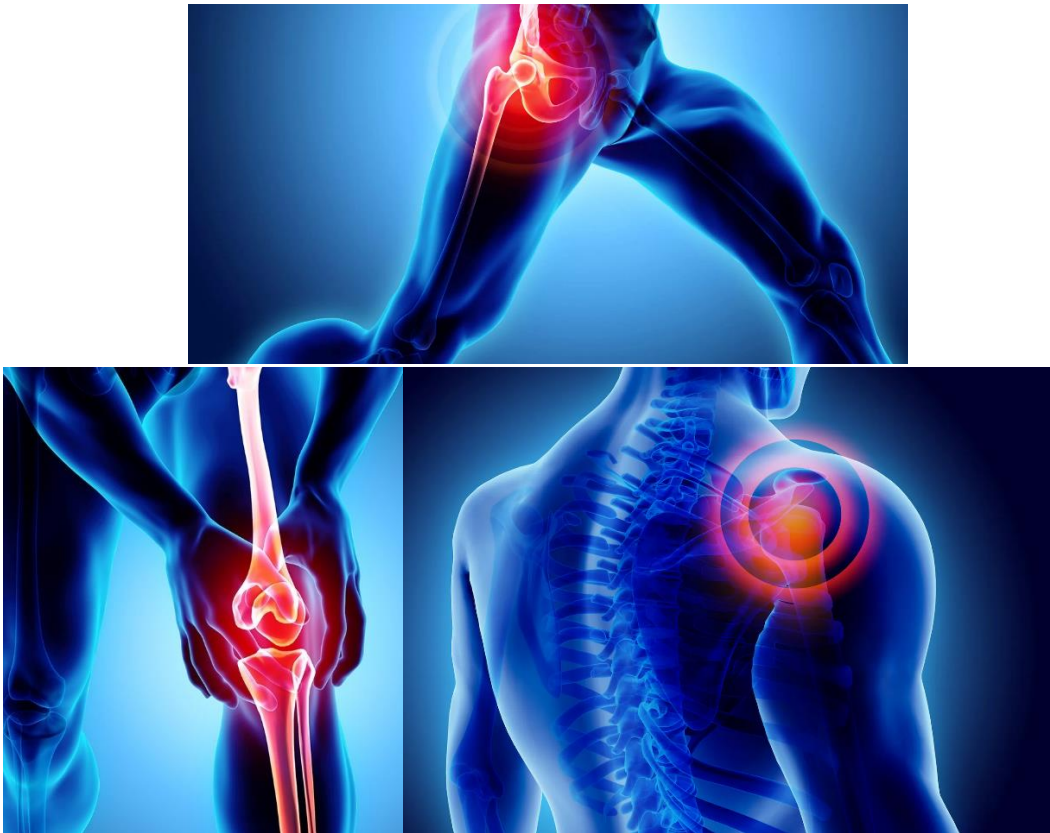




**Dr. Luis C. Grau's Comprehensive Guide to Total Joint
Replacement: Preoperative, Intraoperative, and
Postoperative Care**





Locations

Hackensack(2)

146 NJ-17, Suite 2,
Hackensack, NJ 07607

2 University Plaza Drive, Suite 500,
Hackensack, NJ 07607

Secaucus

55 Meadowlands Parkway,
Secaucus, NJ 07094

Edgewater

935 River Road
Edgewater, NJ 07020

Jersey City

3540 John F. Kennedy Blvd.
Jersey City, NJ 07307

North Arlington

11 Ridge Road,
North Arlington, NJ 07031

Bayonne

19 East 27th Street
Bayonne, NJ 07003

Newark / Orange

85 South Jefferson
Orange, NJ 07050

Clifton

855 Valley Road
Clifton, NJ 07013

PATERSON

922 Main Street Suite 201
Paterson, NJ



Our Mission

Why are we here? We are here to provide comprehensive, compassionate, and convenient state-of-the-art Orthopaedic care to our community.

Our Vision

Where are we heading? Dr. Grau is committed to excellence of musculoskeletal clinical care and to furthering the field of Orthopaedic Surgery through research, teaching and collaboration with our peers.

Our Values

Our Promise? Ethics, integrity, honesty, patient-centered, evidence based, and family oriented.

Meet Your Surgeon



Luis C. Grau, M.D.

Board Certified Orthopaedic Surgeon



Chief of Adult Joint Reconstruction, Medical Director of Orthopaedic Surgery

Dr Luis C. Grau is a board certified, fellowship trained orthopaedic surgeon who specializes in the non-operative and operative treatment of orthopaedic conditions of the shoulder, Hip and Knee. Dr Grau serves in the capacity of Medical Director and Chief of Adult Joint Reconstruction and has been voted as a Top Doctor and Rising Star in the New York metropolitan area by Castle Connolly. He is also the Director of Robotic Joint Replacement at Hudson Regional Hospital. Dr Grau's clinical interests include minimally invasive surgical techniques which help promote a more rapid recovery. He has advanced training in arthroscopy, direct anterior hip replacement, quad-sparing partial and total knee replacement and is an expert in robotic arm assisted and computer navigated partial and total joint replacement. Dr. Grau believes in advancing the field of joint reconstruction and has authored numerous scientific articles in peer reviewed journals, presented his research about both national and international meetings and serves on the editorial board of the American Journal of Orthopaedics.

Dr Grau was born in Havana, Cuba and grew up in Miami, Florida. He followed in his father's footsteps who is also an Orthopaedic Surgeon and studied pre-medicine at the University of Miami where he was accepted on academic scholarship and as a member of the Honors College. He went on to graduate with high honors and was inducted into the Golden Key Honor Society. Dr Grau then moved to Chicago to complete his medical school where he was recruited and awarded an academic scholarship by the Hispanic Center of Excellence. In medical school, he was voted president of his class and graduated as a member of the prestigious AOA medical honor society awarded to the top students in each class.

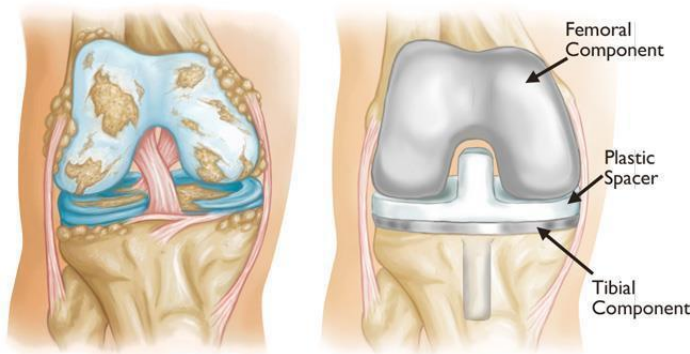
Following medical school, Dr Grau was selected to complete his residency at the University of Miami Department of Orthopaedics, one of the busiest and most well recognized residency programs in the country. While in residency he had extensive training in level I orthopaedic trauma, total joint replacement, arthroscopy, sports medicine and participated in the orthopaedic care of the Miami Marlins and University of Miami Athletics.

Dr Grau was then selected to complete an additional joint replacement fellowship at the Rothman Institute where he performed over 1000 joint replacements with leaders in the field. While in fellowship he obtained advanced training in muscle sparing techniques for hip and knee replacement, robotic surgery, outpatient joint replacement and complex revision surgery.

Dr Grau's practice philosophy is to always start simple and to treat his patients like he would his own family.

Total Joint Replacement

Many individuals may require total or partial joint replacement at some point in their lives, with some needing multiple procedures. Osteoarthritis is the most common cause, as it leads to the deterioration of the synovial membrane, resulting in pain, deformity, instability, and decreased quality of life. Previous surgeries, injuries, or trauma may also necessitate joint replacement to alleviate pain and restore range of motion. Additionally, normal aging, joint wear and tear, and excess body weight are common factors prompting patients to seek surgical intervention after conservative treatments have proven ineffective.

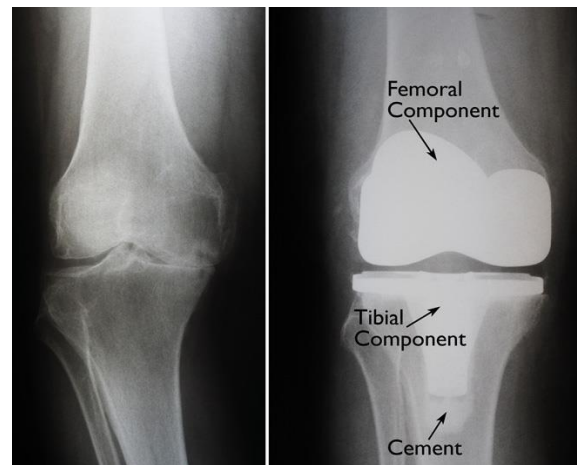


What is a knee replacement?

A knee replacement, or knee arthroplasty, is a surgical procedure in which the damaged weight-bearing surfaces of the knee joint are replaced with a medical-grade prosthesis to alleviate pain and restore range of motion. It is typically performed for severe osteoarthritis cases. The

prosthesis is made from a combination of chrome cobalt metal and plastic polyethylene, and it may be cemented or cementless. The choice of prosthesis type and fixation method is determined based on the patient's medical history, age, activity level, and Dr. Grau's recommendations for optimal outcomes. Patients may experience a clicking sound in the joint as the components move together.

The knee joint is the largest hinge joint in the leg, enabling bending and straightening (flexion and extension). It connects the femur (thigh bone) to the tibia (shin bone), with the patella (kneecap) covering the joint. During knee replacement surgery, the femur and tibia are reshaped to accommodate the new prosthesis, and the patella may or may not be resurfaced, depending on the surgeon's assessment. Robotics may be used to enhance precision in



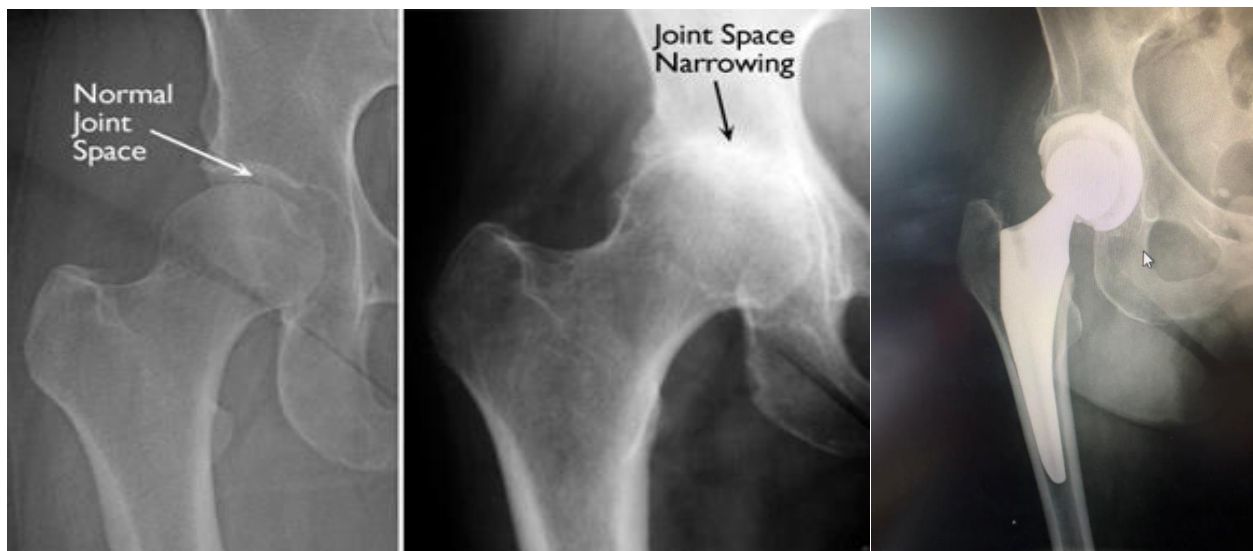
removing the diseased bone. Muscles and tendons are preserved, facilitating a quicker recovery.

What is a hip replacement?

Hip replacement, or hip arthroplasty, is a surgical procedure that replaces arthritic bone and cartilage with a medical-grade prosthesis to alleviate pain and restore range of motion, typically for severe osteoarthritis cases. The prosthesis consists of titanium, ceramic, and polyethylene materials. The choice of prosthesis is based on factors such as the patient's medical history, age, activity level, and Dr. Grau's recommendations for optimal outcomes. Patients may experience a clicking sound due to the movement of these components.



The hip joint consists of the femoral head (ball) and the acetabulum (socket) in the pelvis. A hip replacement involves four components: a femoral stem for stability, a polyethylene liner in the acetabulum, a ceramic femoral head, and an acetabular cup. Dr. Grau prefers the direct anterior approach, which accesses the hip through the front of the leg without cutting muscles, reducing the risk of dislocations and the need for post-surgery precautions. The hip joint's range of motion depends on the surrounding muscles and tendons, and flexibility varies among individuals.





Robotic Assisted Joint Replacement

******If you have been scheduled for robotic assisted surgery, you will be contacted by our office regarding a prior authorization number should your insurance require one and then you may schedule the CT scan at one of the locations provided to you. ******

During your surgical consultation, you and Dr. Grau may decide to proceed with robotic-assisted surgery, which requires an additional diagnostic test. You will need to undergo a CT scan at one of our authorized imaging facilities, which have specialized equipment to perform this scan of your operative leg. The scan will create a 3D image of the joint being operated on, as well as additional images of the hip, femur, knee, tibia, fibula, and ankle. This is not an MRI, and no IV contrast or dye is used. The scan typically takes about 15 minutes. It is recommended to have the scan done 1-2 months before surgery, as any scan older than 6 months will need to be repeated due to changes in bone structure.

What is the difference between traditional surgery and robotic assisted surgery?

In both traditional and robotic surgery, the muscles and tendons are not cut. Traditional surgery relies on the surgeon to determine the appropriate bone cuts for prosthesis application. In contrast, robotic surgery uses 3D images from your CT scan to create a blueprint, identifying both diseased and healthy bone. The surgeon then guides the robot to make precise cuts, ensuring accurate prosthesis placement, leg alignment, and soft tissue balance.



Is the aftercare different from that of traditional surgery?

After robotic surgery, you may notice 1-2 additional bandages. For knee replacements, these bandages will be located on the shin and upper thigh, while for hip replacements, they will be on the upper outer hip area. These bandages cover tracker pin sites used by the robot to attach to your body during surgery. The dressings will be removed at the same time as the main surgical incision dressing, typically 2 weeks post-op. You can shower with the bandage. The pin sites, which are about the size of a pencil eraser, should cause minimal discomfort, although the lower shin area may be more tender due to swelling. You can wash these sites with soap and water and leave them exposed to air. Occasionally, dissolvable sutures are used to close the sites, which will dissolve on their own or may be removed during post-op visits. If you notice any fluid drainage, apply a non-adherent dressing but avoid creams or lotions to allow the areas to dry and heal.

Quit Smoking

All patients must quit smoking at least 2 months prior to surgery as smoking can increase the risk of delayed wound healing, infections, MI or heart attack, development of a blood clot or pulmonary embolism (DVT/PE), prolonged hospital stays, the need for mechanical ventilation, and death.

Please contact your primary care doctor to discuss options for nicotine replacement therapy, over the counter medications, patches, or gum. You may also contact New Jersey's How to Quit Smoking Hotline for assistance at 1-866-NJSTOPS for counseling. * Please be aware that your insurance company may require you to submit to a nicotine screening process prior to approving your surgery***.**

What to do while I wait for my surgery day?

Get Healthy	<ul style="list-style-type: none"> ➤ Quit smoking – smoking increases the risk of circulation problems like blood clots, delayed wound healing, slows recovery, and increases the risk of infection. All patients must quit smoking at least 2 months prior to surgery. This is a requirement by many insurance companies. ➤ Lose excess weight- Dr. Grau requires a Body Mass Index or BMI of below 40 for ALL surgical patients. Extreme obesity adds excess strain on the joints, increases the risk of infection, breathing problems, blood clots, delayed wound healing, prosthesis failure, and longer recovery. <u>Failing to meet a BMI of below 40 will result in canceling or delaying your surgery.</u> ➤ Have a dental check-up to make sure all dental needs are taken care of before surgery. After joint replacement you will be required to take an antibiotic prior to all dental procedures for your lifetime.
Nutrition	<ul style="list-style-type: none"> ➤ See your doctor if you are diabetic and have not been successful at maintaining a HgbA1c below 8. This is a must and could result in your surgery being delayed. ➤ Eat a well-balanced diet to decrease the risk of delayed wound healing and infections.
Exercise	<ul style="list-style-type: none"> ➤ All patients should continue to exercise to prepare the muscles for recovery and rehab after surgery. ➤ Low-impact exercises are very helpful to those with arthritic joints as they put less stress on the joints. ➤ Patients should also work on upper body exercises as the arms and core will need to be strong to assist in position changes and using a walker or cane. ➤ See the exercises in this pamphlet for pre- and post-op exercises you should do and practice them.
Plan	<ul style="list-style-type: none"> ➤ Talk to your employer or benefit coordinator and determine what requirements they may have for you regarding your anticipated surgery. ➤ Prepare your home by performing a thorough cleaning and declutter so that your walker has a clear path, you can also prepare and freeze healthy nutritious foods, purchase ice packs for post-op swelling, and any other over-the-counter medications or toiletries you may need. You would like a well-stocked kitchen as you will not be able to drive yourself. ➤ Notify family and friends about your surgery so that they can make arrangements to help you. You will need someone to drive you to and from the hospital. You cannot drive yourself.

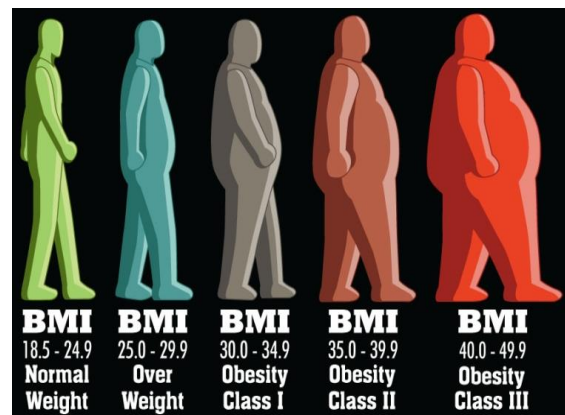
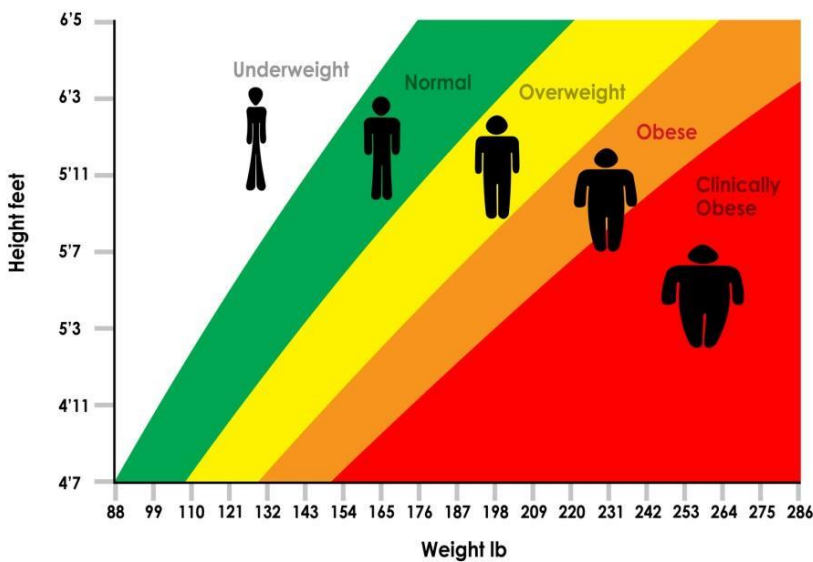
Optimizing Nutrition Status for Joint Replacement Surgery

Whether you have weeks or months to prepare for surgery, every day presents an opportunity to optimize your nutritional status. While many patients are advised to lose weight prior to surgery, it is both the **QUALITY** (what you are eating) and **QUANTITY** (how much you are eating) that matters. Follow these tips below to minimize risk of infection, manage chronic diseases, and ultimately speed up recovery.

1. Plate your **Protein**: Protein aids in wound healing and increases the strength of your immune system. Foods high in protein include animal products, cottage cheese, Greek yogurt, beans, and eggs. If you do not feel you are getting enough, supplements, such as bars and shakes, may be a good option for you.
2. Load up on **Vitamin C and Zinc**: Vitamin C is necessary to build collagen, which repairs tendons and ligaments. Citrus fruits would be a good addition to your diet, along with other colorful fruits and vegetables, such as kiwi and bell peppers. If your diet is high in protein, it is most likely high in zinc. Zinc is found in animal products and helps with tissue growth and repair.
3. Build your bones with **Calcium and Vitamin D**: Vitamin D and calcium are important for bone health. If you are not getting enough in your diet, it may be a good idea to take these in supplement form. Discussed your lab values with your PCP.
4. Focus on **Fiber**: Fiber not only helps keep you regular but has also been shown to stabilize blood sugar. Many medications can cause constipation, so the combination of a high fiber diet, along with the intake of a lot of water, could prevent constipation.
5. Choose **Antioxidants**: Incorporating beta-carotene, omega 3 fatty acids, and spices into your diet can reduce inflammation. Sweet potatoes, salmon, walnuts, flax seed, blueberries, turmeric, and ginger should definitely be on your radar.
6. So long **Sugar and Sodium**: Trying to reduce inflammation or lose weight? These are the ones to cut! Avoid packaged foods, such as cookies, crackers, and cakes. Try to cook more at home to avoid the salt in restaurant food.

But don't let your new lifestyle changes go out the door...food choices are JUST as important during recovery!

1. **Protein** is still a priority. If your appetite decreases, try to drink 1-2 premade shakes per day, such as Premier Protein or Glucerna (made for diabetics).
2. **Stay hydrated!** This not only helps with weight loss prior to surgery, but it will help with water retention. If you are holding onto a lot of fluid, increase your water intake. Many patients also find recovery beverages, such as Gatorade, helpful before and/or after surgery.
3. **Be prepared.** Go food shopping before surgery and stock up on your essentials! Relying on take-out and comfort foods is not the best idea. The sodium will not only cause fluid retention, but indulging in these foods can lead to weight regain.



What about pre-operative testing and medical clearances?

Surgery will only proceed with the approval of your primary care physician and our medical team. We collaborate closely with your primary care provider, specialists, and the hospital pre-admission team to ensure you are medically optimized and safe for surgery. Our non-surgical physicians and staff will assess your surgical risks, conduct a comprehensive evaluation, order necessary blood work, and refer you for additional tests (e.g., EKG, echocardiogram, sleep studies) or specialist consultations as needed to optimize your health for surgery.

- You will be contacted 2-6 weeks prior to surgery to schedule your pre-surgical appointment, which is mandatory for ensuring optimal health. It is important to see your primary care physician early to ensure their involvement in the clearance process.
- Please bring your ID, insurance cards, a complete list of all medications (prescription, over the counter, creams, supplements), including dosages and usage frequency, and contact information for any specialists you see (e.g., cardiologist).
- Additionally, provide any relevant medical records (e.g., lab work, EKGs).
- Our medical team will advise you on which medications to continue, discontinue (e.g., blood thinners), and when to resume them.

Once all your test results have been reviewed, the medical providers will determine if you are medically cleared for surgery. If you are not cleared for surgery, it is because you have other pressing conditions that need to be addressed prior to elective surgery and once these conditions are managed, we will gladly assist you in preparing for joint replacement surgery in the future. As always, your overall health is important to us.

Day of Surgery

- DO NOT BRING VALUABLES OR WEAR JEWELRY.

What if I need to cancel or change my surgery date?

We ask that you notify us immediately if you need to cancel or change your surgery date. You can do this by notifying the surgery scheduler you sat with to schedule your surgery. They can be reached at 551-999-7050.

The Hospital Process

- Once you arrive at the hospital you will change into a gown, receive an Intravenous (IV line) and have lab (blood) work drawn.
- The anesthesiologist will obtain consent from you and review your medical history to determine the best option for you. Most patients are given spinal anesthesia and IV medications to make them sleep during the surgery; this is the preferred and safest method of anesthesia.
- This surgical procedure typically takes less than one hour. However, you will be in the operating room longer, about an hour and a half, for preparation and to monitor you after anesthesia.
- You will then be moved to the post anesthesia care unit to monitor your vital signs before being transferred to your hospital room.
- There you will be able to eat and soon get out of bed with a physical therapist or nurse once the anesthesia has worn off.
- A physical therapist will work with you on how to get up and down from a sitting to standing position, how to use a walker or cane, how to climb up and down stairs and how to get in and out of a car.

- You will be given home exercises you can perform for the first two weeks while you are home and before your first post op visit. On that visit we will determine if you require outpatient physical therapy, and a prescription will be given to you.
- Your physical therapist will provide you with a walker/cane and any other necessary equipment to take home with you upon discharge or a prescription for this equipment will be given to you upon discharge.
- Dr. Grau prefers a cane over a walker and suggests walking independently as soon as you feel steady enough to do so. This is because the posture used with assistive devices may aggravate your other muscles as they adjust to the change in posture.
- Please arrange for transportation to and from the hospital.

You are not allowed to drive home!

What happens when I am discharged?

- Most patients are discharged home the next day after surgery. Some patients are going home the SAME DAY!!

- This is the preferred option by Dr. Grau because your home is the most familiar, there is less risk of infection and complications, patients are happier to be in their homes, can eat foods of their choosing, and are generally more comfortable.
- If you feel that this option is not the desired plan for you, please inform Dr. Grau during your hospital stay. A case worker/nurse/social worker will be assigned to you and other arrangements can be made for a **visiting nurse and/or physical therapy services or inpatient rehabilitation centers**.
- You cannot drive yourself and will require someone to drive you.

What do I do when I am home?

No matter how prepared and how ready you may feel, it will be an adjustment. You may even question whether you were discharged too soon. However, the best place to recover is home and you will need to relax and focus your attention on recovery. You will be very tired initially and will require pain medication to control the post-surgical acute pain that you will likely experience. You will have days where you feel great and days where you don't feel as well. Take care, you will get better.

The First day to first 2 weeks Post-Op

- **SWELLING and BRUISING.** *There will be a lot of swelling and bruising that can be quite alarming.* This is very common and will subside over time, however, be advised that with increasing activity more swelling may occur and may last for 6

months to a year. Both hip and knee replacement patients will experience swelling and bruising that may travel the length of the operative leg. A short course of steroids and anti-inflammatories may be prescribed to aid in swelling relief.

- **Fever. *Warmth and low-grade temperatures, particularly at night, are not uncommon.*** This is due to your body working overtime to help heal you. Temperatures can be caused by dehydration. So make sure you are drinking plenty of water and you may take acetaminophen (Tylenol) to help. It is not uncommon to have a temperature of 101.5 after surgery.
- **Pain.** Take your pain medications as directed, ice the area 20 minutes on and 20 minutes off 3-4 times a day, and elevate your leg above the level of the heart. Try not to have your leg dangle for any length of time. Only take narcotics for severe pain as you may develop a tolerance to them and they will not relieve your pain as effectively. You can take TYLENOL (acetaminophen in between doses to help with pain). Zero pain after surgery is not attainable, but we do want to minimize your pain and make it tolerable to perform activities.
- **Nutrition.** Eat small frequent meals and drink plenty of fluids, your body requires this to heal. Many patients do experience nausea after surgery, this too will pass. Try to take your medication with food. Furthermore, constipation is a real concern after any surgery, therefore drink plenty of fluids and you may take over the counter stool softeners as directed on the packaging. It is not unusual to lose weight after surgery.
- **Exercise.** You will be given home exercises to perform, please perform these as tolerated. The goal of home exercises is to help restore the range of motion to the joint, avoid stiffness, and decrease pain. **DO NOT SIT LONGER THAN 30-45 MINUTES AT A TIME WHILE AWAKE.** Get up and walk around frequently, this will help with recovery. Do not stay in bed all day. When climbing stairs remember “UP WITH THE GOOD, AND DOWN WITH THE BAD”.
- **Showering.** You are allowed to shower when you feel safe. You may NOT run water over the Aquacel dressing that looks like a large Band-Aid, do not submerge yourself in a bathtub, pool, or ocean until after your 4–6-week appointment and are cleared to do so.



- **Dressings.** We will remove the bandage at your 2 week post operative follow up appointment.
- **Physical Therapy.**
 - **KNEE & HIP REPLACEMENT:** You will be evaluated at your two-week post-operative visit to determine the need for outpatient Physical Therapy. If it is decided that you should proceed with formal out-patient therapy, you will be provided with a prescription and may go to a location that is most convenient to you. If outpatient therapy is ordered for you, please contact your insurance company to determine how many visits you are allowed per calendar year, as insurance companies will only allow for so many visits. This limitation could result in not being able to participate in physical therapy for a new condition later in the same year. Flexion of the knee to 90 degrees is the minimum requirement most patients will achieve up to or surpass 120 degrees, but measurements are only a part of the equation and are not the rule. Many patients do not need or require formal therapy. Optimal results of knee flexion and extension can be achieved at home with the use of home exercises.

How long is recovery?

Recovery time varies by patient, with some returning to work within a few weeks and others needing more time. Short-term disability is typically allowed for up to 12 weeks, though full recovery may take up to a year. During this time, patients may experience pain, swelling, and sensations like shooting pains or numbness as the bones, muscles, tendons, nerves, and skin heal at different rates. Physical therapy may cause discomfort, especially for those not accustomed to regular exercise. Staying active before surgery can help speed up recovery. Driving is usually safe once you no longer require pain medication and feel confident, typically around 2-4 weeks post-surgery.

What if I had staples?

Staples are sometimes necessary for proper wound closure. You will be told on discharge from the hospital that these will be removed at your scheduled two-week follow-



up appointment. Otherwise, a combination of dissolvable sutures and a surgical glue are used and do not require removal.

FREQUENTLY ASKED QUESTIONS

When should I go to the emergency room?

Most concerns can be handled by a phone call or an office visit and do not require a lengthy visit to the emergency room or urgent care facility. These concerns include swelling, warmth, and incision drainage without fever or chills. **Swollen, warmth and a low-grade temperature up to 101.5 degrees, is normal after a joint replacement and can be common for months after surgery. Incisional drainage is typical, especially with swelling, and would appear as clear to slightly pink or straw color. It may ooze from the incision but would not be yellow or green and pus like.** If drainage does occur, you can apply a non-adherent dressing found at most pharmacies or drug stores in the first aid section and call to make an appointment for evaluation. Calf pain, tenderness, and swelling could be a sign of a blood clot, and an ultrasound of your legs is the only way to diagnose this rare complication after surgery. You can call the office at **551-999-7050** for a prescription for this test to be sent to a facility closest to you during normal business hours. Emergency room visits should be reserved for emergencies that include difficulty breathing, shortness of breath, or chest pain. If you are in doubt, you may call **551-999-7050 24 hours a day, 7 days a week, 365 days a year** and our answering service can forward your call to one of our practitioners. In the event that you are unable to reach us, please go to the nearest emergency room for urgent matters during after-hours. There is no contraindication to the flu or pneumonia vaccines regarding joint replacement. Also, any medical questions related to your medications or other health conditions should be directed to your primary care provider or specialists

******CALL 911 AND GO TO THE NEAREST EMERGENCY ROOM IF SEVERE CHEST PAIN, DIFFICULTY BREATHING OR SHORTNESS OF BREATH OCCUR. ******

When is my follow-up appointment?

We typically like to see you at specific intervals to determine you are healing properly. These intervals are usually 2 weeks from your surgery date, and then 3 months from



surgery, 6 months from surgery, and one year from surgery, and/or as needed. If you have any concerns regarding your recovery, we will gladly see you. **You can call 551-999-7050 to schedule an appointment**

How long will I need to use a walker or cane?

While every patient is different, we ask that you continue to use the cane or walker until you feel stable and safe without one. This is highly individualized, and your safety is our top priority. We recommend transitioning to independent walking as soon as you are able to prevent back pain as walking with a cane or walker can affect your normal alignment and result in back pain. It is ok to use a cane after surgery if you plan on walking on uneven surfaces or walking for longer durations than you are accustomed to. This may include walking on beaches, Cobblestone streets or trails (remember we want you to get out there and enjoy life).

When can I drive?

Most patients are physically able to drive around 2 weeks after surgery, once they feel ready and are no longer taking pain medications and are able to walk without any assistive devices. Please practice getting in and out of the car, pumping the gas and brake pedals, and making sure you feel comfortable behind the wheel before you drive.

What about other diagnostic testing (ex MRIs)?

Your joint replacement is compatible with most imaging studies that may be ordered. However, you should still inform the facility and the ordering provider that you have had a joint replacement. Many times, the images around the joint replacement may show artifacts and they may wish to proceed with a different type of testing.

Expectations. What can I do, what can't I do?

Again, this is highly individualized and varies depending on your overall health, other medical conditions, previous activity level and what your expectations are. Most patients



will be able to enjoy their previous activities with more pleasure than before. This includes tennis, walking, golf, gardening, cycling, and in many cases running. These activities are usually achievable at three months after surgery. However, not every patient will experience the same outcome. Patients can resume sexual activities without restrictions when they feel ready. As Dr. Grau likes to describe severe osteoarthritis as a flat tire and a flat rim; once you replace these components you are still left with the same car. Therefore, you need to realize that you need to take care of your whole body and exercise daily, eat healthy, and aim to maintain a healthy weight. Every pound lost is equal to four pounds of weight off your knees. This means that just 10 pounds would feel like 40 pounds has been lifted off your knees!

PAIN MEDICATIONS AND PAIN CONTROL AFTER SURGERY

Opioid Schedule II Narcotic Information Precautions regarding Post- operative Pain.

Opioid medications are a group of painkillers that are derived naturally or synthetically from the opium poppy. The most commonly prescribed opioid medications include oxycodone (Percocet, Roxicet), morphine, OxyContin, methadone, hydrocodone (Vicodin, Norco) and fentanyl. These medications can be manufactured alone or in combination with other medications for example, Percocet is a combination of oxycodone and acetaminophen (Tylenol). These medications do not remove pain, rather they decrease the perception of pain by producing a sense of euphoria or pleasure which is why they have a high potential for addiction. It is estimated that one in four people have the potential to misuse or abuse opioids. Like all medications, opioids carry **side effects** that include sedation, dizziness, nausea, vomiting, constipation, tolerance, physical dependence, addiction, and respiratory depression. Other less common side effects include hyperalgesia (or increased sensitivity to pain), muscle rigidity (inability of muscles to relax normally), decreased libido, and myoclonus (involuntary jerking or twitching of muscles).

While you are going to experience pain after surgery, it is recommended to use narcotic pain medications only when you are experiencing severe pain and for the shortest duration possible. Ultimately the goal is to discontinue the use of narcotic pain medication as soon as possible, as narcotics will not take away all of your pain and discomforts. You may and are encouraged to resume taking over the counter pain relievers



like Ibuprofen (Advil) or naproxen (Aleve) after surgery to assist with pain management. You may take these medications up until the day before surgery. You may also take acetaminophen (Tylenol) with or in between doses of oxycodone (but not with Percocet (oxycodone/acetaminophen)). Please be aware Dr. Grau does not order or recommend the use of narcotics prior to surgery and will not order them. If you are currently taking narcotic pain medication or lesser controlled substances like tramadol (Ultram), Dr. Grau recommends you discontinue their use as it will be harder to manage your pain postoperatively as you are now sensitized to the medications. **If you are under the care of a pain management provider, it is your responsibility to inform them you are to undergo surgery and may require adjustments to your pain management regimen and may require higher doses than our team can safely prescribe.** Exercise, ice, elevation, sleep, decreasing stress, and increasing activity slowly are the best ways to manage your pain.

***** DUE TO THE RAPID INCREASE IN OPIOID ADDICTION THROUGHOUT THE STATE, NEW JERSEY LAW REGARDING NARCOTICS HAS RESULTED IN STRICTER PRESCRIBING GUIDELINES THAT AFFECT DRUG DOSAGES, QUANTITIES AND LIMITED REFILLS.**

What do I do if I need a pain medication refill?

After your surgery you will be given prescriptions for pain medication. Most likely these prescriptions will be for narcotic pain medications, such as Oxycodone (Roxicet), and can be filled at the hospital. Please verify that the pharmacy we have on file is the one



you wish to use so that there is no delay as we take great care in helping you manage your pain. Dr. Grau does have electronic prescribing abilities and may send narcotic prescriptions to pharmacies, however we will still monitor your pain and continue to decrease the quantity or usage of the medications prescribed. Please read the labels of all your medications and take them as ordered. In efforts to curtail the opioid epidemic and addiction to prescription drugs; many insurance companies are requiring prior authorizations and may not approve these medications for pain management after your initial prescription. Insurance companies and the laws in New Jersey are very strict and we must abide by these laws. As time goes by since your surgery, it is recommended to resume taking over the counter pain medications like ibuprofen (Aleve, Advil) which has been shown to be just as effective as morphine with less side effects.

Constipation

Constipation is a real concern after any surgery, and it is more common in those that are taking narcotics for pain after surgery. The best treatment for constipation is prevention by drinking plenty of fluids and limiting narcotic usage to only when necessary. You can take a stool softener such as Colace (docusate sodium) as directed on the packaging. If you do discover that you are experiencing constipation you can use over the counter suppositories like Dulcolax (bisacodyl), or a Fleets Enema as directed on packaging. You can also try Milk of Magnesia or Magnesium Citrate. Please check with your pharmacist regarding contraindications with any medications you are currently taking.

Nausea and vomiting

Nausea and vomiting can and does occur after surgery. Sometimes it is caused by the aftereffects of anesthesia and sometimes it is related to the pain medication. It is always best to take medications with food to avoid an upset stomach. It is best to eat small meals.



What can I do if I have sleep disturbances?

It is extremely common to have sleep difficulties after any form of surgery including joint surgery. We understand that it can be extremely stressful and aggravating. We suggest no electronics late in the evening, take 2 pain pills at night to help you sleep and no caffeine in the evening. We do not recommend sleeping pills as these can be habit forming and can increase your risk of falls. This will pass and it will get better, just hang in there. Sometimes pain medications can have the opposite effect and cause wakefulness. Some patients have success with over-the-counter supplements called Melatonin. You should check with your pharmacist and primary doctor to determine if this is safe to take with your other medications. You may also try over the counter lidocaine 4% patches around the joint to help ease some of the pain you may experience at night

Where do I get Family Medical Leave Act (FMLA) /Disability forms and where can I send them?

NJ state disability forms can be downloaded from the internet at http://lwd.dol.state.nj.us/labor/forms_pdfs/tdi/WDS1.pdf these forms are not completed until you have undergone surgery. FMLA forms can be picked up from your employer as they will have the proper forms they require. We understand how important these forms are to you; however, they may take *7-10 business days* for completion. So, please try to turn them in at your earliest convenience. These forms can be dropped off in the office or faxed to 201-392-3571.

How can I obtain a return to work note?

When you are ready to return to work you can call the office at **551-999-7050** to request a return to work note with the date you would like to return and where you would like the letter sent (faxed to employer or yourself, mailed to a specific address) or if you would



prefer to pick it up in the office. Please specify if you would like to pick it up from the office. Sometimes, employers may request a disclaimer that you are cleared to return to work without restrictions. If this is the case, we would be happy to complete this for you. Returning to work as soon as you are ready is ideal; however, remember that there will be a period of adjustment. You may be sore and tired after returning to work. Adjust your workload and this will gradually improve.

How do I obtain a temporary handicap Parking NJ Placard?

An application for this requires a written prescription. This application can be downloaded online or picked up at your local DMV office. Please specify if you would like to pick up your forms in our offices. Please include this information with your application.

http://www.state.nj.us/mvc/pdf/Vehicles/HDC_Placard_Temp.pdf

Do I need to take antibiotics prior to dental work after joint replacement?

Dr. Grau requires pre-medication one hour before all dental procedures and any other procedures where bacteria could spread, such as colonoscopies, endoscopies, ingrown toenail care, nasal surgeries, or any surgery with infection risks. When in doubt, pre-medicate. Skin biopsies typically do not require antibiotics. Dr. Grau recommends cephalexin (Keflex), 500mg, 4 capsules, one hour before the procedure. You may request a refill by contacting the office. If a dental clearance letter is needed, please have your dentist fax it to 201-392-3571.

Do I have any restrictions for flying; do I need any documents or card stating, I had a joint replacement?

Dr. Grau does not have any restrictions on flying and you are free to travel when you feel ready. We recommend you walk the aisle and stretch your legs to avoid stiffness and blood clot formations. We also do not supply joint cards or documentation as the TSA does not hold these cards as validation and will continue with their routine screening of flight passengers. If you are planning a vacation around surgery, it is best to obtain travel insurance as circumstances may arise that may make traveling difficult.

ADDITIONAL EDUCATIONAL SOURCES

www.smokefree.gov Help with smoking cessation. **1-866-NJSTOPS (657-8677)** www.njquitline.org



Total Joint Replacement Home Exercise Guide from **American Academy of Orthopaedic Surgeons**

www.aaos.org

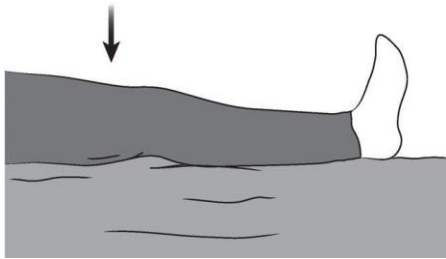
Regular exercise is necessary to restore function, range of motion, strength, and mobility to your knee and hip joints as well as the muscles that support the joints. It is recommended to try to complete these exercises up to 4 times a day doing ten (10) repetitions at a time. You may not be able to perform them all initially, but it is best to try and practice them before surgery to strengthen the muscles and learn the movements. It is also recommended to walk for 30 minutes a day 2 or 3 times a day as tolerated.

Begin your exercise journey prior to surgery. This is the best way to prepare your body for recovery after surgery and will also help ease your discomfort prior to surgery. Your home exercise program should consist of 30 minutes a day for cardiovascular conditioning and lower extremity strengthening to include: ambulation, stair climbing, weight bearing, weight training and ankle pumps, stair climbing, quad sets, hamstring sets, heel slides, straight leg raises, sitting hip flexion, lying hip abduction side-lying and supine, hip adduction, hip extension, hamstring curls, and short arc quadriceps exercises for 10 reps on each side times 3 sets as tolerated. Below are illustrations and instructions on how to perform some of these various exercises before and after surgery.

Early Postoperative Exercises

The following exercises will help increase circulation to your legs and feet, which is important for preventing blood clots. They will also help strengthen your muscles and improve your knee and hip movements.

Start the exercises as soon as you are able. You can begin them in the recovery room shortly after surgery. You may feel uncomfortable at first, but these exercises will help speed up your recovery and diminish your postoperative pain.

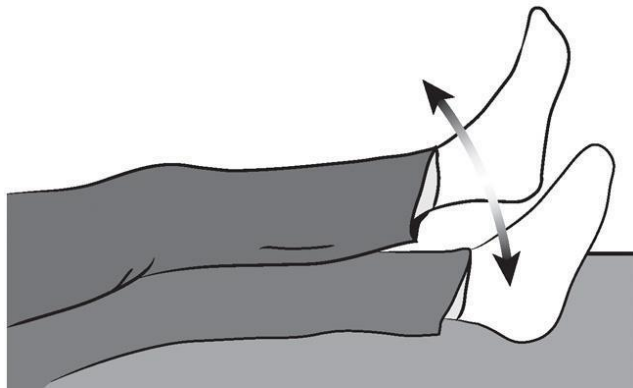


Quadriceps Sets

Tighten your thigh muscles. Try to straighten your knee. Hold for 5 to 10 seconds.

Repeat this exercise approximately 10 times during a two-minute period, rest one minute, and then repeat.

Continue until your thigh feels fatigued.

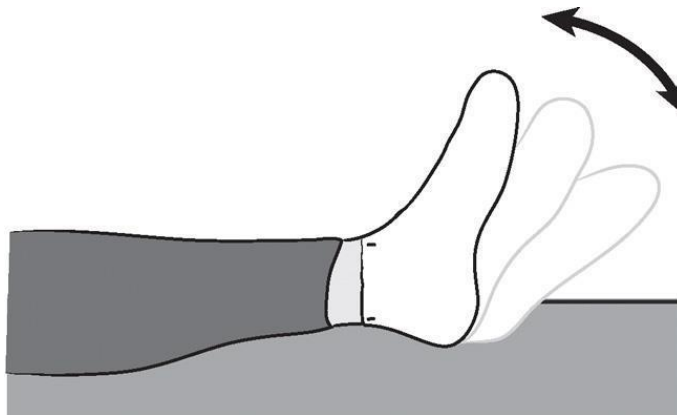


Straight Leg Raises

Tighten your thigh muscle with your knee fully straightened on the bed, as with the quadriceps set above. Lift your leg several inches. Hold for 5 to 10 seconds. Slowly lower.

Repeat until your thigh feels fatigued.

You can also do leg raises while sitting. Tighten your thigh muscle and hold your knee fully straightened with your leg unsupported.



Ankle Pumps

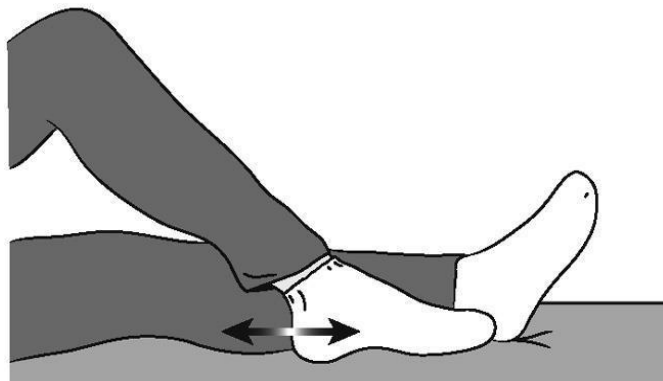
Move your foot up and down rhythmically by contracting your calf and shin muscles. Perform this exercise for 2 to 3 minutes, 2 or 3 times an hour in the recovery room.

Continue this exercise until you are fully recovered, and all ankle and lower-leg swelling has subsided.



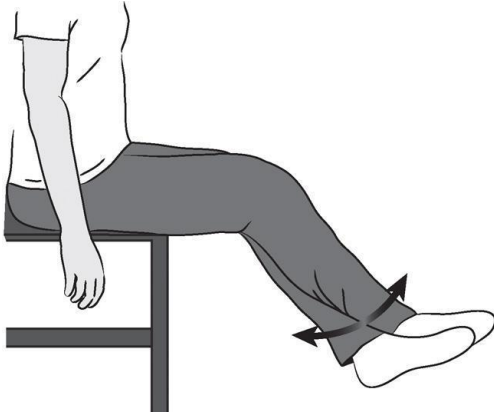
Knee Straightening Exercises

Place a small, rolled towel just above your heel so that your heel is not touching the bed. Tighten your thighs. Try to fully straighten your knee and touch the back of your knee to the bed. Hold fully straightened for 5 to 10 seconds. Repeat until your thigh feels fatigued.



Bed-Supported Knee Bends

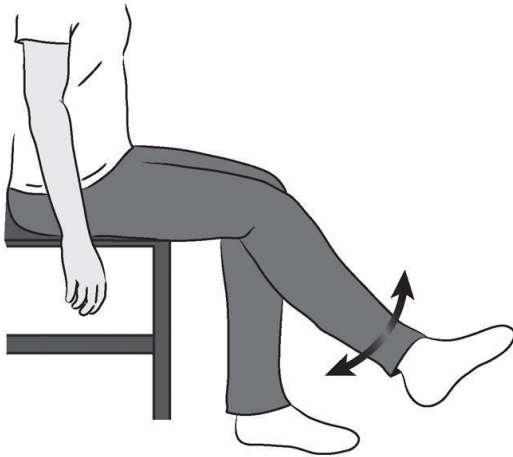
Slide your foot toward your buttocks, bending your knee and keeping your heel on the bed. Hold your knee in a maximally bent position for 5 to 10 seconds and then straighten. Repeat several times until your leg feels fatigued or until you can completely bend your knee.



Sitting Supported Knee Bends

While sitting at your bedside or in a chair with your thigh supported, place your foot behind the heel of your operated knee for support. Slowly bend your knee as far as you can. Hold your knee in this position for 5 to 10 seconds.

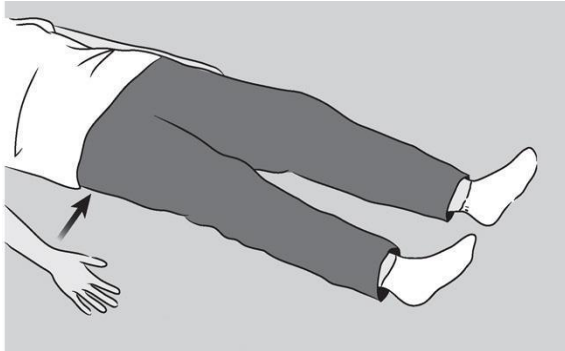
Repeat several times until your leg feels fatigued or until you can completely bend your knee.



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 lightly resting on the floor, slide your upper body forward in the chair to increase your knee bend. Hold for 5 to 10 seconds. Straighten your knee fully.

Repeat several times until your leg feels fatigued or until you can completely bend your knee.



Buttock Contractions

Tighten your buttock muscles and hold to a count of 5.

Repeat 10 times.

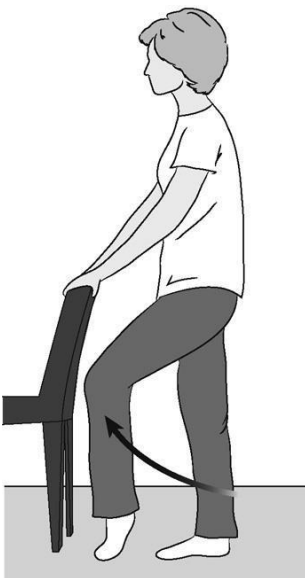
Do 3 or 4 sessions a day.



Abduction Exercise

Slide your leg out to the side as far as you can and then back.

Repeat 10 times.

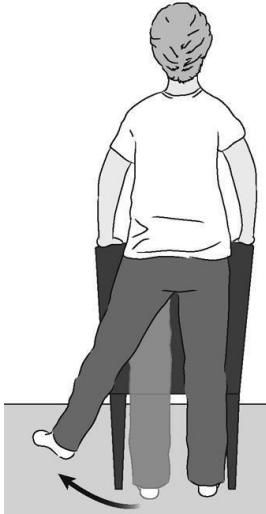


Standing Knee Raises

Lift your operated leg toward your chest. Do not lift your knee higher than your waist. Hold for 2 or 3 counts and put your leg down.

Repeat 10 times.

Do 3 or 4 sessions a day.

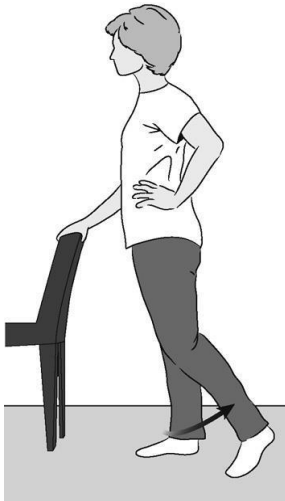


Standing Hip Abduction

Be sure your hip, knee and foot are pointing straight forward. Keep your body straight. With your knee straight, lift your leg out to the side. Slowly lower your leg so your foot is back on the floor.

Repeat 10 times.

Do 3 or 4 sessions a day.



Standing Hip Extensions

Lift your operated leg backward slowly.

Try to keep your back straight. Hold for 2 or 3 counts. Return your foot to the floor.



Walking

Walk with a cane until you have regained your balance skills. In the beginning, walk for 5 or 10 minutes, 3 or 4 times a day. As your strength and endurance improve, you can walk for 20 to 30 minutes, 2 or 3 times a day. Once you have fully recovered, regular walks of 20 to 30 minutes, 3 or 4 times a week, will help maintain your strength.

Early on, walking will help you regain movement in your hip.

Stand comfortably and erect with your weight evenly balanced on your walker or crutches. Advance your walker or crutches a short distance; then reach forward with your operated leg with your knee straightened so the heel of your foot touches the floor first. As you move forward, your knee and ankle will bend, and your entire foot will rest evenly on the floor. As you complete the step, your toe will lift off the floor and your knee and hip will bend so that you can reach forward for your next step. Remember, touch your heel first, then flatten your foot, then lift your toes off the floor.

Walk as rhythmically and smoothly as you can. Don't hurry. Adjust the length of your step and speed as necessary to walk with an even pattern. As your muscle strength and endurance improve, you may spend more time walking. You will gradually put more weight on your leg. You may use a cane in the hand opposite your surgery and, eventually, walk without an aid.

When you can walk and stand for more than 10 minutes and your leg is strong enough so that you are not carrying any weight on your walker or crutches, you can begin using a single crutch or cane. Hold the aid in the hand opposite the side of your surgery.

Stair Climbing and Descending

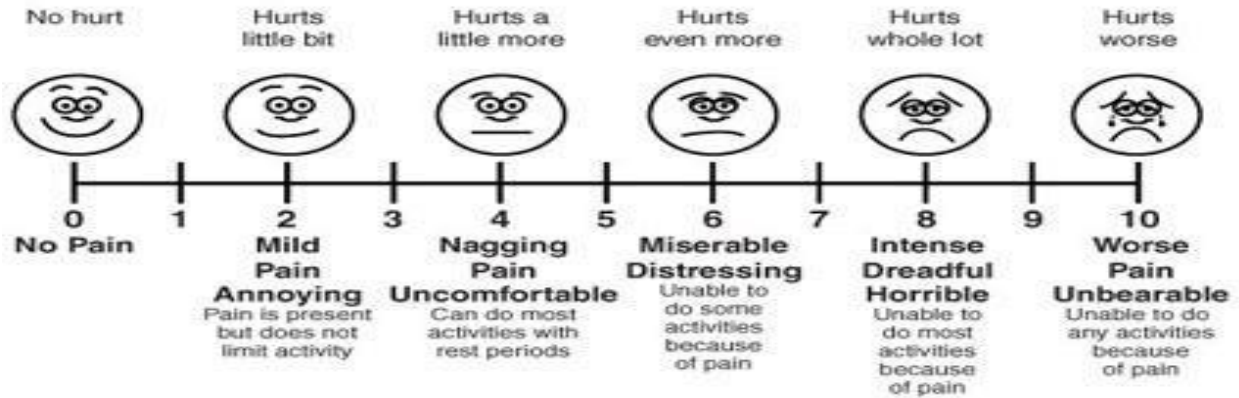
The ability to go up and down stairs requires both strength and flexibility. First, you will need a handrail for support and will be able to go only one step at a time. Always lead up the stairs with your good leg and down the stairs with your operated leg. Remember, "up with the good" and "down with the bad." You may want to have someone help you until you have regained most of your strength and mobility.

Stair climbing is an excellent strengthening and endurance activity. Do not try to climb steps higher than the standard height (7 inches) and always use a handrail for balance. As you become stronger and more mobile, you can begin to climb stairs foot over foot.

Please visit <http://orthoinfo.aaos.org/en/recovery> for advanced exercises using resistance bands.

Resources: American Academy of Orthopaedic Surgeons www.aaos.org

Pictures obtained from clipart and AAOS.org for educational purposes only.



FORMAL PHYSICAL THERAPY AFTER TOTAL JOINT REPLACEMENT

The decision to order physical therapy will be made at your two-week post-operative appointment, where your range of motion will be assessed. In the first two weeks after surgery, focus on the exercises in your education packet and progress from using a walker to a cane, and eventually walking independently. If you need assistance with a cane or walker for safety, that's okay. Your primary goals are to walk every hour for 10 minutes while awake, focusing on knee movements, and perform standing-to-chair squats. Additionally, sit in a normal-height chair, use your non-surgical leg to cross over the surgical leg, and push the operative leg back towards the chair. Refer to your education packet for illustrations.

Countdown to Surgery Pre and Post-Operative Check List

Surgery DATE ____/____/____ Time ____ PATs ____/____/____ Time ____ First PO app.
 ____/____/____ Time ____

Awaiting Surgery	<ul style="list-style-type: none"> € Plan ahead and make arrangements with family and friends about your planned surgery. € Discuss with your employer that you will need time off to recover and how much time you have available € Optimize your own health through diet, smoking cessation, weight loss, and exercise. € Quit SMOKING MINIMUM OF 2 MONTHS PRIOR TO SURGERY Quit Date ____/____/____
One Month Before Surgery	<ul style="list-style-type: none"> € Schedule any tests or appointments required by PATs and Dr. Orozco. (CT Scan, cardiology consult, Weight check, vascular) ____/____/____ Time ____ ____/____/____ Time ____ € Arrange transportation to and from the hospital and physical therapy should you need it. € Confirm who will be there to offer assistance should you need it. € Maintain good health. Eat a healthy diet, increase protein intake, hydration, take multivitamins, zinc, and Vitamin C supplements. Exercise as tolerated. € SCHEDULE WEIGHT CHECK IF BMI IS OVER 40 BMI. ____/____/____
2 Weeks Before Surgery	<ul style="list-style-type: none"> € Prepare your home (go shopping, have enough food and water for at least two weeks). € Confirm all tests and appointments are completed and scheduled.
2 Days Before Surgery	<ul style="list-style-type: none"> € Pack a small hospital bag with personal toiletries, sleep attire and walking shoes. No valuables. € Read your educational information again as a refresher and have emergency numbers available € START Chlorhexidine solution (Hibiclens) wash as instructed
Night Of Surgery	<ul style="list-style-type: none"> € Drink a bottle of Gatorade or similar the night before surgery. Sugar free option for diabetics. € Have everything ready packed and home ready for your return € You will be called between 3p-6p when you are to report to the hospital € Take medications directed by Preadmission Testing Providers the morning of surgery.

