Brain and Spine Institute

Spine Center Surgery Guide

Adventist Health

IMPORTANT DATES

Your surgery is scheduled for: _____

Post-operative visit with your surgeon: _____

PLEASE BRING THIS BOOKLET WITH YOU FOR:

- Hospital visits
- All physician and surgeon visits
- Sub-acute rehabilitation
- Therapy appointments

You should receive a call from the pre-admission nurse a few days before your surgery to discuss:

- Health history
- Medications
- Previous surgeries

If you need to reach your surgeon or orthopedic care team, call 661-241-6700 (opt. 2, then opt. 3).

If you would like to download a digital file of the Spine Center Surgery Guide, please scan QR code.

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Welcome to Adventist Health Bakersfield!

Thank you for taking the first step to a better you. We are excited you have chosen Adventist Health Bakersfield for your upcoming spine surgery. This booklet will enhance your understanding of what to expect before, during and after your hospital stay. Our spine program includes a comprehensive planned course of treatment designed specifically for spine surgery patients. Our care team is committed to providing the best care and an exceptional experience for you and your support person.

Taking an active role in your care by informing yourself early about your treatment plan, the length of your hospital stay and any preparations needed upon discharge will help you through this process.

Your care team is made up of spine surgeons, physician assistants, nurses and physical therapists and occupational therapists trained in spine care who will collaborate with you to make your stay pleasant and your transition back home as smooth as possible. Your spine coordinator, a key member of your care team, will guide you through your individual treatment program.

You will play a key role in your own successful surgical outcome. Surgery may not completely remove pain, and some pain should be expected during recovery. Pain is not always a sign of dysfunction, damage or complication; however, it may be a sign of recovery of function, motion and strength.

Getting back into your normal functional routine may initially cause pain, but there is not any harm done to your healing spine to work to avoid repetitive poor postures or poor working habits and follow precautions from your doctor's pre-operative care instructions. The most important thing to remember is the sooner you return to being active — the sooner you will be on the road to recovery.

Reviewing the information in this booklet will:

- Acquaint you with our hospital (map is included)
- Prepare you and your support person for your spine surgery
- Clarify expectations regarding your care, length of your hospital stay and preparation for your needs upon discharge from the hospital
- Reduce anxiety by answering questions about your pain management and equipment needs
- Instruct you and your caregiver/family members on exercises, precautions, restrictions and techniques for moving, dressing and bathing safely

At Adventist Health Bakersfield, we offer a pre-surgery video that will help acquaint you with the surgical process so you know what to expect prior to your operation.

Scan QR code to view.

Spine surgery patients typically recover quickly. Most patients will be able to return to:

- Walking on the day of surgery
- Driving in 6–8 weeks
- Dancing in 12 weeks

However, your surgeon will inform you when it's safe for you to do these activities.

Following the guidelines in this booklet will help you resume a better quality of life as quickly as possible. **Your surgeon may add to or change some of the recommendations.** Always use their recommendations first and ask questions if you are unsure about anything.

We wish you many years of enjoyment and healthy activities.

Sincerely,
Adventist Health Spine Team

Meet your spine team

Spine surgeon and physician assistant (PA): Your spine surgeon and physician assistant are experts in the treatment of many musculoskeletal and spine problems. They will provide you the best care possible, from diagnosis and treatment through therapy and rehabilitation.

Spine coordinator (or case manager): Your spine coordinator will be available to answer questions or address concerns you may have regarding your stay and discharge. They will work closely with all departments involved in your spine surgery care and will advocate for your needs. Additionally, they will conduct post-operative follow-up calls with you. Case management will interact with your insurance company as needed.

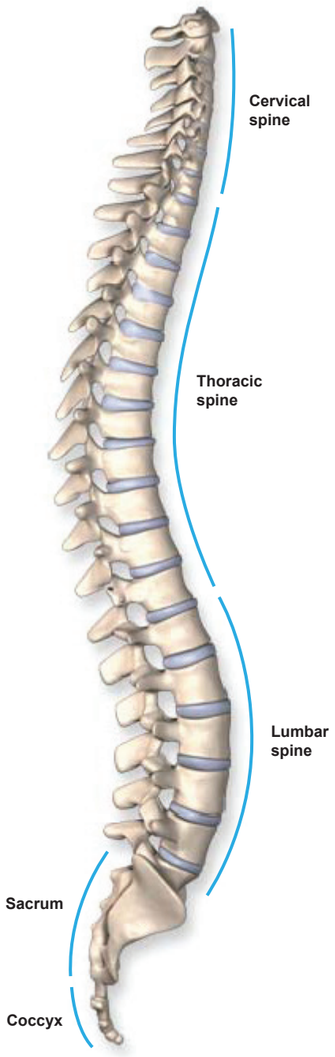
Nursing team: Nursing teams consist of a primary care nurse, a team leader and a nursing assistant. They will be here to meet your needs 24 hours a day during your hospital stay. Nurses will assist you with your recovery, pain management and work with the rest of the team to ensure your needs are met.

Physical and occupational therapists: Physical and occupational therapists in the hospital will teach you your specific precautions, the correct way to move in and out of bed, assess your ability to walk and recommend any necessary equipment. They will instruct and assist you with your exercise program after surgery to regain your functional mobility, including teaching you the correct way to walk and safely perform activities of daily living. These therapists will help you adapt to the temporary lifestyle changes following spine surgery.

Anatomy of the spine

Overview

The spinal column is the body's main support structure. Its 33 bones, called vertebrae, are divided into five regions: cervical, thoracic, lumbar, sacral and coccygeal.



Cervical region

The cervical region consists of seven vertebrae labeled C1 to C7. The first cervical vertebra is called the atlas. The second is called the axis. Together, the atlas and axis form the joint that connects the spine to the skull and allows the head to swivel and nod.

Thoracic region

The thoracic region, located in the midback, consists of 12 vertebrae labeled T1 to T12. These vertebrae serve as attachment points for the ribcage.

Lumbar region

The lumbar region, commonly called the lower back, consists of five vertebrae labeled L1 to L5. This is the main weight-bearing section of the spinal column.

Sacral region

The sacral region consists of five fused vertebrae labeled S1 to S5. These vertebrae form a solid mass of bone, called the sacrum, which provides the attachment point for the pelvis.

Coccygeal region

The coccygeal region, commonly called the tailbone, consists of four small vertebrae. These tiny bones may be fused or separate. Together they form the coccyx, an attachment point for various muscles, tendons and ligaments. The coccyx also helps support the body when a person is sitting.

Vertebrae

All together, the vertebrae of the spine's five regions support the weight of the body and protect the spinal cord and nerve roots. Each individual vertebra has a complex set of structures necessary to the overall function of the spine.

Vertebral body

The main structure of a vertebra is the vertebral body — a cylinder-shaped section of bone at the front of the vertebra. It is the main weight-bearing section of the vertebra.

Vertebral canal

Behind the vertebral body is the vertebral canal. The spinal cord travels through this channel.

Spinal cord

The spinal cord is the main bundle of nerve fibers connecting the brain to the rest of the body. The spinal cord ends near the L1 and L2 vertebrae, where it divides into bundles of nerve roots called the cauda equina.

Nerve roots

Exiting the sides of the spine are nerve roots, thick nerve branches that transmit signals between the spinal cord and the other parts of the body.

Pedicles

On either side of the vertebral canal are pedicle bones, which connect the vertebral body to the lamina.

Lamina

The lamina create the outer wall of the vertebral canal, covering and protecting the spinal cord.

Spinous process

Protruding from the back of the lamina is the spinous process. It provides an attachment point for muscles and ligaments that move and stabilize the vertebrae.

Transverse processes

Transverse processes protrude from the sides of each vertebra. Muscles and ligaments that move and stabilize the vertebrae attach to the transverse processes.

Articular facet

The articular facets form the joints where each vertebra connects with the vertebrae above and below it. Each vertebra has four facets (two superior facets and two inferior facets). The facet joints have a covering of cartilage, which allows movement.

Intervertebral disc

Between the vertebral bodies are the tough, elastic spinal discs. They provide a flexible cushion, allowing the vertebrae to bend and twist. Each disc has a tough outer wall called the annulus fibrosus and a soft interior called the nucleus pulposus.

Facet joints

Facet joints provide a connection with adjacent vertebrae to provide stability to the spine. Four facet joints are associated with each vertebra: a pair that face upward and another pair that face downward. These facet joints have a cartilage surface, similar to a hip or knee joint. Just as with larger hip or knee joints, the facet joints can become arthritic and a source for low back or neck pain. The vertebrae are separated by intervertebral discs that act as a cushion between the bones. They are flat, round and about a half-inch thick. Each disc is made up of two components:

Nucleus pulposus

This is the center of the disc and is jelly-like in nature. The jelly is partly made of water and gives the disc flexibility and strength. It essentially acts as the shock absorber for the spine.

Annulus fibrosis

This is the flexible outer ring of the disc and is made of several layers, similar to elastic bands. There are many nerve endings that supply the annulus and, as a result, an injured annulus can be painful.

Ruptured or herniated discs

Ruptured or herniated discs occur when the soft nucleus spurts out through a tear in the annulus and can compress a nerve root. The nucleus can squirt out on either side of the disc, or in some cases both sides. The amount of pain associated with a disc rupture often depends upon the amount of nucleus that breaks through the annulus, and whether it compresses a nerve. To help alleviate the pain, a laminotomy or microdiscectomy may be performed.

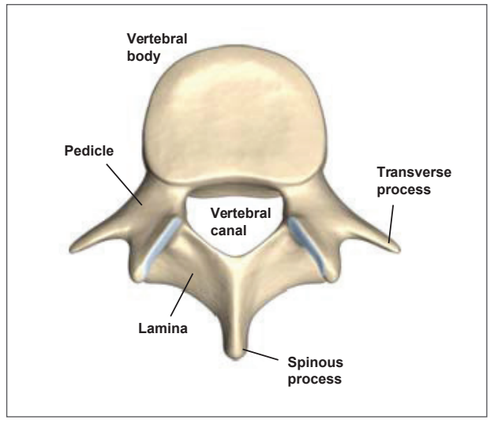
Spinal cord and nerves

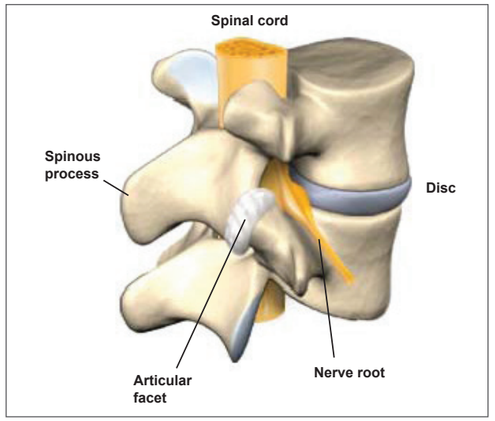
The spinal cord extends from your skull to your lower back, traveling through the middle part of each vertebra within the central canal. Nerves branch out from the spinal cord through openings at each level of the spine, the foramen. The spinal cord ends around the 1st and 2nd lumbar vertebrae in the lower back and continues as nerve roots. This bundle of nerve roots is called the cauda equina. Just like other nerve roots, they exit the spinal canal through vertebral foramen. In the pelvis, some of the nerves group together to form the sciatic nerve which extends down the leg.

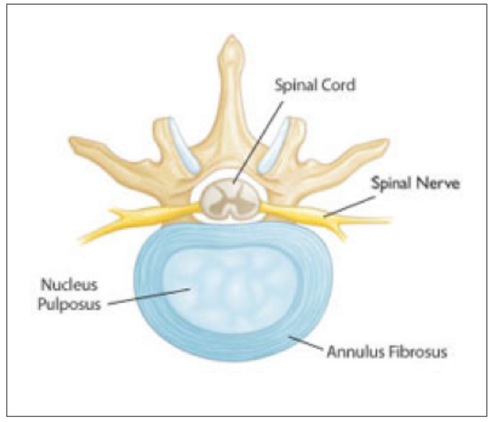
Muscles and ligaments

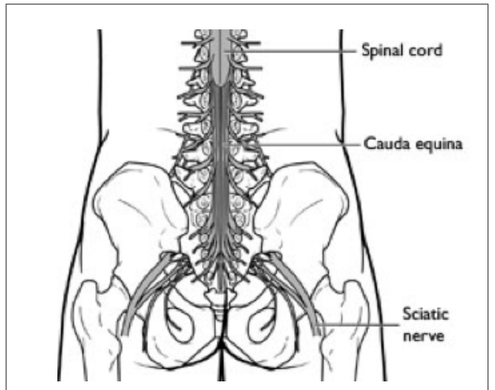
Muscles and ligaments provide support and stability for your spine and upper body. There are strong ligaments to connect the vertebrae and to help keep the spinal column in the correct position or alignment.

Diagrams of the spine









Causes of spine pain

Spine pain is common.

Many factors can contribute to spine pain, including:

- Genetics
- Poor posture
- Reaching/lifting beyond a safe base of support
- Lack of physical activity leading to muscle weakness and fatigue
- Emotional stress/tension
- Poor repetitive lower back movements
- A fall or car accident that causes trauma
- Excess body weight

Taking care of your back may help reduce your pain before and after surgery.

Other factors that may cause back pain are age-related changes in your lumbar spine, including:

- Loss of intervertebral disc height: As a result, the bones in the spine become closer, causing the nerve openings in the spine to become narrower.
- Arthritis: Joint inflammation causing stiffness and pain in the lower back.
- Disc herniation: Intervertebral discs are small cushions that separate each spinal vertebra. They are made up of a tough outer shell (annulus) and a jelly-like center (nucleus). Due to wear and tear, the outer shell can weaken, allowing the jelly center to push through. This protruding material can put pressure on the spinal nerve root and may cause pain, numbness and/or weakness.
- Intervertebral disc ruptures in the lumbar spine: The ruptured material can put pressure on one or more nerve roots or on the spinal cord, causing pain and/or other symptoms in the back and legs.
- Degenerative disc disease: Wear and tear on the spinal intervertebral discs.
- Degenerative joint disease: Wear and tear on the spinal joints.
- Spinal stenosis: A narrowing of the spinal canal where the spinal cord is and a narrowing of the spaces in the bone where the nerve roots exit from the spinal cord. This narrowing can be caused by poor postural positioning, arthritic changes, inflammation or swelling and loss of height of the vertebrae and the intervertebral discs due to aging or injury.

Non-surgical treatments

Many people with age-related changes in their lumbar spine can respond with a non-surgical approach that may include:

- Physical therapy
- Exercises to strengthen back and abdominal muscles
- Improved work/home/leisure ergonomics
- Discussions with a mental health therapist to assist in addressing emotional stress
- Anti-inflammatory medication
- Ice and heat
- Avoidance of repetitive activities
- Body weight management

Indications for spine surgery

Surgical treatments

Spine surgery may be indicated to alleviate pain and prevent nerve damage when conservative measures have failed. Conditions where surgery may be considered are:

- Compression on the spinal nerves
- Spine instability due to injury and/or spinal fracture
- Spine instability due to slippage of one spine bone on another (e.g., spondylolisthesis)

Risks and complications of spine surgery

Your spine surgeon will review the risks and complications of surgery with you including:

- Spinal fluid leak/dural tear (e.g., durotomy)
- Paralysis (very rare)
- No pain improvement or worsened pain
- Need for a second surgery
- Bones not fusing or bone graft shifting out of place after a spinal fusion
- Hardware failure
- Infection
- Bleeding or blood clots
- Nerve damage
- Risk of death

Preparing for spine surgery

Scan to view online pre-surgery video

1. Choose a support person before surgery

- It is important that you choose a support person to be with you throughout your spinal surgery journey.
- A support person is someone who supports you before surgery, during your hospital stay and at home with your recovery. Ideally, someone should stay with you — especially at night for the first one-to-two weeks. This person can be a family member, friend or caregiver. Please review this booklet with your support person before your surgery so you have a mutual understanding of the care you will be receiving.

What does a support person do?
Scan QR code for video ▷

- Reviews the pre-surgery video with you.
- Supports and works with you during your hospital stay.
- Supports you through your recovery once you have been discharged.
- Translates for you if English is not your first language.

2. Get thinking and feeling your best

- Emotional preparation is particularly important for your surgery. Sometimes it is difficult to deal with pain while waiting for surgery. You can experience problems sleeping and may become anxious or frustrated. It is important to deal with these feelings.
- Practice formal relaxation techniques such as deep breathing, visualization/ visual imagery and progressive muscle relaxation.
- Speak to your doctor about using anti-inflammatory medications and/or ice to help with the pain.
- Be active. Continue your usual daily activities. Use your pain-controlling exercises and prescribed medications to self-manage your pain. If you have not been regularly active, speak to your family doctor or healthcare professional before starting a new exercise program, and never start exercising without consulting your medical professional.
- Be informed and prepared before your surgery. This can help decrease anxiety and make you more hopeful.
- Write down a list of questions as they come up and take them into your pre-operative visit so you can discuss them with your surgeon.

3. Improve your physical health

- Manage your weight. Maintaining a healthy weight may help you recover more quickly.
- Before your surgery, consult with your family doctor to ensure that health issues like high blood pressure and uncontrolled diabetes are addressed as needed.
- Refrain from alcohol and recreational drugs before surgery and during recovery.

4. Quit smoking

- Smoking delays healing and slows your recovery from surgery. If you need support quitting, ask your physician for help, or contact California Smokers Helpline at 1-800-NO-BUTTS.
- The benefits of quitting smoking begin the day you quit.

5. Stay active

- Exercise and do your regular activities. Research shows that exercise can help decrease pain, increase flexibility and keep your heart healthy before surgery. Exercising for longer periods of time can benefit your heart, lungs, circulation and muscles. Good endurance exercises include walking, swimming and stationary cycling.

6. Take initiative — Prepare Your Home

- What you perform daily before and after surgery helps your recovery time and the overall success of the surgery. Set up your home and work environments before surgery, so that you will be discharged into a safe environment. Research shows that well-prepared patients participate better in their care, have a better and faster recovery, experience fewer problems with pain and feel better overall.
- If a brace was ordered, try it on while sitting on the edge of the bed without twisting your back. Wear it for 24 hours before your surgery to experience how it feels. Wear it while organizing your living area. Remember to arrange your home to avoid excessive bending, lifting or twisting after surgery.
- Remove throw rugs. Cover slippery surfaces with carpets that are firmly anchored to the floor with no edges to trip over.
- Be aware of all floor hazards such as pets, small objects, toys or uneven surfaces.
- Arrange for the care of your pets.
- Arrange good lighting throughout the house. Leave a light on at night in the bathroom.
- Keep extension cords and telephone cords out of walkways.
- If you have stairs within your home, please discuss this at your pre-operative visit. Make sure stairs have handrails that are securely fastened to the wall.
- Determine which items from dressers, cabinets and shelves you'll need immediately after returning home. Any items you use often should be moved to counter height to avoid excessive bending or reaching.
- Have chairs with armrests.
- Avoid low surface or overstuffed sofas, chairs or recliners.
- Meal planning is recommended.
- Start pre-operative exercises. Many patients with spinal problems become sedentary and deconditioned, and as a result, become weaker. This interferes with their recovery. It is important that you begin an exercise program before surgery unless instructed otherwise by your surgeon.

Pre-surgical exercises

Only per medical professional's instruction

GENERAL INSTRUCTIONS

1. Always be aware of your posture and spine position during exercises. Your goal is to keep your spine in a neutral (good postural) position. A neutral spine is the proper postural position of the spine (as seen in the picture at right).
2. Move to the point of stretch and hold as prescribed — do not force movements (stretching may be uncomfortable and should only cause mild to moderate discomfort — not pain).

POSTURE-CORRECTING EXERCISES

Sitting

1. Support your lower back with a towel or lumbar roll.
2. Keep your feet flat on the floor and knees relaxed.
3. Avoid a "head forward" posture by keeping your chin from protruding forward.
4. Vary your posture as you sit, and avoid sitting for long periods without getting up and moving around.
5. Breathe normally when doing the exercise.

Standing

1. Start with your feet about shoulder width apart with equal weight on each leg.
2. The knees are slightly bent (enough to feel the thigh muscles working).
3. The abdominal muscles are contracted until the most comfortable (neutral) position of the back is felt.
4. The shoulders are pulled back over the hips and then relaxed.
5. The head is moved back over the shoulders as far as is comfortable.
6. Breathe normally when doing the exercise.

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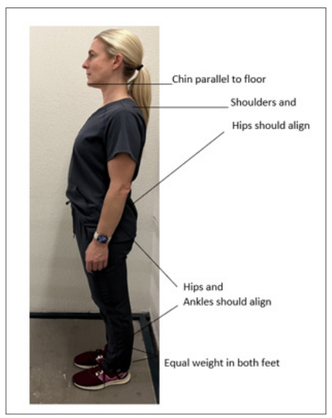


RESTING AND MOBILIZING EXERCISES

Z-lie position

1. Lie with your back flat on the floor, head supported by a pillow.
2. Place feet on a chair.
3. Bend knees at more than a 90-degree angle.
4. Support buttocks with a pillow, if needed.
5. Breathe normally when doing the exercise.

STRENGTHENING AND FLEXIBILITY EXERCISES

Buttock squeeze

1. Lie on your back with your legs straight.
2. Tighten your buttock muscles.
3. Hold for five to 10 seconds.
4. Do not hold your breath. Relax.
5. Repeat 10 times.
6. Breathe normally when doing exercise.

POSTURAL WALL EXERCISE

1. Stand with feet 10 to 11 inches away from the wall.
2. Place buttocks and shoulders against the wall.
3. Place rolled towel between the lower back and the wall.
4. Place the back of your hands against the wall.
5. Place the back of your head against the wall — eyes level.
6. Tilt your pelvis to push your lower back against a rolled-up towel.
7. Breathe normally when doing the exercise.

RESTING AND MOBILIZING EXERCISES

Abdominal tightening

1. Lie on your back with your knees bent.
2. Tighten your stomach muscles so that you flatten your back against the bed or support surface.
3. Hold for five to 10 seconds.
4. Do not hold your breath. Relax.
5. Repeat 10 times.
6. Breathe normally when doing the exercise.

Calf stretch

1. Stand against a wall as shown.
2. Point toes directly toward wall and hold heel of back foot down.
3. Lean into wall as shown so that you feel a stretch in the back calf.
4. Hold for 30 seconds. Relax.
5. Repeat three times on each leg.
6. Breathe normally when doing the exercise.

Knee to chest

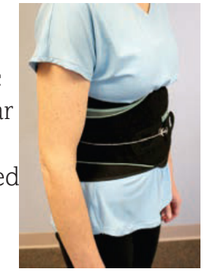
1. Lie on your back with your knees bent and feet flat on the bed.
2. Lift one leg, knee to chest, pulling gently with your hands.
3. Hold for 30 seconds.
4. Return to starting position.
5. Repeat three times with each leg.
6. Breathe normally when doing the exercise.

During your pre-operative visit with your surgeon

Equipment may be ordered by your surgeon and delivered to your home before your surgery, such as:

- Walker
- 3-1 commode
- Sequential compression device (SCD) to prevent blood clots
- Cervical collar or back brace (if needed)

Pain medication will be sent to your preferred pharmacy after your preoperative visit with your surgeon. Fill your prescription so it will be ready when you return home from the hospital.



The surgeon's office will order you a back brace before lumbar or thoracic fusion. The thoracolumbar or lumbar support brace (TLSO or LSO) is designed to provide additional support and stabilization to your back while you heal. *Bring this with you to the hospital. The brace is to be worn when you are up moving around after surgery. You may remove the brace while in bed. Therapy will review techniques with you and a caregiver for how to safely place and remove the brace. Follow your surgeon's recommendations for length of use after surgery.

Aspen neck collar

With the more invasive anterior and posterior cervical fusions, you likely will be fitted in the office for an Aspen collar. This is to be worn at all times, with the exception of bathing and eating. Your therapist will review techniques with you and a caregiver for how to place and remove safely.

Consent

You will be asked to sign a consent form before surgery to allow the surgeon to perform the required surgical procedure. Please make sure you understand the procedure, risks and options before signing the form. It is important to us that you completely understand the information and are an active partner in your care.

Before your surgery, make sure you:

- Practice the exercises in this booklet as prescribed by your medical professional.
- Arrange your home environment to minimize bending, reaching, twisting and lifting.
- Talk to your doctor about medication issues. Many patients are taking medications for pain relief and it is extremely important for you to relay the name of your pain medicine and how often you take the medication to your healthcare team so we may effectively treat your pain post-operatively.

Pre-operative checklist

A representative from pre-admission testing (PAT) will call you one-to-three days prior to your surgery to document your medical history, obtain your current list of medications and provide you with pre-operative instructions.

Pre-registration:

A representative from the pre-registration department will call you one to three days before your surgery. They will ask about your demographics and insurance information, then review your co-pay and collect your deposit and/or payment. If applicable, prior authorization information will be reviewed.

- Confirm the arrival time for your procedure by calling **661-395-3000 after 6 p.m. the day before surgery.**
- On the day of your procedure, come to the information desk located on the first floor of the hospital. Please arrive on time. If you are running late or cannot keep your appointment, please call your surgeon's office immediately.

What to do 10–14 days before surgery?

- After receiving clearance from your primary care physician and/or specialist, please stop taking these medications 10–14 days before your procedure, or as directed by your physician:
- All non-steroidal anti-inflammatory medications (NSAIDS): Naprosyn, Aleve, Relafen, Voltaren XL, Celebrex, Motrin, ibuprofen.
- All aspirin-containing medications: Aspirin, baby aspirin, Ecotrin, Bufferin, Anacin, Excedrin, Fiorinal, Percodan, Talwin (Note: Tylenol is OK to continue taking.)
- Blood thinners: Coumadin (warfarin), Ticlid, Aggrenox, Plavix. If you are taking Coumadin, you will need special instructions from your surgeon about stopping this medication.
- Herbal supplements: Fish oil and omega-3, turmeric, vitamin E, ginkgo biloba, ginseng. Ask your surgeon about all herbal supplements you are taking.

Important: What if my health changes before my surgery?

If you do not feel well, or if there is a change in your health, let your surgeon know as soon as possible, and preferably, at least 24–48 hours before your surgery. Some important changes could be:

- A new cough or a cough that is getting worse
- Fever, or chills, temperature of 38.5 °C or 100.4°F or higher
- Diarrhea
- Shortness of breath (worse than your usual)
- Severe headache (worse than your usual)
- Muscle aches
- Extreme fatigue or feeling very tired
- Vomiting (throwing up)
- Test positive for COVID-19

If you develop a fever, infection, cold, flu or gastric symptoms (such as diarrhea) before your surgery, please call your surgeon's office as this may mean your surgery needs to be rescheduled.

Have these ready:

- A ride to the hospital
- A ride home from the hospital. You will not be allowed to drive yourself home after your surgery.
- A support person available to assist and support you when you get home for a minimum of four days, or as recommended by your surgeon.
- Walker
- Cervical collar or back brace if the surgeon has prescribed one
- Meals prepared for when you get home
- One week of groceries

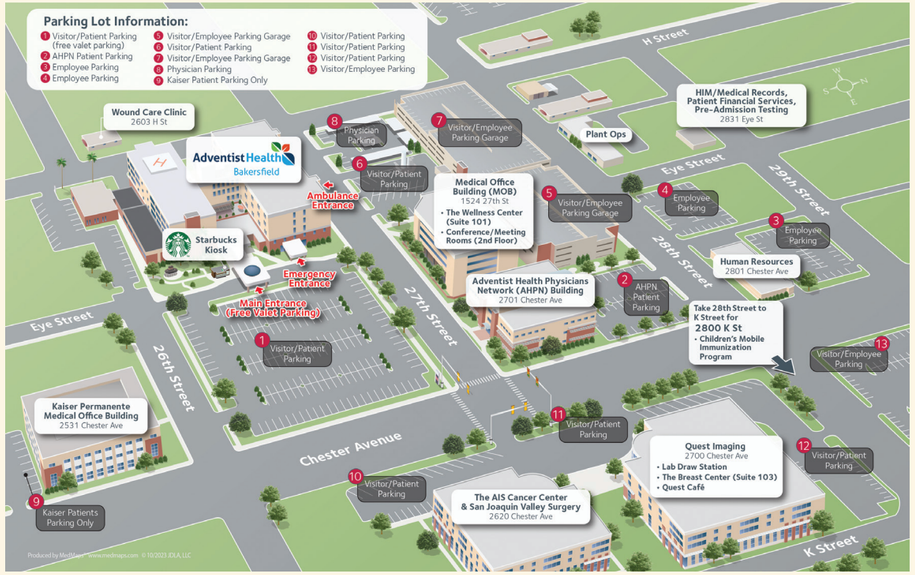
What to do the day before surgery

- **Confirm your arrival time for your procedure by calling 661-395-3000 after 6 p.m. the day before surgery.**
- You will be asked to come to the hospital two hours before your scheduled surgery to give the nursing staff sufficient time to start an intravenous line, draw blood, prepare the surgical site and answer questions. It is important you arrive to the hospital on time because procedures may occasionally begin sooner than scheduled. If you arrive to the hospital late, it could push back your scheduled surgery time and, in some cases, result in rescheduling your procedure.
- Avoid eating a heavy meal the day before surgery.
- Recommended meals the day before surgery include:
  - Soups
  - Fruits and vegetables
  - Light nutrient meals
- Do not eat or drink anything **after midnight** the day of your surgery, including water, gum or hard candy, unless otherwise instructed to do so by your surgeon. Undigested food in the stomach can cause complications and your surgery could be postponed or canceled.
- Shower or bathe using antibacterial soap the night before or morning of surgery.
- Shampoo your hair.
- Remove fingernail and toe polish.

Day of surgery

- You may brush your teeth and gargle. Do not swallow any water.
- Wear comfortable, loose-fitting clothes. Button-up shirts are preferred.
- Wear slip-on shoes.
- Wear glasses, not contact lenses.
- Do not wear makeup. Remove all body piercings and jewelry.
- Bring your Spine Center Surgery Guide.
- Bring your identification card.
- Bring money for copay or deductible.
- Bring a copy of your advance directive.
- Bring your cervical collar or back brace.
- CPAP machine
- Your medication list
- Dentures, if you wear them. Your family member or loved one should bring them to your room post-procedure so you can eat.
- Leave all valuables at home.

Adventist Health Bakersfield provides valet service at the hospital entrance and a self-parking garage accessible through 28th Street. (See map).



Registration

Upon entering the hospital from the main entrance, please proceed to the information desk. A greeter will direct you to register and then you will be escorted to the pre-operative area. The pre-operative area is located on the second floor. Your family may wait in the surgical waiting area on the second floor or go home and return when you are out of surgery. The surgeon will call your family with updates.

Before surgery

A nurse will perform an assessment that includes taking your vital signs, starting an intravenous line in a vein in your arm and confirming your surgical site. Your anesthesiologist will meet with you for assessment, discuss your planned anesthesia and obtain your consent for anesthesia.

Anesthesia

Spine surgery requires the use of general anesthesia administered by an anesthesiologist. An anesthesiologist is a doctor with specialized training in sedation for surgery and pain control. This doctor gives you the medication that allows you to sleep for your surgery. A member of the anesthesia team stays with you and monitors you closely throughout your surgery. The anesthesiologist discusses with you the type of anesthesia you will be having with your surgery.

General anesthesia

This is the medication used to put you to sleep during your surgery. A breathing tube is placed in your mouth and throat to assist with your breathing and will be removed when the procedure concludes.

In the operating room

Once you are transferred to the operating room, you are moved to the operating table where surgery will take place. This is often the last thing patients remember before waking up in the post-anesthesia care unit (PACU).

Recovery: Post-anesthesia care unit

After surgery, you will be transferred to the post-anesthesia care unit (PACU), where nurses will perform ongoing assessments, and keep you warm and as pain free as possible. You will be periodically encouraged to breathe deeply. The approximate length of stay in the PACU is two hours, but this may vary. A nurse will check with you for reports of nausea, pain, position discomfort and if you need to go to the bathroom.

The following equipment may be used in the PACU during recovery:

- Oxygen will be delivered through a nasal cannula (into your nose), secured by a loop around your ears. After surgery, oxygen levels may be lower than usual because of the effects of medications and inactivity. Additional oxygen is therefore used to reduce stresses on the heart, lungs and brain. The oxygen will be discontinued after surgery as you are able to maintain your blood oxygen levels independently.
- Pulse oximeter clip on your finger will monitor your oxygen level, an automatic blood pressure cuff on your arm will periodically take your blood pressure and your temperature will be taken.
- Leads on your chest will monitor your heart activity.
- Sequential compression devices (SCD) are plastic sleeves that wrap around the lower leg and create a gentle squeezing/massaging sensation as they slowly pump the blood to the heart. They will be used after surgery to prevent blood clot formation in your legs. These are as effective as blood thinners in preventing clot formation.
- A drain system called Hemovac may be placed during surgery and is used to remove any excess fluid or blood from the incision site and the soft tissues surrounding the spine. The drain will be removed during the first few days after surgery. It is small enough in size that discomfort is minor during removal of the tube.
- A Foley catheter is used for certain procedures and you may have one placed. This urinary catheter is a soft rubber tubing that is inserted into the bladder during surgery, after sedation and without you being aware. The tubing is attached to a measuring bag that drains to gravity. This system allows the bladder to empty spontaneously. Depending on the type of procedure you have, the catheter may be removed on the day of surgery or the following day.
- There will be a bandage on your back for lumbar surgeries, or on or on your neck for cervical surgeries

In-hospital recovery on 5N Medical-Surgical Unit

Once you are completely awake, you will be transferred to an inpatient Medical-Surgical Unit on the fifth floor. When you arrive to your room you will be greeted by your nurse and nursing aide. They will assist with transferring you to your bed and will begin post-operative care. Your family members may visit you in your room.

Post-operative hospital plan of care

Your nurse will review the following plan of care as ordered by your surgeon:

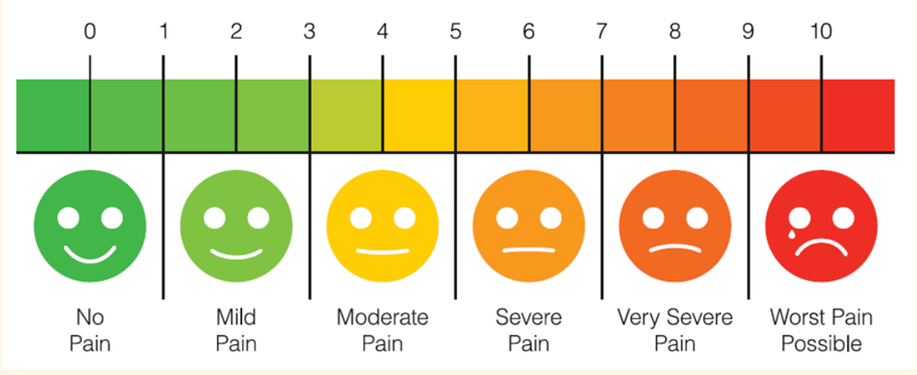
- Assess vital signs
- Assess pain
- Neurological assessment
- Assessment of the surgical area
- Monitor drainage tubes from your surgical site, if present
- Monitor oral fluid intake and elimination
- Administer ice therapy to the operative site to prevent swelling and assist with pain control
- Use of sequential compression devices (SCD) to help prevent blood clots and improve circulation
- Ankle pump exercises to assist circulation
- Use of your incentive spirometer to ensure deep breathing
- Coughing and deep breathing every hour while awake to help expand the lungs
- Inspect the skin
- Physical therapy and occupational therapy evaluations
- Out of bed as ordered by your surgeon
- Instructions on medications and their side effects
- Brace application and education
- Discharge planning

Pain management

Pain is expected after any surgical procedure. Some degree of discomfort is unavoidable and a normal part of post-operative recovery. Our goal is to ALWAYS CONTROL your pain. Control of pain does not mean the TOTAL absence of pain. You will have oral and intravenous pain medication available to you and administered by the nurse. Setting a pain goal with your nurse is very important. When your pain is managed you are able to do your daily tasks, such as deep breathing, turning, walking and participating in therapy.

Notify your nurse when experiencing pain — DO NOT WAIT.

Before and after your surgery, your nurse will ask you to describe your pain using a numeric pain scale between 0 and 10, with 0 representing no pain and 10 being the worst pain. The numeric pain scale helps your surgeon and nurse determine the proper pain medication and dosage you will receive. The pain scale also helps determine if the pain medication provides relief from your pain. Based on your input, your nurse will administer pain medication, so it is important to respond honestly.



Pain management interventions

- Apply ice for 20 minutes at a time to avoid skin injury.
- Practice formal relaxation techniques, like deep breathing, meditation and visualization practices.
- Oral pain medication
- Intravenous pain medication
- Muscle relaxers

Nurse's responsibilities

- Take your pain seriously
- Routinely assess and treat your pain as quickly as possible
- Provide safe pain management treatment
- Help you get out of bed and get you walking
- Give clear answers to your questions

Patient's responsibilities

- Tell your nurse if you are having pain
- Ask for pain relief before you become too uncomfortable
- Give your nurse an honest report of your pain using the pain scale
- Tell your nurse if your pain is not relieved
- Tell your nurse if you are experiencing side effects of medications (nausea, constipation, etc.)
- Attend therapy as scheduled (mobility promotes healing)
- Ask questions about your medications

Safety concerns

Our goal is to keep you safe and prevent a fall from occurring during your stay. Certain medications — including pain medications, sleeping medications and medications used during surgery — can increase your risk for a fall. Your safety will be monitored throughout your stay. Our healthcare team is dedicated to keeping you safe. Our nursing team will be rounding hourly to check in on you. It is extremely important to call for assistance every time you would like to get out of bed. Well-fitted, closed-heel slippers or tennis shoes are recommended for all physical therapy sessions and walking.

Physical therapy (PT) and occupational therapy (OT)

"Remember, you are not in the hospital because you are sick!"

We want to help you maximize your function and recovery. After your spine surgery, your healthcare team will encourage you to be as active as possible. Early mobility reduces the risk of post-operative complications. The physical therapy team will determine the appropriate level of activity for you after surgery.

The overall goals of physical therapy will focus on:

- Improving or restoring movement, strength and range of motion
- Decreasing pain
- Preventing your condition from getting worse
- Educating you on ways to maintain your overall fitness and functionality

The physical therapist will educate you on:

- Your spinal precautions
- How to log roll
- Getting into and out of bed using the correct posture
- Using a walker
- Applying and removing your cervical collar or back brace
- Ankle pump exercises

Spine precautions

The following is a list of precautions that must be followed to protect your spine. These precautions will help avoid injury to your spine and will promote healing. Your therapist will review these restrictions with you in more detail and will show you how to incorporate them into your daily activities.

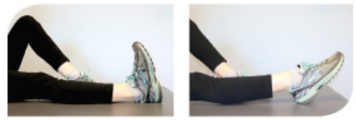
There are three activities you need to avoid after spinal surgery.

1. No bending. Instead of bending at your back, bend at your knees to lower and raise your body. You may use a reacher to grasp low objects, a sock-aide and a long-handled shoehorn to put on and take off socks and shoes.
2. No heavy lifting.
   - Do not lift any object that weighs more than 5 pounds.
   - Place items on a cart with wheels or in a walker basket.
   - Split up large bags of items into smaller amounts.
   - Slide objects along a countertop instead of lifting them.
   - Only lift the amount of weight specified by your surgeon until you are medically cleared to lift more.
   - Ask for help if you need it.
3. No twisting. Instead of twisting through your spine, turn your whole body by stepping with both feet to face the activity. Point your feet or hips toward what you are doing to avoid twisting your spine.

Remember: "NO B.L.T. — no Bending, Lifting or Twisting."

Ankle pump exercises

- While sitting in a chair or lying on your back in bed, straighten your knee and slowly point your toes forward then slowly point toes backward.
- Repeat 20 times with both ankles, 2–3 times per day.



USING THE LOG ROLLING TECHNIQUE

Getting out of bed

Scan QR code for video getting out of bed

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1. While lying on your back, bend your knees.
2. Roll onto your side. Keep your shoulders and hips together as a unit as you roll.
3. Place your bottom hand underneath your shoulder. Place your top hand in front of you at chest level (see picture below). Slowly raise your body as you lower your legs toward the floor.
4. Sit up.

1. Bend your knees

2. Roll to your side

3. Slide your feet over the edge and push up on elbows and hands

4. Sit up

Getting into bed

Scan QR code for video getting into bed

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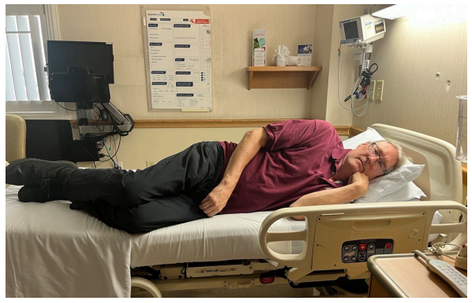
1. Sit on your bed, closer to the head of the bed than to the foot of the bed.
2. Scoot back onto the bed as far as you can.
3. Lower yourself onto your side using your arms to help guide and control your body. At the same time, bend your knees and raise your legs onto the bed.
4. Keep your knees bent. Roll onto your back. Keep your shoulders and hips together as a unit as you roll. Think of yourself as a rolling log (see picture below).

1. Sit up

2. Lower onto your side, bend knees, and raise legs up onto the bed



3. You're on your side

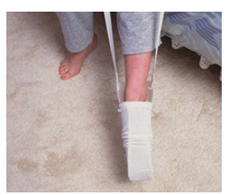
4. Keep knees bent and roll onto your back

The occupational therapist will:

- Maximize your ability to safely perform daily tasks.
- Promote independence and productivity.
- Recommend adaptive equipment and train you on how to use the equipment.
- Educate you, your family members and your caregivers.

Putting on pants

- Sit on a chair or the side of the bed.
- Using a reacher, catch the waist of the underwear or pants with the grasper.
- Use the reacher to pull the pants over your feet and above your knees. Pull them to where you can reach them with your hands (without bending forward). Hold the pants with one hand. Push up from the chair or bed to stand. Steady yourself with your walker.
- With your hands, pull the pants the rest of the way up.



Putting on socks Scan QR code for video

- Sit on a chair or the side of the bed.
- Pull the sock onto the sock aid.
- Hold the sock in front of your foot. Slip your foot into the sock. Pull the sock aid out of the sock.

Putting on shoes

Scan QR code for video

Scan to view online videos

- Wear slip-on shoes or use elastic or Velcro so you don't have to bend.
- Sit on a chair. Put your foot into the shoe. Use a reacher or long-handled shoehorn to pull the shoe on.

Cervical collar Scan QR code for video

- Your doctor will tell you how long you are supposed to wear the brace.
- Cervical patients must ALWAYS wear their neck brace unless your doctor has told you otherwise.

Back brace Scan QR code for video

- Your doctor will tell you how long you are supposed to wear the brace.
- You should wear your lumbar brace any time you're out of bed. Do not wear it when sleeping unless your doctor has told you otherwise.
- Wear a T-shirt under your brace to protect your skin.
- With the back brace on, dress in a sitting or lying position.
- You MUST wear your brace to go to the toilet.
- You MUST wear your brace during sex.

Patient goals prior to discharging from the hospital

- Tolerating diet
- Urinating
- Pain is managed with oral medication
- Ambulated with physical therapist and walked more than 100 feet
- Durable medical equipment ordered

HOSPITAL DISCHARGE CHECKLIST

Make sure you check all items before you go home

- ☐ I have confirmed my ride home.
- ☐ I have urinated.
- ☐ I know how to take care of my incision.
- ☐ I know what my medications are supposed to do and when to take them.
- ☐ I have an exercise program to follow.
- ☐ I know the signs that mean I need immediate medical attention.
- ☐ I have information about my follow-up appointments with my surgeon and with my primary care physician (if needed).
- ☐ I have signed and kept a copy of my discharge instructions.
- ☐ I have arranged for all the equipment I need.

Post-operative recovery at home

What can I expect after the procedure?

After the procedure, it is common to have:

- Back or neck pain and stiffness.
- Pain in the area around your incision.

FOLLOW THESE INSTRUCTIONS AT HOME

Medicines

- Avoid driving or using machines while you are taking your pain medicine.
- Take over-the-counter and prescription medicines only as directed by your doctor. These include any medicines for pain or medicines to thin your blood (anticoagulants).
- If you were prescribed an antibiotic medicine, take it as directed by your doctor. Do not stop it even if you start to feel better.

Take steps to prevent problems with constipation.

You may need to:

- Drink enough fluid to keep your urine pale yellow.
- Take medicines, i.e. stool softeners. You will be told what medicines to take.
- Eat foods high in fiber. These include beans, whole grains, fresh fruits and vegetables.
- Limit foods that are high in fat and sugar. These include fried or sweet foods.

Bleeding precautions

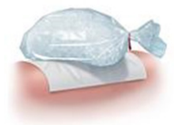
If you are taking blood thinners:

- Talk with your doctor before taking any medicines that have aspirin or NSAIDs, such as ibuprofen.
- Take medicines exactly as told. Take them at the same time each day.
- Avoid doing things that could hurt or bruise you. Take action to prevent falls.
- Wear an alert bracelet or carry a card that shows you are taking blood thinners.

If you have a cervical collar or lumbar brace

- Wear the brace as told by your doctor. Take it off only as told by your doctor.
- Check the skin around the brace every day. Tell your doctor if you have any concerns.
- Loosen the lumbar brace if your legs or toes:
  - Tingle.
  - Become numb.
  - Turn cold and blue.
- Keep the brace clean.
- If the brace is not waterproof, do not let it get wet.

Managing pain, stiffness and swelling



If told, put ice on the affected area.

To do this:

- If you have a removable brace, take it off as told by your doctor.
- Put ice in a plastic bag.
- Place a towel between your skin and the bag.
- Leave the ice on for 20 minutes, 2–3 times a day.
- Take off the ice if your skin turns bright red. This is very important. If you cannot feel pain, heat or cold, you have a greater risk of damage to the area.

Incision care

- Follow instructions from your doctor about how to take care of your incision. Make sure you:
  - Wash your hands with soap and water for at least 20 seconds before and after you change your bandage. If you cannot use soap and water, use hand sanitizer.
  - Change your bandage as instructed by your doctor.
  - Leave stitches or skin glue in place.
  - Leave tape strips alone unless you are told to take them off. You may trim the edges of the tape strips if they curl up.
- Keep your incision clean and dry.

- Do not take baths, swim or use a hot tub. Ask your doctor about taking showers or sponge baths.

- Check your incision every day for signs of infection.
- Check for:
  - Increased redness, swelling or pain
  - Fluid or blood
  - Warmth
  - Pus or a bad smell
- Call your doctor if any of the above symptoms are noted.

How to care for your surgical drain

The Hemovac drain removes fluid by creating suction in the tube. The circular device is squeezed flat. The device expands as it fills with fluid.

How do I empty my Hemovac drain?

- Empty the drain when it is half full or every 4 hours
- Wash your hands with soap and water.
- Remove the plug from the top of the drain.
- Pour the fluid into a measuring cup.
- Clean the plug with an alcohol swab or a cotton ball dipped in rubbing alcohol.
- Squeeze the drain flat and put the plug back in. The drain should stay flat until it starts to fill with fluid again.
- Make sure the tubing is not kinked or twisted. Refasten to your clothes below your surgery site so it does not pull at your skin.
- Measure the amount of fluid you pour out. Write down how much fluid you

empty from the drain and the date and time you collected it. Bring this record with you to your follow-up visits.
- Flush the fluid down the toilet. Wash your hands.

When will my drain be removed?
- The amount of fluid that you drain should decrease each day. Ask your healthcare provider when and how your drain will be removed.

When should I seek immediate care?
- You have redness, swelling or pain around your drain area.
- You have pus or a bad smell coming from your drain area.
- You have a fever higher than 101.5 or chills.
- The skin around your drain is warm to the touch.
- The amount of drainage that you have is increasing instead of decreasing.
- You have drainage that is cloudy.
- There is a sudden stop or a sudden decrease in the amount of drainage that you have.
- Your drain tube falls out.
- Your active drain does not stay compressed after you empty it.
- Your drain breaks or comes out.
- You are bleeding from your drain site.

Activity

- Rest as instructed by your doctor.
- **Take short walks every 1 to 2 hours.** Ask for help if you feel weak or unsteady.

- Perform exercises advised by your doctor.
- Follow instructions from your doctor about how to move. Use good posture to help your spine heal.
- Do not lift anything at all, or anything heavier than the limit you are told, until your doctor says it is safe to do so.
- Do not twist or bend at the waist until your doctor says it is okay.
- Protect your back.

Do not:
- Make pushing and pulling motions.
- Lift anything over your head.
- Sit or lie down in the same position for a long time.

Sleeping/laying position

- If you sleep on your side, use a pillow between your knees to avoid twisting your lower back. You may also want to sleep with a rolled towel just above your pelvis to assist in supporting your lower back in a neutral position.
- If you sleep on your back, use a pillow under your head. You can also increase your comfort by placing a pillow under your knees.

Whether on your side or on your back, keep your spine aligned in a neutral position — avoid bending forward or to the side.

General instructions

- Do not drive until your doctor says it is okay. Your pain must be controlled so that you no longer need any pain medications (i.e. Vicodin, Norco or Percocet). These medications can affect your ability to drive.
- Wear compression stockings as directed by your doctor.
- If you are sent home with a drain, do not take out your drain tube. Follow instructions from your doctor about how to take care of it.
- Do not smoke or use any products containing nicotine or tobacco. If you are seeking support quitting, your doctor can help.
- Keep all follow-up visits with your surgeon.
- Avoid NSAIDS (listed on page 21) until your doctor says otherwise.

Recognizing and preventing potential complications

Notify your surgeon if you experience any of the following:
- Increased swelling and redness at the incision site
- Change in drainage color, amount or odor
- Increased pain around the incision
- Fever greater than 101.5° F
- Pain not relieved by medication
- Difficulty breathing
- Problems controlling your bladder or bowel
- Increased numbness or weakness in extremities

Blood clots in your legs

Surgery may cause the blood to slow and coagulate in the veins of your legs, forming a blood clot. If a clot occurs, you may need to be admitted to the hospital to receive intravenous blood thinners. Prompt attention usually prevents more serious complications of pulmonary embolus (blood clot in the lung). **Moving around, especially walking, will reduce the chance of a blood clot.**

Signs of blood clots in your legs

- Swelling in thigh, calf or ankle that decrease with elevation
- Pain and/or tenderness in calf
- Chest pain
- Difficulty breathing

If these signs are present, immediately notify your surgeon.

Pulmonary embolus

- An unrecognized blood clot could break off the vein and go to the lungs. This is an emergency, and you should call 911 if you suspect it has occurred.

Signs of pulmonary embolus

- Sudden chest pain
- Difficult and/or rapid breathing
- Shortness of breath
- Sweating
- Confusion

Prevention of blood clots and pulmonary embolus

- Foot and ankle pumps
- Walking
- Compression stockings

Post-operative exercise goals and activity guidelines

Exercising is important to obtain the best results from spine surgery.

DAYS AFTER SURGERY	0 TO 3 DAYS	3 TO 7 DAYS	7 DAYS TO 4 WEEKS	4 TO 8 WEEKS	2 TO 3 MONTHS	3 TO 4 MONTHS
Walking	Frequent short walks	Gradually increase distance	Increase distance as tolerated — start on smooth surfaces	Increase distance as tolerated — start on graded surfaces		
Driving/ Traveling			Once off pain medications, change positions every 30 minutes.		Driving as an occupation as tolerated with frequent breaks	
Bathing	Sponge bath or shower as per doctor's orders			Return to regular tub/ shower as per your preference		
Sex			Within limits of comfort			
Lifting			Light housekeeping (e.g. dishes, dusting)	Non-manual labor with doctor's permission	Per doctor's order	Per doctor's order
Work			Light up to 5 lbs. Work on proper technique	Moderate 5–10 lbs. Use proper technique	Return to moderate work with doctor's permission	Gradually return to strenuous activities with doctor's permission
Activities	Walking and prescribed exercises	Walking and prescribed exercises	Walking and prescribed exercises	Non-jarring sports with doctor's permission	Light strenuous sports with doctor's permission	Gradually return to strenuous activities with doctor's permission

Ask your physical or occupational therapist for additional guidance

Long-term concerns: Infection or loosening of hardware

With any spine surgery, you may be at risk of getting an infection. If you develop an infection of any sort (bladder infection, abscessed teeth, lung infection), consult your primary care physician, who will determine the best treatment option. If you are having major dental work or other surgery, tell the dentist or surgeon about your spinal surgery. They will let you know if you need to take special precautions. If your post-operative condition changes, consult your family doctor or surgeon who will advise you on proper management.

What is a surgical site infection (SSI)?

A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. We want to do everything possible to prevent them. Some of the common symptoms of a surgical site infection are:

- Redness, heat, swelling or pain around the surgical site
- Drainage of fluid from your surgical wound
- Foul odor from incision
- Chills or fever

If any of the above symptoms present within 30 days of your surgery (or up to one year if you have an implant such as mesh, wires, plates and/or screws), contact your surgeon.

Maintaining your spine health

It is important to make sure your lifestyle and daily activities allow your lower back to stay healthy. Review your lifestyle and activities that may impact your back. Make changes at work, home or in your leisure activities to prevent long-term problems.

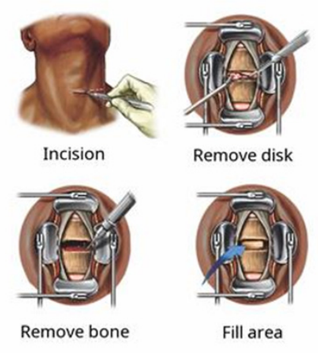
Appendix

TYPES OF SPINE SURGERIES

1. Anterior cervical discectomy and fusion or artificial disc replacement

Anterior cervical discectomy and fusion is a surgery to remove and replace an intervertebral disc. Intervertebral discs are plates of cartilage located between the bones of the spine. This surgery is performed when an intervertebral disc in the neck puts pressure on the spine or on a nerve.

The surgery is done through the front (anterior) part of the neck. During the surgery, the damaged disc is removed and replaced with an implant, a bone from another part of the body (bone graft) or both. Sometimes metal plates and screws are also used to keep the implant or bone graft in place and to join the bones together.



What happens during anterior cervical discectomy and fusion or artificial disc replacement?

- An IV will be inserted into one of your veins
- You will be given one or more of the following:
  - A medicine to help you relax (sedative)
  - A medicine to make you fall asleep (general anesthetic)
- A breathing tube will be placed
- Your neck will be cleaned with a germ-killing solution (antiseptic solution)
- Your surgeon will make an incision in the front of your neck
- Your neck muscles will be spread apart
- The damaged disc and any damaged bone will be removed
- The area where the disc was removed will be filled with a small implant, a bone graft or both
- Hardware may be put in your neck
- The incision will be closed with stitches (sutures)
- Adhesive strips or skin glue may be placed across the incision
- A bandage (dressing) will be applied over the incision

The procedure may vary among healthcare providers and hospitals.

You may encounter challenges during recovery, including changes to your voice, hoarseness the first few days after surgery and difficulty swallowing. You may need to be on a liquid diet for a day or two and slowly work in soft foods, such as applesauce.

2. Surgical spinal decompression

Spinal decompression is a surgery to create more space for the spinal cord. It is done to relieve pressure on the spinal cord and nerves in the spine when pressure causes symptoms, such as:

- Severe pain
- Weakness
- Numbness
- Trouble emptying one's bladder or bowel (retention)
- Trouble controlling one's bladder or bowel (incontinence)

There are several types of spinal decompression. They include:

a. Laminectomy: Removal of the bony arch at the back of the bones of the spine (vertebrae), which forms the spinal canal
b. Discectomy: Removal of a disk between vertebrae
c. Microdiscectomy: Removal of part of a spinal disc

A laminectomy, discectomy or microdiscectomy may also include a foraminotomy, corpectomy or vertebrectomy.

- Foraminotomy: Widening of the bony passage spinal nerves pass through
- Corpectomy or vertebrectomy: Removal of a vertebrae

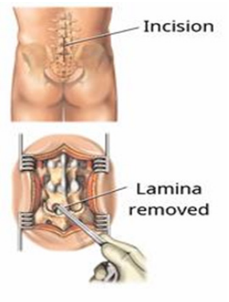
If the spinal decompression makes the spine unstable, spinal decompression may be done along with a procedure to join two or more vertebrae together (spinal fusion).

A. Laminectomy

Laminectomy is a surgery to remove:

- Lamina: Small flat pieces of bone in the spine
- Ligaments: Tough, cord-like tissues that connect bones to each other underneath the lamina. The ligaments connect vertebrae, which are the bones in the spine
- Facet joints: Connections between the bones of the spine

The surgery is done to reduce pressure on nerves and the spinal cord, and to lessen pain, numbness and discomfort. You may need this procedure if you have narrowing of the spinal canal (spinal stenosis) or if you have a spinal tumor, spinal injury or Paget disease of bone.



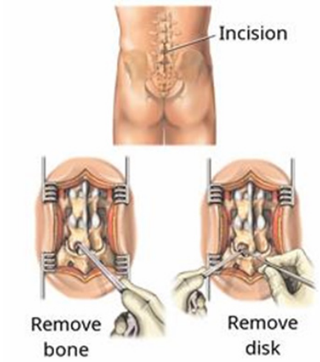
What happens during a laminectomy?

- An IV will be inserted into one of your veins.
- You will be given one or more of the following:
  - A medicine to help you relax (sedative).
  - A medicine to make you fall asleep (general anesthetic).
- A breathing tube will be placed.
- An incision will be made in your back. The incision may be 2–5 inches (5–13 cm) long, depending on how many vertebrae are being operated on.
- Muscles in your back will be moved away from the vertebrae and pulled to the side.
- Pieces of lamina will be removed.
- Ligaments and thickened facet joints will be removed. The amount of tissue and bone removed depends on how much of the tissue is putting pressure on your nerves.
- Your nerves will be identified and checked for tightness.
- Your back muscles will be moved back into position.
- The area under your skin will be closed with small stitches that dissolve on their own (absorbable sutures).
- Your skin will be closed with small, absorbable sutures or staples.
- A bandage (dressing) will be placed over your incision.
- The procedure may vary among healthcare providers and hospitals.

B. Lumbar discectomy

Lumbar discectomy is a surgery to treat a damaged disc in the lower back. Discs are oval-shaped layers of connective tissue (cartilage) between the bones in the spinal column (vertebrae). Discs prevent the vertebrae from rubbing together. A disc can tear and bulge outward (become herniated). This puts pressure on nerves that are near the spine and may cause pain, numbness, weakness or other symptoms.

You may need this surgery if your symptoms are severe, get worse or have not been helped by other treatments. In this procedure, a surgeon will remove the part of the disc that is causing problems.



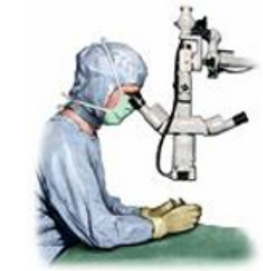
What happens during a lumbar discectomy?

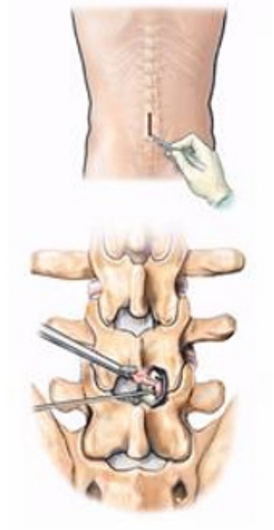
- An IV will be inserted into one of your veins.
- You will be given one or more of the following:
  - A medicine to help you relax (sedative).
  - A medicine to numb the area (local anesthetic).
  - A medicine to make you fall asleep (general anesthetic).
  - A medicine that is injected into your spine to numb the area below and slightly above the injection site (spinal anesthetic).
- You will be positioned face-down on the operating table.
- Your surgeon will make an incision over your spine.
- Your surgeon may move muscles and nerves so the injured disc can be seen easily.
- Your surgeon may need to remove some connective tissue (ligaments) or pieces of bone to get to your disc.
- Your surgeon will remove the part of the disc that is causing problems.
- The muscles and nerves will be put back in their normal position.
- The incision will be closed with stitches (sutures) or staples.
- A bandage (dressing) will be placed over the incision.

The procedure may vary among healthcare providers and hospitals.

C. Microdiscectomy

There is a disc between each of the bones in your spine. This disc acts like a cushion between your bones. A disc can bulge out. Microdiscectomy is a procedure to remove part of a disc that bulges out. The goal of this procedure is to stop pain, weakness and numbness that are caused by a disc that bulges out.





What happens during a microdiscectomy?

- An IV tube will be inserted into one of your veins.
- You may be given:
  - A medicine to help you relax (sedative).
  - A medicine to make you fall asleep (general anesthetic).
- Numb certain areas of your body.
- Make you fall asleep for surgery.
- A small cut (incision) will be made in your back. This will allow the doctor to reach the bulging disc.
- The surgeon will remove the part of your disc that is causing problems.
- Your incision will be closed with stitches or skin glue.
- A bandage will be put over your incision.

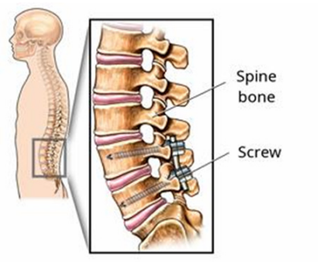
3. Spinal fusion

Spinal fusion is a surgery to join two or more bones in your spine. This surgery stops the bones from rubbing on each other. This can decrease your pain. It may also stop your spine from getting weaker or becoming crooked.

This surgery may be done to treat problems of the spine, such as injury, infection or tumors. It may also be used to treat a disc that moves out of place or a curve in the spine.

An anterior lumbar interbody fusion (ALIF) surgery is a type of spinal fusion performed to stabilize a painful motion segment in the lower back, commonly caused by lumbar degenerative disc disease and/or spondylolisthesis. The surgical approach is via the abdomen, to access the front (anterior) of the spine, where the disc is located.

A spinal fusion can also be performed from the side or the back.



What happens during a spinal fusion?

An IV tube will be put into one of your veins.

- You may be given:
  - A medicine to help you relax (sedative).
  - A medicine to make you fall asleep (general anesthetic).
- Your doctor may do this surgery by:
  - Taking bone from another part of your body. This bone will be used to fill the space between the bones of your spine.
  - Making a cut (incision) to reach your spine. The incision may be done on your back, your belly or your side.
  - Taking out a part of the disc if the disc was bulging out too far.
  - Filling the space between the bones of your spine. The space may be filled with:
    - Bone from another part of your body.
    - Cadaver bone.
    - Synthetic bone.
  - Using screws, rods or metal plates to keep the bones together.
  - Putting a small tube (drain) in your incision to drain extra fluid.
- Closing the incision and covering it with a bandage.

Hospital resources

Name	Phone
Ambulance/Emergency Medical Services	911
Adventist Health Bakersfield	661-395-3000
Adventist Health Physicians Network (AHPN)	661-241-6700
Pre-Admission Testing	661-863-2100
Kern County Brain & Spine Institute at Adventist Health	661-863-2380
Spine Coordinator	661-863-2382, KernCountyBrainandSpine@ah.org
Hospital Nursing Supervisor	661-863-3464
5N Medical-Surgical Unit Charge Nurse	661-863-3463
Physical and Occupational Therapy (Inpatient)	661-863-3290

IMPORTANT TELEPHONE NUMBERS

Your surgeon: _____

Your family doctor: _____

Your pharmacy: _____

Other: _____

Frequently asked questions

Q: How long will I be in the hospital following my spine surgery?

A: Your hospital stay will depend on your individual condition and the extent of your surgery. Most patients go home between one and three days after surgery.

Q: How much pain will I have after the surgery?

A: Pain is expected after any surgical procedure. The amount of pain varies by extent of surgery and your tolerance to pain medications. Our goal is to ALWAYS CONTROL your pain. Control of pain does not mean the TOTAL absence of pain. You may need to take prescription pain medications for a few weeks to months after the surgery. Pain pills are most effective when taken before the pain becomes severe or before increased activity such as exercise or long walks. Some degree of discomfort is unavoidable and a normal part of post-surgical recovery.

Q: What can I do to help ensure the best results after my spine surgery?

A: You can positively affect your recovery by:

- Drinking plenty of fluids
- Performing ankle pumps and deep breathing exercises (using an incentive spirometer) every hour
- Actively participating in your rehabilitation program
- Walking with physical therapy and nurses (unless otherwise directed)

Q: How long until I can return to my normal activities following surgery?

A: Within six months, you may be able to resume most of your pre-surgical activities, depending on your doctor's recommendations. Your doctor or therapist can answer specific questions concerning your activities.

Q: Will I need special equipment at home following surgery?

A: If you need equipment such as a walker, cane or a commode (raised toilet seat), your surgeon or spine coordinator will order it for you while you are in the hospital. If you need a back brace, the surgeon usually orders it for you before surgery, otherwise it will be ordered for you while you are in the hospital.

Q: How long will I have to wear a cervical collar or back brace?

A: Each surgery is different and how long you will need to wear your back brace or cervical collar will vary from person to person. It can be anywhere from six weeks to a year. Ask your surgeon for guidance on how long you will need to wear your cervical collar or back brace.

Q: What body positions should I avoid following surgery?

A: For spine surgery, you will need to avoid the following movements:

- Bending
- Lifting
- Twisting
- Reaching

Q: When can I resume sexual activity following my spine surgery?

A: Most patients can be receptive partners within one to two weeks following surgery and return to full activity by six weeks. Be sure to communicate with your partner about your spine condition. Avoid staying in one position or repeating a movement for a long period of time. Use pillows as necessary for extra support. Avoid excessive arching of the neck and back.

Your surgeon can provide specific answers concerning sexual activities. Confirm with your surgeon.

Glossary of terms

Anterior: The front of the body.

Cartilage: Smooth material that covers bone ends of a joint to cushion the bone and allow the joint to move easily without pain.

Cervical spine: Group of seven bones that form the upper and most flexible part of the spine. Often referred to as the neck.

Disc: A cushion of cartilage found between the bones of the spine. Act as shock absorbers to limit trauma to the bones.

Discectomy: Removal of a portion of the disc.

Dura: Outer covering of the spinal cord.

Dural tear: Tear that can occur during surgery. Leakage of spinal fluid occurs at the site. Often treated with bed rest for 24–48 hours thus allowing the tear to heal.

Facet: Small joint located on the back of the vertebrae.

Flexion: Forward bending.

Foramen: Natural opening through a bone.

Foraminotomy: Surgical procedure to remove part or all of the foramen. Done to relieve of nerve root compression.

Fusion: Surgical procedure to join or "fuse" two or more vertebrae together to reduce movement and relieve pain.

Herniated disc: Abnormal protrusion of soft disc material that may impinge on nerves. Also referred to as a ruptured or protruding disc.

Inflammation: Normal reaction to injury or disease that results in swelling, pain and stiffness.

Joint: Place where two or more bones meet.

Lamina: Bone covering the back of the vertebrae.

Laminotomy: Removal of a small part of the lamina.

Laminectomy: Removal of one or more laminae of the vertebrae.

Ligments: Bands of fibrous tissue that connect vertebrae.

Lumbar: Portion of the lower spine. Also called the lower back.

Posterior: The back of the body.

Sacral spine: The last portion of the spine.

Spine: Flexible column of 24 vertebrae, discs, ligments and muscles that lie between the head and pelvis and behind the rib cage.

Spondylolisthesis: Forward displacement of one vertebrae on another.

Thoracic spine: Postion of the spine laying below the cervical spine and above the lumbar spine.

Vertebra(e): Series of bones that form the spine.

The staff at Adventist Health Bakersfield want to THANK YOU for choosing us for your spine surgery!

We strive to be the top provider for spine care and your feedback is very important to us. You may receive a patient satisfaction survey in the mail and we encourage you to share your comments and suggestions with us.

Our Mission

To live God's love by inspiring health, wholeness and hope.

Adventist Health Bakersfield
2615 Chester Ave.
Bakersfield, CA 93301

AdventistHealthBakersfield.org/SpineCare

If you would like to download a digital file of the Spine Center Surgery Guide, please scan QR code.

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