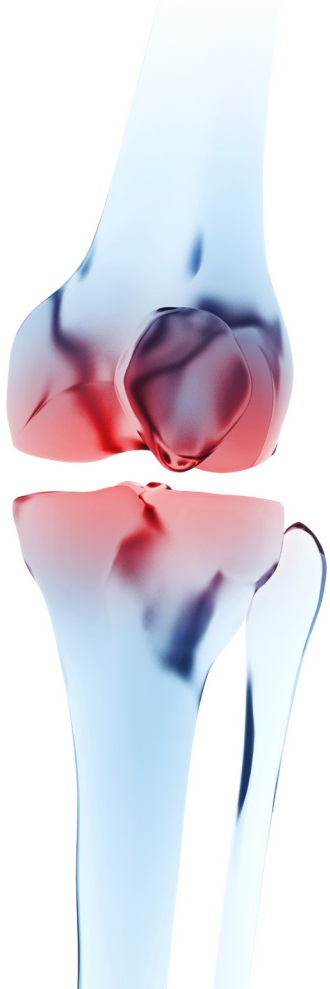
What to Expect
Total Knee Replacement

Columbia | Orthopedics

A patient's guide for pre-operative expectations and post-operative recovery and rehabilitation



NewYork-Presbyterian

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Welcome

Dear Patient,

Welcome to NewYork-Presbyterian and Columbia Orthopedics. We have developed this guide to help you get the most out of your hospital experience, before, during, and after your hospital stay. The objectives of this guide are:

- To help prepare you for surgery and your hospital experience
- To optimize your recovery after Knee Replacement, both in the hospital and later at home

It is important to remember that this is only a general guide to recovery from your surgery. Keep in mind that not all patients have the same medical conditions or needs. Therefore, your physician or therapist may make changes from this book. **Their changes to this guide take precedence.**

As one of the top medical centers in the country, we offer Joint Replacement surgery to patients whose complex medical conditions have prevented them from undergoing surgery in other institutions. Our staff are committed to performing with excellence, and our primary goal is the help you achieve optimal success from your surgery. They complement and support the outstanding surgical and medical staff for which NewYork-Presbyterian and Columbia University Irving Medical Center are world-renowned.

You are the driving force toward a successful recovery! You can help achieve optimal results from this surgery by becoming an active, helpful part of the NYP/Columbia team before, during, and after your surgery. To a large degree, the long-range benefits of your surgery depend on the success of your continuing rehabilitation at home. Therefore, we hope you will continue what the team has taught you long after you have left our immediate care. This book will be your guide throughout the recovery process, so it is important for you and your home care helper(s) to read this book carefully, and refer to it throughout your hospitalization and recovery. Bring this book to the hospital with you, so you can refer to it as needed.

Sincerely,

Columbia Orthopedics Joint Reconstruction Team

Your Clinical Care Team

Role	Name	Contact Information
Orthopedic Surgeon		
Physician / Internist		
Anesthesiologist		
Pre-Op Educator or Orthopedic Coordinator		
Nurse Manager		
Social Worker or Case Manager		
Pharmacy		
Residents		
Nurse Practitioner		
Nurse		
Physical Therapist Occupational Therapist		
Others:		

I. PREPARING FOR SURGERY

What is Knee Replacement?

If your knee is severely damaged by arthritis or injury, it may be hard for you to perform simple activities such as walking or climbing stairs. You may even begin to feel pain while you're sitting or lying down.

If medications, changing your activity level, and using walking supports are no longer helpful, you may want to consider knee replacement. By resurfacing your knee's damaged and worn surfaces, total knee replacement can relieve your pain, correct your leg deformity, and help you resume relatively normal activities.

How the Normal Knee Works

The knee is the largest joint in the body. Nearly normal knee function is needed to perform routine everyday activities. The knee is made up of the lower end of the thighbone *(femur)*, which rotates on the upper end of the shinbone *(tibia)*, and the kneecap *(patella)*, which slides in a groove on the end of the femur. Large ligaments attach to the femur and tibia to provide stability. The long thigh muscles give the knee strength.

Normally, the joint surfaces where these three bones touch are covered with *articular cartilage*, a smooth substance that cushions the bones and enables them to move easily.

All remaining surfaces of the knee are covered by a thin, smooth tissue liner called the synovial membrane. This membrane releases a special fluid that lubricates the knee which reduces friction to nearly zero in a healthy knee.

Normally, all of these components work in harmony. But disease or injury can disrupt this harmony, resulting in pain, muscle weakness, and less function.

Realistic Expectations About Knee Replacement

An important factor in deciding whether or not to have knee replacement surgery is understanding what the procedure can and cannot do.

More than 90 percent of individuals who undergo total knee replacement experience a dramatic reduction of knee pain and a significant improvement in the ability to perform common activities of daily living. However, total knee replacement won't make you a super-athlete or allow you to do more than you could before you developed arthritis. Following surgery, you may be advised to avoid some types of activity for the rest of your life, including jogging and high impact sports.

Even with normal use and activities, an artificial joint *(prosthesis)* develops some wear over time. If you participate in high-impact activities or are over-weight, this wear may accelerate and cause the prosthesis to loosen and become painful. While extremely rare, complications can occur during or after surgery. Some complications include infection, blood clots, malalignment, dislocation, and premature wear, any of which may necessitate implant removal/replacement surgery. No implant will last forever, and factors such as post- surgical activities and weight can affect longevity. Be sure to discuss these risks with your surgeon.

I. PREPARING FOR SURGERY

What is Knee Replacement?

About the Surgery

The procedure itself takes about one to two hours. Your orthopedic surgeon will remove the damaged cartilage and bone and then position the new metal and plastic joint surfaces to restore the alignment and function of your knee.

Many different types of designs and materials are currently used in total knee replacement surgery. Nearly all of them consist of three components: *the femoral component* (made of a highly polished strong metal), the *tibial component* (made of a durable plastic often held in a metal tray), and the *patellar component* (also plastic).

I. PREPARING FOR SURGERY

Your Pre-Op Checklist

☐ Things to Discuss with Your Doctor

- The planned surgery and the anticipated recovery. Your surgery may be outpatient, or inpatient:
  - Outpatient: You will go home the same day of surgery
  - Inpatient: You will be in the hospital overnight
- Obtaining ALL outside pre-op x-rays and scans prior to surgery
- Any allergies
- Minimizing opiate pain medication in the weeks prior to your surgery
- Any special concerns, including but not limited to:
  - Your planned living situation after surgery
  - Who will be staying with you for the first 24-72 hours after surgery
  - Return to work
- Key medications, specifically any blood thinning medications examples may include:
  - Aspirin
  - Plavix
  - Coumadin/Warfarin
  - Lovenox
  - Eliquis

  You must discuss with your orthopedic surgeon and your internist/cardiologist if you should continue or stop these medications before surgery. Most patients on Aspirin should continue their Aspirin including the day of surgery. Most patients should discontinue their Plavix, Coumadin/Warfarin, Lovenox or Eliquis prior to surgery. Please discuss with your physicians for guidance.
- You may be asked to discontinue taking any anti-inflammatory medications **One Week** prior to surgery. Examples include:
  - Motrin
  - Ibuprofen
  - Aleve / Advil
  - Mobic / Meloxicam
- You may also be advised to stop taking these medications/supplements **One Week** prior to surgery:
  - Herbal supplements
  - Fish oil, Vitamin E / Omega-3 supplements

I. PREPARING FOR SURGERY

Your Pre-Op Checklist

☐ Pre-surgical Screening Appointments

Our Surgical Scheduling office will assist you in setting up surgery and discuss any necessary pre-op tests. You will undergo diagnostic testing (for example x-rays, EKG, blood tests, urine etc.) and medical evaluation to clear you for surgery

When these appointments have been arranged, enter them here:

Date: _____ Time: _____ Location: _____

Date: _____ Time: _____ Location: _____

Date: _____ Time: _____ Location: _____

BRING YOUR MEDICAL HISTORY INFORMATION AND A LIST OF YOUR CURRENT MEDICATIONS TO THESE PRE-OP TESTING APPOINTMENTS

Pre-op testing is **best** done with a Columbia/NYPH affiliated provider. However, we understand that in some circumstances pre-op testing must be done outside of our system. In these situations, **your active participation is crucial** to make sure that all of the information needed to clear you for surgery is sent to us in a timely fashion

Things To Do Before Surgery

☐ Pre-surgical Questionnaire

You may receive a questionnaire and pre-anesthesia screening tool in the mail or by email. We ask that you complete these forms in a timely manner before your surgery. If you have any questions about this form call your physician's office.

☐ Contact your Pre-Op Educator

We require Pre-Op Education to help prepare you for your surgical procedure. Pre-Op education will help answer many frequently answered questions and is provided free of charge.

NewYork-Presbyterian/Lawrence Hospital: The ASU staff will contact you and provide you the date and time for your pre-op interview as well as your mandatory pre-op education session. Please contact 914.787.4993 with any questions

NewYork-Presbyterian/Columbia University Irving Medical Center: Contact the patient educator by calling 212.305.3521 to arrange your mandatory pre-op education session, which can be done in-person or over the phone.

I. PREPARING FOR SURGERY

Your Pre-Op Checklist

☐ Nutrition

Your body will need to heal from surgery and the better your nutrition, the faster and better your recovery will be. Great nutrition starts with increasing your protein intake (fish, egg whites, chicken, nuts) and decreasing carbohydrate intake (breads, rice, pasta and limit sugary snacks). Increasing vegetable and fiber intake will help you maintain normal stomach function after surgery.

☐ Vitamins

You will help your body by taking a multivitamin daily. In addition, it may be beneficial to start taking Iron, Vitamin D, and Calcium.

☐ Diabetes

If you have diabetes, it is critical to achieve tight control of your diabetes. In general, you are not eligible for surgery if your blood sugar is high.

☐ Exercises

The stronger you are before surgery, the better your recovery will be after surgery. Please do appropriate pre-op exercises as indicated by your surgeon. The more flexible you are the better. Stretch your hamstrings, quads, and back.

☐ Dental Examination

Poor dental hygiene may contribute to the risk of infections related to joint replacement surgery. We recommend a visit to your dentist for any outstanding dental problems or procedures that need to be addressed at least 3 weeks prior to undergoing joint replacement surgery.

☐ Smoking

Smoking of any kind must be stopped prior to your joint replacement surgery.

I. PREPARING FOR SURGERY

Your Pre-Op Checklist

On the Day Before Surgery

☐ Time and Place to Arrive at the Hospital

On the **business day prior to surgery** (this will be Friday for Monday surgeries) the hospital nurse will call the number you provided during the following timeframe:

NewYork-Presbyterian/Columbia University Irving Medical Center: between *3:30 - 6:00 pm*

NewYork-Presbyterian/Lawrence Hospital: between *5:00 - 7:00 pm*

The nurse will tell you the time you are scheduled for surgery, review your pre-op instructions, and tell you where to come. If your physical condition changes in the days before surgery – cold, rash, cough, fever, or stomach upset – notify your doctor. He or she may want to reschedule your surgery.

☐ Remove Any Colored Nail Polish

☐ Wash

Take a shower the night before surgery. Scrub your entire leg, foot, toes, and under your toenails. Do not shave the hair around your knee. Use the CHG cleanser as instructed. (Please contact your physician's office if you have not received your CHG cleanser).

☐ Bowel Preparation

The day prior to surgery, consume a SOFT diet, if possible. Soft foods may include: soups, sugar free Jell-O or custard, yogurt, oatmeal, cold cereals, etc. Drink plenty of water in the daytime so you are well hydrated.

☐ When to Stop Eating and Drinking

Do not eat ANYTHING after midnight the night before surgery, unless otherwise instructed. You will receive instructions about pre-op hydration in your pre-op education session. If your internist instructs you to take any necessary medication the morning of surgery, do so with a small sip of water. If you have questions about this, confirm with your internist

Do not use alcohol or sedatives 24 hours before surgery.

I. PREPARING FOR SURGERY

Planning for Your Hospital Stay

Personal articles and clothing should be limited to those that fit into a single, small piece of luggage (the size of an airplane carry-on). There is very little storage space in your hospital room, so we suggest that you plan your packing in two phases:

Phase 1: For the hospital *(Inpatients Only)*

- Please bring in the items you will want during your hospital stay (toiletries, robe, magazines etc.). If you expect family or someone else to visit you soon as you go to your in-patient room, it may be most convenient for them to bring in the things you want in the hospital.
- Electric razors and battery-operated appliances are the only appliances you may bring to the hospital. This is to protect you and other patients.
- Women: Your surgery may trigger a change in your menstrual cycle. Sanitary pads are available and will be provided by the hospital.

Phase 2: For your trip home

- Loose fitting clothing, non-skid shoes, jacket/coat (in season), etc.
- These items can be brought in by a family member or friend on the day you leave.

Assistive Devices for Walking

You will need a walker or cane or crutches when you begin practice walking in the hospital. If you do not have a walking device, the hospital can provide one.

Relaxation Items

Reading materials or personal articles may help you to relax. TV and telephone services are available in your room.

Medications

Once you arrive at NYPH the hospital will usually supply your medications. However, we suggest that you bring your medications in case there are any issues with our pharmacy. If you bring your own supply, it will be deposited in the hospital pharmacy safe. Bring all prescription medications in their original containers so they can be identified by the hospital pharmacist. The nursing staff will keep the medications for you and administer them as prescribed.

I. PREPARING FOR SURGERY

Notes

I. PREPARING FOR SURGERY

What to Bring to the Hospital

	Item
☐	Surgical Consent signed by you (if not previously provided)
☐	X-rays and lab reports (if requested)
☐	Health Care Proxy
☐	Your cane or crutches or walker, if you need them to enter the hospital (wheelchairs are available at the hospital entrance)
☐	Flat supportive athletic or walking shoes that are non-slip. Bring any orthotics if you use them
☐	Personal toiletries - The hospital provides basic toiletry articles If you prefer a special type of soap or lotion or deodorant, please bring them
☐	Eyeglasses instead of contact lenses *(They are easier to take off and less likely to be lost in the hospital* *We cannot be responsible if you lose them)*
☐	Dentures: we will provide a container which you must use *(When you remove them, make sure to keep the container on your bedside table or in a drawer, not on the bed or a food tray. As with glasses, we cannot be responsible for loss)*
☐	Bring a written list of the medications you have been taking *(include any you may have stopped in anticipation of surgery and for medications you take only as needed please include the average number of times you do take the medicine each day or each week, if not every day)*

I. PREPARING FOR SURGERY

What to Bring to the Hospital

	Item
☐	Telephone numbers of people you may want to call. You may bring in your cell phone
☐	Identification & Insurance Information
☐	Small amount of money for newspapers, items from gift shop, incidentals etc.
☐	A book, magazine or hobby item to assist relaxation
☐	Sweat suit or loose, comfortable fitting clothes to wear home
☐	Credit card (for ordering medical equipment/transport)

What NOT to Bring to the Hospital

Item
Valuables
Jewelry
Large amounts of money

*(*Cash in excess of $20.00 should be deposited in the hospital safe when you arrive, or sent home with your family. Although we respect your property rights, the hospital staff cannot guarantee security for your personal property.*)*

II. DAY OF SURGERY

Day of Surgery

Please arrive at the time instructed. In the Admitting area you will be greeted by the nursing staff. Your clothes and possessions will be labeled and held securely by staff during your procedure and returned to you once you are in the recovery room or brought to your regular hospital room. The nursing staff will take your temperature, pulse, respiration, and blood pressure.

When you are ready for surgery, members of your surgical team will introduce themselves. Each person will have reviewed your medical record in light of their own role in your surgery. You will also see your Orthopedic surgeon in the pre-op area and your surgeon will sign the leg that is to be operated on. A nurse will start an IV which will be used to deliver fluids, sedatives, antibiotics, and other medications as needed.

Anesthesia

You will meet your anesthesiologist just prior to your surgery. Your anesthesiologist is involved in all aspects of your care, including preoperative evaluation, monitoring your physical status during surgery, as well as postoperative care and pain control. When you meet the anesthesiologist, he/she will discuss the anesthetic options and outline the plan for your specific operation. Please discuss all pain medications you have taken in the past as well as any significant alcohol consumption.

Your Anesthesiologist in the Operating Room

While in the operating room, you are monitored constantly by your anesthesiologist. Many things are monitored, including blood pressure, heart rate, and temperature. After you are asleep various lines are placed to keep watch on your condition during surgery. Your anesthesiologist will discuss the use of these monitors.

Blood Transfusions

Depending upon your surgery and medical conditions, you may require blood transfusion during surgery or post-operatively. Your anesthesiologist reduces the need for transfusion by lowering blood pressure during surgery, and occasionally using a blood recycling system.

We do not transfuse blood unless it is absolutely necessary.

II. DAY OF SURGERY

Post Anesthesia Care Unit (PACU)

General Information

After surgery, you will need immediate, careful monitoring, while you recover from anesthesia and gradually awaken.

You will be moved directly from the Operating Room to a special Recovery Room, which we call the **PACU (Post-Anesthesia Care Unit)**. In the PACU, you will be provided with oxygen, intravenous lines, and continuous cardiac and respiratory monitoring, while your anesthesia wears off.

The PACU is staffed by Registered Nurses who have advanced education and training in the post-operative care of patients undergoing orthopedic surgery. These nurses continuously monitor your condition and provide aid and comfort as you recover.

An anesthesiologist, a doctor who specializes in the care of patients undergoing surgery and who provides anesthesia, will also be in the PACU to monitor your recovery from anesthesia.

Visitations while you are in PACU

Visitation in the PACU is limited in order to promote privacy for all patients, decrease the risk of infection, and to enhance the healing process.

Every effort will be made to provide your family with current information about your condition.

Transfer to the Hospital Orthopedic Floor *(Inpatients Only)*

Once you are medically stable and your room assignment has been confirmed you will be transferred up to the regular hospital floor.

As a general rule, visitors are not allowed to stay overnight in patient rooms.

III. INITIAL RECOVERY

Pain Management Program

Beginning your Pain Management Program

Pain management begins even before surgery. You will be given several medications that help with perioperative pain control and you may be given medicines that help prevent nausea before surgery in the preoperative area. Following surgery, pain management begins in the PACU; the anesthesiologist and surgeon will take care of your pain. The Nurse Practitioner from Acute Pain Services may also visit you. We are aware that your surgery may be followed by pain, which may or may not begin to be felt in the PACU.

You will remain in the PACU until your recovery is stabilized. The anesthesiologist or medical doctor will determine your readiness to be transferred to your in-patient hospital room.

The Patient's Rights

The patient has the right to expect management of pain to include but not be limited to:

- A concerned staff committed to pain prevention, when possible and management when pain occurs
- Information about pain and pain relief measures
- His/hers reports of pain to be respected
- Health professionals responding appropriately to reports of pain
- Availability of pain relief specialists

The Patient's Responsibilities

In order for the patient to have his/her pain treated effectively, it is important for the patient to:

- Request pain relief on a timely basis
- Work with the doctor and nurses to develop a pain management plan
- Help the doctor and nurses assess his/her pain and report whether the pain relief measures were effective
- Talk to the doctor and nurse about worries concerning taking pain medication

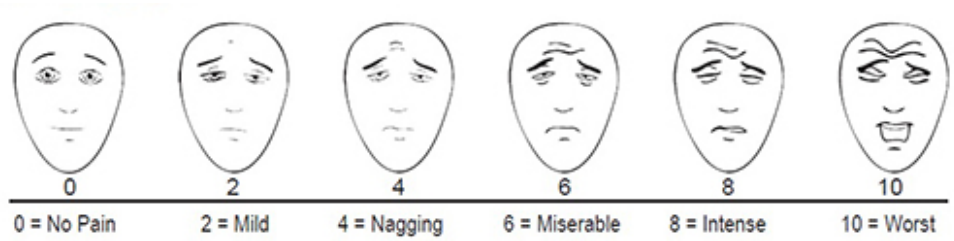
III. INITIAL RECOVERY

Pain Management Program

Assessing Your Pain Level

Because there are no direct clinical tests or tools to measure pain, you must be ready to tell the staff what your pain feels like, where it is located, and if it changes at times. Sometimes pain is constant, other times it comes in bursts. Pain can be sharp, burning, tingling, or aching.

You will be asked to rate how much pain you have by using Pain Intensity Scales. Here is one example of a Pain Intensity Scale:



Managing Your Pain

Even under your personal pain management program, your pain level may change at times. Be sure to tell your nurse if it becomes worse. **Your pain is easier to control if you do not allow it to become severe before taking a pain medication.** Please discuss the best schedule for you with your nurse.

Your need for pain control after surgery will be met immediately usually by oral pain medications or rarely by Patient Controlled Analgesia (PCA), Epidural Patient Controlled Analgesia (PCEA), or Regional Patient Controlled Analgesia (PCRA).

With either method of pain medication, please notify your nurse or doctor if you are not getting enough pain relief. While it may not always be possible to get rid of all pain we want you to be as comfortable as possible while you heal in order to help you be able to participate better in your recovery activities.

A day or two after surgery, your surgical pain will be less severe and you will be able to progress with various activities more readily. Oral pain medication helps patients resume daily activities with a minimum amount of discomfort. In addition, it is important to understand that oral medications can be prescribed in a way that makes them just as strong as other forms of medication.

III. INITIAL RECOVERY

Pain Management Program

About Your Pain Medications

Medications used to control pain are carefully prepared in order to assure quality and safety. Some of these medications include Morphine, Oxycodone, Hydromorphone (Dilaudid) and Fentanyl, which are opioids (Morphine like medications), and bupivacaine (Marcaine) or Ropivacaine, which are local anesthetics. Local anesthetics are a type of medication used to temporarily make a part of our body feel numb, so we do not feel pain. Novocain, which you may have had at the dentist's office, is a type of local anesthetic.

Patients must inform their anesthesiologist and peri-operative nurse about any problems encountered with medications of any type in the past. You must also inform them of ANY medications you are taking or have taken in the last 30 days, including over the counter (OTC) medications and herbal supplements or medications.

For additional pain-relief we will provide you with **ice packs** or other cold therapy and introduce you to helpful **relaxation exercises**.

Cold Therapy

Cold therapy in the form of ice packs or a cryotherapy method will also be provided as an intervention to reduce swelling and pain. Cold therapy produces an anesthetic (numbing) effect when placed on the surgical area.

We recommend that ice packs be applied to the surgery site with a barrier for 20 minute on / 20 minute off intervals throughout your hospitalization. **Don't hesitate to ask your nursing staff for ice packs between various activities**. Cold therapy may make the joint feel stiff at first. However, the pain relief usually outweighs the possibility for stiffness.

Cold therapy can be very helpful at home. If your legs feel heavy and stiff, we recommend that you rest in bed with ice packs applied to the tender or swollen areas, and leg elevated. It can be as simple as wrapping ice cubes in a towel. And there are commercial cold packs available which you can keep cold, ready to use, in your refrigerator or freezer.

III. INITIAL RECOVERY

Pain Management Program

Relaxation Exercises

Relaxation exercises, such as slow rhythmic breathing, can help with handling any pain you may be feeling, as well as providing overall comfort.

1. Breathe in slowly and deeply- in through your nose, out through your mouth.
2. As you breathe out slowly, feel yourself beginning to relax, feel the tension leaving your body.
3. Now breathe in and out slowly and regularly, at whatever rate is comfortable for you. You may wish to try abdominal breathing (using your diaphragm). If you do not know how to do abdominal breathing, ask your nurse for assistance.
4. To help you focus on your breathing, breathe slowly and rhythmically. Breathe in and say silently, “in, two, three”; then breathe out and say silently to yourself, “out, two, three.”
5. It may help you to imagine that you are doing this in a place that is very calming and relaxing for you, such as lying in the sun at the beach or in your own special place.
6. You may possibly relax by performing steps 1 through 4 only once. But it may help to repeat steps 3 and 4 for up to 20 minutes.
7. End with a slow, deep breath. As you breathe out, say to yourself, “I feel alert and relaxed.” Then concentrate on staying that way.

IV. RECOVERY & REHABILITATION

Overview of Post-Operative Recovery

Once you are out of surgery, here are some things to expect:

Vital signs: Your vital signs, which consist of blood pressure, pulse, respiratory rate and temperature, are taken frequently after surgery.

Breathing and exercise: You will be asked to breathe deeply, to use your inspirometer (described on following pages) and to exercise your legs often in order to prevent complications.

Surgical dressing and drainage: You will have a waterproof dressing around the surgical site. Instructions for the care of your surgical dressing will vary depending on your surgeon's preference. Your physician's office will provide instructions for the care of your specific dressing.

Constipation: The combination of anesthesia, inactivity, and strong pain medications (opioids, also known as narcotics) will slow down your digestive system. You may not have a bowel movement for several days following surgery. You may need stool softeners and laxatives. We recommend that you drink lots of water, prune juice, eat fruits, vegetables, and high fiber foods, and avoid red meat and cheese. If you follow these instructions and do eat lots of food containing fiber, make sure to drink plenty of water. Eating fiber without drinking water will make the constipation worse, instead of better!

Urination after surgery: In rare cases you may have a catheter that collects your urine into a bag (Foley Catheter). The Foley Catheter is usually removed the day after surgery.

Venodynes: You will have special wraps (called venodynes) placed on your lower legs after surgery. Venodynes are to be worn after surgery while you are in the hospital to help prevent blood clots. These wraps attach to a pump that inflates and deflates them.

Hospital Bed: Your hospital bed has buttons to raise your back and legs. After you raise the head of your bead you must remember to push the leg button down so that the bed does not bend your knees. When lying in bed your legs should be straight. If you lie in bed with your knees bent you will have a much harder recovery process.

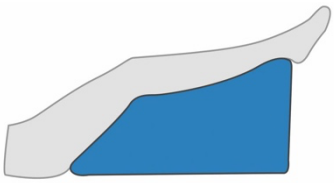
IV. RECOVERY & REHABILITATION

Overview of Post-Operative Recovery

How Your New Knee is Different

Bruising on the side of the operated leg is not uncommon after joint replacement – this sometimes lasts 1-2 weeks post-operatively.

You also may experience some swelling and stiffness in the operated leg after the surgery – this may last weeks to months after the surgery and is entirely normal. The more you elevate the leg when you lie down or sleep, the better you can reduce the swelling – "Toes above your nose."



You may feel some numbness in the skin around your incision, which is normal.

Occasionally, you may feel or hear some soft clicking of the metal and plastic with knee bending or walking – this is entirely normal.

These symptoms often diminish with time and most patients find they are minor compared to the pain and limited function they experienced prior to surgery.

Improvement of knee motion is a goal of total knee replacement. The motion of your knee replacement after surgery is predicted by the motion of your knee prior to surgery. Many people with arthritis have limited knee motion before surgery and it is important to note that their final motion may improve somewhat, but will often never be as full as it was prior to the onset of arthritis.

Most patients can expect to bend and straighten the replaced knee and to be able to go up and down stairs and get in and out of a car. Kneeling is usually uncomfortable, but it is not harmful.

Your new knee may activate metal detectors required for security in airports and some buildings. Tell the security agent about your knee replacement if the alarm is activated.

Some key procedures which will promote healing and help prevent complications are described on the following pages.

IV. RECOVERY & REHABILITATION

Preventing Post-Operative Complications

Preventing Circulation Problems

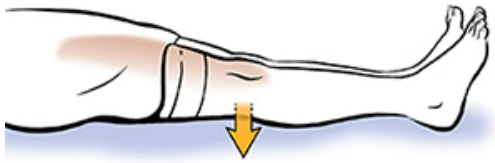
These exercises can be performed in the hospital and at home

Soon after surgery, you will be asked to perform gentle exercises. These exercises, such as ankle pumps, quad sets and gluteal sets, will help prevent circulation problems. They will also strengthen your muscles. Other exercises appropriate for you (some are reviewed later in this section) will be taught by the physical therapist and nursing staff.

To enhance your circulation, YOU will be expected to perform these exercises 10 times each, every hour while awake.

Ankle Pumps

- Move your foot up and down rhythmically by contracting the calf and shin muscles
- Perform this exercise periodically for two to three minutes, two or three times an hour in the recovery room.
- Continue this exercise until you are fully recovered and all ankle and lower-leg swelling has subsided



Quad Sets

- Tighten your thigh muscle
- Try to straighten your knee
- Hold for 6 econds
- Repeat this exercise approximately 10 times during a two-minute period, rest for one minute, and repeat
- Continue until your thigh feels fatigued

Gluteal Set

- Lie on your back on a firm mattress
- Pinch your buttocks together
- Hold for 6 seconds
- Relax and continue these exercises periodically until full strength returns to your leg

IV. RECOVERY & REHABILITATION

Preventing Post-Operative Complications

Preventing Lung Problems

After surgery, it is important to exercise your lungs by taking deep breaths. Normally, you may take deep breaths each hour, usually without being aware of it. They are spontaneous, automatic, and occur in the form of sighs and yawns.

However, when you are experiencing pain or drowsiness from the anesthesia, or from your pain medication, your normal breathing pattern can change. Therefore, you will be provided with an **inspirometer** by the nursing staff. A member of the staff will show you how to use your inspirometer.

Using the inspirometer will force you to take deep breaths which are necessary to expand the small air sacs of your lungs and help clear the air passages of mucous. This helps avoid fever post-op. We recommend that you use your inspirometer every hour while awake for the first several days following surgery.

Coughing: another excellent way to help breathe and clear your lungs

Coughing is, of course, one of nature's important methods for clearing your lungs at any time…not just after surgery.

1. Breathe in deeply through your nose.
2. Hold your breath and count to 5.
3. Breathe out slowly through your mouth
4. On the 5th deep breath, cough vigorously 2-3 times from your abdomen as you breathe out.
5. Make a habit of doing this 2-3 times hourly, especially when it is inconvenient to use your inspirometer.

IV. RECOVERY & REHABILITATION

Anticoagulation Therapy & Thrombosis

Phlebitis (inflammation of the veins of the legs) or Deep Vein Thrombosis (DVT), which refers to blood clotting in the veins of the leg, is a possible risk after total joint replacement surgery.

For the prevention for Deep Vein Thrombosis (DVT) after surgery, patients will be prescribed an oral anticoagulant. The purpose of an oral anticoagulant is to prevent your blood from clotting.

Type of medication

Depending on your medical condition and preference of your surgeon, you will be prescribed either buffered Aspirin, Rivaroxaban, Warfarin, or an injection for anticoagulation for a short period of time.

If you are prescribed Warfarin, daily blood tests will be necessary to determine the dosage of medication required. The blood test measures the time it takes for a clot to form. Upon discharge home, weekly or bi-weekly blood tests will continue for the duration of the therapy. Your primary medical doctor or orthopedic surgeon will adjust the dose accordingly.

If you receive an injection, and plan to discharge directly to your home, you will be taught to administer the injections on your own for when you leave the hospital if you go directly home.

IV. RECOVERY & REHABILITATION

Rehabilitation Therapy Overview

Physical therapy and occupational therapy are an important part of your post-operative care at NewYork-Presbyterian and after you return home.

Your daily therapy sessions

You will be seen by a therapist after surgery. A PT helps with strengthening, range-of motion, walking, balance, and endurance. An OT helps you regain independence with your activities of daily living (ADL) which include dressing, bathing, and using the toilet. Your therapist will instruct you in your exercise program, which is directed toward improving your functional mobility and strength of your legs. You may also practice stair climbing prior to discharge.

As the days progress after surgery, you will increase the frequency and distance of walking.

IV. RECOVERY & REHABILITATION

Rehabilitation Therapy Overview

Beginning to Walk

- Your therapist will help you in sitting up with your feet over the bedside (we call it dangling). You will then stand with assistance, usually with a walker. As soon as possible, you will be allowed to bear full weight on the operative leg, and then will try walking.
- Stand comfortably and erect with your weight evenly balanced on your walker or crutches. Move your walker or crutches forward a short distance.
- Then move forward, lifting your operated leg so that the heel of your foot will touch the floor first. As you move, your knee and ankle will bend and your entire foot will rest evenly on the floor.
- As you complete the step allow your toe to lift off the floor. Move the walker again and your knee and hip will again reach forward for your next step.
- Remember, touch your heel first, then flatten your foot, then lift your toes off the floor. Try to walk as smoothly as you can. Don’t hurry.
- As your muscle strength and endurance improve, you may spend more time walking.
- As the days progress, you will increase the distance. Many patients progress to a straight cane quickly after surgery.

Stair Climbing

- You will practice stair climbing with an assistive device (if appropriate) prior to discharge.

IV. RECOVERY & REHABILITATION

Rehabilitation Therapy Overview

Looking Ahead: Planning for Recovery After Your Surgery

A Social Worker or Case Manager may meet you after your surgery to help arrange your post hospital needs. Depending on your physical condition and progress with therapy in the hospital, you may need additional services either at home or in another facility. The Social Worker or Case Manager may assist in making these referrals and contacting your insurance company for authorizations. We highly recommend that, before surgery, you contact your insurance company to learn about your benefits and limitations as insurance coverage benefits vary, and can change at any time.

When contacting your insurance company, find out which outpatient therapy practices, home care agencies and facilities are in network (if applicable). You will also need to find out if transportation is covered, and if so, what type(s). If you anticipate that you will need to go to an inpatient rehab facility after your surgery, it is recommended that you visit the facilities of your choice before surgery. The Social Worker will review these choices with you during your hospital stay and make referrals accordingly. Medicare regulations require that you select 3 facilities (for Acute Rehabs) and 5 facilities (for Sub-Acute Rehabs).

If you are being discharged to your home after surgery, we recommend that, at least during the first few days, you arrange to have a family member or neighbor/close friend be available to assist you with the routine of daily living. This will ease your transition from hospital to home. In this way, you can resume these activities when you feel most capable of doing so.

If you do not have family/friends to help you, some patients qualify for Certified Home Care services. If your doctor prescribes physical therapy and/or skilled nursing care at home after discharge and if your insurance covers these services, you may qualify for some assistance. This assistance is time-limited, but is available if covered by your insurance company for as long as you need this level of care.

To help you plan ahead, we recommend that before your surgery you ask your doctor if they expect that you will require any special medical care after discharge. Your insurance company will determine which services will be covered based on your current condition.

Remember, you make the difference. It is extremely important that you understand that **your** motivation and **your** participation in **your** therapy program is a vital element in the speed and success of your long-range rehabilitation, as well as getting ready to go home

IV. RECOVERY & REHABILITATION

Nutrition for the Surgery Patient

Before Your Surgery

If you were following a physician-prescribed diet before hospitalization, it is important that this information be conveyed to the physician and registered dietitian. It is also essential that you let your doctor or nurse know if you have recently been taking any of the following: vitamins, minerals, herbals, and nutrition supplements. By letting them know what you are taking, they can avoid any possible problems with the medications and treatments you may be getting during your hospital stay.

Unless you have medical reasons not to, try to increase your protein intake the weeks prior to surgery and minimize your carbohydrate intake. This will help your body rebuild tissue and heal after surgery.

Nutrition After Hospitalization

After you leave the hospital, your diet continues to be important for successful healing. Continue a well-balanced diet and follow any diet instructions given to you during your hospital stay. Increase your protein intake. If you are diabetic, maintain strict control of your glucose levels.

Continue to eat well for your health and well-being!

IV. RECOVERY & REHABILITATION

Daily Goals After Total Knee Replacement

Outpatient Guidelines

These items may vary based on instructions from your surgeon

Day 0 Post-Operative (day of surgery)

- Routine X-rays in Recovery Room
- Routine blood tests in Recovery Room
- Pain Medicine
- Physical Therapy Evaluation
- Dangle at the edge of the bed, out of bed to a chair and walk if medically cleared and appropriate
- Clear liquid diet or advance to regular diet
- Discharge to home: Please arrange to have someone pick you up at hospital and accompany you home

Inpatient Guidelines

These items may vary based on instructions from your surgeon

Day 0 Post-Operative (day of surgery)

- Routine X-rays in Recovery Room
- Routine blood tests in Recovery Room
- Transfer from Recovery Room to Hospital bed
- Pain Medicine
- Physical Therapy Evaluation
- Dangle at the edge of the bed, out of bed to a chair or walk if medically cleared and appropriate
- Clear liquid diet or advance to regular diet

Day 1 Post-Operative

- Physical Therapy treatment
- Occupational Therapy evaluation
- Social work or Case Manager evaluation to help with discharge planning
- If you have an IV PCA, you will likely switch to Oral pain medication on this day
- Routine blood tests
- Foley catheter removed (if one was placed)
- Out of bed

IV. RECOVERY & REHABILITATION

Daily Goals After Total Knee Replacement

Inpatient Guidelines *(continued)*

Day 1 Post-Operative *(continued)*

- Ambulation with assistance from Physical Therapy/Nursing (twice per day)
- Regular diet as tolerated
- Medication to prevent blood clots (for duration of hospital stay)
- Patient Education
- Discharge home if meeting goals

Day 2 Post-Operative

- Ambulation with Physical Therapy/Nursing (twice per day)
- Occupational Therapy
- Oral pain medication
- Regular diet
- Patient education
- Discharge home if meeting goals

Day 3 Post-Operative

- Oral pain medication
- Ambulation with Physical Therapy/Nursing/Occupational Therapy
- Patient Education and discharge instructions
- Discharge to home/rehabilitation facility (if medically necessary)

NewYork-Presbyterian/Columbia University Irving Medical Center: discharge time is approximately 10:00 am. For those who are going home, please arrange for your ride to pick up you up at 10:00 am.

NewYork-Presbyterian/Lawrence Hospital: discharge time is following either your morning P.T. session or afternoon session. If you and your therapist plan only 1 session, please arrange for transportation home at 11:00 am. If you are staying for a second session, please arrange for your ride to pick you up at 3:00 pm.

V. DISCHARGE INSTRUCTIONS

Medication, Surgical Site Care, Pain Management

Prescriptions & Personal Medication

Your doctor will electronically prescribe pain medication at your preferred pharmacy. Take these medications as directed on the bottle. If you have any questions please call your surgeon's office.

If any of your personal medications are with the nurses or stored at the hospital, make sure you get them back at this time.

Surgical Site Care

Infections rarely happen after surgery, but you must remain alert to the possibility: Check the surgical site daily for signs of wound infection.

Symptoms are:

- Increased redness
- Increase in pain
- Any drainage
- Oral temperature greater than 101.5 F

If any of the above symptoms occur, please contact your surgeon immediately.

Pain Management

- Continue to apply ice packs to the operative area for 20-minute intervals several times a day, using a thin towel as a barrier between the cold pack and your skin. Especially after activity, cold therapy will continue to reduce post-operative swelling and provide you with greater comfort.
- Take your pain medication as prescribed by your doctor. Remember to take it before the pain becomes too severe. It will help reduce the pain sooner. Do not forget to take your stool softeners.
- In the event that the pain medication does not work, or you are experiencing unpleasant side effects, do not hesitate to call your orthopedic surgeon.
- If you are taking medication, please AVOID alcoholic beverages.

V. DISCHARGE INSTRUCTIONS

Protection Against Infection

Antibiotic Prophylaxis: Long-range protection against infection

Although it is very rare, the bloodstream carrying infection from another part of the body can infect an artificial joint. Therefore, it is important that your medical doctor treat every bacterial infection (pneumonia, urinary tract infection, abscesses, etc.) promptly. Routine colds and flu, as well as cuts and bruises, do not need to be treated with antibiotics.

To prevent infection in the future, discuss with your surgeon if you should take Amoxicillin,* 2 grams one hour before having any of the following procedures:

- Skin Biopsy
- Podiatry procedures which involve cutting into the skin
- Cystoscopy
- Colonoscopy/Endoscopy
- Dermatologic procedures which involve cutting into the skin
- Dental cleanings or dental procedures

> **** Note:*** *If you are unable to take Amoxicillin, use Clindamycin: 600 milligrams one hour before the procedure. Amoxicillin is a form of Penicillin, so if you are allergic to Penicillin, you should take Clindamycin instead. Ask your surgeon about when/how long to follow these guidelines.*

You do not need to take antibiotics for the following procedures:

- Pedicures/Manicures
- Gynecologic exams
- Cataract Surgery
- Injections or Blood work

It is important that you tell your doctor and dentist that you have an artificial joint, so that they may remind you to take antibiotics, and to prescribe them, as appropriate. In addition, they may wish to consult with your Orthopedic Surgeon.

If you have any questions about germs or infections, or any type of procedure, you should call your Orthopedic Surgeon

V. DISCHARGE INSTRUCTIONS

General Instructions

Your Home Rehabilitation Program

This program will be an **extremely important** part of your continuing recovery. Please refer to the Home Recovery Section. If you have questions, ask your physical therapist for answers before you leave.

When to begin driving your car

A variety of factors go into when you may resume driving. Before resuming driving you must check with your surgeon. It depends upon your leg positioning, strength and coordination, and you must be off narcotics. First, check with your surgeon.

Sleep and Depression

Surgery is a major event in your life. It is common to have sleep problems after surgery. Minimize your caffeine intake and your daytime naps. Optimize your night routine to get the best sleep that you can. This may include having a warm glass of milk, taking melatonin, or taking a pain pill before you go to sleep so you do not wake up from soreness. Very rarely will you need a sleeping pill. Talk to your doctor if you are having difficulty sleeping.

Post-surgical blues can occur. You may not be used to taking it slow and being at home for such long periods of time. The medication may also affect your mood. Talk to your doctor if you are feeling blue.

Your energy level may be decreased for at least a month after surgery.

Follow-up Appointments with Your Orthopedic Surgeon

Regardless of how well you feel after you have been home for a while, follow-up appointments with your surgeon are necessary.

Additional Instructions

Your surgeon may have additional instructions for you to follow upon discharge. You can record them here, and on the next pages as a reminder. This is also a good place to make notes about questions you may have related to your discharge.

V. DISCHARGE INSTRUCTIONS

Specific Instructions & Notes

VI. HOME & RECOVERY EXERCISE

Recovery at Home

Preparing your home for your recovery

During the first couple weeks at home, you adapt what you learned at the hospital to your own setting. You will need to prepare your home for your recovery.

- A firm chair with armrests is recommended. It is easier to get up and down from a firm chair with armrests. Add two (2) firm pillows to low chair to provide proper height, as it is easier to get up and down from a higher chair surface rather than a low surface.
- General safety Measures:
    - Be sure all walking areas are free of clutter.
    - Remove throw rugs.
    - Watch for small pets and children.
    - Make sure hallways/stairways and bathrooms are well lighted
- Store items within easy reach, not in high or low cabinets.
- Prepare meals ahead of time and store in freezer. (Helpful hint: buy groceries/household items before surgery and have your favorite home delivery numbers handy).
- Make sure your bed height is approximately 18 inches high as it may be too difficult to get up and down from a low bed or a mattress on the floor.
- Equip your tub/shower with a non-slip surface if needed (rubber bath mat).

VI. HOME & RECOVERY EXERCISE

Recovery at Home

Showering/Dressing

Most incisions are closed with dissolvable sutures and covered with a type of waterproof dressing. You may shower with a waterproof dressing, but **do not scrub the dressing or soak in a bath**. After this, you may apply dry sterile gauze if there is any drainage.

In some instances, your incision may have been closed with surgical staples. **If you are discharged with staples in place, you may not shower until the staples are removed unless otherwise advised by your surgeon.**

Showering in a tub/shower

Your new knee(s) may make it easier for you to get in and out of a tub/shower than before. However, in both the short and long run you should be concerned with safety as you enter and leave a tub/shower. Equip your tub/shower with a non-slip surface (rubber bath mat). Please arrange for this prior to your hospitalization, if possible.

Showering is good time to exercise your knee(s)

Bending your knees in order to wash your feet is a normal movement. Bend your knee to its maximum for washing. Then repeat the movement a few extra times as an added exercise. The warm shower water could help offset any initial discomfort.

Dressing

With a greater range of motion, you should be able to dress your lower body more easily shortly after your surgery.

Dressing is good time to exercise your knee(s)

Please focus on bending your knee(s) as far as possible when you dress. Think of this as another added exercise. Any discomfort you feel now will be step toward freedom from discomfort in the future.

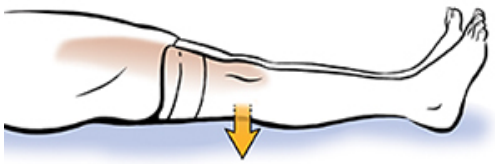
As you know, much of what you normally do each day does not require bending your knee(s) to maximum. However, both showering and dressing do require extra bending of your knee(s). Please take advantage of this situation to repeatedly work on your knee range of motion as a normal part of your daily routine.

VI. HOME & RECOVERY EXERCISE

Home Exercise Program

PERFORM ONLY THOSE EXERCISES ORDERED BY YOUR DOCTOR

Your therapist will provide you with an individualized Home Exercise Program specific to your individual recovery needs.

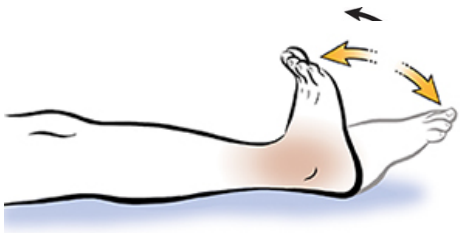


Quad Set

- Lie on your back on a firm mattress
- Tighten knee muscles of operated leg. This can be done by straightening your knee as much as possible, then pushing the back of your knee into the bed
- Hold for a count of 6
- Perform _____ repetitions
  _____ times a day

Gluteal Set

- Lie on your back on a firm mattress
- Pinch your buttocks together
- Hold for a count of 6. Relax.
- Perform _____ repetitions
  _____ times a day

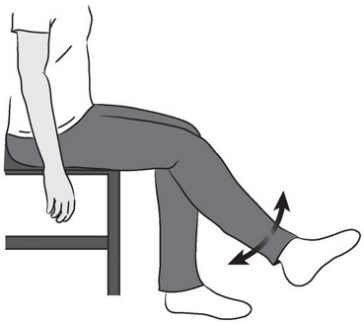


Ankle Pumps

- Move your foot up and down rhythmically by contracting the calf and shin muscles
- Perform _____ repetitions
  _____ times a day

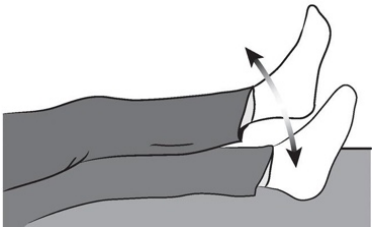
VI. HOME & RECOVERY EXERCISE

Home Exercise Program



Sitting Unsupported Knee Bends

- While sitting at bedside or in a chair with your thigh supported, bend your knee as far as you can until your foot rests on the floor.
- With your foot slightly resting on the floor, slide your upper body & thigh forward in the chair to increase your knee bend.
- Hold for 30-45 seconds
- Straighten your knee fully
- Perform _____ repetitions
  _____ times a day



Straight Leg Raises

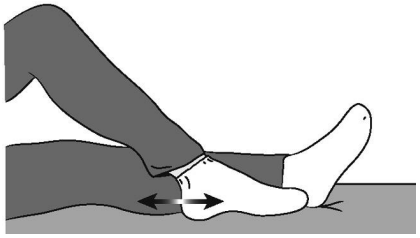
- Tighten the thigh muscle with your knee fully straightened on the bed (similar to a quad set)
- Lift your leg several inches. Hold for 5 – 10 seconds
- Slowly lower your leg
- Perform _____ repetitions
  _____ times a day

Knee Straightening

- Place a small rolled towel under your ankle just above your heel so that it is not touching the bed
- Tighten your thigh. Try to fully straighten your knee and to touch the back of your knee to the bed
- Hold fully straightened for 5 – 10 seconds
- Perform _____ repetitions
  _____ times a day

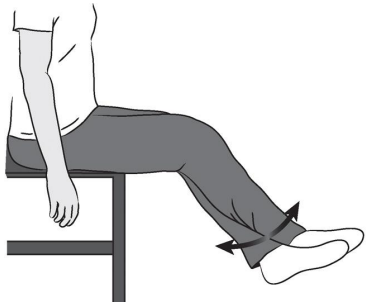
VI. HOME & RECOVERY EXERCISE

Home Exercise Program



Bed Supported Knee Bends

- Bend your knee as much as possible while sliding your foot on the bed
- Hold your knee in a maximally bent position for 5 to 10 seconds and then straighten
- Perform _____ repetitions
  _____ times a day

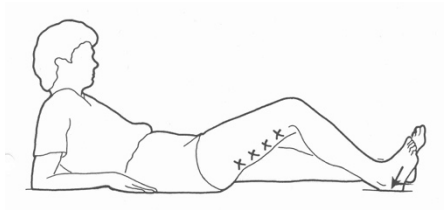


Sitting Supported Knee Bends

- While sitting at bedside, or in a chair with your thigh supported, place your foot behind the heel of your operated knee for support
- Slowly bend your operated knee as far as you can
- Hold your knee in this position for 5 – 10 seconds
- Perform _____ repetitions
  _____ times a day

Knee Flexion Stretch

- Place your operated leg on a short stool or first step on a flight of stairs
- Keeping non-operated leg on floor, lean forward, bending the operated knee as much as possible
- Hold for a count of 6
- Relax, straighten knee
- Perform _____ repetitions
  _____ times a day



Hamstring Isometrics

- Lying on your back, bend operated knee slightly
- Push heel into bed
- Hold for a count of 6
- Perform _____ repetitions
  _____ times a day

VI. HOME & RECOVERY EXERCISE

Home Exercise Program

Remember, You Make the Difference!

Your commitment to doing exercises, as instructed, is a major factor in your recovery.

Some Stiffness & Discomfort After Exercise is Normal

This is especially true during your first few weeks. Your body builds strength and your knee gains flexibility, while you develop new degrees of mobility. Your thoughtful combination of exercise with rest, ice packs, and pain medication, is necessary, will assure you maximum benefit from your Total Knee Replacement Surgery.

Additional Instructions

VII. OTHER INFORMATION

Additional Hospital Services

Pastoral Care

The Pastoral Care Department has trained pastoral care providers: ecumenical chaplains, ordained ministers, priests, rabbis, Eucharistic ministers, who are available to you and your family upon request.

Contact Numbers:

NYP/Columbia University Medical Center: 212.305.5817, or ext. 55817

NYP/Lawrence Hospital: 914.787.3009

What to Expect **Total Knee Replacement**

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