



# Spine Surgery Patient Guide



The Miriam Hospital

**BROWN**Health  
UNIVERSITY

Spine Center

- **Ambulation:** Another term for walking.
- **Anterior:** Approach from the front of the area (i.e. the front of the neck).
- **Catheter:** A small tube placed in the bladder to measure fluids during surgery. You may hear this referred to as a “Foley Catheter.”
- **Cervical:** The upper seven vertebrae of the spine. This is the neck area of your body.
- **Compression:** Another term for pressure or squishing of a nerve or the spinal cord.
- **Diaphragm:** The “breathing muscle” that lies right below the lungs and is responsible for allowing for full expansion of the lungs. This muscle separates your rib cage from your abdominal area.
- **Diaphragmatic breathing:** Also called “belly breathing,” this is using your breathing muscle, the diaphragm, while taking deep breaths that expand the abdomen. It is used for relaxation and improved respiration.
- **Decompression:** To remove pressure from a nerve or the spinal cord via removal of a disc or bone that is the cause of the pressure .
- **Disc:** These lie in between the bones and are soft cushions that are filled with a jelly-like substance. They help separate each bone of the spine and keep the bones in place.
- **Dysphagia:** Difficulty swallowing - this sometimes occurs after anterior cervical spine surgery.
- **Fusion:** A surgical technique in which two bones are held together permanently with cages, plates, screws, and/or bone.
- **Lumbar:** The five lower vertebrae of the spine. This is a term for your lower back.
- **Osteophyte:** Bone spur.
- **PACU:** Post Anesthesia Care Unit, also called the “recovery room.”
- **Posterior:** Approach from the back of the area (i.e. the back of the low back).
- **Post-operative:** After surgery.
- **Pre-operative:** Before surgery.
- **Sacrum/Sacroiliac (SI) region:** The sacrum is the scoop-shaped bone at the bottom of your spine where your tailbone (coccyx) attaches. This bone attaches to the back portion of your pelvis (ilium) at what we call the sacroiliac joints.
- **Spinal cord:** Composed of nerves to and from the brain, passing through your spinal column. Spinal nerve roots come from the spinal cord.
- **Thoracic:** The middle 12 vertebrae of the spine. This is the mid back area of your body.
- **Vertebra/Vertebrae:** The word used to describe the bones that make up your spinal column. Each bone is called a vertebra, and several bones together are called vertebrae. The vertebrae make up your “vertebral column” or spinal column. These bones play an important role in protecting your spinal cord and the nerves that go into your limbs.

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# Welcome to the Spine Center at The Miriam Hospital

Thank you for choosing the Spine Center at The Miriam Hospital for your surgery. We're dedicated to delivering the highest quality spine care and are proud to be recognized as a Spine Center of Excellence, earning The Joint Commission's prestigious Gold Seal of Approval.

Our board-certified, fellowship-trained orthopedic surgeons and neurosurgeons, nurses, physical therapists, and others work together to provide patient care that is unparalleled in our region.

- We're here to help you every step of the way—before, during, and after surgery.
- Our focus is on clear communication, top-notch surgical care, excellent nursing, and personalized therapy in a welcoming environment.
- Even after you leave the hospital, we'll be with you to make sure your recovery goes smoothly, and you reach your goals.
- Our goal is simple: to give you the care, support, and confidence you need to get moving and living the way you're meant to.

At The Miriam Hospital, we believe you deserve to be fully informed and involved in your care. This guide is here to walk you through what to expect and explain why each step matters. You're an important part of the team, and your active participation plays a big role in your success. With our promise of safe, high-quality patient care, you are on your way.

Sincerely,



**Maria Ducharme, DNP, RN**

President, The Miriam Hospital, and  
Chief Quality Executive, Brown University Health

## Prepare Your Home For Your Return

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Use this list to make small, simple changes to your home which will ensure you have what you need to recover safely and successfully.

- Remove throw rugs in any room of your home that you will be using during your recovery.
- Be sure you have a cell phone or portable phone to keep at hand.
- Arrange furniture to create space and open up all walkways leading to the main rooms of your home.

### Kitchen

- Place frequently used items in accessible cabinets so you won't have to reach too high or low.
- Keep counters clear of clutter.
- Make sure flooring is not slippery.
- Buy juices/milk/etc. in small containers.
- Prepare and freeze a few meals before your surgery.

### Bedroom

- Have a lamp and telephone on the bedside table.
- Use a nightlight to illuminate the path to the bathroom.
- If possible, arrange a place to sleep on the first floor. This may only be needed for the first few days that you are home.
- Place frequently used clothing in higher drawers.
- Move a chair with arms into the bedroom to use while you are getting dressed.
- Consider purchasing a short bedrail that slips under the mattress to help you with bed mobility.

### Bathroom

- Use a nonskid mat in the tub.
- Consider using hooks with suction cups to hang objects at higher levels. Baskets with suction cups can be helpful to hold soap and shampoo.
- A long-handled scrubber can be helpful to avoid bending too much.
- A shower chair may be helpful at first if you are uncomfortable standing for too long.
- A handheld showerhead can be helpful.
- Consider installing fixed grab bars by the toilet and the tub.

### Living Room

- Pick out a chair that will be appropriate to sit in when you come home. A firm chair with arms is best. Avoid rockers and chairs on wheels.

### Stairways/Halls

- Keep stairs and hallways free from clutter.
- Check to make sure all stairs have sturdy railings.
- Plan to have a loved one or friend be with you as you manage stairs for the first few times.

### Outdoor Areas

- Make sure hedges, shrubs and trees do not interfere with outdoor walkways.
- Ensure that outdoor pathways are clear when you return home, especially during autumn (fallen leaves) and winter (snow).

# Preparing for Surgery

## Home Equipment for Your Recovery

You may choose to obtain the following equipment prior to surgery. These items will help make your initial recovery easier.

- Rolling walker (often used following lumbar surgery). If you do not already own a rolling walker, the hospital will provide you with one to take home.
- Cane (if recommended by your physical therapist)
- Shower chair (optional)
- Handheld shower hose (optional)
- Suction cup hooks for hanging objects and baskets for placing objects higher to avoid bending.
- Grabber/reacher (optional)
- Short bed rail (under mattress) to help with bed mobility
- Make a couple of homemade ice packs or purchase gel ice packs.



## Your Health

- **Complete any preoperative appointments** you have been asked to schedule.
- **If you smoke**, it is important that you stop before surgery. Please see handout on smoking cessation for resources that can help.
- **Stay active.** Remain as active as you can in the weeks leading up to surgery. The stronger you are before surgery, the faster you will heal.

- **Please begin doing the simple exercises** provided in the handout in this guide before your surgery. These will lead to a speedy recovery and help control your pain.
- **Learn about your medications.** The pre-admission testing nurse will give you specific instructions about your medications. Follow these instructions.
- **Get proper nutrition.** A well rounded preoperative and postoperative diet are key to a rapid and successful recovery. Be sure to eat a well rounded diet high in protein prior to surgery. High protein foods include lean meat or fish, cottage cheese, eggs, and yogurt. See the handout included in this guide for more information about nutrition.
- **If you have diabetes**, check your blood sugar regularly and monitor what you eat. High blood sugar after surgery can increase your risk of infection, delay wound healing and impede progress toward your goals.

## Assistance From Your Loved Ones

Ask friends, family or neighbors for some assistance with the following tasks while you are in the hospital and during the first two weeks after you return home:

- Seasonal yard work/snow removal
- Help with groceries
- Mail and newspaper pickup
- Pet care (walking, feeding)
- Taking the trash out to the curb
- Carrying laundry down or upstairs

See coach's guide for more information.

## Recipe for Homemade Ice Pack:

### Ingredients:

- 3/4 cup rubbing alcohol
- 2 cups water
- 2 Large Ziploc freezer bags

1. Mix ingredients in bag.
2. Double bag.
3. Leave in freezer until it turns to slush.

## Insurance Questions

Please call your insurance provider before your surgery, as insurance coverage for doctor visits, hospital visits, surgeries, therapies, and equipment is dictated by your policy. Ask if any of the following apply to your insurance coverage, and get explanations:

- surgery deductible
- hospital stay deductible/copay
- copay for a walking device
- copay for home therapy visits (if needed)
- copay for outpatient physical therapy
- coverage of anesthesia services for Brown Health Medical Group anesthesia

## The Week of Your Surgery

- Review the medication instructions given to you at your pre-admission testing visit and at your surgeon's office. Be sure to follow these instructions.

- Eat a well balanced diet consisting of high protein to maximize healing and high fiber to prevent constipation. See handout on nutrition.
- It is extremely important that you are well-hydrated in the days leading up to surgery and after to ensure stable blood pressure, easy IV access, and prevent constipation.
- If you have any unresolved questions or concerns, contact your surgeon's office.
- If you develop flu-like symptoms, a congested cough, severe vomiting or diarrhea, a skin condition, or new dental pain or problem near where surgery will occur, please contact your surgeon, or contact the spine surgery program manager at 401-793-2435
- Pack for surgery. Use (below) **What to Bring to With You to the Hospital** as your guide.

## What to Bring With You to the Hospital

### Information

- Insurance cards and identification (or photocopies of each)
- Payment method for copayment (if not paid in advance)
- Copy of your Health Care Directive, if you have not already provided the hospital with a copy

### Medications and Equipment

- Please ask a member of the Spine Program team for the most recent policy on use of your home CPAP, if indicated

### Clothing and Personal Items

- Comfortable shoes with nonskid soles. Tennis shoes with laces work well.
- Undergarments and socks
- Loose-fitting pants (Sweatpants work best, as they are easy to get on and off and allow room for the bandages.)
- Loose-fitting blouse or shirt

- Glasses or contact lenses
- Dentures
- Hearing aid
- Chewing gum or hard candy
- Chapstick
- Cell phone and chargers
- Specific personal toiletries

### Do Not Bring

- Jewelry or other valuables
- Walker, cane or crutches. (These can be provided for use while in the hospital. Have them ready for use at home.)
- Home medications

**Please make arrangements for transportation home following discharge. You will NOT be allowed to drive yourself home. Discharge usually happens before noon, although this is subject to your individual progress while in the hospital.**

## The Day Before Surgery

- Prepare your skin by washing with the Hibiclens soap, following the instructions for use.
- See small “preparing for surgery” booklet for your medication instructions.
- You may only drink clear fluids after midnight the day before surgery and up to two hours before your arrival at the hospital.
- Get some rest—we will see you tomorrow!

### Contact Your Surgeon’s Office If:

- You cannot make it to your surgery on time.
- You get sick (a cold or flu) or have a fever.
- You have infected skin, a rash, small cut, and/or a wound near the area where your surgery will be done.
- You have questions or concerns about your surgery.

## The Day of Surgery

Before you arrive at the hospital:

- **Only drink** the Ensure Pre-Surgery drink on the day of surgery (provided at your Pre-Admission Testing appointment)
- You may drink **only water up to 2 hours before your arrival time** at the hospital on the day of surgery.
- **Enter through the main entrance** of the hospital at the time you were instructed to arrive. Very early in the morning, your family can park in the lot directly across the street (patient/visitor parking) after dropping you off. After 7 a.m., free valet parking is available.
- **Registration:** The admitting office is in the main lobby. The admissions staff will confirm your identity and insurance coverage, give you an identification bracelet, and register you for your surgery and hospital stay.



- **The Surgical Liaison and Waiting Area:** The liaison will greet you. Our waiting area has free wifi, television and comfortable seating. The liaison will ensure your loved ones remain informed about your surgery progress. While you are in surgery, the liaison can be reached for questions at 401-793-2273.
- **Pre-Op or Holding Unit:** The pre-operative (pre-op) department completes your preparation for surgery. You will change into a hospital gown, and we will start an intravenous line. Your personal belongings and clothing will be labeled with your name. A team of nurses and anesthesiologists will review your paperwork, vital signs and laboratory results. You will be asked your name, date of birth, and planned surgery by many members of the hospital team. This is a normal part of the routine safety checks done in preparation for surgery.

You will see your surgeon in the pre-op area. After reviewing the surgical paperwork and answering any questions, he or she will mark the surgical site with his or her initials.

- **Anesthesia:** Anesthesia is administered to make you comfortable during surgery. The anesthesiologist will talk with you and your surgeon to decide which type of anesthesia is best for you. See small “Preparing for Surgery” booklet.

- **Surgery:** After all the pre-operative checks have been completed, you will be taken into surgery. You may be given a sedative to make you sleepy. Once you are in the operating room (OR), the OR staff will make you comfortable, the anesthesiologist will administer your anesthesia, and the surgeon will begin the operation.
- **Post Anesthesia Care Unit (PACU):** Once your surgery is completed, you will be transferred to the recovery room. When you wake, you will have an oxygen mask on your face, a blood pressure cuff, a heart monitor, a device on your finger that measures your oxygen level, and devices on your feet that help circulate blood.

The nurse in the PACU will make sure that you wake from anesthesia safely, that your heart and breathing are normal, and that you remain comfortable after surgery.

Your length of stay in the PACU will be dependent on the type of surgery, type of anesthesia, and any medical conditions you may have. Some patients are discharged home directly from the recovery room, if they are able to meet all their goals for discharge. Please talk to your surgeon to discuss whether or not you are a candidate for this same-day discharge home pathway.

- **Visitors:** If you require a support person during the pre-operative phase, or while in the recovery room post-operatively, please inform a member of the spine surgery team at 401-793-2435.



- **Getting up and around:** Once you have been cleared by anesthesia to get out of bed, our nursing and/or physical therapy team will begin to work with you. Ideally, we would like this to happen within hours of your procedure, if possible. Early ambulation (walking) has been shown to lead to a reduction in postoperative complications and a speedier recovery. This will occur either in the recovery room or on the inpatient unit.

## Your Hospital Stay

- The team that will be seeing you during your stay consists of highly trained registered nurses, nurse practitioners, physician assistants, certified nursing assistants, and unit secretaries. In addition, physical therapists, occupational therapists, and case managers may be involved in your care as well. The Miriam Hospital is a teaching facility, and our doctors, nurses, and therapists may have students assisting with your care. A resident, physician assistant, or nurse practitioner will make rounds daily.
- **Medications:** Your medications will be ordered for you while you are in the hospital. Please be sure to ask a member of your care team if you have any questions about your medicines.

### *Pain Management After Your Surgery*

Pain after surgery is expected, and a normal part of the healing process. As extra blood flow enters the area to promote healing, you may notice some redness and warmth around the surgical site. This is normal. Swelling is caused by extra immune cells, which the body sends out to investigate the surgical site. This is also normal. Pain can occur because this extra fluid puts pressure on the nerve cells. In the event that your spine surgery requires moving some muscle around, you may also experience some muscle spasm. This is also to be expected and not a cause for concern. As you recover, these normal responses lessen over time, and the surgical pain will lessen.



Understanding why you have pain, how your nervous system works and how to manage your pain is essential to improve the outcome of your surgery. It is recommended that you review the book, “Your Nerves are Having Back Surgery” by Adriaan Louw to help you understand how your body responds to pain and surgery.

Pain control and the ability to move will facilitate a faster healing process. Adequate pain control will allow you to participate in therapy and care with your staff and family. Your care team may try different amounts of medication and different types of medication given at different time intervals in order to manage your pain effectively.

### **The Pain Scale**

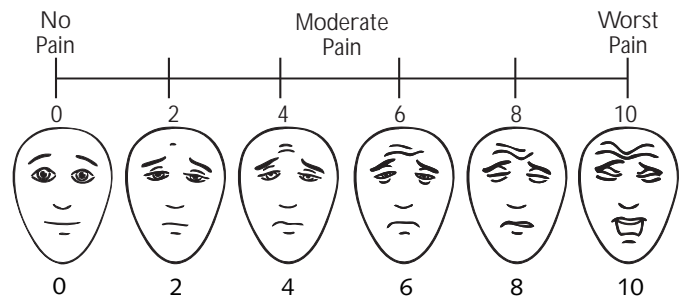
- 0-3 = Minimal/Mild Pain – EXPECTED. Annoying, but you are able to rest, eat, and participate in your therapy and recovery.
- 4-6 = Moderate Pain – Expected to occur periodically. Nagging, may have difficulty resting or participating with therapy.
- 7-10 = Severe/Intense Pain (RARE) – Severe, excruciating, and you are unable to participate in your care, sleep, or eat.

### **Pain Medications**

- Some medications are given on a set schedule, and others are given as you need them throughout the day. Your care team will ask you frequently about your pain level and they will ask you to rate your pain again after you receive pain medications.
- Oral pain medications are used for mild and moderate pain (pain scores ranging from 1-6).
- Intravenous pain medications may be used for severe pain (pain scores ranging from 7-10). Your surgeon will prescribe a combination of pain medications to provide pain relief for you.

### **Side Effects**

We will partner with you to monitor and treat pain medication side effects. Side effects include nausea, vomiting, constipation, itching, dizziness, and



This Faces Pain Scale-Revised has been reproduced with permission of the International Association for the Study of Pain® (IASP). The figure may not be reproduced for any other purpose without permission.

drowsiness. It is extremely rare that a patient becomes addicted to pain medication if it is taken as prescribed.

**Non-medication treatments:** There are things besides medication that can help you control your pain on your own:

- **Deep breathing:** There are certain breathing techniques that you can practice that can be helpful in calming your nervous system after surgery (see handout on diaphragmatic breathing).
- **Meditation:** Using meditation videos or listening to meditation apps or recordings can help to calm your nervous system down and decrease anxiety and stress.
- **Movement** is the best thing for you to allow the oxygen and blood to get to the area and reduce stiffness, swelling and pain. Changing positions can help to alleviate pain as well.
- **Cold therapy** often works well to control pain, itching and muscle spasms.
- **Distraction therapy** reduces pain by taking your mind away from it. Music, crosswords, puzzles, cell phone games, and adult coloring pages are examples of distraction therapy. The Miriam Hospital offers MedCalm TV on Channel 18.
- **Positive thinking:** Individuals who stay positive and hopeful often feel less pain or are less bothered by the pain they feel. Remembering your long term goals can inspire you to think positively about the ultimate outcome of your surgery.

- **Integrative/Alternative Therapies:** Alternative healing therapies are provided to patients through our integrative therapy department in collaboration with your team. Therapies such as our guided imagery channel (16) and our care channel (18) are available 24 hours a day. Integrative therapy is available through consult for services such as Reiki, and additional mind body practices (visualization and breath work). Ask your nurse or spine program manager for more information or to enter a consultation request.

**Keeping your pain under control:** Everyone feels pain differently and responds differently to pain control treatments. Be sure to:

- Inform your care team about pain control methods that have worked or not worked for you before.
- Talk about any concerns you may have about pain medications.
- Tell your nurse about any allergies to medications you may have.
- Take your pain medications as instructed or ask the nurse for pain medication as needed.
- Set realistic goals for your pain management, with the understanding that pain is expected but should be kept at a tolerable level so you can participate in your recovery.

#### **Blood Work**

- Blood will be drawn the morning after surgery. Additional blood will be drawn only as needed during your hospital stay.
- The nursing team and your physician will review your blood work before making decisions regarding your treatment plan.

#### **Preventing Blood Clots**

- After surgery you may wear compression stockings and/or have foot pumps while you are in bed. Foot pumps are devices that go around your feet and provide intermittent pulsation, helping to circulate blood and prevent clots.

- Your doctor will also treat you with medications to help prevent blood clots. Your nurse will give you information about the blood thinner your surgeon has prescribed, and he/she will answer any questions you may have.
- The best way to prevent blood clots is to MOVE! Getting out of bed regularly will be important to your safe recovery.

#### **Urinary (Foley) Catheter**

It is possible that a urine catheter may be needed during or after your spine surgery. If you have a history of difficulty voiding after surgery, let your providers know. In these instances, the need for a urine catheter is temporary. The nurse will monitor your ability to urinate after the catheter is removed.

#### **Incision Care**

Your incision will be covered with a bandage (dressing) for several days after surgery. If you have an external drain from your incision, it will be removed within the first few days after surgery.

#### **Incentive Spirometer**

It is common for people to breathe shallowly when in bed or in pain after surgery. Deep breathing exercise can keep the base of the lungs open and prevent infections such as pneumonia. You may be prescribed an incentive spirometer, a clear plastic device to assist with deep breathing. At the very least, you will be asked to cough and breathe deeply every hour when you are awake.

#### **Bowel Management**

Some of the medications you receive while in the hospital may cause constipation. Your doctor will prescribe medications that prevent constipation and help you to have a bowel movement. These include possible stool softeners and laxatives. Moving around is one of the best ways to “wake up” your digestive system. **You do not have to have a bowel movement to be discharged from the hospital.** It is quite common for people to go several days without a bowel

movement after having surgery. At a minimum, the goal is to have you pass gas before discharge.

If you have a tendency toward constipation on a regular basis or after surgical procedures, please inform your nurse. It is also essential that you stay hydrated and eat plenty of fiber in the days leading up to and immediately following your surgery.

### **Preventing Falls**

No one plans to fall after having spine surgery, but because of medications and the nature of certain surgeries, your balance and strength may be compromised. It is extremely important that you call the nurse for assistance prior to getting out of bed or moving from the bed to the chair or if you feel dizzy. When you are in the bathroom, it is important that you call for the nurse before standing and moving to the sink and into your room.

### **Cervical Collar**

In some cases, a collar may be used for support and comfort following a cervical spine surgery. If a soft collar is prescribed, you may remove it as often as you like and use it for comfort only. If a harder collar is prescribed, you may be instructed to wear this more often for six to 12 weeks, depending on health factors such as smoking or bone quality. Smokers and those with osteoporosis may have to wear a collar for a longer period.

### **Collars and Braces**

Most times, you will not be required to wear a brace after your spine surgery. If you do need to wear one, there are three types of braces that you may be required to wear.

- A lumbosacral orthosis (LSO) brace for lower lumbosacral fusions
- A thoraco-lumbosacral (TLSO) brace for upper lumbar fusions
- Warm n' Form lumbar brace for comfort

Speak to your surgeon if you have any questions about bracing.



### **Physical Therapy**

Physical therapy can be an important part of your recovery that helps you regain normal, safe mobility. A physical therapist will likely see you either on the same day of your surgery or the following morning to assess your need for services. The physical therapist will review any precautions that go along with your surgical procedure and ensure that you get in and out of bed, off a chair and into the restroom, walk typical household distances, and complete stair training if this is necessary for you to go home safely.

Depending on your progress during the first physical therapy session, the therapist may return a second time if needed, or your nurse may help you get out of bed or take a walk or sit up in a chair.

**Driving after spine surgery:** After spine surgery, it is important that you can comfortably get in and out of the car and to be able to turn your head or trunk adequately to watch for traffic. **Do not** drive while taking pain medications or muscle relaxants. Your surgeon will determine when you will be able to safely drive again.

### **Walking Devices**

After lumbar spine surgery, many people find the rolling walker (two wheels and two posts) the most stable device to use for walking. If you have not been able to acquire a walker before your surgery, your physical therapist will obtain one on your behalf. If you have stairs that only have one railing, no railing, or if the railings are far apart, please obtain a simple cane.

This can be purchased at supply stores, pharmacies, and large retail stores. They can also be found online.

## Occupational Therapy

### What is Occupational Therapy?

Occupational therapy services may include evaluations of your home and suggestions for adaptive equipment that may make routine tasks easier for you when you return home. Occupational therapy practitioners have a holistic perspective, in which the focus is on adapting your environment to fit your needs.

### Occupational Therapy After Spine Surgery

After your surgery, you may work with an occupational therapist who will assess your ability to complete self-care and home management tasks so that you may return home safely. The occupational therapist will discuss adaptive equipment options to maximize your independence at home.

### Adaptive Equipment Needs

Following your spine surgery, you may have difficulty performing personal care tasks. You may find it challenging to reach your feet to wash; to put on pants, socks, and shoes; or to bend to pick something up from the ground safely. Some people find it helpful to use adaptive equipment to perform these tasks while they are recovering from spine surgery. The most used items are:

- A reacher
- A sock aid
- A long shoehorn
- A long-handled sponge
- Elastic shoelaces

## Goals for Discharge Home

- Get out of bed to the chair
- Pain at a tolerable level
- Walk household distances (50 feet)
- Perform bathroom tasks
- Understand any movement precaution (if applicable)
- Get dressed
- At minimum, pass gas
- Stair training if applicable
- Review discharge instructions with your nurse

Because these items are not typically covered by insurance policies, there is generally an out-of-pocket cost. Some of the smaller self-care devices are available for purchase at the Brown University Health Pharmacy in The Miriam Hospital.

### Discharge Prescriptions: The Brown Health Pharmacy

Brown University Health Pharmacy can fill and deliver your discharge medications to your bedside at no extra cost to you. If you prefer, you or a loved one may also pick up your medications at the pharmacy, which is located on the first floor of the hospital near the main entrance.

Your standard copay applies. Medications prescribed after a spine surgery do not have refills. You will receive one prescription from the Brown University Health Pharmacy prior to leaving the hospital. You will also receive a printed prescription for a second fill to bring to your home pharmacy. Using the Brown Health Pharmacy will save you the convenience of stopping at the pharmacy on the way home.

## Brown University Health Pharmacy

The Miriam Hospital - Main Lobby  
401-793-5500  
[brownhealth.org/pharmacy](http://brownhealth.org/pharmacy)

Open Monday - Friday 7 a.m. - 7 p.m.  
Weekends and holidays: 8 a.m. - 4:30 p.m.

## Frequently Asked Questions Regarding Your Hospital Stay

### When will I be able to get out of bed and walk?

One of your main goals in the hospital will be to get out of bed as soon as possible. For many, this should be within hours of your surgery. However, for some, this will be the day after surgery. It is anticipated that you will be getting out of bed and walking on a daily basis.

### How difficult will it be for me to get out of bed and walk?

The answer varies, depending on the complexity of your surgery, your pain level after surgery, and how mobile you were prior to your surgery. You will be provided with assistive devices as needed and will have someone there to help you at all times.

### If I feel pain when I get out of bed for the first time, should I be worried?

It is completely normal to have pain when trying to get out of bed and walk after surgery, and it is expected. This does not mean that anything is wrong, or that you have caused any damage.

### Is there a situation where it would not be recommended that I get out of bed?

On very rare occasions, your surgeon may want to keep you in bed for 24 to 48 hours after surgery for medical reasons. Outside of that situation, you will be encouraged to get out of bed and walk every day you are in the hospital.

## Planning for Your Discharge and Recovery

### The Role of Case Manager

The case manager will:

- review your discharge options and ensure you are prepared.
- continue to monitor your progress and facilitate your safe discharge from The Miriam Hospital.

### Determining Your Discharge Plan

- The team's goal is to identify the best and safest discharge option for you. Case managers work closely with you and with physical and occupational therapists to develop your discharge plan.
- Discharge plans can change for a variety of reasons. We encourage you to maintain flexibility in planning for discharge, and the team will help guide you through this process.
- It is your right to choose the providers, services, and agencies that help you recover after your surgery. Choice can be limited for many reasons, including your insurance coverage and resource availability.

### Discharge Options:

#### Option 1: Home

If you meet all goals for discharge and have support available at home, you will be discharged to your home. Recovering in your home promotes more holistic and rapid healing. People tend to sleep, move, and eat better in their own homes.

With this option, it is recommended that you continue to move about the house regularly and safely until your follow up appointment with your surgeon where they will determine whether outpatient physical therapy could help you achieve the best outcomes.

#### Option 2: Home with Services (Home Care)

In some cases, it may be recommended that you go home and receive therapy and/or nursing care in your home. During the first two weeks, progressive mobility, strength, and balance is the priority and this can be achieved safely in your own home. You remain in control of managing your medication and other needs, and your surgeon remains in control of your care.

- Almost all spine surgery patients are able to go directly home from the hospital.
- For questions about what type of support you will need, please see the coach's guide in the handout in your folder.
- Plan ahead. Secure a support person who can provide you with a ride home and who is able to stay with you for ideally several nights after your surgery.

### **Option 3: Skilled Nursing Facility**

- This option is only for patients who cannot safely walk household distances, are having difficulty maintaining their balance, and who cannot safely return home. A list of facilities is available on request.
- There may be an out-of-pocket expense for transportation from the hospital to a skilled nursing facility via ambulance or wheelchair van. Please contact your insurance company for details.

- Case managers are responsible for making referrals to facilities and/or agencies based on your choice. If a bed is not available at the facility of your choice, the case manager will seek alternatives.

### **Tips for Preparation**

- Ask your surgeon or your primary care doctor for recommendations to home care agencies they feel provide excellent service.
- Contact visiting nurse agencies if you have specific questions.
- Call your insurer regarding copays and other coverage questions.
- Follow the list of tips provided in the Preparing for Surgery section of your patient education materials so your home is set up for your return.

## **Frequently Asked Questions About Discharge from the Hospital**

### **How long will I be in the hospital?**

We aim to have you return home once you meet the goals for a safe and successful discharge. The amount of time you spend in the hospital is highly dependent on the type and complexity of the surgery you have. Your surgeon and medical team will determine the best plan for your individual needs and will work with you the entire way.

### **When can I shower?**

Most surgeons allow a stand up shower within three days after surgery, but you will not be able to submerge yourself in a bath or pool for at least four to six weeks.

### **How long will I be in discomfort after surgery?**

Most patients experience pain for two to four months after surgery. Pain is a normal part of the healing process after surgery. Your pain will lessen over time, and you should be able to stop strong pain medications within 10 to 14 days after surgery. After four weeks, most people will switch to over-the-counter pain medicine such as Tylenol.

### **What activities can I do after surgery?**

You may return to most activities gradually when you

feel up to it. You should avoid high impact activities such as running, downhill skiing, and vigorous racquet sports, such as singles tennis or squash, until you speak to your surgeon. You should avoid extreme bending and twisting.

### **What exercises should I do?**

Walking is the preferred exercise until you see your surgeon at your follow up. You may be instructed by your physical therapist on appropriate exercises. Be sure to speak to your surgeon and/or therapist before resuming any activities you are unsure about.

### **Can I have sex?**

You may gradually resume sexual activity when you are comfortable. Typically, it is recommended to wait four to six weeks after surgery, but it depends on the type and complexity of your procedure.

### **When can I drive?**

After spine surgery, it is important that you can comfortably get in and out of the car and to be able to turn your head or trunk adequately to watch for traffic. Do not drive while taking pain medications or muscle relaxants. Your surgeon will determine when you will be able to safely drive again, which is typically two to

## Frequently Asked Questions About Discharge from the Hospital, continued

four weeks after surgery, but varies depending on the complexity of your procedure. You should avoid long rides in the car initially but may begin riding in vehicles up to 20 to 30 minutes at a time after the first week.

### **Will I need an assistive device to walk when I get home?**

It is not uncommon for those who did not use an assistive device before surgery to use one, such as a rolling walker, immediately after surgery. However, you may find that you progress to a cane or no device even before you leave the hospital. If you were using an assistive device before surgery, you will likely require one after surgery for some time.

### **When can I return to work?**

Returning to work is very dependent on the type of work, the complexity and type of your procedure, and your medical health after surgery. You can expect to be out of work for at least two to four weeks, but this can vary greatly.

### **How much weight can I lift after surgery?**

After spinal surgery, your muscles must learn how to turn back on properly to protect and stabilize your spine. Lifting heavy objects too soon may put more stress on your spine and muscles than you want, so be cautious when returning to activities.

It is important to use good body mechanics when you bend or lift anything. This involves engaging your core (abdominal muscles), bending at the knees and hips (not your waist) and keeping the load (what you are lifting) close to your body. A generally good rule of thumb is if you feel pain or pressure in the area of your surgery when you lift something, the load is too heavy.

Your surgeon will provide you with specific weight restrictions and precautions with time frames according to the surgery you have.

### **Can I bend and twist?**

Just like before your back surgery, you should avoid doing activities that stress your spine in extreme ways. Use smart body mechanics. Move freely within your comfortable limits but avoid extreme bending and twisting at the waist or neck.

If you feel pain that is greater than your normal soreness or stiffness, change the activity so it is more comfortable

or have someone help until you can do it without significant discomfort or with better mechanics.

Your physical therapist or nurse can help to go over proper ways to get in and out of bed and bend or stoop. See handout on body mechanics.

### **How do I care for my incision after I go home?**

You should leave the original dressing on the incision site for three to five days after surgery and avoid getting it wet. After that, you may remove the dressing and cover with clean gauze and medical tape. Try to leave it covered for seven to 10 days from surgery, and then you may leave it exposed.

Always wash your hands before and after touching your incision. Do not put any ointments, lotions, or creams anywhere near the incision. Pat the incision dry after showering. Do not submerge in water such as a bath, hot tub, or pool for four to six weeks after surgery. Avoid wearing tight clothes that might rub on your incisions. Watch for signs of bleeding and call your surgeon's office if you notice any signs of drainage, redness, swelling or increased pain at the incision.

### **Will I need to wear a brace after my surgery?**

In some cases, a collar may be used for support and comfort following a cervical spine surgery. If a soft collar is prescribed, you may remove it as often as you like and use it for comfort only. If a harder collar is prescribed, you may be instructed to wear this more often for up to six to 12 weeks, depending on health factors such as smoking or bone quality. Smokers and those with osteoporosis may have to wear a collar for a longer period.

### **Braces**

Most times, you will not be required to wear a brace after your spine surgery. If you do need to wear one, there are three types of braces that you may be required to wear.

- A lumbosacral orthosis (LSO) brace for lower lumbosacral fusions
- A thoraco-lumbosacral (TLSO) brace for upper lumbar fusions
- Warm n' Form lumbar brace for comfort

Speak to your surgeon if you have any questions about bracing.

## Community Resources – Support for a Successful Recovery

### Department of Elderly Affairs (DEA)

- 401-462-0569
- [www.dea.ri.gov](http://www.dea.ri.gov)
- State's primary agency that monitors community programs and services for seniors
- Senior companions – volunteers that can come by, provide one-to-one human contact to those in need of a helping hand or companionship

### Dial 211

- For elders, adults with disabilities, families, and caregivers
- Additional programs offered through the Department of Elderly Affairs

### Online Grocery Shopping and Delivery

- Stop & Shop, Shaw's, Amazon.com, Instacart, Whole Foods, Monroe Dairy, and Target offer grocery delivery service through online or in-app ordering.

### Transportation Assistance

Many cities and towns offer transportation services for non-medical or medical appointments. Call your local senior center or town hall and inquire about what is available in your area.

### [www.medicare.gov](http://www.medicare.gov)

Website to check insurance coverage for those with Medicare

### Freemasons

Long St., Warwick RI (across from Saints Rose and Clement Church)

401-246-0865

[rifreemasons@rifreemasons.org](mailto:rifreemasons@rifreemasons.org)

Organization offers gently used, durable medical equipment for free with the understanding that the equipment will be returned when no longer needed.

Open on Fridays, 9 to 12 p.m.

### Nutrition Services

Brown University Health Nutrition Services  
401-793-8740

Atlantic Registered Dietician Solutions, LLC  
401-367-0823  
[atlanticRDN@gmail.com](mailto:atlanticRDN@gmail.com)

### Assistance or Companionship Programs

- Visitor program (Providence, RI) 401-421-7833 ext. 228
- Senior companion program 401-462-0569

### Home Health Aides and Other Additional Support Services

Home health aides are generally not covered after spinal surgery but are available for private pay.

- Home Instead: 1-888-336-0349
- Care.com

### Cathleen Naughton Associates

Offer handyman services, companionship, rides to appointments. Services provided for private pay fee. Call for more information - 401-783-6116

### Smoking Cessation – see patient packet

### Resources for Opiate Dependence

- Brown University Health Recovery Center  
200 Corliss St. Providence, RI  
401-606-8530
- Recovery Connection –many locations  
877-557-315

### Outpatient Rehabilitation Services

(This is not an exhaustive list of facilities)

Some people have outpatient physical therapy after their spinal surgery. If you think you could benefit from additional strengthening or want to seek out the expertise of a therapist postoperatively, speak to your surgeon.

Section 1802 of the Social Security Act “seeks to ensure that free choice is guaranteed to all Medicare individuals.” The law states: “Any individual entitled to insurance



benefits under this title [i.e., Medicare] may obtain health services from any institution, agency, or person qualified to participate under this title if such institution, agency, or person undertakes to provide him such services.” This statement gives patients freedom to choose who they want as their provider of post-hospital services.

There are other companies not listed on this form. A patient has the right to find one of their own choosing.

### **The Miriam Hospital Outpatient Rehabilitation**

#### **Providence Location**

195 Collyer St, 3rd Floor, Suite 301, Providence

Phone: 401-793-4080

Fax: 401-793-4110

#### **Lincoln Location**

1 Commerce St, 2nd Floor, Lincoln, RI

401-793-8501

#### **Central Falls Location**

1000 Broad St, Suite 101, Central Falls, RI

Phone: 401-606-7492

Fax: 401-606-7493

### **Rhode Island Hospital Outpatient Rehabilitation**

#### **Providence Location**

765 Allens Ave, Suite 102

401-444-5418

#### **East Greenwich Location**

1454 South County Trail, Suite 1300

401-444-2050

#### **Newport Hospital Outpatient Rehabilitation**

20 Powel Avenue, Newport

401-485-1845

### **Sport & Spine Physical Therapy**

#### **West Warwick Location**

328 Cowesett Ave, Suite 6

401-823-8856

### **University Orthopedics**

#### **Multiple locations**

401-443-5000

### **Academy Physical Therapy**

667 Academy Ave, Providence

401-227-9320

### **Roots Physical Therapy**

(self-pay – no insurance accepted)

One Richmond Sq, Suite 152E, Providence

401-862-7037

[www.rootsspecialtyservices.com](http://www.rootsspecialtyservices.com)

If you have a physical therapist that you worked with before surgery, you may continue to utilize their services after your surgery.

### **Home Care Equipment Vendors**

(This is not an exhaustive list of vendors)

Section 1802 of the Social Security Act “seeks to ensure that free choice is guaranteed to all Medicare individuals.” The law states: “Any individual entitled to insurance benefits under this title [i.e., Medicare] may obtain health services from any institution, agency, or person qualified to participate under this title if such institution, agency, or person undertakes to provide him such services.” This statement gives patients freedom to choose who they want as their provider of post-hospital services.

### **Brown University Health Home Medical**

401-335-9000 or toll free: 1-800-480-2273

Delivers equipment directly to your home. To learn more, please visit [brownhealth.org/centers-services/home-medical-supplies-and-services](http://brownhealth.org/centers-services/home-medical-supplies-and-services)

### **Alpha Surgical Supply**

1894 Smith St, North Providence, RI

401-353-9090

### **Apria Healthcare**

70 Catamore Blvd, Suite 200, E Providence, RI

401-435-8500

### **Independence Home Health Wares**

35 Agnes St., Providence, RI

[Homehealthwares.com](http://Homehealthwares.com)

401-273-8888

**Oakley Home Access RI, MA, CT**

401-429-3882

**Ocean State Center for Independent Living (OSCIL)**

401-738-1013

www.oscil.org

**South County Surgical Supply**

14 Woodruff Ave, Suite 13, Narragansett, RI

401-738-1850

**Lincare**

401-434-2828

Multiple branches in RI

www.lincare.com

*Note: There are other companies not listed on this form. A patient has the right to find one of his or her own choosing.*

**Pain Websites:****Retrain Pain – free resources**

www.retrainpain.org

**American Chronic Pain Association (ACPA)**

Resources, videos, providers, support groups

www.acpanow.com

**The Pain Toolkit**

Free information for patients

www.paintoolkit.org

**Pathways Through Pain: Priorities and Goals (American Chronic Pain Association)**

Search title on www.youtube.com

## The Coach's Guide to Spinal Surgery

**Coach Definition:**

A coach is someone who will help you achieve your best possible recovery by removing obstacles, helping you set and stay focused on your goals, and motivating you to stay active in your recovery. The coach can be anyone you trust – your spouse or partner, child, close friend, or a combination of these people.

**Coach Expectations:**

A coach should be compassionate and patient, with good observation, organization, and listening abilities. Your coach should be your cheerleader!

**Time Commitment:**

A coach should be there to:

- Remind the patient to keep moving at home as recommended and do all prescribed exercises.
- Help the patient to use proper body mechanics when moving.
- Attend appointments for the doctor or physical therapy as needed.

**Responsibilities:**

- Motivate your loved one to be as independent as possible.

- Encourage the patient to do preoperative and postoperative exercises daily.
- Assist with discharge from the hospital (transportation, medication, equipment, etc.).
- Do (or arrange for) the shopping, cleaning, cooking, laundry, and errands.
- Encourage adequate pain control, both in the hospital and after discharge (medication, ice, etc.).
- Keep track of medical appointments and provide transportation to and from the hospital, the surgeon's office, the physical therapy office, and any other appointments.
- Pick up prescriptions or arrange for delivery of prescriptions.
- Communicate with the healthcare team about any changes or concerns.
- Perform minimal lifting, carrying, or bathing tasks, if needed.
- If possible, find an alternate coach in the event your coach is unable to attend or assist. (Two are always better than one!)

What are body mechanics? Body mechanics is a term used to describe the way we move during daily activities. Proper body mechanics can help you avoid injury and muscle fatigue, and can help you protect your spine after spine surgery and for the rest of your life. It is essential that you use proper body mechanics when doing things such as lifting, bending, squatting/ stooping, pushing/ pulling, twisting and getting in and out of bed. This handout will show you how to properly do these things and live a life with a healthy spine.

## BENDING:

1. Squat with feet apart or kneel down on one knee.
2. Bend knees and hips – not your back.
3. When leaning forward, move your whole body – not just your arms.



## LIFTING

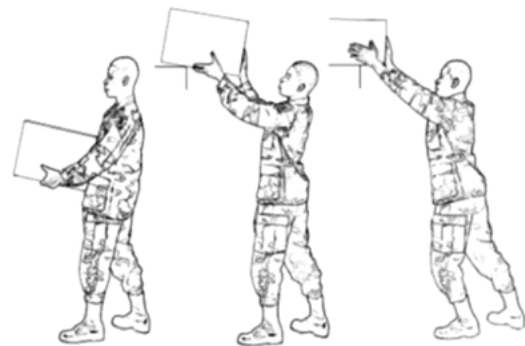
1. Always check the load before you try to lift it.
2. Make sure your feet are wide enough apart to keep a stable base – shoulder-width works for most.
3. Position your body as close to the load as possible.
4. Bend at your knees and hips – not at your back.
5. Do not plant your feet and twist – move your feet as you turn.
6. Keep your stomach muscles firm and tensed.
7. Breathe out when you lift – don't hold your breath.
8. Lift with your legs – not your back.
9. Use smooth, controlled movements to lift – no jerking.
10. If you feel pain while lifting, the load is too heavy or you need to readjust.

## LIFTING FROM THE FLOOR:

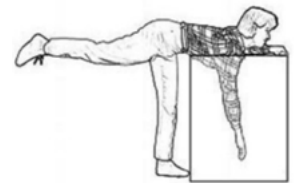


## OTHER WAYS TO LIFT:

**Lifting/ reaching overhead.** Keep abdominals tight and shift weight onto your front foot.



**Golfer's Lift:** Used for small objects on the ground. Keep back straight and raise one leg straight out behind you as you lean down to pick up an object.

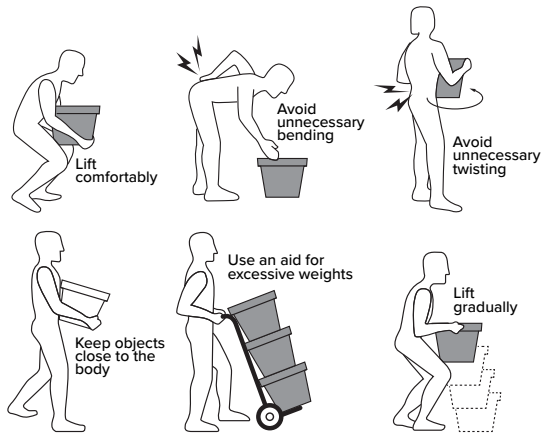


**Straight Leg Lift:** Use this lift when obstacles prevent you from bending your knees. Try to avoid this as much as possible. Push buttocks out as much as possible to avoid bending at the waist and bend your knees slightly. You may also lean against the obstacle for support.



## Reaching

1. Always check the load you are reaching for before moving it - test one corner.
2. Reach only as high as you comfortably can. Avoid stretching too far.
3. Use a step stool when appropriate.
4. Let your arms and legs carry the weight - not your back.
5. Keep the load close to you.
6. Put one leg in front of the other for support (see above reaching overhead).



## Pushing / Pulling

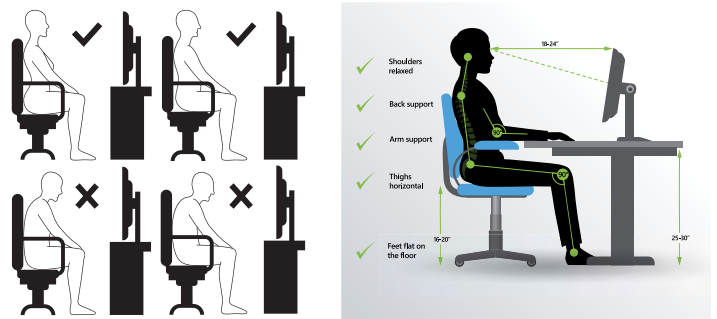
1. Whenever possible, push rather than pull. You can push twice as much as you can pull without injury.
2. Stay close to the load. Do not lean forward.
3. Use both arms. This will keep you squared off to the object and keep your spine straight.
4. Tighten your stomach muscles when pushing. Do not hold your breath. Breathe out.
5. Keep hips facing in the direction of the push.



## Sitting

Sitting for long periods of time can cause your spine to feel uncomfortable. Use these suggestions to help:

1. Use a cushion or rolled towel to improve support for your lower back.
2. Feet should rest comfortably on the floor or footrest - no dangling. The chair should not dig into the back of your knees.
3. Ensure materials are within arm's reach to avoid awkward movements or excessive reaching.
4. Get as close to your work as possible.
5. If you can, perform some of your work while standing or alternate between sitting and standing. Standing desks are very helpful for this.
6. Change positions frequently during the day.



## Standing

If you must stand for long periods of time, make sure you maintain good posture.

1. Consider raising or lowering the workstation so you are not bending or leaning back too much.
2. Stand on anti-fatigue mats or wear soft soled shoes or inserts.
3. Consider a foot support to relieve the demand on your legs or place your foot on an elevated surface from time to time.
4. Do not lock your knees. Keep them soft with a slight bend. This is good for circulation and to help the muscles in your back absorb shock.
5. Stand with your legs shoulder-width apart, with one foot slightly ahead of the other.
6. Keep your stomach muscles firm and engaged.
7. Take a break periodically and stretch.



# Diaphragmatic (Belly) Breathing Instructions

The diaphragm is the most efficient muscle for breathing. It is also a part of your core muscles that help to stabilize your spine. Keeping this muscle strong will help you be stronger for activities after surgery. In addition, regular, slow diaphragmatic breathing helps to decrease stress and to control pain by calming your nervous system, which will help quite a bit after surgery.

As you begin this process, it is normal for it to feel challenging or different at first – especially if your body is used to doing shallow breathing. Go slow. If you feel light-headed while doing this, it is a sign of trying too hard or over-breathing. Changing techniques may be helpful. Please practice for at least five to ten minutes, twice daily, in a comfortable position and then in different positions.

## TECHNIQUE 1

Start by placing a hand on the abdomen and one on the breastbone. Gently attempt to breathe into the hand on the abdomen only (try to minimize the hand on the breast bone's movement). Don't try too hard. This should be a gentle effort. If this is too hard, move onto the next technique.



## TECHNIQUE 2

Try to breathe in for a count of “two” (with each counted number taking one second) and out for a count of “three”. If this feels too fast, try breathing in for “three” and out for “four”. Adjust the numbers so the exercise is comfortable and not stressful. (Hint: The elongation of the outbreath can create an opportunity for a deeper next breath).

## TECHNIQUE 3

Inhale as you normally would. On exhalation, focus on exhaling all of the air completely out of your lungs. Pause and wait until the body wants to breathe again. Let any sense of effort drop away. This should feel easy.

## TECHNIQUE 4

Imagine a breathing hole (like a whale's or dolphin's) in the bottom of each foot. With each breath, imagine breathing in through the bottom of your feet and up to your abdomen. On the exhalation, this is reversed as you imagine breathing out of the bottom of your feet.

If all of this is extremely taxing or difficult, try these techniques while lying on your belly, just to become aware of your breathing. This may help you feel your diaphragm muscle even while breathing with minimal effort. Practice for five minutes at a time focusing on the sensation of deeper breathing.

**Other tips:** Use the internet to your advantage. If you search for videos on diaphragmatic breathing, you will find many videos providing you with instruction and demonstration. Please let us know if you have any additional difficulties. You can reach the program manager at 401-793-2435.

# Eat Your Way Toward Proper Healing

After surgery, our body uses more energy and requires more nutrients to heal adequately. Regular meals should become a part of your daily schedule for at least the duration of your healing to ensure you get the nutrition your body needs. Meals should be well-balanced to obtain all the nutrients necessary for tissue repair. Your body needs more protein, calcium, and vitamin C during this time, so many of your

calories should come from foods high in these nutrients. Take careful note of the food sources listed below.

**IMPORTANT:** These recommendations are for diet / food only and not for vitamins/ supplements. Please speak to your medical provider/ surgeon about which vitamins you should NOT take before/ after surgery.

NUTRIENTS	HELPS WITH:	FOUND IN:
<b>Protein</b>	healing, tissue repair and regrowth	meat, poultry, fish, eggs, milk, cheese, legumes, soy products, nuts, seeds
<b>Carbohydrates</b>	energy for healing and preventing protein/muscle breakdown	fruits, vegetables, legumes, breads, cereals, rice, pasta, grains
<b>Fats</b>	absorption of fat-soluble vitamins, immune response, energy	oils (e.g., olive, canola, sunflower), nuts, seeds, avocado, salad dressings, margarine, butter
<b>Calcium</b>	building/maintaining bones and muscle contraction	milk, cheese, yogurt, soy products, turnip and mustard greens, collards, kale, broccoli, almonds
<b>Iron</b>	forming hemoglobin and carrying oxygen **best when eaten with vitamin C rich foods	liver, lean red meat, poultry, fish, iron-fortified cereals, legumes, dark leafy greens, dried fruit
<b>Zinc</b>	helps in wound healing, component of enzymes	meat, liver, eggs, oysters and other seafood
<b>Vitamin A</b>	helps in wound healing and growth, maintenance of skin	carrots, sweet potatoes, dark yellow or green leafy vegetables, milk, cheese, liver, egg yolk
<b>Vitamin D</b>	helps in bone healing and calcium absorption	fortified milk, butter, margarine, fortified cereals, liver, fatty fish, egg yolk
<b>Vitamin E</b>	antioxidant/disease-fighting properties (do NOT take supplements seven to ten days before surgery)	vegetable oils (e.g., corn or sunflower), beef liver, milk, eggs, butter, green leafy vegetables, fortified cereals
<b>Vitamin K</b>	helps wound healing response and blood clotting	green leafy vegetables, fatty fish, liver, vegetable oils
<b>Vitamin C</b>	building connective tissue, essential nutrient for healing	citrus fruits, strawberries, tomatoes, peppers, greens, raw cabbage, melon
<b>Fiber</b>	essential for maintaining healthy bowel movements – very important after surgery!	pears, avocado, apples, bananas, carrots, broccoli, brussels sprouts, lentils and other beans, quinoa, sweet potatoes, chia seeds, almonds, oats

**Other Considerations:** Stay well hydrated by drinking plenty of water (generally six to eight cups per day or more). Always have a water bottle handy!

It is very common that people decrease or stop physical activity when they have back or neck pain. It is generally believed that if we rest when we are injured, symptoms will improve. However, the truth is that decreasing activity is the worst thing you can do. We need strength in our core and our legs to take the stress off our spine and maintain good balance and safety during daily tasks. One way to improve the overall outcome of your spine surgery is to exercise. Exercise can help to prepare your body for an optimal recovery. Exercise will not only help to improve your general health, but it will allow you to get stronger and improve your endurance before surgery. It can also play a role in reducing back pain.

Some exercises we recommend you do to prepare for your spine surgery are:

**1. Diaphragmatic Breathing:** This type of breathing will improve the strength of your breathing muscle (diaphragm) and decrease your body's demand for oxygen. If you practice this type of breathing, you will require less effort to breathe, which will improve your tolerance to daily activities. This type of breathing is also beneficial for calming your nervous system and to help control pain. Please see the handout on diaphragmatic breathing in your packet. There are also many YouTube videos that can help if you experience any difficulties.

**2. Walking:** A walking program before surgery can significantly improve your chances of a quick recovery from spine surgery. Walking helps to improve cardiovascular health, endurance to activity, and lower extremity (leg) strength. This will greatly reduce stress on your spine when performing activities after surgery, such as getting in and out of bed or a chair, standing in the shower, and dressing. Please begin a walking program today if you are not already doing so.

**3. Sit to Stand/ Chair Squats:** It may sound simple, but practicing getting out of a chair or squatting in front of a chair (more advanced) can help to greatly improve your leg strength and balance before spine surgery.



**4. Abdominal Engagement:** Learning how to tense up your abdominals during activities will greatly help to reduce the strain on your back when doing things such as lifting, bending, and reaching. When tightened, your abdominal muscles will naturally pull in toward your spine. You can achieve this by breathing out with pursed lips (like you're blowing a feather across a table). You can also tighten your stomach as if someone were to punch you in the gut. It is healthy to maintain slight engagement in your abdominal muscles when sitting up straight, standing, and before you engage in daily activities such as sit to stand, lifting, bending and reaching.

**5. Ankle Pumps:** After spine surgery, it is likely you will be spending some time in a hospital bed or your own bed. The first few days after surgery are when you have the greatest risk for blood clots to form in your legs. Ankle pumps are a great way to improve circulation in your legs so that your blood moves easily back to your heart. Start doing these throughout the day now and continue to practice them the day after surgery until you are up and moving around as you were before surgery.



## WHY IS IT IMPORTANT TO STOP SMOKING BEFORE MY SURGERY?

- ▶ Smokers who undergo surgery have more than twice the rate of complications compared with nonsmokers.
- ▶ Those who smoke have an increased chance of:
  - ◆ surgical site infections
  - ◆ sepsis (blood infection)
  - ◆ pneumonia
  - ◆ heart attack
  - ◆ stroke
  - ◆ delayed or inadequate healing of bone and tissue (essential after your surgery)

## HERE'S SOME GOOD NEWS!

- ▶ If you quit smoking as soon as three to four weeks before surgery, it has been shown to decrease your chances of having complications.
- ▶ With each smoke free day, your risk of heart attack decreases. For every tobacco free week after four weeks, your chances of healing increase by 19 percent!
- ▶ If you are concerned about how your smoking will impact the outcome of your surgery, speak to your doctor about medical and therapeutic options that may help you quit.

## THERE IS FREE HELP OUT THERE:

Nicotine cessation coaching and medication are free via many programs, which can double or triple your chances of quitting for good.

To find out more about personal coaching and other options free of charge, refer to the following:

### Hotlines:

1-800-QUIT-NOW

Text QUITNOW to 333888 (free text support)

1-855-372-0040 (phone and online programs)

### Websites:

[www.brownhealth.org/centers-services/behavioral-medicine-clinical-services/smoking-cessation-counseling](http://www.brownhealth.org/centers-services/behavioral-medicine-clinical-services/smoking-cessation-counseling)

[www.smokefree.gov](http://www.smokefree.gov)

[www.ycq2.org](http://www.ycq2.org) – for U.S. military service members

### Apps:



quitSTART



Smoke Free



Quit Guide



Quit Vaping



Quit It Lite



# Spinal Anatomy & Surgery Specifics

Thank you for choosing the Spine Center at The Miriam Hospital for your spine surgery. You are taking a big leap toward improving your health and well-being, and we are here for you through every part of it. Your surgeon is here to correct the problem that is limiting your functional abilities, and we are here to empower you to maximize and maintain a pain-free lifestyle.

In this packet you will find information related to your specific surgery, and everything you need to know about the surgical process and your recovery. You can feel free to call the Spine Center at any time if you have any questions related to the material in this packet, and we will answer to the best of our ability or direct you to someone who can. You can find our phone number at the bottom of every page in this packet. We realize that some of this information may be new to you, so we have included a Glossary of Terms on the inside left cover of your folder to help you navigate this information with ease.

We look forward to helping you achieve the best possible outcomes throughout this journey.

## SPINAL ANATOMY

Your spine is made up of 29 bones called vertebrae - seven cervical (neck), 12 thoracic (mid back), five lumbar (low back), the five bones that make up the sacrum (scoop-shaped bone at the base of the spine) and the coccyx (tailbone). Almost all bones in the spine are separated by a disc that has a soft, jelly-like center that is surrounded by a tough outer layer of fibers. The spine is stabilized (held together) by these discs, along with bony structures, ligaments, and strong muscles.

The spinal cord passes through the bony spine and is composed of nerves that lead to and from the brain. The spinal cord controls all muscle movement and sensation for the entire body. Nerve “roots” come from the spinal cord and exit through holes in the bony spine. These nerve roots turn into nerves as they extend from the spine. These nerves carry electrical impulses to and from muscles, organs, and other structures in the body. These nerve roots can become pinched or irritated by certain spine conditions.



## SPINAL DECOMPRESSION SURGERY

Spinal decompression is a term that includes several different surgeries that all have the same goal - to relieve the symptoms of spinal nerve compression. When the nerves of your spine are “compressed,” it means that there is pressure on the spinal cord or nerves that exit the spinal cord that work to help us move and feel in our trunk and limbs. These spinal nerves are bundles of nerves that branch off the spinal cord and exit between two vertebrae (spinal bones). Symptoms of spinal nerve compression include pain, numbness, tingling and weakness.

Spinal nerve compression can be caused by arthritis, disc problems, injuries and tumors. Your surgeon will recommend surgery based on the cause of the problem, if other types of treatments and therapies have failed to relieve your symptoms. Types of spine decompression surgery include:

- ▶ Discectomy: removal of part or all of a spinal disc
- ▶ Foraminotomy: surgery to widen the opening where a nerve root leaves the spinal cord
- ▶ Laminectomy/laminotomy: surgery to remove part or most of a bony area that makes up the back of each vertebra to remove pressure on the nerves
- ▶ Laminoplasty: surgery to open the lamina (back part of the spinal bone), rather than removing it, to allow for more room in the canal where the spinal cord and nerves lay
- ▶ Osteophyte removal: removal of bone spurs

## HOW LONG IS RECOVERY FROM SPINAL DECOMPRESSION SURGERY?

The answer varies, depending on the extent of the surgery, the number of spinal levels that require decompression, and your overall health and well-being entering the surgery. However, most people begin to feel better in about two to four weeks after surgery. Initially, you will have to limit the amount you lift, typically to less than five to 10 pounds. You will return to your prior level of function in about eight weeks with proper strengthening and exercise. You will be encouraged to begin a cardiovascular fitness regimen, such as walking, right away. Your outcome and recovery will be greater if you can begin this prior to surgery.

## SPINAL FUSION SURGERY

Spinal fusion surgery is recommended if previous nonsurgical treatments fail to help with pain or numbness coming from the back or neck. These symptoms are often the result of significant arthritis in the spine. A fusion is a way for your doctor to control the motion of one or more segments of the spine that have degenerated and are causing your pain. Spinal fusion surgery is a procedure in which two or more vertebrae are fused together to eliminate movement between them. This limitation in motion can prevent the vertebrae from rubbing against each other or slipping out of alignment. A fusion surgery can be very effective in relieving symptoms.

## WHAT CONDITIONS COULD BENEFIT FROM SPINAL FUSION SURGERY?

- ▶ Degenerative disc disease (DDD) is a condition where spinal discs (cushions) between the vertebrae (bones) break down and cause narrowing between the joints. This can result in nerve compression and arthritis, causing debilitating symptoms.
- ▶ Spondylolisthesis is caused when one vertebra (spinal bone) slips forward on another, causing compression of the spinal cord and/or nerves. This is typically a result of instability caused by a fracture (break) of part of the vertebrae that connects the joints between the bone (also known as spondylosis). This can be a result of arthritis, injury or trauma, or can be genetic. Spondylolisthesis can result in pain in the lower back, buttocks and legs.
- ▶ Spine fractures (cracks in the bone), although sometimes caused by a traumatic injury, can also result from spinal degeneration, such as osteoarthritis. Those with osteopenia or osteoporosis are also more prone to spinal fractures, which can lead to deformity or instability.
- ▶ Scoliosis and kyphosis (abnormal spine curvatures) are two deformities of the spine that have several potential causes. Some people are born with scoliosis, but it can also develop during adolescent growth, after injuries or degeneration, or result from certain genetic disorders. Osteoporosis and certain diseases can also cause scoliosis and kyphosis.

## HOW DOES SPINAL FUSION SURGERY WORK?

Spinal fusion surgery relies on your ability to heal with your own bone tissue, which will ultimately fuse your spinal segments together. To start, your surgeon will place a cage-like device between the two vertebrae that will be fused. This device traps bone materials and growth factors and will help to stimulate new bone to grow. They may also use screws that stabilize the vertebrae while new bone is growing.

In some cases, your surgeon will perform a minimally invasive surgery with the use of a specialized robot, which will allow for greater visualization and significantly less blood loss, as the surgical devices can be much more precise.

## HOW LONG IS THE RECOVERY FROM SPINAL FUSION SURGERY?

Full recovery from spinal fusion surgery can take up to six months with a strict physical therapy and exercise regimen, in order for you to regain strength and function. Initially, you will have to limit the amount you lift, typically to less than 10 pounds. You will be encouraged to begin a cardiovascular fitness regimen, such as walking. Your outcome and recovery will be greater if you can begin this prior to surgery.

After you heal from spinal fusion surgery, there should be no restrictions for the activities you enjoy doing.

## CERVICAL SPINE (NECK) SURGERY

Your cervical spine consists of the first seven bones in your spine. These bones are called vertebrae and play an

important role in protecting your spinal cord and the nerves that go into your arms and hands. In between each of these bones are spinal discs, which are like cushions and “separators” for the bones, and are filled with a jelly-like substance. The discs not only help to keep the bones apart to allow for enough room for the nerves to exit the spine, but they bend and squish as we move, and they play a role in keeping our bones in place on top of each other.

Certain conditions, such as herniated discs or bone spurs, can press on the spinal cord or spinal nerves. This can result in symptoms such as pain, numbness, tingling or weakness in the areas that the nerve supplies. When all attempts to treat your neck symptoms have failed, your surgeon may recommend cervical spine surgery. There are several types of cervical spine surgeries, and your surgeon will choose what is best for you, according to your specific medical case.

Surgeries are separated into either anterior or posterior cervical surgeries, depending on whether the surgery is approached from the front (anterior) or back (posterior) of the neck.

### **ANTERIOR (FRONT) CERVICAL SURGERIES**

When the neck is approached from the front during surgery, your surgeon will easily be able to see the disc space.

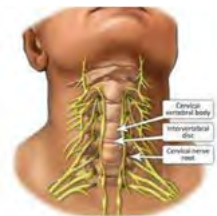
Examples of anterior surgery include:

- ▶ Anterior cervical discectomy and fusion (ACDF)
- ▶ Anterior discectomy and arthroplasty (artificial disc)
- ▶ Anterior corpectomy and fusion: removal of the body of the vertebra and two discs

When a disc must be removed, the space between the bones will need to be held together (fused) with a piece of bone to maintain the normal shape of your neck. Sometimes this involves the use of plates and screws.

Typically, people who have anterior cervical surgery return home after spending one night in the hospital. Unless your surgeon tells you otherwise, you should plan to go home either the day of or the day after your surgery.

**Special Note:** After anterior cervical spine surgery, it is common for people to have difficulty swallowing (dysphagia). To visualize your spine during surgery, your surgeon will need to move your windpipe and esophagus away from their normal resting place, which may cause some throat soreness, scratchiness or the feeling that something is stuck in the throat. This is almost always temporary and will resolve on its own within the first few weeks after surgery.



### **POSTERIOR (BACK) CERVICAL SURGERIES**

The neck is approached from the back during surgery when pressure needs to be alleviated on the spinal cord or the nerves. Examples of posterior cervical surgeries include:

- ▶ Foraminotomies: creating a space over the nerve root by widening the opening it exits through
- ▶ Laminectomies: removal of the bone on the back of the vertebra
- ▶ Laminectomy and fusion: removing the bone in the back of the vertebra and fusing it to the next vertebra
- ▶ Laminoplasty: expanding the existing bone without fusing it to the next level

In addition to any of the above, your surgeon may choose to fuse the bones of different levels to maintain spine alignment.

Typically, people who have posterior cervical surgery return home after spending one to two nights in the hospital. Unless you are told otherwise, you should plan to go home one to two days after your surgery.

### **LUMBAR (LOW BACK) SURGERY**

Your low back (lumbar spine) consists of the last five bones (vertebrae) of your spine and are located above your sacrum (the scoop-shaped triangular bone at the base of your spine). These vertebrae play an important role in protecting your spinal cord and the nerves that go into your legs and feet. In between the bones are soft discs that are filled with a jelly-like substance. The discs help to provide a space and a cushion between the bones and play a role in holding them in place.

Certain conditions, such as a herniated disc or bone spurs, can press on (compress) the spinal cord or spinal nerves. When compression to the spinal cord or nerves occurs, patients may experience symptoms such as difficulty with balance, bowel, and bladder function; or difficulty with walking or pain and numbness in the area that nerve supplies.

When all attempts at treating your lower back symptoms have failed, lumbar spine surgery may become a treatment option. There are several types of lumbar spine surgeries, and your surgeon will choose what is best for you according to your specific medical case.

Surgeries for the lumbar spine are classified as anterior, lateral or posterior lumbar surgeries, depending on whether the surgery is approached from the front (anterior), side (lateral), or back (posterior).

### **POSTERIOR (BACK) LUMBAR SURGERIES**

A posterior approach is used when the bone that lies over the nerves needs to be removed. This is done to help take pressure off the spinal cord or nerves or to place screws and rods in place to keep things from moving.

Examples of posterior lumbar surgeries include:

- ▶ Discectomies: removal of a piece of disc material
- ▶ Foraminotomies: creating a space over the nerve root by removing bone from the opening it exits through
- ▶ Laminotomy: partial removal of the lamina bone over the disc space
- ▶ Laminectomy: removing the entire bone (lamina) on the back of the vertebra
- ▶ Laminectomy and fusion: removing lamina and fusing one level to the next
- ▶ Posterior lumbar interbody fusion (PLIF): removing the disc from behind and placing a device into the disc space to maintain original disc height
- ▶ Transforaminal lumbar interbody fusion (TLIF): removing the joint where the vertebrae come together to alleviate nerve compression and placing a device to maintain original disc height

### **ANTERIOR (FRONT) LUMBAR SURGERIES**

When the surgery is approached from the front, your surgeon will be able to access the disc space more easily.

Examples of anterior surgery include:

- ▶ Anterior lumbar interbody fusion (ALIF)
- ▶ Anterior discectomy and fusion
- ▶ Anterior corpectomy and fusion: removal of entire vertebral body and two discs

If a disc is removed completely, the space between the vertebrae will need to be fused with a piece of bone to maintain your spine's normal shape; sometimes the fusion requires the use of plates and screws.

In many cases, patients who undergo anterior lumbar surgery require another surgical team to provide access to the spine from the abdominal area. This team is familiar with mobilizing your abdominal organs away from the front of the spine, so that the disc can be removed safely.

**Note:** Sometimes your surgeon will recommend both an anterior and a posterior approach to appropriately address your specific medical needs.

### **LATERAL (SIDE) LUMBAR SURGERIES**

A lateral approach is used when direct decompression of the nerves is not required. This exposure to the spine is from your side and allows access to some disc levels without the need for going through the abdominal cavity (anterior) and without the need for going through the back muscles (posterior). Examples of lateral lumbar surgeries include:

- ▶ Direct lateral interbody fusion: removal of the disc and placement of a device to maintain normal disc height
- ▶ Oblique lateral interbody fusion: removal of the disc with placement of device to maintain normal disc height
- ▶ Lateral corpectomy: removal of the entire vertebral body



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