

KNEE REPLACEMENT HANDBOOK

YOUR GUIDE TO HEALING ENHANCED RECOVERY AFTER SURGERY

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Dear Surgical Candidate,

This handbook is your reference to defining the preparations, expectations, and understanding needed for a successful and rapid recovery. This information was designed with your utmost health, safety, and well-being in mind.

I want your experience to be one that speeds your recovery, optimizes your outcomes, and returns you to your previous lifestyle.

To prevent your surgery from being postponed you will need to complete the following items.

1. Read your Joint Replacement Handbook carefully.
2. Determine who your care partner will be.
3. Determine where you will have physical therapy after surgery.
4. Complete your planning worksheet located in your handbook.
5. Schedule an appointment with your primary care provider or medical doctor for medical clearance.
6. Take the medical clearance form provided to your primary care doctor for clearance. If directed, also schedule an appointment with any specialty providers, which may include cardiology, pulmonology, dentist. These appointments must be completed prior to your surgery.

I appreciate that you have entrusted myself and the team with your health and well-being. It is the greatest compliment that can be offered.

Dr. Harb

MY PLAN FOR TOTAL JOINT REPLACEMENT SURGERY

SURGERY DATE: _____

SURGEON NAME: Matthew Harb, MD

NAME: _____

DATE OF BIRTH: _____

Who will be your care partner(s) during recovery at home and transportation to and from the surgery center / hospital?

Outpatient physical therapy is scheduled at what location?

You may go directly to outpatient physical therapy within a day or two of arriving home from surgery. Identify what outpatient physical therapy office you will use in advance. You are encouraged to use a physical therapy location that is reputable, has a favorable proximity to your location and that you feel comfortable using.

If you plan on using a home health physical therapy we anticipate that in about 2 weeks time you will transition to an outpatient physical therapy office.

Please check that your outpatient physical therapy office is in network and determine if you will have an out of pocket expense and how much.

Preoperative clearance and optimization must be completed prior to your pre-surgery office visit in order to avoid surgery from being postponed.

My medical clearance visit is scheduled with my primary care doctor or medical specialist on the following dates:

Names of primary care / medical doctors:

MEDICAL CLEARANCE LETTER

PATIENT: _____ DOB: _____

DATE OF VISIT: _____

To whom it may concern,

This patient is planning on having joint replacement surgery with Dr. Matthew Harb. The following tests are recommended for pre-operative screening. We would ask for you to complete the following tests:

- CBC
- PT/INR
- Hgb A1C
- BMP
- 12-lead EKG
- History and Physical Exam
- **Please state clearly in the note that the patient is medically optimized and clear for surgery**

In addition to the above tests, please complete the follow requests if applicable:

- Smoking cessation plan
- Chest x-ray
- Anticoagulation recommendations prior to surgery for patients on chronic anticoagulation therapy including the need for bridge therapy
- Dental consult for poor dentition / abscess
- Urinalysis with reflex culture if patient is symptomatic
- Any other tests for clearance you deem necessary

For routine anti-coagulation prophylaxis patients will receive Aspirin 81mg BID for a total of 6 weeks prescribed from our office. For patients on long term anticoagulation therapy it would be preferred for the prescribing physician to continue to monitor and regulate their long term anticoagulation regimen.

Thank you for your collaboration in the care of this patient Your assistance in this matter is greatly appreciated. If you have any questions please contact my office at **202-835-2222**. The pre-operative clearance information, note, including the H&P, results of all blood work, EKG, and chest x-ray results can be faxed to **202-969-1798**.

Sincerely,
Matthew Harb, MD

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PART I: BEFORE SURGERY

What to expect with Knee Replacement Surgery

Dr. Harb performs minimally invasive, muscle sparing knee replacement surgery. This technique allows Dr. Harb to replace the knee without cutting any muscles or ligaments. The incision for knee replacement surgery is approximately 3-5 inches in length. During the exposure the ends of the bone are carefully exposed. The arthritic ends of the bones are removed and the femur (thigh bone) and tibia (leg bone) are prepared for component.

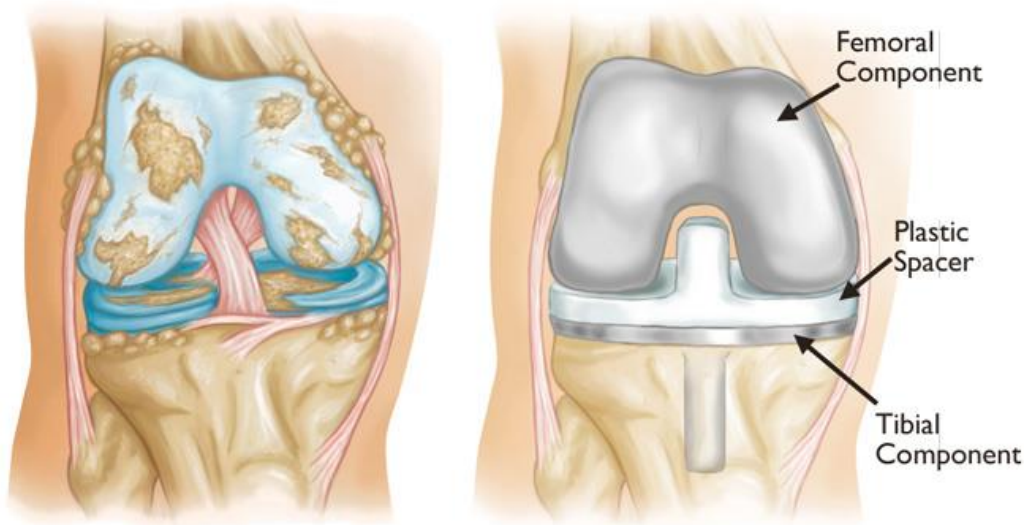
Depending on bone quality you may receive an implant that is fixed to bone with bone cement or a cementless knee replacement. The bones are capped with a cobalt chromium femur and tibia and a polyethylene (high grade plastic) insert is placed between into the tibial tray. The articulation of knee is between the polyethylene and the cobalt chromium femur.

The knee cap will be inspected for signs of damage and arthritis. If there is minimal arthritis on the knee cap and the patella tracks properly Dr. Harb will leave it unsurfaced. This leaves more of your native bone, causes less pain, avoids the risk of fracture of the knee cap. If the knee cap shows significant damage Dr. Harb will replace it with a polyethylene patella button.

Once all the prosthesis are in place, Dr. Harb tests the knee for range of motion and stability. After stability is confirmed the knee is washed with antibiotics to prevent infection and your knee is closed. On average the length of surgery from start to finish is about sixty to ninety minutes.

After surgery you will be sent to the recovery room and you will begin to walk with a walker for protection. You will then be seen by medical staff and if you are safe for discharge you will be released from the surgery center or hospital.

Introduction to Knee Replacement Surgery



Knee replacement surgery is a procedure in which the damaged cartilage and bone is removed from the surface of your knee joint and replaced with artificial components that are made of metal and polyethylene.

- **Femoral Component** – placed on the end of the thigh bone. This can be fixed into place with bone cement or with press-fit technique which allows your bone to grow into the implant
- **Tibial Component** – placed on the top of the tibia bone after the bone is prepared
- **Plastic Insert** – this is made of high grade polyethylene which is very resistant to wear. The articulation of the knee is between the plastics a cobalt chromium femur.
- **Patella (knee cap)** – during surgery the patella will be inspected. If the cartilage on the patella is in good condition then the patella will not be resurfaced (replaced). If the patella is in poor condition or tracking improperly then it will be replaced with a polyethylene patella button.

Frequently Asked Questions

What is arthritis?

- Arthritis is a complex family of musculoskeletal disorders that can affect people of all ages, race, and genders. It takes many forms, but there are three common types of arthritis.
 - o **Osteoarthritis** – the most common type of arthritis. It is a progressive degenerative joint disease that involves the breakdown of joint cartilage.
 - o **Rheumatoid Arthritis** – a systemic form of arthritis, which is characterized by the inflammation of membranes lining the joint. This causes pain, stiffness, swelling, and may cause severe joint damage.
 - o **Juvenile Arthritis** – autoimmune / inflammatory arthritis that can develop in children age 16 and under.

What is joint replacement?

- Joint replacement involves removing the worn and damaged portions of the knee or hip and replacing them with an artificial joint. This happens because the cartilage of the joint wears out. Joint implants are typically made of titanium, cobalt chromium, ceramic, and plastic. The goal of the joint replacement is to decrease pain and improve function.

Will I need a blood transfusion?

- Modern joint replacement almost never requires a blood transfusion. I use a special medication called tranexamic acid which minimizes blood loss during the operation along with electrocautery.

How long is surgery?

- The length of surgery from incision to closure is usually around 60 to 90 minutes. There is extra time associated with getting you into the room, positioning you on the table, as well as waking you up and getting you to the recovery unit. In total you are looking at about 2 hours from the time you enter the operating room.

Will I need pain medications after discharge?

- Yes, you will need pain medications after discharge. Our goal is to minimize narcotic pain medications as much as possible while keeping your pain under control and keeping you comfortable. Expect to take anti-inflammatory medications and Tylenol for several weeks after discharge. Opioid medications have negative effects such as constipation, respiratory depression, as well as cause a decrease to tolerance to pain. They can be used for breakthrough pain in the post-operative period. You may need to take extra anti-inflammatory medications and Tylenol before sleeping at night and before therapy sessions. Ice is your best friend after surgery to help decrease swelling and inflammation.

How is the knee replaced?

- A small minimally invasive incision is made over the front of the knee. The incision is usually 3-5 inches in length. The damaged bone is cleared away and the surfaces are prepared and shaped to hold the new implants. The implants are aligned and secured to the thigh bone (femur) and leg bone (tibia) for immediate weight bearing.

What are the risks of surgery?

- There are potential complications associated with any surgery. These risks are extremely low, less than 0.5%, but it is important that you are aware of them. All precautions are taken to prevent these risks from occurring.
- Infection
 - o With all surgery there is a risk of infection. This risk goes up with more medical comorbidities, smoking, obesity, diabetes, and autoimmune disease. Antibiotics are given before and after surgery. The surgical site is cleaned multiple times with antimicrobials prior to incision being made which will further prevent infection.
- Blood Clots
 - o To reduce risks of blood clots after surgery I will prescribe Aspirin 81mg twice a day to be taken for a total of 6 weeks. Early ambulation, foot pumps, and compression stockings will help circulate blood and prevent blood clots. Moving around will prevent blood clots.
- Numbness around the incision
 - o It is not uncommon to have numbness around the incision or over the front or outside of knee after surgery. There are small nerves in your skin that are cut to get into the knee. Over time these superficial nerves will heal and by 2-3 weeks you may feel a tingling sensation around that area. This sensation is the superficial nerves healing. Most patient will regain all of the skin sensation. If numbness persists it will fade and improve with time. To many patients this is not noticeable.

Enhanced Recovery After Surgery

What is enhanced recovery?

- Enhanced recovery is a modern technique of improving the experience of patients after joint replacement surgery. Enhanced recovery techniques allow patients to recover sooner so life can return to normal as quickly as possible. The ERAS protocol focuses on making sure patients are actively involved in their recovery.

There are 4 main stages to enhanced recovery after surgery:

1. **Planning and preparing before surgery** – giving you plenty of information so you feel ready for surgery
2. **Reducing the physical stress of the operation** – allowing you to drink clear liquids up to 2 hours before surgery to keep you hydrated and energized
3. **A pain relief plan** – giving you the right medications at the right time to keep you comfortable during and after surgery
4. **Early moving around after surgery** – early ambulation is key to a quick recovery so the goal is to get you up and walking as soon as possible after your surgery

It is important that you know what to expect before, during, and after your surgery. We will work closely with you to plan your care and treatment. You are the most important part of the care team.

It is important for you to participate in your recovery and follow our advice. By working together we can expedite your recovery and get you back to feeling normal sooner.

Preparing for Surgery

During your visit we will review your symptoms and x-rays and determine if you need surgery. You will work with our entire team to prepare for surgery.

Care Partner

- You will need to select a care partner to help you with your recovery. Your care partners are the same people you identify to be your help once you are discharged. After you are discharged you will require some help from friends and family for 24 hours for at least 3 to 5 days. You should arrange for support at home prior to being discharged. It is important to have help with meals, taking medications, etc.

Medical Clearance

- It is important to make sure all patients are healthy and ready for joint replacement surgery. A letter is provided in this handout to take to your medical doctor for clearance.
- This visit must be scheduled at least 4-6 weeks prior to surgery.
- If you have cardiac, pulmonary, or blood problems you may need to receive clearance from your specialist prior to surgery.

Dental Clearance

- If you have a tooth infection it could have a negative effect on your new joint.
- You may be asked to receive dental clearance prior to surgery if there are any dental problems.
- After joint replacement surgery you will be required to take antibiotics prior to dental cleanings and procedures for at least 2 years.
- You should not have any dental work 3 weeks before your surgery.
- It is recommended against having dental work done 6 months after your surgery.

Outpatient Surgery

- Outpatient surgery means you will be discharged the same day of your operation.
- If you are having outpatient surgery you should arrange for a family member to accompany you to the surgery center.
- You will be discharged from the hospital or surgery center as discussed previously so plan to have transportation home or to the hotel the day of your planned surgery.

Hospital Center Surgery

- If you are having surgery in the hospital you can also leave the same day of your operation. On average most patients will spend one night in the hospital to ensure their pain is controlled, they can use the bathroom and they do not have nausea or vomiting.

Preparing your home

- Adjust your work and social schedule to allow time for your anticipated recovery.

- Pick up throw rugs and make sure long cords are out of the way.
- If you have pets it may be helpful to arrange for someone to assist with care for them for a few days after you return home.
- Clean and put away laundry.
- Put things you use the most waist high so you do not have to bend down for them.
- Buy the foods you like the most since shopping may be hard when you first get home.
- Prepare meals ahead of time that can be frozen and reheated.
- Cut the grass, tend to the garden, complete house work.
- Put fresh sheets on the bed.
- An armchair with a firm cushion may be comfortable for sitting.
- Waterbeds are not recommended after surgery, a flat, more firm mattress will provide the most comfort.
- Have an ample supply of your prescription medications.
- Put lights in bathrooms and dark areas.
- You can apply non-skid adhesive strips to tubs or shower to help prevent falls.
- Have good sturdy foot wear post op to avoid falls.

Driving

- You will not be allowed to drive for 2 weeks after surgery.
- You must have full control of your leg and be off narcotic pain medication to return to driving.

Hydration

- Ensure you are hydrated before surgery.
- It is recommended to drink 8 glasses of water a day.
- You are allowed to drink clear liquids up to 2 hours before surgery.
- You'll need to drink a 20 ounce Gatorade and finish drinking it before you arrive at the hospital or surgery center. A good time for drinking it is in route to the surgical facility. If you are diabetic, you should drink 20 ounces of water instead of a Gatorade.

Smoking

- If you smoke you should stop smoking at least 6 weeks before your surgery.
- Smoking decreases the blood supply to your body, increases the time it takes your body to heal and increases your risk for infection after surgery.
- You may be tested for nicotine and surgery may be postponed or canceled.
- It's never too late to quit smoking.
- Short term benefits of stopping smoking include: longer lifespan, decreased complications from surgery, faster recovery from surgery, more energy, and improved quality of life.

Bowel Prep Before Surgery

- In order to prepare your stomach for surgery we ask that you take 1 dose (1 heaping tablespoon) of Miralax daily on each of the 3 days before you come in for surgery. This is best taken in the late afternoon or early evening. This will help regulate your bowel before you begin taking pain medications which cause constipation. Patients who are prone to loose stools or diarrhea can decrease the dose of Miralax.

Medications to Stop Prior to Surgery

14 DAYS PRIOR

Stop all vitamin, herb, and joint supplements as well as birth control pills. Examples include:

<i>CoQ10</i>	<i>Garlic</i>	<i>Fish Oil</i>	<i>Omega 3,6,9</i>
<i>Chondroitin</i>	<i>Ginkgo</i>	<i>Kava</i>	<i>Juice Plus</i>
<i>Echinacea</i>	<i>Ginseng</i>	<i>MSM</i>	<i>St. John's Wort</i>
<i>Emcy</i>	<i>Glucosamine</i>	<i>Multivitamins</i>	<i>Saw palmetto</i>
<i>Ephedra</i>	<i>Flaxseed Oil</i>	<i>Ogen</i>	<i>Valeria</i>

7 DAYS PRIOR

Stop all aspirin containing products such as:

<i>Alka-Seltzer</i>	<i>Bufferin</i>	<i>Ecotrin</i>	<i>Norgesic</i>
<i>Aspirin</i>	<i>Disalsid (Salsalate)</i>	<i>Excedrin</i>	<i>Pepto-Bismol</i>
<i>BC Powder</i>	<i>Dolobid (Diflunisal)</i>	<i>Goody's Powder</i>	<i>Percodan</i>

***If you have heart stents and take aspirin, check with your cardiologist about stopping prior to surgery.**

Stop all non-steroidal anti-inflammatory (NSAID) medications such as:

<i>Advil (ibuprofen)</i>	<i>Celebrex (celecoxib)</i>	<i>Mediprin (ibuprofen)</i>	<i>Oruvail (ketoprofen)</i>
<i>Aleve (naproxen)</i>	<i>Clinoril (sulindac)</i>	<i>Mobic (meloxicam)</i>	<i>Relafen (nabumetone)</i>
<i>Anaprox (naproxen)</i>	<i>Daypro (oxaprozin)</i>	<i>Naprelene(naproxen)</i>	<i>Tolectin (tolmetin)</i>
<i>Ansaid (flubiprofen)</i>	<i>Feldene (piroxicam)</i>	<i>Naprosyn (naproxen)</i>	<i>Voltaren (diclofenac)</i>
<i>Arthrotec (volteran)</i>	<i>Indocin (indomethacin)</i>	<i>Nuprin (ibuprofen)</i>	
<i>Cataflam (diclofenac)</i>	<i>Meclomen</i> <i>(meclofenamate)</i>	<i>Orudis (ketoprofen)</i>	

Pre-Surgery Exercises

These exercises will help you build your upper and lower body strength. This can make using a walker easier. You can do these exercises using weights to make them more efficient. The weights do not need to be heavy. A can of soup or one or two pound weights will provide you with the added benefits. Building strength before surgery will improve your outcome after surgery.

After Knee Replacement surgery the GOAL is regaining range of motion. It is important to regain flexibility because after about 4 months' time frame it is unlikely to regain any more motion. Flexion and Extension stretch exercises are BY FAR the most important after knee replacement. After 6 weeks you can focus on strength and endurance but only after range of motion has been restored.

Bicep Curls

- Sit up straight in a firm chair or stand. Make sure to keep your elbow close to your body and your wrists straight. Bend your arm at the elbow with your hand moving towards your shoulder. Lower your hand in a slow controlled manner. Start with repeating five times with each arm and work up if you are able.



Seated Press-Up

- Sit in a sturdy chair with arm rests. Place your palms flat on the arm rests of the chair and press down to lift your buttocks from the chair. Hold for three to five counts. Bend your elbows and slowly sit back onto the chair seat. Start with repeating five times and work up if you are able.



Ankle Pumps

- Slowly push your foot up and down. Do this several times, as often as every 5-10 minutes. This helps circulate blood flow and prevents blood clots. Repeat 20 times.



Heel Slides

- Lie on back. Slide your heel toward your buttocks, bending your knee and keeping your heel on the bed. Do not let your knee roll inward. Repeat 50 times. Can do 3-4 times a day.



Straight Leg Raises

- Lie on back, unaffected knee bent, and foot flat. Lift opposite leg up 12 inches. Keep knee straight and toes pointed up. Relax. Repeat 20 times.



Quadricep Sets

- Lie on back, press surgical knee into mat, tightening muscles on front of thigh. Do NOT hold breath. Repeat 20 times



Short Arc Quad

- Lie on back, place towel roll under thigh. Lift foot, straightening knee. Do not raise thigh off roll. Repeat 20 times.



Seated Knee Flexion

- Sitting on straight-back chair with affected leg outstretched, gently slide the affected leg underneath chair. Keep hips on chair. Try to stretch and bend knee as far back as possible. Plant foot and move bottom forward on chair. You can place your non-surgical leg onto of your operative side leg to increase knee flexion. Repeat 20 times.



Extension Stretch

- Prop foot of operated leg up on chair. Place towel roll under ankle and ice pack over knee. Put 5-10 lbs. of weight on top of knee (a 5-10 lb. bag of rice works well). Do for 20 minutes.



Pre-Surgery Checklist

- What you should bring to the surgery center / hospital
 - o Your handbook
 - o A list of your current medications
 - o A book or something to do while you wait
 - o A change of comfortable clothes for discharge
 - o Your walker (we will give you a prescription for a walker before your surgery)
 - o Photo ID
 - o A bag for dentures, contacts or glasses case
- What you should **NOT** bring to the surgery center / hospital
 - o Large sums of money
 - o Valuables such as jewelry or non-medical equipment
 - o Remove all rings / bracelets / earrings prior to your visit
- Any belongings you bring will go with your care partner or be locked away

One Week Prior to Surgery

- Schedule your pre-operative office visit one week before surgery
- Receive prescriptions – Walker, Extra Strength Tylenol, Celebrex, Oxycodone, Keflex, Aspirin, Prednisone, Zofran, Colace, Tramadol
- Obtain over-the-counter Miralax, one bottle of Hibiclens, and your 20 ounce Gatorade
- Stop all anticoagulants, anti-inflammatories, aspirin, fish oil, vitamin E, and supplements.
- Continue pre-surgical exercises to build strength

Days Before Surgery

FOOD AND DRINK THE NIGHT BEFORE SURGERY

- Stop eating solid foods after midnight before your surgery.
- Be sure to have a 20oz Gatorade ready and available for the morning of surgery. If you are diabetic drink water instead. Drink this 2-3 hours before your operation.
- A good time is right before you get in the care to drive to the hospital / surgery center.

INSTRUCTIONS FOR HIBICLENS

- Hibiclens is a preoperative scrub to use every day for 3 days prior to surgery as it helps to prevent an infection after surgery. It can be found at any pharmacy.
- You should scrub with Hibiclens the night before surgery and morning of surgery.
- This will clean your skin and remove bacteria.
- Focus on the area around the knee as this is where the incision will be made.
- Hibiclens is as gentle as water, but if you feel any burning or irritation of the skin then you should rinse the area right away and do not put any more body wash on it.

- **Showering with Hibiclens**
 - o Thoroughly rinse your body with water from the neck down.
 - o Apply Hibiclens directly on your skin or on a clean, wet washcloth and wash gently. Move away from the shower stream when applying Hibiclens to avoid rinsing off too soon.
 - o Rinse thoroughly with warm water.
 - o Wear newly washed pajamas and sleep on newly washed bed linens the night before surgery.

- **Bathing with Hibiclens**
 - o Wet your body with clean water in the tub.
 - o Stand or sit in a bath chair and squirt Hibiclens onto a clean wet washcloth and wash gently. Since your feet and lower legs are under the bathwater you will need to wash them after the rest of your body. Reapply body wash as needed. Wait 2 minutes before thoroughly rinsing the area with clean water.
 - o Do this washing, waiting, and rinsing for each foot and lower leg separately.
 - o Let the area dry completely before getting into bed or getting dressed.
 - o Wear newly washed pajamas and sleep on newly washed bed linens the night before surgery.

- **IMPORTANT: Keep out of eyes, ears, and mouth. Do NOT use any deodorant, lotion, powder or perfume after washing on the day of surgery. Do not shave near your surgical site. This will help prevent infection.**

Day Of Surgery

Before You Leave Home

- Remove all nail polish, jewelry, rings, makeup, piercings.
- Wear comfortable, loose clothing.
- Take heart and blood pressure medications with a sip of water.
- Do not take diabetes or insulin medication unless instructed to.
- Do not drink other liquids or surgery will be cancelled.
- Do not eat any solid foods or drink liquids besides water and Gatorade.
- Drink your 20oz Gatorade before you leave or on the way to the hospital.
 - o If you are diabetic drink 20oz water instead.
- Remember to wash with the chlorhexidine soap (Hibiclens) the morning of surgery.

Surgery Center/Hospital Arrival

- Arrive at the surgery center or hospital at least two hours before your procedure.
- Your family member / care provider must be present.
- Finish your Gatorade as you arrive.
- Check into the surgery center or hospital.

Surgery

- A nurse will identify you and get you an ID band.
- You will be checked in by a nurse and asked about your pain level.
- You will be given an IV and weighed by the nurse.
- You will be given several medications that will help keep you comfortable during surgery.
- You will meet the surgery team and your consent for surgery will be reviewed.
- Your surgical site will be marked.
- You will meet with the anesthesia team who will review your medical history and will discuss your anesthesia plan.
- It is recommended to have spinal anesthesia for total joint replacement as patients have less pain, quicker recovery, less blood loss, and better outcomes with spinal anesthesia.

Operating Room

- Once you are in the OR we will confirm your identity and the location of your surgery.
- You will be hooked up to monitors.
- Your anesthesiologist may perform your spinal block in the holding area or operating room.
- You will be given antibiotics through your IV.
- The surgical site will be prepped with antimicrobial wash and sterilized and drapes will be placed to prevent contamination to the surgical site.
- A final time out to confirm identity and surgical site will be performed before surgery begins.
- Dr. Harb and the surgical team will begin your operation.

PART II: AFTER SURGERY / DISCHARGE INSTRUCTIONS

What to expect After Surgery

It is normal to experience pain and swelling after surgery. At the end of the operation I use a long acting anesthesia to inject the soft tissues around the joint. This helps with pain control, but will begin to wear off. On day 2-3 after surgery it is not uncommon to feel more discomfort. The goal after surgery is to stay ahead of the pain curve and control your pain and swelling with medication and ice therapy.

Medications After Surgery

- **Tylenol Extra Strength** 1000mg every 8 hours by mouth
 - o This is over the counter and is your first line medication for pain control. This should be taken around the clock every 8 hours for at least the first 2 weeks to help with pain control. Do not exceed more than 3000mg of Tylenol in a 24 hour period.
- **Celebrex** 100mg twice a day by mouth
 - o This should be taken as well in combination with Tylenol for pain control for 4 weeks. Celebrex is a prescribed strong anti-inflammatory that will help with pain.
- **Tramadol** 50-100mg every 6 hours by mouth as needed for pain
 - o This is your second line pain medication and should be taken as needed.
- **Oxycodone** 5mg every 4-6 hours by mouth as needed for pain
 - o This is prescribed for breakthrough severe pain. You can take 1 tablet for moderate pain or 2 tablets for severe pain every 6 hours as needed. Do not take more than 8 tablets in a 24hour period.
- **Keflex** 500mg four times a day for five days (outpatient surgery only)
 - o This is for infection prevention and should be taken starting when you get home from surgery.
- **Aspirin** 81mg twice daily by mouth for 6 weeks
 - o This is to prevent blood clots. Start taking aspirin in the evening after surgery.
- **Prednisone** 5mg daily by mouth for 5 days
 - o This is to decrease inflammation and pain.
- **Zofran** 4mg by mouth every 6-8 hours
 - o This is to prevent nausea and vomiting.
- **Senna** 8.6mg OR **Colace** 100mg twice daily by mouth daily as needed for constipation
 - o Senna and Colace are both an over the counter medication and either medication will work to help prevent constipation.
- ***Any allergy or intolerance to one of the above medications may alter your prescription profile slightly.**

Additional Optional Medication: Vitron C is an over the counter iron and vitamin tablet that can be taken by mouth twice a day. This helps to reconstitute your blood volume after surgery.

Incision Care

- Your surgical incision has been closed with absorbable sutures underneath your skin.
- No suture removal is necessary. Dermabond tape is placed over your incision that will fall off on its own.
- You have an outer surgical dressing that should stay on for 7 days.
- If the outer dressing becomes soiled or moist you can change it with a fresh 4x4 gauze and tape that can be purchased at any pharmacy.
- It is important you wash your hands before and after your incision and dressing care.
- You may begin showering 1 week from the day of surgery. You can clean yourself with a sponge and soap starting at day 4, but ENSURE you keep your dressing and incision site dry.
- Do not take tub baths, get in hot tubs, or swimming pools, or soak your incision.
- Do not put ointments or gels on your surgical incision.
- After 7 days you can gently clean the incision with unscented soap and warm water. Gently pat dry and apply a new 4x4 gauze or adherent as needed.
- If you have staples in place they will be removed 2 weeks after surgery. Otherwise there is nothing to be removed and your sutures are dissolvable.

Reducing Swelling

ICE THERAPY

- It is very important to use ice over your replaced joint. This will help decrease inflammation, swelling, and pain.
- Never place ice directly on your skin.
- You can use a washcloth to prevent moisture from reaching your skin.
- An ice machine or cooling cuff can be purchased. It is a great way to keep your knee iced and decreases swelling.
- It is recommended to ice your knee 3-4 times a day for 15-20 minutes each time.
- You are encouraged to use ice therapy for the first 2 weeks after surgery.

ELEVATION OF YOUR EXTREMITY

- Elevation of the operated side of your body / limb will help reduce swelling.
- The goal is to elevate the extremity above the level of the heart.
- This can be done by placing the leg on a chair or stool or if laying down you can place pillows behind the ankle.
- Avoid placing pillows behind the knee as this can cause the knee to get stiff and prevent you from obtaining full extension.

COMPRESSION STOCKINGS

- Compression stockings will help reduce swelling as well as reduce the risk of blood clots. They can be removed for showers or changing clothes or to give the skin a break for a few hours.
- It is recommended to wear compression stockings for 4 weeks after surgery to decrease swelling in the limb and reduce the risk of blood clots.

Activity

- You are allowed to put all of your weight on your operative leg.
- Be mindful of your pain. If something hurts too much you should stop.
- A walker should be used initially and then you can transition down to a cane.
- From a cane you can transition down to no walking aids.
- The most important goal after surgery is to prevent any falls in the post-operative period.
- Everyone recovers and heals differently and at different speeds.
- There are no restrictions on how much you can walk.
- You can use a pillow between your legs at night to sleep more comfortably, as needed.
- You should receive physical therapy either at home or at a physical therapy facility.
- The goal of the first 6 weeks after surgery is regaining motion, restoring flexibility, and preventing the joint from getting stiff.
- It takes time to improve from joint replacement and most patients will not reach full improvement until 1 year after surgery.
- Try to avoid high impact activities until recovered. The best activities are low impact which include stationary bike, water exercises, aerobics, and elliptical.

Antibiotics After Surgery

- If you had outpatient surgery you will have routine antibiotics for 5 days. You will take Keflex 500mg four times a day for 5 days to prevent infection.
- For inpatient surgery you will receive 24 hours of IV antibiotics in the hospital.

Antibiotics and Dental Work / Other Procedures

- A potential cause of infection after joint replacement is from bacteria that enters the blood stream from dental procedures or urinary tract / skin infections.
- Avoid routine dental work 3 weeks before and 6 months after your operation.
- Antibiotics should be used before all dental work for 2 years after surgery.
 - o Recommended dosage is Amoxicillin 2G one hour prior to the procedure.
- Antibiotics should also be used before all invasive surgical procedures such as genitourinary, gastrointestinal, oral procedures, sigmoidoscopy/colonoscopy, bronchoscopy, liver biopsy, prostate, bladder, or kidney surgery, vaginal exams and GYN surgery, or barium enema.
- After 2 years you may stop taking antibiotics before procedures.

Avoiding Falls

A fall during the first few weeks after surgery can damage your new knee and may result in a need for more surgery. Stairs are a particular hazard until your joint is strong and mobile. You should use a cane, crutches, a walker, or handrails and/or have someone help you until you improve your balance, flexibility, and strength.

Resuming Sexual Activity

Sexual activity is not recommended immediately after your surgery because of pain and swelling. You can resume sexual activity 6 weeks after surgery.

Driving

You can return to driving 2 weeks after your operation if you are no longer on pain medication and have full control of your operative extremity.

Metal Detectors / Airports

It is uncommon, but possible for your new implant to activate metal detectors required for security in airports and some buildings. Tell the security agent about your knee replacement if the alarm is activated. At your follow up visit we can provide you with a joint replacement card, as needed.

Numbness Around the Skin Incision

You may feel some numbness in the skin around your incision. You also may feel some stiffness, particularly with excessive bending. These differences often diminish with time, and most patients find these are minor compared with the pain and limited function they experienced prior to surgery.

Reducing Risk of Blood Clots

- You will take Aspirin 81mg twice a day for a 6 week time period.
- It is important to mobilize and walk when possible which will prevent blood clots.
- Heel pump exercises will also help to circulate a blood and prevent clots.
- Compression stockings are effective at keeping swelling down and venous blood circulating.
- Low impact exercise is also great for recovery and helps to move blood and prevent clots.

Digestive Health (Bowel Regimen)

Constipation is common after surgery. This is due to not being as mobile, dehydration, anesthesia and pain medications.

- It is recommended to take Colace 100mg or Senna 8.6mg 1 or 2 times a day to help with constipation. These medications work best in a hydrated patient. It is recommended to drink water at home, preferably 8 glasses per day.
- These are over the counter medications that help to decrease constipation.
- It is also important to eat a healthy high fiber diet and drink plenty of water.
- Finally, it is important to get up and move around periodically throughout the day in order to stimulate the digestive tract. Walking and regular activity can prevent constipation.

Nutrition and Surgery

Initially after surgery (within the first 24 hours) you may feel slightly nauseas and not have much of an appetite. If this is the case you can start with clear liquids in your diet and then advance to soft and solid foods, as tolerated. You will have oral Zofran to take, as needed, for post op nausea.

- What you choose to eat and drink can affect your recovery.
- Your body may need more protein to help you heal after surgery.
- It is also important to include fiber in your diet.
- Eating nutrient rich meals and snacks throughout the day can help provide the vitamins and minerals your body needs to recover.
- Avoid excessive alcohol use, foods high in fat, sugar, and tobacco use.
- Drink plenty of water the first 2 weeks at home. Strive to drink 8 glasses per day.
- **Good sources of Protein**
 - o Chicken, fish, beef, pork, milk, yogurt, cheese, cottage cheese, eggs, nuts, seeds, tofu, tempeh, soy, quinoa, beans, peas, lentils
- **Good sources of Fiber**
 - o Shredded wheat, bran, oatmeal, brown rice, flaxseed, chia seeds, barley, beans, corn, almonds, squash, broccoli, sweet potato, nectarines, pears, blackberries, prunes, apples
- **Good sources of Vitamins and Minerals**
 - o **Iron:** meats, beans, spinach, prunes, eggs
 - o **Zinc:** meats, seafood, dairy, beans
 - o **Vitamin E:** nuts, vegetable oils, milk, eggs, beef, liver
 - o **Vitamin C:** citrus fruits, berries, potatoes, tomatoes, melons, peppers
 - o **Vitamin K:** Green leafy vegetables, fish, liver
 - o **Vitamin D:** milk, fish, eggs, fortified cereals

Getting In and Out of the Car

- **Before You Get In**
 - o Please take extra care when getting in and out of the car to avoid falls.
 - o You should get in the car from level ground.

- The car seat should be as far back as possible.
- You may need cushions to raise the height of the seat.
- Using a plastic bag on the seat can help you slide.
- Have someone hold the door for you.
- **Getting In**
 - Back up to the car seat with your walker or cane.
 - Use the dashboard or seat back for support.
 - Lower yourself carefully to the seat.
 - Lift one leg inside the car followed by the other.
 - If using a plastic bag remove it at this time to prevent sliding.
- **Getting Out**
 - Reverse the procedure above making sure your operated leg is in front of you before you stand up.

Physical Therapy

- You will have a prescription for physical therapy. You should begin therapy the day after surgery.
- The goal for therapy after knee replacement is regaining flexibility and range of motion. Flexion and extension stretching are the most important in the first 6 weeks after surgery.
- Walking will make you strong and restore muscle balance and strength.

Returning to Work

- You should be able to return to work in about 4-6 weeks after surgery. This can be longer or shorter depending on how you feel, your recovery rate, and what type of work you do.
- Patients with very strenuous jobs may require up to 3 months of recovery before returning to work.

Weaning from Narcotics (Pain Medication)

- After surgery you may be taking narcotic medication to help you with your pain. As your pain improves you will need to wean off your narcotic pain medication. Weaning means slowly reducing the amount you take until you are not taking it anymore. You may find the pain is better controlled with NSAIDS (Celebrex / Ibuprofen) and Tylenol (Acetaminophen).
- Taking narcotics will not provide good pain relief over long periods of time. The body develop tolerances to them and requires more to provide the same effect. There are many side effects to narcotics including constipation, nausea, tiredness, and even dependency. These side effects increase with higher dosages. Weaning off and stopping narcotic medication will help you feel better and improve your quality of life.

- Once your pain is improving and you have weaned off narcotics you may have narcotics remaining. You can bring them to your local pharmacy for proper disposal of the medication.

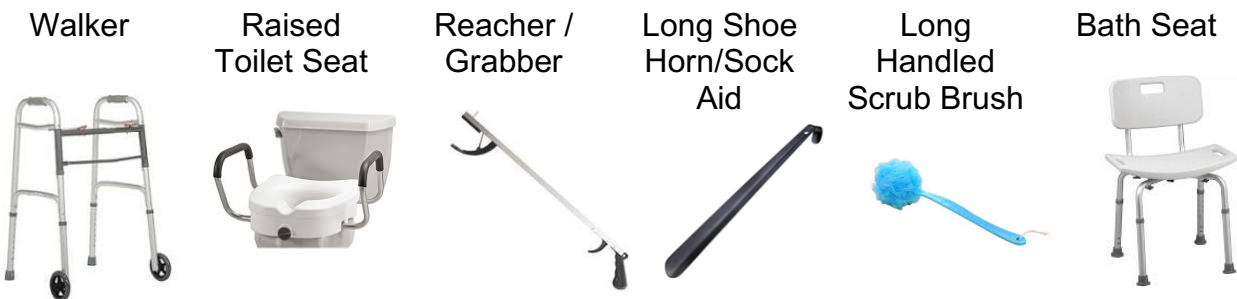
Comfort Techniques

There are various ways to address pain in addition to medications. Below are some examples of comfort techniques that may help reduce or distract you from pain and help you feel more comfortable in the post-operative period.

- **Aromatherapy:** Scented tablets like orange, lavender or eucalyptus can create a calming, scented environment.
- **Distraction:** Focus your mind on an activity like creating art, doing puzzles, reading books and magazines.
- **Ice Therapy:** Ice can reduce inflammation, swelling and pain and will provide comfort.
- **Massage Therapy:** Massage is a comfort technique that can ease pain after surgery.
- **Noise or light cancellation therapy:** An eye mask, earplugs, or headphones may reduce light and outside noise and make you feel more comfortable.
- **Pet Therapy:** Home pets or animals may provide comfort and a distraction for you after surgery.
- **Positioning / Movement:** Changing positioning in the bed or chair or getting up to go for a walk can help improve your comfort. It is recommended to walk as much as possible.
- **Prayer / Reflection:** Connect with your spiritual or religious side of healing and hope through prayer, meditation, reflection, and ritual.
- **Controlled Breathing:** Taking slow deep breaths can help distract you from the pain you are feeling. This can also help with nausea. Use the 4-7-8 technique. Breathe in quietly through your nose for 4 seconds, hold your breath for 7 seconds, breath out through your mouth for 8 seconds.
- **Calm App:** The calm app is an excellent app for Android and iOS phones that provides meditation and guided imagery. You can find it by search on the app store. It is a great method to help you feel more relaxed and comfortable after surgery.

Equipment After Surgery

- A walker is necessary after surgery, recommended with rolling front wheels.
- Optional Equipment includes:



Exercises After Knee Replacement Surgery

The focus after knee replacement is regained range of motion and flexibility. The range of motion you have at 4 months after surgery will likely not improve. It is important to perform flexion and extension stretching to get the maximal range of motion after surgery before that time period. After 6-8 weeks and range of motion is restored the focus can shift to strengthening and endurance exercises.

Ankle Pumps

- Slowly push your foot up and down. Do this several times, as often as every 5-10 minutes. This helps circulate blood flow and prevents blood clots. Repeat 20 times.



Heel Slides

- Lie on back, slide your heel toward your buttocks, bending your knee and keeping your heel on the bed. Do not let your knee roll inward. Repeat 50 times. Can do this 3-4 times a day



Straight Leg Raises

- Lie on back, unaffected knee bent, and foot flat. Lift opposite leg up 12 inches. Keep knee straight and toes pointed up. Relax. Repeat 20 times.



Quadricep Sets

- Lie on back, press surgical knee into mat, tightening muscles on front of thigh. Do NOT hold breath. Repeat 20 times



Short Arc Quad

- Lie on back, place towel roll under thigh. Lift foot, straightening knee. Do not raise thigh off roll. Repeat 20 times.



Seated Knee Flexion

- Sitting on straight-back chair with affected leg outstretched, gently slide the affected leg underneath chair. Keep hips on chair. Try to stretch and bend knee as far back as possible. Plant foot and move bottom forward on chair. You can place your non-surgical leg onto of your operative side leg to increase knee flexion. Repeat 20 times.



Extension Stretch

- Prop foot of operated leg up on chair. Place towel roll under ankle and ice pack over knee. Put 5-10 lbs. of weight on top of knee (a 5-10 lb. bag of rice works well). Do for 20 minutes.



Walking

- The best exercise you can do after knee replacement is getting up and walking around. At first you may need a walker or cane which to prevent falls and rebuild strength. This should be your main focus for exercise. In the beginning, walk 5 or 10 minutes 3 or 4 times a day. As your strength and endurance improves, you can walk for 20 or 30 minutes 2 or 3 times a day. Once you have fully recovered, regular walks, 20 or 30 minutes 3 or 4 times a week, will help maintain your strength

Exercise Bike

- Stationary Bike is an excellent activity to help you regain muscle strength and hip mobility. Adjust the seat height so that the bottom of your foot just touches the pedal with your knee almost straight. Pedal backwards at first. Pedal forward only after comfortable cycling motion is possible backwards. As you become stronger (at about 4 to 6 weeks) slowly increase the tension on the bike. Exercise forward 10 to 15 minutes twice a day, gradually building up to 20 to 30 minutes 3 to 4 times a week.



Follow Up

- Dr. Harb would like to see you back in the office 4 weeks after surgery.
- Call 202-835-2222 for an appointment or schedule this at your final preoperative visit. At this office visit an x-ray will be taken and your incision will be examined.
- The next follow up appointment will be 4 months from surgery and then 1 year from surgery.
- After that Dr. Harb likes to see his patients every 5 years following surgery.

When to Go to the Emergency Room

- Sudden increase in pain with activity and rest not relieved with medication
- Uncontrollable nausea or vomiting
- Inability to bear weight or walk
- Shaking chills
- Fever greater than 101.3
- Shortness of breath or chest pain
- If you have increasing discharge or drainage from your surgical incision

Future Appointments / Primary Care Follow Up

- Please follow up with your primary care provider within 1-2 weeks after your surgery.

It has been a pleasure taking care of you and getting to know you. I hope that you enjoyed your operative experience. Please remember that your health and recovery are extremely important to me. I look forward to seeing you again at your follow up appointment.

Matthew Harb, MD
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