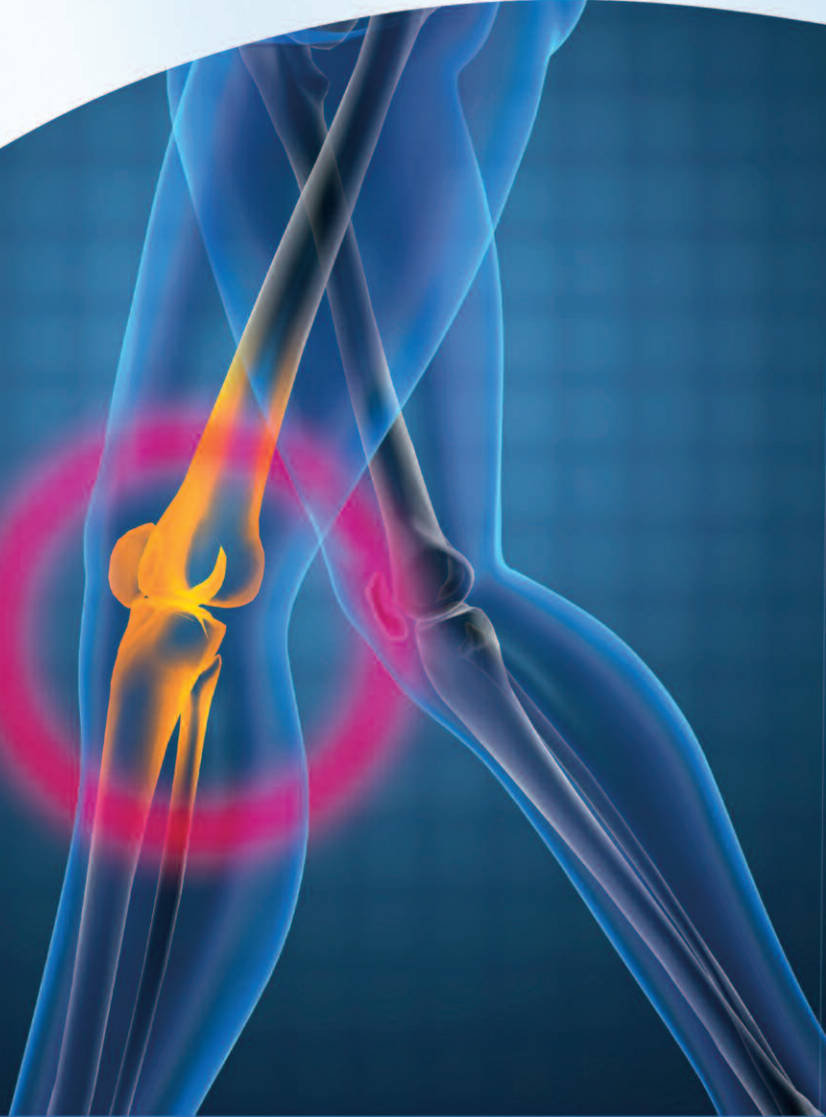




**Holy Cross**  
**Orthopedic Institute**

The Leone Center  
for Orthopedic Care



**Preparing For Your  
Knee Replacement Surgery**



*We combine leading-edge  
technology with good  
old-fashioned care  
where the doctor-patient  
relationship is as  
important as  
the treatment.*

# Introduction to Knee Replacement Surgery

The purpose of this booklet is to help you better understand the procedure for your total or partial knee replacement, from what to expect before surgery to post-operative care.

Our goal at The Leone Center for Orthopedic Care is to achieve the best possible clinical result while respecting your time and dignity. We want you to know that you are our priority from the moment the first appointment is made. We will make your entire experience as comfortable and pleasant as possible.

At The Leone Center, we also believe that a well-informed patient has a better overall experience and recovery.

# What is a Knee Replacement?

## Total Knee Replacement (TKR)

TKR is the most common type of joint replacement surgery being performed today. It involves the removal of the worn and damaged cartilage and bones that make up your knee joint and resurfacing the bones with artificial parts. Any angular deformity is corrected and the soft tissues which support the knee are rebalanced to re-create more normal knee movement or kinematics. This relieves pain and allows the patient to become active again.

A total knee replacement includes three implanted components that replace the deteriorated knee joint surfaces:

**The FEMORAL COMPONENT** is made of metal. It has a complex shape that mirrors the contour of a natural femur (thigh bone) and is implanted on the end of the precisely prepared femur bone.

**The TIBIAL COMPONENT** consists of a metal tray that is placed perpendicular to the long axis of the tibia (shin bone). A plastic insert or liner is placed within this tray. The thickness and style of the insert can be varied to best improve stability and motion.

**The PATELLA BUTTON** is made of plastic and used to resurface the part of the knee cap that rubs against the femur.

**The three components are implanted so that when the knee moves, only plastic rubs up against metal to minimize friction.**

*The “art” is to realign the knee so that the leg looks straight and the soft tissue sleeve surrounding the knee is perfectly balanced.*

I use two separate computer systems when performing a **total knee replacement** which improve accuracy and consistency in achieving the best result.

1. The first uses GPS-like technology to realign the limb by correcting any angular deformity. Infrared tracking devices, which act like miniature satellites, collect and transfer data to a monitor in my operating room (OR) and allow me to visualize a dynamic virtual image of the knee and the implants. This allows me to make critical decisions in “real time” based on the information.



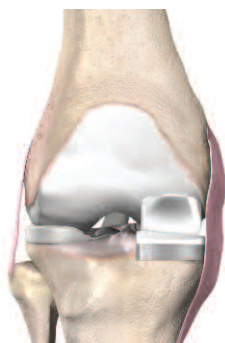
**Total  
Knee Implant**

## What is a Knee Replacement?

2. This second computer system allows me to measure precise pressures between the femur and the tibia as well as the exact location of these pressures on both the inside and outside of the joint. This system uses a “super-high-tech” tibial trial insert with an imbedded microcomputer chip and pressure pads that are placed between the newly resurfaced femoral and tibial components. Once again, information is transmitted wirelessly to an OR computer monitor. Using this data, I “fine tune” femoral and tibial component positions and their relationship to each other. It also facilitates a precise release of specific bands within the supportive soft tissue sleeve to help balance the joint throughout the range of motion by optimizing knee kinematics and ligament tensions.



*These computer-assisted tools enable me to more consistently construct the best possible knee for you. When knees are optimally balanced, realigned and motion restored, then patients recover faster and report that their knee feels more natural.*



**Partial Knee Resurfacing Implant**

### Partial Knee Replacement (PKR)

A PKR involves only replacing that part of the knee joint that is arthritic and not the other parts of the knee which are still healthy. This surgery is usually performed through a much smaller incision,



*I perform partial knee replacements using robotic technology which provides an unmatched degree of precision.*

is accomplished with much less soft tissue dissection and typically patients get well even faster and with less postoperative therapy.

The components used for PKR are smaller than those used for TKR and include implanting a femoral component and a tibial component with plastic liner. Occasionally, the surface between the knee cap (patella) and femur is also replaced.

# How Knee Replacement Surgery Can Benefit You

During my more than 25-year career I have helped thousands of people from around the world as the art and science of joint replacement surgery has constantly evolved.

At The Leone Center for Orthopedic Care, we offer you both the latest as well as the most time-tested innovations in joint replacement.

First, a diagnosis is made based on your personal history, a thorough physical examination and state-of-the-art imaging. I then choose the type of operation and implant that is best suited to your medical and lifestyle needs. I perform as minimally invasive surgery as possible, emphasizing precise component positioning, meticulous soft tissue handling and closure. This results in less soft tissue trauma and as rapid a recovery as possible.

The goal of a total or partial knee replacement is to relieve pain, correct any deformity and help you restore your quality of life, with pain-free walking and the ability to resume activities that you enjoy. The vast majority of my patients have excellent outcomes and many return to activities such as tennis, swimming, golfing, bowling, dancing, biking, hiking and skiing.

As with any surgical procedure, there are potential risks. I will discuss with you in detail the specific risks associated with this surgery.



*Knee replacement surgery is not just about restoring mobility; it's about giving people back a quality of life and the ability to fulfill their dreams and ambitions.*



# Procedures for Pre-Operative Medical Clearance

Once a decision is made to proceed with surgery, we make every effort to help you navigate the pre-operative educational and medical clearance processes as efficiently and easily as possible. My entire team will be available and involved in every step of the process to assist you with completing all necessary medical forms, managing pre-operative medical clearance and arranging for private rooms with VIP meals and for other enhanced services if desired.

**First:** Our staff will help you make an appointment with your own physician or another physician who is associated with Holy Cross Hospital. That individual will also be available to see you after surgery if appropriate. If your own physician clears you for surgery but does not have privileges at Holy Cross Hospital and you need other medical specialist to help manage your care post operatively, then we will make arrangements for appropriate specialists to see you. Please schedule your appointment for surgical clearance 2–3 weeks prior to your scheduled surgery in case more studies or the need to see another medical specialist should be required. This helps to prevent your surgery from being delayed or cancelled. However, your lab studies must be conducted within 30 days prior to your surgery.

**Next:** You will return to our office approximately one week prior to your scheduled surgery. We will review your pre-operative clearance, post-operative discharge plan and any special concerns or needs you might have. You will also be given specific instructions about which medicines to take and which to stop taking pre-operatively.

It is critically important that your pre-operative work-up which includes the consultation from your medical physician “clearing” you for surgery, all labs, chest X-ray report, EKG, and any other studies are sent to our office via fax to 954-489-4584 at least 7 days prior to surgery. Because this is so important, we encourage you to be fully involved in this process by calling both your primary care physician and our office to confirm that all necessary information has been received.

**Not completing the pre-operative clearance or not getting the information to our office in time is a common cause for delay or cancellation of surgery.**

### Take our Pre-Operative Class

Patients from The Leone Center attend a very popular and informative Pre-Operative Class. During the class, you will meet key members of the hospital team with whom you will be interacting once admitted for surgery and after your surgery. They will review everything, from admission to discharge and aftercare, using personal stories to help you relate to the entire process, decrease anxiety and make the process much smoother. Repeatedly, patients share with us how much they enjoyed and appreciated this interaction prior to their surgery.

#### Pre-operative class:

My staff will register you for this pre-operative class when you schedule your surgery. Please notify my office if you need to change this appointment. This is also an opportune time to **pre-register**.

#### During the class:

- Types of anesthesia and specific strategies to prevent and control any post-operative pain will be discussed.
- You will learn about post-operative activities which start the day of your surgery with standing and walking.
- Therapists and nurses will help organize the post-surgical rehabilitation process.
- Case managers will help you understand exactly what your insurance will cover and care options after discharge.
- You will be aided in developing a specific post-discharge plan.



# Pre-Operative Exercises

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A series of exercises should be done at home before surgery to strengthen your muscles and better prepare you for post-operative rehabilitation. These exercises are outlined on the next few pages.

*Avoid any particular exercise that causes pain. Our hope is that these exercises will strengthen your muscles for a faster, easier recovery, not aggravate your underlying condition.*

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## Ankle Pumps

Point and flex your feet by pushing your toes away from your chin, then pulling them toward your chin. This helps to keep blood flowing in the leg veins and assists in preventing blood clots.

Repeat at least 20 to 30 times, 3 times a day.



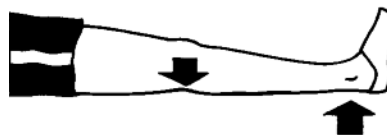
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## Quadriceps Sets

Lie or sit on a flat surface with your legs out straight. Tighten your knees making your legs as straight as possible.

Hold for 5 seconds.

Repeat at least 20 times, 3 times a day.

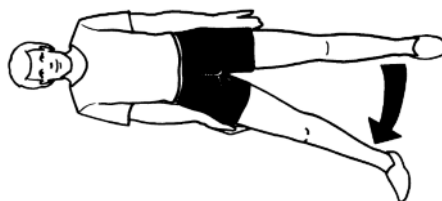


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## Lateral Exercise

While lying down, slide your leg out to the side, then return to mid-line while keeping your leg straight and pointing your toes to the ceiling.

Repeat 15 times, 3 times a day.



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## Straight Leg Raise

Lie on your back on a flat surface with your legs straight out. Lift your heel slowly 6 to 8 inches off the surface. Slowly lower the leg keeping your knee straight.

Relax and repeat at least 15 times, 3 times a day.

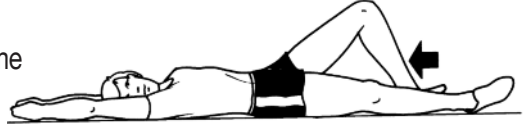
## Pre-Operative Exercises

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### Knee Flexion

While lying down, slide your heels one at a time toward your buttock by bending and then extending your knee.

Repeat at least 20 times, 3 times a day.



### Swimming Pool Exercise

Walking in a pool against the resistance of the water strengthens everything. It also helps to reduce swelling. The temperature of the water is not important. We suggest a waist-high water depth. If you enjoy swimming, this also is a wonderful way to condition your body prior to surgery.

Begin with 15 minutes each day, slowly increasing up to 45 minutes daily.

### Coughing and Deep Breathing

Slowly take a deep breath; hold it for 1 to 2 seconds and then slowly breathe out. Do this 3 or 4 times and then take a deep breath and cough deeply.

Repeat 4 times a day.

*Exercise is very important and will help you to recover more quickly.*

# What you can do to assure an optimal experience after surgery

## Creating a plan for after hospitalization:

Going into surgery with a well thought out and easy to follow discharge plan decreases anxiety and makes the entire process much smoother, even if it is necessary to modify the plan after your surgery.

The vast majority of our patients go directly home after their surgery. Home is usually the safest and most comfortable place to recuperate and where patients are happiest.

## When going home:

- Physical therapy after **total knee replacement** is very important. For many patients we arrange a physical therapist and nurse to visit you in your home after surgery. When you are more mobile, continue physical therapy at an out-patient facility. Others patients start outpatient therapy immediately after discharge.
- Physical therapy after **partial knee replacement** takes place at an out-patient facility.
- Dr. Leone and his team will review your discharge plan and all necessary arrangements will be made prior to you being discharged.
- If your plan is to continue physical therapy at an outpatient facility after discharge, it is best to make those arrangements including securing a specific appointment before you have your surgery so your therapy will not be delayed or interrupted. My team will provide the prescription.
- If possible, arrange for a caregiver to be present when your discharge plans are being reviewed and to assist you.

## When going to a rehabilitation facility:

If you are going to be discharged to an in-patient rehabilitation facility, then learning what rehab facilities are available under your insurance plan and visiting those facilities prior to your surgery is optimal. My staff can help you with this process.

# Pre-Operative Medication/Instructions

## START TAKING

- Vitamin C, 1000mg, once a day, will improve iron absorption and the ability of your tissues to heal.
- Iron, Slow Fe is recommended, twice a day with meals.
  - Please note: iron may cause constipation or diarrhea and your bowel movements may appear black. If this occurs, you may need to decrease or stop the iron.
  - Do not eat dairy products one hour prior to or after taking iron because dairy hinders iron absorption.

## STOP TAKING

If you regularly take a blood thinner, you will be given specific instructions by your medical physician and by our team when to stop taking this medication and also instructed if a different, shorter-acting blood thinner needs to be substituted until your surgery. This will reduce the risk of increased bleeding during your surgery, while still keeping you safe.

- **DO NOT TAKE** Vitamin E, fish oil, NSAIDs, or other aspirin-like anti-inflammatory medicines for at least 14 days prior to hospitalization. You may continue to take Tylenol if needed.
- There are many natural herbs, bioceuticals and even vitamins including Vitamin K that also can increase bleeding and affect bioavailability and the metabolism of other drugs and should be stopped 14 days pre-operatively.

**DO NOT EAT OR DRINK LIQUIDS AFTER MIDNIGHT THE DAY PRIOR TO YOUR SURGERY.**

## Morning of the Surgery

- If you routinely take medications, our team will instruct you which to take and which to discontinue the morning of your surgery. You may take any approved medications with a sip of water.
- You will be instructed to wash using a special surgical soap called *Hibiclens* the night before and morning prior to your surgery. Use regular soap first and thoroughly wash. Then again wash your entire body from neck down with *Hibiclens* paying special attention to the area around your knee but don't scrub. Allow to remain on your skin for 5 minutes before rinsing.

### Other Important Information

- It also is very important to maintain a healthy diet rich in fruits, vegetables, lean proteins, such as chicken or fish, and whole grains. This helps build up your blood levels and nutritional strength prior to surgery and helps the healing process.
- DO NOT neglect routine dental work, including oral cleaning. If a dental problem develops, correction is preferable prior to your knee surgery.
- We hope that you do not smoke; however, if you do, it is important to stop 3 weeks prior to your surgery. This will make the operation much safer for you and improve your healing.

### Blood Transfusions:

- The need for a blood transfusion is much less common than just a few years ago. Surgical and anesthetic techniques continue to be refined, which has resulted in much less blood loss during and after surgery. Specific medications are administered just prior to surgery and during the post-operative period which decrease bleeding. Further, patients who have their surgery with a regional or spinal anesthetic tend to bleed less and are less likely to need a transfusion than those cared for with general anesthesia. Also, the threshold for when to transfuse has been lowered, as traditional benchmarks have been challenged and refuted in the medical literature.
- Maintaining the fluid volume in your vascular system with fluid other than transfused blood is emphasized. This begins with you receiving IV fluids in the pre-operative area to improve hydration even before your surgery starts.
- Autogenous blood transfusion (blood which the patient donates for themselves before surgery) is no longer recommended because the risks do not outweigh the benefits.

# The Hospital

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## What to Bring to the Hospital

- Current list of medicines (name, dosages, frequency)
- Insurance information
- Living Will or advanced directives
- Comfortable clothing, such as a workout outfit or tee shirt and shorts
- Shoes with a rubber soul and a closed heel
- Personal toiletry items if you plan to stay overnight in the hospital after your surgery
- Leave all jewelry and other valuables at home

## The Day of Admission for Surgery

Arrive the Holy Cross Hospital Main Entrance  
4725 N Federal Highway (next to the Chapel and Cancer Center)  
at the time instructed by Dr. Leone's team (please be early)

**Registration process** will be completed (first floor)  
You will be escorted to the preoperative holding area

### **Preoperative holding area** (third floor)

- I will see you the morning of surgery and ask you to confirm on which knee I will be operating and then I will place my initials and the word "yes" on that knee.
- You will meet with your anesthesiologist, who will discuss different types of anesthesia and their part in your care.
- An IV will be started and you will receive fluids, antibiotics as well as a number of other medicines to minimize post-operative pain and make you more comfortable.
- You will experience many checks and re-checks to confirm all important information is correct. This consistent attention to detail makes the entire procedure safer for you.

*The entire team at the Leone Center for Orthopedic Care is sensitive to the needs and expectations of our patients. We partner with Holy Cross Hospital to make your stay exceptional.*

### SURGERY (Third Floor)

#### In the operating theater:

- My team and I work in a special laminar flow operating room which filters the air in the room to make it cleaner.
- We also wear body exhaust suits (they look like a space suit) which completely isolate our breathing from you, to reduce further the risk of infection.
- Your incision will be meticulously closed with a running suture (as opposed to conventional staples). In my experience, this suturing technique provides a superior seal and extra protection against infection. It is performed like plastic surgery, using a single stitch.
- A special dressing will be applied in the operating room that allows the incision to breathe. A cold pad with circulating water is placed on the dressing and then wrapped with a compressive cotton dressing which decreases swelling and reduces pain.

*At the Leone Center, we have learned that each step we take to prevent infection makes the operation safer for you.*

#### PACU (post anesthesia care unit) or recovery room

You will be transported from the operating room to the PACU after your operation is complete. This is where you will return to consciousness as your anesthesia wears off.

#### Post-operative area Phase II

If you are going home the same day as your surgery, then you will be transferred to our Phase II area. If you have family or friends waiting, they are welcome to join you here. You will be visited by a physical therapist and can go home when you can walk, eat and go to the bathroom.

#### 4 West Orthopedic Unit

If you are going to stay in the hospital after your surgery, then you will be transferred to 4 West which is our specialty orthopedic floor. An orthopedic nurse specialist and nurses aide will be assigned to care for you. This team will make sure you are stable, comfortable and have everything you need. You will receive daily visits from me and from my team. A general medical doctor or other specialist may also be part of our team depending on your needs.



# After Your Surgery if You are Admitted

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## The day of your surgery:

Most patients who have had a total knee get out of bed and start walking with supervision the day of your surgery. This is wonderfully therapeutic. Getting out of bed so quickly after surgery helps your circulation, protects your skin against pressure sores and results in an “I can do it” attitude and confidence that results in a faster recovery.

## The day following your surgery:

The morning after your surgery you are encouraged and assisted getting out of bed for breakfast, changing out of a hospital gown into your own clothes, and walking to the bathroom to wash up for your day.

You will receive physical therapy and occupational therapy. You will practice standing, sitting, walking, getting in and out of bed, going up and down steps and even getting into and out of a car.

You will receive instructions on how to use a walker and then progress to a cane or other ambulatory device when appropriate, with the goal of walking device-free as soon as possible. The physical therapist also will provide instructions in the use of reachers or “grabbers” and sock aids, as needed.

Occasionally a patient is not ready to go home the first day after their surgery and will benefit from another day or two in the hospital. This decision is individualized for each patient with their unique and specific needs and desires.

## Important

While in bed, we ask you not to keep a pillow under your knee but rather under your lower leg just above your heel to promote knee extension. We also encourage you to use your pad with circulating cold water to diminish swelling and pain.

# Managing Post-Operative Pain

As part of The Leone Center surgical protocol, we work to stay ahead of the pain curve. We emphasize pre-empting pain rather than playing “catch up.” Pain is more effectively managed with a multi-modal approach that includes everything from the type of anesthesia used to the pain medications given before, during and after your surgery, and prior to physical therapy.

## Medications administered the morning prior to or during surgery include:

- Tylenol to lower your sensitivity to pain as well as decrease the amount of pain.
- Neurontin which also helps to decrease postoperative pain by affecting chemicals and nerves in your body that are involved in pain pathways.
- Medicines which decrease anxiety and make you drowsy.
- A long-acting narcotic to dull pain receptors before pain sets in, as well as medication to prevent nausea following surgery.
- An IV steroid just prior to the start of your surgery and postoperatively.
- After implanting the components, the tissues around the new joint are injected with a “cocktail” including a long-acting local anesthetic, morphine and an NSAID. This combination has greatly reduced post-operative pain and the need for narcotics. This has resulted in our patients routinely getting out of bed the day of surgery and walking.
- You will receive tranexamic acid just prior to surgery and postoperatively. This medication decreases intra- and post-operative blood loss.
- IV antibiotics before and after surgery to lower the risk of infection.

## In the recovery room, you will receive an IV NSAID called Toradol.

This is a super-version of aspirin that works to decrease pain via an alternate “pathway” in the body and has proven to be remarkably effective.

Narcotics are prescribed as a backup but are being used in smaller amounts and with less frequency. Narcotics are avoided whenever possible because they tend to cause nausea, constipation and occasionally confusion. Also Tylenol as well as a NSAID is continued on a regular schedule.

*Our entire team is very sensitive to your post-operative pain. You will be encouraged to take pain medication initially on a schedule and prior to your therapy to help stay ahead of the pain curve.*

# Now That You Are Home

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- Physical therapy after knee replacement is very important to achieve the best results. It's important to assure that your discharge plan is in place to avoid any delay in your therapy.
- Also, continuing your own exercises faithfully is just as important.
- When at home, we recommend you continue to use your special cold pad with circulating cold water which can help decrease pain and swelling for many weeks after surgery
- Achieving full extension after knee surgery is just as important as achieving full flexion. Until you can fully extend your knee with ease, we recommend you avoid keeping a pillow under you knee for comfort but rather placing that pillow under your lower leg to promote knee extension.
- My staff will call you a day or two after your surgery to confirm that you are doing well and answer any question that you have. You will also be encouraged to come to my office if you would like for us to check you.
- You will have been given an appointment to come to our office two weeks after your surgery for suture removal.
- Most patients are encourage to shower 4 days after their surgery if their incision is dry.
- Pool exercises and swimming after surgery are encouraged. You will be instructed when to start these activities once your suture is removed.

*Frequent, gentle and persistent exercise is more effective than forcing exercise once or twice a day.*

# More Helpful Hints

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- Be sure to inform your dentist that you have a knee replacement because you will need to take an antibiotic prior to any dental work, including a cleaning.
- Many patients will experience “start-up” stiffness in their operated knee that occurs when they first stand and walk and then disappears after 5 or 6 steps. This is common and disappears on its own with time.
- You can stop using your cane when you walk as well without it and find that you’re “forgetting it”.
- Those patients that get well the fastest and stop limping the quickest are usually those that start exercising in a pool as soon as their suture is removed.

## Summary

As you read through this booklet, you may find words or terms that you don’t understand. You might also have questions you would like to ask regarding your knee replacement. We encourage you to view our website, which has even more detailed information. Our staff is dedicated to your care, so please do not hesitate to call our office if you have any questions.

## Questions for My Doctor

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



**Holy Cross**  
**Orthopedic Institute**

The Leone Center  
for Orthopedic Care



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