Spinal Surgery:  
A Patient’s Guide to Recovery
Spinal Surgery

Patient Education Booklet
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INTRODUCTION

WELCOME

Welcome to the Santa Rosa Memorial Hospital’s Center for Bone and Joint Health. We are very pleased that you have chosen us for your spinal surgery, and our team is committed to making your recovery a comfortable and successful one. Please feel free to reach out to your Spine Patient Navigator at 707-523-BONE at any time during this process to help answer questions that you may have. Our patients and families have found it helpful to learn as much as they can before surgery. Our goals are for you to feel confident with your decision to have surgery, and to become educated on your procedure so that you have the best possible outcome. This informational booklet has been prepared as a resource to help you understand your procedure. It will explain what to plan for and expect before, during, and after your hospital stay. You will learn about your daily routine while in the hospital, as well as exercises, medications, precautions, incision care, and much more. We urge you to read and refer to this resource frequently as well as to share it with your family or caregiver. Please bring this booklet with you each time you are scheduled to see your surgeon, as well as when you come to the hospital for surgery.

YOUR HEALTHCARE TEAM

During your stay in the hospital, a team will work with your surgeon to help you through your recovery. The team has been specifically trained for spinal care and includes the following members:

Anesthesiologist

You will meet your anesthesiologist prior to your surgery. Your anesthesiologist is responsible for performing your anesthesia, which for essentially all spinal patients, will be general anesthesia. Depending on your specific surgery, you may be positioned on your back, stomach, or side during the procedure.
**Hospitalist**
Our hospitalists support the medical needs of our spinal patients. If your primary care physician does not have privileges at Santa Rosa Memorial Hospital and you have other health issues such as diabetes, hypertension, or heart disease, it is likely that your surgeon will request a hospitalist consultation.

**Nursing Staff**
Our nursing staff will educate, support, and guide you. They will coordinate your daily activities and help you with mobility, treatments, personal care, pain management and discharge planning.

**Physical Therapists**
Physical therapists will tailor an exercise program to meet your specific needs. They will work with you to help you regain your independence with mobility and to provide you with education on proper body mechanics and spinal precautions.

**Occupational Therapists**
Occupational therapists will teach you how to do daily tasks as independently as possible, following the spinal precautions outlined by your surgeon. Examples of these tasks include dressing, personal hygiene, and kitchen chores.

**Case Managers and Home Care Liaison**
Case Managers and the Home Care Liaison will work closely with you to help you handle your hospital stay and plan your discharge. They will also work with your family and friends to identify the support they can offer while you recover. They will provide you with information on community resources available and help you meet your discharge care needs.

You may also come into contact with other healthcare professionals, including dietary, pastoral care, and respiratory care.
UNDERSTANDING YOUR SPINE

The Healthy Spine: Your spine is made up of bones called vertebrae, the spinal cord, fluid, and discs. The vertebrae, which are stacked upon each other, support the entire body. There are 7 cervical vertebrae located in your neck, 12 thoracic vertebrae located in your chest area, and 5 lumbar vertebrae located in your lower back. In addition, there are 5 fused sacral vertebrae and the coccygeal vertebrae located in your buttock region (also known as your tailbone). Between the vertebrae are intervertebral discs, which absorb shock and allow for movement and flexibility. Collectively, the spine is a highly complex system that provides structure and stability to the body, protects the spinal cord, provides a pathway for the distribution of the nervous system, and facilitates locomotion, movement, and range of motion.
**TYPICAL SPINAL PROBLEMS**

**Instability:** When a disc degenerates and flattens, vertebrae can slip back and forth. This can cause bone spurs and/or soft tissue buildup around the exit points for the nerves, or “spinal stenosis.” Stenosis results in pressure on the nerve roots, causing pain, numbness, or weakness.

**Spondylolisthesis:** Spondylolisthesis is the forward displacement of a vertebra, often resulting in back pain, numbness, or weakness of one or both legs. Another common symptom of this condition is sciatica, which is a pain that radiates from the buttocks down the leg. Additionally, a patient may suffer from the symptoms of spinal stenosis.
**Bulging Disc**: For most people, this is a normal part of the aging process; however, in certain cases, a bulging disc can contribute to spinal stenosis.

**Ruptured or Herniated Disc**: Pressure causes the outer ring of the disc to rupture and the soft center to squeeze through. This compresses and irritates the spinal nerve root.

**Degenerative Disc Disease (DDD)**: This represents a natural part of the aging process. A person may have DDD and have no symptoms. In certain individuals, DDD can cause back pain, instability, or spinal stenosis.
**Spinal Stenosis:** This is a condition that arises due to narrowing in and around the spinal canal, resulting in nerve pinching. Spinal stenosis may cause persistent pain in the buttocks/legs, weakness, and sensory changes in the lower extremities. The result may be decreased physical activity.

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**Degenerative Scoliosis:** Scoliosis is curvature of the spine. “Degenerative” scoliosis develops when the discs narrow asymmetrically. This causes the spinal column to collapse more to one side, resulting in curvature.
Why is Surgery Needed?

Surgery may be recommended for many reasons, the most common of which are:

- To alleviate pain
- To restore lost function
- To correct instability
- To correct deformity
- To improve quality of life
**TYPICAL SPINAL SURGERIES**

Cervical Spine/Neck Surgery: Surgery of the cervical spine may be performed to relieve pressure on the spinal cord or to help stabilize the cervical spine. Cervical fusion can be approached from the front of the neck (Anterior Cervical Disectomy Fusion and Plating or ACDFP), or the back of the neck. A bone graft will be placed between two or more vertebrae in order to promote the bone to grow or fuse together, as will an anterior plate, secured with screws.

![Image of spinal surgery procedure](image)

Corpectomy: This surgery involves the same surgical approach as the ACDFP procedure, except that the entire vertebral body and adjoining discs are removed. For this surgery, your surgeon will use either a larger bone graft or implant ("cage") to reconstruct the spinal column and maintain alignment.

Discectomy: A surgical procedure to remove a herniated or damaged portion of a disc in your lumbar or cervical spine. The purpose of a discectomy is to relieve symptoms caused by the pressure that a herniated disc places on spinal nerves.
**Laminectomy:** A laminectomy is a surgical procedure to treat cervical or lumbar spinal stenosis. The surgeon removes the portion of the vertebrae called the lamina so that the pressure on the spinal cord or nerves is reduced.

**Tumor Resection:** Resection, or partial removal, of a spinal tumor may become necessary when the tumor is causing pain and/or neurologic dysfunction.

**Fusion:** Cervical or lumbar spinal fusion is used to treat pain caused by misalignment or instability of the vertebrae. In some cases, a piece of bone is placed between the two vertebrae so that the bone grows together and fuses that part of the spine. An implant chosen by your surgeon will be placed into the disc space to restore the proper disc height and provide mechanical support while bone grows during the fusion process. There are different types of lumbar fusion techniques; your surgeon will decide which one is most appropriate for you. In some cases, metal plates, rods and screws are used to keep the bones together and improve the chance that the bone will fuse together. This is called fixation.
Lumbar Fusion Techniques:

- **eXtreme Lateral Interbody Fusion (XLIF)**: The lateral (or side) approach allows the surgeon to access the spine while avoiding any major nerves in the area. This also allows for the placement of a larger cage, and correction of spine malalignment.

- **Anterior Lumbar Interbody Fusion (ALIF)**: The anterior (or frontal) approach provides excellent access to the spine. An incision is made in the lower region of the abdomen and a portion of the disc is removed and replaced with an implant. This also allows for a larger cage that allows for indirect decompression and correction of spine malalignment.

- **Posterior Lumbar Interbody Fusion (PLIF)**: The posterior (or backside) approach allows for excellent visualization of the spinal nerve roots.

- **Transforaminal Lumbar Interbody Fusion (TLIF)**: This is an adaptation of the PLIF. TLIF surgery provides direct access to the disc space through the intervertebral foramen, which is the opening between vertebrae through which nerves travel.

- **Midline Lumbar Fusion (MIDLF)**: This minimally invasive midline approach allows the surgeon to access the spine from the middle of the lower back.
**NEUROMONITORING**

Intraoperative neuromonitoring is a tool that may be used to measure the health and function of your nerves and/or muscles during surgery. Its role is to provide your surgeon with immediate feedback about any change in the activity in your nerves. The monitoring will alert him or her of a stimulated nerve. It can show nerve stress or damage, and can even pinpoint the location of the irritation. If your surgeon determines that you are a candidate, you will be prepared for neuromonitoring in the pre-op area the day of your surgery. Preparation includes the placement of adhesive electrodes on the skin overlying your leg or arm muscles (for lumbar or cervical surgery, respectively). If needle electrodes are used, these will be placed in the operating room after anesthesia is given to minimize any discomfort.
NAVIGATED SPINAL SURGERIES

The use of navigation is used in certain spinal surgeries. This state-of-the-art technology provides your surgeon with real-time guidance in placing implants and hardware in the spine where visibility with the human eye may be challenging.

In navigation-assisted surgery, images from an intra-operative CT (the O-Arm) are downloaded into the navigation computer, and through the use of specialized software, are used to build a virtual, 3-D model of your spine. This 3-D model acts like a blueprint to guide your surgeon in the placement of spinal hardware. During your surgery, your surgeon matches your actual spine to the computer's virtual model displayed on the monitor in the operating room. Much like a GPS system in an automobile, your surgeon can track in real time the position of surgical instruments and implants in relation to your true anatomy.
The O-Arm intra-operative imaging system can be opened or closed back into an “O” shape, which allows the surgical team to position it during surgery without having to move you.

3-D navigation assisting in the accurate placement of screws
PERCUTANEOUS PEDICLE SCREW FIXATION

Percutaneous pedicle screw fixation is a minimally-invasive surgical technique that your surgeon may use during your spinal fusion surgery to attach stabilizing metal rods to vertebrae. The procedure gets its name from the placement, or fixation, of the screws for these rods in the part of the vertebra known as the pedicle.

At the start of a percutaneous pedicle screw fixation procedure, your surgeon will use live X-ray imagery, known as fluoroscopy, to locate the pedicles on neighboring vertebrae in your spine. Next, your surgeon will make small incisions in your back on both sides of your spinal column, using these openings to insert small metal rods that run between the vertebrae and are attached to them at each end by screws anchored into the targeted pedicles.

Like other minimally-invasive procedures, percutaneous pedicle screw fixation can achieve its goals with relatively minor disruption of muscle and other tissues surrounding the site of the procedure.
BEFORE YOU COME TO THE HOSPITAL

PREPARING FOR SURGERY (WEEKS IN ADVANCE)

After you and your surgeon agree that surgery is the best option for your condition, your surgeon’s office will schedule your surgery and provide instructions.

In some cases, your surgeon will also require that you obtain medical clearance prior to your surgery. Your primary care physician may perform this clearance and/or you may need clearance from your cardiologist or other medical specialist. You will also be asked to complete lab work, an EKG, and possibly other diagnostic tests prior to surgery. Your surgeon may also request that you get dental clearance.

After you are scheduled for surgery, please contact the Spine Patient Navigator at 707-523-BONE to reserve a seat in Santa Rosa Memorial Hospital’s Spine Pre-Operative Class. This class will provide you and your family a clear explanation of what will happen during your hospital stay. Knowing what is going on will make the process run more smoothly. You will learn many helpful hints to speed your recovery. The class always provides an opportunity to ask any questions that you may have.

Additional Preparations:

• Preparing mentally and physically for surgery is an important step towards a successful result. A positive mental attitude will help your recovery process.

• The use of nicotine products (i.e., cigarettes, cigars, gums, or patches) has been shown to increase complications after surgery. Nicotine inhibits bone and wound healing by decreasing blood flow to the surgical site. Nicotine products can also increase the risk of blood clots (DVT’s); thus, you should stop using them at
least 3 weeks prior to surgery. Additionally, there should be a plan in place to continue to not use these products.

- Please reduce or stop your alcohol consumption prior to surgery.

- Excellent nutritional and hydration status before and after surgery is important for good health and progress. Good nutrition is a balance of calories, protein, fiber, and iron. Each of these is very important. In particular, protein is important because it helps to build muscles, repair tissues, fight infection and aids healing.

- Unless you are told otherwise, continue to take medications already prescribed by your physician, except for the following:
  
  o Fish Oils should be discontinued 2 weeks prior to surgery.
  
  o Anti-inflammatory medications (Advil, Ibuprofen, Motrin, Feldene, Naprosyn or Aleve) should be discontinued 7 days prior to surgery.
  
  o Consult with your physician regarding Aspirin products. Patients with cardiac stents should continue to take their Aspirin (81mg).
  
  o Your physician or cardiologist should also discuss plans to stop any blood thinners you take regularly (Plavix, Coumadin, Xarelto, etc.) They should provide a specific stop date and any other special instructions (e.g. need for blood thinning injections once pills have stopped).

- Constipation is sometimes a problem following surgery for a variety of reasons. Increasing fiber and fluid intake will help to eliminate this problem. It is recommended that you purchase stool softeners and/or laxatives prior to surgery so that they are on hand when you get home from the hospital. Do not arrive to the hospital for your surgery constipated.

- Iron helps carry oxygen to blood cells, so it is important to increase iron intake prior to surgery. Oftentimes your physician will prescribe an iron supplement and/or advise eating iron rich foods for six weeks following surgery.
• You may wish to review and plan your post-hospital care with your Spine Patient Navigator (707-523-BONE) prior to admission. If you have specific needs while hospitalized or once discharged, please reach out to your Patient Navigator. We are here to help facilitate your options and assist you in making decisions in a more informed way.

• Arrange your transport to and from the hospital. **Patients are discharged from the hospital at 10:30am.**

• Before your admission, please complete the Advance Health Care Directive form authorizing another person, designated by you, to make decisions with your physician about your care, should this become necessary.

• Within a couple of days before surgery, the E.A.S.E. (Early Admission Surgical Evaluation) nurse will call and talk to you about your surgery date and time, review your lab work, allergies, medications, and follow-up with any questions that you may have. The E.A.S.E nurse will also inform you of when and where you will arrive at the hospital the morning of your surgery. You will be instructed on when to stop eating and drinking and what medications you should take. Any medications that you are instructed to take the morning of surgery, take with a couple sips of water only.

• You will be provided antimicrobial cleansing scrubs called Chlorhexidine Gluconate cloths (CHG) at the Spine Pre-operative Class. If you are not able to attend the class, please contact your Patient Navigator, and a set of CHG cloths will be mailed to you. Use the first set of cloths **the night before surgery.** The cleansing process will be repeated in the pre-operative area of the hospital on the day of your surgery.

• Durable Medical Equipment (DME): Please obtain all necessary equipment prior to your surgery (i.e. walker, crutches, cane, commode, or elevated toilet seat) and adaptive equipment (i.e. reacher, sock-aid, long-handled sponge, or long-handled shoe horn). Your surgeon’s office can assist you with obtaining this equipment. Insurance coverage for reimbursement of DME can vary, and out of pocket expenses are often incurred. Adaptive
equipment can be purchased at the Spine Pre-Operative Class, the hospital’s gift shop, and/or your local medical equipment supply store. It is not necessary to bring this equipment with you to the hospital.

**PREPARING YOUR HOME**

You will find it helpful to prepare your home prior to surgery so that it is safe when you return. The following information is designed to assist you with this.

- Remove throw rugs from the floor. These can cause you to trip and fall.

- Remove or relocate electrical cords which are in the walking paths.

- Wear shoes with non-skid soles.

- Put frequently used items where they can be reached easily. You will want to avoiding bending, lifting, and twisting while you recover from your surgery.

- Use a long-handled reacher to pick things up off the floor.

- Before surgery, prepare and freeze meals that can be easily heated.

- Check stair railings to make sure they are secure.

- Consider first floor options (temporary). If your bathroom isn’t on the main floor, do you have access to a portable commode? If you don’t have a bedroom on the first floor, do you need to rent a hospital bed?

- Pick out a chair to sit in for when you come home. A good chair is one that is firm, has arms, and has a seat height that is at least 18 inches from the floor but that still allows your feet to be flat on the floor.
Walkways

- Remove throw rugs whenever possible to avoid tripping.
- If you can’t remove throw rugs, use rugs with non-skid backing to avoid slipping.
- Make the transition between types of flooring (such as wood floor to carpeted floor) as even and secure as possible to prevent tripping.
- Avoid waxing wood or linoleum floors to prevent slipping.

Stairs

- The rise between steps should ideally be no more than five inches. If necessary, ramps can be rented on a short-term basis.
- Make sure handrails are well anchored (or install handrails) on both sides of the stairway.
- Non-skid treads can be placed on wooden stairs to prevent slipping.
- Make sure carpeting on stairs is secure.

Furniture Layout

- Arrange furniture so that pathways are not cluttered.
- Chairs and tables need to be sturdy and stable enough to support a person leaning on them.
- Chairs with arm rests and high backs provide more support when sitting and more leverage when getting in and out of a chair.

Lighting

- Light switches should be immediately accessible upon entering a room.
- Good lighting for hallways, stairs, and bathrooms is especially important. Keep a nightlight on in your bathroom.
- Be sure that your lighting is sufficient to prevent falls and assure that you can read medication labels and instructions easily.
Toilet

- Use an elevated toilet seat or commode to ease getting on and off the toilet (if needed, please purchase your elevated toilet seat or commode prior to surgery).

- Install grab bars around the toilet if you need more support getting on and off the toilet.

Bathtub

- Install skid-resistant strips or a rubber mat.

- Use a bath seat if it is difficult to stand during a shower, or too difficult to get up out of the tub.

- Install grab bars on the side of the tub or shower for balance.

Doors

- Avoid locking bathroom doors, or only use locks that can opened from both sides, when you may need assistance in the bathroom.

Kitchen Safety

- Store frequently used items at waist level. Use a reacher or grabber to get items that are not at waist level.

- Before surgery, consider preparing and freezing meals that can be easily heated.
YOUR SURGERY AND HOSPITAL STAY

DAY OF SURGERY AND ADMISSION TO THE HOSPITAL

• At Home: Take your medications as previously instructed by the E.A.S.E. nurse, with a couple sips of water only.

• Arrival Time: 2 hours before surgery, or the time told to you by the E.A.S.E. nurse.

• What to Wear: Wear simple, loose and comfortable clothing. Do not wear any jewelry. Also leave money and other valuable possessions at home. We cannot be responsible for lost possessions.

• What to Bring: Loose fitted clothing, bathrobe, and toiletries (toothbrush/paste, hairbrush, deodorant, etc.). Your occupational therapist will be giving you tips on how to dress yourself while maintaining spinal precautions, so it is recommended that you bring pajama bottoms or sweatpants to practice with, as well as socks and shoes. If you wear a hearing aid, dentures, glasses, or contact lenses, please bring them (as well as their containers) with you. If you have sleep apnea, please bring your CPAP machine and distilled water. Do not bring any of your home medications EXCEPT for eye drops and inhalers.

• When you arrive at the hospital: Park in the front parking lot or in the visitor area in the parking garage and proceed to the admitting office (to the left of the main lobby). Sign your name in the admissions sign-in binder and indicate that you are present for surgery. Your support person will assist in checking you in, and may remain with you until you go to surgery.

• Your family may wait in the surgery waiting room, if they wish. After your procedure, the surgeon will contact your family in this waiting area to discuss your surgery and your condition. Family and friends can then wait in the Orthopaedic waiting room until you are brought to your room.
PRE-OPERATIVE AREA

This area is designed to prepare patients before they enter the operating room. An intravenous (IV) infusion of fluid may be started. In this procedure, a tiny plastic tube or "catheter" is placed in your vein (usually in the arm) as a means to administer fluid and medication. Your nurse will complete the admission process.

Your surgical team will take your latest information and perform some additional safety checks and tasks. They will review the surgical consent with you and have you sign the actual consent for surgery paperwork.

Your anesthesiologist will discuss any pertinent medical history, allergies, and any previous experiences that you have had with anesthesia. This is the time when your anesthesiologist will speak to you about the type of anesthesia that you will be receiving. Essentially all spinal patients will receive general anesthesia for their spinal surgery. General anesthesia involves being put to sleep with medications delivered through your intravenous (IV) line. A breathing tube will also be inserted after you have gone to sleep in order to protect your airway during surgery. You will have the opportunity to talk to your anesthesiologist about any questions or concerns that you may have.

Your surgeon will greet you in this pre-operative area and answer any questions that you may have. Your surgeon will confirm your identity, evaluate your surgical site, and then sign the site with a surgical marker. These steps are an important part of the process designed to increase patient safety. Members of the operating room staff will reconfirm that all of the appropriate paperwork and tasks have been performed. They will then escort you on the gurney down the hall and into one of the operating rooms.

OPERATING ROOM

The length of your surgery depends upon what specific type of spinal surgery you are having. Your surgeon will speak with your family in the surgical waiting room upon completion of your procedure.
POST ANESTHESIA CARE UNIT (PACU)

After surgery you will be transferred to the PACU, where you will be closely monitored until you are ready to be transferred to the nursing unit. Here, your vital signs (blood pressure, respirations, and heart rate) will be checked frequently, you will receive pain medication if needed, you may receive oxygen, and your incision and dressings will be checked. You can expect to remain in the PACU for 60 to 90 minutes. When the anesthesiologist determines that you are sufficiently recovered, you will be transferred to the nursing unit. Family is not allowed into the PACU; however, they can gather your belongings and take them to the nursing unit where they will meet you in your room.

TRANSFER TO THE NURSING UNIT

Once you arrive to your room on the nursing unit, your vital signs will continue to be monitored, an assessment will be completed by your nurse, and you will begin post-surgery exercises. These post-surgery exercises include:

1) Deep Breathing/Incentive Spirometry - This exercise involves taking 10 slow, deep breaths in a row, and should be performed every hour while you are awake. It is important to perform deep breathing exercises after surgery to rid your airway and lung passages of mucus.
2) Foot Pumping - This exercise involves moving your feet up and down vertically 10 times in a row every 30 minutes while you are awake. Early movement can help prevent blood clots from forming.

**Diet**

After surgery, you will be given ice chips to satisfy your thirst. Your physician will advance your diet from liquids to solid foods as you are able to tolerate them. You will be provided a daily menu to fill out. We do have many diets that can be ordered (diabetic, low salt, gluten free, cardiac, and vegetarian/vegan). If you need assistance with completing the menu selections, or have any specific dietary needs, please let us know.

**Pain Management**

After surgery, you will experience varying degrees of pain and discomfort. This is normal and will improve each day. Keeping your pain under control is very important to your recovery. Effective pain management will help you to eat better, sleep better and get around more easily. We ask that you pay close attention to your level of pain and use the following pain scale to communicate with your nurse:

0  1  2  3  4  5  6  7  8  9  10
No Pain         Moderate Pain       Worst Possible Pain

Your care team will help you with your pain management. However, pain management begins with you! Please do not hesitate to request pain medication as you need it. Do your best to describe the pain and pinpoint its location and intensity. Your surgeon will select the most
appropriate pain medication for you. It is best to “stay ahead” of the pain, taking your pain medication at consistent intervals throughout the day and night. Pain management is a multifaceted approach. The methods of pain management following spinal surgery may include:

- Patient Controlled Anesthesia (PCA) - PCA allows you to push a button to receive a dose of pain medication. The medication is sent through an IV line. The advantage of the PCA is that it allows for a more constant level of pain relief. It is important to remember that only you, and not family or friends, push the button. This ensures that you are only receiving pain medication when you really need it. PCA pumps have several safety features designed to prevent over medication. If you have a PCA following your surgery, you will be taken off of it as soon as you are able to eat and tolerate taking medicine by mouth.

- Oral Medications - The goal is to transition you from IV pain medications to oral pain medications as soon as possible. Oral pain medications can be very effective for pain management. Your surgeon will provide you with a triplicate prescription for narcotic pain medication upon your discharge from the hospital. All triplicate prescriptions must be taken to the pharmacy for filling and may not be ordered over the phone.

- Cold Therapy - The application of cold has been shown to reduce swelling and pain associated with inflammation around the surgical site. Apply an ice pack for 15-20 minute intervals, making sure to wait at least one hour in between icing sessions. Be sure to place a protective barrier (i.e. thin towel) between your skin and the ice pack, and perform periodic skin checks.

- Repositioning and Ambulation - Sometimes turning and repositioning alone can relieve pain. Additionally, the act of getting out of bed and walking can be a source of pain relief. Let your care team know what makes you more comfortable.
HOME MEDICATIONS

Any medications that you have been taking prior to coming to the hospital may be resumed with an order from your physician. It is important that you provide the hospital with a comprehensive list of your home medications for your surgeon to review when ordering postoperative medications. You will not be allowed to take your own home medications during your stay in the hospital, as only your nurse will be able to administer hospital medications as ordered by the physician.

REHABILITATION IN THE HOSPITAL—PHYSICAL THERAPY

Per your surgeon’s request, you may be seen by a physical therapist on the day of surgery, generally a few hours after you arrive on the nursing unit. For the remainder of your hospital stay, you should expect to have one to two physical therapy sessions per day. Your physical therapist will instruct you in how to perform exercises geared at promoting strength, flexibility, and enhancing the healing process, while at the same time protecting the surgical repair. They will also educate you on spinal precautions, safety with transfers, and gait training. You will learn during your therapy that walking is the best form of exercise that you can do while you rehabilitate. Your support team or “coach” is welcome to be present during the physical therapy sessions to learn how to assist you at home. Ultimately, your motivation and participation with physical therapy is a vital element in the speed and success of your long-term rehabilitation.

EXERCISE PROGRAM

Your physical therapist will instruct you on your post-operative home exercise program. Your exercise program will be specific to you and will depend upon:

• Your particular surgery
• Your surgeon’s protocol
• Your own limitations and restrictions

In order to tolerate your exercise program and gain the greatest benefit from your therapy sessions, it is important that your pain be adequately controlled. Therefore, it is recommended that you plan on taking your pain medication 30-45 minutes before doing your exercises. Refer to the exercises presented on pages 27-28 to continue performing post-operatively.

**Exercises:**

Quad Sets - You can perform quad sets while in bed. It is recommended that you do 10 repetitions every hour. The purpose of this exercise is to help strengthen the front of the thigh muscle (quadriceps). To perform a quad set, you will lie on your back and slowly tighten your thigh muscle by pushing the back of your knee down into the bed. Do not let your heel come off of the bed. Keep your thigh muscle tightened, or contracted, for a count of 5 seconds before relaxing.

![Quad Sets Diagram]

Foot Pumping - This exercise involves moving your feet up and down vertically 10 times in a row every 30 minutes while you are awake. Early movement can help prevent blood clots from forming.

![Foot Pumping Diagram]
Gluteal Sets (buttock squeezes) - This exercise strengthens the gluteus maximus, which is a very important muscle for walking. This is done by squeezing your buttocks together and holding the contraction for a count of 5 seconds.

Heel Slides – This exercise is done by sliding your heel, one leg at a time, up under your buttock until your ankle is beside your knee.

Your physical therapist may incorporate this next exercise into your program based on how you are progressing:

Standing Calf Raises – While holding onto a supportive surface, rise up onto the toes lifting both heels off of the ground. Hold for 5 seconds. Slowly return to the starting position. Repeat 10 times.
TRANSFER TRAINING:

The purpose of transfer training is to teach you how to get in and out of bed, chairs, and commodes safely. Your physical therapist will instruct you on transfer training and will teach your family or “coach” how to assist. You will use a technique called log-rolling to both get into and out of bed.

Getting into Bed

- Scoot back onto the bed as far as you can.
- Lower yourself onto your side, using your arms to help guide your body. At the same time, bend your knees and pull your legs onto the bed.
- Keep your knees bent and roll onto your back, keeping your shoulders and hips together as a unit as you roll.
**Getting out of Bed**

- While lying on your back, bend your knees.
- Roll onto your side.
- Keep your shoulders and hips together as a unit as you roll.
- Place your bottom hand underneath your shoulder and place your top hand in front of you at chest level.
- Slowly raise your body as you lower your legs toward the floor.

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**Getting into a Chair, Wheelchair or Commode**

- When sitting down, slowly walk back towards the chair or commode until you feel the back of your legs against it.
- Reach back for the arm rests and slowly lower yourself into the chair (move slowly to avoid “plopping” onto the chair).
- Do not hold onto the walker while you are slowly lowering yourself down.
Getting out of a Chair, Wheelchair, or Commode

- When attempting to stand from a sitting position, scoot your hips forward to the edge of the bed or chair.
- Using your arms, push down on the armrest of the chair to push yourself up.
- Do not pull yourself up with the walker; this may cause you to fall.
- Once you are standing, reach for the handles of the walker and take a few moments to get your balance before taking a step.

GAIT TRAINING

Your physical therapist will assist you out of bed and onto your feet, possibly with the use of a walker or cane. The rehab department has walkers and canes for patients to use while in the hospital. If you have a personal walker or cane that you would like to have sized appropriately, have a family member bring it in on the day of discharge and your physical therapist will do so. Your physical therapist will also instruct you on stair climbing (if necessary).

Walking on Level Terrain

- Pick up or roll the walker and place it a comfortable distance in front of you with all four legs on the floor. This is usually at arm’s length ahead of you.
• Do not take such big steps that you are too close to the walker. There should be a space between you and the walker at all times. If you are too close to the walker, it may cause you to tip and fall backwards.
• Hold your head up and look straight ahead. It is tempting to watch your feet, but this is more tiring, and you may run into something.

Stair Negotiating/Climbing
• You can be instructed on negotiating stairs using the handrails, walker, crutches, or cane.

REHABILITATION IN THE HOSPITAL—OCCUPATIONAL THERAPY

You will be seen by an occupational therapist after your surgery. Your occupational therapist will educate you on safety in the home, and instruct you in activities of daily living (bathing, dressing, etc.) Your support team or “coach” is welcome to be present during the occupational therapy sessions to learn how to assist you at home.
**SPINAL PRECAUTION GUIDELINES**

Spinal precautions should be maintained during your recovery period, which is approximately 6 weeks. Follow these precautions until your surgeon tells you otherwise.

**Do's**

- ✓ Do listen to your body when performing activities. Pace yourself by gradually increasing your activity level. Listen to your body and rest as needed during the day.

- ✓ Do walk on level surfaces, and progress the distance and frequency walked as tolerated. Walking is the #1 exercise following any spinal surgery.

- ✓ Do wear your brace if prescribed by your surgeon.

- ✓ Do sit in a sturdy chair with a straight back and arms to help you maintain good posture.

- ✓ Do go up and down steps, unless your surgeon tells you otherwise. Go slowly, and hold onto the hand rails.

**Don'ts**

- ⊗ Do not lift heavy objects. Follow the weight restriction limit told to you by your surgeon.

- ⊗ Do not reach, stoop, or bend forward at the waist or from side to side.

- ⊗ Do not twist your spine when turning; turn your whole body.

- ⊗ Do not spend a prolonged time in any one position during the day. Change positions frequently to avoid both discomfort and back strain.

- ⊗ Do not sit in low or soft chairs. A good rule to remember when sitting is “always sit with your hips higher than your knees.” This will reduce the amount of stress on your back as you stand up.
DISCHARGING FROM THE HOSPITAL

The majority of patients who have undergone spinal surgery go directly home after a 1 to 3 day hospital stay, sometimes with either in-home or outpatient physical therapy. Some patients who have undergone certain spinal surgeries may not even spend the night in the hospital. A daily discharge class is instructed by the Spine Patient Navigator. The class is intended for your spouse/family members/friends in order to educate them on how to best care for you at home. The class is held Monday-Friday, 10:00 - 10:30AM in the Orthopaedic Unit conference room.

HOME CARE REHABILITATION

Your surgeon may prescribe home care rehabilitation after you are discharged from the hospital. Most patients do not require this type of rehabilitation. For the patients who are not prescribed home care rehabilitation, it is very important to continue to perform the exercises that you were taught in the hospital, as they will help you to achieve the best outcome following your spinal surgery. Gentle exercise is important because it improves circulation, promotes healing, and decreases pain.

- Walking – this is main exercise after spine surgery. It is recommended that you avoid hills, ramps, and uneven surfaces.

- Foot Pumping – continue these 10 times several times a day for six weeks or until your doctor tells you to stop.

- Breathing exercises with your incentive spirometer – continue these 10 times several times a day until your doctor tells you to stop.

OUTPATIENT PHYSICAL THERAPY

Often times, patients will not need homecare rehabilitation, and may instead go home and begin outpatient physical therapy if their surgeon deems it appropriate. If your surgeon recommends outpatient physical therapy for you, you will typically be prescribed 2-3 sessions per week. Your surgeon’s office will assist you with selecting a therapy clinic and making your first appointment.
**INCISION CARE**

- Keep surgical area clean and dry at all times. Do not put tight clothing over it.

- If you still have a dressing over your incision upon discharge, keep it in place, but change it if it gets wet, or as directed by your surgeon.

- If your surgeon chose to close your incision with sutures or staples, they will be removed during your first post-operative visit with your surgeon, 10-14 days after the surgery.

- Leave steri-strips in place (they will eventually fall off on their own).

- Showering: Follow the instructions you receive upon discharge to see if there are any special instructions regarding showering.

- Do not take tub baths, soak in a hot tub or swimming pool, or use a sauna for 4 to 6 weeks after your surgery. Your surgeon wants your incision to be completely healed before you submerge it in water, so consult with him or her first.

- Do not apply creams, lotions, ointments, or powders to incision.

**BRACE WEAR**

Your surgeon may require you to wear a brace after surgery. During your hospital stay, you will be shown how to apply and take off the brace, as well as how to care for the brace and your skin. There are some cases in which a brace is not needed.

**MEDICATIONS**

Your surgeon may give you some prescriptions when you leave the hospital. These may include narcotics, which cannot be called into the pharmacy. A triplicate prescription needs to be brought into the pharmacy to be filled.
• Narcotics (pain medication) - It is important to take your prescription pain medication as directed by your surgeon. You may find that in the first few days following your surgery, you will need to take your pain medication at the prescribed intervals (for example, every 4 hours). However, once you notice a decrease in your pain, you should begin to take your pain medication at less frequent intervals. The goal is to taper you off of the pain medication as quickly as your physical, mental and emotional status allows. Remember, if you are taking pain medication, you should avoid alcoholic beverages. You should also avoid taking medication on an empty stomach - have something to eat first. In the event that the pain medication does not work, or if you begin to experience unpleasant side effects (nausea/vomiting, constipation), contact your surgeon’s office.

• Home medications: Resume your home medications as instructed by your physician.

**MANAGING CONSTIPATION**

Constipation is a common issue that must be addressed following any surgery. This is due to the combined effect of taking narcotics (the most common side effect of narcotics is constipation), along with decreased physical activity following spinal surgery. Follow these guidelines to prevent constipation:

• Increase your fluid intake. Set a goal of drinking 8 glasses of fluid daily.

• Increase your fiber intake. Choose whole grain breads and cereals, fresh fruits, vegetables, and beans.

• Continue to take stool softeners twice daily. Stop the stool softener if you start to experience loose or watery stools. If you continue to have symptoms of constipation, you can take Milk of Magnesia, which is a mild oral laxative, or try Magnesium Citrate, which is a much stronger oral laxative. Dulcolax suppositories are also an option. All of these medications are available over-the-counter at a pharmacy.
WHEN TO CALL OR SEE YOUR DOCTOR

Contact your surgeon sooner if you experience any of the following symptoms:

• Fever over 101.5° F. Lower temperatures are not unusual and usually do not indicate problems.

• Drainage from your incision. A small amount of yellowish or pinkish drainage is normal. Contact your surgeon if you have a large amount of drainage that has saturated through your bandage and/or clothing, if the drainage is bloody or yellowish/cloudy, or has an odor.

• Redness, swelling or warmth around your incision.

• Increased swelling in thigh, calf or ankle that does not go down with elevation.

• Increased pain/tenderness in the calf.

• Chest pain and/or problems with breathing - call “911” or go to the nearest hospital ER.

YOUR REPAIRED SPINE IS DIFFERENT...

Recovery from surgery takes time. You will likely feel tired and fatigued for several weeks and this is a normal response. It is also not uncommon to have a poor appetite. It is important to plan periods of rest throughout the day, in between continuing your physical therapy program, taking your medications and following your surgeon’s instructions.

If you live alone, you may want to make arrangements for someone to help during your initial recovery for 1-2 weeks after surgery.
Some helpful hints:

- Organize your daily routine so things are easily accessible, like cookware.
- Your surgeon will suggest how much time you should take off of work.
- You will need clearance from your surgeon before you can resume driving.
- Your surgeon will tell you when you are able to resume physical activities such as golf, tennis, and swimming.

Hard work and a positive attitude will help your recovery from surgery be a successful one!
PROVIDING FEEDBACK...

On behalf of Santa Rosa Memorial Hospital, your surgeon, and care team, we would like to thank you for choosing to have your surgery at the Center for Bone and Joint Health. We hope that you find this educational booklet helpful during your journey to recovery. If, at any time, you have questions regarding any step of this process, please feel free to reach out to your Spine Patient Navigator at 707-523-BONE. Feedback from our patients has been a critical component in building our Center for Bone and Joint Health. We listen, respond and seek to constantly improve so that we can achieve a positive experience and excellent outcomes. We look forward to hearing your feedback in a variety of means...

- Patient satisfaction phone survey conducted by Professional Research Consultants (PRC).
- Phone consultation with the Spine Patient Navigator, 707-523-BONE.
- Written correspondence to Santa Rosa Memorial Hospital’s President, Todd Salnas.

Todd Salnas, President
Santa Rosa Memorial Hospital
1165 Montgomery Drive
Santa Rosa, CA 95405

-OR-

Todd.Salnas@stjoe.org

Thank you!
ADAPTIVE EQUIPMENT SUPPLIERS

Apria Healthcare
3636 North Laughlin Road, #190
Santa Rosa, CA 95403
(707) 543-0979
Fort Bragg (707) 961-1770
Ukiah (707) 468-9242
Lakeport (707) 994-1236

Pacific Medical
Rachael Rodriguez, Rehab Consultant
(707) 592-8192 cell
(707) 546-3045 fax

R A Medical Company
407 East Perkins Street
Ukiah, CA 95482
(707) 463-0160

Redwood Empire Medical Supply
6620 Redwood Drive
Rohnert Park, CA 94928
(707) 585-6800

Ron Andrews Medical Company
117 Carlos Drive
San Rafael, CA 94903
(707) 575-1840

Sonoma Surgical
4975 Sonoma Highway 12
Santa Rosa, CA 95409
(707) 539-5151

North Coast Medical
Functional Solutions Catalog
(800) 235-7054 (www.ncmordenical.com)
SPINAL SURGERY WEBSITE REFERENCES

American Academy of Orthopaedic Surgeons  
www.orthoinfo.aaos.org

American Association of Neurological Surgeons  
www.aans.org

The Arthritis Foundation  
www.arthritis.org

Blood Guys: Blood Autotransfusion Process  
www.bloodguys.com

Medtronic  
www.medtronic.com

North American Spine Society  
www.knowyourback.org

Nuvasive  
www.nuvasive.com
Serving All of Sonoma County
Spine Services Are Provided at the Following Locations:

Santa Rosa Memorial Hospital
1165 Montgomery Drive
Santa Rosa, CA 95405
707-523-BONE (2663)

Santa Rosa Memorial Hospital Outpatient Rehabilitation – Montgomery Campus
1170 Montgomery Drive
Santa Rosa, CA 95405
707-542-4704

St. Joseph Orthopedic & Sports Medicine Clinic
1255 North Dutton Ave., Suite B
Santa Rosa, CA 95401
707-547-4618

West Sonoma County Hand and Physical Therapy Clinic
968 Gravenstein Hwy South
Sebastopol, CA 95472
(707) 824-8018