



***HONORHEALTH-  
ORTHOPAEDIC SPECIALISTS of SCOTTSDALE***

**Total Knee Arthroplasty  
(Total Knee Replacement)**

**A Patient's Guide**

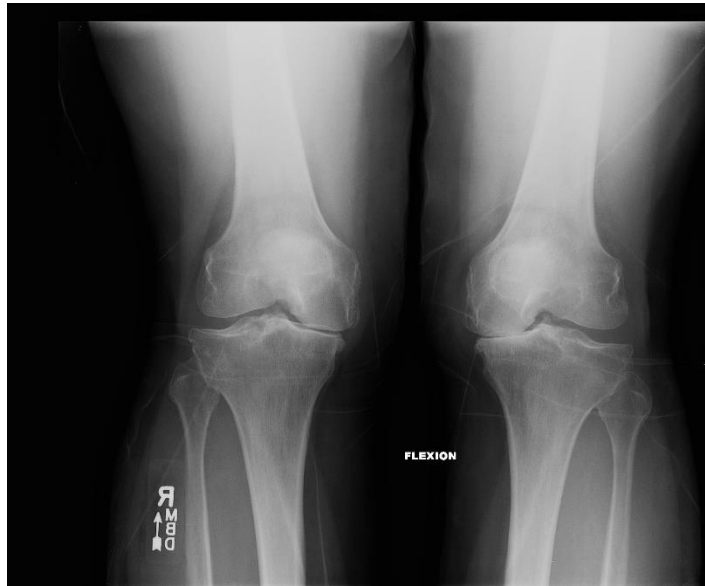


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## **Foreword**

This booklet has been developed by Dr. Kaper for his orthopaedic surgery patients at HonorHealth- Orthopaedic Specialists of Scottsdale. It is used in conjunction with instruction from the rehabilitation and nursing staff. This booklet should not be given to patients under the care of other orthopaedic surgeons, whose surgical approaches and post-operative management of total knee replacements may vary from ours.



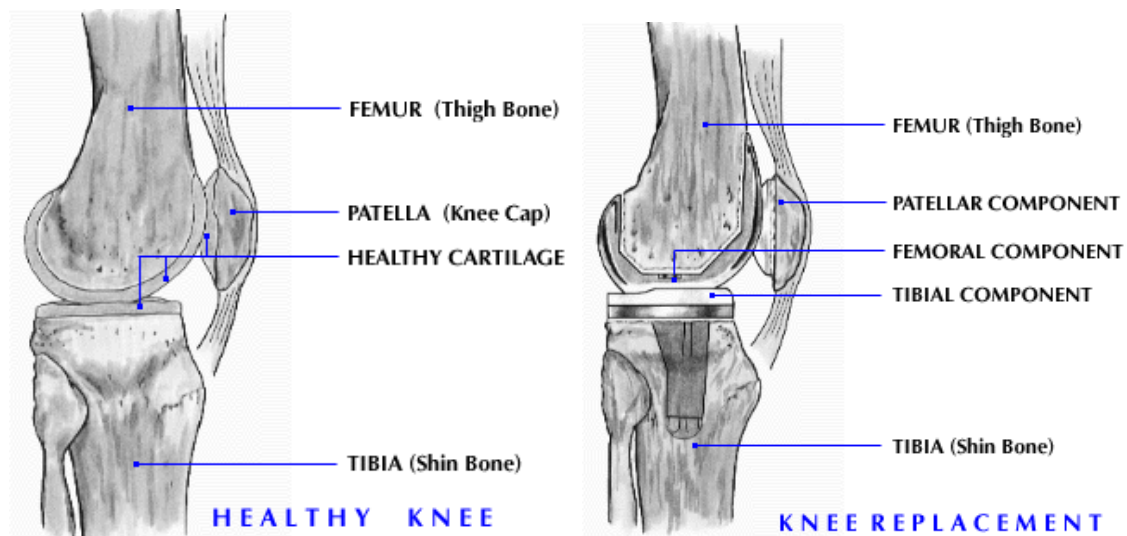
## Introduction

Welcome to HonorHealth- Orthopaedic Specialists of Scottsdale. In preparation for your surgery, we have provided you with this information booklet to help answer some of your questions and concerns about Total Knee Replacement or Arthroplasty. We hope that you find this booklet helpful. If after reading this guide, you still have any concerns about the surgery, aftercare, or other aspects, we encourage you to contact us.

Our office telephone is 480-305-0034. Our website, [www.ScottsdaleOrthoSpecialist.com](http://www.ScottsdaleOrthoSpecialist.com), also offers an excellent educational resource for our patients. Using the EPIC electronic medical record "My Chart" app is an excellent way to communicate with our office and staff. We encourage you to use this resource to help coordinate your care.

Please remember that each patient will respond and recover from total knee replacement surgery according to their own individual situation. It is helpful to "compare notes" with others who have undergone or are undergoing the same surgery. However, because everyone is different in terms of their medical and orthopaedic condition and needs, do not place undue importance on "keeping up" with your neighbor/friend/relative.

## Anatomy of the Knee



## **Surgical Overview**

Knee replacement, or “arthroplasty” surgery, is a surgical procedure to replace the damaged cartilage within a knee with an artificial prosthesis or implant. This surgery is an option for patients who have severe arthritis of the knee. Arthritis means that the cartilage cushioning within the knee joint, designed so that the bones do not rub against each other, is severely damaged or worn out. Patients with severe arthritis of the knee are often challenged by even simple activities, such as walking or climbing stairs. Surgery can be considered when all other available treatment options have been exhausted and your quality of life is significantly affected by your arthritic knee.

Various types of arthritis may affect the knee joint. Osteoarthritis, a degenerative disease of the joints, is the most common form of arthritis. It typically affects middle-aged and older adults with breakdown of the joint cartilage. Rheumatoid arthritis causes inflammation of the synovial membrane of the joint with secondary deterioration of the joint cartilage. Previous injury or trauma to the knee may result in post-traumatic arthritis, with significant damage to the joint cartilage. Any of these forms of arthritis can lead to irreversible damage to the knee joint, resulting in pain, swelling, stiffness, weakness, or even instability in which the knee may “give-way”.

Knee replacement surgery is a treatment option for knee pain and disability. The surgery is designed to replace the damaged cartilage of the knee. Think of it as getting new tires on your car. The goal of knee replacement surgery is to reduce or relieve pain in the knee. Realistically speaking, knee replacement surgery does not give you the knee you had when you were twenty-one. It does, however, significantly improve the quality of your life, which is often severely limited by the pain of knee arthritis.

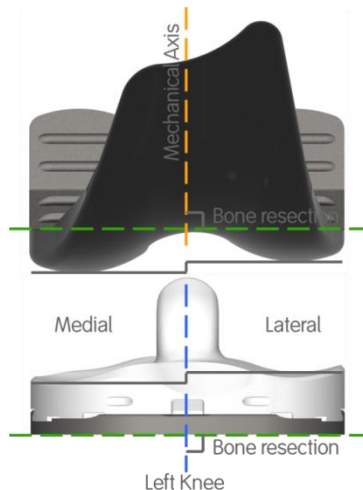
## Knee Replacement Prosthesis

Many knee replacement systems have been developed over the past 50 years. There are many different orthopaedic implant manufacturers whose products do vary in design and materials utilized. There is a lot of information online that patients can read and research about all the different prostheses available. This can be confusing to try and understand.

Dr. Kaper uses the “VERILAST” Journey II Total Knee Replacement, made by Smith & Nephew. This choice reflects what Dr. Kaper believes to be the best designed prosthesis on the market today. In both design and biomechanics, it most closely replicates the anatomy and function of the normal human knee. The materials used to manufacture the prostheses are made from the combination of Oxidized Zirconium (“Oxinium”), highly cross-linked polyethylene (XLPE) and titanium. This combination of materials is referred to as a “VERILAST” TKA and has proven to be extremely durable for knee implants.

For specific implant information, please ask us or visit their website:

[www.rediscoveryourgo.com](http://www.rediscoveryourgo.com).



## **Robotic-Assisted Knee Replacement Surgery**

Dr. Kaper now routinely performs “Robotic-Assisted” Total Knee Replacement, incorporating the latest technology to assist in performing knee replacement surgery. This technology, known as the CORI system, incorporates a platform known as “Augmented Reality”, where computer/robotic enhanced imaging allows Dr. Kaper to create a 3-D model of the knee in real-time in the operating room. This 3D model is then used to improve the accuracy and precision of the surgical technique. The goal, obviously, is to improve the clinical outcome and long-term function of your new knee. For more information about the CORI system, please ask us or visit the website:

<http://www.smith-nephew.com/professional/microsites/CORI/>.



## **Pre-Admission Evaluation**

Before your scheduled surgery date, arrangements will be made for pre-operative testing. This will give us the opportunity to have all necessary medical testing and registration done before your surgery. Total knee replacement is a major procedure that can stress even the healthiest body. For this reason, it is important that we check and optimize your overall medical condition prior to surgery.

Typical testing before surgery may include:

- *Laboratory tests*
- *EKG (heart tracing)*

A thorough physical examination with your family physician is recommended. If there are specific medical concerns, additional pre-operative evaluation may be necessary.

You will have the opportunity to meet with the anesthesiologist on the day of your surgery to discuss the different types of anesthesia typically used for surgery. These include:

- General anesthesia – when you are “asleep” for the surgery;
- Spinal anesthesia – when you are “numb” from the waist down;
- Adductor Canal “nerve” block – to temporarily “numb” the area around the knee;

Discuss any questions you may have with the anesthesiologist. Do not feel that your questions are “silly”. To be informed and knowledgeable about your surgery is important and will help you to understand what to expect during and after your surgery.



Blood transfusions are rarely necessary after knee replacement surgery. Statistically, less than 1% of all patients undergoing total knee replacement develop anemia that may need a blood transfusion. A blood transfusion will only be recommended if Dr. Kaper feels that you absolutely require it. All patients are recommended to use a pre-op Iron or Ferrous sulfate supplement.

After surgery, most patients will spend one night in the hospital. For some patients, the option also exists to go home on the same day of surgery- without the need to stay in the hospital. Dr. Kaper and his staff will assess each patient's individual circumstance and make appropriate recommendations for you. On a rare occasion, a patient may require a short stay at one of the local rehab or nursing facilities. This is typically only recommended if a patient has no local family or resources to aide them in their initial postoperative recovery.

To determine post-operative needs, these are typical questions that are asked:

1. Do you live alone?
2. Do you require assistance for daily living?
3. Do you have any concerns about returning home after your surgery?
4. Are you interested in information about facilities that can provide care and rehabilitation before returning home?

Alternatives to discharge directly home include: rehabilitation centers and skilled nursing facilities (also known as extended care facilities). Please be aware that many insurance companies, including Medicare, will not typically authorize the use of an acute rehab center after surgery.

## **Helpful Hints in Preparation for Your Surgery**

### **STARTING NOW:**

Prepare yourself:

- Stop smoking- it is extremely detrimental to your health and healing
- Participate in the recommended “pre-hab” program- a course of physical therapy that will aide in your post-operative recovery
- Exercise to improve and maintain muscle strength
- Eat well-balanced meals and take the recommended vitamins and supplements
- Get plenty of rest
- Stop or cut-back on alcohol consumption
- Keep a notebook or mobile phone handy to write down any questions you may have for Dr. Kaper, the PA/NP, physical therapist, nurses or staff

Prepare your home:

- Stock your refrigerator and pantry (e.g. pre-cooked or frozen dinners)
- Obtain or rent a walker, cane, raised toilet seat / shower chair
- Arrange for support from family and/or friends for everyday activities

### **THE DAY BEFORE SURGERY:**

- Confirm your surgery time- you will be contacted by the surgery coordinator to confirm your surgery time. Make sure we have an up-to-date telephone number to contact you, if there are any changes in your surgery schedule.
- You may have your regular dinner
- Wash your body from the neck down with Hibiclens soap as instructed.
- Consult with the nurse or your doctor to determine if you should take your morning medications the day of surgery.
- Make sure you have filled any prescriptions that you were prescribed for you at your pre-operative visit.

## **The Day of Your Surgery**

On the day of your surgery, you will report to the Admitting office at the hospital.

Remember:

- **Do not** eat anything within EIGHT hours of your scheduled surgery time
- It is OK to drink “clear” liquids (any fluid that you can see light through) up till THREE hours prior to surgery
- You may brush your teeth
- Wash the affected leg and hip with Hibiclens soap as instructed.
- Please do not wear or use any skin moisturizers, cream, lotions or make-up.
- Wear comfortable, loose-fitting clothing.
- Remove hairpins, wigs, and jewelry.
- Please do not bring any valuables with you.

From the admitting desk, you will be brought to the Pre-op area. The nursing staff will be there to assist and prepare you for surgery. You will typically be asked on several occasions which knee will be operated on- this is simply a precautionary step to prevent any confusion whatsoever.

To reduce the risk of phlebitis (swelling of your veins) and deep venous thrombosis (DVT or blood clots), intermittent compression sleeves will be placed on your legs. These will help maintain good circulation. The sleeves will be used while you are in bed in the hospital.

325 mg enteric-coated Aspirin (E.C. ASA) daily is routinely used as a blood-thinning medication for **four weeks after surgery**. For patients determined to be at higher risk for blood clots, a medication such as Coumadin or Xarelto may be used instead of Aspirin. These medications, when used in conjunction with regular movement and exercise, will maintain good circulation in your legs. This will minimize the risk of blood clots.

## **After Your Surgery**

### **Recovery Room**

When your surgery is completed, you will be taken to the recovery room, also called the Post-Anesthesia Care Unit (PACU). You will have your blood pressure and pulse checked frequently. The nurses will check your dressing, ask you to wiggle your toes, and have you take deep breaths.

Dr. Kaper will contact your immediate family when the surgery has been completed. Please inform your family that even if your surgery takes only a short time, you will have to remain in the recovery room until you are awake and considered to be “stable”.

### **Movement**

Performing simple ankle pumps and circles is recommended after surgery. Your nurse and therapist will remind you of this. This movement helps promote good circulation to your legs and feet.

After surgery, our goal is to mobilize our patients as soon as possible. The facility staff will get you out of bed the day of your surgery. You will be taught how to walk using a walker. The walker is initially recommended to reduce the risk of falling. While you are in the hospital, the therapist will work with you on your knee exercise program. Most patients can be “weight-bearing as tolerated” on their operated leg. Your surgeon and therapist will instruct you in this regard.

### **Breathing**

To prevent respiratory (lung) complications, such as pneumonia, after surgery, you will be encouraged to take deep breaths and cough regularly.

**Wound Care**

Your incision will be covered with an occlusive surgical dressing. A small portable vacuum seal surgical “wound vac”, known as a PICO dressing, may be used as well. Under this dressing you will have a dark gray/black “silver nitrate” dressing used to reduce the risk of infection. This entire dressing will be removed at your postoperative visit- you do not need to change the dressing prior to that time. The incision used for knee replacement surgery is approximately six-eight inches long and will be closed with absorbable sutures and a Zipline dressing. There are usually no staples or sutures that will need to be removed. Showering is permitted 24 hours after surgery. Soaking the wound is not recommended for an additional 4 weeks (**NO** swimming, hot tubs, or tubs baths) until the skin is completely healed.

Additional information about the PICO wound vac and Zipline can be found on these websites:

<http://possiblewithpico.com/introduction>

<https://www.ziplinemedical.com/>

It is important to monitor your wound for any signs of infection. Possible signs of infection include: increased redness, worsening swelling, drainage from the wound, fever (greater than 38.5° C or 101° F) or chills. If any of these symptoms occur, please notify our office.

**Diet & Hydration**

You will be able to drink and eat solid foods right away, according to how you feel. Hydration after surgery is very important for a healthy recovery. It is a good idea to drink twice as much fluid as you normally would for the first several days after surgery. This should include water, juices, ginger ale, and sport drinks. Your appetite may not return for several days or even weeks following the surgery. This is not uncommon.

Dr. Kaper routinely recommends peri-operative vitamins and supplements, including: a daily multivitamin, Vitamin D3 5000 IU once a day, Zinc 50mg twice a day, Vitamin C

500mg twice a day and Vitamin B1 (thiamin) 100mg twice daily. These should be used for four weeks prior and four weeks after surgery.

### **Pain Management**

After surgery you will have knee and muscle pain- this is normal. Pain management is one of the most important factors influencing the outcome of your rehabilitation. While in the hospital, we encourage the use of oral, rather than intravenous (or IV), pain medication- this reduces the possibility of nausea, vomiting, and confusion, which are common side effects of IV pain medications. Pain medication is intended to keep any pain at a “manageable” level. The goal of pain management is to allow you to participate in your rehab and physical therapy, while keeping any pain at a tolerable level. A prescription for pain medication will be provided to help manage postoperative pain. The use of any narcotic or opioid should, however, be approached with significant caution. There are multiple ways to control pain that are far more effective than using “pain pills”. This includes ice, elevation, non-steroidal anti-inflammatory medications and Tylenol. We strongly encourage you to minimize and discontinue narcotic pain medications as soon as you are able. Please be aware that addiction to narcotics can develop within only one week of use.

### **ICE, ICE, ICE!**

The use of ice on your knee is extremely helpful to control inflammation, which is the cause of post-operative pain and swelling. Specific icing instructions and guidelines are provided to you. Icing a minimum of four times per day, 15-20 minutes at a time, is recommended for the first several weeks after surgery. We encourage our patients to ice even more frequently to help control pain. Ice the knee anytime you notice significant pain or after exercise. The thigh and calf muscles can also be sore and painful after surgery. Icing sore muscles is therefore also encouraged.

## Physical Therapy

Pre-operative physical therapy (“Prehab”) is routinely recommended and prescribed for you. A physical therapist will instruct you for exercises that will help strengthen your muscles and improve the flexibility of your knee prior to your surgery. The therapist will also teach you the exercises that are recommended after surgery. One of the most important factors influencing the results of knee replacement surgery is *your* active participation and commitment to the rehabilitation process. The exercises and stretching that are necessary to recuperate from knee replacement surgery should be looked at as an investment in your knee’s long-term result. The more you put into your rehab, the more you stand to gain.

Typical exercises that you will be asked to perform will include:

1. Ankle pumps and circles
2. Quadriceps sets
3. Hamstring sets
4. Adductor sets
5. Flexion and Extension stretching

To help achieve maximal straightening of your knee, you may place a pillow under your **heel** while you are resting in bed or in a chair, etc. Gravity will assist in bringing your exercises with your therapist. Having a pillow under the knee may be comfortable, but in the long run may cause the knee to stiffen and prevent full straightening of the knee. Stiffness may be a problem for some knee replacements. Typically, the amount of movement you have in your knee prior to surgery will be your goal after surgery.

A regular and regimented physical therapy and exercise program should be part of your everyday schedule for three months after surgery. Ongoing exercises during the first year after surgery is recommended to help you get back in shape- this only comes with time and effort. A typical recovery after knee replacement can take up to one year. Like so many things in life, the more you put into your new knee, the more you get out of it.

## Going Home

Typically, your surgeon will clear you for discharge home if:

- You are medically stable;
- You are cleared for discharge by the physical therapist;
- Your temperature is normal (less than 38.5° C or 101.5° F);

The trend over the last ten years has been for shorter and shorter hospital stays. While the trend was initially driven by cost concerns, orthopaedic surgeons have come to realize that shorter stays in the hospital actually decrease the post-operative complication rate. Most patients are now just staying overnight in the hospital. The surgery can also be done on an outpatient basis for many patients. To find out what is best for you, please discuss with Dr. Kaper or his office staff.

Home health can be arranged for you to receive care at home- several home health agencies are available locally. Home health offers in-home physical therapy, nursing services, and social services as needed. Services are usually provided for the first two weeks after discharge from the hospital.

You will be discharged with pain medication- these are narcotics or “opioids”. Opioid overuse is, unfortunately, widespread in the USA. Only a limited quantity of opioids should be used after surgery. Arizona state law only allows very limited prescribing of opioids. We therefore just prescribe a small quantity of Oxycodone for post-op pain management. The use of opioids should, therefore, be stopped as soon as possible after surgery.

Occasionally, patients have problems with constipation, usually secondary to the pain pills. You may use Colace (a stool softener), Milk of Magnesia, a Dulcolax suppository, or a Fleets enema, if necessary. You can help prevent problems by drinking plenty of fluids, eating high-fiber foods, walking, and exercises.



## **Surgical Risks**

Although total knee replacement has become a common surgery, it is still a major undertaking. Just as with any other surgery, there are significant risks involved. Fortunately, the benefits that you stand to gain from the surgery significantly outweigh the risks. Nonetheless, it is important that you are aware of what may occur during or after surgery. Just as you do not want to have any problems with your surgery, your surgeon does not either. Risks include, but are not limited to the following:

**Wound Infection-** you will be given intravenous antibiotics before and after your surgery; this will reduce but not eliminate the risk of infection; if your new knee becomes infected, the prosthesis may have to be completely removed and an extended course of antibiotics administered.

**Pneumonia-** can occur after surgery; breathing deeply and using an incentive spirometer (or manual breathing device) are very important to prevent congestion in the lungs which may lead to pneumonia.

**Bleeding-** bleeding problems that might require a transfusion are very uncommon but can occur.

**Blood clots-** in the legs (as a deep venous thrombosis or DVT) can occur after major orthopaedic surgery; fortunately, the chance that a clot travels from your leg through the heart and into the lungs (as a pulmonary embolus, or PE) is quite low; early mobilization and blood thinning medication, typically Aspirin for four weeks, reduces but does not eliminate this risk.

**Nerve or Blood Vessel Injury-** there are several large nerves and blood vessels that lie very close to your knee joint; the potential for injury to a nerve or blood vessel is possible during the surgery.

**Fracture-** your knee prosthesis is attached to the femur (thigh bone) and tibia (shin bone). A fracture or break of the bone can occur during surgery or even after surgery if there is trauma to the knee. This risk is increased in patients with underlying osteoporosis or weakening of the bone.

**Muscle weakness-** weakness involving the muscles around the knee is common with severe arthritis. Appropriate therapy and exercise before and especially after surgery will help strengthen the muscles and aid in your recovery.

**Need for Future Revision-** although the prostheses used today are the product of many years of research and development, the science has not yet been perfected; a successful knee replacement can be expected to last approximately 20 years.

**Stiffness-** as mentioned, regaining motion and flexibility in your new knee requires a committed effort; occasionally, knees do not regain what your surgeon considers an “acceptable” range of motion (usually at least 90° of bending) and further intervention, such as a manipulation under anesthesia, may be necessary.

**Medical risks-** knee replacement surgery is a major operation and can stress even the healthiest body; medical complications, as well as problems with anesthesia, may be severe enough to result in death. If there are any questions or concerns in this regard, please feel free to discuss them with your surgeon.

## **Frequently Asked Questions**

**Q:** When will I need to return for follow-up?

**A:** You will be seen about seven days, six weeks, and four months after your knee replacement. After that time, periodic follow-up appointments with x-rays are typically recommended.

**Q:** Will I set off the metal detector at the airport because of my knee replacement?

**A:** Yes, you may. We recommend that you advise airport security that you have a total knee replacement. The TSA, unfortunately, no longer recognizes joint replacement identification cards.

**Q:** Should I tell my dentist or surgeon that I have had a knee replacement?

**A:** Yes. For routine dental work however, antibiotics are no longer recommended.

**Q:** When can I resume any exercise program?

**A:** You should discuss this with your surgeon before engaging in any form of exercise other than walking or the exercises your physical therapist prescribed. Your therapist will give you exercises to do in the hospital and then at home.

**Q:** When can I drive?

**A:** Driving is not permitted until you return for your follow-up visit with your surgeon. Usually this restriction is lifted after three weeks, or sooner if appropriate

**Q:** When the weather is cold, will I notice the temperature in my new knee?

**A:** No, most people do not notice any significant difference.

## **Long-term Care of Your Total Knee Replacement**

**Protection-** Treat your new knee with care. The better care you take of the knee, the better it will take care of you. Remember that just as your own knee was worn out, your new knee can also wear out with time.

**Sports-** Your new knee is designed for activities of daily living (ADL's), not high-impact sports. Walking, swimming, and bicycle riding are recommended. Aggressive jogging or running, jumping, and repeated heavy lifting should be avoided.

**Infection-** Your new knee is a prosthesis and the body considers it a foreign object. If you become sick with a serious infection, the bacteria can travel through your blood stream and enter your knee joint. Infection in an artificial knee is a very difficult problem to manage. Therefore, prevention is the best type of medicine. If you develop a high fever or an infection (for example, bladder, skin, or dental), seek medical attention immediately. Your medical doctor will determine if antibiotics are necessary, and if needed, he or she may consult with our office to prevent any problems.

**Dental Work-** Antibiotics are no longer routinely recommended prior to dental work. Exceptions would include patients with diabetes, rheumatoid arthritis, or those patients receiving active chemotherapy or taking immune-suppressive treatment.

**Surgical Procedures-** If you are scheduled for any future surgery, you may require antibiotics. You should notify your physician that you have an artificial knee replacement.

**Follow-up care-** Because the material technology being used for knee replacement is not perfect, your artificial knee can wear out with time. It is, therefore, important, that you return to see your surgeon for a periodic x-ray check-up. If you experience any unusual pain or swelling in your "new" knee, please let our office know.



Our goal is to provide you with the highest quality of orthopaedic care that will lead to the most successful outcome, with the lowest possible risk of complications. If you have any additional questions or concerns, please let us know. We appreciate the confidence you place in us and look forward to aiding you through the entire surgical process.

If you have any additional questions or concerns, please do not hesitate to let us know.

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