

NAON Patient Education Series

Postoperative Spine



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Multimodal Analgesia

Pain is generated from multiple nerve pathways in your body. To ensure the best possible pain relief after spine surgery, your doctors may use a pain control approach called multimodal analgesia. Multimodal analgesia means that you will receive two or more medications that provide pain relief and, when used together, more effectively block pain signals. These medications can be given by the same or different routes (such as intravenous [through a tube inserted into a vein], injections, or pills). Multimodal analgesia is geared toward reducing your pain after surgery in order to help you recover more quickly and easily.

One of the main goals of multimodal analgesia is to decrease your need for opioid medications. Opioid medications include drugs derived from the opium plant (such as morphine) and also man-made drugs designed to have similar pain-reducing effects (oxycodone and hydrocodone). Opioid medications provide effective pain relief, but taking them regularly can lead to physical dependence and, sometimes, addiction. They also may have serious side effects, such as a dangerous decrease in the ability to breathe. Using less opioid medication can help decrease dangerous side effects and also other side effects (such as sleepiness, nausea, vomiting, and constipation) that may be unpleasant for you and may interfere with your ability to participate in physical therapy.

Multimodal analgesia includes medications that you receive before, during, and after surgery. Some of these medications may be familiar to you; for example, acetaminophen (Tylenol) and nonsteroidal anti-inflammatory drugs (Celebrex, Toradol, and others) are commonly given before and after surgery. Opioid medications are also used, especially when other medications do not give you enough pain relief. Another option for reducing pain after spine surgery is local anesthetic injection during surgery (see below for more information). When using multimodal analgesia, your doctors will choose pain medications, doses, methods of administration, and length of treatment based on your medical history, symptoms, and response to treatment.

Local Anesthetic Injection

One important part of multimodal analgesia (see above for an explanation of this term) for pain following surgery is local anesthetic injection. Your surgeon may use this procedure during your spine surgery. The surgeon injects a local anesthetic (similar to novocaine given at the dentist) alone or in combination with other medications into the part of the body where the surgery is taking place.

Local anesthetics block pain signals sent by the nerves to the brain. Injection of local anesthetics into the part of the body where the surgery is taking place is a simple and effective practice for controlling pain from surgical procedures. Local anesthetic injection can help reduce the pain you experience after surgery, including pain that may occur when you walk or move around. Research studies have shown that injection of local anesthetics during surgery, when used as part of multimodal analgesia; provide effective relief of pain after surgery. They may also reduce your need for opioid medications and help you to walk sooner after your surgery.

Of the medications used for local anesthetic injection, ropivacaine and bupivacaine are among the most common. A concern with these medications is that they are short acting, so their pain-relieving effects may not last long enough after surgery. One alternative is a long-acting form of bupivacaine that slowly releases medication at the injection site and may provide pain relief for a longer period of time. Your surgeon will decide the best combination of medications for local anesthetic injection during your surgery, if this technique is used.

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General Information

Welcome

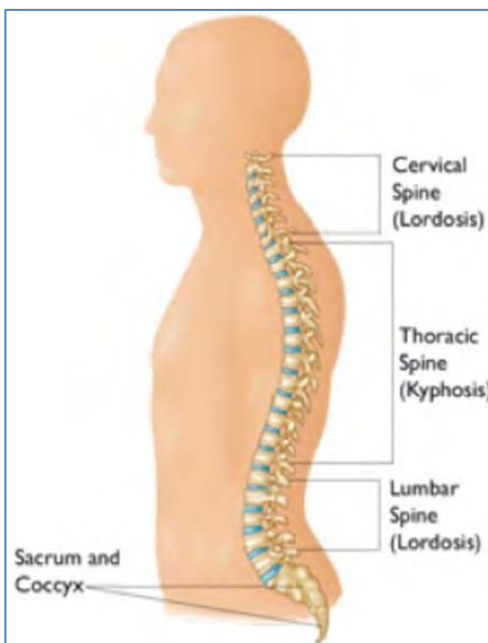
Welcome to your spine surgery patient education. This book will help you learn how to prepare for surgery. It will help you know what to expect after your spine surgery. You are a key partner in reaching your goals. What you do before and after surgery can help reduce problems and improve your activity level.

Introduction to Spine Anatomy

The spine is made up of 5 parts:

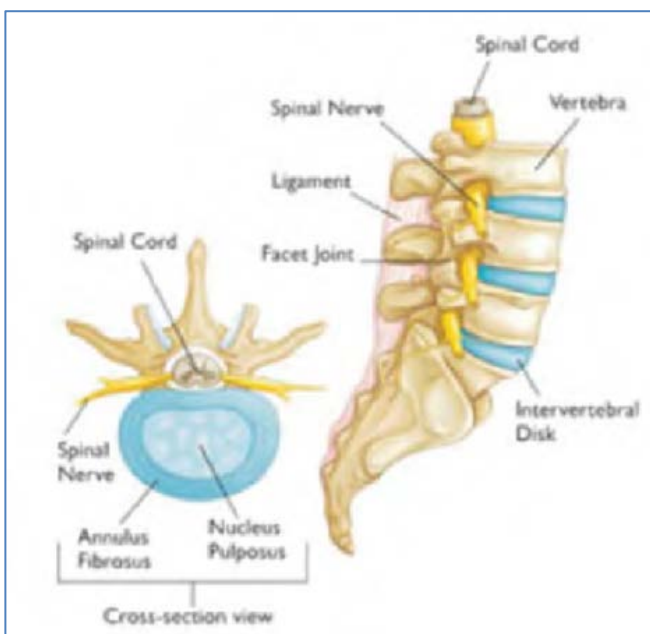
- Neck (cervical)
 - 7 bones (vertebrae), C1-C7
- Chest/mid-back (thoracic)
 - 12 bones (vertebrae), T1-T12
- Low back (lumbar)
 - 5 bones (vertebrae), L1-L5
- Sacrum
 - 5 joined bones
- Coccyx
 - 4 joined bones, also known as the tailbone

There are 33 bones (vertebrae) in the spine. Between each stacked bone is a soft disc that acts as a shock absorber. The area between each vertebra on the left and right sides is called a facet joint. The facet joints allow for movement in the spine. The bony area from the base of the neck to the low back level is the protective canal that surrounds the spinal cord. Each vertebra has nerves that send and receive information for sensation (feeling) and movement. The complete structure of the spine protects the spinal cord, attaching muscles, protecting organs, and providing upright posture.



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Healthy Intervertebral Disc



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- Discectomy: removal of part of or all of disc between two

vertebrae. If the entire disc is removed, bone graft material may be used. A metal, plastic, bone, or cage type spacer is inserted to realign the height in this space.

Herniated Intervertebral Disc



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Spine Surgery

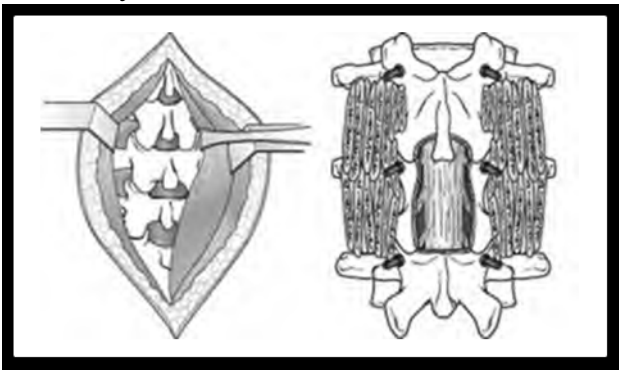
When other treatments have been tried or a major injury occurs, spine surgery may be needed. There are different surgeries for the spine. The one your surgeon suggests for your care depends on the cause leading up to your surgery. It also depends on the surgeon's training and treatment beliefs.

Common surgeries include discectomy, laminectomy, fusion, or artificial disc replacement. Surgery can be done from the front (anterior), the back (posterior), or both. Your surgeon will discuss the best option for you.

- Laminectomy: provides access toward the center of the soft disc between the vertebrae or to nerve roots. It relieves pressure and eases symptoms.

Laminectomy

Screws and Bone Graft



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Anterior Cervical Discectomy and Fusion

(Front and side view with plates and screws for stability)

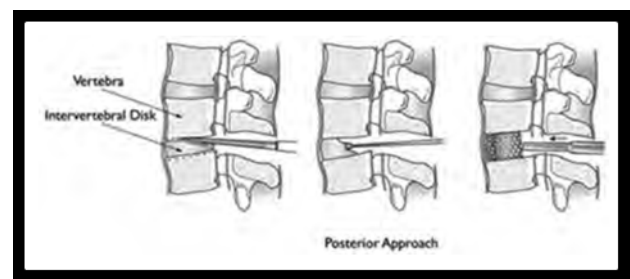


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- Fusion: spinal fusion stabilizes the spine by fusing together two or more vertebrae. In some cases, a discectomy may be done along with a fusion.

Posterior Lumbar Interbody Fusion

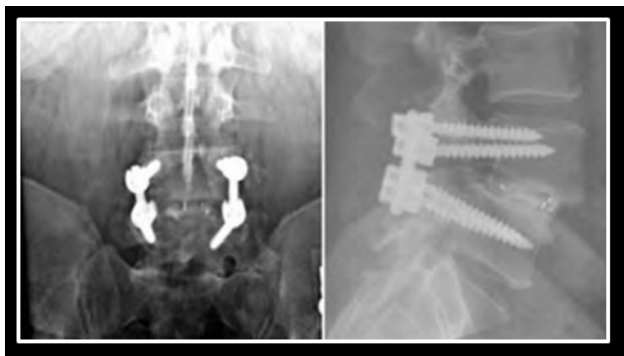
(The disc is removed and spacer is placed in the open space)



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Transforaminal Lumbar Interbody Fusion

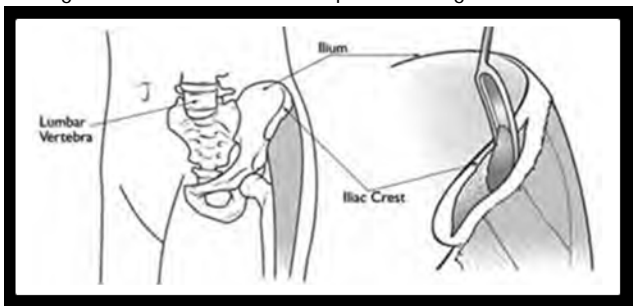
(This is a side instead of back approach)



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- Bone grafting is needed to provide stability. A bone graft can be taken from your own hip bone or from a bone bank. The graft is placed on the sides of two joining vertebrae. Over time, the bone "fuses" together, creating a solid, stable area. If a discectomy was also performed, bone graft material is used in the space between the vertebrae.
- Metal rods and screws are sometimes used for additional support.

Bone graft from the iliac crest of hip with autograft :



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Frequently Asked Questions about Spine Surgery

Well-informed patients can take part in their care and recovery. Knowing what to expect before, during and after surgery can help you recover more quickly. It can assist you and your caregiver to avoid potential problems. There are common questions patients have about spine surgery. Some answers are listed below. However, it is best to discuss questions with your surgeon. Note that some questions have a reminder to do just that.

Why does my neck or back hurt and why do I have this problem?

You may have pressure on the nerve roots or spinal cord from many causes. Some causes can be a herniated disc, bone spurs, calcium deposits, tumors, bone fragments from a fracture, or infection. The pressure may cause numbness, tingling (pins and needles feeling), and pain in your arms, legs, neck or back. These problems may cause the vertebrae in the spine to be unstable or be out of alignment.

How can this problem be fixed?

Your doctor will have you try non-surgery treatments first. If the pain and related symptoms are not lessened and you are not able to function well in your daily activities, surgery may be a valid option. There are different spine surgeries. Your surgeon will talk about different options with you, along with risks and benefits of having surgery.

Where does a bone graft come from?

Bone graft material can come from different sources. Some are your own hip or pelvis bone, a bone bank, or a synthetic option. Your surgeon will decide which is best for you.

What are the risks of spine surgery?

Some risk factors may include nerve injury, unintentional tear to the protective layer of the spinal cord (called a dural tear), infection, hematoma, failure to achieve bone fusion, or failure to ease symptoms. Risks of surgery should be discussed with your surgeon.

Will I be hospitalized?

Some surgeries are simpler and those patients can be discharged within a few hours. Other surgeries may require a hospital stay of 1 to 3 days. Your type of surgery, health, age, and response to surgery will define how long you stay in the hospital.

When will I be able to get out of bed?

When you are awake and doing well, a nurse or therapist will assist you out of bed and help you to get around. You may sit at the edge of the bed or take a short walk. Activity is part of your recovery. The physical therapist or occupational therapist will instruct you on safe ways of moving, walking, and climbing stairs. They may suggest some devices for you to use at home.

Do I need to wear a neck collar or back brace?

A brace may help provide extra support after surgery. Your surgeon will decide if a brace is needed and which one is best for you. In some cases, a brace may not be needed.

How should I take care of my incision?

Your incision should be kept clean and dry. If you have staples, change the gauze over the incision daily. If you have a clear dressing over a gauze pad, you should follow instructions from the doctor on when to remove it. If present, leave any pieces of tape in place. They will come off on their own. Staples will be removed about 10-14 days after surgery. Most types of stitches will dissolve on their own and do not need to be removed.

When can I take a bath at home?

It is safest to shower with your incision covered. Apply a clean, dry dressing on after your shower. Check with your doctor or nurse when it will be safe to shower without a dressing over your incision. Only then will it be okay to let water run over the incision. A bath, hot tub, or pool is generally not okay until your surgeon tells you it is safe.

When can I drive?

Your surgeon will let you know when it is safe to drive again. You cannot drive while taking pain medicines.

**Discuss driving with your surgeon.*

In what position can I sleep?

You may sleep on your back or on either side with pillows for positioning. A therapist or member of your care team will teach you these positions. Sleeping on your stomach or on a waterbed may not be okay.

Will I need therapy at home?

Ask your surgeon about therapy at home. The need for therapy at home depends on many factors.

**Ask your surgeon if therapy will be needed after surgery.*

What limits will I have after surgery?

There is an easy way to learn common spine precautions. It is no BLT SPP. That means: no Bending, no Lifting (over 10 pounds), no Twisting, no Sitting (more than 30 minutes), and no Pushing or Pulling. Walking is the best form of activity until your surgeon says you should do more. Avoid high-impact activities such as jogging and running. Plan to get out of the car at least every hour to stretch during long rides. Sitting in a seat that is slightly reclined is most comfortable.

**Discuss specific activities with your surgeon.*

When can I return to work?

Returning to work will depend on the type of surgery you have as well as the type of work that you do.

**Discuss your specific work activities with your surgeon.*

Your Health Care Team

Your health care team members have special training and interest in the area of spine care. Be an active partner with your health care team in order to have the best possible outcome. The team may include:

Anesthesiologist/Certified Registered Nurse Anesthetist

A doctor and advanced practice nurse who work together and on your anesthesia during your spine surgery. They may help with pain management before and after surgery.

Case Manager/Discharge Planner

A registered nurse or social worker that works closely with your surgeon and the other healthcare team members to help with your discharge plans. This may include physical therapy, home equipment, and/or skilled nursing care if needed. The case manager or discharge planner can answer your questions about insurance coverage for what you may need.

Nurse Practitioner (NP)

A registered nurse who has advanced skills and education that works with your surgeon to manage your care. An NP can diagnose and treat health care problems, prescribe medicines, write orders, and interpret tests. Nurse practitioners often see you before, during, and after spine surgery.

Occupational Therapist (OT)

An OT is a healthcare team member that plans safe ways for you to complete your daily activities such as bathing. The OT may partner with the physical therapist (PT) to complete your exercises. The OT offers safety ideas for your home. Some equipment may be used to simplify tasks and protect the spine.

Orthopaedic Spine Surgeon or Neuro Spine Surgeon

A surgeon with extensive training in the diagnosis and treatment of the spine. This surgeon will perform the surgery and direct your care after surgery.

Physical Therapist (PT)

A physical therapist plans your rehab after spine surgery. This therapist will teach you exercises for motion, muscle strength, and balance to walk safely after your spine surgery. You may need to learn how to use a temporary device such as a walker. Your surgeon may ask that you work with a therapist to learn exercises before surgery. Depending on your surgery, you may need to wait for your spine to heal before working with therapy.

Physician Assistant (PA)

A physician assistant is a healthcare team member that works with your doctor to prescribe, diagnose, and treat health care problems. A physician assistant may see you before, during, and after spine surgery.

Registered Nurse (RN)

An RN is a professional nurse who manages your bedside nursing care after surgery. The RN uses the surgeon's instructions to guide your care. An RN provides education to you and your family about your health and safety needs. This includes information before and after surgery and helps you plan for your discharge from the hospital. An RN may provide care and education in your surgeon's office.

Clinical Nurse Specialist (CNS)

A Clinical Nurse Specialist is an advanced practice RN who is a clinical expert in a specialized area of nursing practice. The CNS works with your surgeon and healthcare team. The CNS may write orders, direct your plan of care, provide education, and in some cases may prescribe medicine.

Before Surgery Checklist

6-8 Weeks before Surgery

Advanced Health Care Directive (Advance Directive, Living Will)

- It is a good time to complete an Advanced Health Care Directive if you do not have one. This form will help explain your health care wishes to your doctor and others. Your hospital has the form for you to complete if needed.
- If you have an Advanced Health Care Directive, please bring a copy along to the hospital.

Assistance

Ask your spouse, children, or others if they can help you for a few weeks after returning home from surgery.

Diet

- Eat as healthy as possible. Balance servings of fruits, vegetables, protein, whole grains, and low fat dairy. An adequate iron supply is important before surgery. Good sources of iron include lean red meats, fortified cereals, and leafy green vegetables such as spinach or kale.
- Discuss taking a multivitamin and iron supplement with your primary care doctor. They may need to be stopped 1-2 weeks before surgery.
- Fluids are needed to help you to have regular bowel movements. Most of that fluid should be water, juicy fruits, and vegetables.

Equipment

Assistive devices may be needed after your surgery. Items may include a walker, an elevated toilet seat, or bedside commode. The bedside commode has arms and can often fit directly over your home toilet. The commode may fit in your shower as a seat. The therapist will suggest what you will need at home. Call your insurance company to find out which items are covered. If items are not covered by insurance, you may be able to purchase them at the hospital. Other places to purchase items are a local home improvement center or pharmacy. You could borrow equipment from churches, VFW posts, or family/friends.

Below are listed items that can be useful after your surgery.

- A **sock aid** helps to put on a pair of socks by yourself.
- A **long-handled sponge** helps clean hard to reach places when bathing.
- **Safety bars** can be installed by a handyman in the shower area and wherever else needed.
- A **tub bench/shower chair** allows safe transfer and seat while in the shower or tub.
- A **hand-held shower** helps with bathing from the tub bench or shower chair.
- A **basket or bag** that attaches to a walker allows carrying needed items.
- A **travel mug or thermos** with a secure lid allows safe transport of a liquid such as water.
- A **reacher/grabber/dressing stick** helps to pull up your pants, reach for dropped items, or obtain items that are higher than arms can reach.
- A **long-handled shoehorn** helps to put on shoes without bending your back.
- **Elastic shoelaces** help to secure shoes instead of trying to tie laces after surgery.

Exercise

Building strength can help you to have a great outcome after surgery:

- Walking is your best exercise.
- Water exercise, walking in waist high water, or swimming 2-3 times a week can also increase strength and endurance.
- There are some simple exercises you can do in your own home from now through your rehab after surgery. Please see the exercises listed in the "Post-op Exercises, and Activity Guidelines" section of this manual. Before starting a new exercise, ask your doctor or therapist.

Medical Appointment

You may be asked to see your primary care doctor before surgery. Ask your surgeon what tests are needed for surgery so you can tell your primary care doctor.

- EKG (electrocardiogram)
- Lab work
- Chest x-ray
- Urinalysis

Smoking

Smoking is known to cause breathing problems. It can lessen healing after surgery. Try to decrease smoking or seek methods to stop. Your doctor can offer ideas to do so.

Weight Loss

If weight loss is a goal before surgery, ask a dietician or exercise specialist for help. Your primary care doctor can make a referral for you.

Work

Ask your surgeon to sign a work release form for you. Depending on the type of surgery and work you do, you may need time off work to gain strength and mobility.

10-14 Days before Surgery

Church or Synagogue

Notify your place of worship as desired for prayers, support, or visitors while you are in the hospital.

Home Changes

Before surgery, some changes at home may be needed so that you can return there safely after surgery. It is best to have the bathroom, bedroom, and living areas on the same floor. If this is not the case, you may want to place a bed on the main floor for a short while.

- Purchase nightlights and place them in your bathroom, bedroom, and hallways.
- Keep frequently used items at a level between waist and shoulder height. This helps to avoid the need to bend, lift, or twist (BLT).
- Throw rugs and electrical cords should be removed or tied up. Both rugs and cords can be safety hazards.

- Move furniture and objects that do not allow a clear walking path.
- Consider temporary placement of a small pet with a loved one. A pet running around your legs could cause you to fall.
- Identify chairs with arms in the living and kitchen areas that are not too short or soft. A chair with arm rests and firm cushion at knee height is ideal.
- Make meals that can be frozen and easily reheated.
- Consider another option for laundry if the washer and dryer are not on the living level.
- Place a rubber mat or non-skid adhesive on the floor of the tub or shower.

Mail

If needed, ask someone to collect your mail or place it on hold at the post office.

Medicines

Any changes to your medicines should only be made with as directed by your surgeon and/or primary care doctor.

- Medicines that are often stopped prior to surgery include:
 - Aspirin
 - Non-steroidal anti-inflammatory medicines (like Motrin[®], Aleve[®], etc.)
 - Some vitamins
 - Fish oils
 - Herbal supplements (such as ginseng, ginkgo biloba, garlic pills)
 - Herbal teas
 - Fortified cereals that contain vitamin E
 - Pain medicines that contain aspirin
 - Blood-thinning medicines (e.g. Coumadin or Plavix)

Some over the counter and prescription pain medicines can continue until the time of surgery.

Please be honest about your drug and alcohol use. It is important for us to know for safe anesthesia and pain management.

Pre-op Class

Attend a pre-op class if one is offered by your surgeon's office or the hospital.

**Discuss class times/dates with your surgeon's office.*

Several Days before Surgery

Groceries and Supplies

Buy food items and needed supplies that can be used after you return home.

Infection

Call your surgeon's office right away if you think you may have an infection of any kind: bladder, skin, tooth, etc.

Transportation

Secure a ride to and from the hospital. You are not allowed to drive yourself home from the hospital. Assure that the passenger seat reclines and can fully move backward.

One Day/Night before Surgery

Pack

Items to include are (✓):

- ☐ Your most current list of medicines and supplements. Note which ones have been stopped and when.
- ☐ Loose pajamas or short nightgown and short robe if desired.
- ☐ Underwear.
- ☐ Loose shorts, jogging suit, sweats, tops.
- ☐ Slippers with backs and rubberized sole or walking sneakers/shoes with Velcro[®] closures or elastic shoelaces.
- ☐ Socks.
- ☐ Personal toiletries.
- ☐ Eyeglasses.
- ☐ Hearing aid and batteries.
- ☐ CPAP machine settings, tubing and machine.
- ☐ Driver's license and photo ID, insurance card, Medicare/Medicaid card.
- ☐ Copy of the Advanced Health Care Directive.

- ☐ Important telephone numbers (include person bringing you home), cell phone, phone charger.
- ☐ Books, magazines or other activities (e.g., music, games, etc.).
- ☐ Electronic tablet and charger.
- ☐ Any hand-carry equipment such as a reacher, sock aid, long-handled shoehorn, walker, brace or collar (marked with your name).
- ☐ This education manual so you can review items with your health care team.

Showering

The night before or morning of surgery, wash your hair and rinse it well. Shower as instructed by your surgeon's office, hospital staff, or preoperative education class.

Do Not

- Do NOT eat or drink anything after the time you were instructed. Ice chips, gum, or mints are not allowed.
- Do NOT bring valuables – no jewelry, credit cards, checkbooks, cash >\$20.
- Do NOT bring your own medicines unless told otherwise.
- Do NOT use lotions or powder.
- Apply newly washed pajama/nightgown or clothes.
- Sleep on freshly laundered linens.

Hospital Care

Day of Surgery

Do not wear makeup and jewelry (a wedding band is usually fine). Remove fingernail and toenail polish. Take regular medicine the morning of surgery with only small sips of water if you have been told to do so. Do not eat or drink anything else. You may brush your teeth. Do not take insulin unless told otherwise. Arrive at the hospital on time. You will be asked to complete any needed forms.

You will be taken to the pre-op area where nurses will prepare you for surgery. You will put on a hospital gown and go to the bathroom. You will have an IV started in your vein. You will discuss your anesthesia with an anesthesiologist or nurse anesthetist. You may be given medicine to relax. You will be taken to the operating room for your surgery. Anesthesia will be given to you.

After your surgery is completed, you will be taken to the recovery room for up to several hours. Nurses will watch you closely until you are stable and then transport you to the hospital unit. Your surgeon will talk with your family after surgery has ended.

Activity

Some patients get out of bed on the day of surgery. A nurse, assistant, or therapist will help you do so. Being out of bed and walking several times each day is very needed for your recovery. Active movement after your surgery also helps to prevent problems. Your surgeon may order a brace to wear for extra support. If a brace is ordered for you, you will be shown how to put on and take off the brace.

You will learn to log roll into and out of bed. Use learned safety tips for your back or neck. Therapists will teach you what you need to avoid such as bending and twisting. Plan to walk farther each day. You will learn exercises to strengthen your muscles. You will perform exercises several times per day as well as after you go home. You will learn safe ways of doing your daily activities. You will increase activity daily to enhance your strength and mobility.

Rest between your therapy and activities. Sleep helps in the healing of your surgical wound.

Breathing

There may be an oxygen tube in your nose. Your nurse likely will remove the tube later that day. You will do deep breathing and coughing exercises for several days after surgery. You may be asked to use a breathing exercise device as well. It will help to expand your lungs and help get oxygen to your tissues.

Circulation

Perform leg exercises that have been shown to you. They help your blood flow. There may be snug stockings and/or sleeves wrapped around your legs or feet. The sleeves fill with air and then relax. The sleeves help blood to flow in your legs.

Smoking is discouraged before and after spine surgery. Nicotine slows the healing of your tissue and bones. It can cause problems with your surgery. There are options to help you quit smoking. Please ask your doctor for more information. The doctor can help you decide which option is best for you.

Managing Pain

You will have some amount of pain after surgery. Everyone feels pain differently. Your nurse will ask you to rate your pain on a scale. The goal is to get the pain low enough so that you can rest and exercise. Pain medicine can be given in different ways. You may receive pain medicine through your IV, by injection, or by pills. Medicines can be helped by other methods such as essential oils, ice packs, music, or changing position. Many people use more than one approach to get the best pain relief.

Food/Fluids

You will have fluids through your IV at first. The IV will be stopped when you are eating and drinking well. You will likely start with a liquid diet. Your nurse will help you decide when you can eat solid food. Increasing food slowly may help to avoid nausea that can happen after anesthesia or with use of pain medicine. You may not be very hungry right away. Eat as best you can in order to heal well.

Going to the Bathroom

You may have a tube to drain the urine from your bladder. This tube will be removed in a day or two. After that, someone will help you out of bed to go into the bathroom. It may take a day or more to have a bowel movement. Anesthesia and pain medicine can cause constipation. Drink plenty of fluids and eat whole grains, fruits, and vegetables. A stool softener or laxative can help normal bowel function to return.

Wound Care

Your incision may have stitches, tape, or staples closing the skin. Your incision will be covered with a dressing after surgery. You may also have a tube (a drain) coming out of the incision. Your surgeon will decide when to remove the drain.

Day after Surgery to Discharge

Your surgeon or a partner will visit you. Your incision dressing may be changed daily. This is a good time for the person who will be helping you at home to see the incision and watch the nurse change your dressing. Continue to cough and deep breathe. Your nurse will help you walk to the bathroom. Solid food will be offered to you. Drink fluids to stay hydrated. You will switch to pain pills if not already done. You will work with therapists to practice exercises, walk, and climb stairs. Repeating exercises throughout the day will help you gain strength. Discuss discharge options and needed equipment with the team caring for you.

Caring for Yourself at Home

Nutrition

Eat nutritious foods after surgery. Choose foods from all food groups. Foods high in protein help you to heal. Do not restrict calories after surgery. Your body needs adequate nutrition after surgery to promote healing.

Managing Pain

Take pain medicine with food and as prescribed by your surgeon. Take your pain medicine about 30 minutes before your planned therapy or exercise session. Do not wait until pain gets the best of you to take medicine. Do not drink alcohol or drive while taking pain medicine. As you have less pain, start to decrease how many pain pills you take and how often you take them.

Pain medicines can be constipating. Drink at least 6-8 glasses of water each day unless told otherwise. Increase the fiber in your diet. Walking can also help prevent constipation. Use a stool softener or laxative if needed.

Soon you will no longer need pain medicine. Continue to use ice for comfort and to reduce swelling. Limit icing to 20 minutes at a time. Wrap ice in a light towel before applying it to your skin. Change your position at least every 45 minutes during the day to avoid stiffness. Contact your surgeon if your pain does not lessen as the days go by.

Equipment

An elevated toilet seat, bedside commode, or toilet safety rails can be handy in the bathroom. A bedside commode may fit over the toilet and may be used for sitting in the shower. Do not get down into the bathtub until you are told it is okay. Equipment such as a reacher, sock-aid, long-handled shoehorn, long-handled sponge, handheld shower, and grab bars may be helpful to you. Please refer to the "6-8 Weeks before Surgery" section for further information.

Incision Care and Dressing Changes

You and your caregiver should wash your hands before and after changing your dressing. Have someone look at your incision and change your dressing every day. There should be no redness, heat, odor, increased drainage, or opening of the incision. Call your surgeon's office if you notice those changes. Stitches or staples usually are removed at your first follow-up visit to your surgeon's office. There may be several small pieces of tape covering your incision. They help keep your incision pulled together. Do not pull them off. They will fall off by themselves several days after surgery. If you do not know, call to find out whether or not to get your incision wet while showering. Until you have been told that you can, do not get into a bath, swimming pool, or hot tub.

Coping with Stress

Having surgery can be stressful. Relying on others to help while you are healing can be stressful. Support from friends and family is needed to improve your recovery. Having a positive outlook and setting realistic goals can help. Make note of small successes. Deep breathing and relaxation techniques may help lessen stress. Many hospitals have resources available to help you (social workers, counselors, or spiritual care). Remember to ask for help when you need it.

Intimacy

Most people wait to resume sexual activity for a few weeks after surgery. Your incision and soft tissues need time to heal. You can resume sexual activity when you feel ready. The bottom or missionary position is usually the most safe and comfortable. A pillow placed between the knees is needed for the side lying position. Discuss return to sexual activity with your healthcare provider.

Preventing/Recognizing Problems

Infection

Hand washing (or an alcohol-based hand cleanser) is the most important step for preventing infection. You and your caregiver need to wash your hands prior to changing the dressing over your incision. Keep your incision clean and dry, unless your surgeon has approved getting it wet. Eating a healthy diet and drinking plenty of fluids can help prevent infection too.

Contact your surgeon right away if you note any of the following:

- Increased redness, heat, or swelling around incision.
- Increased or foul smelling drainage from incision.
- Increased pain in spite of pain medicine.
- Persistent chills or fever greater than 100° F.

Blood Clots

You may be asked to wear snug stockings at home. Perform exercises as taught by your care team. Avoid sitting for extended periods. Walk often. These are ways to prevent blood clots.

A blood clot in the leg can move to the lung. This can lead to shortness of breath, chest pain, coughing up blood, or extra anxiety, especially with breathing. Call 911 for this medical emergency.

Brace Wear

Your surgeon may require you to wear a brace after surgery. You will be shown how to apply and take off the brace. You will be taught about care of the brace and your skin. There are cases in which a brace is not needed.

Postop Exercises and Activity Guidelines

Exercise is very important before and after spine surgery. Exercise will help you strengthen your muscles and improve your daily activities. Continue your walking program and go farther every day. The more you are active and exercise, the better able you will return to routine activities. Ask your surgeon or therapist before starting a new exercise.

Leg Exercises

Ham Sets

Lie on your back in bed. Keep your leg bent and the other leg straight. Tighten the muscle on the back of the bent leg. Push the heel down into the bed. Hold for 5 seconds. Repeat 10 times with both legs, 2-3 times per day.



Gluteal Sets

Lie on your back in bed, sit in a chair, or stand. Squeeze your buttock muscles together and hold for 5-10 seconds. Repeat 10 times, 2-3 times per day.



Sitting Knee Extension

Straight Leg Raises (only if told to do so by your surgeon or therapist)

Lie on your back in bed. Bend one leg. Tighten the thigh muscles on the other leg and lift 4-6 inches off the bed. Keep your knee straight and toes pointed up. Hold the leg up for 3-5 seconds and then lower it back onto the bed. Repeat 5-10 times with the each leg, 2-3 times per day. Do not do this exercise if it hurts your low back.



Ankle Pumps

Lie on your back in bed or sit in a chair. Straighten one knee and slowly push your foot forward and backward. Repeat 10-20 times with each foot, 2-3 times per day.



Standing Hip Extension

Stand up and hold on to the back of a sturdy chair or countertop.

Sit in a chair with your back against the chair back. Straighten one knee and hold for 5-10 seconds. Lower your leg back down to the floor. Repeat 5-10 times with the each leg, 2-3 times per day.



Bring one leg backward as far as you can without low back pain. Keep your knee straight. Repeat 5-10 times with each leg, 2-3 times per day.



Heel Raises

Stand up and hold on to the back of a sturdy chair or a countertop for balance. Rise up on your toes. Repeat 5-10 times, twice per day.



Standing Knee Flexion

Stand up and hold on to the back of a sturdy chair or countertop. Bend one knee back behind you. Slowly lower it back to the ground. Repeat 5-10 times with each leg, 2-3 times per day.



Standing Knee Raises

Stand up and hold on to the back of a sturdy chair or countertop. Raise

Standing Hip Abduction

Stand up and hold on to the back of a sturdy chair or countertop. Move one leg out to the side. Keep hip, knee, and foot pointed forward. Keep

one knee at a time as if marching in place. Lift your knee to at least waist level. Hold your knee up for 2-3 seconds. Slowly lower it back to the ground. Repeat 5-10 times with each leg, 2-3 times per day.

your knee straight. Slowly lower it back down to the ground. Repeat 5-10 times with the each leg 2-3 times per day.



Standing Hip ADduction

Stand up and hold on to the back of a sturdy chair or countertop. Move one leg in front of and across the opposite leg. Keep hip, knee, and foot pointed forward. Keep your knee straight. Return the leg in motion to its starting position. Repeat 5-10 times with each leg, 2-3 times per day.



Toe Raises

Stand up and hold on to the back of a sturdy chair or countertop. Lean body weight onto your heels. Toes should be off the ground. Slowly lower toes back to the ground. Repeat 5-10 times, 2-3 times per day.

Mini Squats

Stand up and hold on to a sturdy chair or countertop. Squat down as though sitting in a chair. Legs should be about shoulder width apart. Knees should be directly over the toes, but not past them. Squat down until your knees are bent at 30-45°. Slowly rise up to

the straight position. Repeat 5-10 times, 2-3 times per day.



Arm Exercises

Shoulder Flexion

Sit in a chair with feet flat on the floor. Hold a soup can, soda can, or bottle of water in each hand. Start with your hands on your legs. Reach your arms toward the ceiling with the elbows straight. Do not raise your arms higher than shoulder height. Lower your arms to your legs. Repeat 5-10 times, 2-3 times per day.

Shoulder ADduction

Sit in a chair with feet flat on the floor. Hold a soup can, soda can, or bottle of water in each hand. Place your arm on the armrest of the chair. Bring elbows up to be even with the shoulders and out to the sides of the body. Push arms backward to squeeze the shoulder blades together. Repeat 5-10 times, 2-3 times per day.



Shoulder ABduction

Sit in a chair with feet flat on the floor. Hold a soup can, soda can, or bottle of water in each hand. Start with your arms next to your sides. Keeping your elbows straight, lift from the sides of your body. Do not lift your arms higher than shoulder height. Lower arms back toward the sides of the body. Repeat 5-10 times, 2-3 times per day.



Activities of Daily Living

Precautions

Certain body positions and activities should be avoided while you recover from neck or back surgery. Do NOT BLT SPP:

- Do NOT Bend.
- Do NOT Lift more than 10 pounds.
- Do NOT Twist.
- Do NOT Sit for longer than 30 minutes without changing your position.

1. Move the walker forward one step.
2. Repeat the above until you've reached your target.

Transfers

Bed

Getting into bed:

1. Back up to the bed until you feel it behind your legs. You should be halfway between the foot and head of the bed.
2. Reach back with both hands and sit down on the edge of the bed. Scoot your buttocks back toward the center of the mattress.

- Do NOT Push heavy objects.
- Do NOT Pull heavy objects.

Follow the above precautions for about 12 weeks after surgery. Ask your surgeon if these or any other precautions should be followed beyond 12 weeks after surgery.

Safety

There are many things you can do to keep your neck and back safe. Please follow these ideas to avoid injury:

- Sit in a firm chair with arm rests.
- Get up slowly from a chair or the bed in case you are dizzy.
- Lie down on a firm surface that gives your spine good support.
- Change positions often to avoid stiffness and back strain.
- Get out of the car for a short walk every hour during travel.
- Wear your brace as shown (if ordered by your surgeon).
- Keep appointments with your surgeon.

Bed Mobility

- Log roll in and out of bed as you did in the hospital.
- Lie on your side with a pillow between your knees.
- Elevate your head slightly to reduce strain on your low back.
- Lying on your stomach is not a suggested position. Discuss with your surgeon or therapist if you really like this sleep position.

Ambulation

You may be told to use a walker for a short period of time. A therapist will show you how to use a walker the right way. As a general rule, these are basic guidelines for safe use of a walker.

Walker

1. Stand up straight with the walker a few inches in front of you.
2. Place each hand on a handgrip of the walker.
3. Take a step into the walker.
4. Lean on the walker to give balance and support.
5. Take another step into the walker with the opposite leg.

3. Lean down onto the elbow nearest the head of the bed to support your upper body.
4. Bring your legs onto the mattress.
5. In one motion, logroll your body onto your back. Your head, chest, hips, and legs should move as one unit.

Getting out of bed:

1. Logroll toward the side from where you will get up.
2. Push up from the elbow nearest the head of the bed to lift your upper body.
3. Gently bring your legs over the side of the bed as you push your upper body to a sitting position.

Chairs and Toilets

Sit in chairs with firm seats and arm rests. An extra cushion or pillow may be needed on the seat of a low chair if there is no other choice for sitting. It is most safe to keep both feet on the floor.

A raised toilet seat, a three-in-one bedside commode, or toilet safety rails may be needed for several weeks after surgery.

Sitting on a chair or toilet:

1. Take small steps and turn until your legs are against the toilet/chair. Do NOT twist.
2. When using armrests, reach back for both armrests and lower yourself onto the toilet.
3. Be sure the toilet is high enough to avoid bending over to reach the seated position.

Shower

If you do not know, call to find out if you can get your incision wet. Assure all needed items are within reach prior to your shower. Use a rubber mat or non-skid adhesive on the floor of the tub or shower. Do not get into a bath until your surgeon says it is okay. You can sit on a bench/ chair or stand in a tub or shower. If you are using a tub bench or chair, be sure it is high enough for your height.

Getting into the tub using a tub bench:

1. Place the tub bench in the tub. It should face the faucets.
2. Back up until you can feel the tub bench on the back of your legs. Be sure you are centered against the tub bench.
3. Slowly lower yourself onto the tub bench without bending over. Reach for the arm rests or the seat of the chair to avoid tipping the chair.
4. Scoot yourself to the center of the bench.

Getting out of the tub using a tub bench:

1. Scoot yourself around as you lift your legs, one at a time, over the edge of the tub.
2. Scoot yourself to the edge of the tub bench until your feet reach the floor.
3. Push up from the armrests or seat of the bench using your arms. Your feet should be firmly under you for balance.

Vehicle

Getting in or out of a vehicle:

1. Push the front passenger seat all the way back.
2. Place a plastic trash bag on the seat to help you turn more easily.
3. Back up to the vehicle until you feel it touch the back of your legs.
4. Reach back for the seatback with one hand and the dashboard with the other hand. Lower yourself down onto the seat. Be sure to lower your head to avoid hitting it on the doorframe. Scoot backward as far as you can toward the other seat.
5. Turn frontward by bringing each leg into the car while turning at the same time. Avoid twisting your neck/back.
6. Put on your seatbelt.
7. Reverse the above steps when getting out of a vehicle, taking care not to twist.

Stairs

General reminders related to stairs:

1. Face the stairs.
2. Hold the handrail with one hand.
3. Step up with one foot on a stair.
4. Step up with the other foot.
5. Increase to taking one stair with each foot when you feel ready to do so.

** Let your therapist or healthcare provider know if you have leg weakness. You will be taught how to go up and down stairs safely.*

Dressing

Putting on pants and underwear by yourself:

1. Be sure all needed items are within easy reach.
2. Sit down on a firm surface to keep balanced.
3. If needed to avoid bending or twisting, use a reacher or dressing stick to grasp the clothing. The reacher or dressing stick can be used to guide the waistband over your feet and knees.
4. Pull your pants up to your thighs.
5. Stand to pull your pants up the rest of the way

Taking off pants, underwear, or socks by yourself:

1. Be sure all needed items are within easy reach.
2. Back up to a chair or bed.
3. Unfasten your pants and allow them to fall to the floor. Push your underwear off your hips.
4. Lower yourself down to a chair or bed.
5. If needed to avoid bending or twisting, use a reacher or dressing stick to grasp the clothing.

Putting on socks by yourself:

1. Be sure all needed items are within easy reach.
2. Sit down on a firm surface to keep balanced.
3. Slide the sock fully onto the sock aid (if needed).
4. Bend your knee slightly to avoid bending or twisting.
5. While holding the cord with both hands, drop the sock aid in front of one foot.
6. Slide your foot into the sock aid.
7. Point your toes and straighten your knee. Pull the sock on and keep pulling until the sock aid pulls out of the sock.

Putting on shoes by yourself:

NOTE: Shoes should have rubber soles. Do NOT wear high heels or shoes without backs until told otherwise. Wear one of the following: sturdy slip-on shoes, Velcro[®] closure shoes, or shoes with elastic shoelaces. It may be too difficult to tie your own shoes at first.

1. Be sure all needed items are within easy reach.
2. Sit down on a firm surface to keep balanced.
3. If needed, use a long-handled shoehorn, dressing stick, or reacher to slide your shoe in front of your foot.
4. Place the shoehorn inside the shoe.
5. Lean back slightly as you lift your leg to place your toes inside the shoe.
6. Step down into your shoe, sliding your heel downward against the shoehorn.
7. Fasten your shoe by using the reacher to close the Velcro[®] straps or pull elastic shoelaces tight.

Taking shoes off by yourself:

1. Be sure all needed items are within easy reach.
2. Sit down on a firm surface to keep balanced.
3. If needed, use a reacher to unfasten your Velcro[®] straps or elastic shoelaces.
4. If needed, use a long-handled shoehorn, dressing stick, or reacher to slide your shoe off of your foot.

Healthy Activity

Choose low-impact activities such as:

- Regular walks in or outdoors on an even surface.
- Walking on treadmill.
- Walking in water (when approved by your surgeon).

Avoid high-impact activities such as:

- Jogging or running.
- High impact aerobics.
- Jumping activities.
- Contact sports.
- Repeated moderate or heavy lifting.

Household Tips:

- Keep often used cooking or working supplies where they can be easily reached.
- Plan ahead by gathering all cooking or working supplies at one time to work on a project.
- Use a stool to provide a better working height. Make sure to hold on to something sturdy, like a countertop.
- Plan rest in-between periods of activity.
- Shift your weight when standing. Rest one foot on a low stool some of the time.
- Pace yourself. Doing too much at one time can leave you tired for the rest of the day.
- Note your highest energy time of day to tackle a heavier activity.
- Break down a heavy activity into smaller tasks.
- Ask for help when you need it.

Appendices

Appendix A

Health Care Provider and Other Important Phone Numbers

Health Care Provider	Name	Phone Number
Nurse		
Occupational Therapist		
Physical Therapist		
Surgeon		
Primary Care Doctor		

Appendix B

Appointment List

Appointment	Date	Time	Comment

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