A PATIENT'S GUIDE TO

Spinal Surgery

Shore Memorial Hospital is proud to be accredited by The Joint Commission for spine surgery

SHORE MEMORIAL
HOSPITAL

Embracing Excellence

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The Neurosurgical Spine Program at Shore Memorial Hospital

We follow a patient-focused clinical pathway, which accounts for our high levels of patient satisfaction. When you schedule your surgery, you will be invited to attend one of our spinal surgery classes.

The instructors will:
1. Prepare you for your hospital stay
2. Tell you what to expect once you are in the hospital
3. Talk to you about how to manage your pain

Your physician's office will schedule your pre-admission testing (PAT) date and time. You will be invited to attend the spinal surgery class during your PAT. Please call (609) 653-3512 to confirm class dates, times and locations.

Patients, spouses and primary caregivers are encouraged to attend these classes. Please bring your Patient's Guide to Spinal Surgery binder with you.

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General Information

Welcome to the Shore Memorial Neuroscience Center

Our team of physicians, nurses, therapists and support staff are dedicated to providing you with excellent care and a foundation for a successful recovery.

Most spine surgery patients recover quickly. Some patients may be able to walk or even go home the day of surgery. Generally, driving may be permitted after several weeks, but will depend on your physician's advice. Some patients may return to sedentary jobs and activities in three to four weeks, and to more vigorous activities in six to 12 weeks. Patients undergoing more complicated operations such as spinal fusion, especially in the lower back, will generally have a hospital stay of two to four days and many require six to 12 months to return to full activities.

Our goal is to involve patients in their treatment through each step of their recovery. This Patient's Guide provides the information needed for a safe and successful surgical outcome.

Using the Patient's Guide

Preparation, education, continuity of care and a pre-planned discharge are essential for optimum results in spine surgery. The Patient's Guide is an educational tool for patients, physicians, physical therapists and nurses. It is designed to help you understand:

- What to expect every step of the way
- What you need to do
- How to care for yourself after spine surgery

Remember this is just a guide. Your physician, nurse or therapist may add to or change some of the recommendations. Always use their recommendations first and ask questions if you are unsure of any information. Keep this guide as a handy reference for at least the first year after surgery.

Bring this guide with you to the hospital, sub-acute rehabilitation, outpatient therapy and all physician visits.

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Answers to Frequently Asked Questions

Lumbar Surgery With a Posterior Fusion Questions & Answers

Q. What is wrong with my back?

A. You have one or more damaged discs and/or areas of arthritis in your back. This produces pain, and may produce abnormal motion, or malalignment of your spine. Discs are rubbery shock absorbers between the vertebrae (bone), and are close to nerves which travel down to the legs. If the disc is damaged, part of it may bulge or even burst free into the spinal canal, putting pressure on the nerve and causing leg pain, numbness or weakness.

Q. What is required to fix it?

A. Your condition requires both a nerve decompression (freeing the nerves from pressure) and a spinal fusion. In your case, both the nerve decompression and the fusion will be done from (behind), posteriorly.

Q. What is spinal fusion?

A. A fusion is a bony bridge between at least two other bones, in this case two vertebrae in your spine. The vertebrae are the blocks of bone which make up the bony part of the spine, like a child's building blocks stacked on top of each other to make a tower. Normally each vertebra moves with certain limits in relationship to its neighbors. In spinal disease, the movement may become excessive and painful, or the vertebrae may become unstable and move out of alignment, putting pressure on the spinal nerves. In cases like this, surgeons try to build bony bridges between the vertebrae using pieces of bone which we call bone graft. The bone graft may be obtained either from the patient himself, usually from the pelvis, or from a bone bank. There are advantages and disadvantages to each source. The bone graft is either laid next to the vertebrae or actually placed between the vertebral bodies, first removing the rubbery disc which lies between the vertebrae. In both cases, the bone graft has to heal and unite to the adjacent bones before the fusion becomes solid. Spine surgeons often use plates or rods to protect the bone graft and stabilize the spine while the fusion heals, attaching them to the spine using either screws or hooks.

Q. How is the operation performed?

A. A four to five inch incision is made in the middle of the lower back. Muscles supporting the spine are pushed aside temporarily. The spinal nerve is exposed, moved aside and protected, and the ruptured disc or bone spur is removed to "free-up" the nerve. The fusion is then performed as described in the previous question. The wound is then closed, and dressings are applied. The operation typically takes a minimum of three hours and may be longer, depending on the complexity of the problem.

Q. Who is a candidate for posterior lumbar fusion and when is it necessary?

A. When back and nerve problems cannot be corrected in a more simple procedure and the pain persists at an unacceptable level, it is necessary to do a fusion.

Q. Who performs the surgery?

A. Both orthopedists and neurosurgeons are trained in spinal surgery and both specialists may perform this surgery, either individually or as a team. It is important that your surgeon specialize in this type of procedure.

Q. Could I be paralyzed?

A. The chances of neurologic injury with spine surgery are very low, and the possibility of catastrophic injury such as paralysis, impotence or loss of bowel or bladder control, are highly unlikely. Injury to the nerve root with isolated numbness and/or weakness in the legs is possible.

Q. Are there other risks involved?

A. There are general risks with any type of surgery. These include, but are not limited to, the possibility of wound infection, uncontrollable bleeding, collection of blood clots in the wound or in the veins of the legs, abdominal problems, pulmonary embolism (a blood clot in the lung) or heart attack. The chances of any of these happening, particularly to a healthy patient, are low. Rarely, death may occur during or after any surgical procedure.

Q. Will my back be normal after surgery?

A. No. Even if you have excellent relief of pain, the spine is not completely normal after a fusion. Stiffening one segment of the spine with the fusion may put additional strain on other areas. Other discs may have started to wear out and even if they aren't causing you pain now, they may do so in the future. For these reasons, you may have more back pain than a normal person would have. However, most people can resume almost all of their normal activities after their fusion has healed.

Q. How long will I be in the hospital?

A. The hospital stay is generally two to four days.

Q. What shouldn't I do after surgery?

A. Your surgeon will give you specific instructions. Generally, you should avoid lifting heavy objects, especially if the lifts are awkward. Twisting and repetitive bending are also stressful to the back. Even if screws, plates or rods are used, 6 to 12 months are required for the fusion to heal completely and your spine must be protected during this time. Your surgeon will usually prescribe a brace for you to wear for part of this time. If you are a smoker, you definitely should not smoke until your fusion is completely solid, since smoking interferes with bone healing.

Q. What can I do after surgery?

A. You may get up and move around as soon as you feel like it, and may drive short distances when you feel able. You should avoid bending, lifting and twisting until advised otherwise by your surgeon.

Q. When can I return to work?

A. This should be discussed individually with your surgeon. Generally, patients may return to sedentary jobs whenever they are comfortable, which is usually within two to four weeks. If you drive more than 30 minutes to get to work, your surgeon may want you to wait longer. It takes much longer to get back to work requiring strenuous physical activity after this operation because of the risk of disrupting healing of the bone fusion.

Q. Could this happen to me again?

A. Unfortunately, yes. A fusion may add stress to the levels above and below the fusion. If the fusion doesn't heal solidly, even with plates and screws, your symptoms may recur and additional surgery may be needed.

Q. Should I avoid physical activity?

A. No. Exercise is good for you. Walking outside or using an exercise bike are examples of the types of exercise appropriate for spine patients.

Cervical Fusion Questions & Answers

Q. What is wrong with my neck?

A. You have one or more damaged discs and/or areas of arthritis in your neck. This arthritis/disc problem may be causing pressure on your spinal cord resulting in neck/arm pain, numbness, tingling and weakness.

Q. What is required to fix it?

A. Your condition requires removal of disc and/or bones causing pressure on your spinal cord; fusion with either allograft/autograft with possible instrumentation. Bone/disc may be removed anteriorly, posteriorly or both.

Q. What is cervical fusion?

A. A fusion is a bony bridge between at least two other bones, in this case two vertebrae in your spine. The vertebrae are the blocks of bone which make up the bony part of the spine, like a child's building blocks stacked on top of each other to make a tower. Normally each vertebra moves with certain limits in relationship to its neighbors. In spinal disease, the movement may become excessive and painful, or the vertebrae may become unstable and move out of alignment, putting pressure on the spinal nerves. In cases like this, surgeons try to build bony bridges between the vertebrae using pieces of bone which we call bone graft. The bone graft may be obtained either from the patient himself, usually from the pelvis or from a bone bank. There are advantages and disadvantages to each source. The bone graft is either laid next to the vertebrae or actually placed between the vertebral bodies, first removing the rubbery disc which lies between the vertebrae. In both cases, the bone graft has to heal and unite to the adjacent bones before the fusion becomes solid. Spine surgeons often use either plates or rods to protect the bone graft and stabilize the spine while the fusion heals, attaching them to the spine using screws.

Q. How is the operation performed?

A. ANTERIOR: An incision is made in the front of the neck. The trachea, esophagus and blood vessels are mobilized. The front of the spine is exposed and the disc or bone is removed and replaced with either allograft from the bone bank or autograft from the iliac crest (hip area) or titanium cage packed with autograft. A plate and screws are placed over the front of the spine to hold the construction together. The wound is then closed and dressings are applied.

POSTERIOR: An incision is made in the back of the neck. Bones are removed to decompress the spinal cord. Bone graft may be packed between joints. Plates and screws or wires may be used to augment fusion.

Combination of Anterior and Posterior

Q. Who is a candidate for cervical fusion and when is it necessary?

A. People with cord or nerve compression are candidates for cervical fusion. It is necessary when pain persists and/or neurological deficit is present.

Q. Who performs this surgery?

A. Both orthopedists and neurosurgeons are trained in spinal surgery and both specialists may perform this surgery, either individually or as a team. It is important that your surgeon specialize in this type of procedure.

Q. Can I be paralyzed?

A. With any type of spinal surgery, there is a small chance of paralysis, loss of bowel or bladder function, impotence and permanent weakness.

Q. Are there other risks involved?

A. There are general risks with any type of surgery. These include, but are not limited to the possibility of wound infection, uncontrollable bleeding, spinal fluid leakage, persistent pain, pulmonary embolism, pneumonia, DVT (deep vein thrombosis or blood clot), etc. The chances of any of these happening, particularly to a healthy patient, are low. Rarely, death may occur during or after any surgical procedure.

Q. Will my neck be normal after surgery?

A. No. Even if you have excellent relief of neck pain, the spine is not completely normal after a fusion. Stiffening one segment of the spine with the fusion may put additional strain on other areas. Other discs may have started to wear out and even if they aren't causing you pain now, they may do so in the future. For these reasons, you may have more back pain than a normal person would have. However, most people can resume almost all of their normal activities after their fusion has healed.

Q. How long will I be in the hospital?

A. The hospital stay is generally same day to four days.

Q. What shouldn't I do after surgery?

A. Your surgeon will give you specific instructions. Generally, you should avoid lifting heavy objects, especially if the lifts are awkward. Twisting and repetitive bending are also stressful to the back. Even if screws and plates are used, 6 to 12 months are required for the fusion to heal completely and your spine must be protected during this time. Your surgeon may prescribe a neck brace for you to wear for part of this time. If you are a smoker, you definitely should not smoke until your fusion is completely solid, since smoking interferes with bone healing.

Q. What can I do after surgery?

A. Walking is the best exercise. You may get up and move around as soon as you feel like it, and may ride in a car. Your surgeon will advise when you are able to drive.

Q. When can I return to work?

A. This should be discussed individually with your surgeon. Generally, patients may return to sedentary jobs whenever they are comfortable, which is usually within 2 to 4 weeks. If you drive more than 30 minutes to get to work, your surgeon may want you to wait longer. It takes much longer to get back to work requiring strenuous physical activity after this operation because of the risk of disrupting healing of the bone fusion.

Q. Could this happen to me again?

A. Unfortunately, yes. A fusion may add stress to the levels above and below the fusion. If the fusion doesn't heal solidly, even with plates and screws, your symptoms may recur and additional surgery may be needed.

Q. Should I avoid physical activity?

A. No. Exercise is good for you. Walking outside or using an exercise bike are examples of the types of exercise appropriate for spine patients.

Pre-Operative Checklist

What to Do 6 Weeks Before Surgery...

Contact Your Insurance Company

Before surgery, you will need to contact your insurance company. You will need to find out if pre-certification, second opinion or a referral form is required. It is very important to verify this information, as failure to clarify these questions may result in a reduction of benefits or delay of surgery. This is especially important if your spine problem is due to an injury at work. Check with your surgeon's office. They may do this for you.

If you are a member of a Health Maintenance Organization (HMO), you will go through the same registration procedure. However, you will need to call your HMO once your procedure has been scheduled to arrange for pre-admission lab studies that must be completed.

Pre-Admission Screening

After your surgery has been scheduled, a representative from Pre-Admission Testing will call you to gather your pre-registration information by telephone. A nurse will also ask you questions about your health history. You will need to have the following information ready when you are contacted:

- Patient's full legal name and address, including county
- Home telephone number
- Religion
- Marital status
- Social Security number
- Name of insurance holder, his or her address, telephone number, and his or her work address and work telephone number
- Name of insurance company, mailing address, policy and group number
- Patient's employer, address, telephone number and occupation
- Name, address and telephone number of nearest relative
- Name, address and telephone number of someone to notify in case of emergency. This can be the same as the nearest relative.

Obtain Medical Clearance and Pre-Anesthesia Instructions

When you were scheduled for surgery you should have received a medical clearance letter from your surgeon. This will tell you whether you need to see your primary care physician and/or a specialist. Please follow the instructions in the letter. A pre-admission nurse will check with the anesthesiologist regarding what medications to take the morning of surgery.

Obtain Laboratory Tests

When you were scheduled for surgery you should have received a laboratory-testing letter from your surgeon. Follow the instructions in this letter. Your physician may order additional testing.

Start Pre-Operative Exercises

Many patients with spinal problems become sedentary and deconditioned, and thus become weaker. This interferes with their recovery. It is important that you begin an exercise program before surgery, unless instructed otherwise by your surgeon. Practice putting on your brace while sitting on the edge of the bed without twisting.

Review Advance Directive for Healthcare

The law requires that everyone over 18 years of age who is being admitted to a medical facility have the opportunity to complete advance directive forms concerning future decisions regarding your medical care. Please review this hospital information. If you have an advance directive, please bring copies to the hospital on the day of surgery.

What to Do 4 Weeks Before Surgery...

Prior to your surgery, you may be instructed by your surgeon to take multivitamins as well as iron.

Read Anesthesia Information (Appendix)

Spinal surgery does require the use of general anesthesia. Please review "Anesthesia and You" (located in appendix).

What to Do 10 Days Before Surgery...

Pre-Operative Visit to Surgeon

You may have an appointment in your surgeon's office 7 to 10 days prior to your surgery. This will serve as a final check-up and a time to ask any questions that you might have. Some patients with acute disc herniations may have a shorter time between the visit and surgery.

Stop Medications That May Increase Bleeding

- 10 days before surgery stop all medications containing aspirin and anti-inflammatory medications such as aspirin, Motrin, Naproxen, etc. These medications may cause increased bleeding.
- If you are on Coumadin, you will need special instructions on stopping the medication.
- Consult your physician regarding your medications.

What to Do the Day Before Surgery...

Find Out Your Arrival Time at the Hospital

You will be asked to come to the hospital at least two hours before the scheduled surgery to give the nursing staff sufficient time to start IVs, assess your condition and medications and answer questions. It is important that you arrive on time to the hospital because sometimes the surgical time is moved up at the last minute and your surgery could start earlier. If you are late, it may create a significant problem with starting your surgery on time. In some cases, lateness could result in moving your surgery to a much later time.

What to Do the Night Before Surgery...

DO NOT Eat or Drink anything after midnight— NOT EVEN WATER— unless otherwise instructed to do so.

Suggestions on What to Bring to the Hospital

- Personal hygiene items (toothbrush, powder, deodorant, razor, etc.)
- Insurance card
- Well-fitted closed heel slippers or tennis shoes
- Loose fitting warm-up suit
- Battery-operated items
- For safety reasons, **DO NOT** bring electrical items
- This Patient's Guide to Spinal Surgery
- Copy of advance directive
- Brace
- X-rays

Special Instructions

You will be instructed by your physician on medications, skin care, etc.

Please **DO NOT** bring valuables such as money and jewelry.

Notes

Hospital Care

What to Do the Day of Surgery...

Parking

Please follow signs for visitor's parking or access our free valet parking.

Directions to Register/Family Waiting Room

Upon entering the main entrance, go to the patient information desk in the front lobby. A volunteer will be available to escort you to the registration/ pre-surgical area. You will be directed to your pre-surgical room. Family may stay with you until you go to surgery, and may then wait in the surgical waiting area on the 3rd floor.

What to Expect the Day of Surgery...

Prior to Surgery

A nurse will perform an assessment, including taking your vital signs. An intravenous catheter (IV) will be inserted into a vein in your arm.

Your anesthesiologist will meet with you for assessment, a discussion about your planned anesthesia and to obtain your consent.

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 you remember before waking up in the Post Anesthesia Care Unit.

Post Anesthesia Care Unit (PACU)

After surgery you will be transferred to the Post Anesthesia Care Unit where nurses will perform on-going 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 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 use the bathroom.

The following equipment may be used in PACU:

- Oxygen may be administered
- A pulse oximeter clip on your finger monitors your oxygen level
- An automatic blood pressure cuff on your arm will periodically take your blood pressure
- Leads on your chest will monitor your heart activity
- Your temperature will be taken
- Elastic stockings and compression boots may be applied to your legs to help prevent blood clots and improve circulation

Pain Medications

To manage the pain after surgery, you will be given medications. Our goal is to control your pain and attain maximum comfort; you will be assessed often by our nursing staff. Some patients are treated with a PCA (patient-controlled analgesia) pump, a device that you use to administer your own pain medication through an IV.

Transfer to the Neuroscience Unit

You will be taken to the Neuroscience Unit on the 4th floor, Hayes Tower once you are completely awake. Your family members may then visit you in your room. The neuroscience nurses will continually reassess your status. Your nurse will assist you to get up and walk as soon as you feel able.

Most patients are able to go home on the day of surgery or the next day. Some patients will need to stay in the hospital for two to four days.

Post-Operative Care — *Caring for Yourself at Home*

When you go home, there are several things you need to know for your safety, your speedy recovery and your comfort.

Control Your Discomfort

- Take your pain medicine at least 30 minutes before activities.
- Gradually wean yourself from prescription medication to Tylenol. You may take two Extra Strength Tylenol in place of your prescription medication up to four times per day.
- Change your position every 45 minutes throughout the day.
- Use ice for pain control. Applying ice to your wound will decrease discomfort, but do not use ice for more than 20 minutes at a time each hour.
- Pain medications can be refilled Monday to Friday between the hours of 9 a.m. and 5 p.m. by calling your surgeon's office. Please anticipate your needs for refills. No refills will be given on weekends, holidays or in the evening.

Body Changes

- Your appetite will be poor. Drink plenty of fluids to keep from getting dehydrated. Your desire for solid food will return.
- You may have difficulty sleeping. This is normal. Don't sleep or nap too much during the day.
- Your energy level will be decreased for the first month.
- Pain medication contains narcotics, which promote constipation. Use stool softeners such as Colace or laxatives such as Milk of Magnesia, if necessary.

Caring For Your Incision

- You may shower (not bathe) after 48 hours.
- Notify your surgeon if there is increased drainage, redness, pain, odor or heat around the incision.
- Take your temperature if you feel warm or sick. Call your surgeon if your temperature exceeds 101.5°F.

Dressing Change Procedure

(May vary with surgeon)

1. Wash hands
2. Open all dressing change materials (ABD pads, 4x4)
3. Remove old dressing
4. Inspect incision for the following:
   - Increased redness
   - Increase in clear drainage
   - Odor
   - Surrounding skin is hot to touch
5. Pick up 4x4 by one corner and lay over incision. Be careful not to touch the inside of the dressing that will lay over the incision.
6. Place the dressing over the incision and tape it in place. If possible, use paper bandage tape. It is less irritating to the skin.
7. If you have a clear plastic bandage (Tegaderm™) over your wound, it is not necessary to change it. If it gets water under it or starts to fall off, call your surgeon's office for further instructions.

Care and Instructions for Your Brace

LSO Body Jacket

This device is a body jacket that is used to stabilize your spine. It may be rigid or semi-rigid and is custom made from a cast and/or series of specific body measurements. The jacket provides stabilizing forces to your spine and back because it fits snugly and conforms to your body contours. The body jacket also serves to eliminate unwanted motions during the healing process. Proper application is very important. This jacket must be worn at all times unless otherwise instructed by your surgeon.

Applying the LSO Body Jacket

- LSO body jackets are made with a front and back shell. Your orthotist will likely mark the shells with "top front" and "top back" to ensure proper application.
- You may sit on the edge of the bed to apply your brace or, while lying down carefully roll to one side. The back shell is properly placed on your back.
- Roll carefully onto your back and into the back shell, lining up your waist with the waist contours of the jacket.
- Place the front shell on your stomach, lining it up properly with the back shell.
- Tighten all Velcro straps securely, beginning at the bottom and working toward the top.
- Carefully roll to your side again, and ease your legs over the side of the bed.
- Using your elbow (on the side of the bed) and the opposite arm, push yourself up to a sitting position. Rest a moment before standing.
- The LSO body jacket will limit unwanted motions, like forward trunk lean.

Skin Care

Skin should be washed thoroughly and monitored on a daily basis. It is advisable for you to shower with your jacket on unless otherwise instructed by your surgeon. It is recommended to shower at night so that your LSO jacket can dry overnight. After cleansing and rinsing the skin, completely dry the area. Do not use ointments or lotions under your LSO body jacket. These will create moisture and lead to problems with your skin under the jacket. It is advisable to wear a clean cotton T-shirt under the body jacket. Unless otherwise directed, your LSO body jacket is to be worn at all times except when you are lying completely flat. Your surgeon will tell you when you may discontinue use of the body jacket.

Care of the LSO Body Jacket

Your body jacket must be maintained in good condition. The straps and closures should be inspected daily, and the orthotist should be contacted if any part needs attention or replacement. Specific instructions will be provided for cleaning the body jacket depending upon the material used to create it. In general, the plastic jacket should be cleaned daily with either diluted rubbing alcohol or a mild soap and water. Rinse the jacket with clean water and allow to dry naturally. Never soak the jacket in water.

Regular moderate use of talcum powder sprinkled inside the jacket before applying will help keep the jacket fresh and free of body odor.

General Information:

- The LSO body jacket is applied while lying down.
- The straps must be tightened securely to achieve the desired effect.
- Daily cleansing of the jacket ensures hygienic conditions.
- Follow-up appointments with the orthotist are important.
- You may experience some initial discomfort until you become accustomed to wearing the body jacket.
- Notify the orthotist immediately of any rash, sore, blister or excessive rubbing.

TLSO Body Jacket

This device is a body jacket that is used to stabilize your spine. It may be rigid or semi-rigid and is custom made from a cast and/or series of specific body measurements. The jacket provides stabilizing forces to your spine and back because it fits snugly and conforms to your body contours. The body jacket also serves to eliminate unwanted motions during the healing process. Proper application is very important. This jacket must be worn at all times unless otherwise instructed by your surgeon.

Applying the TLSO Body Jacket

- TLSO body jackets are made with a front and back shell. Your orthotist will likely make the shells with "top front" and "top back" to ensure proper application.
- While lying down, carefully roll to one side. The back shell is properly placed on your back.
- Roll carefully onto your back and into the back shell, lining up your waist with the waist contours of the jacket.
- Place the front shell on your stomach, lining it up properly with the back shell.

- Tighten all Velcro straps securely, beginning at the bottom and working toward the top.
- Carefully roll to your side again, and ease your legs over the side of the bed.
- Using your elbow (on the side of the bed) and the opposite arm, push yourself up to a sitting position. Rest a moment before standing.
- The TLSO body jacket will limit unwanted motions, like forward trunk lean.

Skin Care

Skin should be washed thoroughly and monitored on a daily basis. It is advisable for you to shower with your jacket on unless otherwise instructed by your surgeon. It is recommended to shower at night so that your TLSO jacket can dry overnight. After cleansing and rinsing the skin, completely dry the area. Do not use ointments or lotions under your TLSO body jacket. These will create moisture and lead to problems with your skin under the jacket. It is advisable to wear a clean cotton tee shirt under the body jacket. Unless directed otherwise, your TLSO body jacket is to be worn at all times except when you are lying completely flat. Your surgeon will tell you when you may discontinue use of the body jacket.

Care of the TLSO Body Jacket

Your body jacket must be maintained in good condition. The straps and closures should be inspected daily, and the orthotist should be contacted if any part needs attention or replacement. Specific instructions will be provided for cleaning the body jacket depending upon the material used to create it. In general, the plastic jacket should be cleaned daily with either diluted rubbing alcohol or a mild soap and water. Rinse the jacket with clean water and allow to dry naturally. Never soak the jacket in water.

Regular moderate use of talcum powder sprinkled inside the jacket before applying will help keep the jacket fresh and free of body odor.

General Information:

- The TLSO body jacket is applied while lying down.
- The straps must be tightened securely to achieve the desired effect.
- Daily cleansing of the jacket ensures hygienic conditions.
- Follow-up appointments with the orthotist are important.
- You may experience some initial discomfort until you become conditioned to wearing the body jacket.
- Notify the orthotist immediately of any rash, sore, blister or excessive rubbing.

Neck Brace with Chest Extension

1. The neck brace with chest extension is utilized in the post-operative period to facilitate healing of your fusion. It is designed to keep you from bending (flexing) and twisting your neck. The collar cannot stop your neck from moving completely. When you want to move your head, you should move your entire body in the direction you would like to turn.
2. The neck brace should be worn as snug as you can tolerate it. This way the brace will keep your head straight, thus providing better support.
3. You must wear your neck brace at all times. There are no exceptions to this rule. You should wear your brace in the shower. When you are fitted for the brace in the pre-operative period, two braces will be given to you. When you get out of the shower, you may remove only one half of the brace at a time. For example, remove the front of the brace while holding the back in place with your other hand. While the front is off, maintain your head and neck in alignment, cleanse your skin with soap and water and dry completely. Apply the second brace in the front and repeat the same procedure for the back. If you have any questions, you should contact your surgeon's office.
4. We recommend cutting a cotton T-shirt into squares and placing the cotton between the brace and your skin. This provides a barrier between your skin and the brace. It will help prevent irritation to the skin by absorbing perspiration. If the cotton becomes wet, it should be changed immediately.
5. If the skin under your brace becomes red, irritated, chafed or if you develop breaks in the skin under the collar, please call your surgeon's office. Do not use ointments or lotions under your collar. These will create moisture and lead to problems with your skin under the collar. If you develop a rash under your collar, you should also notify your surgeon's office.
6. You may not drive while immobilized in your neck brace. Once the brace is discontinued by your doctor, please check with your surgeon's office to see if you are permitted to drive. It is safe to be a passenger in a car as long as the brace is worn correctly

7. If your incision was closed with staples, you can shower four days after surgery. A dry clean dressing should be applied over the staple line and changed daily and as needed. You may cleanse your neck as described in #3.
8. If you have any questions or problems with your brace, you should contact your surgeon's office.

Recognizing and Preventing Potential Complications

Signs of Infection

- Increased swelling and redness at the incision site
- Change in drainage color, amount, odor
- Increased pain around the incision
- Fever greater than 101.5° F

Blood Clots in Your Legs

Surgery may cause the blood to slow and coagulate in the veins of your legs, creating 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 the 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 does not go down with elevation
- Pain and/or tenderness in calf
- These signs are not 100 percent certain, but are warnings. Do not be alarmed if they are present, but notify your surgeon immediately.

Prevention of Blood Clots

- Foot and ankle pumps
- Walking
- Compression stockings
- Blood thinners, such as Coumadin, aspirin, and Heparin

Pulmonary Embolus (Call 911 if suspected)

An unrecognized blood clot could break off the vein and go to the lungs. This is an emergency, and you should seek immediate medical attention.

Signs of Pulmonary Embolus

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

Notes

Post-Operative Exercises—*Activity Instruction and Body Mechanics*

Safety Considerations Following Spine 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.
- Provide good lighting throughout the house. Leave a light on at night in the bathroom.
- Keep extension cords and telephone cords out of walkways.
- Avoid slippers or shoes with open toes or without heel enclosures. They can cause slips and falls.
- Sit in a straight-back chair with firm surface and arm rests. It makes it easier to get up.
- Rise slowly from either a sitting or lying position so as not to get light-headed.
- Avoid heavy lifting for the first three months after your surgery, and then only with your surgeon's permission.
- Stop and think prior to every activity to ensure good safety and body mechanics.
- You may need to consider alternative arrangements if you have stairs in your home.

Basic Body Mechanics

- ALWAYS bend your knees when picking up an object from the floor or lower surface.
- Keep objects close to your body when moving them to another location.
- Avoid twisting or pulling to prevent undue stress on your back.
- Always ask for assistance prior to lifting a heavy object. Attempt to keep loads light. Make several trips if necessary.
- **DO NOT** get down on your knees to scrub the floor or bathtub. Use a mop or long handled brush.

Bathroom and Kitchen Safety

- Plan ahead! Gather all your cooking supplies at one time. Then sit to prepare your meal. This cuts down on excessive trips to the refrigerator, cupboards, etc.
- Place cooking supplies and utensils in a convenient location so they can be obtained without too much bending or stretching.
- Raise the seat height of your chair by putting cushions on the seat. Always maintain good sitting posture.
- ALWAYS use non-slip adhesive or rubber mats in the tub.
- Attach a soap-on-a-rope so it is within easy reach.

Child Care

- Keep baby close to your body—you must have your surgeon's permission to lift/carry your child following surgery.
- Do not twist.
- Use pillows to support child during feedings.

Post-Operative Exercise Goals and Activity Guidelines

Exercising is important to obtain the best results from spine surgery. You may receive exercises from a physical therapist at an outpatient facility or at home. In either case, you need to participate in an ongoing home exercise program, as well.

Exercise After Surgery

General Activities: Discharge to 6 Weeks

- Walking is the most important exercise. You should start the night of surgery and walk as far as you can each day, building up to three miles a day by 6 weeks after surgery.
- Take a deep breath, cough deeply and use your incentive spirometer several times each hour.
- Take sponge baths for the first four days. After that, you may shower, but not bathe, as long as your wound is clean, dry and not red.
- You may drive short distances if you are not in a brace, if permitted by your surgeon.

Do's and Don'ts for the Rest of Your Life

Whether or not they have reached all the recommended goals in three months, all spinal surgery patients need to have a regular exercise program to maintain their fitness and the health of the muscles around their spine. With your primary care physician's permission you should be on a regular exercise program three to four times per week, lasting 20 to 30 minutes. In general, the aim of spinal surgery is to return the patient to a full activity level, but the conditions leading to spine surgery cannot be completely corrected by even the most successful operation. Certain precautions must be taken.

What to Do in General

- Avoid bending, lifting and twisting as much as possible. It may be possible to return to strenuous physical activity, including heavy lifting, but discuss this with your surgeon.
- Try to maintain your ideal body weight.
- *DO NOT SMOKE!*
- Maintain proper posture.
- When traveling, change positions every one to two hours to keep your back from tightening up.

What to Do for Exercise: Choose a Low-Impact Activity

- Enroll in recommended exercise classes.
- Follow the home program as outlined in the Patient's Guide.
- Take regular one to three mile walks.
- Use home treadmill and/or stationary bike.
- Exercise regularly at a fitness center.
- Engage in low-impact sports, such as walking, gardening, dancing, etc. Lumbar spine patients who aren't already golfers should avoid taking up this sport because of the twisting required.

6 to 12 Weeks

- At 6 weeks, you may start more aggressive walking and exercising if permitted by your surgeon.
- You may drive 30 to 60 minutes at a time, using a car-seat support, if permitted by your surgeon.
- You may do light gardening, but avoid vigorous digging, transplanting or prolonged weeding.
- You should continue to avoid repetitive bending, twisting or lifting at this time.

12 Weeks to 6 Months

- Patients who have had simple discectomy without fusion may generally return to full activities, using good body mechanics. Very heavy lifting (over 75 pounds) should be avoided indefinitely.
- For patients with complex cervical or lumbar fusion, your brace is usually removed at 8 to 12 weeks post-operatively and physical therapy is begun. You will be given a set of home stretches and strengthening exercises. It is important to do these exercises daily.

6 to 12 Months

- You should be completely healed by this time and need only to avoid activities that put extreme strain on your back or neck.
- Try to follow some regular exercise program to maintain aerobic fitness. This helps to relieve stress and promote a sense of well being, is good for your heart and helps you keep your weight down.
- DON'T SMOKE! Smoking is bad for your discs and for your health in general. Smoking can also interfere with the healing of a fusion.

Appendix

Know Your Options

What are the sources of blood? When a transfusion is needed, patients receive either blood they have donated for themselves, blood donated by a directed donor (a donor personally selected by you) or blood donated by the community. Being transfused with your own blood is generally the safest option, but some people are unable to provide their own blood and must rely on other blood sources.

Being Your Own Donor

The blood that offers you the most safety and the best match is the blood you donate for yourself. This is called autologous donation.

If you are able to be your own blood donor, the blood collection process will probably begin about three weeks before your surgery. However, the last donation must be made at least three days before surgery. Many patients anticipating surgery donate blood for themselves without problems. Your doctor will make the final decision depending on your condition.

Benefits: Your own blood provides the best match. Transfusion of your own blood eliminates the risk of getting a viral infection, such as hepatitis or AIDS, from the transfusion. By giving blood to meet your own needs, you also help conserve the community blood supply for people who need blood in an emergency or who can't be their own donors.

Possible risks: Your blood iron level will decrease after donation. For this reason, your doctor may prescribe iron supplements.

Procedure: The American Red Cross Blood Bank is ready to help you be your own donor. Your blood will be collected on a schedule that will be convenient and safe while meeting your blood needs. Your blood will be uniquely tagged especially for you and be ready if you need it during or after your surgery.

Eat a light meal two to three hours before donation. Be prepared to give the blood bank personnel a general health history and a list of medications. An infection may prevent you from being your own blood donor.

The process will take approximately one hour from registration to refreshment. The actual drawing procedure takes about five to 10 minutes.

Procedure: The donor must call American Red Cross Blood Bank at 1-800-35-BLOOD for an appointment NO LATER than three weeks prior to the scheduled surgery.

At the time of donation, he/she must have the following information:

- Patient name and Social Security number
- Date of surgery
- Blood type, if known

Maintain any iron therapy prescribed until your surgery. Your blood is reserved for you until its expiration date. Please call the blood bank if your surgery is rescheduled.

Choosing Family or Friends to Donate Blood

When family or friends donate blood for you, the process is called a directed or designated donation. Although it is appealing to have people close to you give blood, directed donations are not statistically safer than the community blood supply.

Blood types will not be performed prior to the donation unless the donor registers as an outpatient and pays a fee for the blood typing.

Upon testing of donor units, donor units that are found to be incompatible with the patient will be released into the general community supply.

Because of the possibility of testing problems or mechanical failures, directed donor blood will automatically be released to other patients one week after the scheduled surgery date if it has not been used.

Benefits: Directed donations may provide peace of mind for some patients because they personally know the person who donated the blood.

Possible risks: The safety of any donation depends on the donor providing complete and factual answers to health screening questions. Sometimes friends or family may feel pressured into making directed donations even though they know that their health history may make their blood unsafe. Even if a patient knows the donor personally, a directed donation may still transmit disease.

You can be assured that the American Red Cross will use the same thorough procedures for screening the donors and testing the blood that are normally used for the community blood supply.

The American Red Cross collects and processes most of the blood used by our patients. Donors are screened very carefully using a detailed health questionnaire. After the blood is collected, it is screened very carefully for any reason that would make it unacceptable for use. Any unacceptable units are discarded.

If your surgery date is postponed, you must notify the American Red Cross Blood Bank.

Anesthesia and You

Types of Anesthesia

You will receive general anesthesia for this surgery. You will be unconscious and have no awareness or other sensations. This requires mechanical ventilation.

Procedure

Prior to surgery an anesthesiologist will evaluate your medical history, lab values and test results to formulate an anesthesia plan. He or she will discuss your options and risks so that you can make an informed decision regarding your care.

During surgery advanced technology is used to monitor the body's functions. Your anesthesia team will interpret these monitors and appropriately diagnose, regulate and treat the body's organ systems while a personalized balance of anesthetic medication is administered. At the conclusion of the surgery, the anesthesiologist reverses the effects of the anesthetic medications and returns you to consciousness once again.

After the surgery, you will be taken to the Post Anesthesia Care Unit (PACU). Here, specially trained registered nurses will care for you and monitor your vital signs. Your anesthesiologist will be available to direct your care.

Side Effects

Your anesthesiologist will discuss the risks and benefits associated with the different anesthetic options, as well as any complications or side effects that may occur. The most common side effect is nausea or vomiting, which may be related to anesthesia or the type of surgical procedure. Medications to treat nausea and vomiting will be given, if needed. More serious adverse results can occur following anesthesia and surgery; however, they are extremely rare. Please consult your physician for further information.

Our Staff

The anesthesiologists at Shore Memorial Hospital are board eligible and/or board-certified physicians. These professionals staff the operating room and recovery room.

You may request a specific anesthesiologist if you like. However, you must make that choice known in advance so that arrangements may be made to honor your request. If you have questions about your insurance coverage for anesthesia services, please contact your insurance company for guidance.

Decompressive Lumbar Laminectomy with Instrumented Fusion and Posterior Interbody Fusion with Harvesting of Bone Graft (PLIF/LIA)

Your surgeon has recommended you undergo a PLIF/LIA for treatment of your spine problem. You will be admitted to the hospital the morning of your surgery. You will receive general anesthesia and be completely asleep for the operation.

Once you are asleep, your neurosurgeon begins the operation to remove the bone and disc from your spine to decompress the nerves. Allografts (bone from the bone bank) are placed in the disc space (posterior inter-body fusion). The instrumentation (screws and rods) is inserted in the spine. Bone is removed from the pelvis. This bone is placed in the area to be fused. The incisions are closed and you are taken to the recovery room.

Most patients are in the recovery room for approximately 90 minutes. After that you will be transferred to the Neuroscience Unit. We will provide you with pain medications, but you will need to let the nurse know if you are in pain and request the medication. Most patients get out of bed to the chair and walk the same day of the operation. This is to prevent post-operative complications such as blood clots and pneumonia. You must wear your brace at all times while out of bed.

Patients are discharged from the hospital two to three days post-operatively. When you go home, you may shower. You may not take a bath, swim or soak in a pool or hot tub. If there is any drainage or opening in any of your wounds, call your surgeon's office immediately. You will be given narcotic pain medication to take at home. Narcotics can be very constipating. Remember to drink lots of fluids. It is helpful to utilize a stool softener such as Colace (available over the counter), while on narcotic medications. Medications can be refilled Monday to Friday between the hours of 9 a.m. to 5 p.m. Refills will not be given in the evening after 5 p.m. or on weekends. Please anticipate your medication needs. Do not take Motrin, Advil or other anti-inflammatory medications. The surgeon will see you approximately 10 to 14 days after your surgery in the office. You may not drive until you are cleared to drive by your surgeon. It is OK to be a passenger in a car. Walking is the best exercise. It is OK to climb stairs.

It is not uncommon to experience the same type of back and/or leg pain/numbness and tingling, you experienced before the operation. It sometimes takes several weeks for these symptoms to resolve. If you have any questions or problems before then, please call your surgeon's office.

Decompressive Lumbar Laminectomy with Instrumented Fusion (LIA)

Your surgeon has recommended you undergo a decompressive lumbar laminectomy with instrumented fusion for treatment of your spine problem. You will be admitted to the hospital the morning of your surgery. You will receive general anesthesia and be completely asleep for the operation.

Once you are asleep, your neurosurgeon begins the operation to remove the bone structures that may be causing pressure on the nerves. The screws and rods are placed and bone graft placed for the fusion. The bone graft is taken through a separate incision from the back of your pelvis (hip). Your incision is closed and you are taken to the recovery room.

Most patients are in the recovery room for approximately 90 minutes. After that you will be transferred to the Neuroscience Unit. We will provide you with pain medication, but you will need to let the nurse know if you are in pain and request the medication. Most patients get out of bed to the chair and walk the same day of the operation. This is to prevent post-operative complications such as blood clots and pneumonia. You must wear your brace at all times while out of bed

Patients are discharged from the hospital two to three days post-operatively. When you go home, you may shower. You may not take a bath, swim or soak in a pool or hot tub. If there is any drainage or opening in any of your wounds, call your surgeon's office immediately. You will be given narcotic pain medication to take at home. Narcotics can be very constipating. Remember to drink lots of fluids. It is helpful to utilize a stool softener such as Colace (available over the counter), while on narcotic medications. Medications can be refilled Monday to Friday between the hours of 9 a.m. to 5 p.m. Prescription refills will not be given in the evening after 5 p.m. or on weekends. Please anticipate your medication needs. Do not take Motrin, Advil or other anti-inflammatory medications. The surgeon will see you approximately 10 to 14 days after your surgery in the office. You may not drive until you are cleared to drive by your surgeon. It is OK to be

a passenger in a car. Walking is the best exercise. It is OK to climb stairs.

It is not uncommon to experience the same type of back and/or leg pain/numbness and tingling, you experienced before the operation. It sometimes takes several weeks for these symptoms to resolve. If you have any questions or problems before then, please call your surgeon's office.

Microlumbar Discectomy and Microendoscopic Discectomy

- You may sleep in any position you find comfortable. Many patients find using a few extra pillows to support their back while lying on their side aids in finding a comfortable position.
- Showering is OK. You should not take a bath or swim in a pool until you are advised that it is OK by your surgeon.
- Leave the bandage on your back intact. It is not necessary for you to change it. You will be seen by your surgeon approximately 10 to 14 days after your surgery. It will be changed then. If the bandage begins to fall off or accumulate a large collection of fluid, call your surgeon for further instructions.
- If you notice any drainage or excessive redness on or near the incision, notify your surgeon immediately.
- Walking is the best exercise for you in the post-operative period. Just remember not to overdo it. If you have increased pain after walking, you are probably doing too much. You should avoid lifting or bending from the waist until your surgeon tells you otherwise.
- If you have any questions about your care, surgery or post-operative instructions, call your surgeon's office.
- Narcotic pain medications such as Tylenol No. 3 or Percocet can cause constipation. If you are unable to move your bowels, call your surgeon's office. Most patients find that an over-the-counter stool softener (Colace) is also helpful while taking pain medication.
- Please try and estimate when you will be due for a refill on your medications. Medications can be refilled by calling your surgeon's office Monday to Friday between the hours of 9 a.m. to 5 p.m. Refills will not be done on weekends or evenings.
- It is best to check with your surgeon at your first post-operative visit regarding driving restrictions. You should not drive until you are cleared by your surgeon. It is OK to be a passenger in the car prior to being cleared to drive.

Anterior Cervical Discectomy and Fusion with Plating

- It is not necessary for you to change the dressings on your neck and hip. You will be seen by your surgeon approximately 10 to 14 days after your surgery. It will be changed then. If the bandage begins to fall off or accumulate a large collection of fluid, call your surgeon for further instructions.
- You may sleep in any position you find comfortable. Many patients find using a few extra pillows to support their back while lying on their side, aids in finding a comfortable position.
- If you notice any drainage or excessive redness on or near the incision, notify your surgeon immediately.
- Walking is the best exercise for you in the post-operative period. Just remember not to overdo it. If you have increased pain after walking, you are probably doing too much. You should avoid lifting or pushing anything that weighs more than five pounds until your surgeon tells you otherwise.
- If you have any questions about your care, surgery or post-operative instructions, call your surgeon's office.
- Narcotic pain medications such as Tylenol No. 3 or Percocet can cause constipation. If you are unable to move your bowels, call your surgeon's office. Most patients find that an over-the-counter stool softener (Colace) is also helpful while taking pain medication.
- Please try and estimate when you will be due for a refill on your medications. Medications can be refilled by calling your surgeon's office Monday to Friday between the hours 9 a.m. and 5 p.m. Refills will not be done on weekends or evenings.
- It is best to check with your surgeon at your first post-operative visit regarding driving restrictions. You should not drive until you are cleared by your surgeon. It is OK to be a passenger in the car prior to being cleared to drive.
- Do not take medications such as Advil, Motrin, Naproxen, etc. unless instructed otherwise by your surgeon. These types of medications can cause your fusion not to heal.
- If you had a bone graft harvested from your iliac crest (hip area), it is OK to utilize heat and ice for local pain relief.

Spinal Precautions

The following is a list of precautions that must be followed in order to protect your spine. These precautions will help you avoid injury to your spine, and will promote healing.

Things to Consider and Practice While in Bed:

- **Log rolling:** this means keeping your body in a single unit as you roll right or left. Your right hip must stay aligned with your right shoulder just as your left hip needs to stay aligned with your left shoulder.
- **To sit up:** log roll to your side. Push yourself up with your arms and as your legs go down—your shoulders go up.
- **DO NOT** come to a seated position without rolling to your side first.
- **DO NOT** twist or rotate your spine.

Things to Consider While Sitting:

- Maintain an erect posture.
- Do not bend forward or to the side.
- Use your long handled or adaptive equipment to put on socks and shoes.
- Use your reacher/grabber to get objects that are on low and high surfaces.
- Sit in a firm straight-back chair with arm rests; seat height should be knee height.
- **DO NOT** twist/rotate your spine to reach for something.

Things to Consider While Standing:

- Maintain an erect posture—this means head up—shoulders back—and standing tall.
- **DO NOT** twist/rotate your spine.
- **DO NOT** bend at your waist. You **MUST** bend from your knees.

Notes

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