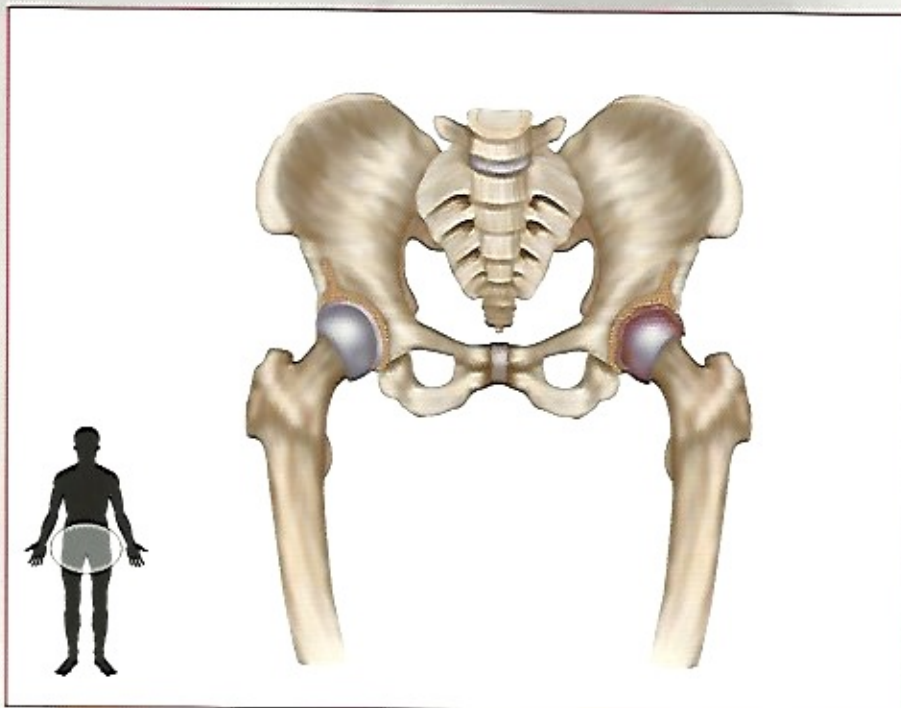


Total Hip Replacement Surgery

After decades of unreliable treatments for hip pain and disability, the metal ball and plastic socket were pioneered in 1960. Since that time improvements have been made to these artificial components, many of which no longer need cement to bind the bone and joint.



In a normal hip, the bone is covered by a smooth lining of cartilage. This surface, with a small amount of joint fluid, allows the joint to move smoothly. Various diseases, such as osteoarthritis, can cause the smooth cartilage lining to break down. These conditions can lead to pain and stiffness in the joint.

In a hip that has been affected by osteoarthritis, cartilage has been destroyed, the joint space is narrow and the bone has been eroded. Outgrowths of new bone, called spurs, develop at the margins of the joint.

Initial treatment includes losing weight, moderate exercise, restriction of activity and pain medication. Reducing the amount that a person walks and use of a cane may also help.

A patient is a candidate for hip replacement surgery if he or she has:

- Severe pain in the hip associated with activity
- Severe hip pain at night
- Severe interference with daily activities and work

Total hip replacement involves:

- Removing of the head of the femur and the surface layer of its socket in the pelvis
- Replacing the head of the femur with a metallic ball and stem, which fits into the canal of the femur
- Replacing the socket with a combination of plastic, metal or ceramic in one of many shapes, sizes and designs; custom-made components may also be used

Hip components are fixed to the bone either with or without cement. Cement fills the space between the new hip and the bone and locks it in place. This is the standard choice for many surgeons, particularly for patients over age 70.

“Press fit” surgeries do not use bone cement and have a surface that allows bone to grow into the implant.

Age Limits for Total Hip Replacements

There is no upper age limit for total hip replacement, as long as the general health of the patient allows for such an operation.

For younger patients, age limits depend upon the severity of the pain and loss of function. Younger patients have to understand the long-term impact of the procedure and know that revision surgery in 15 to 20 years may be required, although on a less comprehensive basis.

Preparing for Total Hip Replacement Surgery

Before surgery, a patient is generally asked to see their primary care physician for a general physical exam. The anesthesiologist will also evaluate the patient before the surgery to discuss the type of anesthetics that will be used.

Prior to surgery, routine tests will be run to help assess a patient's fitness for the procedure. These tests might include:

- Blood and urine tests
- Chest X-ray
- EKG

Patients in good health may also be able to donate one or two units of their own blood to receive during or after surgery. In many cases, this may not be necessary.

Patients must remember to inform their doctor of the following:

- All current medications
- Any allergies to drugs, iodine or latex
- Previous instances of thrombosis of the legs or elsewhere
- Any recent infections
- Any past illnesses

Before surgery, there are several important things to know:

- Aspirin, medications containing aspirin or anti-inflammatories should not be taken one to two weeks before surgery, to minimize bleeding
- Blood thinners, such as Coumadin, should be discontinued at least several days prior to surgery, after consulting with your physician
- Vitamins and iron supplements should continue to be taken before and after surgery, especially if the patient has donated his or her own blood for the procedure
- Overweight patients should try to lose weight to decrease the pressure on the new hip
- Patients should not smoke
- Hip replacement surgery will not take place if infections are present elsewhere in the body, such as the bladder or skin

Hospital Admission

Patients are generally admitted on the day of the operation, unless an underlying condition such as diabetes or cardiac or pulmonary disease requires an additional day of pre-operative hospitalization. Patients should bring sleepwear, slippers or shoes and personal hygiene supplies with them to the hospital.

PATIENTS SHOULD NOT EAT OR DRINK AFTER MIDNIGHT BEFORE SURGERY.

Patients who take medication regularly every day should discuss this with their anesthesiologist and/or surgeon. It may be recommended by the physicians that the dose be postponed or taken as usual with a small sip of water.

A physical therapist may explain hip exercises and walker training before surgery or several days before admission to help patients become familiar with post-surgical expectations.

The Surgery

Hip replacement surgery is usually performed under a general anesthetic, but regional anesthesia is another good option. The procedure itself generally lasts two hours.

The steps of the operation include:

- Making an incision along the side of the hip
- Dislocating the head of the femur and removing it using a power saw
- Preparing the socket and femur to accept the artificial hip
- Inserting the artificial joint and fixing it to the bone, either with or without cement
- Adding a femoral prosthesis to equalize leg length, with the modular ball on the stem
- Placing new the hip into the new socket
- Maintaining stability of the new joint through the tension of hip and thigh muscles
- Closing the wound with staples or sutures
- Installing a drain to minimize the post-operative hematoma

Post Surgery

Day of Surgery

- The patient will be in bed or upright in a chair
- The diet will be advanced as tolerated
- Fluids will be delivered via an intravenous line in the arm for 24 to 48 hours
- Blood transfusions may be necessary to replace blood lost during surgery
- If a patient has difficulty urinating, a bladder catheter may be necessary
- Breathing exercises begin immediately after surgery and additional oxygen may be delivered through a small nasal tube
- Elastic stockings may be worn to improve circulation in the legs
- An inflatable device delivering intermittent pressure may be placed around legs to aid in circulation and prevent blood clots

Post-Operative Days One and Two

- Patients are encouraged to stand and walk with the help of a physical therapist, depending on their medical condition and strength
- Weight bearing on the operated side will depend upon the type of fixation used, and the bone quality. If cement was used the patient is usually allowed to walk on the operated leg with a walker; if cement was not used the patient will be instructed in weight-bearing restrictions, if any
- The physical therapist will begin the exercise programs that will be done both in bed and in the therapy department
- Sitting may be allowed, including using the bathroom
- Daily blood tests help the surgeon determine if a transfusion is necessary
- If a drain has been placed in the hip, it is usually removed by the second day
- Drink more fluids to prevent urinary tract infections, fever and constipation, and eat a well-balanced diet to help aid the healing process
- Pain medications will be given either as pills or injections
- By the second day, a regular diet may be started

Post-Operative Day Three

- By this day, the patient should be able to get around more easily
- Physical therapists and other clinical workers will provide instruction about how to get out of bed, use the bathroom and dress
- Stair climbing is the last goal before discharge

Returning Home

Patients are usually discharged two to four days after surgery, depending on physical ability and other factors. Some patients may go directly to an in-patient rehabilitation or skilled nursing facility before returning home.

A patient should contact his or her physician if:

- The wound becomes red or warm
- There is drainage from the wound
- Pain increases from the hip or thigh
- Either calf becomes painful, swollen or tender
- The patient develops an elevated temperature
- Sudden coughing or chest pain develops

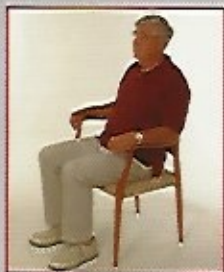
When can a patient begin to walk normally again?

This depends on many factors, including the patient's pre-operative walking ability, the patient's size and physical condition, and the nature and quality of the implant fixation in the patient's bone. After surgery, your physician will know better how quickly you'll be able to advance to full weight-bearing.

For the First 12 Weeks After Surgery

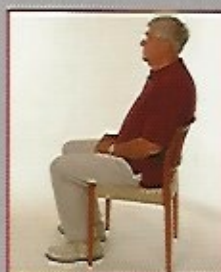
It is important to know what is and is not allowed after surgery. Certain movements cause undue stress on the new hip and should be avoided.

Sitting



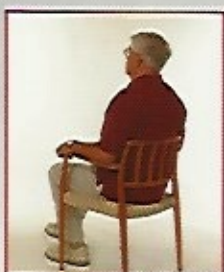
Do use chairs with arms.

Do sit with your knees lower than your hips. Place a pillow or cushion in your chair so you do not bend your hip more than 90 degrees.



Do not sit on chairs without arms.

Do not sit in sofas or couches that allow excessive bend at the hip.



Do sit on a firm, straight-backed armchair of knee height.

Do walk or lie down between sitting periods of 30 to 60 minutes.

Do sit with legs about six inches apart.



Do not raise the operated thigh from the seat.

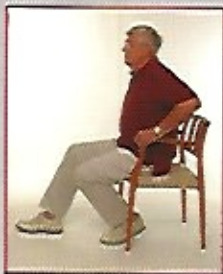
Do not use recliners, stools, etc.



Do not sit with knees close together.

DO NOT CROSS YOUR OPERATED LEG IN ANY POSITION.

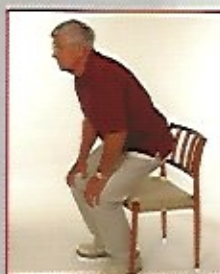
Standing



Do shift to the edge of the chair before standing up and keep the affected leg in front while getting up.

Do grasp the chair arms to help rise safely to a standing position.

Do lift foot to turn.



Do not get up like this picture shows.



Do not stand, sit or lie with the operation-side knee pointed inward.

Do not lift the knee of the operated side higher than hip level.

Do not kneel.

Do not pivot on the operated leg.

Walking

Do not put more weight on the operated leg than instructed.

Do walk according to your doctor's instructions:

- Non-weight-bearing
- Partial weight-bearing

Or

- Full weight-bearing

Stairs

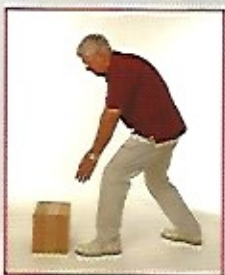


Going up stairs: Do lead with non-operated leg.

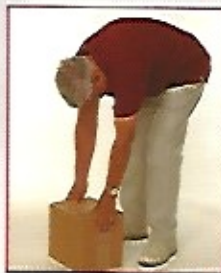


Going down stairs: Do lead with cane and operated leg.

Lifting

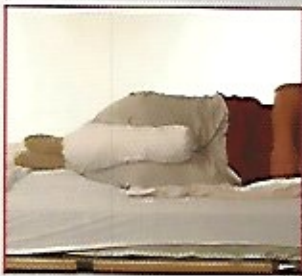


Do pick up objects from the floor as shown here. Place the operated leg behind; use a long-arm reacher if necessary.



Do not bend over at the hips to pick up items off the floor.

Lying and Sleeping



Do keep a pillow between your legs when you roll.



Do not lie without a pillow between your legs.

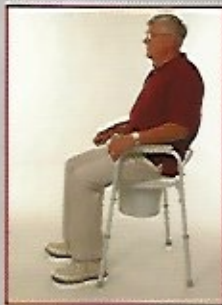


Do use a long-handle reacher to pull up the blankets.



Do not bend at the waist to pull up the blankets.

Toileting, Bathing and Dressing



Do use a raised seat, preferably with arm attachments.

Do use arm supports to get up from the toilet.

Do shower standing or sitting on a high stool.

Do use a long-handle sponge for reaching. GRAB BARS ARE VERY HELPFUL.



Do get help or use a long-arm assist device. These can be obtained at surgical supply houses. You may wear slip-on shoes.



Do not sit on low toilets.

Do not bend the affected hip past 90 degrees.

Do not sit in a bathtub.

Do not bend at the waist to wash your feet.



Do not bend to put on socks, shoes, underwear or pants.

Total Hip Exercise Program

After the operation, it is important to do certain exercises to increase the strength of the hip and other leg muscles. Exercises should be done two to three times a day, with 10 repetitions each.

Hip Abduction

- Lie on back
- Slide leg sideways as far as possible
- Return to starting position
- Keep knees straight on bed and toes pointing to ceiling



Hip Flexion With Straight Knee

- Lie on back
- Keep knee straight
- Lift leg a few inches
- Hold for five seconds and lower slowly



Hip Flexion With Bent Knee

- Lie on back
- Lift leg, bending hip and knee
- Avoid more than a 45-degree angle



Knee Extension

- Lie on back
- Place a rolled pillow under thighs so knees are comfortably bent
- Rest heels on bed
- Try to straighten each knee
- Hold for a few seconds and return





Hip Abduction

- Stand while holding on to countertop or high and heavy chair
- Move leg out to the side
- Hold for five seconds and return
- Keep knee and back straight, toes pointing forward



Knee Flexion

- Stand while holding on to countertop or high and heavy chair
- Bend the knee as far as possible
- Raise the heel as high as possible



Hip Extension

- Stand while holding on to countertop or high and heavy chair
- Move leg straight backward
- Hold for five seconds and return
- Keep knees and back straight, foot should clear the floor



Marching in Place

- Stand while holding on to countertop or high and heavy chair
- Lift each knee up toward the chest and continue as if marching, but not moving forward

Other Issues

Long-Term Exercise

Improving and maintaining the strength and tone of the muscles around the hip and thigh are very important.

After two to three months, more vigorous activities such as walking, swimming and bicycling, are encouraged.

Exercises that resemble squatting with weight or “over-bending” the hip should be avoided.

Driving

Driving is safe when a patient is able to walk while bearing weight through the leg. Some patients may be allowed to drive while still using a cane, however caution must be used when getting into and out of the car. Patients should back into the seat and then bring both legs together.

Returning to Work

When a patient can return to work depends upon the occupation.

- A sedentary or office job may be returned to as soon as three to six weeks after surgery
- A job that requires prolonged walking, standing and lifting may call for three months of recovery time
- Certain types of labor, including construction, some carpentry, high climbing, etc., may not be advised at all after hip surgery

Any questions should be discussed with the patient’s physician.

Sports

Some athletic activities are still possible after hip surgery, but they must be discussed with a patient's surgeon prior to beginning them.

Recommended Activities:	Activities to Avoid:
Doubles tennis	Skiing (snow or water)
Cycling	Baseball
Dancing	Basketball
Swimming	Contact sports
Golf	Distance running
Bowling	Frequent jumping

Sexual Activity

Safe sexual activity may be difficult for the first six weeks. Avoid excessive bending and spreading of the legs. It is preferable for the patient to lie on the back, avoiding excessive bending of the hip. Lying on the side, particularly with the operated hip down, is also acceptable. Discuss with your surgeon, if necessary.

Preventing Infection

Surgical procedures such as dental work and gynecologic or bladder surgery may cause bacteria to enter the body. A total hip replacement can be a target for such an infection.

- If any surgical procedure is planned in the future, a patient must always make the physician or dentist aware of the presence of the artificial joint
- Antibiotics may be given before the planned surgery, up to two years after the hip implant, to prevent possible infection

Metal Detectors

Facilities such as airports and courthouses may have metal detectors. Your new implant may trigger these detectors, requiring a manual search.

Follow-up After Surgery

- Patients should visit their orthopedic surgeon at two to four weeks for wound inspection and removal of sutures or staples if necessary
- Patients should visit their orthopedic surgeon at four to six weeks for X-rays, discussion about work, driving and activities

It is extremely important to return for a medical check-up and X-rays of the hip on a regular basis. X-rays can detect certain disorders of the hip that the patient may not feel.

Possible Risks and Complications

Total hip replacement is a major surgical procedure. Most patients do well and are pleased with the result, but potential complications must be addressed. Some may be related to the operation itself and others are more generally associated with any type of operation.

- General complications can affect patients with these pre-existing conditions:
 - Obesity
 - Cardiac disease
 - High blood pressure
 - Diabetes
- Thrombosis is a condition in which clots may form in the leg or pelvis and move into the lungs. Clotting in a leg can cause inflammation, pain and swelling and if fragments of the clot do move to the lung, the result can be serious and life-threatening. Patients can help avoid thrombosis in the following ways:
 - Wearing elastic stockings to reduce swelling in the legs and improve circulation in the deep veins
 - Using compression devices on the legs
 - Moving around soon after surgery
 - Taking anticoagulants to thin the blood
- Dislocation of the new hip may occur in about 3 to 5 percent of cases
 - It may occur if the patient places the leg in an awkward position
 - It can usually be replaced in the socket under a quick anesthetic without reopening the wound
- Leg length discrepancy can develop before or after hip replacement surgery. The primary goal of hip surgery is to implant a stable and pain-free prosthesis, and sometimes (not usually) this requires altering the length of the operated leg. In these unusual circumstances, where one leg is longer than the other, after surgery a shoe insert can be used to equalize leg lengths.

How Long Does a Total Hip Replacement Last?

It is impossible to predict in individual cases how long a new hip will last. Many factors play a role, including a patient's:

- Age
- Weight
- Activity level
- Bone strength

Most artificial hips last for many years and patients with cemented joints have been followed for 10 to 20 years with few problems. Newer joints with new technology have been found to be functioning successfully for 20 years or more and could last for well over 20 to 25 years.

How Can a Hip Replacement Fail?

- The most common cause of failure is loosening of the components from the bone, generally many years after surgery. A loose hip may become painful and require replacement, but it might not cause any problems at all.
- A condition called osteolysis can cause loosening of the artificial components or deterioration of the bone. Over the years, tiny particles of worn-out plastic or cement may migrate into the bone, causing localized damage. This condition may require a revision of the operation. Recently, new materials have been developed to help prevent the incidence of particles that cause osteolysis, but they are still under study.
- A less common cause of failure in the hip is infection. This may occur soon after surgery or even years later. Antibiotics are an effective treatment, however removal of the joint is often necessary. After the infection has cleared, a new joint can be inserted.

