JOINT REPLACEMENT SURGERY

PATIENT GUIDE

Making surgery, recovery and rehabilitation easier to understand
Thank you for choosing MU Health Care for your hip or knee replacement. This guide was developed to help you understand your joint replacement experience. We will present information about how we help you get ready for surgery, how we will work with you during your hospital visit and what you will be doing to recover during the first few weeks after surgery.

Information you read here and learn about when you attend our joint camp will explain how we treat most patients. We hope the things you learn with this education program will help you understand what to expect in the days and weeks both before and after your surgery.

Our staff is here to help answer questions that you may have about the surgery and to help you be fully ready for the experience we will be going through together. We look forward to helping you recover from your surgery and regain your quality of life.

Thank you for your confidence in our team.

James A. Keeney, MD
Chief, Adult Reconstruction Service
Missouri Orthopaedic Institute

This handbook was designed to give you a general idea of what to expect — and what is expected of you — before and after your surgery.

This guide should never replace the specific advice given to you by your surgeon and their team.
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**TIMELINE**

- **6-8 weeks pre-op**
  - Pre-op visit and medication review
  - Prehab and start exercises
  - Nutrition consult
  - Joint Camp

- **4 weeks pre-op**
  - Dental checkup
  - Quit smoking (if you smoke)
  - Prepare your home for after your surgery

- **2 weeks pre-op**
  - Avoid activities that could increase the risk of injury to the skin (which could result in canceled surgery)
  - Arrange a ride home from the MOI

- **3-5 days pre-op**
  - Shower and use skin cleansing kit

- **Day before surgery**
  - Receive a phone call confirming the time of your arrival
WHAT IS YOUR ROLE?

☐ **Attend Joint Camp.** We highly encourage you to attend with the person who will be helping you after surgery.

☐ **Get information.** Ask your health care team about your condition and your treatment options. Seek additional information from reliable sources. Take notes during your clinic visits. Ask questions! Request to have information printed out or written down.

☐ **Give information.** Provide your doctor and nursing staff with a list of ALL medications you take, including non-prescription medications, such as herbal supplements and vitamins. Tell them about any allergies or sensitivities you have.

☐ **Stay informed and keep us informed.** If you have any medical tests or procedures performed outside the Missouri Orthopaedic Institute, ask when and how you will receive the results. Do not assume that results are normal if you do not hear from your provider. Call your provider and ask for the results as well as how the results may affect your health care.

☐ **Attend all appointments,** both doctor and therapy. Closely follow the specific instructions you are given.

☐ **Prepare for your return home.** Be actively involved in planning your care for the days following your hospital stay. For example, does your home have the changes needed to help you continue to live independently, e.g., hand rails, etc.?

☐ **Complete individualized pre-op exercises.** See pages 9 and 10.

☐ **Carefully study** all pages of this handbook and any information given by the surgeon.
PRE-OPERATIVE PREPARATION

Attend Joint Camp
You can learn more by attending Joint Camp at the Missouri Orthopaedic Institute (MOI). This will require registration and attendance at least two weeks before surgery. Attendance is highly encouraged if at all possible. Joint Camp will cover the following topics:

- Anatomy Review
- Incentive Spirometry Training
- Pain Management
- DVT (Deep Vein Thrombosis) Prevention
- Daily Expectations for After Surgery
  - Physical Therapy
  - Occupational Therapy
  - Resuming activity
- Discharge Planning
- Questions and Answers

Pre-Anesthesia (Pre-Op) Visit
Prior to your surgery, you will be scheduled for a pre-anesthesia clinic visit. Whenever possible, we will schedule your pre-op visit the same day as your Joint Camp.

During your pre-op visit, you will meet with a health care provider who will make sure all of your diagnostic testing (X-ray, MRI) has been completed, and that all of your medical history has been obtained and documented. During this visit, you may also meet with an anesthesia provider and have laboratory testing (blood and urinalysis), an electrocardiogram (EKG) and a chest X-ray.

Diet/Hydration
Eating healthful foods makes sense, especially in preparation for surgery and healing. Iron, calcium and plentiful water intake are especially important for joint replacement surgery patients.

Foods that are rich in iron include lean red meats; iron-fortified whole grains, including cereal, bread, rice and pasta; vegetables, including broccoli, asparagus and brussels sprouts; chicken; turkey; nuts; and dried fruits such as raisins, prunes, dates and apricots.

Foods that are rich in calcium include yogurt, cheese, milk, calcium-fortified orange juice, instant oatmeal, calcium-fortified cereal, spinach and broccoli.

Stop Smoking
We encourage you to stop smoking at least four weeks before your surgery. Smoking increases your risk of developing complications with breathing during and after surgery. Smoking also decreases your body's ability to heal, particularly in the healing of your surgical wound.

Medications
To decrease the risk of blood loss during surgery, you must avoid the use of certain medications one or two weeks prior to your scheduled surgery. Generally these medications include aspirin and drugs containing aspirin, anti-inflammatory agents, blood thinners and arthritis medications. It may also be necessary to stop vitamins and herbal supplements.

All of your medications will be reviewed at your pre-operative visit, and your provider will provide you with detailed information on which medications to stop and when. However, if you have any questions regarding which medications to stop, or have questions about your medications, please contact your physician.

Infection Prevention
Infections are passed from one individual to another through a variety of means; many are transmitted through the skin and mouth. In order to reduce the risk of infection, we recommend taking the following precautions:

☐ Schedule a dental checkup in the weeks prior to your surgery. Infections can pass easily through the bloodstream during dental procedures, and this will minimize your risk after your surgery.
☐ Brush and floss your teeth daily.
☐ Let your dentist know of your new artificial joint at your next appointment.
☐ Take a shower, followed by skin cleansing kit, the night before surgery (do NOT shave the area).
☐ Wash sheets and pajamas and do not sleep with pets the night before surgery.
Avoid environments that can result in skin irritation, such as sunburn, cuts, scratches, poison ivy, and insect bites. If you notice any of these on the leg that will be operated on, please contact your surgeon at (573) 882-BONE.

**Transportation**

Someone must drive you home after discharge. Make sure your driver is available from day of surgery to three days post-op, as discharge time varies. We recommend that you do not travel home in a compact car, sports car, truck or any vehicle with a raised suspension. Refer to page 20 for tips on getting into and out of your vehicle.

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**Assistive Devices/Adaptive Equipment**

You most likely will need a walker to manage after surgery. The specific equipment you will need is based upon your specific surgery, activity guidelines set by your physician, your home situation, and your body size and shape.

The staff at the Missouri Orthopaedic Institute will make recommendations regarding the appropriate assistive devices and adaptive equipment that will be the most beneficial. You will need to obtain your equipment before coming for surgery. Our staff can assist you in obtaining the equipment from a durable medical equipment (DME) company or pharmacy. If you have equipment which you have used before or have borrowed, please ensure that these items are clean and in good repair. Bring your walker on your day of surgery so that the staff can assess the fit and appropriateness before your discharge.

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**Home Safety Checklist**

- Remove throw rugs. This will prevent you and your assistive device from getting caught on them.
- Install night lights to light the pathway to your bathroom.
- If your house has stairs, consider moving your bedroom to an area where you will not have to use the stairs for the first one to two weeks.
- Make sure the handrails on any necessary stairways are securely attached to the wall.
- Remove or tuck away long cords (phone, computer, lamps, etc.) that you, or your assistive device, may get caught up on.
- Arrange furniture in a way that will allow you to easily maneuver around the house with your walker.
- Place frequently used household items and clothing within easy reach, between shoulder and waist level to avoid bending.
- Plan to keep a cordless phone or mobile phone at your side, if possible.
- Make sure your bed is at a comfortable height (mid to low thigh).
- Select a sturdy chair with a high back, firm seat cushion and arms that you will use as “your chair” after surgery. Do not use any chairs with wheels on them. Avoid low chairs—it is more difficult to get up from low surfaces.
- Put together a list of contact numbers — friends or relatives who are willing to run errands for you and take you to appointments until you can drive or otherwise get out by yourself.
- Arrange for someone to take care of household chores, outdoor work and other such responsibilities until you are able to resume these activities.
- Make arrangements for the care of any small pets that may run underfoot.
ANATOMY OF THE KNEE

The **knee** is the joint between the thigh and the lower leg. Unlike the ball-and-socket joint of the hip, the knee is a complex joint, involving many types of movement, such as rotation, sliding and translation of one joint surface relative to the other.

The **femur** is the longest bone in the body, extending from your pelvis to the knee joint.

Commonly known as the kneecap, the **patella** lies in front of the knee joint.

The larger of the two bones of the lower leg, the **tibia** connects the ankle to your knee.

The outer, narrower, and smaller bone in the lower leg, the **fibula**, extends from the knee to the ankle.

**Synovial fluid** (not shown) lubricates joints such as the knee. This is a natural, biological lubricant to help joint movement, much like grease in mechanical, non-living joints.

A tough, elastic, gelatinous tissue that lines all joints, including the knee, **cartilage** is the natural bearing surface in joints. Cartilage absorbs the shock of impact and walking, and reduces the friction in the joint to allow smooth, pain-free movement. Once injured, cartilage does not heal in adults. With enough injury, progressive deterioration can result in a worn out joint, referred to as **arthritis**.

The **meniscus** is a tough, fibrous cartilage crescent-shaped disk that cushions the bones in the knee joint.

The severity and extent of arthritis determines whether a total (A) or partial (B) knee replacement is the best surgical option.
On each side of the **pelvis** (hip) bone is the **acetabulum**, or socket, of the ball-and-socket joint. The surface of the acetabulum is the only part of the pelvis replaced in hip replacement. The **labrum** is a ring of fibrocartilage that circles the rim of the acetabulum, deepening the socket. It adds strength to the joint, but limits the range of motion.

The **femur**, or thigh bone, is the longest bone in the body. The **femoral head** is the ball in the ball-and-socket joint, and fits into the acetabulum. It sits on top of the **femoral neck**. At the base of the neck is the **greater trochanter**, which marks the widest point of the hip area in the skeleton.

**Cartilage** is a tough, elastic, gel-like layer that lines the hip joint. It is the natural bearing surface in all joints. Cartilage absorbs the shock of impact and walking, and reduces the friction in the joint to allow smooth, pain-free movement. Once injured, cartilage does not heal in adults. With enough injury, progressive deterioration can result in a worn out (arthritic) joint.

**Synovial fluid** (not shown) is a transparent fluid that lubricates joints such as the hip, much like grease in mechanical, non-living joints.

In hip replacement surgery, as shown on the right side of the image, the femoral neck is cut and the head is completely removed and replaced with metal and plastic components that mimic the ball-and-socket joint.
PREHABILITATION (PREHAB)

Your physician may have you begin an exercise program before your surgery. The therapists at Mizzou Therapy Services have designed a prehab program with the goal of getting you back on your feet more quickly. This program can be done at any Mizzou Therapy Services location or a location that is convenient to you, and should be scheduled four to six weeks prior to your surgery. The number of visits will vary based on individual needs. Research has shown that those who participate in a prehab program have improved outcomes and recover faster following surgery.

During prehab, you will meet with a physical therapist and address:

• Strength and range of motion
• Use of a walker
• Home environment and set up
• Expectations of day of surgery and during hospital stay
• Therapy expectations and schedule for your individual needs after surgery
• Tips for managing pain relief
• Getting in and out of a vehicle
• Any other questions you have about your surgery

See pages 9 and 10 for some sample drawings of exercises.

Mizzou Performance Evaluation (MPE)

You may also perform a series of tests to track your progress and help us to determine how you are moving and walking compared with normal.

NOTES
PRE-OP KNEE EXERCISES

Note that you will receive a separate post-op exercise program after surgery.

**Knee Extension Stretch**
**Goal: straighten your knee**
Sit or lay down with your legs out in front of you and a towel under your heel or ankle. Passively let your knee hang, allowing it to straighten as much as possible. Hold position for 10 minutes at a time. Increase to 30 minutes as tolerated.
3 times/day.

**Quad Sets**
**Goal: activate muscle fibers**
Sitting up with legs out in front of you, straighten your knee. Tighten your thigh muscle to push the knee down against the bed. Hold for 10 seconds. The goal is to get the knee to straighten completely and to strengthen the thigh muscle.
2 sets of 15 reps.

**Straight Leg Lifts**
**Goal: strengthen thigh muscles**
Lying down with your knee fully straightened on the bed, squeeze the thigh muscle as strongly as possible and lift your leg several inches. Hold for 10 seconds. Slowly lower.
2 sets of 15 reps.

**Sit to Stand**
**Goal: better function and muscle power**
Begin seated. Keeping your weight balanced on both feet, come to a full standing position, immediately sit back down and repeat. The goal of this exercise is to use your legs as much as possible, but use a chair with armrests for support as necessary.
2 sets of 15 reps.
**PRE-OP HIP EXERCISES**

**Sit to Stand**
**Goal: improved functional strength in legs**
Begin seated. Keeping your weight balanced on both feet, come to a full standing position, immediately sit back down and repeat. The goal of this exercise is to use your legs as much as possible, but use a chair with armrests for support as necessary.
2 sets of 15 reps.

**Marching**
**Goal: strengthen hip muscles**
Standing upright holding onto a counter top, lift your knee as high as you can. Move in a slow controlled manner. Then slowly return your foot to the floor. Repeat with the other leg.
2 sets of 15 reps.

**Standing Hip Abduction/Extension**
**Goal: strengthen hip muscles**
Stand up straight holding onto a counter top if needed. Without bending at the waist, and with your knee straight, lift your leg out to the side and slightly backwards in one motion. Slowly return your foot to the floor. Repeat with the other leg.
2 sets of 15 reps.

**Clams/Hip Outward Rotation**
**Goal: strengthen hip muscles**
Lying on your non-operative side with both knees bent, raise the top (operative) knee up as far as possible while keeping your feet together. Avoid allowing your pelvis to roll backward. Lower slowly.
2 sets of 15 reps.

**Quad Sets**
**Goal: activate thigh muscles**
Sitting up with legs out in front of you, straighten your knee. Tighten your thigh muscle to push the knee down against the bed. Hold for 10 seconds. The goal is to get the knee to straighten completely and to strengthen the thigh muscle.
2 sets of 15 reps.
PACKING FOR YOUR STAY

You will receive a phone call the day before your surgery to confirm the time you must arrive — two or three hours before your surgery. Please be packed and prepared.

What to Pack
- This handbook
- A copy of your advanced directive, if you have one
- A list of all your medications and dosages, including herbal supplements and over-the-counter medications. Please bring date and time of last dose taken.
- A list of all your allergies to foods and medications
- Personal hygiene products (toothpaste, toothbrush, deodorant, hairbrush, etc.)
- Loose, comfortable clothing to wear to therapy (T-shirts, shorts or pants, pajamas, underwear)
- Shoes that are comfortable, slip-resistant, supportive and easy to put on
- A walker. Your physical therapist will determine if it is properly fitted to you. Place your name on your walker, and have your family bring it in once your surgery is over and you are in your room. If you don't have one, we can help you get one here.
- Cases for contact lenses, glasses, hearing aids, dentures, etc.
- CPAP machine, if you use one
- Your own pillow, if you prefer, with an easily identifiable pillow case
- Chargers for your devices
- Insurance card
- Supplies for 1-3 nights

What NOT to Pack
- Jewelry
- Valuables
- Large amounts of money and credit cards
- Footwear that is not appropriate for physical therapy, including footwear that is too tight; is too loose, such as flip flops; has high heels; or is difficult to put on, such as boots.

SURGERY DAY

Before Leaving Your Home
- Use skin cleansing kit.
  - Note: shower and use these wipes the night before surgery as well, but do not shave the area around the surgical site prior to surgery - rather, hair will be clipped in pre-op holding.
- Brush your teeth and rinse with water, but do NOT swallow any of the water.
- Take ONLY the medications that you were instructed to take during your pre-operative clinic visit.
- Dress in clothes that are loose fitting and easily removed.
- Remove all jewelry and leave at home (including rings).
- Remove all fingernail polish and toenail polish.
- Do not apply any makeup, perfumes, deodorant or scented lotions.

Helpful Hint: If you are diabetic, do not take any insulin the day of your surgery. We will monitor and treat your blood sugar throughout the day.
Pre-Operative Procedures

Upon arrival at the Missouri Orthopaedic Institute, you will check in at the registration desk on the first floor, where your registration information will be verified. Your driver should accompany you.

Pre-Operative Room

1. After checking in, you will be taken to a pre-operative patient room. Here, you will be asked to change into a gown. Your personal items will be placed in a bag. If you wear contact lenses, eyeglasses, or dentures, you will need to remove them at this time.

2. Your pre-operative nurse will confirm your medical records and conduct a brief physical exam, including vital signs. You will be asked to go to the bathroom to empty your bladder.

3. An intravenous (IV) line will be started; you may have additional lab work drawn at this time.

4. A member of the surgical team will verify and mark your hip or knee before surgery.

5. Any hair around the surgical site will be clipped.

6. Your nurse will finalize your paperwork, and finish any orders the physician has written.

7. Your anesthesiologist will visit with you and may perform a regional block to lessen your post-operative pain. Many factors, including the type of surgery, your physical condition and your general health will help determine what type of anesthesia that you will have: general or spinal anesthesia. Your anesthesiologist will discuss with you which type of anesthesia you will receive.

Friends and family can stay with you in the pre-operative room until you are taken into the operating room. Once you go to surgery, your family/friends will wait in the surgery waiting room, just outside the pre-operative area. In the waiting area is a case-tracking board where they may follow you through your surgery progress.

Operating Room

1. Just before your surgery, you will be given a cap to cover your hair.

2. You will be given warm blankets in the operating room to keep you comfortable.

3. Once you are in the operating room, your operative nurse will introduce you to the members of your health care team.

4. Your surgery team will reconfirm your procedure in the operating room before beginning your joint replacement.
SURGERY DAY
Post-Operative Procedures

Recovery Room
Once your surgery is complete, you will be taken to the recovery room. During this time, a registered nurse and anesthesiologist will closely monitor your condition and level of pain. You will be encouraged to take deep breaths.

Private In-Patient Room
After approximately one hour, you will be taken to your room on the inpatient nursing floor, and meet your nursing care team. It is at this point that you begin your post-operative recovery. You may wake up feeling groggy, and will see several types of equipment and drains. Rest assured, these are all a normal part of the recovery process.

Once you are settled in your private in-patient room, your nursing care team will consist of a registered nurse with assistance from a nursing care technician. These health care professionals will be responsible for ensuring you are making progress during your recovery phase, and will be in frequently to monitor your vital signs, incision site, level of pain, and overall comfort in the immediate hours following your arrival to your room.

Intravenous Fluids and Antibiotics
You will have IV fluids throughout your first day and night to ensure you are getting enough fluids. You will also receive antibiotics through your IV. These are started prior to your surgery, and will continue after surgery to help prevent infection.

Diet
You will be introduced to food and drink slowly during your immediate recovery phase, starting with ice chips and small sips of liquid. You may receive clear liquids (gelatin, sodas and broth) a few hours after you are in your room. Your nursing care team will advance your diet to regular foods as you are able to tolerate more food without any problems of nausea. It is normal to experience a loss of appetite in the first several days after surgery. It is important that you do your best to eat a well-balanced diet during this time to maintain your strength and improve your healing process.

Surgical Dressing
Initially, your surgical site will be covered in a bulky dressing, the dressing will be changed to a smaller one before you go home. You may be instructed on how to perform a dressing change at home.

Drainage Tubes
A drainage tube may be placed in your incision during surgery. This tube collects excess fluid and blood, preventing it from pooling in your body and increasing your pain. These tubes are usually removed in the first few days following your surgery.

Knee Immobilizer
Depending on the type of anesthesia used, knee replacement patients may use a knee immobilizer until the extremity has increased sensation. This helps to provide knee stability.

Abductor Pillow
Some patients use an abductor pillow. This A-shaped foam pillow is used to maintain proper alignment of the leg after certain kinds of hip replacement.

Support Stockings (TEDS)
Support stockings, called TEDS, may be used at home after surgery to help increase blood flow and help prevent blood clots from forming in your legs. They should be removed once every eight hours for about half an hour and then replaced again. You will continue to wear these stockings for four to six weeks after surgery. Your physician will tell you when you may stop wearing them.
SCDs (Sequential Compression Devices)

Special calf wraps attach to an air pump that inflates and deflates to encourage circulation in your legs, which helps to prevent blood clots.

You may have SCDs that you wear only while in bed or sitting, or you may have “mobile” compression devices that you are able to use while you are up and moving about. Your doctor will determine which SCDs should be ordered for you to wear.

Ice Therapy

Ice therapy will be ordered for you while you are in bed or sitting up in a chair. This will help decrease inflammation and swelling and will help with post-operative pain control. You will go home with your ice therapy machine and should continue to use it as ordered by your physician.

Oxygen

Oxygen may be used after surgery to help you breathe easier. Usually, it is only needed for the first few hours after surgery. The oxygen is given through a tube placed close to your nose, or with a mask that is placed over your mouth and nose. Your nursing staff will monitor your oxygen saturation (how much oxygen you have in your blood stream) periodically by placing a monitor on your fingertip.

Blood Thinners

Blood thinners may be administered to you either orally or by injection. Your physician will determine the method best for you and monitor you appropriately.

Incentive Spirometer

You will be given an incentive spirometer on the day of your surgery. It is a small, hand-held device that helps you to breathe deeply - allowing your lungs to expand more fully and to prevent respiratory/breathing complications after surgery. You will be taught how to use your incentive spirometer during Joint Camp, and again by your nurse when you enter your in-patient room. It is very important that you use your incentive spirometer at least 10 times every hour while you are awake. The most common source of a fever is when the lungs do not fully inflate. Therefore, you may be encouraged to use your incentive spirometer more frequently if you develop a low-grade fever. You will also be encouraged to cough and deep breathe.

Nausea

Some patients experience nausea and vomiting after surgery, generally the result of anesthesia and other medications. Although these symptoms usually go away after the first day, be sure to let your nursing staff know if they continue. Your physician can order medication to help reduce and eliminate the symptoms. Eating something with oral pain medications can help decrease nausea.

Constipation

After surgery, it is very common to experience constipation. Pain medications, decreased activity and changes in diet are all factors that contribute to constipation or changes in your normal bowel pattern. Stool softeners are usually given to you daily. Laxatives, if needed, may also be given. It is important to increase water intake and remain active to help decrease constipation. Please do not be embarrassed to discuss this issue with your nurse.

Blood Transfusion

If you are lightheaded, dizzy, or if your blood count is low, your physician may want you to have a blood transfusion.

Urinary Catheter

If you have a urinary catheter placed, it is typically removed at midnight the day of your surgery.

What to do once sensation begins to return to your leg after surgery:

• Start quad sets (see pages 9 and 10)
• Press call button and ask to start working toward getting up
  • the goal is to get out of bed the day of surgery
• Perform exercises that the therapists give you three times a day while in the hospital and after you return home
• For knee replacement: keep knee straight while in bed and resting
• For hip replacement: lay flat occasionally
SURGERY DAY
Post-Operative Exercises and Activities

Your participation in rehabilitation therapy is vital to the success of your recovery, and greatly influences your recovery process.

Quad Sets
Immediately after your surgery, you will be encouraged to do quad sets every hour (see exercises on pages 9 and 10).

Turning in Bed
Turning in bed helps prevent skin breakdown, lung congestion and blood clots. Your nursing staff will assist you on the best way to turn, based on your surgical procedure.

Regaining Strength and Day of Surgery Mobility
Your physical therapists, occupational therapists and nursing care team will assist you with regaining strength and mobility in your new joint. They will also alert you to any precautions that you must take to protect your new joint as you recover.

This therapy may begin as early as the day of your surgery, or as ordered by your physician.

Some pain should be expected when you begin any activity after surgery, but it is critical that you begin moving as early as possible. Your physician will prescribe pain medications to help decrease any pain that you may experience during therapy.

Your therapists will assist and teach you how to:
- Safely move around in bed, and get in and out of bed
- Stand from a seated position and sit back down again
- Walk with a walker and navigate stairs
- Get in and out of a car
- Perform your daily activities such as bathing and dressing

Your nursing staff reinforce what your therapist has taught you.

Sitting
On the day of surgery, our goal is for you to get out of bed. We encourage you to get out of bed as much as possible.

Walking
You will begin walking as the effect of anesthesia lessens and you are medically ready to begin out-of-bed activities.

The MOI staff will instruct you in how much weight you can put on your operative leg and movement guidelines set by your physician. Each day, the distance you walk will increase.

Following joint replacement, there may be limitations on the amount of weight that you may place on your operative leg as you walk. Your physician will determine this amount.

Most patients will use a walker following surgery. The type of equipment you will use will be based upon your weight-bearing status, your body type and your range of motion. Your physical therapist will discuss your equipment options.

Up with the good leg
Down with the bad

Activities of Daily Living (ADL)
Many ordinary self-care activities will require some modification for a period of time after your surgery. If consulted, an occupational therapist will assist you with these activities, and teach you the proper way to modify them, including:
- Dressing yourself, with or without the use of assistive devices such as sock aides and long shoehorns
- Getting in and out of your tub or shower at home, and using a shower seat or tub bench
- Sponge bathing
- Avoiding showering directly on your surgical incision until staples/sutures have been removed

Stairs
If you have stairs in your home, your therapist will teach you how to properly maneuver these. Remember to go upstairs with your non-operated leg first, and go downstairs with your operated leg first.
Rehabilitation

Maintaining a physical rehabilitation therapy program after your discharge will help to assure progress made in the days following your surgery is maintained.

Individual rehabilitation options are based upon several factors:
- Your physician
- Your insurance company
- Your progress and health up to the time of discharge
- Your home situation

It is recommended that you return home with outpatient therapy services. However, this decision will be assessed at time of discharge. Other options include:
- Home health
- Inpatient rehabilitation facility
- Skilled nursing facility

PAIN MEDICATION AND PAIN CONTROL

Staying Ahead of the Pain

Pain medication is ordered PRN, or “as needed.” This means it is not always a scheduled medication, but instead to be taken when you need it, following the time parameters. It is up to each patient to ask the nurse for pain medicine prior to the pain becoming unbearable. It is always best to stay one step ahead of the pain.

Pain Scale

Total joint replacement surgery is usually painful. While you are in the hospital, you will be asked to rate your pain on a scale from 0-10 in order to help us adjust your medications if needed. A sample of the pain scale is shown here with a score of 10 for the worst pain you can imagine and a score of 0 for no pain at all.

You and your physician’s team will work towards the best way to control pain after surgery. While there are many things that we can use to help manage pain, we have learned that several things done together can be very helpful.

Joint Injections

Most patients receive an injection of medicine around their hip or knee at the time of surgery. We use a combination of pain medication, anti-inflammatory medication and moderate duration (6-12 hours) local anesthetic medications to help get a start on pain control.

IV Medications

We may use IV medications to help to supplement your pain control during the first 24 hours after surgery. These medications will start working faster, but don’t tend to work as long.

Oral Medications (Pills)

We have learned that pills are generally more effective than shots of medication for managing pain after surgery. While they may take longer to start working, they last longer. It is important that you start taking pills to help control pain soon after your surgery. There are two main types of pain medications that we provide patients after surgery: anti-inflammatory medications and narcotic pain medication. We will work to find the right balance between the medication strength for pain control and clear thinking so you can participate well with your rehabilitation.

Peripheral Nerve Block (PNB)

A PNB is used to block the pain of key nerves in and around the surgical area using a local anesthetic. This type of block can help with pain control and potentially decrease the amount of pain medication that a patient needs during the first 6-12 hours after surgery. A negative effect of PNB is that it can weaken the muscles in the leg and may contribute to a risk of falling in some patients. If you have a PNB, it is important that you do not try to walk by yourself until the effects of the block have completely worn off and either your nurse or your physical therapist say it is OK for you to get up on your own.
DISCHARGE

Prior to your discharge, you will be given the following:
• Prescriptions for pain medication and blood thinners, if needed
• Written discharge instructions
• Instructions for use of mobile SCDs and/or TED hose
• Information on how to contact your physician for any questions
• Dressing and shower instructions
• Home exercise program
• Follow-up appointment information

For your convenience, your prescriptions can be filled in the pharmacy on the second floor of the Missouri Orthopaedic Institute. Your nurse can assist you with getting these filled.

Be sure that you have someone to drive you home. Again, we recommend that you ride in a standard sized car that is easy to enter and exit.

Helpful hint: Once you are discharged and able to leave your home for therapy, you have a choice of where you do your outpatient rehabilitative therapy program. We highly recommend one of our multiple Mizzou Therapy locations, where our highly trained therapists work closely with our physicians to get you back on your feet. Visit muhealth.org/conditions-treatments/therapy for a full list of locations. Therapy services at the MOI are located on the first floor, and include both physical and occupational therapy.

POST-DISCHARGE GUIDELINES

Bathing
You may sponge bathe upon your return home. You will be instructed by your physician regarding showering.

Walking/Exercising
Take short walks every hour (or change position), increasing your distance each day. Always use your walker and avoid over-exertion. DO NOT walk on uneven surfaces, such as lawns or gravel. Continue your home exercise program.

Sitting
Use chairs with arms, backs, and firm seats. You will need the arms to help lift yourself out of the chair. Avoid sitting on stools, low chairs or low toilets.

Diet and Exercise
It is very important that you eat a well-balanced diet when you return home. A healthy diet will supply you with proper nutrition to help you heal and restore strength. You should eat food that is rich in protein and iron. Do not attempt any weight loss programs at this time. It is normal if you experience a decrease in appetite for the first week or two after surgery. If you do experience a decrease in appetite, try eating five or six small meals throughout the day.

Helpful Hint: Your physician may have additional recommendations for you to follow. You should always follow the direct advice of your physician.
For Hip Patients

During the first three months after surgery, the muscles and tendons around the hip are healing. It is important to not overstretch these tissues while they are healing.

**DO:**
- Sit in a comfortable chair with good arm support that you can use to help stand. The goal is to get up from a chair, toilet or bed without leaning forward or rocking. Using your arms may help accomplish this if necessary.
- Use an elevated toilet seat.
- Lay flat or sleep with a pillow between your legs at night for increased comfort and stability.
- Lift your foot when you are going to turn on your surgery leg to avoid twisting the leg.
- Keep your legs apart with toes pointed outward if you lean forward while sitting (to put on shoes, etc.).
- Use the assistive devices only as recommended by your physician and therapist.

**AVOID:**
- Low chairs

**DO NOT:**
- Purposefully engage in activities that are intended to see how much flexibility you can have in your hip

For Knee Patients

The most important part of knee replacement recovery is regaining motion in the knee. Your physical therapist will work with you, but you need to practice your exercises every day. Your knee should be able to bend 90 degrees (right angle) by three days after surgery and to fully straighten within the first week. It is usually easier to make the knee straight when you are standing or lying down. It is usually easier to bend the knee when you are sitting.

**DO:**
- Work on knee motion several times every day for the first three months after surgery, especially during the first one to two weeks.
- Apply ice to your knee after you have been working on motion and continue limb elevation.
- Gradually increase your walking activity during the first three months after surgery.
- Work on getting your knee straight — do not use any pillows under your knee.

**AVOID:**
- Low chairs
- Twisting your knee
UNDERSTANDING THE SIGNS

INFECTION
Infections are an uncommon but serious complication of knee or hip replacement surgery. You should be aware of signs of infection, listed below, so you can seek early treatment if you have this rare complication of surgery.

**Signs of infection**
- Increased swelling and redness at incision site
- Change in color, amount, and/or odor of drainage
- Increased pain in hip or knee (that is not due to increased activity)
- Fever greater than 100.4° F

**Preventing infection**
- Wash your hands frequently, especially after you remove your old dressing and before you apply a new dressing.
- Take proper care of your incision; do not scratch your incision.
- Take prophylactic antibiotics when having dental work or other procedures. This will need to be done for at least two years after your surgery. Be sure to tell your primary care physician and dentist that you have had total joint replacement.

BLOOD CLOTS/DVT
Blood clots or DVT (deep vein thrombosis) can sometimes occur after total joint replacement surgery. You can reduce the risk of blood clots by taking the following steps:
- Take your prescribed blood thinner.
- Wear supportive stockings/mobile SCDs.
- Get mobile as soon as possible. Move often and do not stay in one position for long periods of time.

*It is critical that you can recognize the signs of blood clots:*

**Warning signs of blood clots in the LEG:**
- Increased pain in your calf
- Tenderness or redness in your calf
- Increased swelling in the thigh, calf, ankle or foot

These signs may occur in only one leg

**Warning signs of blood clots in the LUNG:**
- Sudden increased shortness of breath
- Sudden onset of chest pain
- Localized chest pain with coughing, or when taking a deep breath

*Call your physician immediately if you are experiencing any of the above signs.*

*Call 911 immediately if you are experiencing any signs of blood clots in the lung.*
How to Get In and Out of a Car After Hip or Knee Surgery

1. The front passenger car seat should be pushed all the way back and reclined fully before you enter the car.

2. We recommend that during your rehabilitation period you ride in a standard-size vehicle, especially on your way home. Vehicles that are too high or low off the ground can be difficult to enter and exit.

3. Have the driver park on a flat surface. If getting into a low car, make sure the vehicle is parked far enough away from the curb to allow for stepping down and maneuvering on level ground before attempting to enter vehicle. This also helps to avoid bending too much at your hips or knees.

4. Walk toward car using the appropriate walking device.

5. When close to the car, turn and begin backing up to the front passenger car seat. Never step into the car!

6. Placing a plastic bag on a fabric seat may make moving easier.

7. Reach with your right hand and hold the door frame or headrest. Place your left hand on the car seat or dashboard.

8. Slowly lower yourself to the car seat.

9. Slide yourself back onto the car seat.

10. Swing your legs into the car. Try to move one leg at a time. Keep your toes pointed upward.

11. Adjust the seat for comfort once both legs are in the car.

12. Reverse these steps to get out of a car.

Helpful hint: When taking extended car rides, make sure to take breaks every 30 to 45 minutes. Get out of the car and walk/stand for a few minutes so you don’t become too stiff. Please contact your doctor to find out when it is safe to resume driving.
Restrictive Activities for All Joint Replacement Patients

Until you are seen by your physician for your follow-up appointment, DO NOT engage in any of the following:

• Return to work
• Participate in sports
• Engage in sex
• Take a tub bath

At your follow-up appointment with your physician, you will be given a new set of instructions to follow for the care of your incision, and activities that you can engage in. Your physician will determine when your next appointment will be.

LIFE AFTER JOINT REPLACEMENT SURGERY

Around three to six months following your surgery, you will most likely be able to resume a majority of the activities that you were able to participate in prior to your joint replacement. However, there are some activities that your physician may recommend performing over others.

Please check with your physician prior to beginning any of these activities.

Recommended:
• Swimming
• Biking
• Walking
• Golf
• Tennis
• Low-impact aerobics
• Water aerobics
• Dancing
• Bowling
• Fishing
• Gardening
• Elliptical

Not Recommended:
• Basketball
• Skiing
• Racquetball

Avoid Entirely:
• Jogging or running
• Contact sports
• Jumping sports
• High-impact aerobics
• Water aerobics
• Dancing
• Bowling
• Fishing
• Gardening
• Elliptical
What materials were used in my joint surgery?
For hip surgeries, we use titanium alloys for the metal joint component, plastic for the cartilage replacement and ceramics for the ball socket. For knees, we use cobalt-chromium alloys for the joint and plastic for the cartilage.

What medication should I take when I leave the hospital?
Upon leaving, if prescribed by your physician, you should take:
- An anti-inflammatory medication
- A blood thinner, such as aspirin or warfarin
- Pain medication along with a stool softener
- Any medications you were taking for other health concerns prior to your surgery

What precautions should I take with my incision?
Try to do as little activity as possible until your incision heals. You may shower if the wound is covered with a waterproof dressing, but avoid swimming and bathing. Let the wound heal on its own and do not use Neosporin, lotions or creams.

What will the area around my incision look like?
You will most likely have bruising around your hip, thigh, lower leg or ankle. Expect significant swelling around your knee or hip.

IMPORTANT POST-OP CONCERNS

What if I am concerned about my joint replacement?
Please follow up with your surgeon or their assistant. They’ll be able to walk you through any concerns. Please do not follow up with your primary care provider, urgent care or local ER unless absolutely necessary. If your surgeon is out of town or unavailable, we’ll have another surgeon follow up with you.

What if a problem occurs after-hours or over the weekend?
If the problem is potentially life-threatening, such as shortness of breath, chest pain or change in ability to think, seek out the closest emergency medical assistance.

If it’s not life-threatening, call our University Hospital operator at (573) 882-4141. For most concerns, we’ll have you come in for an evaluation in the clinic at the beginning of the week if the issue occurred over the weekend, or next day if the issue occurred during the week.

When should I call my surgeon?
Call your surgeon if you:
- Have a fever over 101.3 F
- Experience wound bleeding or draining more than five days after your surgery
- Have increased pain or difficulty moving joint
- Have increased pain in your calf or thigh muscle
- Have difficulty emptying bladder or having bowel movements for more than two days
- Are unable to participate in physical therapy
MEET YOUR TEAM

Attending Physician
A senior member of the medical staff who directs your care, performs your surgery, and is responsible for your overall care throughout your stay. (See next page to learn about our surgeons)

Fellow
A doctor who has finished residency and is specializing in a specific area of medicine.

Resident Physician
A doctor who is in the first one to five years of training after graduating from medical school.

Physician Assistant (PA) and Advanced Practice Nurse (APN)
A health care professional who collaborates with the physician to provide care.

Anesthesiologist and Certified Registered Nurse Anesthetist (CRNA)
A physician who administers anesthesia to you during your surgery, monitors your vital signs and may oversee pain control after surgery.

Hospitalist or Consulting Physician
A physician with whom attending physicians may consult on an area outside their specialty.

Physical Therapist (PT)
A health care professional who will assist you in regaining your ability to move and walk after your surgery. The PT will help you regain strength and motion in your new joint during your hospital stay and, in some cases, for the first few weeks after you return home.

Occupational Therapist (OT)
A health care professional trained to teach you how to perform activities of daily living, such as dressing and bathing, after your surgery.

Nursing Team
Health care professionals with varying degrees of training and education who will provide most of your hands-on care.

Department Manager
A nurse responsible for the unit.

Dietitian
An expert who will assist you in learning about the diet your doctor has ordered for you.

Case Manager or Social Worker
A specialist who helps you and your family to manage the logistics of your care, answers your questions and ensures that quality care is being delivered. A social worker also finds resources and helps plan your home care.
ATTENDING PHYSICIANS

James Keeney, MD
Dr. Keeney is Chief of the Division of Adult Reconstruction. He specializes in small incision hip and knee replacement, partial knee replacement and revision surgeries of the hip and knee.

Ajay Aggarwal, MD
Dr. Aggarwal is the director of joint preservation surgery. His clinical and research interests include adult reconstructive surgery, hip and knee replacement, hip resurfacing, hip arthroscopy, peri-acetabular osteotomy and impingement procedures.

Brett Crist, MD, FACS
Dr. Crist is co-chief of the trauma division, associate director of joint preservation surgery and director of the orthopaedic trauma fellowship. He specializes in orthopaedic trauma, and advanced techniques in hip replacement surgery.

Andrea Evenski, MD
Dr. Evenski is a board-certified orthopaedic surgeon who specializes in musculoskeletal oncology, limb sparing tumor procedures, and complex and primary joint reconstruction. She is primarily focused on limb salvage and reconstruction services.

Mauricio Kfuri, MD
Dr. Kfuri practices a comprehensive approach to knee surgery involving fracture care, sports medicine and reconstructive procedures, such as joint replacements.

All of our surgeons are fellowship-trained. Learn more about them at muhealth.org/ortho.
ABOUT THE MISSOURI ORTHOPAEDIC INSTITUTE

University of Missouri Health Care’s Missouri Orthopaedic Institute is a full-service, specialty hospital with comprehensive expertise in hip and knee replacement surgery. No other hospital in our geographic area combines specialty care in hip and knee replacement surgery, research, education, and a total commitment to hip and knee surgery as we do.

Our team and staff will help you recover and get back on your feet. We are justifiably proud of the high standards that our staff members set for themselves. Our surgeons perform thousands of hip and knee replacement operations, and other surgery related to the hip and knee, each year. Patients throughout Missouri, and from other states are referred to us for their care. It is our privilege to be able to help each and every one of our patients.

We are located at
1100 Virginia Ave. in Columbia, Missouri.
The main entrance, up
the ramp on the east
side of the building, has
a circle drive with valet
parking service for your
convenience. You can also
park on the second floor
of parking garage #7, and
cross the pedestrian bridge
to access the Missouri
Orthopaedic Institute.

From I-70
• Take exit 128A (Highway 63/Moberly/Jefferson City).
• Go south on Highway 63 to the Stadium Boulevard exit.
• Exit onto Stadium Boulevard, and go west (turn right) at
the stoplight.
• Follow Stadium Blvd. for 1.2 miles to Monk Drive.
• Take a right onto Monk Drive.
• Turn right on Virginia Avenue.
• The Missouri Orthopaedic Institute is on the corner of
Monk Drive and Virginia Avenue.

From Highway 63
• Exit onto Stadium Boulevard, and go
west at the stoplight.
• Follow Stadium Blvd. for 1.2 miles to
Monk Drive.
• Take a right onto Monk Drive.
• Turn right on Virginia Avenue.
• The Missouri Orthopaedic Institute
is on the corner of Monk Drive and
Virginia Avenue.
IMPORTANT PHONE NUMBERS

Orthopaedic Physician:  
Primary Care Physician:  
Other Physicians:  
Friend, Family and Other Advocate:  
Missouri Orthopaedic Institute........................................................................(573) 882-2663 (BONE)
Check-In (2nd floor)....................................................................................................(573) 884-2703
Pharmacy.........................................................................................................................(573) 884-3069
Inpatient Rehabilitation Services............................................................................(573) 884-9477
Inpatient Nursing Unit (MOI).....................................................................................(573) 884-9884
Inpatient Nursing Unit (University Hospital)......................................................(573) 884-9626
Social Worker..................................................................................................................(573) 884-4818
Mizzou Therapy Services..............................................................................................(573) 884-0655

If after hours, call Inpatient Nursing Unit for questions and concerns.