Messages from your surgeons

Gerard A. Engh, MD

"We hope this booklet helps you and your family prepare for your knee replacement. In it we describe your surgery and the preoperative and postoperative steps in your care. At this time, let me also assure you that your team of doctors, nurses, case managers, and therapists is dedicated to making your recovery as comfortable as possible."

Dr. Jerry has dedicated his professional life to improving knee replacements for his patients. After attending medical school at the University of Virginia, he completed his internship and residency at Yale New Haven Hospital, followed by two years in the Army Medical Corps. Shortly after joining the Anderson Orthopaedic Clinic, founded by his father Otto Anderson Engh, M.D., Dr. Jerry began to focus on the relatively new specialty of knee arthroplasty. Dr. Jerry is an active member of the American Academy of Orthopaedic Surgeons and is the current vice president of the Knee Society.

Serving as the director of knee research at the Anderson Orthopaedic Research Institute (AORI), Dr. Jerry has influenced developments and progress in knee arthroplasty. He has published over 50 papers in scientific journals, written book chapters on joint replacement, edited a textbook on revision knee replacement, and conducted presentations in the United States and abroad. He has led the Institute's efforts to compile an unmatched database of outcomes of knee replacement patients.

"Because we believe in the importance of long-term follow-up with our patients, our database has become extremely useful in improving the outcomes of knee arthroplasty for all patients," says Dr. Jerry.

C.Anderson Engh, Jr.,MD

"Knee replacement is major surgery that can dramatically improve the quality of life. This manual will help our patients prepare for 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, and the American Association of Hip and Knee Surgeons.

According to Dr. Andy, "It is wonderful to work alongside my father and uncle. I'm proud to continue the tradition of caring and innovative treatment that my grandfather started."

William G. Hamilton, MD

"I plan to continue the dedication to excellence in patient care and surgical technique I learned during both my residency and my fellowship here at Anderson Clinic."

Dr. Hamilton, a native of Ithaca, New York, received his ScB from Brown University where he was a four 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 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, and he has become one of the busiest joint reconstruction surgeons in the area. His areas of expertise include tissue sparing hip and keen replacements, computer assisted surgery, unicondylar knee arthroplasty, and the complex revisions of failed hip and knee replacements.

Kevin Fricka, MD

"The knee replacement of today offers patients both quicker recovery and long lasting results due to recent advances in both surgical technique (minimally invasive) and the prosthetic implants (high flexion, partial knee and gender implants)."

Dr. Fricka is proud to join the Anderson Orthopaedic Clinic as its newest member. He was born in Chicago, IL and then grew up in the greater Los Angeles, CA region. Dr. Fricka earned his undergraduate degree at Harvard University where he was also a member of the varsity basketball team. He completed his medical education at George Washington University and is excited to be returning to the greater Washington area. Upon graduation he was inducted into the Alpha Omega Alpha Honor Society and received the Julius S. Neviaser 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 the California Orthopaedic Association. He has been published in the Journal of Arthroplasty, co-authored several book chapters and 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. There he learned his techniques from some of the leaders in adult reconstructive orthopaedic surgery. His particular surgical interests include "minimally invasive" knee replacement surgery, partial knee replacement, "Gender-specific" knee arthroplasty, and complex revision of failed knee replacements.

Table of Contents

Introduction . . . 1
Types of Knee Replacements . . . 2
Possible Complications . . . 4
Preparing for a Knee Replacement . . . 5
- Scheduling Surgery/Preoperative Preparation . . . 5
- Blood Donations and Iron Supplements . . . 8
- Medical Clearance/Reducing the Risk of Infection . . . 8
- Preoperative Pain Medications . . . 9
- Financial Arrangements . . . 9

Your Hospital Stay . . . 10
- Reporting to the Hospital . . . 10
- Post-Anesthesia Care Unit (PACU) . . . 10
- Family Waiting Area . . . 10

Postoperative Course . . . 11
- Joint Replacement Unit/Your Hospital Room . . . 11
- Pain Medicine . . . 11
- Wound Care . . . 12
- Preventing Blood Clots . . . 12
- Incentive Spirometer . . . 13
- Meals/Clothing/Physician Rounds . . . 13

Rehabilitation: Regaining Control Through Exercise . . . 14
- Postoperative Physical Therapy . . . 14
- Postoperative Occupational Therapy . . . 15
- Rehabilitation Nurses . . . 15
- Length of Stay . . . 15

Day of Discharge . . . 16
- Final Discharge Instructions/Prescriptions . . . 16
- Written Discharge Instructions . . . 17
- Going Home . . . 18

Returning for Your First Postoperative Visit . . . 19
Long-Term Considerations . . . 19
- Use of Antibiotics to Prevent Knee Infections . . . 19
- Annual Follow-up Visits . . . 20
- Ongoing Resources . . . 20
  - *Anderson Orthopaedic Research Institute* . . . 20
  - *The "Joint Journal" Newsletter* . . . 20

Appendix . . . 21
- I. Common Questions About Knee Replacement . . . 21
- II. Directions to Arlington/Mount Vernon Facilities . . . 23
- III. Implant Retrieval Program . . . 25

A typical total knee implant covers all parts of the knee joint that contact each other as the knee bends.

INTRODUCTION

Welcome to the Anderson Orthopaedic Institute, one of the foremost U.S. institutions specializing in joint replacement surgery. Over the past 30 years more than 15,000 hip, knee, and shoulder replacements, along with vast numbers of arthroplasties of the small joints of the hand, have been performed by the highly specialized team of orthopaedic surgeons at the Anderson Orthopaedic Clinic. This long-term experience, as well as the training and expertise of our staff, will ensure a safe, comfortable, and satisfactory outcome of your surgery.

This booklet addresses many of the most frequently asked questions about knee replacement. Please remember that this information does not substitute for direct communication with your surgeon's office. If you have questions, you are welcome to call to clarify any issues that concern you.

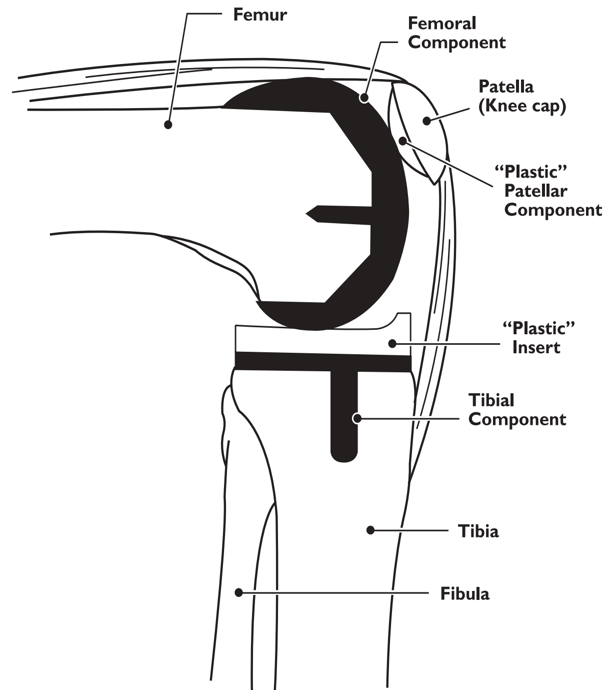
We encourage you to take the booklet with you to the hospital for reference and to use it as a place to write additional notes regarding your surgery.

TYPES OF KNEE REPLACEMENTS

Total Knee Replacement

Patients frequently ask, *"What exactly is a total knee replacement?"* The simplest answer is that it is a replacement of the worn and arthritic surfaces of the knee joint. We often tell our patients that a *total knee replacement* is similar to resurfacing a road full of potholes. In this procedure all parts of the joint that contact each other as the knee bends are covered with an artificial surface.

With arthritis, the cartilage covering the ends of the bone within the knee joint is badly worn. In a knee replacement, the damaged cartilage, along with a very small amount of bone, is removed with precise guides and instruments. The knee replacement implant, which is made of metal and plastic, is then fitted to the bone to provide an artificial surface that eliminates pain. In this operation little bone is actually removed; it is better to think of the procedure as a refinishing of the knee surfaces.



Side view of knee with total knee components.

Partial Knee Replacement

Surgeons at the Anderson Clinic are at the forefront of research and development of *unicompartmental, or partial, knee replacements.* This procedure greatly benefits patients who have localized types of knee arthritis. In this procedure only the inside (medial) or outside (lateral) portion of the knee is replaced. We do not recommend this surgery for mild problems; rather, we suggest it to patients whose pain persists after conservative treatment.

Unicompartmental knee replacements have been performed at the Anderson Clinic for over 20 years. In recent years, our doctors developed new instruments and implants that have made it possible to perform this operation through much smaller incisions (2 to 4 inches). The benefits of this *minimally invasive unicompartmental knee surgery* are numerous. Because the surgery is less extensive and because healthy portions of the knee are maintained, the procedure is safer and less painful. Patients recover more easily and

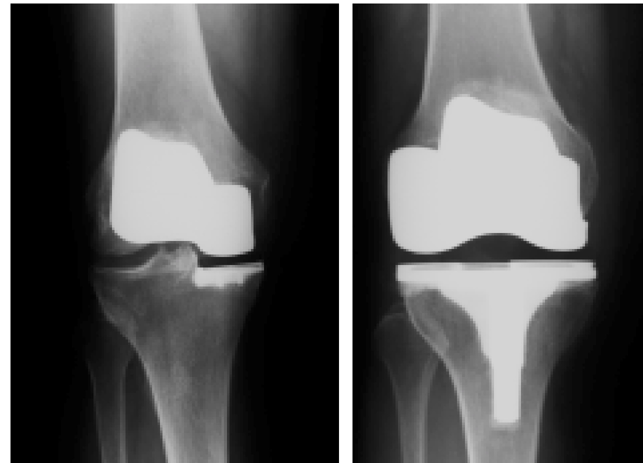
Improved techniques and instruments make it possible to perform a partial knee replacement (implant above) with much smaller incisions.

quickly. Because there is less bleeding and pain, the procedure can be done safely with a one night hospital stay, rather than the longer stay required for a total knee replacement. Most patients can go home the day after a partial knee replacement.

Looking to a patient's future, another benefit of minimally invasive unicondylar surgery, especially for today's active patients, is the ease with which it can be changed to a complete replacement if the first replacement wears out. In most instances, the revision of a unicompartmental surgery is straightforward and yields very good results.

Although we can be 80-90% sure before an operation that a partial knee replacement is best for a patient, we make the final decision between a partial or total knee replacement during surgery. We only will opt to perform a total knee replacement if the patient's arthritis proves to be so severe that a total knee replacement is necessary to improve knee function and relieve pain.

Patellofemoral and Bicompartmental (Deuce) Arthroplasty



The knee joint has three compartments; medial (inner side), lateral (outer side) and patellofemoral (knee cap area). Degenerative arthritis can involve any of the 3 compartments. A unicondylar or unicompartmental implant replaces either the inner or outer side. A patellofemoral arthroplasty replaces just the knee cap compartment. A new alternative to a full knee replacement is an implant that resurfaces only the inner side of the knee joint and the knee cap area for patients that have isolated arthritis to these 2 compartments. This implant is called "The Deuce" as it replaces 2 of the 3 compartments. The surgery is less invasive than a full replacement and preserves both cruciate ligaments. Early results with these devices has been promising although the long term results and benefits have yet to be established.

Revision Total Knee Replacement

A third type of knee replacement is referred to as a revision total knee. About one in ten total knee implants will fail over a 10-year period and will require a revision of the prosthesis. Since a revision is performed to replace failed knee implants, a revision is more complex and often requires an implant specially designed for a knee replacement that has failed. The bone is not as strong when an implant is removed, and the ligaments supporting the knee may be damaged. A revision prosthesis can help address these problems. For example, the surgeon can fit a stem inside the canal of the bone to provide more support for the prosthesis.

If the bone is badly damaged, some revision total knee replacements require a bone graft to reconstruct the deficient area. This is an unusual circumstance and will be discussed, in most cases, at the time of your office visit. The human-donor bone graft, which is obtained from a bone bank, has been tested for disease, a testing process even more stringent than the testing process for blood. Your surgeon and his assistants will be glad to answer your questions about bone grafting and will review the advantages and disadvantages with you.

Possible Complications

Along with the benefits of a knee replacement, there is a small chance of complications, which may include blood clots, infection, fracture, or nerve damage. There may be stiffness and wound complications. The risks of these problems are small, and the problems are almost always correctable. At Anderson Clinic we use the latest technology and techniques to give you the optimum care, but we also believe it is important that you are aware of potential complications, so you will understand your surgery and our efforts to minimize risks.

The most common complication of any knee surgery is a deep venous thrombosis (a blood clot in the leg). If a blood clot occurs, treatment may include a few days of bed rest and several weeks of medication to prevent additional blood clots. Infection occurs in less than 1% of all patients; however, when it does occur, it is serious. The implants must be removed for two to three months so that the infection can be treated with antibiotics. After the infection is cured, new knee components can be reimplanted with antibiotic cement in most cases.

Nerve injuries occur in less than 1% of knee replacement patients and usually result from scar tissue from previous surgeries forming around the nerve. Fractures during surgery also occur in less than 1% of patients. A fracture is more common in revision surgery when bone loss has occurred or a well-fixed implant must be removed. Treatment can range from restricted weight bearing, wearing a cast, or surgery, depending on the nature and location of the fracture.

This list covers the most common complications associated with knee replacement surgery. We hope that in discussing your procedure with you – its risks and benefits, our techniques, alternative treatments, and expected outcomes – we can assure you we are providing the best care possible.

PREPARING FOR A KNEE REPLACEMENT

Your Joint Replacement Team

A team of professionals will help you through all phases of your surgery. This team includes your physician, physical therapist, case manager, occupational therapist, and support personnel. Other important members of our Joint Replacement Team include our four orthopaedic Fellows. Having completed their residencies, 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 will meet 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

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 for four to eight weeks after your decision to proceed with knee replacement surgery. Unless you have other major medical problems that must be monitored, you will be admitted to the hospital on the day of your surgery.

Preoperative Planning

Once you have a surgery date, you will need to prepare for surgery. This includes preoperative interviews and tests at Inova Mount Vernon Hospital about two weeks before your surgery. The tests take two to six hours. An Inova scheduler will assist you with scheduling these appointments, making every effort to schedule all your appointments at the hospital on the same day. If you have not been contacted by the Inova Scheduling Center within four weeks of your surgery date, please call the Admissions Liaison at (703) 664-7046. It is important to arrive on time for all scheduled preoperative appointments. The hospital has wheelchairs available for those who have difficulty walking. We also encourage you to bring someone with you to help you get to your appointments.

Surgical and Anesthesia Interview

The surgical liaison nurse will review your past medical history, current medications, and give you instructions for the night before surgery. It is very important to bring all of your medications to this interview, so that the nurse can confirm exact doses.

Case Management and Discharge Planning

Each joint replacement patient is assigned to meet with a case manager before surgery. Your case manager is a registered nurse or health care specialist who works as a liaison with the Joint Replacement Team, insurance companies, and you. To ensure consistent quality care, we have designed a "clinical pathway," a plan of events that start before your surgery and last until six weeks after your discharge from the hospital. Your case manager coordinates this pathway of events to ensure that you receive comprehensive preoperative education, therapy in the hospital, family training on how to manage at home, and necessary services.

Most patients recuperate much better at home with the help of family and friends; therefore, our care map promotes discharge to your home. Your case manager 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 case manager before surgery. You also will have an opportunity to meet with your case manager during your preoperative visit to the hospital.

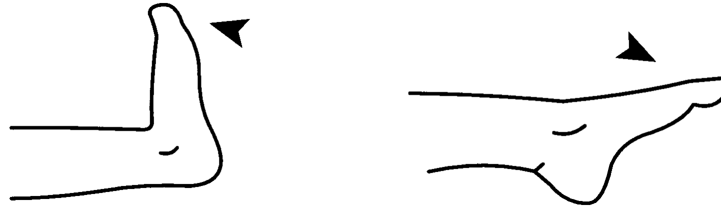
Preoperative Physical Therapy Session

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 do better after surgery if they do exercises before surgery. The physical therapists will teach you strengthening exercises at this session. They also will discuss any special home equipment equipment needs and safety precautions. Your spouse, family member, or friend who will assist you after discharge is encouraged to attend this session.

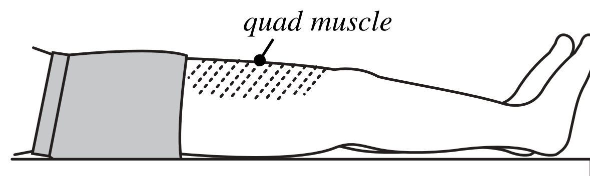
Preoperative Exercises

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.

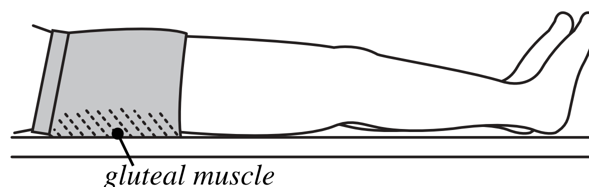
1. **Ankle Pumps:** Move your foot up and down. Repeat up to 100 times per day.



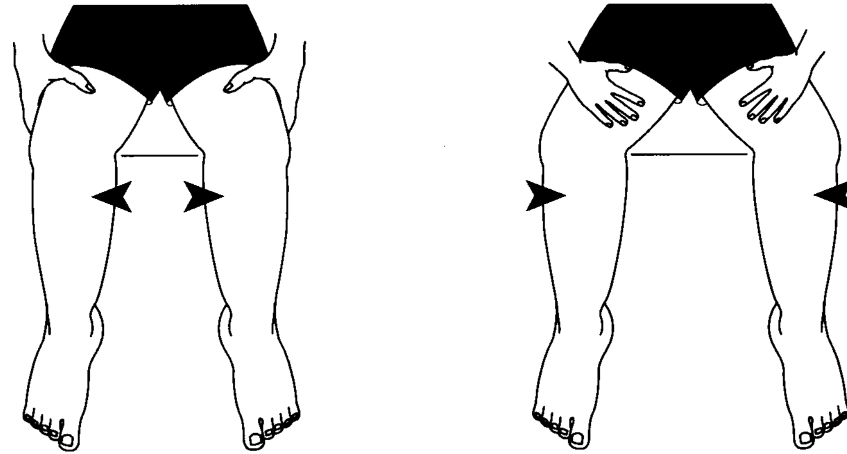
2. **Quad Sets/Knee Tighteners:** Lying on your back with your legs straight, push down the back of the knee against the bed. Maintain the muscle contraction in the thigh for five seconds. Relax. Repeat up to 100 times a day.



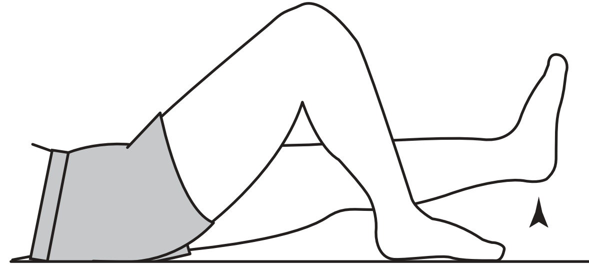
3. **Gluteal Sets/Buttock Tighteners:** This exercise can be done lying down, sitting, or standing. Squeeze the buttock muscles together and hold for five seconds. Relax. Repeat up to 100 times a day.

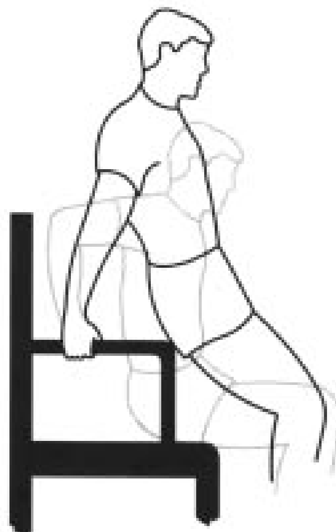


4. **Isometric Adduction/Abduction:** Sitting in a chair, place your hands along the outside of your thighs. Tensing your thighs, pretend as if you are trying to push your them apart; maintain the tension for 5 seconds. Then, place your hands on the inside of your thighs and pretend you are pushing your thighs together by tensing your them for 5 seconds. You should be exerting your thigh muscles, not your hands or arms. Repeat up to 100 times a day.



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 exercise using your right leg. Repeat until legs are fatigued.





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 until arms are fatigued.

Joint Replacement Orientation Program

The Joint Replacement Team at Inova Mount Vernon Hospital sponsors two joint replacement orientation meetings monthly (one during the day and one in the evening). At these sessions, you will meet hospital Joint Replacement Team members and former patients. They will take you through the treatment experience and show you some of the equipment you will be using during your hospitalization. They also will give you tips on how to manage at home. There is plenty of opportunity to ask questions. Patients find the orientation program very helpful. We encourage everyone to attend. The Inova Scheduling Center will schedule this meeting for you.

Blood Donations and Iron Supplements

Patients undergoing knee replacement surgery sometimes require a blood transfusion. A tourniquet, used during the operation to control blood flow, decreases the amount of blood loss during surgery. You surgeon will advise you on whether or not you should donate your own blood. We do not recommend donations from a friend or relative (called donor-directed blood).

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

We prefer to have most of our patients evaluated by a medical specialist prior to surgery. A preoperative evaluation by your family doctor is needed, or the Inova Scheduling Center will arrange to have one of the staff internists see you. If the exam is done by your private internist, it must include a medical history, physical examination, and laboratory tests (blood count, chemistry profile, and urinalysis). You may also need a record of a chest x-ray and electrocardiogram 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. The results of the history, physical exam, and all the tests will need to be faxed to the Surgical Liaison Office at Inova Mount Vernon Hospital one week before surgery (Fax: 703-664-7095).

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 knee 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 will be required prior to your knee operation. Incontinence or other voiding problems related to the prostate should be addressed by a urologist prior to the surgery.

Preoperative Pain Medications

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

If you are taking anti-platelet agents, such as Plavix or Coumadin, 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.

Two weeks prior to the surgery, you should also discontinue the use of the following herbs: echinacea, ephedra, feverfew, garlic, ginger, gingko biloba, ginseng, goldenseal, kava, saw palmetto, St. John's Wort, and valerian.

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 Orthopaedic Clinic will also bill you for the services of the Fellow who assists during surgery and throughout your hospital stay as well as with your follow-up care. The Anderson Clinic billing office and our staff are available to assist you with questions about reimbursement and billing procedures. Your hospital bills are handled by the Inova Mount Vernon Hospital billing office, which you can call at (703) 645-2864.

In most cases, a continuous passive motion (CPM) device is used immediately after surgery. We believe this is the most comfortable way to regain early knee movement and shorten your hospital stay.

YOUR HOSPITAL STAY

Reporting to the Hospital

On the day of surgery, you will report to the Same Day Surgery Office on the first floor of the hospital, near the Anderson Orthopaedic Clinic entrance on Holland Road. 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, and that we have copies of your preoperative history, physical exam, lab tests, EKG, and chest x-ray reports. 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.

Post-Anesthesia Care Unit (PACU)

A typical knee replacement operation takes approximately two and one-half hours. 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 2 hours.

When you awaken in the PACU, you will notice that there may be a drainage tube under the knee bandages to drain blood from the knee and prevent swelling.

You may receive oxygen through nasal breathing tubes for 24 hours. To empty the bladder, you may have a urinary catheter, which will be removed on the first or second postoperative day. Pneumatic compression boots are also placed on both feet to help improve circulation. An air pump inflates and deflates air-filled pressure compartments within the boot. This rhythmic change in pressure promotes blood flow and also helps prevent blood clot formation.

Patients should be aware of another machine that will bend their knee while they rest in bed. This machine is called a continuous passive motion or CPM device (see photo on previous page). In most cases we use a CPM immediately following surgery. We believe that this machine is the most comfortable way to help obtain good knee motion. It also reduces the risk of blood clots, helps regain early knee movement, and shortens your hospital stay.

Family Waiting Area

Family members are not permitted to visit with patients in the PACU. The Joint Replacement Unit Secretary will notify family members when you are transferred to your room.

When you have recovered from anesthesia, you will be moved to your room in the Joint Replacement Unit on the fourth floor. Family members are asked to wait on the first floor in the Family Waiting Area. Hospital volunteers are available to answer questions and keep family members posted on your progress. At the end of the surgery, your surgeon or the Fellow will meet with your family members to discuss your surgery. If family members leave the waiting area, they should let the volunteer know where they will be. If members of the family are unable to be at the hospital on the day of surgery but would like to talk with the surgeon, they should leave a phone number where they can be reached.

POSTOPERATIVE COURSE

Joint Replacement Unit

The Joint Replacement Unit (Hospital Floor 4-A) is a 26-bed orthopaedic unit designed especially for joint patients. The unit is staffed by a team of nurses and therapists who specialize in joint replacement. It includes a gym and a small area for visiting.

Family members are urged to attend both physical and occupational therapy sessions conducted in this unit to learn appropriate care techniques and ways to assist you at home. Your surgeon directs all of your care on the unit.

Your Hospital Room

Your hospital room will be in the Joint Replacement Unit on the fourth floor of the hospital. Your family will be permitted to visit with you, but we request that the first visit not be prolonged. Most of the rooms are semiprivate (two beds). Each bed has a personal telephone, television, and bedside table. There is a small closet available for storing your clothes.

There are six private rooms on the Joint Replacement Unit, and they cannot be reserved. Availability is determined on a day-to-day basis. Since payers generally cover only the cost of a semiprivate room, the patient is responsible for the additional cost of the private room. With hospital approval, the patient's spouse is permitted to stay overnight on the sleep sofa in the private room. Please let us know if you desire a private room. If it is not available at the time of admission, you will be placed in a semiprivate room and will be on a waiting list for a private room if it becomes available.

Pain Medicine

Patients should expect a significant amount of pain for 24 to 36 hours following knee replacement surgery. 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 either epidural analgesia or intravenous analgesia. The epidural catheter is a tiny tube placed in your back very carefully and painlessly under local anesthesia by the anesthesiologist.

If you have an intravenous method for pain control, the intravenous line is usually connected to the IV tubing in your arm. This device is usually connected to a PCA machine. PCA stands for patient-controlled analgesia, and, as the name implies, you control the amount of pain medicine you receive. The pain medication is released when you press a button that triggers the release of a small dose of medicine.

The machine will permit you to give additional doses by pressing the button, but it has a control that will not let you give yourself more than the prescribed maximum safe dose for your body size, and it will only let you give a safe number of additional doses. When you feel pain, push the button and relax. The medicine will take a few minutes to work. If you do not get adequate relief, be sure to let your nurse know so that we can make appropriate adjustments in the dose of medicine and time intervals between doses. Family members should not press the button for you.

The epidural and intravenous lines will be disconnected on the first or second day after surgery, and you will begin taking oral medication for your pain. It is helpful to take pain medication 30 minutes before therapy so that you are comfortable enough to tolerate a good workout. You will feel progressively better each day with the increase of activity, and by the time of discharge, you should be experiencing less pain.

Some patients do not tolerate PCA well, and may prefer injectable pain medications. All medications have potential side effects, and pain medications are no exception. A few people may experience side effects such as itching, mild nausea, or drowsiness. Please let your nurse know if this occurs, so that the doctor can prescribe something to control the side effects.

Wound Care

The day after surgery your wound bandage will be changed. To avoid irritating the skin, we use a special nonstick bandage without tape. Your elastic stocking will hold this bandage in place.

You may notice that your knee is slightly swollen and that there is some discoloration (like a bruise) in the leg. This is from the bleeding that occurs shortly after surgery. The discoloration, which may extend to the hip or ankle, will slowly disappear.

To close the wound, your surgeon uses either sutures or staples, which are removed by the nurse 7 to 10 days after surgery if there is no wound drainage. Occasionally, a slight amount of bloody drainage appears along the incision. It is important to keep the wound clean and dry until all the drainage has stopped. You may wash around the incision and let the water run over it, but we do not recommend using soap. Be sure to pat the area gently until dry. Some patients shower in the hospital prior to discharge.

Preventing Blood Clots

Clots can develop in the veins of the leg because surgery stimulates the blood to clot, and inactivity after surgery permits blood to pool in the veins of the leg. Exercising your leg muscles as soon as you return to your hospital room from surgery is very important to help prevent clots. We often use a type of boot that inflates approximately every minute, squeezing your foot and pushing blood through the veins to prevent clotting. Also, we occasionally use a medicine, either Coumadin or Heparin, to thin your blood. These medicines must be regulated by a blood test that tells us the clotting speed of your blood.

Vascular Imaging is an ultrasound test used to examine the veins of your legs. This is a painless test that permits us to see clots in your veins. This test is usually done following your six-week follow-up visit, but it may also be performed at the hospital. If a clot is found, your surgeon will evaluate and treat it appropriately; treatment can range from simple observation to hospital admission and anticoagulants. If we find small clots in the veins below the knee, we usually do not institute treatment but may repeat the test in a few days to make sure the clots have remained small. These clots generally dissolve on their own. Larger clots or clots in the thigh or groin are treated to keep them from getting larger. Your hospital stay could be prolonged if we have to regulate medication to slow the clotting speed of your blood.

Incentive Spirometer

After you awaken from anesthesia, it is very important to perform deep breathing exercises that help prevent pneumonia. You will be encouraged by the nurses to perform deep breathing exercises using a small plastic breather (spirometer) every hour while you are awake. This spirometer allows you and your physician to see your progress toward improving your breathing. You will be given a spirometer to practice on before your surgery. The surgical liaison nurse will show you how to use the spirometer.

Meals

On the day of surgery, you probably will have little appetite. Usually you will be offered only liquids and will progress gradually to a normal diet. Patients who follow a special diet, such as a low-fat, low sodium, cardiac, or diabetic diet, should let the nurse know, so it can be ordered for you. After surgery, you will be able to select your meals from a daily menu. Special write-in requests (for foods such as fresh fruit, soup, or a turkey sandwich) are also honored, if available. Juices, sodas, crackers, toast, and ice cream are always available between meals on the unit. There is also a cafeteria in the hospital that is open for breakfast, lunch, and dinner. Family members may purchase a meal there and join you for a meal in your room, if desired.

Clothing

Hospital gowns are suggested during the day of surgery. You are encouraged to bring jogging clothes, t-shirts, pajamas, sweat pants, or shorts for the rest of your stay, so that you will be more comfortable during therapy sessions in the gym and when you are walking around the hospital. Tennis shoes, loafers, or comfortable support shoes should be worn; we do not recommend bringing new shoes. If you plan to buy a pair of Velcro-closure shoes, please be sure to break them in before coming to the hospital.

Physician Rounds

Our doctors will visit you daily while you are in the hospital, explaining your blood tests and progress and addressing your concerns. Our Fellows participate in this process, and you will quickly appreciate their contributions to your hospital care. You also may be visited by residents, who are entering the final year of their training at the Walter Reed Army Medical Center or another training program. These residents are licensed physicians completing their work to become board certified as orthopaedic surgeons. They spend three months with us assisting in office evaluations, surgery, rounds, and research.

Postoperative Care and Length of Stay

Postoperative care for patients with total knee replacements differs from the care pathway for patients with unicompartmental knee surgeries. Usually hospitalization after a total joint replacement is about three days, unless medical problems interfere with therapy. Other the other hand, if you have a unicompartmental knee replacement through a small incision, we accelerate your activities and physical therapy, and you usually go home the day after surgery. In this case, your doctors, nurses, and therapists make sure you are ready to go home, that you have been switched to postoperative pain medication, and have received written discharge instructions for home care. As we later describe in the section on Rehabiliation, all knee patients participate in postoperative physical therapy.

REHABILITATION:
REGAINING CONTROL THROUGH EXERCISE

Regaining the muscle control of your leg is our first and most important goal after surgery. For the first 24 to 48 hours, the continuous passive motion (CPM) machine will be used almost continually while you are in bed. A set of leg exercises will also be posted at the foot of your bed. These exercises should be performed each hour.

We prefer that you rest with your legs slightly elevated and straight. The nurses will place the foot of your bed in the correct position, or the doctors will adjust this position when making rounds after your surgery. To prevent heel sores, we place a pillow under your lower leg to keep your heels off the bed. The pillow should not be placed under your knee, because it is important to keep the knee stretched out and flat.

Following knee replacement surgery, all patients receive therapy. Rehab nurses, physical, and occupational therapists work together to help strengthen your muscles and increase the motion in your knee. Our goal is to ensure your independence and to discharge you to the comfort of your own home.

Some patients have other arthritic joints or medical conditions that require more therapy before they can return to independent activities. When a referral for further rehabilitation is made, the hospital case manager will make sure your insurance will cover the program and that a rehab bed is available on the Joint Replacement Unit. Before discharge you should have practiced and be able to:

- Dress yourself
- Get in and out of a bed, chair, shower, or bathtub
- Use bathroom adaptive equipment if needed, including an elevated commode seat
- Walk with a walker or crutches
- Go up and down stairs
- Manage pain
- Do your home exercise program

Postoperative Physical Therapy

A comprehensive physical therapy regimen during your hospital stay is crucial to your recovery. As soon as possible, we want you to try to lift your operated leg. Initially, you will have some discomfort with this exercise. After two or three leg lifts, the discomfort will decrease. Gaining muscle control to lift and move your leg will speed your recovery and help you to get in and out of bed safely and easily. Remember, regaining your mobility allows you to use the bathroom rather than a bedpan.

Regaining knee motion early prevents stiffness that might interfere with the way you walk and will help ensure the successful result we want for your knee. As soon as you have recovered from surgery enough to move about, you will be transported to the gym for more intensive exercises and activities. Your therapists know from experience how much to push you, and you are encouraged to work hard with them. Your physical therapy may be uncomfortable, but taking pain medicine before therapy allows you to get a good workout. Your rewards will be regaining motion and strength in your knee, the expedition of your recovery, and a return to your favorite activities.

If time permits, patients with partial knee replacements briefly stand and walk on the day of their surgery with the assistance of a therapist. Usually, these patients can bear full weight on the operated leg within several hours after surgery. The morning after surgery, we conduct a thorough therapy session of exercises and walking. If you meet our goals, you can go home safely and comfortably by the afternoon after your surgery. Even patients who have

unicondylar replacements for both knees in one operation often can go home the next day; they are given exercises to do at home and usually begin outpatient therapy on the fourth day after surgery.

After discharge from the hospital, you are encouraged to attend outpatient physical therapy several times a week. The activity of getting out of your house and going to a therapy center is part of your recovery. Therapy improves your knee motion, strength, and endurance. If you are not ready for outpatient therapy, your case manager will assist in arranging therapy in your home.

Postoperative Occupational Therapy

Many people do not know what an occupational therapist does and often associate the occupational therapist with getting people back to work. In a way that is true. It is up to the occupational therapist to help get people back to the “work” of moving around independently and safely in the home, the workplace, and in the community after surgery.

Like the physical therapist, the licensed occupational therapist has had four years of special training in human anatomy, physiology, and body mechanics. After your total knee replacement, the occupational therapist determines what equipment you may need to bathe, dress, and manage the many activities of daily life. The occupational therapist works closely with the physician, physical therapist, and rehab nurse to help you build muscle strength and stamina, and to teach you how to manage everyday tasks without injuring the new joint. It often is the occupational therapist who lets us know when and if you are ready to manage safely in your own home. The occupational therapist will also show you how to use a 3-in-1 commode and a tub seat while you are in the hospital. However, not all knee patients will require this equipment.

A spouse, family member, or friend who plans to assist you after discharge is encouraged to attend practice sessions to learn appropriate techniques and how much assistance to provide. By being independent you will be using your own muscles to strengthen and protect your new knee.

Rehabilitation Nurses

The rehab nurses work closely with your physicians and therapists to reinforce your independence and safety in all your routine activities. Our specially trained rehab nurses encourage you to assume responsibility for as much of your care as you are able to manage. We want you to have an opportunity to practice self-care tasks before going home. You may be asked to sponge bathe and dress yourself every day. Also, the rehab nurse will provide you with a daily therapy schedule. You should be prepared to participate in ***all*** physical and occupational therapy sessions, both in the morning and afternoon. Using every opportunity to get in and out of bed and move around will help strengthen your muscles and increase your endurance before discharge.

DAY OF DISCHARGE

The day of discharge is a busy one. Before you leave the hospital, you will be given an individual exercise program designed by your surgeon and the physical therapist. These exercises are to be performed at home until your follow-up visit at the Anderson Clinic. Often, a family member or friend is needed to assist with some of the exercises for a week or two. If family or friends have not attended physical or occupational therapy sessions before this time, they are encouraged to do so on the day of discharge.

Final Discharge Instructions/Prescriptions

Your surgeon and/or the Fellow will see you on the day of 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 knee after therapy helps to control discomfort.

If you have developed a blood clot or are at significant risk of developing one, Coumadin may be prescribed. This medicine requires careful monitoring to maintain safe and correct levels. If you are placed on this medicine, a visiting nurse will draw your blood at least once a week to be sure the dose is correct. The results of the blood work will be given to your family physician or your surgeon, and you will be notified of the amount of medicine to take. ***If you do not hear from the physician each week, please be sure to call and ask about the dose of medication you should be taking. It is not unusual for the dose to change.***

On the day of discharge, the case manager will tell you the name and telephone number of the outpatient clinic or home health agency that will be serving you and identify the services to be provided.

Written Discharge Instructions

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

1. It is not unusual to have some swelling in your lower legs after surgery. Elastic stockings need to be worn during the day until your follow-up appointment with your surgeon. Beginning one week after going home, you may remove the stockings at bedtime. Walking every hour during the day and doing your exercises will help strengthen your muscles and resolve the swelling. If you have swelling, we recommend that you lie down every two hours, elevate your legs with pillows, and apply ice to your knee for 15 minutes. If the swelling does not go away overnight, or if you develop pain with the swelling, please call the doctor's office.

2. You are permitted to shower at home. Ask for assistance from a friend or family member when getting in and out of the shower.

3. You should have a copy of your home exercises from the physical therapist. Do your exercises throughout the day.

4. You should be walking in your home at least every two hours. Use your crutches, cane, or walker as instructed by your therapist. You are encouraged to walk outside with assistance, weather permitting, for 20 minutes a day. Often people will notice some clicking in the knee with activity. THIS IS NORMAL and does not mean there is something wrong with the prosthesis. DO NOT drive or take long trips until after your six-week visit.

5. Your knee will be sore but pain will dissipate over time. You will be given a prescription for narcotic pain medicine that can be used primarily BEFORE THERAPY and AT BEDTIME. Extra-Strength Tylenol can be used instead of the narcotic. To ease your discomfort, apply ice to the knee after activity.

6. Some doctors and dentists recommend that joint replacement patients take antibiotics for dental and medical procedures. If so, they will prescribe the appropriate antibiotic. We leave this to their discretion.

Going Home

By Car

Patients are able to go home by car after knee replacement surgery. If your trip home will take more than two hours, plan on allowing one or more stops for walking and exercising your legs. A van or large car will suffice as long as there is room to stretch out your leg rather than bending it. Discharge from the hospital usually takes place in the late morning after a final session of exercises and instructions from the therapists and nurses. Most patients are eager to miss rush hour traffic.

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. The case manager can recommend appropriate lodging locally until you are ready to go home, and will also help you arrange transportation to the airport by taxi.

Getting into Your House & Using Stairs

The physical therapist will teach you how to go up and down steps. However, when you arrive home, you may need someone to take your arm for balance and guidance for curbs, steps, and doorways, especially if there are no railings for support. 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

We see all our postoperative knee replacement patients approximately six to eight weeks from the time of their surgery. This will be arranged for you by our staff, and you will be notified in writing. You should confirm this appointment with your surgeon's office after discharge. We need as much lead time as possible to accommodate any wishes concerning the time and date of your follow-up examination at the Anderson Clinic.

This first follow-up visit will include measurements of swelling, knee motion, and strength by physical therapy; vascular imaging to determine whether any blood clots have developed in your leg after surgery; and an examination of the knee by the knee replacement Fellow and your surgeon. Also, x-rays of the operated knee 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. At this time, the surgical stockings are usually discontinued unless leg swelling persists.

Arrangements can be made on an individual basis for out-of-state patients.

LONG-TERM CONSIDERATIONS

Use of Antibiotics to Prevent Knee Infections

Each year in the United States more than 270,000 knee and hip replacements are performed. The infection rate for these procedures is very low, averaging less than 1%. Joint replacement surgeons attempt to lower the infection rate by using prophylactic antibiotics during surgery.

Infections that develop around the knee weeks or months after discharge are rare; however, even one in 1,000 is a 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 knee through the bloodstream. Urinary tract, skin, dental, or respiratory infections are potential causes of such knee 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 knee prosthesis. Your dentist or internist will decide whether you need to take antibiotics before and after dental or diagnostic procedures.

Annual Follow-up Visits

We strongly recommend a return visit to the Anderson Clinic annually for the first two years and then every two years thereafter. These visits are important whether or not you are having problems with your knee. Over 90% of total and partial knee replacements continue to function well for more than ten years, but it is important to remember that with the increasing years of pain-free use, the implant may wear. The plastic part of the implant eventually may show signs of deterioration. This can only be determined by studying your follow-up x-rays.

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 5,000 patients treated for knee disease by knee 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 knee replacement for us to include in the newsletter. Your personal experiences with knee replacement surgery often are of interest to our other readers. You may contact the editor by mail or email at **Research@aori.org**.

APPENDIX

I. Common Questions About Knee Replacement

Why does my knee click?

A knee prosthesis is made of hard metal and plastic. Gravity will create a slight separation of the components. When you tighten your muscles or swing your leg, the pieces come in contact and may make a clicking sound. This is normal. It should not cause pain and does not mean that something is loose or wrong.

Why does the skin feel funny around my incision?

The nerves in the skin cross the front of the knee in an inside-out direction. When an incision is made down the front of the knee, these tiny nerves are divided and the skin on the outside will feel fuzzy or numb. This sensation will lessen with time and is normal for all patients with knee replacement surgery.

Why is my leg discolored?

You may develop some discoloration (like a bruise) in the leg. This is from bleeding that occurred shortly after surgery but did not drain completely into the drain that was removed the day after surgery. This discoloration, which may extend to the hip or ankle, will slowly disappear.

When can I get my knee wet?

Unless there is drainage from the incision, you may shower when you get home. In fact, some patients shower in the hospital prior to discharge. You may wash around the incision, but do not scrub the incision. Water doesn't hinder the healing, but a strong soap could irritate the skin. Be sure to gently pat the area dry.

What about cocoa butter and vitamin E oil?

You can apply either of these to the incision if there is no wound drainage. One application per day, usually after bathing, is optional beginning ten days after surgery. Your skin will heal fine with or without these topical applications.

A stitch is sticking out. What do I do?

We often suture the skin from underneath to reduce scarring. The knot at the end of the stitch sometimes will protrude from the skin. Redness and a small amount of drainage may appear. Cleanse the skin with peroxide. If a piece of suture material appears loose, you may remove it. If you have increased drainage, redness, or pain, you need to notify our office.

When can I drive my car?

Usually after six weeks. Occasionally some patients are able to drive sooner. This may depend upon whether the car has automatic transmission, which knee had surgery, and whether the patient has good leg control. It is really up to your surgeon.

How long will I have pain?

The surgical pain tends to resolve in a few days. You may continue to have some soreness and stiffness anywhere from six weeks to three months. This should disappear gradually with exercise and increased activity. If you develop pain after exercising with weights or walking without a walker or crutches, you may be overworking the knee. The following should help: using the walker or crutches, decreasing the amount of weight used during exercises, and periodically elevating your leg with ice on it. If the pain does not resolve in a day or two, you should contact your surgeon.

When can I go in the swimming pool?

Ordinarily, patients may resume pool activities after the six-week follow-up visit. Be sure to check with the surgeon at that time.

II. Directions

To Anderson Clinic in Arlington

From Crystal City
From Route 1 northbound, take the 15th Street South/Pentagon City exit. Turn left onto 15th Street. Take a right at the 2nd traffic light onto South Eads Street. Then, turn left at the 2nd traffic light onto Army Navy Drive. Stay on Army Navy Drive, past Pentagon City Mall, for approximately 2.1 miles. Anderson Clinic will be on your left.

From Fairfax/Falls Church
Head east on I-66 (Washington). Take Exit 75 (Route 110 South - Pentagon/Alexandria). Follow the signs for Route 1 South (Alexandria). Just after passing under I-395, take the 15th Street South/Pentagon City exit. Turn right onto 15th Street. Take a right at the 1st traffic light onto South Eads Street. Then, turn left at the 2nd traffic light onto Army Navy Drive. Stay on Army Navy Drive past Pentagon City Mall for approximately 2.1 miles. Anderson Clinic will be on your left.

From National Airport/ Old Town Alexandria
Take the George Washington Memorial Parkway North (toward Washington) to I-395 South. Follow directions for **"From I-395 South (to Richmond)"** given below.

From I-395 South (to Richmond):
Take Exit 8 (Ridge Road) and turn right at the yield/stop sign onto Arlington Ridge Road. Turn right at the 1st traffic light onto 23rd Street. Follow 23rd Street to the end. Turn left onto Army Navy Drive. Stay on Army Navy Drive for approximately 0.3 miles. Anderson Clinic - Arlington will be on your left.

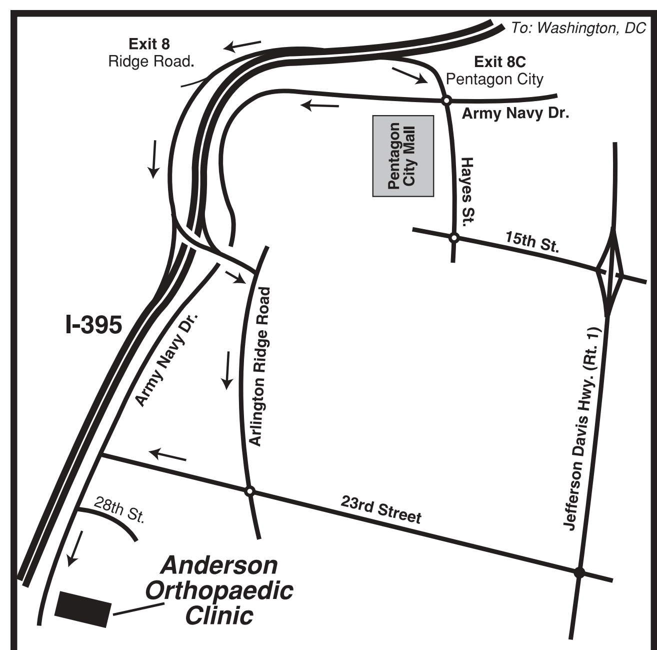
From I-95/395 North (to Washington)
Take Exit 8C (Pentagon City) and turn right at the traffic light onto Army Navy Drive. Stay on Army Navy Drive for approximately 1.8 miles. Anderson Clinic will be on your left.

From the Rosslyn/Key Bridge/ Georgetown
Follow Route 110 South to Crystal City. Just after passing under I-395, take the 15th Street South/ Pentagon City Exit. Turn right onto 15th Street. Take a right at the 1st traffic light onto South Eades Street. Then, turn left at the 2nd traffic light onto Army Navy Drive. Stay on Army Navy Drive, past Pentagon City Mall, for approximately 2.1 miles. Anderson Clinic will be on your left.

From Capital Beltway (I-95/495):
Follow I-95/495 to I-395 North (to Washington). Follow directions **"From I-395 North (to Washington)."**

From Downtown, Washington, DC:
Go south on 14th Street, crossing 14th Street Bridge onto I-395 South (to Richmond). Follow directions for **"From I-395 South (to Richmond)"** given below.

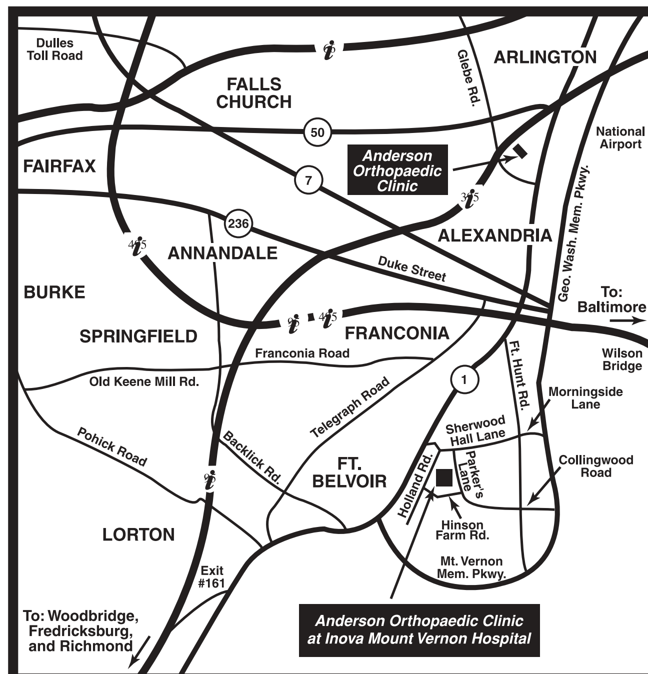
From Metro Mass Transit
Take the Yellow/Blue line to Pentagon City Metro Station. Bus Route 22A (Seven Corners) or 22B (Ballston) will drop you in front of Columbia Pentagon City Hospital (next door to the Anderson Clinic).



To Anderson Clinic in Mount Vernon and Inova Mount Vernon Hospital

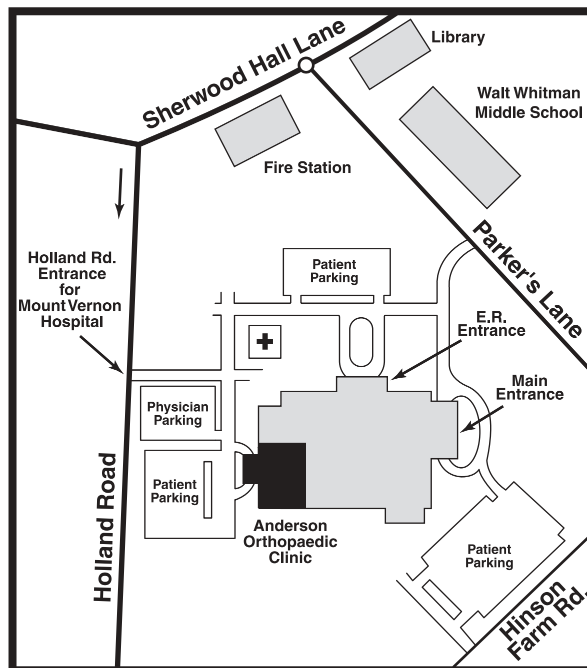
From the Capital Beltway (I-95/ 495)

Take Exit 177A. Go approximately 5 miles on Route 1 South and turn left (Walmart on right) onto Sherwood Hall Lane. After passing through the 1st traffic light, take the 2nd right onto Holland Road. Turn left into the hospital entrance, then right to reach the Anderson Orthopaedic Clinic entrance.



From National Airport and George Washington Memorial Parkway

Go south on the Parkway. After passing through Old Town Alexandria, drive south approximately 8 miles on the parkway. Exit right onto Morningside Lane. After the first traffic light, this street becomes Sherwood Hall Lane. After the 2nd traffic light, and immediately past the fire station on your left, turn left onto Holland Road. Turn left into the hospital entrance, then right to reach the Anderson Orthopaedic Clinic entrance.



From the South

Follow Interstate 95 North to Exit 161, Route 1 North. Follow Route 1 for 10 miles. After passing the Multiplex Cinema (on your left), turn right onto Sherwood Hall Lane. After passing through the 1st traffic light, take the 2nd right onto Holland Road. Turn left into the hospital entrance, then right to reach the Anderson Clinic entrance.

From Metro/Mass Transit:

Take the Yellow Line to Huntington Station and then take the Fairfax connector bus to the hospital.

From Anderson Clinic in Arlington

Leaving the Anderson Clinic in Arlington, turn right onto Army Navy Drive. Turn right onto 23rd Street (2nd street on right). Follow 23rd Street to the 3rd traffic light, Route 1 (Jefferson Davis Hwy.). Turn right onto Route 1 South. Follow Route 1 through Old Town Alexandria, crossing over I-95. Continue on Route 1 South for approximately 4.5 miles. Turn left (Walmart on right) onto Sherwood Hall Lane. After passing through the 1st traffic light, take the 2nd right onto Holland Road. Turn left into the hospital entrance, then right to reach the Anderson Orthopaedic Clinic entrance.

III. Implant Retrieval Program

Patients interested in the advancement of medical science that will benefit others have agreed to donate their implants, surrounding bone, and the opposite knee for intensive studies of artificial knee 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. AORI 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 Clinic physicians and assistants will remove the artificial joint(s) and the surrounding bone. All expenses for the retrieval are covered by the Anderson Orthopaedic Research Institute.

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 (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, P.O. 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.