

PREPARATION AND RECOVERY

A comprehensive guide to your knee or hip joint replacement journey



B Bozeman Health
Spine + Joint Institute

EXCELLENCE IN ORTHOPEDIC SURGERY

SERVING SOUTHWEST MONTANA & BEYOND

WELCOME

We value your commitment to improve your health. Thank you for choosing Bozeman Health to help you reach that goal. Through high quality compassionate care, research, and surgical advances, we can help revitalize your quality of life.

Our orthopedic surgeons have worked closely with Bozeman Health medical staff to develop a joint replacement program that shortens your post-operative stay, improves the quality of your orthopedic care, and makes your entire experience more enjoyable. Bringing together our combined expertise, we have created a program that is unparalleled, with your satisfaction as our top priority.

Our goal is to treat each patient like family. With comprehensive patient education and individually tailored care, our program is designed to provide the information, care, and support you need every step of the way to achieve your ideal experience.

This guide will help you understand ways you can prepare for surgery and improve your recovery afterward. Please use the included checklists to help remind you what you need to do as your surgery date gets closer.

Your education and participation are essential to ensuring you have an outstanding experience and the best possible outcome, so please read all of the information in this booklet. Our staff is available to help you with questions and concerns. We look forward to being part of your joint replacement experience!

Sincerely,
Your Bozeman Health Team

Your surgery is scheduled for:

Important Phone Numbers

Bozeman Health Deaconess Regional Medical Center | 406-414-5000

Emergency | 911

Pre-anesthesia Clinic (PAC) | 406-414-4280

Perioperative Surgical Services | 406-414-1600

Patient Financial Services | 406-414-1015

Alpine Orthopedics | 406-586-8029

Bridger Orthopedic | 406-587-0122

TABLE OF CONTENTS

Understanding Your Joint Replacement Surgery | 3 - 5

Preparing for Surgery | 6 - 9

To Do Checklist, Preparing Your Home, Infection Prevention and Preparing Your Skin, and Quit Smoking

My Medications | 10

Day of Surgery | 11 - 12

Anesthesia | 13

Recovery in the Hospital | 14

Pain Management | 15

Activity After Surgery | 16 - 18

General Activity Time Frames, Occupational Therapy, and Physical Therapy

Transitioning Home | 19

What Happens When I Leave the Hospital? | 20

Recovery at Home | 21

Life After Joint Replacement | 22

Hip Precautions | 23

How to Prevent Potential Complications | 24 - 25

Common Questions | 26

When to Call with Questions or Concerns | 27

Durable Medical Vendors and Equipment | 28 - 30

Total Hip Exercises | 31 - 32

Total Knee Exercises | 33 - 34

Driving and Parking Information | Back Cover

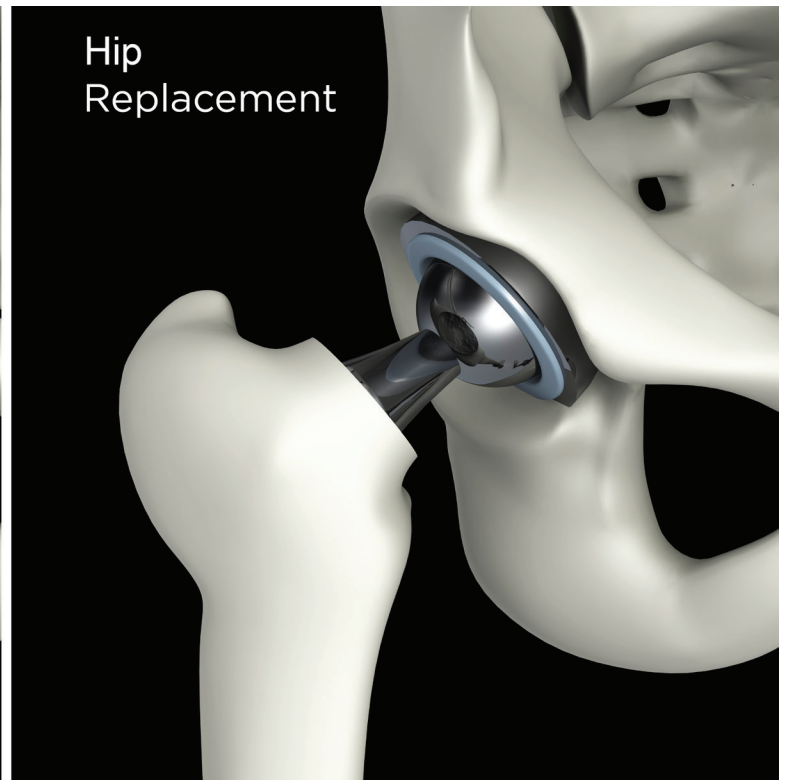
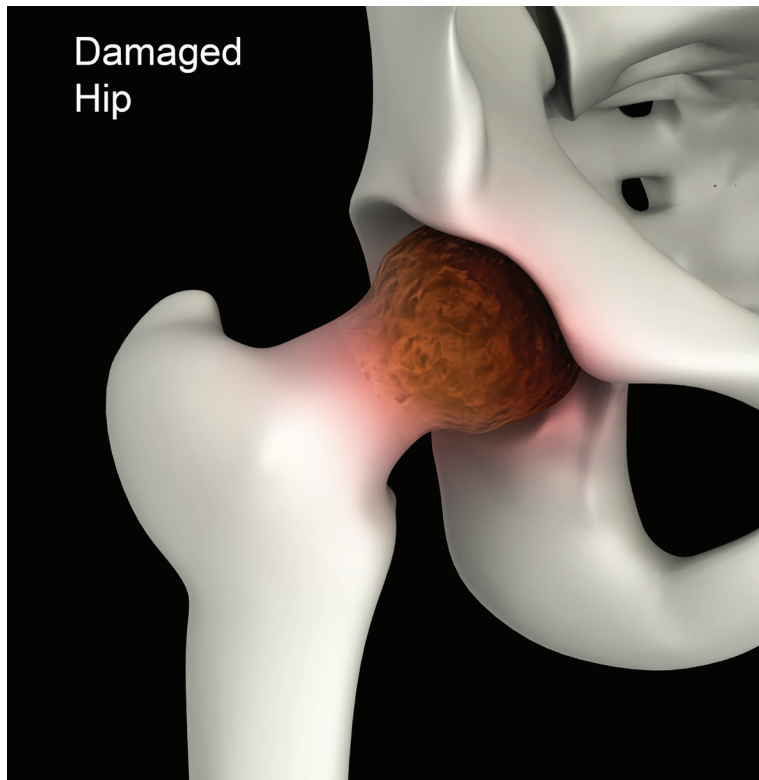
UNDERSTANDING YOUR JOINT REPLACEMENT SURGERY

WHAT CAUSES OSTEOARTHRITIS?

Osteoarthritis is the most common type of arthritis. As we age, the chances of developing osteoarthritis increase, though the severity of the disease is different for everyone. People in early stages of life can also develop osteoarthritis. Osteoarthritis breaks down the cartilage in joints and can occur in almost any joint in the body, though it occurs most often in the hips, knees and spine. Cartilage is the cushion that covers the ends of bones in normal joints so the bones articulate smoothly. It serves as a shock absorber as wear and tear occurs in the joints after years of use. There are several factors that increase a person's chances of developing osteoarthritis including family history, obesity, injuries like fractures in the joint, previous surgeries where cartilage was removed from a joint, and overuse. The aging process, as well as ordinary wear-and-tear, is the most frequent reason.

SYMPTOMS OF OSTEOARTHRITIS CAN INCLUDE:

- Joints that are sore and ache especially after periods of activity
- Pain that develops after overuse or when joints are inactive for long periods of time
- Joint swelling
- Stiffness
- Instability



TOTAL HIP REPLACEMENT SURGERY

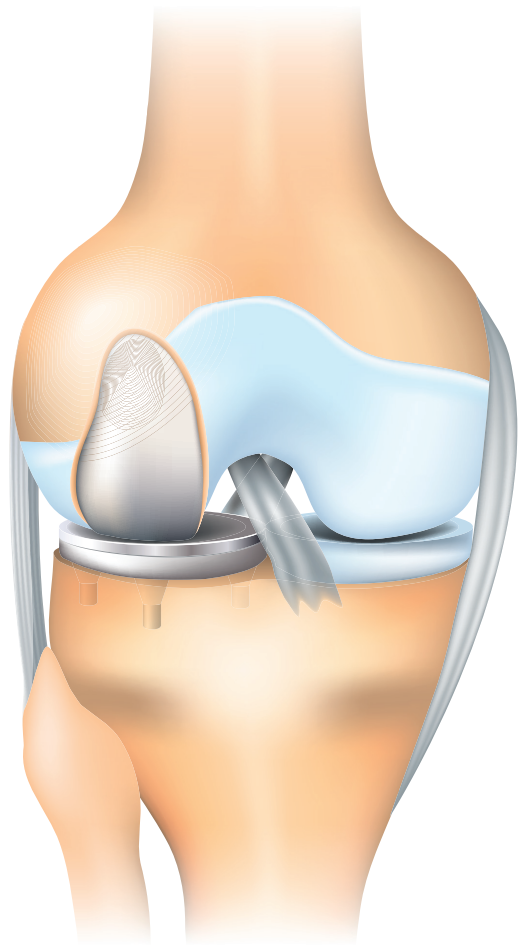
Total hip replacement is for patients with end-stage hip osteoarthritis or a myriad of other conditions that result in hip joint destruction, like avascular necrosis or hip dysplasia. The advent of newer surgical approaches, in combination with modern anesthesia techniques and a multimodal approach to pain control, has allowed surgeons to perform hip replacements with considerably less pain and debilitation. Embracing these novel techniques in joint replacement allow us at Bozeman Health to provide the same successful surgery with more rapid recovery and an improved surgical experience.

PARTIAL KNEE REPLACEMENT SURGERY

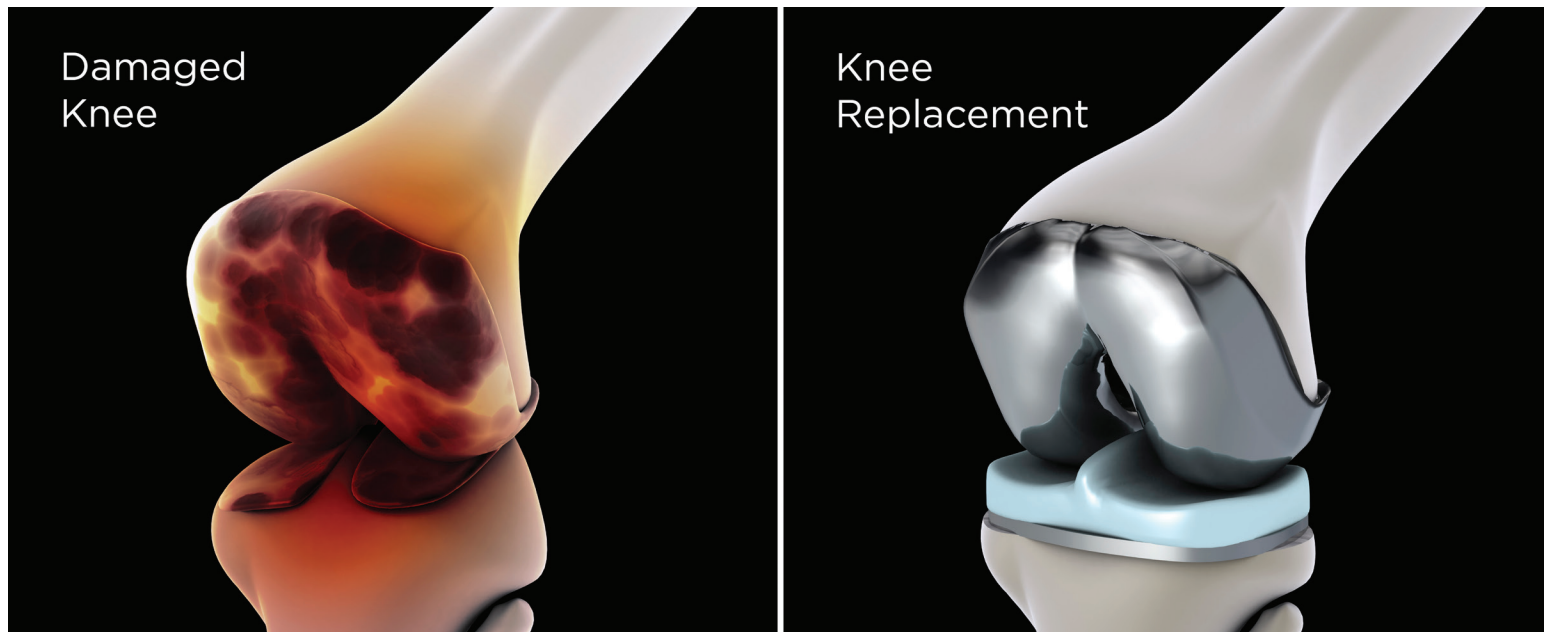
The knee joint is divided into three specific areas, called “compartments”. If the cartilage damage in your knee has occurred in only one compartment of your knee, leaving the remaining parts of the knee functional and not in need of surgical intervention, a partial knee replacement procedure may be performed.

Partial knee replacement surgery (unicompartmental knee arthroplasty) involves resurfacing one portion of the knee joint and using artificial components to replace damaged tissue. The concept with partial knee replacement is to do the least amount of surgery necessary to eliminate or reduce your pain. This procedure allows for a potentially faster recovery, less risk of complications, and provides excellent function, satisfaction, and activity level.

Most of the time, pre-operative x-rays and examination are accurate in determining if a patient is a good candidate for partial knee replacement. Occasionally, however, something seen or observed during the procedure would move the surgeon to change from a partial knee to a total knee replacement.



Partial Knee Replacement



TOTAL KNEE REPLACEMENT SURGERY

Total knee replacement, while a bigger operation than partial knee, has high patient satisfaction rates. Total knee replacement is recommended when more than one compartment is “worn out”, when the deformity is greater, and when ligaments are damaged, not functioning well, or cannot be balanced. The recovery from total knee replacement can be longer and more prolonged than partial knee; however, doing the right operation first with the best techniques available to provide long-lasting pain relief is our goal.

JOINT REPLACEMENT JOURNEY

1. You Decide to Have Surgery

Surgeon:
Procedure:
Date:

2. Your Surgery Nurse Navigator

Name:
Phone:

3. Pre-Surgery Optimization

**Bozeman Health Deaconess Regional
Medical Center**
Pre-Anesthesia Clinic
Entrance 8, 2nd Floor

Date: Time:

- Physical exam
- Testing (EKG, labs, etc.)
- Discuss anesthesia
- Make discharge plan

4. Total Joint Replacement Class

Date: Time:

Call 406-414-4280 to schedule.

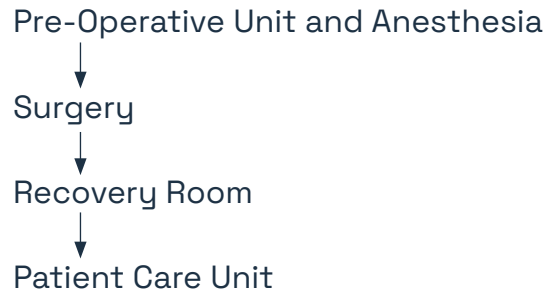
5. Day Before Surgery

Call from Nurse Navigator with check in time for surgery and instructions for eating and drinking.

Surgery Check-In Time:

Bozeman Health Deaconess Regional
Medical Center
Surgical Services
Entrance 8, 2nd Floor

6. Day of Surgery



7. Discharge from Hospital (see page 20)

- Home and outpatient recovery
- or -
- Home with home health services
- or -
- Rehabilitation unit/Skilled nursing facility

8. Follow-up Appointments

SURGEON

Date: Time:

POST-OPERATIVE PHYSICAL THERAPY

Date: Time:

Congratulations!
**You have completed your joint
replacement journey!**

PREPARING FOR SURGERY

Please read this entire booklet and bring to all appointments including day of surgery.

To Do Checklist

- ☐ **Contact insurance company about surgery and rehabilitation coverage.**
- ☐ **Designate a coach.**
Your joint replacement “coach” can be a family member, friend, or other individual who will help you navigate through your joint replacement journey. Ideally, your coach will accompany you to your Pre-Anesthesia Clinic appointment, Shoulder Replacement Class, be available during your stay in the hospital, and serve as your primary assistant when you return home.
- ☐ **Compile a complete list of your current medicines**, including prescriptions and over-the-counter medications, dosages, and times taken. Be sure to list any medications you are allergic to. (see page 14)
- ☐ **Pre-Anesthesia Clinic Appointment**
You will be asked to complete a pre-operative medical optimization with the Pre-Anesthesia Clinic (PAC) at Bozeman Health. The pre-surgical clearance provides the surgeon, anesthesiologist, and nursing staff with important information that assists in the management of your health care.
- ☐ **Total Joint Class**
Your surgeon requires that you attend a one hour class in preparation for your upcoming surgery. This free class is led by a nurse navigator and includes information on how to prepare for surgery, what to expect during your stay in the hospital, and what to anticipate in the recovery process. Our goal is to help decrease anxiety related to surgery and improve your surgery outcome by sharing ways that you can be an active participant in the preparation and recovery process.

Please plan to attend 2 - 4 weeks before surgery. Offered weekly, Call 406-414-4280 for more information or to sign up.
- ☐ **Prepare your home.** (see page 7)
- ☐ **Obtain any equipment necessary for recovery at home.** (see pages 28 - 30)
- ☐ **Pack hospital bag.**
- ☐ **Pack glasses, dentures, hearing aids, CPAP machine, a copy of your Advanced Directive, and this booklet.**
- ☐ **Arrange for a ride to and from the hospital, and for help at home after surgery.**
- ☐ **Pre-surgery bathing** the night before and the day of your surgery. (see page 8)

Preparing Your Home

Here are some ideas that will assist in making your home safe.

- ☐ Purchase a non-slip bathmat for inside your tub/shower.
- ☐ Check every room for tripping hazards. Remove throw rugs and secure electrical cords out of your way.
- ☐ Determine what items from dressers, cabinets, and shelves you will need immediately after returning home. Any items you use often should be moved to counter height to avoid excessive bending or reaching.
- ☐ Plan on using a cordless phone or cell phone. They can be tucked away inside a pocket, carried easily, or set within reach.
- ☐ Make sure stairs have handrails that are securely fastened to the wall.
- ☐ If you have pets, you may want to consider boarding them for a few days after your return home.
- ☐ A chair which has a firm back and arm rests is recommended during your recovery. A chair that sits higher will help you stand more easily. Chairs with wheels should not be used under any circumstances.
- ☐ To minimize cooking, prepare meals in advance and freeze them. Alternatively, you can purchase prepared meals for convenience.
- ☐ Install night lights in bathrooms, bedrooms, and hallways.
- ☐ Do laundry ahead of time and put clean linens on your bed.
- ☐ Arrange for someone to collect your newspaper and mail.



Your safety is our primary concern. We recommend that your family member or friend stay with you after your surgery until you can perform activities of daily living independently and safely. Typically, this occurs within 72 hours after you return home.

Infection Prevention and Preparing Your Skin

DENTAL CARE

The American Dental Association suggests brushing your teeth twice a day with a soft-bristled brush and rinsing with mouthwash. Flossing daily can help reduce the bacteria between teeth where your brush can't reach. Be sure to brush your teeth, floss, and rinse with mouthwash everyday - even the morning of surgery. All dental work, including cleaning, must be completed at least **SIX weeks prior** to your surgery. You must call your surgeon's office if any dental problems arise before your scheduled surgery date.

ILLNESS

If you become ill with a fever, cough, sore throat, flu, or any other illness, please contact your surgeon's office.

SHAVING

It is very important that you do not shave your legs or use any hair removal products anywhere near the surgical area for **THREE** days prior to surgery. Studies show an increased risk of surgical site infection associated with shaving. This is attributed to the microscopic cuts in the skin that allow bacteria to enter.

TOENAIL POLISH

You should remove all fingernail polish from surgical arm as it can harbor bacteria.

SKIN

Our skin is the largest organ of our body. One of its many functions is to prevent dirt, bacteria, and viruses from getting inside our body. All of us have millions of microorganisms on our skin, and if our skin is cut, microorganisms are able to get in and cause an infection. Broken skin such as cuts, burns, or rashes should be reported to your surgical team. Because incisions will be made through your skin for surgery, you are at a higher risk for infection. There are many things you can do to help prevent the chance of infection:

- Do not shave your legs or use any hair removal products anywhere near the surgical area for **THREE** days prior to surgery.
- Use chlorhexidine gluconate (CHG)* soap.
- Wash your hands or use hand sanitizer.
- Do not touch your incisions after surgery.

Preparing your skin before surgery can help reduce the risk of a surgical site infection by removing the bacteria that is normally on our skin or found in the environment. Chlorhexidine gluconate (CHG) is a special soap used before surgery. Hibiclens or DYNA- HEX – are both CHG soaps.

Please follow the instructions on this page to use it.

*HOW DO I BATHE OR SHOWER WITH CHG SOAP?

Plan to shower using CHG two nights before, the night before, and the morning of surgery.

1. If you have any open skin areas at the time of using CHG, ask your surgeon before using it.
2. Use regular shampoo to wash your hair. Wash your face and genital area with your normal soap.
3. Rinse hair, face, and body thoroughly to remove any shampoo or soap residue.
4. Apply CHG directly to your skin or on a clean, wet wash cloth and wash gently. If showering, move away from the water when applying CHG to avoid rinsing it too soon. Rinse thoroughly with warm water once applied. **USE ONLY AS DIRECTED.** *See CHG label for full information and precautions.
5. Do not use regular soap after applying and rinsing CHG.
6. Dry your skin with a clean towel.
7. **DO NOT** apply any lotions, creams, perfumes, makeup, or other products to your skin.
8. Put on clean pajamas or clothes after bathing. If you have pets, please do not allow them to sleep in bed with you the night before your surgery.



Quit Smoking

If you smoke or chew tobacco, plan to quit as soon as you know you may need to have surgery. The sooner you quit smoking, the more benefits there are.

Smoking can increase your risk of surgical complications, including:

- Increased risk of lung problems such as pneumonia
- Increase risk of heart problems such as high blood pressure, heart rate and risk of irregular heart beat (arrhythmias)
- Decreased oxygen in your blood
- Increased risk of blood clots
- Increased risk of wound complications such as slow healing, infections, cell and tissue death, and hernias at the wound site.

When should I quit?

- Before surgery is the best time - the quit rate is much higher for those who quit before surgery.
- Quitting eight weeks before surgery can help improve your airway function.
- Quitting four weeks before surgery can help decrease your surgical complication rate by 20-30 percent.
- Quitting one day before surgery can help improve your blood pressure and heart rate.

RESOURCES TO HELP QUIT SMOKING

AMERICAN LUNG ASSOCIATION

- www.lungusa.org

CENTER OF DISEASE CONTROL

- www.cdc.gov/tobacco/quit_smoking

NATIONAL CANCER INSTITUTE TOBACCO LINE

- 1-877-448-7848 (also in Spanish)

AMERICAN SOCIETY OF ANESTHESIOLOGISTS

- www.asahq.org/stopsmoking/provider

SMOKEFREE.GOV

- teen.smokefree.gov
- espanol.smokefree.gov
- women.smokefree.gov



MY MEDICATIONS

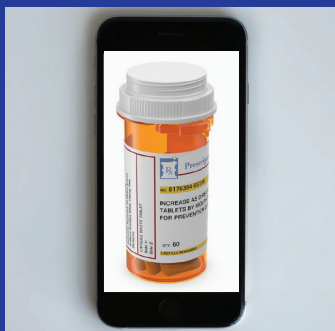
PLEASE DO NOT BRING YOUR MEDICATIONS FROM HOME UNLESS YOU ARE SPECIFICALLY INSTRUCTED TO DO SO.

Your physician will prescribe any necessary medication from the hospital pharmacy. If you do bring your medications to the hospital, they will be sent home or stored in the hospital pharmacy for you until your discharge.

MEDICATIONS YOU MAY AND MAY NOT TAKE PRIOR TO SURGERY

During your Pre-Anesthesia Clinic appointment, a nurse will review which medications to take the morning of surgery.

If you have questions about which medications to take before surgery, please call the Pre-Anesthesia Clinic at 406-414-4280.



If you have problems writing or typing your medication list, you can also use a smartphone to take pictures of any medications you take.

You can also ask your pharmacist to print out a list of your prescription medications.

DAY OF SURGERY

CHECK-IN

You will be contacted by Bozeman Health one working day before surgery to inform you of your check in time and eating and drinking instructions. You may continue to drink clear liquids (water, sports drink) to stay hydrated even once you have stopped eating solid food. If you do not follow these instructions, your surgery may be cancelled. Check in times are based on patient's specific medical needs, age, and type of surgery. If you have any questions or concerns regarding your scheduled time, please call 406-414-1600.

DAY OF SURGERY

- Shower, using the CHG soap, before coming to the hospital. (See page 8)
- Wear clean, comfortable clothes.
- Do not wear any cream or lotion on the surgical area. No toenail polish on operative side.
- Do not eat or drink anything (other than water or clear sports drink) including candy, cough drops, gum, and chewing tobacco/smoking.
- Take any medications as instructed at your Pre-Anesthesia Clinic appointment with a small sip of water. If you do not remember which medications to take, please call the Pre-Anesthesia Clinic at 406-414-4280.
- Bring this booklet with you.
- Bring a complete list of your current medicines, including prescriptions and over-the-counter, dosages, and times taken. Be sure to list any medications you are allergic to.
- Bring a bag with personal items including toiletries.
- Please leave all valuables at home as the hospital cannot be responsible for these items.



ARRIVING AT BOZEMAN HEALTH

When you arrive, park in designated patient parking areas. For your convenience, a map and driving directions are provided at the back of this guide.

Enter Highland Park Building 4, Entrance 8. Go to perioperative services on the second floor. In the perioperative services registration area you will be greeted and checked in for your surgery.



SURGERY PREPARATION

After you check in at registration, you will be directed to the surgical preparation area. A wristband will be applied at this time. If you have any allergies, an additional wristband will be applied. It is important for you to verify that all information on your identification bracelet is correct.

You will be asked to change into a surgical gown. Your clothes and any items you brought with you will be placed in a locker.

Just before surgery, a nurse will review your medical records, take your vital signs, perform a brief physical exam, clean the surgical site, and start an IV. The IV allows medication and fluids to flow directly into your bloodstream. We utilize preoperative antibiotics to reduce the risk of infection.

Your orthopedic surgeon and the anesthesiologist will visit you in the pre-op area prior to surgery. Among other things, your surgeon will ask you to identify which joint is being operated on and will mark the surgical site with a special marker. Your anesthesiologist will review your chart, discuss your anesthesia, and answer any questions.

FAMILY WAITING

Your family member or friend will be able to stay with you until you are ready to be transported to the operating room. At this point, they will be directed to a family waiting area where they will wait while you have your surgery. Once your joint replacement is complete, a member of the surgical team will contact your family member or friend. At this point, they will be able to speak with your surgeon to discuss your procedure.

THE OPERATING ROOM

Inside the operating room, you will be cared for by a team of physicians, physician assistants, nurses, and skilled technicians. You can expect to have compression sleeves placed on your calves in the operating room. These sleeves will squeeze your legs at regular intervals to circulate blood and to help prevent clotting. The OR is often cold and bright, but you will be provided with a blanket to keep you warm throughout the procedure. When you are settled on the operating bed, the anesthesiologist will make you comfortable for the procedure. The total time required for surgery will be different from patient to patient depending on the complexity of your procedure.

ANESTHESIA

Your anesthesiologist will meet you before surgery and discuss your medical and anesthetic history. Together, you will determine the best plan for your anesthesia. This is also a good time for you to discuss any prior history of anesthesia complications or current concerns.

Many total joint operations are performed using regional anesthesia (spinal combined with peripheral nerve blocks). Spinal anesthesia is used for the operation itself and peripheral nerve blocks are used for postoperative pain.

SPINAL ANESTHESIA

(BOTH KNEE AND TOTAL HIP REPLACEMENTS):

Spinal anesthesia involves placing local anesthesia near the spinal cord to produce loss of sensation (numbness) to the lower extremities, including the hip and knee. This is the most common type of anesthesia used for total joint replacements in the lower extremities. The procedure involves IV sedation for relaxation, followed by local anesthetic to the lower back (lumbar area) skin. A small needle is passed after the skin is numb, and local anesthetic deposited to make the lower extremities completely numb.

IV SEDATION

In addition to a spinal block, you will receive IV sedation during the operation which allows you to relax and feel very comfortable and sleepy.

GENERAL ANESTHESIA

General anesthetic provides anesthesia for the entire body by changing the way the brain perceives pain.

Regardless of the type of anesthesia, your surgeon will also use long acting local anesthetics at the surgical site. Additionally, your surgeon may prescribe non-opioid pain relievers for both before and after surgery to reduce the number of opioids needed post-operatively.



PERIPHERAL NERVE BLOCKS

(KNEE REPLACEMENTS ONLY):

A nerve block is the temporary numbing (blocking) of a nerve bundle. For total knee replacements, you will receive a nerve block that will provide pain relief after your surgery. The block is performed before surgery, with IV sedation/relaxing medicine, by using an ultrasound and needle to place medication near the nerve bundle that covers the knee. You may receive this one time injection (single shot) or a longer term block with medication given through a tiny tube to the area.

Single shot nerve blocks typically last eight to 24 hours. If the numbing medicine is delivered through tubing (a continuous nerve catheter), it typically will last 48-72 hours. Once the nerve block starts wearing off (6-8 hours after the nerve catheter is removed), you will start to get feeling back and you may start to have a slight increase in pain.

RECOVERY IN THE HOSPITAL

POST OPERATION

After surgery, you will be transported to an area called the Post Anesthesia Care Unit (PACU) or recovery room. Your stay in the PACU will depend upon the effects of the anesthesia and pain control. Nurses will check your vital signs and monitor your progress.

You will then be admitted to a hospital room or, in some circumstances, discharged home. If you are admitted overnight, a hospitalist (medical doctor) may assist in your medical care during your hospitalization.

WHAT TO EXPECT FROM YOUR NURSES

They will:

- Help you determine the need for pain medication.
- Administer your regular medications as well as medication to prevent blood clots.
- Monitor any side effects to medicines; don't forget to tell the nurse if you experience any nausea or itching.
- Check your bandages and check drainage from your surgical site.
- Remove incision drain and IV.
(the IV port will remain for any further need until you are discharged)
- Encourage you to cough and take deep breaths, you will be instructed on and go home with an incentive spirometer to prevent post-operative pneumonia.
- Assist you to the bathroom or commode.
- Assist you to the chair or back to bed.

Remember, please use the call light to request help from the staff to get back from the bathroom or in/out of bed and the chair.

DIET AND NUTRITION – AFTER SURGERY

After surgery you may resume a regular diet. While in the recovery room, you may be given a light snack, such as juice and crackers. Stay well hydrated by drinking water. Eat a healthy diet.

Your discharge instructions will let you know if there are any diet restrictions you must make after surgery.



PAIN MANAGEMENT

WHAT TO EXPECT

It is important to control your pain following surgery. When you are in a lot of pain, you will be less likely to do the things you need for recovery such as eating, drinking, walking, and taking deep breaths.

The amount of pain and discomfort you experience depends on multiple factors. Your physicians and nurses will do everything possible to relieve your pain and discomfort using medications and other techniques.

During the first day and over the next few days you will start taking pain medications by mouth. Arrange to take your pain pills approximately 30 minutes prior to doing your exercises to help control the soreness that often accompanies activity in the first few days after surgery. It is normal to experience a deep ache through the bone after surgery.

Ice packs can be placed on the surgery area throughout the day by nurses and therapists. **Do not place ice pack directly on your skin as it may cause frostbite.**

You can help us by letting your health care team know your pain rating. Controlling pain will help ensure you continue to play an active role in your recovery.

PAIN MEDICATION

Our goal is to use preoperative medications and special injections during the surgery that will reduce your pain and therefore reduce the need for postoperative opioid pain medications. Opioids can cause nausea and vomiting and can slow down your bowel function.

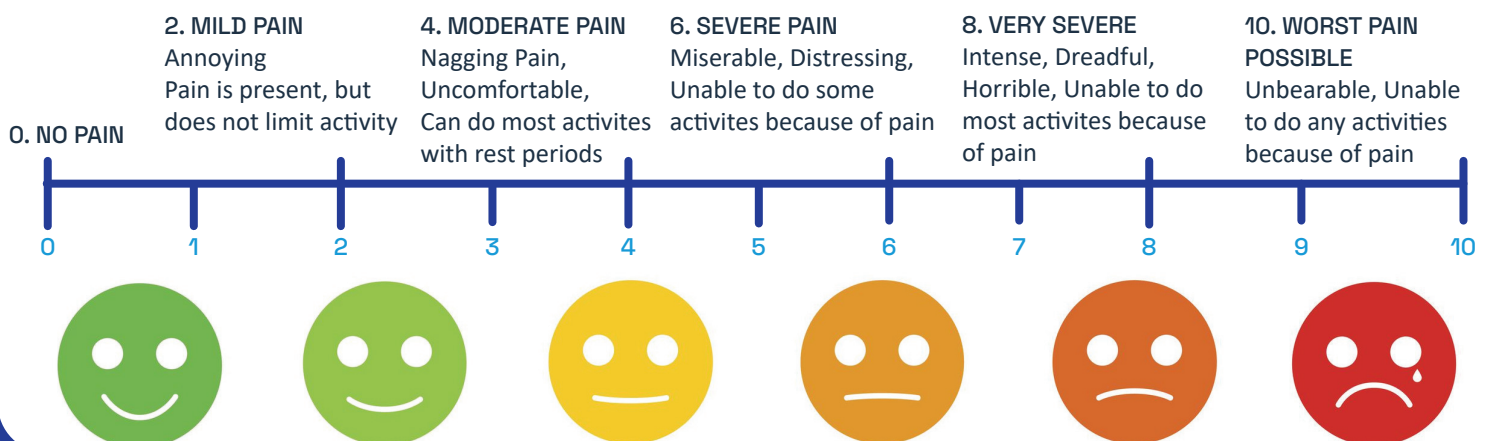
Be sure to take your pain medications by mouth with food. You may not drink alcohol or drive while taking prescribed pain medication.

SIDE EFFECTS OF OPIOIDS

- **Constipation**—drink plenty of water and eat high-fiber foods (fruits and whole grains). You will be instructed to take an over the counter stool softener. Exercise and walking also help prevent constipation. If you do not have a bowel movement within two days, there are other medications that can assist with this; please ask.
- **Nausea or vomiting**—there are medications to help control or prevent this.
- **Drowsiness**—this usually goes away in a few days after you get accustomed to the medication. Report severe drowsiness or confusion.
- **Itching**—may occur with certain medications; notify your nurse or doctor if this occurs.

PAIN ASSESSMENT SCALE

Please use this scale to indicate the level of pain at any given time.



ACTIVITY AFTER SURGERY

After your surgery, it is important to get out of bed and be active. Being active will help:

- Prevent blood clots from forming
- Assist in the return of normal bowel function after surgery
- Help you get back to your regular daily activities sooner
- Prevent lung infections such as pneumonia

You may walk with assistance when it has been determined that you are stable. The amount of weight you are permitted to place on your new joint will be communicated to you after surgery and is determined by your surgeon based upon intra-operative findings.

To ensure maximum success, it is important that you follow physical therapy instructions both while you are in the hospital and after you are discharged to home. Day of Surgery

It is important to use crutches or a walker to prevent falls after surgery. Most patients use crutches or a walker for 1 to 2 weeks and then transition to a cane.

Post-operative exercises are designed to help increase strength and flexibility in the joint. Ultimately, the goal is for you to perform activities of daily living, like walking, climbing stairs, and getting in and out of a bed and up and down from a chair or toilet.

For knee replacement surgery, the first goal is to attain 0-90-degree range of motion by no later than two weeks post-operatively. It is imperative that full knee extension (complete straightening of your knee) is achieved to avoid a permanent limp.



GENERAL ACTIVITY TIME FRAMES

DAY OF SURGERY

- Diet as tolerated.
Start slow and advance as you feel better.
- Ice therapy 20 minutes once an hour.
- Take pain medications as needed.
- Start physical therapy.
- Ankle pumps as instructed.
- Up in chair as tolerated.
- Walk with a walker to help with balance for first few days.
- Use incentive spirometer 10 times every hour while awake.
- Transition home, if applicable.

FIRST POSTOPERATIVE DAY

- May shower with assistance, keeping the dressing and wound dry.
- Continue use of ice as instructed.
- Take pain medications as needed.
- Exercises at least 3 times.
- May go up and down a flight of stairs once (or as tolerated).
- Elevate and extend operative leg with two pillows under the heel to reduce swelling when you are not doing exercises or walking.
- Use incentive spirometer 10 times every hour while awake.
- Transition home, if applicable.

SECOND POSTOPERATIVE DAY

- Continue use of ice as instructed.
- Take pain medications as needed.
- Elevate and extend operative leg with two pillows under the heel to reduce swelling when you are not doing exercises or walking.

It is vital that you do ankle pumps and walk for 10-15 minutes every 1-2 hours. This will help prevent blood clots and joint stiffness.



OCCUPATIONAL THERAPY

Occupational therapists help you to increase independence in everyday activities (dressing, bathing, and using the toilet). This may include changes to your surroundings or equipment to enhance function.

What will I do with the occupational therapist in the hospital?

- Practice using adaptive equipment for dressing. This will include instruction in compensatory techniques. Bring loose fitting clothing to wear home.
- Do grooming/hygiene tasks in a sitting position, working up to a standing position at the sink.
- Work on bathing ability using a shower chair and removable shower head.
- Discuss home layout as it relates to safety issues and equipment needs.

PHYSICAL THERAPY

Physical therapists are experts in the movement and function of the body. They can help people gain or regain the physical abilities they need for day-to-day functioning, working, or participating in sports or other activities.

What will I do with the physical therapist in the hospital?

- Learn exercises to improve your strength and range of motion.
- Practice using a walker to improve mobility.
- Work on restoring normal walking pattern.
- Ensure you are comfortable using stairs if applicable.

TRANSITIONING HOME

There are certain goals you must reach so that you can be safely discharged from the hospital, and your medical team will work with you to help you reach these goals and plan for this transition.

Please coordinate any private home care, home health care, or outpatient services with your provider prior to your scheduled procedure, including obtaining any durable medical equipment. A Case Manager will be available to assist you with any additional discharge needs that may arise during your stay in the hospital.

GENERAL DISCHARGE CRITERIA

- Tolerate the diet your physician prescribed to you.
- Drink all of the liquid your body needs without feeling sick.
- Pass gas.
- Manage your pain with oral pain medicine only.
- Get out of bed and walk without help.

Everybody meets discharge criteria at slightly different times. Different surgeries, and different surgical approaches may need more or less time in the hospital. For some surgeries you are able to go home the same day. Please talk with your surgeon about expectations for your surgery.

You will need to arrange for a responsible adult to drive you home. To make your ride more comfortable, your driver should bring pillows, slide your seat back, and recline the seat slightly.



MEDICATIONS YOU MAY GO HOME WITH:

- Acetaminophen (Tylenol) and an opioid medication for pain management.
- Celecoxib (Celebrex) to decrease inflammation and pain.
- Aspirin or a blood thinning medication to help prevent blood clots.
- Cephalexin (Keflex) or another antibiotic to prevent infection.
- A muscle relaxant for muscle spasms.
- A stool softener to prevent constipation.

These prescriptions and instructions will be given to you during the discharge process from the hospital. Resume your home medications as instructed by your physician.

WHAT HAPPENS WHEN I LEAVE THE HOSPITAL?

OPTION ONE | HOME WITH OUTPATIENT SERVICES

- Follow-up appointments at surgeon's office.
- Physical therapy at clinic of your choice, if ordered by your surgeon.

Best option if you have:

- Good mobility
- Help with transport
- Help at home

OPTION TWO | HOME WITH HOME CARE SERVICES

- Nurse comes to your home to check incision and assist with medications.
- Physical therapy, if your surgeon orders it, at your home to instruct in post-operative exercises.

Best option if you have:

- Help at home, but still have limited mobility.
- Limited help with transportation.

OPTION THREE | SKILLED NURSING FACILITY/REHAB

- Nursing, physical therapy, and occupational therapy provided on site. Your goal is to build up strength and independence before going home.
- 24-hour nursing care.
- 24-hour nurse aide assistance for mobility and routine activities.

Best option if you have:

- Medical needs in addition to a joint replacement that requires a longer hospital stay, you might qualify for a skilled nursing facility stay.

RECOVERY AT HOME

PHYSICAL ACTIVITY

Being overaggressive with your exercises and therapy may lead to increased pain and swelling.

Work on your range of motion exercises gradually, but multiple times per day, for the best results.

- It is vital that you do ankle pumps and walk for 10-15 minutes every 1-2 hours.
This will help prevent blood clots and joint stiffness.

WOUND CARE INSTRUCTIONS

- Always clean your hands with soap and water or an alcohol-based hand rub before and after caring for your surgical incision(s).
- Do not allow pets too close to your surgical incision(s).
- Do not apply any ointments or lotions unless specifically instructed to do so by a provider.
- No pools, baths, or soaking of the surgical incision(s) until instructed to do so by your surgeon.
- Family/friends who are visiting should clean their hands with soap and water or an alcohol-based hand rub before and after visiting.

WHEN CAN I RESUME MY NORMAL ACTIVITIES?

Participating in as much of your personal care as possible will increase your confidence and independence as well as supplement your exercise program.

During your follow up visit, check with your surgeon about when to return to specific athletic activities.

IMPORTANT REMINDERS

- Avoid wet and slippery areas, and be very cautious around children and pets as they can be unpredictable.
- Listen to your body and rest when you need to. Do not allow yourself to become fatigued.



WHEN CAN I DRIVE?

There are several factors to be taken into account when resuming to drive. They include managing medications, which side of your body was operated on, and if your vehicle is a manual or automatic.

Discuss this with your physical therapist and your surgeon.

General guidelines are:

- **Left leg surgery:** you may drive when you feel up to it and not taking opioid pain medications during the day.
- **Right leg surgery:** You may not drive for at least 6 weeks following your surgery or until you are instructed to do so by your surgeon.

LIFE AFTER JOINT REPLACEMENT

TRAVELING

When traveling long distances, you should attempt to change position or try to stand every hour. Some of the exercises, like ankle pumps, can also be performed should you need to sit for long periods of time. Because your new artificial joint contains metal components, you may set off the security systems at airports or shopping malls. This is normal and should not cause concern.



EXERCISES AND ACTIVITY

Exercise and maintaining an active lifestyle are important parts of health. Most patients with artificial joints are able to enjoy many activities, though some should be avoided. In general, high impact exercises, like running, jumping, heavy weight lifting, or contact sports, are not recommended. Participating in these activities, or activities like them, may damage your joint or cause it to wear down much more quickly. Low impact activities like swimming, walking, gardening, and golf are encouraged. You may kneel on your new knee without damaging it; however, it will likely feel uncomfortable.

DENTAL CARE/ANTIBIOTICS

FOR YOUR LIFETIME, you must take care to prevent an infection of your total joint. Antibiotics must be taken before any dental procedure, including routine cleanings. **IT IS IMPORTANT TO NOTIFY YOUR DENTIST THAT YOU HAVE A JOINT IMPLANT.** It is essential that you obtain a prescription from your dentist or surgeon for a prophylactic antibiotic to be taken **PRIOR** to any dental cleaning or procedure. You will need to remind your dentist before every scheduled appointment in the future of this requirement in order to reduce the risk of developing an infection in your joint.



WHAT RESULTS ARE TYPICAL?

You can expect a successful outcome from your joint replacement surgery. Generally, patients experience less pain and more mobility, and can resume most of the activities they enjoyed before the onset of arthritis. Your artificial joint will last longer if you maintain your ideal weight, exercise, and undergo routine follow-up examinations.

HIP PRECAUTIONS

ANTERIOR HIP PRECAUTIONS

With this procedure your precautions are to avoid extremes of motion of the hip in any direction.

POSTERIOR HIP PRECAUTIONS

With this procedure you must follow the hip precautions listed below:

- **DO NOT BEND FORWARD PAST A 90-DEGREE ANGLE**
 - This means you cannot lean forward to put on socks or tie shoes.
 - Your occupational therapist will provide you with equipment to make these tasks easier and safe for your new hip.
- **DO NOT CROSS YOUR LEGS**
 - Even crossing your un-operated leg over the operated leg can cause the new hip to possibly dislocate.
- **DO NOT PIVOT ON YOUR OPERATED LEG**
 - When turning around or moving side to side, you must move your feet in many small steps.
 - Do not plant your foot and twist, as this can cause the new hip to dislocate.



HOW TO PREVENT POTENTIAL COMPLICATIONS

All surgical procedures have some risks. Despite utilizing specialized pre-operative testing, the latest techniques, and novel pain and rehabilitation management, every joint replacement is still a major surgery. Although advances in technology and medical care have made the procedure relatively safe, these risks do exist. These risks should be considered carefully before you decide to have surgery. We encourage you to discuss the potential risks with your orthopedic surgeon, primary care provider, and your family.

Every measure will be taken by our team of experts to minimize the risks and avoid complications. Although complications are rare, they do sometimes occur. We will do our very best to avoid the most common risks which include:

SURGICAL SITE INFECTION

After surgery, an infection can develop in the part of the body where surgery took place – this is called a surgical site infection (SSI). Most patients who have surgery do not develop an infection. Although rare, SSIs can be serious. We want all patients to be aware of the possibility of an SSI and help prevent them. Patients with chronic health conditions, like diabetes or liver disease, or patients who take corticosteroids, are at higher risk of infection after any surgery. Superficial wound infections are usually treated with antibiotics. Deeper infections inside the joint may require additional surgery.

Some common SSI symptoms include:

- Cloudy fluid draining from your surgical wound.
- Fever.
- Pain, redness, and warmth around the surgical area.

As your body heals, it is usual to see some redness and swelling at your incision. Do not be alarmed.

If you are concerned about redness and swelling associated with pain, fever or cloudy fluid draining from your incision, please call your doctor for further instructions.

BLOOD CLOTS

Deep vein thrombosis (DVT), or a blood clot in your leg, is a possible complication of joint replacement surgery. A blood clot that travels from your leg to your lungs is called a pulmonary embolus.

It is very important that you follow instructions to prevent blood clots:

- Take your anticoagulant medication as directed.
- Wear your TED stockings (compression socks) as directed after your surgery.
- Minimize time in bed after surgery, take walks several times a day.

SIGNS OF A BLOOD CLOT IN YOUR LEG (DVT):

- Swelling of foot, ankle, calf, or thigh that does not resolve with elevation.
- Pain, heat, and/or tenderness in leg or calf.

If you develop any of the above signs, please notify your surgeon's office.

SIGNS OF A PULMONARY EMBOLUS:

- Sudden chest pain.
- Rapid or difficult breathing.
- Shortness of breath.
- Sweating.
- Feeling lightheaded or passing out.

If you develop any of the above signs, this is an emergency and you must call 911 right away.

HEMATOMA

Bleeding into the joint can occur either immediately after surgery or at a later time. This is accompanied by acute pain and swelling and is sometimes confused with infection.

NERVE, BLOOD VESSEL, AND LIGAMENT INJURIES

Damage to the surrounding structures including nerves, blood vessels and ligaments, are possible but extremely rare. More commonly there is numbness in the area of the incision which usually, but not always, resolves in 6-12 months. Do not be surprised if you have some small residual numbness in one or more areas around your incision.

WOUND HEALING

Sometimes the surgical incision heals slowly, particularly if you take corticosteroids, smoke*, or have a disease that affects the immune system, such as diabetes.

* Smoking can cause serious complications, and quitting before undergoing joint replacement surgery is strongly encouraged. Talk with your orthopedic team or your family physician if you need help with smoking cessation.

WEAR

Your new joint replacement is a mechanical device that will wear over time. The rate of wear may depend on your age, weight, and activity level. Specialized plastics (polyethylene) are used that have dramatically reduced wear in hip and knee replacement.



LIMITED RANGE OF MOTION

Limited range of motion (ROM) is mostly an issue with knee replacements rather than hip replacements. Within a day of surgery, you will begin exercises to help improve flexibility. The best predictor of post-operative ROM is pre-operative ROM. Your goal after a knee replacement is 0-90 degrees ROM within two weeks. Ultimately the goal is 0-approximately 120 degrees ROM. This usually requires hard work with physical therapy for many weeks.

LOOSENING OF THE JOINT

Over the long term, loosening of the artificial joint is a risk associated with any joint replacement. Joint replacements are meant for low impact activities. This is especially true for partial knee replacements. Running/jogging for exercise is not recommended on any joint replacement.

REDUCE YOUR RISKS

You can help reduce your risks of many of these complications by:

- Reducing or eliminating the use of tobacco, if applicable.
- Being compliant with managing your diabetes, if applicable.
- Maintaining a healthy diet.
- Using good hand washing techniques.
- Performing your exercises as directed by occupational or physical therapy.
- Limiting high impact activities.

COMMON QUESTIONS

WHAT TIME IS MY SURGERY?

Bozeman Health will call you one business day before surgery to review instructions and verify your check in time. If you do not have a surgery time by 3:00 pm one business day before your surgery, call 406-414-1600.

WHAT ARE MY EATING INSTRUCTIONS BEFORE SURGERY?

Bozeman Health will call you one business day before surgery to review eating and drinking instructions. If you do not follow the instructions, your surgery may be cancelled.

WHAT MEDICATIONS CAN I TAKE THE DAY OF SURGERY?

During your Pre-Anesthesia Clinic appointment, you will be instructed on which medication to take morning of surgery. If you do not remember which medications to take, please call the Pre-Anesthesia Clinic at 406-414-4280.

WHEN CAN I SHOWER?

You can shower after surgery, but your dressing and incision needs to be covered. No tub baths, hot tubs, or swimming pools until your incision is healed.

HOW LONG DO I HAVE TO WEAR MY COMPRESSIONS STOCKINGS?

Wear compression stockings on both legs for three weeks. Remove only for showering.

WHEN DO MY STITCHES OR STAPLES COME OUT?

If absorbable sutures are not used, staples or sutures will be removed in 2 - 3 weeks at your surgeon's office.

HOW DO I GET MORE PAIN MEDICATION?

Give your surgeon's office **TWO DAYS NOTICE**. Call their office and leave your name, date of birth, doctor, Pharmacy, name of medication, and strength. Some medication cannot be called in to your pharmacy and the prescription will need to be picked up.



WHEN CAN I DRIVE?

There are several factors to be taken into account when resuming to drive. They include managing medications, which side of your body was operated on, and if your vehicle is a manual or automatic. Discuss this with your occupational therapist and your surgeon.

- **Left leg surgery:** you may drive when you feel up to it and not taking opioid pain medications during the day.
- **Right leg surgery:** You may not drive for at least 6 weeks following your surgery or until you are instructed to do so by your surgeon.

WHEN CAN I FLY ON AN AIRPLANE?

4 - 6 weeks following surgery is recommended.

WHEN TO CALL WITH QUESTIONS OR CONCERNS

WHEN TO CALL YOUR SURGEON

A moderate amount of bruising, swelling, and redness can be expected after joint replacement surgery. If you experience any of the following, you should contact your surgeon's office:

- A fall.
- Numbness, tingling, or burning that persist even after elevating your leg and applying ice.
- Pain not relieved by medication or pain that is getting worse.
- Thick yellow drainage or bleeding from the incision site.
- Inability to do your exercises.
- Excessive swelling that persists.
- Increased redness around your incision.
- A temperature over 101 degrees F. (38.3 degrees C)
- Any unexpected problems, concerns, or questions.

MEDICATION REFILLS

Give your surgeon's office **TWO DAYS NOTICE**. If you need a refill of your pain medication, please call your surgeon's office, 8:00 a.m. to 5:00 p.m. Monday through Friday, as most pharmacies are also open during these hours and will be able to fill your prescription in a timely manner. Some medication cannot be called in to your pharmacy and the prescription will need to be picked up. Please plan ahead for weekends and holiday closures.

IMPORTANT PHONE NUMBERS

**Bozeman Health Deaconess
Regional Medical Center**
406-414-5000

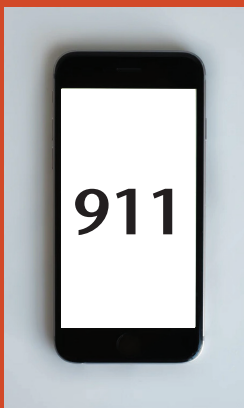
Pre-Anesthesia Clinic
406-414-4280

**Spine + Joint Institute
Nurse Navigator**
406-579-2799

Patient Financial Services
406-414-1015

Alpine Orthopedics
406-586-8029

Bridger Orthopedic
406-587-0122



CALL 911 OR GO TO THE EMERGENCY ROOM IF YOU:

- Have severe abdominal pain.
- Have severe chest pain.
- Are short of breath or have trouble breathing.
- Or if you have any other severe problems.

DURABLE MEDICAL EQUIPMENT VENDORS

BOZEMAN	HOURS	BUY	RENT	LOAN	NOTES
BOZEMAN SENIOR CENTER 406-586-2421	Monday - Friday 8:30 a.m. - 4 p.m.			X	Must be at least 50 years old You do not have to live in Bozeman for loan equipment
BRIDGER ORTHOPEDIC 406-556-9115 406-556-9105	Monday - Friday 8 a.m. - 5 p.m.	X	X		Delivery available to hospital
PRICE RITE PHARMACY AND MEDICAL EQUIPMENT 406-587-0608	Monday - Friday 9 a.m. - 6 p.m. Saturday 9 a.m. - 5 p.m.	X			Delivery available Call for details
BLUE BIRD MEDICAL SUPPLY COMPANY 406-585-2860	Monday - Friday 9 a.m. - 5 p.m.	X	X		Delivery available Call for details
PACIFIC MEDICAL, INC. 406-698-2296	Monday - Friday 9 a.m. - 5 p.m.	X			Delivery available to Bozeman, Belgrade, and Livingston
COMMUNITY HOME OXYGEN ROTECH HEALTHCARE, INC. 406-586-1262	Monday - Friday 9 a.m. - noon	X	X		Delivery available Call for details
SURROUNDING AREAS		BUY	RENT	LOAN	NOTES
BELGRADE SENIOR CENTER 406-388-4711				X	Limited items
BIG TIMBER PIONEER MEDICAL CENTER 406-932-4603				X	Ask for hospice
BUTTE - HARRINGTON SURGICAL SUPPLY 800-345-9517		X	X		Delivery available Call for details
HARLOWTON SENIOR CENTER 406-632-4360				X	Limited items
LIVINGSTON SENIOR CENTER 406-333-2276				X	Limited items
LIVINGSTON WESTERN DRUG 406-222-7332		X	X		\$1 delivery in Livingston
MADISON VALLEY MEDICAL CENTER 406-682-6605				X	Limited items
RED LODGE SENIOR CENTER 406-446-1826				X	Limited items
THREE FORKS SENIOR CENTER 406-285-3235				X	Limited items
WHITE SULPHUR SPRINGS SENIOR CENTER 406-547-3651				X	Limited items

DURABLE MEDICAL EQUIPMENT*



FRONT WHEELED WALKER

Standard walker with two front wheels and two back slider legs.



ELASTIC SHOELACES

Heavy-duty elastic shoelaces don't need special lacing or tying.



SHOEHORN

18 or 16.5 inches with curved handle to provide secure grip.



SOCK AID

Slip on socks without completely bending over. Continuous loop is great for one-handed users.



STANDARD RAISED TOILET SEAT

Raised seat makes it easier to sit and rise from toilet. Installs easily onto round toilet bowls.



LOCKING RAISED TOILET SEAT WITH ARMRESTS

Comfort and stability with armrests for safety and support.



REACHER

This lightweight aluminum reacher makes it possible to grasp things more than an arm's length away without undue straining. Trigger action jaws close tightly to grab and hold things and a special pulling lug and magnet combination brings small objects toward you.



COMPRESSION STOCKING DONNING AID

Used for putting on tight compression stockings if needed.

*Equipment shown for representational purposes only. Merchandise is subject to stock on hand at the vendor of your choice.



SAFETY FRAME

Heavy-duty frame provides extra support for those whose knees, hip or back make it hard to sit or rise.



BEDSIDE COMMUNE

This can be used as a standard bedside toilet, an elevated toilet seat, or safety rails over the toilet.



BATHTUB TRANSFER BENCH

The bathtub transfer bench makes
it safer to step in and out of the
bathtub and lets you bathe
with confidence.



HEAVY-DUTY BATH AND SHOWER SEAT

Adjustable, durable seat with drainage holes.



GRAB BARS

Prevent falls in the bathroom and around the home. Sizes vary. Recommend installation by a qualified professional.

NOTES

[illegible]

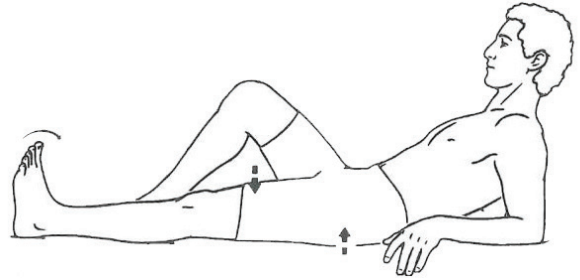
TOTAL HIP EXERCISES

Ankle Pump



Bend ankles to move feet up and down, alternating feet. Repeat 10 times. Do 1-3 sessions per day.

Quad and Glute Set



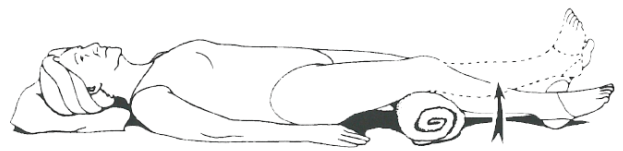
Pull toes toward face, tense muscles on front of thigh and simultaneously squeeze buttocks. Keep leg and buttock flat on floor. Hold 10 seconds. Repeat 10 times. Do 1-3 sessions per day.

Heel Slide



Bend knee and pull heel toward buttocks. Hold for 10 seconds. Return. Repeat 10 times. Do 1-3 sessions per day.

Short Arc Quad



Place a large can or rolled towel under leg. Straighten knee and leg. Hold for 10 seconds. Repeat 10 times. Do 1-3 sessions per day.

Hamstring Set



With one leg bent slightly, push heel into bed without bending knee further. Hold 10 seconds. Repeat 10 times. Do 1-3 sessions per day.

Abduction



Slide one leg out to the side. Keep kneecap pointing toward ceiling. Gently bring leg back to pillow. Repeat 10 times. Do 1-3 sessions per day.

Keeping feet flat on floor, shoulder width apart,
squat as low as is comfortable.
Use support as necessary.
Repeat 10 times. Do 1-3 sessions per day.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

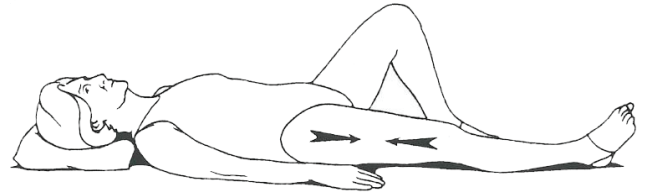
TOTAL KNEE EXERCISES

Ankle Pump



Bend ankles to move feet up and down, alternating feet. Repeat 10 times. Do 1-3 sessions per day.

Quad Set



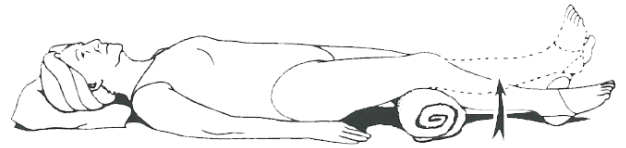
Slowly tighten muscles on thigh of straight leg while counting out loud to 10. Repeat with other leg to complete set.
Repeat 10 times. Do 1-3 sessions per day.

Heel Slide



Bend knee and pull heel toward buttocks.
Hold for 10 seconds. Return.
Repeat 10 times. Do 1-3 sessions per day.

Short Arc Quad



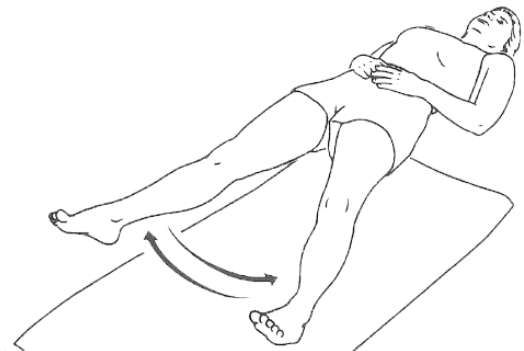
Place a large can or rolled towel under leg. Straighten knee and leg. Hold for 10 seconds.
Repeat 10 times. Do 1-3 sessions per day.

Hamstring Set



With one leg bent slightly, push heel into bed without bending knee further. Hold 10 seconds.
Repeat 10 times. Do 1-3 sessions per day.

Hip Abduction/Adduction: with Extended Knee



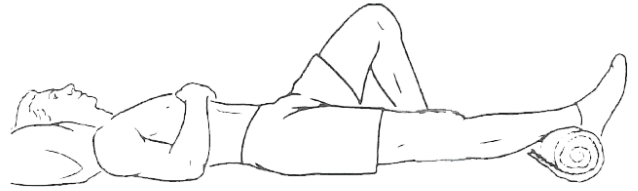
Bring leg out to side and return. Keep knee straight and pointing towards ceiling.
Repeat 10 times. Do 1-3 sessions per day.

Straight Leg Raise



Bend one leg. Raise other leg 6-8 inches with knee locked. Exhale and tighten thigh muscles while raising leg.
Repeat 10 times. Do 1-3 sessions per day.

Knee Extension Mobilization: Towel Prop



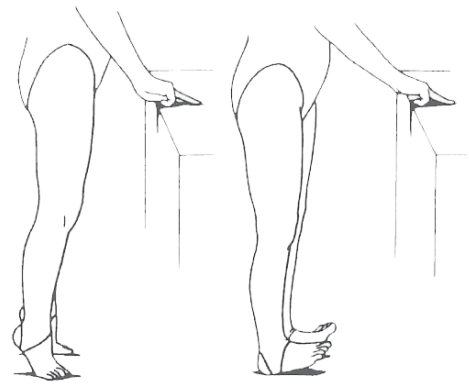
With rolled towel under ankle, keep knee straight for up to 10 minutes.
Do 3 sessions per day.

Chair Knee Flexion



Bend knee and pull heel toward buttocks. Hold for 10 seconds. Return.
Repeat 10 times. Do 1-3 sessions per day.

Toe/Heel Raises



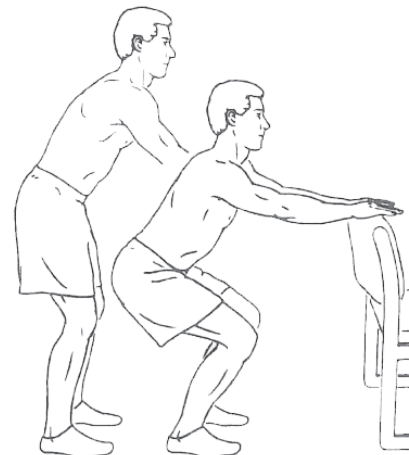
Gently rise up on toes, then roll back on heels to complete set.
Repeat 10 times. Do 1-3 sessions per day.

Long Arc Quad



Straighten operated leg and try to hold it 10 seconds. Repeat 10 times.
Do 1-3 sessions a day.

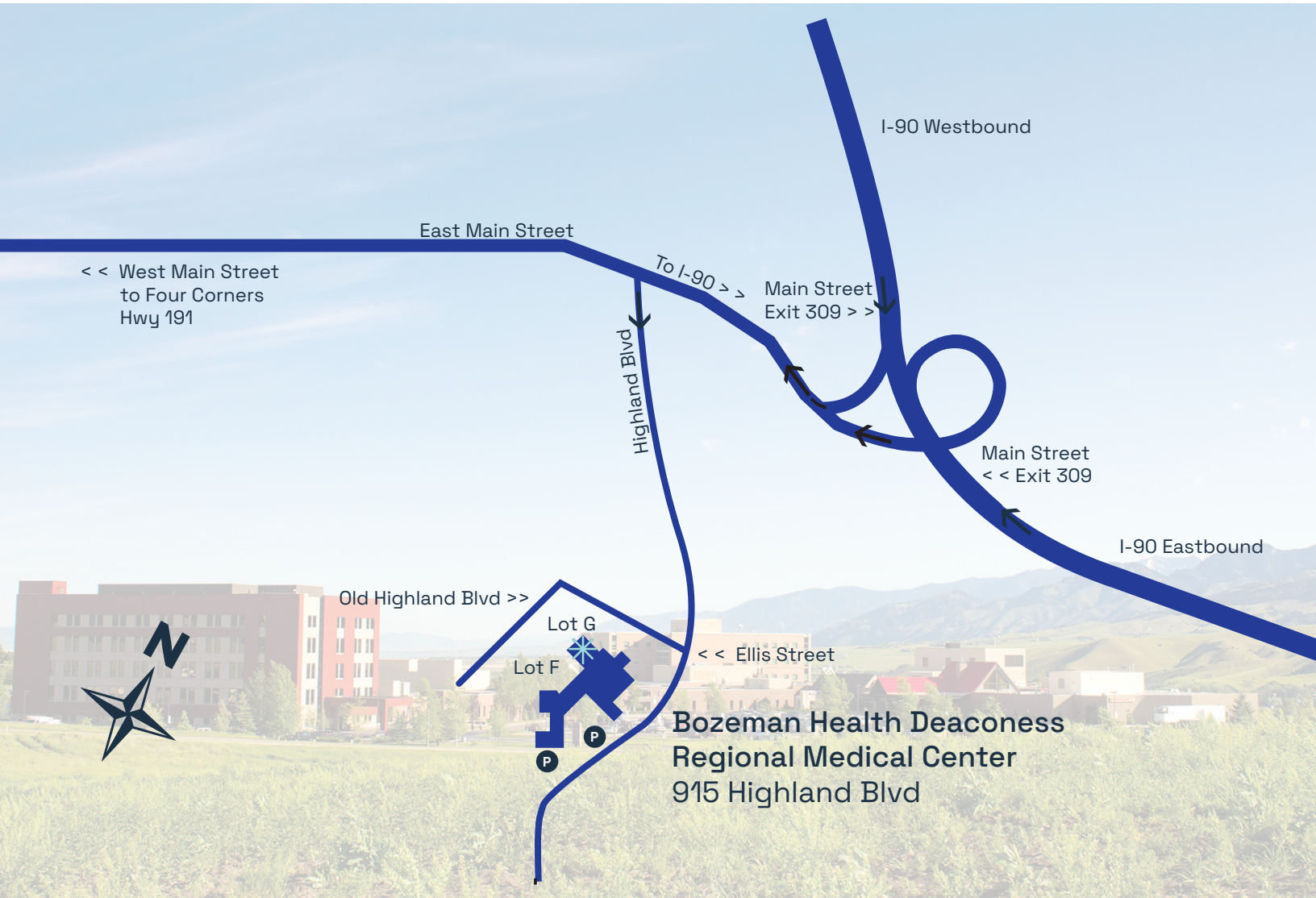
Functional Quadriceps: Chair Squat



Keeping feet flat on floor, shoulder width apart, squat as low as is comfortable.
Use support as necessary.
Repeat 10 times. Do 1-3 sessions per day.

DRIVING AND PARKING INFORMATION

BOZEMAN HEALTH DEACONESS REGIONAL MEDICAL CENTER
915 Highland Blvd, Bozeman, MT 59715



* **Surgical Services** - Building 4, Entrance 8, Floor 2
On the day of your surgery, park in Lot F or G

Pre-Anesthesia Clinic - Building 4, Entrance 8, Floor 2

Sources

- American Dental Association (2016). Mouth healthy: Brushing your teeth. Retrieved from <http://www.mouthhealthy.org/en/az-topics/b/brushing-your-teeth>
- Molnlycke Health Care (2016). CHG How To. Retrieved from <http://www.molnlycke.us/antiseptics/general-skin-cleansing/CHG/>
- CDC (n.d.) Frequently asked questions: Surgical Site Infections. Retrieved from http://www.cdc.gov/HAI/pdfs/ssi/SSI_tagged.pdf
- American College of Surgeons (2015). Quit smoking before your operation. Retrieved from <https://www.facs.org/~media/files/education/patient%20ed/quitsmoking.ashx>



BOZEMANHEALTH.ORG