

7 Long & 7 East

Musculoskeletal Unit

Ortho-Spine Teaching

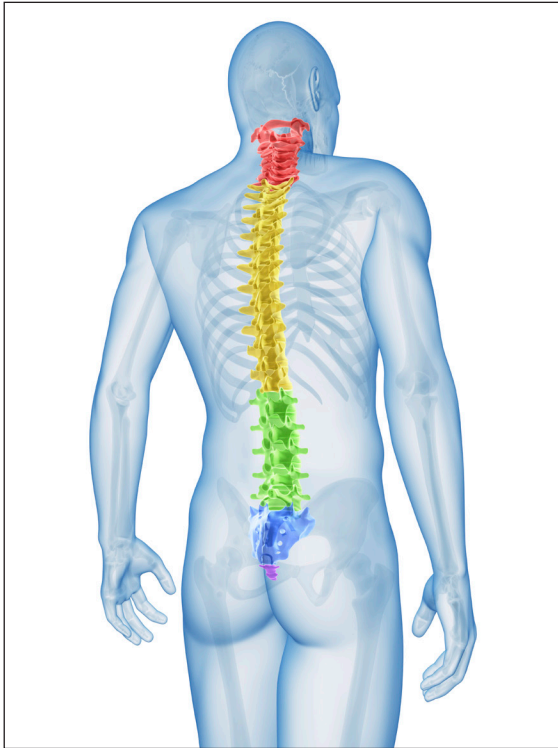


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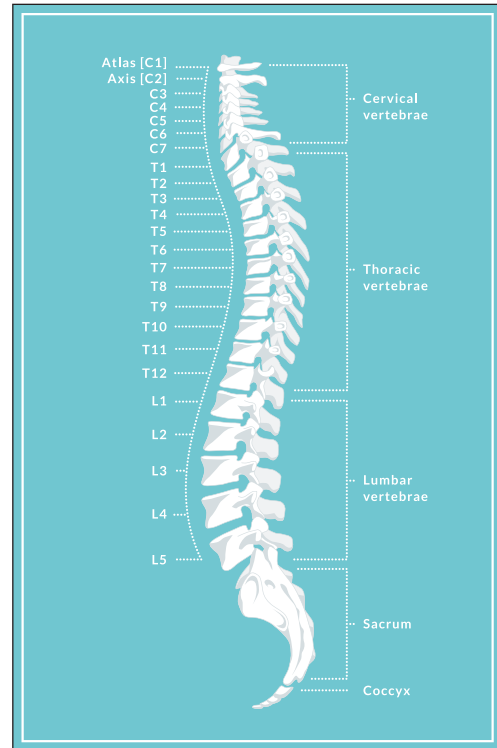
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# Spine Anatomy



Our spine



Lateral Vertebral Column



Vertebra

## Understanding Spine Surgery

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### *Spinal Fusions*

**Interbody Lumbar Fusion:** In this procedure, your surgeon will remove an intervertebral disc and pack bone graft, or a fusion cage and bone graft, into the space between the two vertebral bodies immediately above and below the disc. As your spine heals, the bone graft stimulates your body to make new bone and, with time, joins (or fuses) the bones together. This surgical procedure is used to treat recurrent herniated discs, instabilities of the spine, chronic back problems related to disc rupture, or other disc related pain.

Depending on your specific needs, your surgeon will choose to access your spine:

- **Posteriorly** or from the back (**PLIF**)
- **Anteriorly** or from the front (**ALIF**)
- From the **obliques/side** (**OLIF**)
- In a transforaminal lumbar interbody fusion (TLIF), your incision will be in your back and the spine will be approached in a lateral (or **transverse**) angle.
- Your surgeon may also choose to do an **eXtreme Lateral Interbody Fusion (XLIF)** and approach your spine from the side, making an incision in the side of your abdomen.

These are different surgical approaches for the same procedure.

**Posterior Spinal Fusion (PSF) – Cervical, Thoracic, Lumbar:** Similar to a PLIF, a PSF is a spinal fusion where bone graft is used to stimulate bone to heal together and fuse solid. In a PSF, however, the intervertebral disc is not fully removed like it is in an interbody fusion.

**Anterior Cervical Discectomy and Fusion (ACDF):** In this surgery, your doctor will remove a herniated or degenerative disc in the neck (cervical spine). The incision is made in the front of the neck – an anterior approach. After the disc is removed, a bone graft is inserted to fuse together the bones above and below the disc space.

Spinal fusions are **inpatient surgeries**, meaning you will be admitted to the hospital following your surgery. How long you will stay in the hospital will depend on how big your surgery is – i.e., how many vertebral levels are being fused – and your general health. The following table provides general averages to give you a sense of what to expect following your surgery.

### *Other Spine Procedures*

**Osteotomy:** An osteotomy is a controlled breaking or cutting of a bone and is typically done as part of a surgery to correct spinal deformity. When a significant rigid deformity is present, the bone may need to be cut, the spine realigned, and then instrumentation placed to maintain the corrected position of the spine.

**Kyphoplasty:** This surgical technique involves reinforcing a vertebra with bone surgical cement. It can be applied in the setting of bone collapse (i.e., fracture) due to osteoporosis or other bone destructive process, such as a tumor or tissue death.

**Laminectomy/Laminoplasty:** A laminectomy is typically performed to alleviate pain from spinal stenosis, the narrowing of the spinal canal that can cause the nerves to be compressed. In a laminectomy, your surgeon creates space in the spinal canal by removing all or a portion of the lamina, thereby enlarging the space available for nerves and the spinal cord. A laminoplasty is similar to a laminectomy, but in this procedure your surgeon increases the space available for the spinal cord by reconstructing your laminar arch.

**Foraminotomy:** The foramen is a nerve root’s natural passageway or exit from the spine to another part of your body. When the foramen becomes narrowed, the nerve can become irritated or dysfunctional. In a foraminotomy, your surgeon removes bone and soft tissue around the foramen to enlarge the passage for the nerve. A foraminotomy is commonly performed as part of a decompression of the spinal canal itself, such as a laminectomy.

**Corpectomy:** A corpectomy involves removing all or part of the vertebral body, usually as a way to decompress the spinal cord and nerves. A corpectomy is often performed in association with some form of discectomy.

**Discectomy:** A discectomy involves removing all or part of an intervertebral disc. Most commonly this is done when a disc is herniated (slipped disc) and is causing symptoms of pain and nerve irritation or injury.

**Disc Replacement:** Disc replacement involves removing a damaged, degenerated disc and replacing it with a prosthetic disc. Disc replacement surgery is an alternative to a spinal fusion for a very select group of patients.

Type of Spine Surgery	Expected Length of Stay in the Hospital	
1-2 level cervical fusion	1 day	If your surgery is on Monday, expect to go home on Tuesday
3-5 level cervical fusion	3 days	If your surgery is on Monday, expect to go home on Thursday
1-2 level lumbar thoracic fusion	2 days	If your surgery is on Monday, expect to go home on Wednesday
6-11 level fusion	4 to 5 days	If your surgery is on a Monday, expect to go home as early as Friday
12+ level fusion	5 to 7 days	If your surgery is on a Monday, expect to go home as early as Saturday
Disc Replacement	1 day	If your surgery is on Monday, expect to go home on Tuesday
Discectomy	Same day surgery	Expect to go home the day of surgery
Laminectomy	Same day surgery	Expect to go home the day of surgery
Kyphoplasty	Same day surgery	Expect to go home the day of surgery

## Recovery in the Hospital

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The length of your hospital stay will depend on your medical history and the type of spine surgery that is done. Our goal is to get you home as soon as possible to promote a successful and speedy recovery.

### *Your Care Team*

A team of **orthopedic residents** will be rounding on you on a daily basis. These orthopedic residents are licensed physicians that communicate directly with your spine surgeon about your recovery and care. In order to make it to the operating room by 7:30am, your residents will check-in on you between 5am - 7am. We apologize for the early morning wake-up!

**An orthopedic physician assistant (PA)** will be available to you from 8am - 3pm to answer any questions you may have and address any issues that arise.

It may be helpful for you to write down a list of questions for your provider ahead of time; this will ensure you can make the most out of these conversations. There will be a white board in your hospital room where you can write these questions, if you like.

**Physical therapists (PT) and occupational therapists (OT)** will work with you each day to help you get moving and be more independent in performing your activities of daily living (ADLs). The more you move, the quicker you'll recover!

**A nurse case manager** will discuss discharge needs with you and help you with your transition home.

**Registered nurses (RNs)** will continuously monitor your recovery and will be your advocate throughout your hospital stay. They will help connect you to the rest of your healthcare team, paging the MDs, PTs, OTs and case managers, whenever necessary.

**Patient care assistants (PCAs)** work with your nurses to help you with toileting, hygiene and bathing needs. Your PCAs will also help you with your meals and with getting in and out of bed.

### *Drains, Tubes, Braces and Equipment*

An **intravenous (IV) tube** will be in place when you wake-up after surgery. We use this IV to administer antibiotics, pain medications, and fluids to keep you hydrated.

Depending on the length of your surgery, you may have a **Foley catheter** placed during your operation to drain your bladder. This catheter will be removed promptly to reduce your risk of developing a urinary tract infection (UTI), either the day of your surgery or first thing the following morning. This catheter will not impair your movements and can be easily clipped to your clothes or walker.

You may have a small **drain** coming from your incision. The purpose of this drain is to prevent fluid (blood or other) from building-up in a closed space, which could cause disruption of the incision's healing process. Your nurse will monitor its drainage and output. It is usually removed 48-72 hours after surgery.

You will have an **oxygen tube** placed over your nose when you awake from surgery. It will be removed when you are awake and your oxygen levels are stable. Your nurse will show you breathing exercises to help prevent fluid build-up in your lungs and decrease your risk of a lung infection.

**Sequential compression devices (SCDs)** will be placed on your legs while you are lying in bed, to help to reduce risk of blood clots. The SCDs will massage your legs and ensure proper circulation.

If a **brace** is ordered, your nurse, occupational therapist and physical therapist will go over its proper use with you and your family.

## *Getting up and MOVING after surgery*

You will be out of bed as much as possible as soon as possible (usually within 8 hours of your surgery). Walking shortly after your surgery is beneficial because it:

- helps decrease risk of blood clots
- promotes bone growth
- helps with decreasing pain and stiffness
- speeds your recovery and helps you get home as soon as possible

Every step counts! There are lots of ways to get moving early:

- Moving from the bed to sitting or standing
- Marching in place near the bed
- Sitting out of bed for 15-30 minutes
- Walking 15-30 feet or more, if you are able to do so within your pain limit



The first time you get out of bed, you may feel dizzy or light headed. It's important to stay safe so **ALWAYS call for help before getting out of bed.** Our health care team will make sure you maintain proper spine precautions while getting up, and ensure that you do not fall or get injured. Depending on your level of mobility, we may use special equipment to help get you out of bed to help ensure your safety and that of the care team.

Once you tolerate getting out of bed, plan on being out of bed for all your meals.

## *Fall Prevention*

Preventing falls is important to avoid injury and complications following surgery. Here are a few tips to help you stay safe and avoid a fall:

- Be careful of various tubing such as IV lines, drains and oxygen cannula
- Use the bathroom before it becomes an emergency. Waiting until the last minute means you will most likely rush and be more susceptible to improper movement and injury.
- Sit-up as much as possible when in bed so the change from lying to sitting to standing isn't so great.
- In your home, set aside loose rugs and rearrange furniture to make clear pathways free of clutter. Evaluate bathroom set-up for safety. It can be quite helpful to purchase a shower chair and toilet seat riser to have when you come home from the hospital.





## Spine Precautions

For fusion patients, these precautions apply for 6 weeks to 3 months:

For laminectomies, laminoplasties, kyphoplasties, and discectomies, these precautions apply for 2-3 weeks:



Do NOT do this	Yes, do this
<ul style="list-style-type: none"><li>• Lift over 10 lbs</li><li>• BLT! Bending / Lifting / Twisting</li><li>• Bending &gt; 90 degrees for surgery that extends to the low back and pelvis</li><li>• Sitting upright longer than 40 min without standing and moving in place for 1-2 minutes</li></ul>	<ul style="list-style-type: none"><li>• Reposition every 30-40 minutes; sitting to standing to walking throughout the day</li><li>• Walk as much as possible, increasing distance and time slowly but surely</li></ul>

## Pain Management

We expect you to have some soreness and discomfort following your spine surgery. Our goal is for your pain to be managed to a tolerable level so that you can do your physical therapy and maximize your rehabilitation process. Pain control is a key part of the healing process. Our team will continuously reassess your pain and pain medication regimen, to ensure that you are getting the proper pain management for your needs.

To continuously monitor your pain, the staff will frequently ask you how your pain is rated on a 0-10 scale, where 0 means no pain and 10 means the worst pain you have ever known or felt. Please communicate with us about your pain. Let us know how your pain is before it becomes severe. Don't wait to ask for pain medicine – ask before you become too uncomfortable so you don't end up "chasing" your pain. In addition, tell us how your pain feels: is it sharp, dull, hot, burning, a spasm? This information helps us determine the proper pain medication to treat your discomfort.

Our goal is to wean you off of the strong IV pain medications early on and determine the proper frequency and dosage of pain pills, so that we can evaluate what will work well for you at home.

Do not be alarmed if you experience mild numbness or tingling in certain areas after your procedure. Your nerves can be irritated and inflamed following your surgery and will heal over time. If you notice changes in your sensation, keep note of it and please inform us if the numbness or tingling is getting progressively worse.

## Constipation

Pain medicine and anesthesia cause constipation. We will provide you with medicine to help you stay regular while you are in the hospital, and recommend you purchase some over-the-counter medications to have at home after you are discharged:

- Docusate/Colace (stool softener)
- Senokot (laxative)
- Miralax (laxative)

Don't go too many days before taking action!



## *Goals for Discharge Home*

You will be ready to go home when:

- You pain is managed on pain pills (not via IV)
- You are getting out of bed independently or with a family member safely assisting you
- You are walking more than 50ft (with a walker, if needed)
- You can climb the stairs, if there are stairs at home
- You can remove your brace (with help, if needed)
- You have had your discharge X-ray

## **Recovery at Home**

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### *Plan Ahead for Going Home*

#### *Designate someone to transport you home from the hospital:*

Know who will help you get home from the hospital before your surgery. Planning this in advance will help ensure there are no delays to your getting home – which is the best place for you to recover after surgery. We typically discharge patients between 11am and 12pm, so please plan accordingly for your ride. We will do our best to tell you your discharge time as soon as we can.

When you leave the hospital, you will receive a hospital discharge summary that will be reviewed with you by a nurse. We will provide you with specific instructions regarding your discharge medications, incision and dressing care, and when to follow-up with us in clinic. In general, we would like you to keep your surgical incision clean, dry, and covered for 2 weeks after surgery and recommend a follow-up appointment in 6-8 weeks.

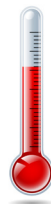
#### *Anticipate your home needs for after surgery:*

Assign a relative, neighbor or friend to help you change your dressing, drive you to and from appointments, run errands, and help prepare meals. You may decide you want someone to be home with you for the first few days after leaving the hospital – discuss what makes sense for you with your friends and family before your surgery.

### *Preventing Infection after Surgery*

With every surgery there is always a risk of infection. We will do everything we can to prevent an infection; this is why we ask you to shower with Hibiclens before your surgery and why we will give you IV antibiotics in the hospital. Infection prevention will continue when you go home, and there are a few simple steps you can take to help keep yourself safe:

- Please consult with your surgeon prior to having any invasive procedures.
- We prefer that you NOT have any elective dental procedures for 3 months after surgery.
- FUSION patients only: If dental work is needed in the 2 years after your surgery we recommend you take prophylactic antibiotics prior to any dental procedures.
- Monitor your incision daily for signs of infection and call our clinic with any concerns. **Signs of infection include redness, drainage, swelling and warmth at the incision site, and fever or chills.**



## Incision Care & Staple/Suture Removal

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### *If you have Staples or Sutures in your incision:*

- Staples/sutures may be removed between **10-21 days** after surgery depending on your physician's recommendation. They can be removed by a nurse or PA at the Orthopedic Spine Clinic, rehab or home care nurse, or your local primary care provider.
- Steri-strips may be placed after your staple/suture removal. Remove them after 5 days, if they have not fallen off on their own before then.
- **Keep the incision DRY** while the staples/sutures are in place and 24 hours after they are taken out.
- Use plastic wrap and tape to cover your dressing when you take a shower to ensure the dressing does not get wet. If you notice the dressing is slightly wet following your shower, remove the dressing, pat your incision dry with gauze, and apply a new dressing. You may shower as usual 24 hours after the staples/sutures are removed.
- Do not take baths or soak in a Jacuzzi or hot tub for at least 2 weeks after your staples/sutures are removed.
- Do not use creams, lotions, or ointments on the incision while the sutures/staples are still in, and do not clean the incision with anything unless your doctor instructed you to do so.



### *If you have Dissolvable Sutures with Steri-Strips or Surgical Glue:*

- If you have surgical glue on your incision, you may shower when you get home. You do not need to cover the glue as the glue is water resistant. However, do not take baths or soak the incision, or apply ointments to the incision for 2 weeks or until the glue has come off naturally.

### *Pets*

Pets can be great companions, especially when recuperating from surgery, and a few simple steps will help you enjoy their company without increasing your risk of infection.

- Do not allow pets to sleep with you until your wound is completely healed and the sutures/staples are removed.
- Do not allow pets to lick you or your wounds.
- Cover sofas and chairs with a clean sheet before sitting or lying on them.
- Wash your hands with soap immediately after touching your pet.
- Be careful about pets getting underfoot and potentially tripping you.

### *Managing Pain at Home*

It is normal to have some discomfort or pain at the surgical site during activity and at night for a few weeks after your surgery. Using an icepack for 10-15 minutes may relieve pain at the surgical site. Hot packs are helpful for muscles tightness -- just be sure not to put the hot pack too near your incision site.

Take your pain medications as instructed by your doctor. For refills, please contact the clinic 7 to 10 business days before you run out of your current medication supply. Because of the class of pain medications, pharmacies require a physical copy of your prescription (we cannot fax or call-in the order), so please plan ahead so that there is enough time for us to mail the refill prescription to you.

Your pain medications will be managed by the Spine Center for up to 3 months post-operatively. After that, if you require pain medications, your pain care must be transferred to your primary care physician or a pain management specialist.

## Who and When to Call

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**For appointments:** call our appointment line at: **415-353-2739**

**For urgent medical issues** which need attention during office hours: **415-353-2739**

**For urgent medical issues after office hours**, weekends, or holidays: **1-866-817-7463**



**Contact the clinic immediately if any of the following happens:**

- Increased redness, swelling, pain, drainage or warmth around the incision
- Incision dehiscence (opening in the incision)
- Temperature higher than 101° F (38.3° C)
- Shaking, chills
- Severe or increasing pain that is not getting better with rest
- New or increased numbness or weakness in arms, legs, or torso
- Difficulty emptying your bladder, or urine or bowel incontinence
- Burning or pain with urination
- Pain, redness or swelling of the calf
- Increasing uncontrolled pain

*Call 911 if you are experiencing:*

- **Acute neurologic changes**
  - New and sudden onset of limb weakness and or numbness
  - Total loss of bowel/bladder function
- **Signs and symptoms of a heart attack** (chest pain or shortness of breath)
- **Signs and symptoms of a stroke** (BE FAST):
  - Balance: Sudden loss of balance.
  - Eyes: Sudden loss of vision in one or both eyes.
  - Face: Noticeable unevenness or droopiness in the face.
  - Arm: Weakness or numbness in one arm. One arm may drift downwards.
  - Speech: Slurred speech.
  - Time: Every second counts.

*Notes:*

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