

The
**Anderson
Orthopaedic
Institute**

A Center of Excellence
for Orthopaedics



Hip Replacement

PATIENT INFORMATION

MESSAGE FROM YOUR SURGEONS

We hope that this booklet will be helpful to you as you prepare for your surgery. You are encouraged to take the booklet to the hospital to record any notes you wish to keep regarding your individual care plan.



C. Anderson Engh, Jr., MD

“Hip replacement is major surgery that can dramatically improve the quality of life. This manual will help our patients prepare for that surgery.”

Dr. Andy is the third generation of his family to practice at the Anderson Orthopaedic Clinic. After graduating from Davidson College, he attended medical school at the University of Virginia and completed his internship and residency in orthopaedic surgery at the Virginia College of Medicine. Dr. Andy then joined his father and uncle in practice at the Anderson Orthopaedic Clinic, continuing the family legacy by specializing in joint replacements and performing research studies on hip and knee replacements.

He has authored many research and technical articles and presented his findings and surgical techniques to American and international orthopaedic conferences. He is a member of the American Board of Orthopaedic Surgery, the American Academy of Orthopaedic Surgeons, the Hip Society, the Knee Society and the American Association of Hip and Knee Surgeons. According to Dr. Andy, “It is wonderful to have worked alongside my father and uncle. I’m proud to continue the tradition of caring and innovative treatment that my grandfather started.”

“With the recent advances made in both implants and surgical technique today’s hip replacement offers a faster recovery and long lasting results.”

Dr. Hamilton, a native of Ithaca, New York, received his ScB from Brown University, where he was a 4-year letterman in football. He graduated in the top of his class from The University of Cincinnati Medical School and was inducted into the Alpha Omega Alpha Honor Society. Dr. Hamilton spent his 5-year Orthopaedic Surgery residency training at the Hospital of the University of Pennsylvania in Philadelphia. He then completed the one year Adult Reconstruction fellowship here at the Anderson Clinic, and was invited to join the staff at the completion of his fellowship.

Since joining the clinic, the focus of Dr. Hamilton’s practice and research has been hip and knee total joint arthroplasty. His areas of expertise include the anterior approach to total hip arthroplasty, partial and total knee replacement and complex revisions of failed hip and knee replacements.

Dr. Hamilton has been published in multiple orthopaedic journals. In addition he has prepared book chapters in The Adult Knee, Orthopaedics Knowledge Update, and Instructional Course Lectures. He has presented his research at the American Academy of Orthopaedic Surgeons, the American Association of Hip and Knee Surgeons, and the Virginia Orthopaedic Society. He was awarded the prestigious Insall Knee Society traveling fellowship, with visits to many of the leading centers for hip and knee replacement in North America.



William G. Hamilton, MD



Kevin Fricka, MD

“Patient education is an important part of our joint replacement program. Understanding the procedure and what to expect afterward can ease recovery and ensure maximum benefit from hip replacement surgery.”

Dr. Fricka earned his medical degree at George Washington University and is excited to be returning to this area. Originally born in Chicago, IL, Dr. Fricka earned his undergraduate degree at Harvard University where he also was a member of the varsity basketball team. Upon graduation from medical school, Dr. Fricka was inducted into the Alpha Omega Alpha Honor Society and received the Julius S. Nevaizer Award in Orthopaedic Surgery.

He completed his orthopaedic surgery residency at the University of California-San Diego. During his residency he presented numerous scientific papers and was awarded the DePuy Orthopaedic Research Award by California Orthopaedic Association. He has been published in the Journal of Arthroplasty, co-authored a book chapter and is involved in the Anderson Orthopaedic Research Institute. He also is a member of the American Academy of Orthopaedic Surgeons.

Dr. Fricka finished his training with a one-year fellowship in Adult Reconstructive surgery at Rush University in Chicago, IL. He performed a large volume of primary and revision total hip arthroplasties, learning his techniques from some of the leaders in adult reconstructive orthopaedic surgery. He brings this knowledge and expertise with him to Anderson Clinic.



Nitin Goyal, MD

“Hip replacement is one of the most successful surgical procedures of our generation. The advances in surgical technique and implants have improved both the initial recovery and the overall durability of the replacements. This manual will help to educate our patients and reduce apprehension about the surgical procedure.”

A native of Great Falls, Virginia, Dr. Goyal attended Thomas Jefferson High School for Science and Technology in Alexandria, Virginia. He returned to his hometown after training in Philadelphia for more than 10 years.

Dr. Goyal completed his medical education at Jefferson Medical College in Philadelphia, Pennsylvania where he graduated at the top of his class and was elected into the prestigious Alpha Omega Alpha Medical Honor Society in his third year. He went on to complete his residency in Orthopaedic Surgery at the world-renowned Rothman Institute & Thomas Jefferson University Hospital. There he received the Everett J. Gordon award as the Chief Orthopaedic resident demonstrating the “most outstanding clinical and surgical achievement.”

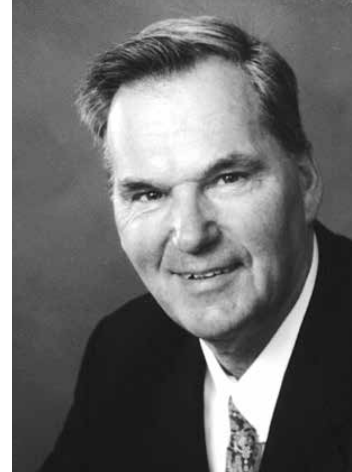
Dr. Goyal stayed on at The Rothman Institute to pursue specialized training in complex hip and knee reconstruction. His particular surgical interests include computer navigation for partial and total knee replacement, anterior approach for hip replacement, complex revision of failed hip and knee replacement, revision for infection and treatment of hip pain in the younger adult population. He is one of the only surgeons in the INOVA Health System performing the exciting muscle sparing direct anterior approach to total hip arthroplasty. This approach offers the possibility of less postoperative pain and an accelerated recovery with potentially reduced complications.

Dr. Goyal has published articles in several major Orthopaedic journals, presented at national meetings, co-authored several book chapters and is a member of the American Academy of Orthopaedic Surgeons and the American Association of Hip and Knee Surgeons. He is a co-editor of two textbooks concerning joint replacement and his specific research interests include improved management of postoperative pain following total joint arthroplasty, and the diagnosis and management of infection following total joint arthroplasty.

According to Dr. Goyal, "My foremost aspiration is to take care of each patient to the best of my ability and as if they were a part of my immediate family. I believe that a strong doctor-patient relationship, adherence to surgical principles, and a motivated patient will result in the best possible outcome." In his free time, he enjoys running, working out, and playing tennis, but he spends most of his leisure time traveling with his wife Rachna.

CHARLES A. ENGH, SR., M.D. RETIRED 2010

“It is my belief that a well-informed patient will approach the surgical procedure and postoperative experience with greater enthusiasm and less apprehension.”



Charles A. Engh, Sr., MD

Dr. Charles, as he was fondly called by his patients, pioneered the development of the porous-coated cementless implant for hips and knees, an innovation that has changed the nature of joint replacement surgery worldwide. He received his bachelor's degree from Davidson College in North Carolina and attended medical school at the University of Virginia. He completed his orthopaedic residency at Johns Hopkins and a fellowship at the Armed Forces Institute of Pathology in Washington, DC.

He practiced at National Hospital for Orthopaedics and Rehabilitation in Arlington, Virginia from 1972 through 1993, which was started by his father, Anderson Orthopaedic Clinic founder, Otto Engh. From 1993 until his retirement in 2010 he practiced at Inova Mount Vernon Hospital in Alexandria, Virginia. Throughout his career he focused on patient care pathways to improve the quality and consistency of the hip replacement experience.

At the start of Dr. Charles' practice he was one of 2 surgeons in the Washington, DC area with an FDA license to use bone cement. Failures of cemented implants fueled his desire to find another method. In 1985 his work with cementless femoral fixation led to the first implant approved by the FDA for use without cement.

Dr. Charles established the Anderson Orthopaedic Research Institute in 1972 which continues to provide valued research relating to total joint arthroplasty. Reviewing data collected by the research institute enabled him to understand what contributed to the success of hip replacement. He was the first in the country to have data on the outcomes from cementless hip implants. Throughout his career, the goal behind his research was to find a hip replacement that would serve patients for their entire lives.

Dr. Charles has been the winner of several prestigious awards including, the Hip Society's John Charnley and Otto Aufranc awards, the AAHKS Lawrence Dorr award twice and most recently the 2013 Hip Society's Lifetime Achievement Award. He has published over 190 articles in orthopaedic journals and 19 book chapters, as well as a book on joint replacement.

Along with his clinical and research work, he was instrumental in the development of the Anderson Clinic Post-Graduate Medical Education Foundation which has trained over 100 hip and knee arthroplasty fellows since 1983.

During his retirement, Dr. Charles' hobbies focus on landscaping and sailing. He has won the Annapolis-Newport 450 mile race along with many more day and distance races. In the winter, after putting in the autumn series of bushes and trees, he cruises the Caribbean.

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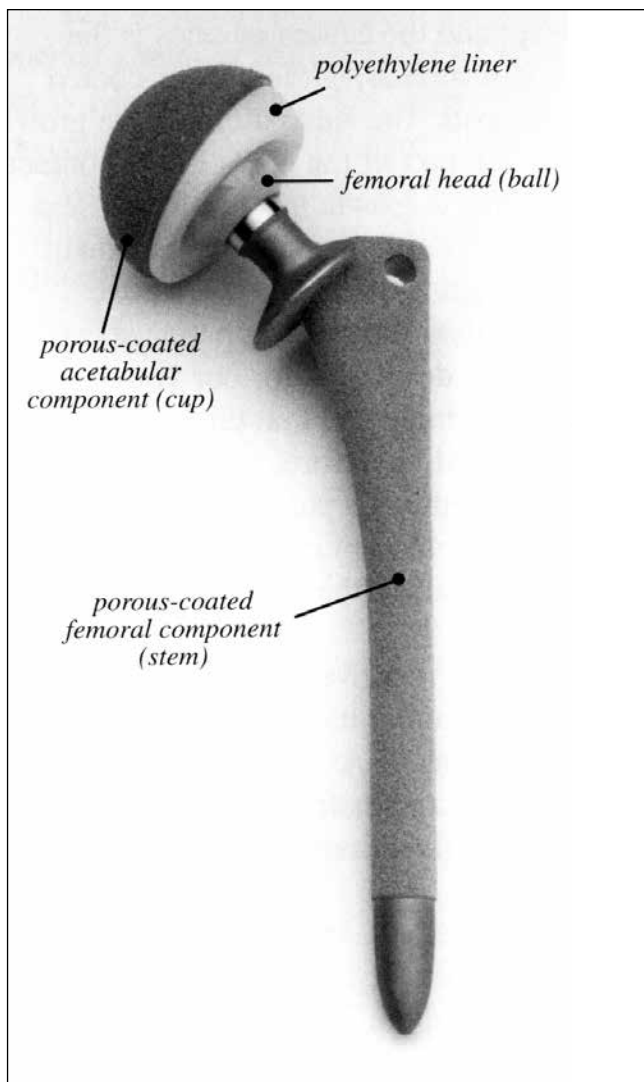
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INTRODUCTION

The information in this manual will help familiarize you with the total hip arthroplasty procedure as performed by the Anderson Orthopaedic Clinic physicians. We will explain in detail the steps you will take to prepare for surgery, what will occur on the day of your surgery, and what you can expect during your postoperative period. We also describe your home care after surgery. Once you and your physician have decided that hip replacement surgery is needed, you will naturally have many questions. Experience has taught us that each patient has different expectations. It is important to us that all of our patients know what to expect preoperatively and postoperatively. We believe the guidelines in this booklet will help you achieve the greatest satisfaction from your hip replacement.

PRIMARY TOTAL HIP REPLACEMENT

More than 330,000 total hip replacements are performed annually in the United States. Hip replacements are performed to alleviate conditions caused by osteoarthritis, rheumatoid arthritis, fractures, dislocations, congenital deformities, and other hip-related problems. The surgery involves replacing the damaged surfaces of the hip. The head and the neck of the femur (thigh bone) are removed and replaced with a ball and stem, called the femoral component. Then, the damaged hip socket is lined with a

metal “cup.” A liner is placed into the cup. The liner can also be made from different materials, but is usually plastic, or ceramic. The ball can be made of different material, such as metal or ceramic. The ball of the femoral component fits into this liner, or bearing surface, creating a new, moveable joint.

Before 1983, most hip replacement surgeons in the United States used acrylic cement to attach the prosthetic parts to the femur and pelvis. This method involved filling the area between the metal prosthesis and the surrounding bone with acrylic cement. In some cases involving cement, deterioration of the cement resulted in prosthetic loosening and a recurrence of pain. In many cases, a second operation, known as a revision total hip replacement, was required. Unfortunately, when this revision operation was done with acrylic cement, the success rate was lower than the rate with the initial surgery. Failures with the cemented technique were particularly apt to occur in young, active patients. In response to the needs of these active patients, the physicians at the Anderson Orthopaedic Clinic, in 1977, began to use porous-coated implants. The porous-coated method, which involves the use of implants with sintered, metal porous surfaces, requires no cement. Our results with this method were presented to the Food and Drug Administration (FDA) in 1982 and in 1983, the FDA approved this cementless method of hip replacement for all patients. Our experience at the Anderson Orthopaedic Clinic using this method now spans over 30 years.

The major difference between our porous-coated prostheses and the cemented ones is the metal surface of the implants. Cemented implants have a smooth surface, while porous-coated implants have a rough surface that resembles thick metal sandpaper. The surrounding bone grows “into” the porous surface of the prosthesis, essentially making it a part of the body. Close contact to bone helps hold the porous-surfaced implant in place until bone ingrowth has occurred. Most patients are allowed to put weight on their hip after surgery. Your surgeon will determine how much weight you can put on your hip based on the fit of the stem and the x-rays taken after surgery.

Lastly, the immediate benefits of total hip replacements are excellent. In most uncomplicated cases, patients can expect to have reduced pain, have improved hip mobility, and have a reduced limp soon after surgery. The operation usually takes about 45-90 minutes, much less time than many other surgical procedures.

Rapid Recovery Hip Replacement

At the Anderson Clinic we believe in a team concept which will speed recovery and the ability to return to work. This team approach includes patient education, presurgical planning, better anesthesia, less traumatic surgery, better pain control and faster return of function.

We have been working on minimally invasive techniques for many years. We are using specially designed instruments that allow all patients to have the smallest incision possible. We must take the incision long enough to do your surgery safely. Your weight plays a big part in how long your incision will be.

We use several different surgical approaches: anterior, anterolateral, and posterior. Your surgeon will determine which approach is best for your hip. Most patients benefit from all of the minimally invasive advances and go home the day of surgery or after one to two nights in the hospital or surgery center. Most patients will be walking and/or moving their hip on the day of surgery.

Approaches to the hip

There are multiple ways or “approaches” which allow the surgeon to gain access to the hip joint. Each approach carries with it unique advantages and complications and potentially different precautions postoperatively. You may talk to your surgeon about the specific approach for your surgery.

Bearing Surfaces

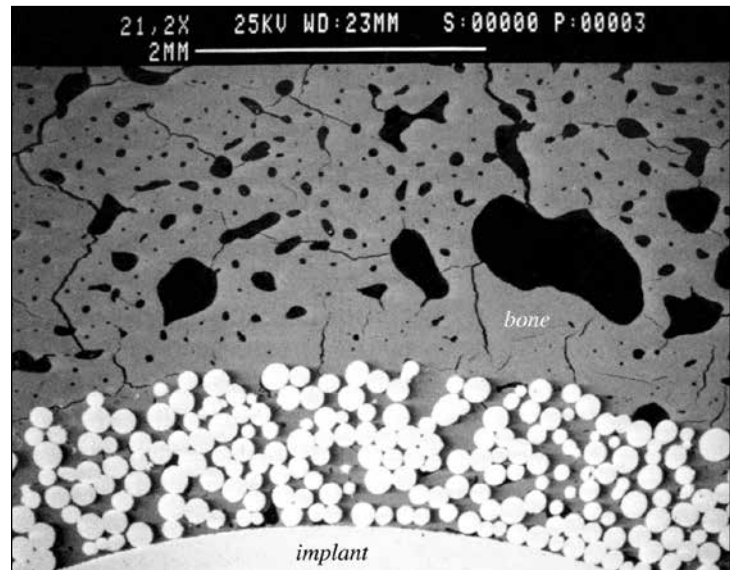
Hip bearing surfaces consist of a metal or ceramic ball on a metal stem and a metal cup with a polyethylene or ceramic liner. The metals used are titanium and cobalt chromium. Before your surgery your surgeon will measure your x-rays and select the component that is the best fit for you.

REVISION HIP REPLACEMENT

The revision of porous-coated components usually is necessary because of wearing out of the polyethylene liner in the cup. In many cases patients may have no symptoms, and the diagnosis of a damaged joint surface is made from patients’ x-rays. Revision surgery is advised in these cases to prevent further bone damage that could lead to a more complex procedure later. Although rare, other reasons for revision surgery are dislocation, loosening, infection and fracture.

For this reason, we ask our patients with well-functioning hip replacements to see us annually for 1-2 years then every 3-5 years after the initial postoperative period. This is necessary to monitor signs of wear from our long-term patients’ x-rays. These signs can appear gradually as the liner starts to wear.

Preparation for revision surgery is more complex than for an initial surgery. Revision patients who had their primary surgery at another institution can help us by obtaining detailed records of previous surgeries so that we know exactly what types of parts need to be replaced. Revision surgery can be relatively straightforward when it involves just the exchange of a ball and liner. However, the procedure is complex when it involves when it involves replacing a stem or cup. When the procedure includes removing cement or repairing damaged bone, the operation takes longer, and a patient's recovery time will likely be significantly longer than for the first-time hip replacement.



Scanning electron microscopic photo of a porous-surfaced implant shows that the bone (top gray area) has grown into the beads (white) covering the implant surface.

Scar tissue from previous surgery and bone from the failed hip replacement require special attention both during and after surgery. For example, bone graft may be used to rebuild areas where bone loss has occurred. Patients may also require a blood transfusion when revision surgery takes longer.

We customize the rehabilitation plan for each revision patient on the basis of the difficulty and the extent of surgery. Customized rehabilitation can be as simple as limited exercise or limited weight bearing, or as complex as using a brace for 6 to 12 weeks.

SURGICAL COMPLICATIONS

Along with the advantages of hip replacement, the possibilities of complications exist. Complications may include infection, hip stiffness, nerve palsies, blood-clot formation, leg length inequality, hip dislocation, or fracture of the femoral or pelvic bone during insertion of the prostheses. We hope that by making you aware of these potential problems and by discussing them openly, you will have more confidence in our expertise and ability to avoid complications.

Dislocation, which occurs when the ball at the top of the femoral component comes out of the hip socket, is seen in up to 1-2% of primary total hip arthroplasties and in about 5 to 10% of revision arthroplasties. Dislocations are treated initially without surgery, and most patients who dislocate never require further surgery. We will discuss preventative measures for dislocations and the treatment of dislocations in a later section.

Patients with arthritic hips often develop shortening of the affected leg. One of our goals with a hip replacement is to equalize leg-length as much as possible. While this is possible in more than 90% of our cases, it may not be feasible with large differences in leg lengths. Also, in a small number of patients it is possible that in order to maximize stability the operative leg actually has to be made slightly longer than the nonoperative leg. In revision cases and in some primary cases, muscle and bone loss associated with revision surgery requires us to lengthen your leg to optimize the stability of your hip.

Less than 1% of primary and revision patients have any nerve injuries, and most individuals with such injuries recover with time.

Fractures occur during surgery in less than 2-3% of patients. In almost all of these cases, the fractures consist of very small cracks in the bone. These heal rapidly and do not interfere with the patient's normal recovery from joint replacement. If the fracture is large, it may require operative treatment and also restricted weight bearing for a longer period than that required for an uncomplicated total hip replacement.

Infection occurs in less than 0.5% of primary hip patients and in up to 5% of revision patients. If the infection is diagnosed quickly, a thorough washout of the hip may be all that is needed to cure the infection. If it develops into a chronic infection, then the implants must be removed for 2 to 6 months to allow treatment with antibiotics. After the infection is cured, new hip components may be reimplanted.

Another complication of any hip surgery is a deep venous thrombosis (a blood clot in the leg). To avoid this complication, we treat patients with blood thinners and/or pneumatic compression devices.

Risks from anesthesia also exist and vary for different patients and types of anesthesia. We encourage patients to discuss their options with the anesthesiologist on the day of surgery. We believe that well-informed patients approach the surgical procedure and postoperative experience with greater enthusiasm and less apprehension. By discussing your procedure, its risks and benefits, as well as our techniques, alternative treatments, and expected outcomes, we hope to reassure you that we are committed to your well being.

PREPARING FOR A HIP REPLACEMENT

Your Joint Replacement Team

A team of professionals will help you through all phases of your surgery. This team includes your physician and his clinical staff, physical therapist, case manager, physician assistant, nurse and support personnel. Other important members of our Joint Replacement Team include our four orthopaedic Fellows. Having completed their orthopaedic training, these surgeons have dedicated a year to further professional development in total joint replacements with the Anderson Clinic. They are among the brightest young orthopaedic surgeons in the country. You may meet one of these doctors on your first visit to our office. Under the supervision of Anderson Clinic Physicians, each Fellow assists in the clinic and in surgery, provides postoperative patient care with daily rounds, and participates in our research.

Scheduling Surgery

If you do not schedule surgery at the time of your office visit, our scheduling secretary, who will help you select a surgery date, is available to answer any questions. To allow adequate time for the necessary preparations, a surgery date is usually set well in advance of your decision to proceed with hip replacement surgery. You will initially get a date for surgery but the time of your surgery will not be determined until the week before the surgery date.

Preoperative Planning

Once you have a surgery date, you will need to prepare for surgery. This includes preoperative interviews and tests which will need to be done within thirty days of your surgery date. We also encourage you to bring someone with you to help you get to your appointments and function as your "coach" and advocate throughout the joint replacement process.

Discharge Planning

Most patients recuperate much better at home with the help of family and friends; therefore, our care map promotes discharge to your home. Your team will assist in identifying the kind of help you may need after discharge and advise you of care options. It is important that your discharge plan be worked out with the team before surgery.

Blood Donations and Iron Supplements

We no longer advise patients to donate their own blood before surgery. With less invasive surgery techniques there is less than a 5% chance you will need to be transfused.

You should take an iron supplement starting a week prior to your surgery. This can be purchased at your local drug store without a prescription. The iron supplements should be taken after meals. Iron will change the color of your stools to a tarry black. In addition, the supplement may be constipating, in which case a laxative may be needed.

Medical Clearance

All patients must be evaluated by a medical doctor prior to surgery to determine if it is safe to proceed. This visit will include a medical history, physical examination, and laboratory tests (blood count, chemistry profile, and urinalysis). You may also need a chest x-ray and electrocardiogram that has been done within the past year. Additional tests may be required if you have other specific medical problems. The examination must be completed within 30 days of your surgery.

Reducing the Risk of Infection

Any source of bacteria within your system must be eliminated before your surgery. Abscessed teeth and pending dental work should be taken care of prior to your hip surgery. A urinary tract infection is an additional source of contamination. Although frequency, urgency, and burning are symptoms of a urinary tract infection or prostate problems, you may have an infection without symptoms. The doctor who clears you for surgery will order a test of your urine. If an infection is found, antibiotic treatment may be required prior to your hip operation.

Our goal is to reduce the number of bacteria you carry on your skin prior to surgery. We will instruct you to use an antibacterial wash in the days prior to surgery. Because certain bacteria are carried in your nostrils, we may instruct you to use an ointment to treat these bacteria. Furthermore, the skin around your hip and operative extremity should be free of any open lesions such as cuts, scrapes, bug bites, etc. If you have any questions, please call your physician's office.

Stopping Medications Before Surgery

Patients should stop taking aspirin and other non-steroidal anti-inflammatory medicines at least ten days before surgery to avoid increased bleeding associated with these medications. You may take Tylenol for pain during this time.

If you are taking blood thinners, such as Plavix, Coumadin or Pradaxa, these also can create bleeding problems; it is important to discuss their use with the prescribing physician to determine the dosage program that will best prepare you for surgery.

Ten days prior to the surgery, you should also discontinue the use of most herbs/supplements: echinacea, ephedra, feverfew, garlic, ginger, ginkgo biloba, ginseng, goldenseal, kava, saw palmetto, St. John's Wort, valerian, vitamin E, glucosamine chondroitin, and fish oil.

Financial Arrangements

The Anderson Orthopaedic Clinic will make every effort to assist you in meeting the policy requirements of your insurance company. You need to determine whether your insurance requires pre-authorization for surgery and whether a second opinion is required. A call to your insurance carrier will answer these issues, if they are not clearly stated in your policy.

We accept a number of health care plans with fixed fee schedules. We will be happy to provide you with information about our participation in your plan. The Anderson Orthopaedic Clinic will bill Medicare or your commercial insurance for the cost of the surgery. You as a patient are responsible for the balance stipulated by your type of insurance. The Anderson Clinic billing office and our staff are available to assist you with questions about reimbursement and billing procedures. Your hospital or surgery center bills are handled by the individual facility's billing offices. To contact billing with Inova Mount Vernon Hospital, please call (571) 423-5750. To contact billing with Harborside Surgery Center, please call (240) 493-6110.

If you are responsible for a deductible associated with the surgery, you will be responsible for paying this prior to the date of surgery.

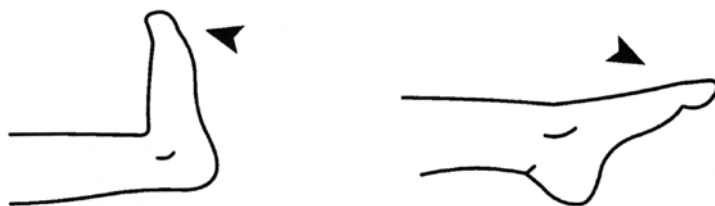
Preoperative Physical Therapy Session

Because of the many months of pain and decreased physical activity you may have experienced before surgery, your muscles may not be in the best condition. We have found that patients potentially do better after surgery if they do exercises before surgery. The physical therapists will teach you strengthening exercises at this session. The therapy staff will discuss any special home equipment needs and safety precautions. The coach who will assist you after discharge is encouraged to attend this session.

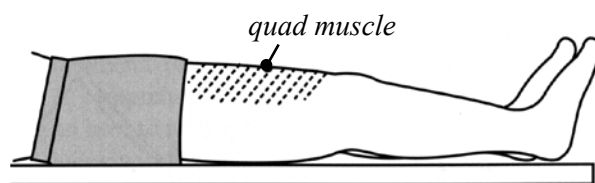
Preoperative Exercises

Many of the preoperative exercises are the same exercises that will be part of your postoperative therapy program. We recommend that you work on the following exercises several times throughout the day. If necessary, start out gradually and build up the number of repetitions. If you are unable to tolerate any of the exercises due to pain, DO NOT continue.

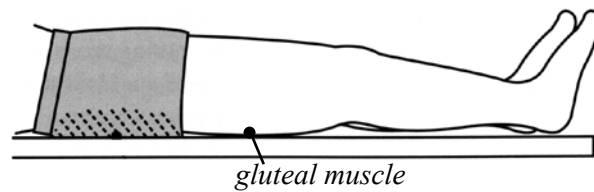
1. **Ankle Pumps:** Move your foot up and down. Repeat up to 25 repetitions, twice daily.



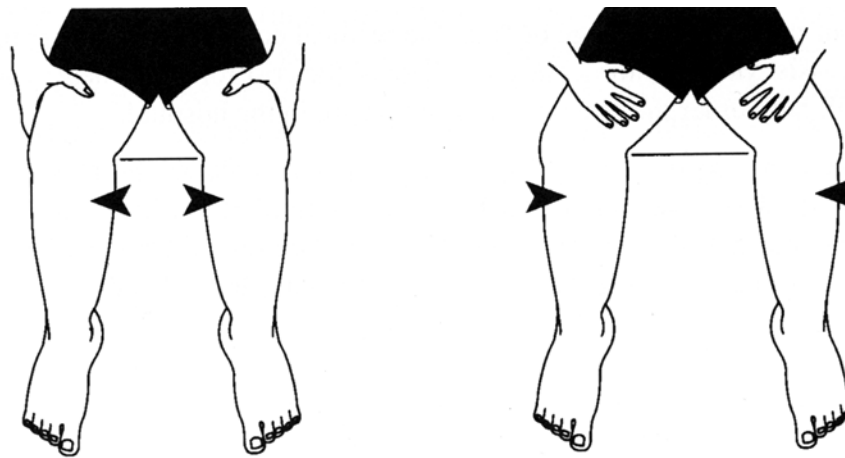
2. **Quad Sets/Knee Tighteners:** Lying on your back with your legs straight, push down the back of the knee against the bed. Maintain the muscle contraction in the thigh for five seconds. Relax. Repeat up to 25 repetitions, twice daily.



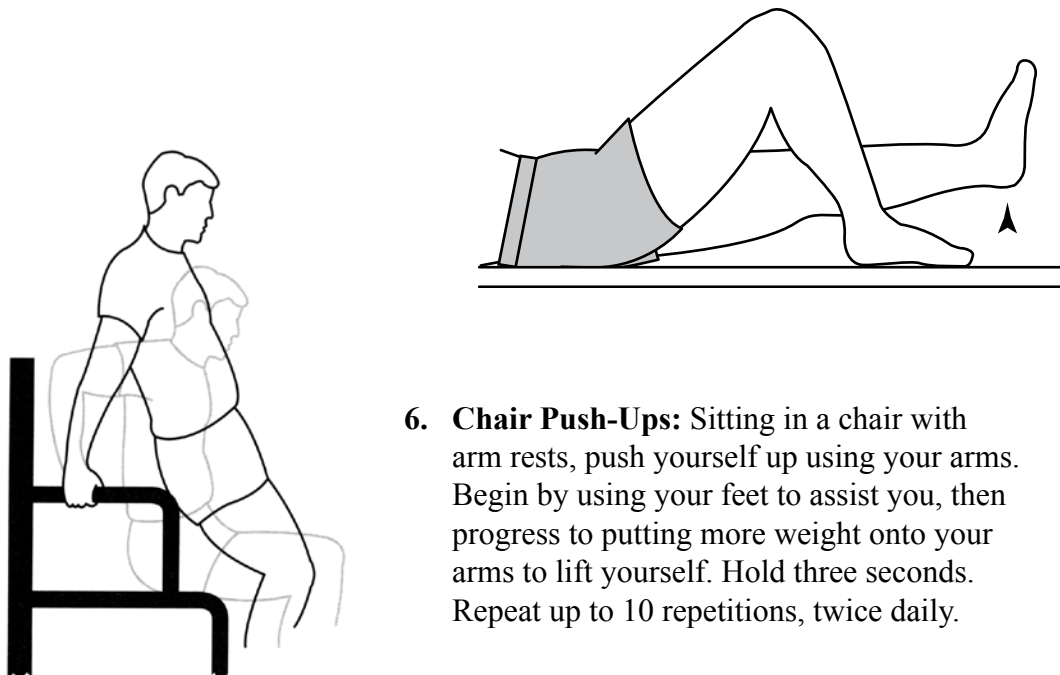
3. **Gluteal Sets/Buttock Tighteners:** This exercise can be done lying down, sitting, or standing. Squeeze the buttock muscles together and hold for five seconds. Relax. Repeat up to 25 repetitions, twice daily.



4. **Isometric Adduction/Abduction:** Sitting in a chair, place your hands along the outside of your thighs. Tensing your thighs, pretend as if you are trying to push your them apart; maintain the tension for 5 seconds. Then, place your hands on the inside of your thighs and pretend you are pushing your thighs together by tensing them for 5 seconds. You should be exerting your thigh muscles, not your hands or arms. Repeat up to 25 repetitions, twice daily.



5. **Straight Leg Raise:** Lie on your back with your right leg bent. Tighten your left knee and thigh and lift your left leg off the bed. Hold for the count of three. Do the same exercise with the opposite leg. Repeat the exercise using your right leg. Repeat up to 10 repetitions, twice daily. Do not perform this exercise if it causes you pain.



6. **Chair Push-Ups:** Sitting in a chair with arm rests, push yourself up using your arms. Begin by using your feet to assist you, then progress to putting more weight onto your arms to lift yourself. Hold three seconds. Repeat up to 10 repetitions, twice daily.

DAY OF SURGERY

Reporting to the Hospital or Surgery Center

On the day of surgery, you will report to the Registration Desk. Bring your photo ID and Insurance Cards for verification. You will be escorted to an area where you will change into a hospital gown. An identification bracelet will be placed on your wrist. An admissions nurse will make sure that your medical work-up has been completed. You will then be escorted to an area where a nurse will make you comfortable and provide warm blankets. An intravenous line will be started. You will see your surgeon, the Fellow who will be assisting with your surgery and the anesthesiologist before going into the operating room.

Clothing

Hospital gowns are suggested during the day of surgery. You are encouraged to bring loose fitting jogging clothes, t-shirts, pajamas, sweat pants, or shorts for the rest of your stay, so that you will be more comfortable when you are walking around. Tennis shoes, loafers, or comfortable support shoes should be worn; we do not recommend bringing new shoes.

Anesthesia

On the day of your surgery, you will meet with the anesthesiologist and anesthesia staff (nurse anesthetist) to go over your medical history and the type of anesthesia that will be utilized for the surgery. Most patients will have spinal/epidural anesthesia and will also be given medication that allows them to sleep during the procedure. This avoids the use of a breathing tube during the operation. A spinal/epidural anesthesia is generally our preferred method of anesthesia for joint replacement surgery, however there are some situations in which it may not be indicated, and the anesthesiologist will discuss any such situation with you.

Post-Anesthesia Care Unit (PACU)

A typical hip replacement operation takes approximately 45-90 minutes. Revision surgery often takes longer since it is more complex.

After surgery, you will be moved from the operating room to the post-anesthesia care unit (PACU), often referred to as the recovery room, where the nurses will monitor your vital signs and oversee your recovery from anesthesia. Your stay in the PACU lasts approximately 1-2 hours.

You may receive oxygen through nasal breathing tubes for up to 24 hours. To empty the bladder, you may have a urinary catheter. Pneumatic compression stockings are also placed on both legs to help improve circulation. An air pump inflates and deflates air-filled pressure compartments within the stockings. This rhythmic change in pressure promotes blood flow and also helps prevent blood clot formation.

Family Waiting Area

Family members are usually not permitted to visit with patients in the PACU. At the end of the surgery, the surgeon or the Fellow will discuss the details of the procedure with your family members. If family members leave the waiting area, they should let the staff know where they will be. If members of your family are unable to be present on the day of surgery but would like to talk with your surgeon, they should leave a phone number where they can be reached.

POSTOPERATIVE COURSE

Pain Medicine

We want you to be comfortable but also awake and alert enough to do exercises, including breathing exercises to prevent lung congestion and leg exercises to prevent blood clots. When you have recovered from anesthesia, your pain usually is managed by oral or intravenous pain medications.

We recognize that post op pain is a significant source of fear for patients. Adequate pain control is very important to us. We have designed a comprehensive program to improve your experience by decreasing pain with a “multimodal” pain program. This process starts before surgery, using a combination of different medications that work together to reduce the amount of narcotic medications you require and to maximize your pain control. The narcotic medications can cause side effects such as nausea, itching and constipation, which we would like to avoid.

Wound Care

Your wound will be covered by a dressing after surgery. It should usually be removed after 7-10 days. You can shower as long as there is no drainage from the wound. After the dressing is removed it is not recommended to apply any cream, ointment or lotion to the wound unless specific instructions are given by your surgeon.

Most of the time, your stitches will be under the skin and will dissolve on their own. If you have staples or external stitches they can be removed 10 days after surgery as long as there is no drainage.

If the wound is draining, the dressing should be changed daily. The wound should be dry and without drainage by about five to seven days postoperative. If there is persistent drainage from the wound after this time period, you should call our office immediately. If there is worsening redness around the incision, you should also call our office immediately. These may be signs of a superficial or deep wound infection and you may have to return to the office for an evaluation by one of our staff.

Other common concerns after hip replacement surgery include swelling and bruising. These can be quite significant in nature and can appear anywhere from the thigh to the toes. These are typically worse at night which can contribute to trouble sleeping comfortably for more than one to two hours at a time.

REHABILITATION

Regaining muscular control of your leg is our first and most important goal after surgery. All patients receive therapy to help strengthen muscles and also to reinforce postsurgical precautions to prevent dislocation. We want to encourage your independence and discharge to the comfort of your own home.

Family members or friends who may be assisting you after discharge are encouraged to attend all therapy sessions to learn about the appropriate techniques and the amount of assistance that they should offer you after your joint replacement. By being independent, you will be using your own muscles to strengthen and protect your new joint.

Before discharge all joint replacement patients should have practiced how to:

- Dress and bathe
- Get in and out of a bed, chair, shower or bathtub, and a car
- Walk with a walker or crutches
- Go up and down stairs
- Carry out the specific home exercise program

Your Rehab Team

We believe that your family is an important part that will work with you to develop goals based on your individual needs. The rehab team includes your surgeon, the surgical Fellows, nurses, all therapists and case managers. Family members or friends are urged to attend both physical and occupational therapy sessions to learn appropriate techniques of care and how to assist you at home.

Postoperative Physical Therapy

A comprehensive physical therapy regime is important to your full recovery. Physical Therapy will start the day of the surgery and will continue at home. Your first session will include a group of simple exercises in bed, standing at the side of the bed, and walking as soon as you are able. You can expect to use a walker, 2 crutches, or a cane for a period of up to six weeks after surgery.

Therapy programs are individually designed by your surgeon based on findings at the time of surgery. Most patients are allowed full weight bearing with the use of a walker or crutches for support. In the weeks that follow surgery, transitioning to a cane is encouraged as patients begin to feel more comfortable with walking. The therapy program may also vary for patients depending on the clinical scenario. The surgical approach also will determine the design of your physical therapy program. Before discharge, you should understand the specifics of your exercise program.

The physical therapist reviews the list of activities you can and cannot do after surgery and provides practice sessions to reinforce precautions against dislocation, to improve arm and leg strength, and to increase overall endurance before you go home. If you have any questions about sexual relations after surgery, please discuss your questions with the physical therapist or your surgeon at the follow-up visit.

Preventing Postoperative Hip Dislocations

Dislocations are rare, but if they occur they most often occur the first 3 months after surgery. Before surgery, the physical therapist begins teaching you special precautions and how to avoid dislocation. After surgery, everyone will be reminding you not to bend the hip too much, not to twist at the waist, and to avoid turning your leg in or out.

Many patients hip joints are so stable after surgery that they do not have dislocation precautions. If you are one of these patients, the therapist will tell you not to worry about dislocation but you should still avoid extreme bending and twisting. Again, your therapist will go over this after surgery.

DISCHARGE INFORMATION

Final Discharge Instructions/Prescriptions

Your nurse will see you before discharge and answer any questions you may have. At the time of discharge, the nurse will give you your prescriptions and review discharge instructions. Most patients have some discomfort at home when they perform their exercises. You will receive a prescription for pain medication, but once home, you should begin to decrease the number of pills you take and increase the interval of time between doses. Pain medication should be taken before therapy or sometimes at bedtime, as needed for your comfort; a non-narcotic medicine can be used in between. Applying ice to your hip after therapy helps to control discomfort.

Written Discharge Instructions

You should receive a copy of our discharge instructions to remind you that:

1. It is normal to have swelling and bruising in your lower legs after surgery. Walking frequently during the day and doing your exercises will help strengthen your muscles and reduce the swelling. If you have swelling, we recommend you elevate your legs, and apply ice to your hip for 15 minutes. If the swelling continues to worsen, or becomes increasingly painful, please call your surgeon's office.
2. You can take a shower when your wound is dry. If you have a plastic dressing, it is waterproof. If you have a telfa dressing, remove it before you shower and replace after the shower.
3. You should have a copy of your home exercises from the physical therapist. Do your exercises three times a day.
4. You should be walking in your home, frequently, as able. Use your crutches, cane, or walker as instructed by your therapist. You are encouraged to walk outside with assistance. Often people will notice some clicking in the hip with activity. This does not mean there is something wrong with the prosthesis.
5. Your hip will be sore but pain will dissipate over time. You will be given a prescription for pain medicines that can be used primarily BEFORE THERAPY and AT BEDTIME. Extra-strength Tylenol, antiinflammatories or Ultram can be used in addition to or instead of narcotics. To ease your discomfort, apply ice to the hip after activity.

Going Home By Car

Patients are able to go home by car after hip replacement surgery. If your trip will take more than two hours, plan on allowing one or more stops for walking and exercising your legs. Please be sure to arrange your ride home prior to surgery.

By Airplane

If you need to travel by air, it is important to request a bulkhead or first class seat, so that you will have enough room to stretch out your leg during the flight. It is advisable to have a travel companion, who can help with your luggage and with getting on and off the plane. Occasionally, your surgeon may recommend that a long airplane ride be postponed for several days after discharge from the hospital.

Getting into Your House & Using Stairs

The physical therapist will teach you how to go up and down steps. You should have someone help you with steps until you are comfortable and secure with them. Remember that when you use a staircase, your crutches go under your arm on the opposite side from the railing. To go up the stairs, start with your unoperated leg; to go down, begin with crutches and the operated leg.

RETURNING FOR YOUR FIRST POSTOPERATIVE VISIT

Our physician assistants see all our postoperative hip replacement patients approximately 4-6 weeks from the time of their surgery. This will be arranged for you by our staff.

This first follow-up visit will include an examination of the hip. X-rays of the operated hip will be obtained to evaluate the alignment and fixation of the implant. You will receive new instructions concerning your allowed activities and the amount of weight you can put on the operated leg. Arrangements can be made on an individual basis for out-of-state patients.

LONG-TERM CONSIDERATIONS

Use of Antibiotics to Prevent Hip Infections

Each year in the United States more than 800,000 knee and hip replacements are performed. The infection rate for these procedures is very low. Joint replacement surgeons attempt to lower the infection rate by using prophylactic antibiotics during surgery.

Infections that develop around the hip weeks or months after discharge are a rare but serious complication. Infections that occur after six months are usually the result of an infection elsewhere in the body, which spreads by bacterial “seeding” and travels to the hip through the bloodstream. Urinary tract, skin, dental, or respiratory infections are potential causes of such hip infection and should, therefore, be treated aggressively.

In addition, since bacteria are normally found in the mouth and intestines, “seeding” might occur during some dental procedures, bronchoscopy, cystoscopy, or endoscopy and cause infection around your joint. Let your dentist and internist know that you have an implanted hip prosthesis. Please see our guideline for antibiotic prophylaxis prior to procedures for a more complete description.

Follow-up Visits

We strongly recommend a return visit to the Anderson Clinic to confirm that your prosthesis is functioning well. These visits are important whether or not you are having problems with your hip. The plastic part of the implant eventually may show signs of deterioration. This can only be determined by studying your follow-up x-rays and doing a physical examination.

Ongoing Resources

Anderson Orthopaedic Research Institute

Founded in 1972, the Anderson Orthopaedic Research Institute (AORI) is a not-for-profit organization dedicated to scientific research and progress in the joint replacement field. The AORI project directors, Anderson Clinic physicians, and the Engh Fellows collaborate on long-term outcome studies of knee replacements. We also evaluate the quality of all aspects of our joint replacement program.

AORI maintains a clinical database of over 10,000 patients treated for hip disease by hip replacement. Before surgery and at each postoperative annual office visit, the doctors ask their patients to fill out a questionnaire. Important information from your physical examination, your postoperative x-rays, and the patient satisfaction questionnaire is documented on computer forms. Analysis of this data allows us to accurately inform our patients about the expected long-term outcomes of knee replacement surgery. This information also helps us to modify the joint replacement program to ensure the highest quality of care and patient satisfaction.

AORI has become renowned for studies examining implant wear and the response of human tissues to implants. We believe that our research benefits others by providing more durable materials and improved techniques for joint replacement surgery.

AORI's research is published in the most respected orthopaedic journals in the U.S. and abroad. We also present research findings at meetings of orthopaedic societies and at medical universities and institutes. The AORI staff and physicians have received many prestigious awards for their articles and presentations.

The Joint Journal Newsletter

Several times a year, AORI produces the *Joint Journal*, a patient newsletter that provides up-to-date information about knee and hip replacement topics. In each issue, we brief you on the progress of some of our past Anderson Clinic patients and inform you of the research at AORI. Following your surgery, your name will be added to the *Joint Journal* mailing list. We invite you to send interesting information or general questions about hip replacement for us to include in the newsletter. Your personal experiences with hip replacement surgery often are of interest to our other readers. You may contact the editor by mail or email at Research@aori.org.

Implant Retrieval Program

Patients interested in the advancement of medical science that will benefit others have agreed to donate their implant, surrounding bone, and the opposite hip for comparison and for intensive studies of artificial joint replacements after the time of death. This research enables scientists to determine the best materials for prosthetic devices and the most effective methods for attaching them to the bone. The Anderson Orthopaedic Research Institute encourages and gratefully appreciates your participation in this program.

Commonly Asked Questions about the Program

Who should participate in this program?

We encourage all patients who have had a hip or knee replacement to participate. We are interested in cemented, non-cemented (cementless), and a combination of both types of implants. This program involves all consenting patients in the United States at the time of death.

Who does the removal?

A team of Anderson Orthopaedic researchers will remove the artificial joint(s) and the surrounding bone. The Anderson Orthopaedic Research Institute covers all expenses for the retrieval.

What is removed at the time of retrieval?

The surgeon will remove the artificial joint and the adjacent bone attached to the implant. It is also necessary to remove the corresponding amount of bone on the opposite leg so that we may compare the implanted side and the normal side. The incision and closure are performed like the original surgical procedure. All bone that is removed is replaced with artificial bone. The tissue is treated with the same respect as tissue donated for organ transplants.

Where will the retrieval take place?

The retrieval will take place in a hospital or in a funeral home. Once the Anderson Orthopaedic Clinic has been notified of the death, the retrieval team contacts the funeral home or hospital to make the necessary arrangements. Ideally, the implant should be removed within 24 hours of death. It does not matter if the body has been embalmed. Much consideration will be given to the funeral or cremation plans.

What should be done at the time of my death?

At the time of death, the family should immediately notify the Anderson Orthopaedic Clinic switchboard at (703) 892-6500. At night or on weekends, this call will be received by an answering service that will notify the physician to plan the retrieval. The family will not be burdened with the arrangement.

How do I enroll?

If you would like to enroll in the Implant Retrieval Program, please send your full name, address, and phone number to the Implant Retrieval Program, Anderson Orthopaedic Research Institute, PO Box 7088, Alexandria, Virginia 22307. We will send you a consent form and instructions to enroll in the program. When we receive the completed consent form from you, we will send you a donor card stating that you are participating in our Implant Retrieval Program.

Common Questions asked about Hip Replacement

Q. How does the doctor decide if I need a total hip replacement?

A. This decision is based on the degree of pain you have, how difficult it is for you to walk, and how much these problems interfere with your activities or quality of life. Other important factors in the decision include evaluation of your x-rays and your health status.

Q. How long does the surgery last?

A. The surgery lasts 45-90 minutes, depending on the condition of your hip at the time of surgery.

Q. How big will my incision be?

A. The size of the surgical incision depends on multiple factors including the complexity of the surgery and the size of the patient.

Q. How long can I expect to have pain after surgery?

A. The time varies for each patient. Many patients report that there is very little pain right after surgery, but postoperative soreness may continue for 3 – 4 weeks.

Q. How long until bone ingrowth occurs?

A. Bone ingrowth occurs between 6 weeks and 1 year.

Q. How long after surgery will I have to limit weight bearing on my leg?

A. The amount of weight you are allowed to put on your leg varies from full weight bearing to just the weight of your foot. Several surgical factors are considered in making this decision and your surgeon will inform you of your weight bearing status following the procedure. Most patients are cleared to be full weightbearing, as tolerated.

Q. Why do I have to take a blood thinner after surgery and how long will this continue?

A. A blood thinning medicine is recommended to prevent blood clots and is usually discontinued after your first follow-up appointment.

Q. When are the staples or sutures removed?

A. If you have staples, they are removed in 10 to 14 days after surgery, if there is no drainage from the wound site. Dissolvable sutures are often used and do not require formal removal, although the wound should be intermittently checked for redness or drainage.

Q. How long will it be before I can take a shower or bath?

A. You may shower if the wound is covered or if there is no drainage.

Q. When can I resume sexual activities?

A. You can resume sexual activity 3 – 6 weeks after surgery. The physical therapist will review safe techniques.

- Q. When can I drive a car, swim, or ride an exercise bike?**
A. The timeframe depends upon the stability of your hip and the type of vehicle you drive or exercise bike you own. Usually swimming is not permitted until the incision is completely healed.
- Q. When can I start playing tennis or golf?**
A. Active sports are generally not resumed until 3 – 6 months after surgery.
- Q. When will I be able to return to work?**
A. This depends on the type of work you do as well as several other factors. This is determined on an individual basis and you should discuss with your surgeon.
- Q. How long should I keep doing the exercises?**
A. You should do the exercises given to you at discharge until you return for your visit. At that time, you may be given a new set of exercises. You should continue to exercise until your muscles are pain-free and you can walk without a limp. It is a good idea to continue your exercises as a lifetime commitment to keeping your muscles strong.
- Q. Do I need an x-ray at 12 months, if my hip feels fine?**
A. Yes. X-rays are an important part of each follow-up visit and are essential in determining the amount of bone ingrowth, position of the prosthesis, and the condition of the bone around the prosthesis. A patient may not have any symptoms, and x-rays assure us that there are no problems developing.
- Q. Approximately, how many total joint replacements are performed each year?**
A. Anderson Clinic surgeons do approximately 2800 hip and knee replacements each year.



The
**Anderson
Orthopaedic
Institute**

A Center of Excellence
for Orthopaedics

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