gov).

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## What Is a Hip Replacement?

Hip replacement, or arthroplasty, is a surgical procedure in which the diseased parts of the hip joint are removed and replaced with new, artificial parts. These artificial parts are called the prosthesis. The goals of hip replacement surgery include increasing mobility, improving the function of the hip joint, and relieving pain.

## Who Should Have Hip Replacement Surgery?

People with hip joint damage that causes pain and interferes with daily activities despite treatment may be candidates for hip replacement surgery. Osteoarthritis is the most common cause of this type of damage. However, other conditions, such as rheumatoid arthritis (a chronic inflammatory disease that causes joint pain, stiffness, and swelling), osteonecrosis (or avascular necrosis, which is the death of bone caused by insufficient blood supply), injury, and bone tumors also may lead to breakdown of the hip joint and the need for hip replacement surgery.

In the past, doctors reserved hip replacement surgery primarily for people over 60 years of age. The thinking was that older people typically are less active and put less stress on the artificial hip than do younger people. In more recent years, however, doctors have found that hip replacement surgery can be very successful in younger people as well. New technology has improved the artificial parts, allowing them to withstand more stress and strain and last longer.

Today, a person's overall health and activity level are more important than age in predicting a hip replacement's success. Hip replacement may be problematic for people with some health problems, regardless of their age. For example, people who have chronic disorders such as Parkinson's disease, or conditions that result in severe muscle weakness, are more likely than people without chronic diseases to damage or dislocate an artificial hip. People who are at high risk for infections or in poor health are less likely to recover successfully. Therefore they may not be good candidates for this surgery. Recent studies also suggest that people who elect to have surgery before advanced joint deterioration occurs tend to recover more easily and have better outcomes.

### **Why Do People Have Hip Replacement Surgery?**

For the majority of people who have hip replacement surgery, the procedure results in:

- a decrease in pain
- increased mobility
- improvements in activities of daily living
- improved quality of life.

## What Are Alternatives to Hip Replacement?

Before considering a total hip replacement, the doctor may try other methods of treatment, such as exercise, walking aids, and medication. An exercise program can strengthen the muscles around the hip joint. Walking aids such as canes and walkers may alleviate some of the stress from painful, damaged hips and help you to avoid or delay surgery.

For hip pain **without** inflammation, doctors usually recommend the analgesic medication acetaminophen (Tylenol\*).

For hip pain **with** inflammation, treatment usually consists of nonsteroidal anti-inflammatory drugs, or NSAIDs. Some common NSAIDs are aspirin and ibuprofen (Motrin, Advil). If you need to take NSAIDs on a long-term basis or at doses that are higher than those obtainable over the counter, you should do so only under a doctor's supervision. When neither NSAIDs nor analgesics are sufficient to relieve pain, doctors sometimes recommend combining the two. Again, this should be done only under a doctor's supervision.

In some cases, a stronger analgesic medication such as tramadol or a product containing both acetaminophen and a narcotic analgesic such as codeine may be necessary to control pain.

\* Brand names included in this booklet are provided as examples only, and their inclusion does not mean that these products are endorsed by the National Institutes of Health or any other Government agency. Also, if a particular brand name is not mentioned, this does not mean or imply that the product is unsatisfactory.

Topical analgesic products such as capsaicin and methylsali-cylate may provide additional relief. Some people find that the nutritional supplement combination of glucosamine and chondroitin helps ease pain. People taking nutritional sup-plements, herbs, and other complementary and alternative medicines should inform their doctors to avoid harmful drug interactions.

In a small number of cases, doctors may prescribe corticosteroid medications, such as prednisone or cortisone, if NSAIDs do not relieve pain. Corticosteroids reduce joint inflammation and are frequently used to treat rheumatic diseases such as rheumatoid arthritis. The downside of corti-costeroids is that they can cause further damage to the bones in the joint. Also, they carry the risk of side effects such as increased appetite, weight gain, and lower resistance to infec-tions. A doctor must prescribe and monitor corticosteroid treatment. Because corticosteroids alter the body's natural hormone production, which is essential for the body to function, you should not stop taking them suddenly, and you should follow the doctor's instructions for discontinuing treatment.

Sometimes, corticosteroids are injected into the hip joint. A joint lubricant such as Hyaluronan may also be injected into the hip joint to relieve pain.

If exercise and medication do not relieve pain and improve joint function, the doctor may suggest a less complex corrective surgery before proceeding to hip replacement. One common alternative to hip replacement is an osteotomy. This procedure involves cutting and realigning bone, to shift the weight from a damaged and painful bone surface to a healthier one. Recovery from an osteotomy takes 6 to 12 months. Afterward, the function of the hip joint may continue to worsen and additional treatment may be needed. The length of time before another surgery is needed varies greatly and depends on the condition of the joint before the procedure.

## **What Does Hip Replacement Surgery Involve?**

The hip joint is located where the upper end of the femur, or thigh bone, meets the pelvis, or hip bone. A ball at the end of the femur, called the femoral head, fits in a socket (the acetabulum) in the pelvis to allow a wide range of motion.

During a traditional hip replacement, which lasts from 1 to 2 hours, the surgeon makes a 6- to 8-inch incision over the side of the hip through the muscles and removes the diseased bone tissue and cartilage from the hip joint, while leaving the healthy parts of the joint intact. Then the surgeon replaces the head of the femur and acetabulum with new, artificial parts. The new hip is made of materials that allow a natural gliding motion of the joint.

In recent years, some surgeons have begun performing what is called a minimally invasive, or mini-incision, hip replacement, which requires smaller incisions and a shorter recovery time than traditional hip replacement. Candidates for this type of surgery are usually age 50 or younger, of normal weight based on body mass index, and healthier than candidates for traditional surgery. Joint resurfacing is also being used.

Regardless of whether you have traditional or minimally invasive surgery, the parts used to replace the joint are the same and come in two general varieties: cemented and uncemented.

Cemented parts are fastened to existing, healthy bone with a special glue or cement. Hip replacement using these parts is referred to as a “cemented” procedure. Uncemented parts rely on a process called biologic fixation, which holds them in place. This means that the parts are made with a porous surface that allows your own bone to grow into the pores and hold the new parts in place. Sometimes a doctor will use a cemented femur part and uncemented acetabular part. This combination is referred to as a hybrid replacement.

## Is a Cemented or Uncemented Prosthesis Better?

The answer to this question is different for different people. Because each person's condition is unique, the doctor and you must weigh the advantages and disadvantages.

Cemented replacements are more frequently used for older, less active people and people with weak bones, such as those who have osteoporosis, while uncemented replacements are more frequently used for younger, more active people.

Studies show that cemented and uncemented prostheses have comparable rates of success. Studies also indicate that if you need an additional hip replacement, or revision, the rates of success for cemented and uncemented prostheses are comparable. However, more long-term data are available in the United States for hip replacements with cemented prostheses, because doctors have been using them here since the late 1960s, whereas uncemented prostheses were not introduced until the late 1970s.

The primary disadvantage of an uncemented prosthesis is the extended recovery period. Because it takes a long time for the natural bone to grow and attach to the prosthesis, a person with uncemented replacements must limit activities for up to 3 months to protect the hip joint. Also, it is more common for someone with an uncemented prosthesis to experience thigh pain in the months following the surgery, while the bone is growing into the prosthesis.

## How to Prepare for Surgery and Recovery

People can do many things before and after they have surgery to make everyday tasks easier and help speed their recovery.

### *Before Surgery*

- Learn what to expect. Request information written for patients from the doctor, or contact one of the organizations listed near the end of this booklet.
- Arrange for someone to help you around the house for a week or two after coming home from the hospital.
- Arrange for transportation to and from the hospital.
- Set up a “recovery station” at home. Place the television remote control, radio, telephone, medicine, tissues, wastebasket, and pitcher and glass next to the spot where you will spend the most time while you recover.
- Place items you use every day at arm level to avoid reaching up or bending down.
- Stock up on kitchen supplies and prepare food in advance, such as frozen casseroles or soups that can be reheated and served easily.

## *After Surgery*

- Follow the doctor's instructions.
- Work with a physical therapist or other health care professional to rehabilitate your hip.
- Wear an apron for carrying things around the house. This leaves hands and arms free for balance or to use crutches.
- Use a long-handled "reacher" to turn on lights or grab things that are beyond arm's length. Hospital personnel may provide one of these or suggest where to buy one.

## **What Can Be Expected Immediately After Surgery?**

You will be allowed only limited movement immediately after hip replacement surgery. When you are in bed, pillows or a special device are usually used to brace the hip in the correct position. You may receive fluids through an intravenous tube to replace fluids lost during surgery. There also may be a tube located near the incision to drain fluid, and a type of tube called a catheter may be used to drain urine until you are able to use the bathroom. The doctor will prescribe medicine for pain or discomfort.

On the day after surgery or sometimes on the day of surgery, therapists will teach you exercises to improve recovery. A respiratory therapist may ask you to breathe deeply, cough, or blow into a simple device that measures lung capacity. These exercises reduce the collection of fluid in the lungs after surgery.

As early as 1 to 2 days after surgery, you may be able to sit on the edge of the bed, stand, and even walk with assistance.

While you are still in the hospital, a physical therapist may teach you exercises such as contracting and relaxing certain muscles, which can strengthen the hip. Because the new, artificial hip has a more limited range of movement than a natural, healthy hip, the physical therapist also will teach you the proper techniques for simple activities of daily living, such as bending and sitting, to prevent injury to your new hip.

### **How Long Are Recovery and Rehabilitation?**

Usually, people do not spend more than 3 to 5 days in the hospital after hip replacement surgery. Full recovery from the surgery takes about 3 to 6 months, depending on the type of surgery, your overall health, and the success of your rehabilitation.

## What Are Possible Complications of Hip Replacement Surgery?

According to the American Academy of Orthopaedic Surgeons, more than 193,000 total hip replacements are performed each year in the United States and more than 90 percent of these do not require revision.

New technology and advances in surgical techniques have greatly reduced the risks involved with hip replacements.

The most common problem that may arise soon after hip replacement surgery is hip dislocation. Because the artificial ball and socket are smaller than the normal ones, the ball can become dislodged from the socket if the hip is placed in certain positions. The most dangerous position usually is pulling the knees up to the chest.

The most common later complication of hip replacement surgery is an inflammatory reaction to tiny particles that gradually wear off of the artificial joint surfaces and are absorbed by the surrounding tissues. The inflammation may trigger the action of special cells that eat away some of the bone, causing the implant to loosen. To treat this complication, the doctor may use anti-inflammatory medications or recommend revision surgery (replacement of an artificial joint). Medical scientists are experimenting with new materials that last longer and cause less inflammation. Less common complications of hip replacement surgery include

infection, blood clots, and heterotopic bone formation (bone growth beyond the normal edges of bone). Studies are also looking at the use of bisphosphonates, ciprofloxacin, pentoxifylline, and other medications to prevent this bone resorption around the implants.

## **When Is Revision Surgery Necessary?**

Hip replacement is one of the most successful orthopaedic surgeries performed. Studies have shown that more than 90 percent of people who have hip replacement surgery will never need to replace an artificial joint. However, because more people are having hip replacements at a younger age, and wearing away of the joint surface becomes a problem after 15 to 20 years, replacement of an artificial joint, which is also known as revision surgery, is becoming more common. It is more difficult than first-time hip replacement surgery, and the outcome is generally not as good, so it is important to explore all available options before having additional surgery.

Doctors consider revision surgery for two reasons: if medication and lifestyle changes do not relieve pain and disability, or if x rays of the hip show damage to the bone around the artificial hip that must be corrected before it is too late for a successful revision. This surgery is usually considered only when bone loss, wearing of the joint surfaces, or joint loosening shows up on an x ray. Other possible reasons for revision surgery include fracture, dislocation of the artificial parts, and infection.

## **What Types of Exercise Are Most Suitable for Someone With a Total Hip Replacement?**

Proper exercise can reduce stiffness and increase flexibility and muscle strength. People who have an artificial hip should talk to their doctor or physical therapist about developing an appropriate exercise program. Most of these programs begin with safe range-of-motion activities and muscle-strengthening exercises. The doctor or therapist will decide when you can move on to more demanding activities. Many doctors recommend avoiding high-impact activities, such as basketball, jogging, and tennis. These activities can damage the new hip or cause loosening of its parts. Some recommended exercises are walking, stationary bicycling, swimming, and cross-country skiing. These exercises can increase muscle strength and cardiovascular fitness without injuring the new hip.

## **What Hip Replacement Research Is Being Done?**

To increase the chance of surgical success and decrease the risk of complications and prosthesis failure, researchers are working to develop new surgical techniques, more stress-resistant materials, and improved prosthesis designs. They are also studying ways to reduce the body's inflammatory response to the artificial joint components.

Researchers are also studying gender and ethnic discrepancies in those who have the procedure, and characteristics that make some people more likely to have successful surgery.

Other areas of research address issues of recovery and rehabilitation, such as appropriate postsurgical analgesia for older people, and home-health and outpatient programs.

## Where Can People Find More Information About Hip Replacement Surgery?

- **National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)**

National Institutes of Health

1 AMS Circle

Bethesda, MD 20892–3675

Phone: 301–495–4484 or

877–22–NIAMS (226–4267) (free of charge)

TTY: 301–565–2966

Fax: 301–718–6366

E-mail: [NIAMSInfo@mail.nih.gov](mailto:NIAMSInfo@mail.nih.gov)

[www.niams.nih.gov](http://www.niams.nih.gov)

NIAMS provides information about various forms of arthritis and rheumatic disease and other bone, muscle, joint, and skin diseases. It distributes patient and professional education materials and refers people to other sources of information. Additional information and updates can also be found on the NIAMS Web site.

- **NIH Osteoporosis and Related Bone Diseases~  
National Resource Center**

2 AMS Circle

Bethesda, MD 20892-3676

Phone: 202-223-0344 or

800-624-BONE (624-2663) (free of charge)

TTY: 202-466-4315

Fax: 202-293-2356

[www.niams.nih.gov/bone](http://www.niams.nih.gov/bone)

The NIH Osteoporosis and Related Bone Diseases~  
National Resource Center provides patients, health professionals, and the public with an important link to resources and information on metabolic bone diseases. The mission of NIH ORBD~NRC is to expand awareness and enhance knowledge and understanding of the prevention, early detection, and treatment of these diseases as well as strategies for coping with them. The Center provides information on osteoporosis, Paget's disease of bone, osteogenesis imperfecta, primary hyperparathyroidism, and other metabolic bone diseases and disorders.

- **American Academy of Orthopaedic Surgeons**

P.O. Box 1998

Des Plaines, IL 60017

Phone: 800-824-BONE (2663) (free of charge)

[www.aaos.org](http://www.aaos.org)

The academy provides education and practice management services for orthopaedic surgeons and allied health professionals. It also serves as an advocate for improved patient care and informs the public about the science of orthopaedics. The orthopaedist's scope of practice includes disorders of the body's bones, joints, ligaments, muscles, and tendons. For a single copy of an AAOS brochure, send a self-addressed stamped envelope to the address above or visit the AAOS Web site.

- **American Physical Therapy Association**

1111 North Fairfax Street

Alexandria, VA 22314-1488

Phone: 703-684-2782 or

800-999-2782, ext. 3395 (free of charge)

Fax: 703-684-7343

[www.apta.org](http://www.apta.org)

This national professional organization represents and promotes the profession of physical therapy, and furthers the profession's role in the prevention, diagnosis, and treatment of movement dysfunctions, and the enhancement of the physical health and functional abilities of members of the public.

- **Arthritis Foundation**

P.O. Box 7669

Atlanta, GA 30357–0669

Phone: 404–965–7888 or 800–568–4045 (free of charge)

or call your local chapter (listed in the telephone directory)

[www.arthritis.org](http://www.arthritis.org)

This is the major voluntary organization devoted to arthritis. The foundation publishes pamphlets on arthritis that may be obtained by calling the toll-free telephone number. The foundation also can provide physician and clinic referrals. Local chapters also provide information and organize exercise programs for people who have arthritis.

- **The Hip Society**

c/o Karen Andersen

951 Old County Road, #182

Belmont, CA 94002

Phone: 650–596–6190

Fax: 650–508–2040

[www.hipsoc.org](http://www.hipsoc.org)

The society maintains a list of physicians who are specialists in problems of the hip and provides physician referrals by geographic area.

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The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), a part of the Department of Health and Human Services' National Institutes of Health (NIH), is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases; the training of basic and clinical scientists to carry out this research; and the dissemination of information on research progress in these diseases. The National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse is a public service sponsored by the NIAMS that provides health information and information sources. Additional information can be found on the NIAMS Web site at [www.niams.nih.gov](http://www.niams.nih.gov).



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