VB SPINE

Patient Guide to

Thoracolumbar Vertebral Body Replacement

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About the Thoracic Spine

Your spine is made up of 33 bones called vertebrae. The vertebrae are positioned one on top of another from the base of the skull to the pelvis.

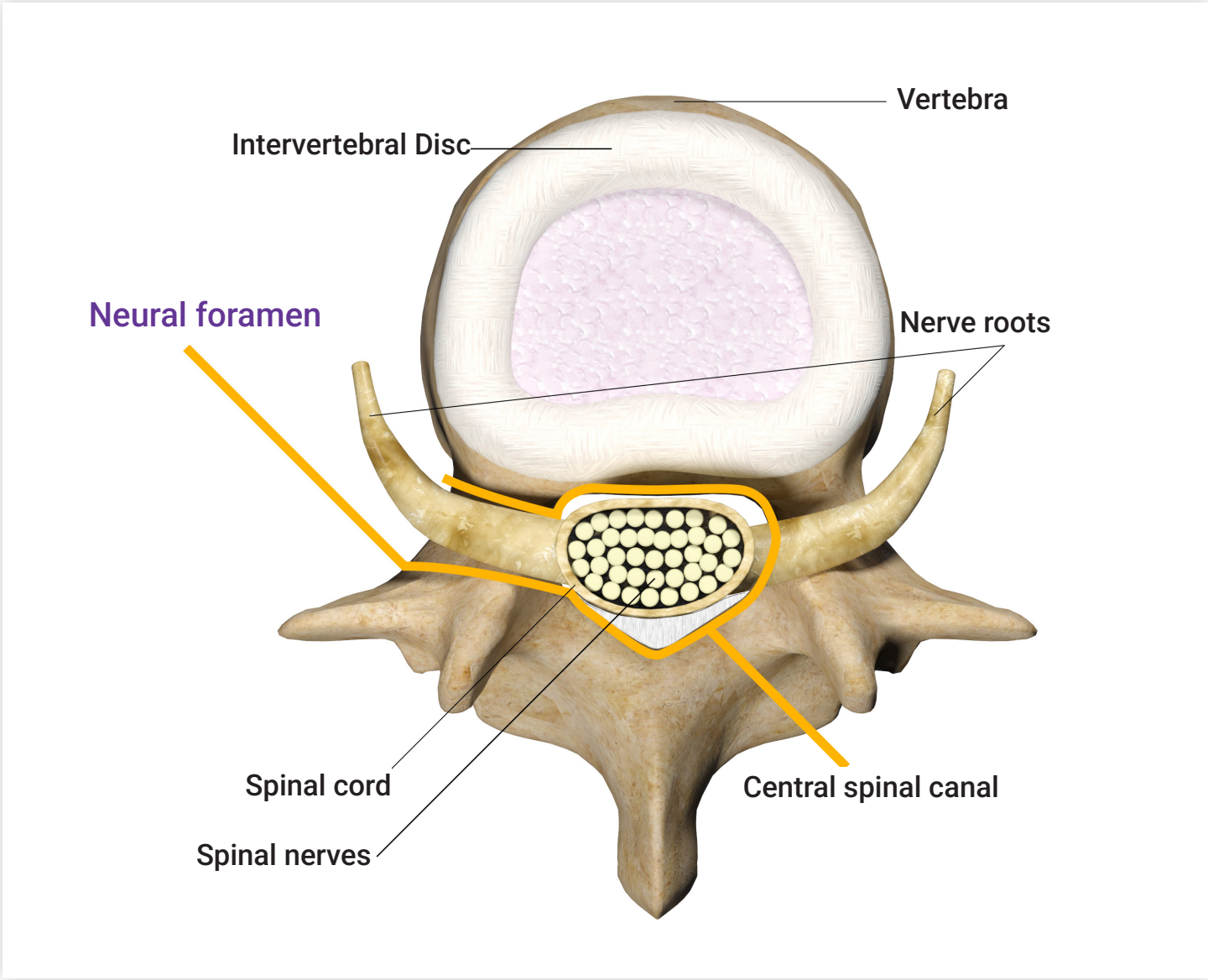

Figure 1: Lumbar vertebra

A shock-absorbing structure called an intervertebral disc sits between each vertebrae, and each spinal segment (defined as two vertebrae separated by one intervertebral disc) is connected by two small articulating surfaces called facet joints.

Together, the vertebrae and discs form the spinal column. The spinal column supports the weight of the head and upper body, serves as an attachment point for muscles and ligaments allowing you to perform daily activities, and most importantly, protects the spinal cord.

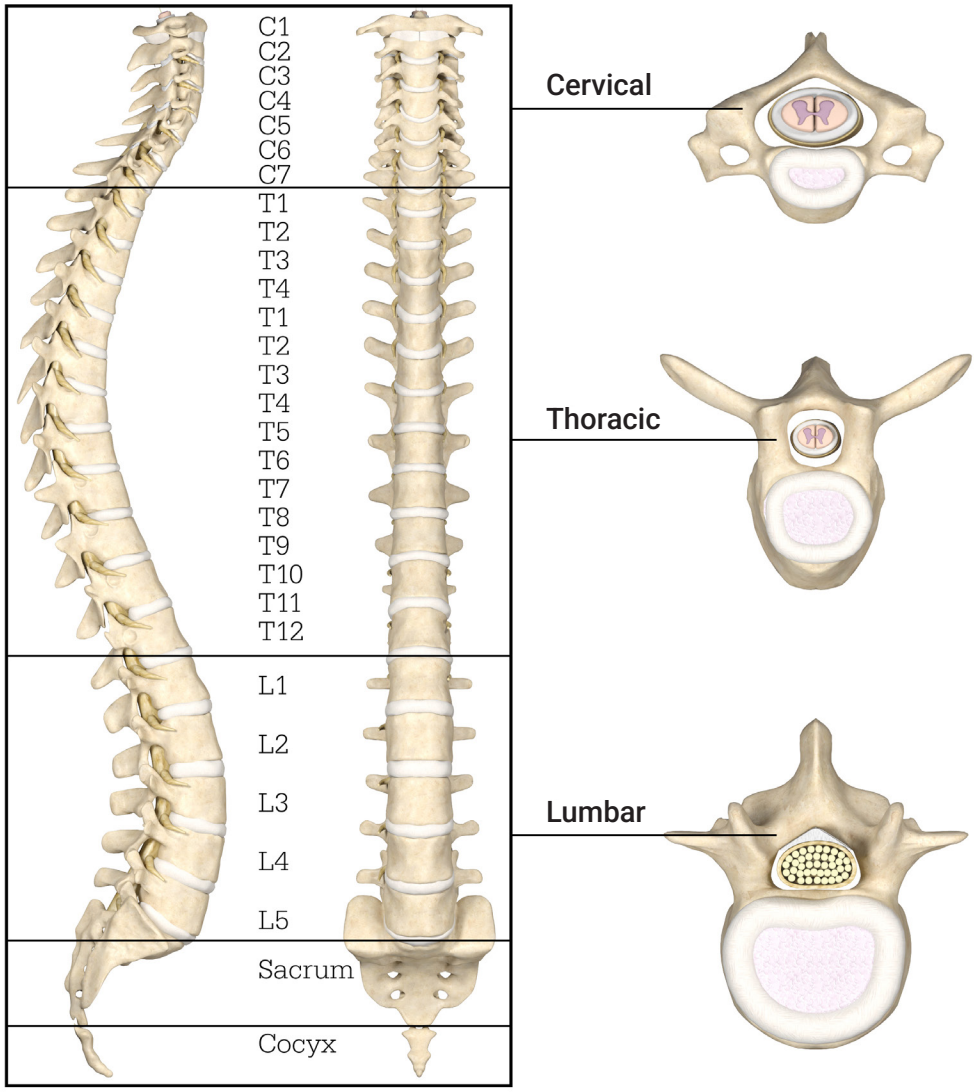

Figure 2: Spinal Column

The top seven vertebrae make up the neck (or cervical) region of the spine. When the bones or discs in the neck become diseased or injured, it can affect your ability to move and function normally.

What Are Some Possible Reasons For My Pain?

Spinal Trauma

Spinal trauma is another way doctors refer to any injury to the bones, ligaments, or muscles of the spine. Spinal trauma may occur following a low impact injury (e.g., fall from standing) or high-impact injuries (e.g., motor vehicle accident or a fall from height). As can occur in other parts of the body, spinal trauma may result in minor injuries such as a muscle strain or a ligament sprain. However, spinal trauma may also lead to more significant injuries such as fractures or dislocations of the spinal bones (**vertebrae**).

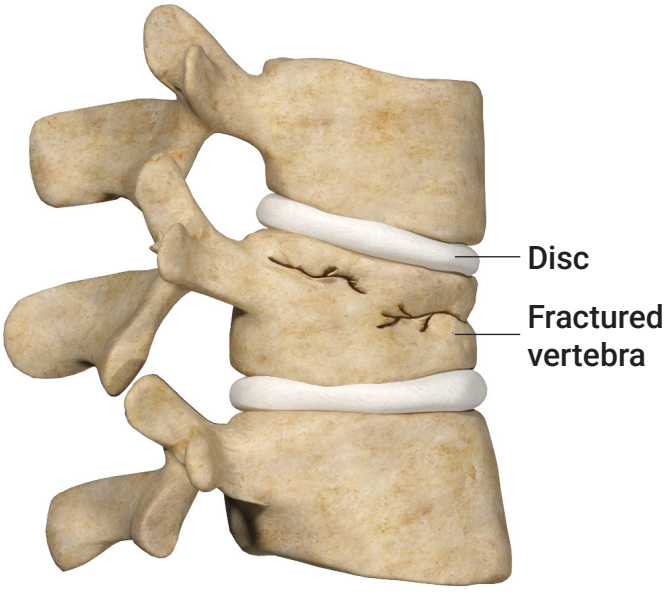

Figure 3: Fractured vertebra

Osteoporosis

The spinal bones (**vertebrae**) are particularly vulnerable to **osteoporosis** - a common condition in which the density and quality of the bones decrease. When bones are compromised by osteoporosis, it may not take much trauma to fracture brittle and weak vertebrae. Even the simple activities of daily living, like bending, coughing or lifting may put osteoporotic bones at risk.

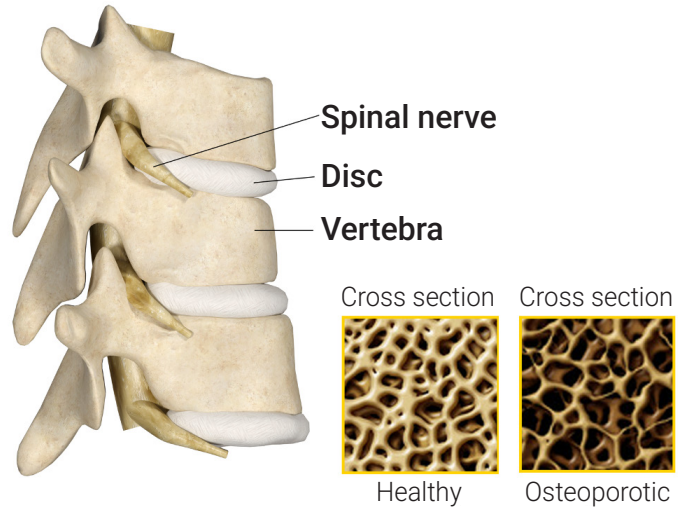

Figure 4: Healthy vs. osteoportoic vertebra

Spinal Tumor

A tumor is a mass of abnormal tissue that can be found anywhere in the body.[2] Not all tumors are dangerous. Some tumors can be benign and do not pose any significant danger to the patient. Sometimes, however, a tumor can be malignant, which means that it can invade surrounding normal tissue and spread throughout the body via the circulatory or lymphatic systems[2], causing a variety of health-related problems for the patient.

Vertebrae are a common site for tumors to occur.[3] Spinal tumors are most commonly secondary, or **metastatic**, meaning that they originate from a primary tumor elsewhere in the body and spread to the spine through the lymph nodes or bloodstream.[4] Spinal tumors can also originate and grow in either the vertebrae themselves or from the tissues that form the spinal cord and nervous system; these are known as **primary spinal tumors**.

Occasionally, spinal tumors can become large enough that they put pressure on the spinal cord or nerves. If this happens, a variety of neurological symptoms, such as numbness or weakness in the arms or legs, can develop. Spinal tumors may also cause damage to or even lead to the collapse of one or more vertebral bodies[4]. As a result, the tumor may put pressure on (compress) the spinal cord or nerves and cause pain at the site of the collapsed vertebra or radiating down the arms or legs.[3]

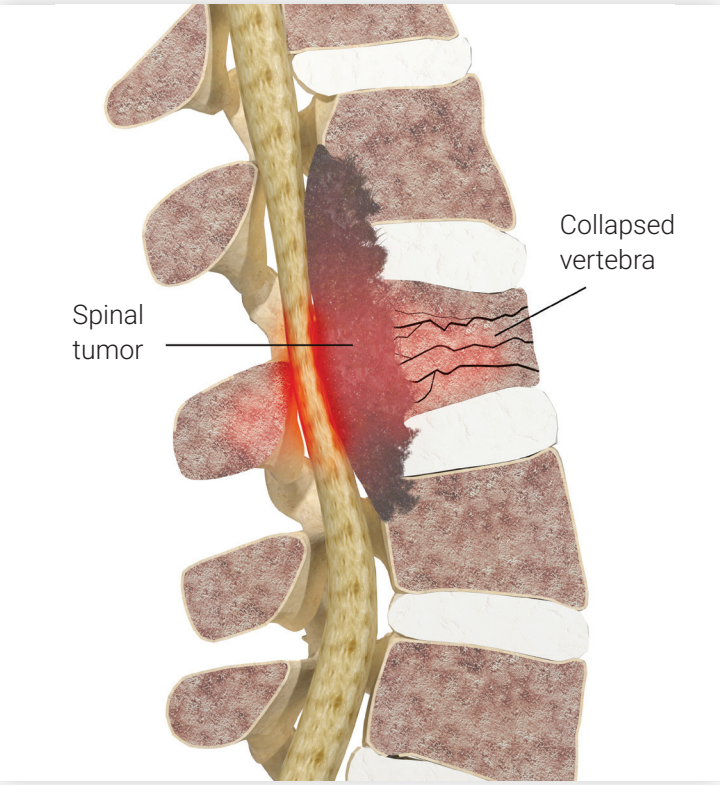

Figure 5: Spinal tumor

Primary spinal tumors grow in a vertebral body or the tissues that form the spinal cord and nervous system. Primary spinal tumors can be formed from a variety of tissues, commonly including bone, cartilage, blood vessels or nerve tissues.

Metastatic spinal tumors originate as primary tumors elsewhere in the body and then spread to the spine. Tumors from the lung, breast, thyroid, and kidney are among the most common types of tumors that spread to the spine.

What Are Some of My Treatment Options?

Trauma

Sometimes, injuries can heal by using anti-inflammatory and/or pain medications, limiting or restricting activity, or wearing a brace. Physical therapy, stretching or special exercises may be required after injuries have fully healed. Surgery may be considered for those who have unstable injuries, post-injury malalignment of the spine, significant or progressive neurological symptoms, or pain that cannot be controlled with non-surgical treatments.

Tumors

Anti-inflammatory and/or pain medications or bracing, may be used to treat symptoms of spinal tumors, but are not intended to treat the tumor itself. Some patients may be prescribed chemotherapy and/ or radiation depending upon the type of tumor as well as a variety of other factors. Surgery can be considered for some patients, who have been deemed suitable candidates by their doctors. Some benign tumors do not require any treatment at all.

What Is A Vertebral Body Replacement?

Surgeons may perform a vertebral body replacement from either the side or the back of the spine. During the procedure, he/she will remove and replace the damaged vertebral structure with implants such as cages, screws, plates and/or rods. The goals of this procedure are to stabilize the spine and remove pressure on the spinal cord and/or nerves that has resulted from damage to the spinal bones caused by either an injury (trauma) or by a tumor that has spread to the front of the spine and fractured a vertebra.

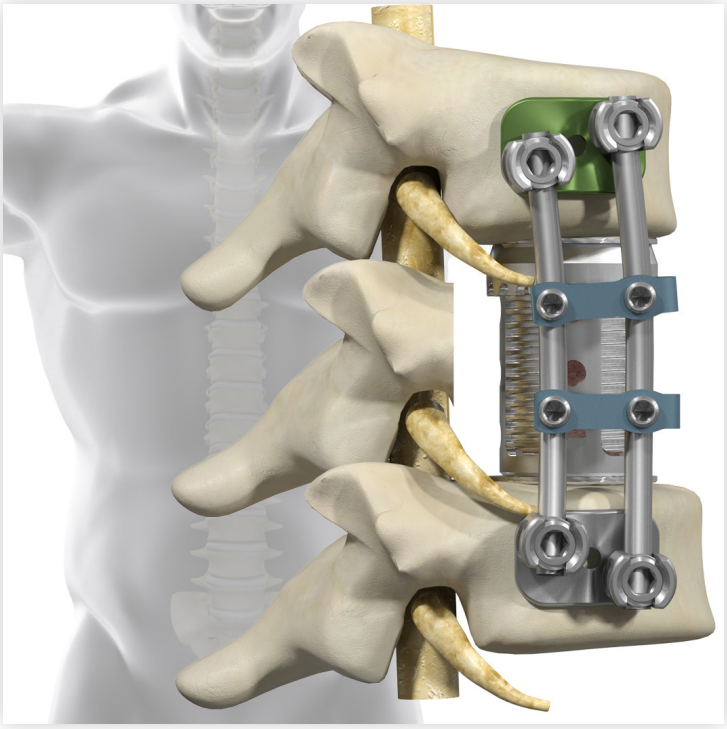

Figure 6: Vertebral body replacement

How Should I Prepare for Surgery?

Start now. Take care of yourself. Preparing for spine surgery begins a few weeks before the actual surgery. The checklist below outlines some common tasks that your surgeon may ask you to complete in the weeks prior to your surgery date. Check with your surgeon to discuss your specific pre-surgery instructions and risks.

- Complete all preadmission testing and evaluations, as instructed by your doctor. Ask your surgeon if or when to stop your routine medications.
- Most patients will be asked to walk around following surgery. Be sure to pack safe, slip-on shoes, and shorts or a robe for walking the halls of the hospital unit. You may also want to pack a button up shirt and pants that are easy to take on and off, such as sweat pants.
- Arrange for transportation home. You may travel home from the hospital by car, either reclining in the front passenger seat or lying down in the back seat.
- Identify a person who will be able to help you with you basic activities of daily living, shopping and other chores. You may consider planning to have a friend or relative stay with you for a few days.
- Choose and talk to a physical therapist to learn some important activities for after surgery.

What Typically Happens During Surgery?

1. Incision

An incision is made on the side of the chest or in the mid- to lower back, and the affected vertebrae are exposed.

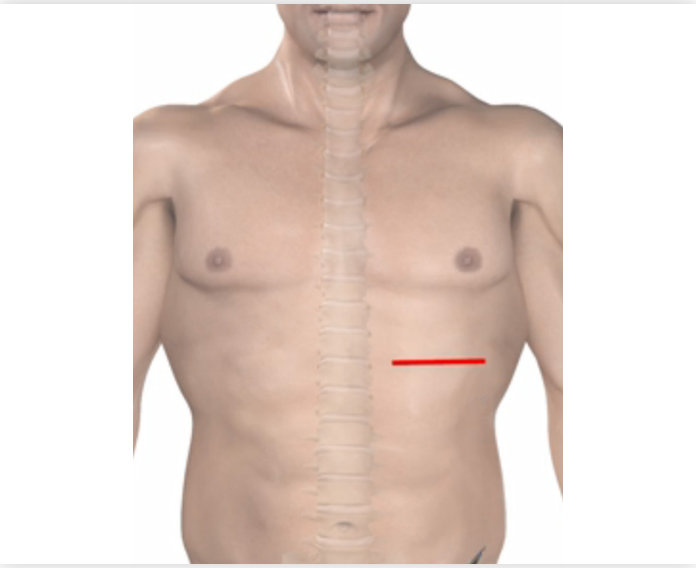

Figure 7: An incision is made the mid-to lower back

2. Excision

Surgical instruments are used to remove the tumor, the surrounding diseased bone, and adjacent discs. Removing these structures can reduce the pressure on the spinal cord and nerves.

Figure 8: Surgeon removes the affected vertebral body and discs

3. Replacement

Your surgeon can use either a piece of **donor bone** or a metal or plastic cage filled with **natural bone material**. The implant is positioned to replace the vertebral body and discs that have been removed. It will act as primary support for the spine as new bone grows (fuses) in the space between the adjacent vertebral bodies. If successful, fusion will typically take place in the weeks and months following surgery.

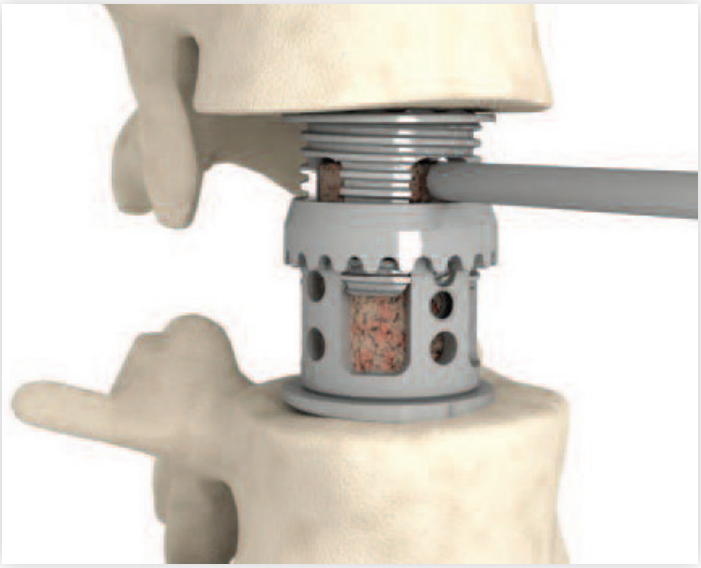

Figure 9: Metal or plastic cage filled with natural bone material to replace the vertebral body and discs that have been removed

4. Stabilization

After the piece of donor bone or cage is in place, your surgeon will further stabilize the spine by placing fixation devices such as plates, rods and screws. This fixation is intended to provide additional support and stability.

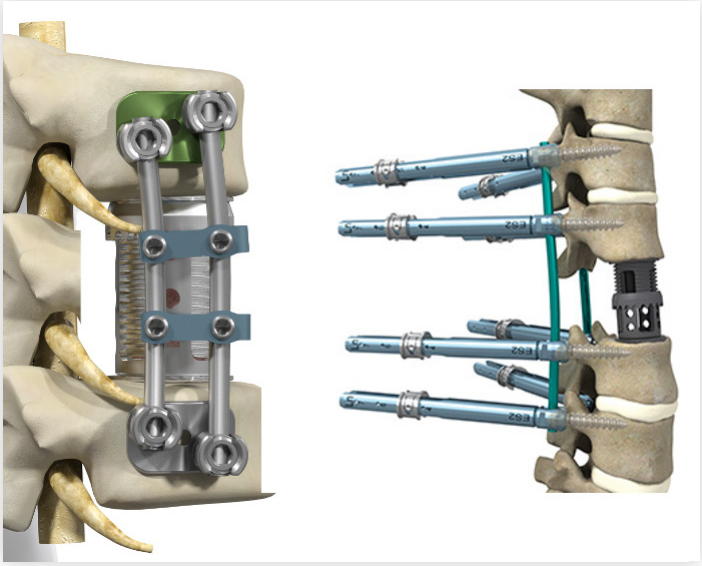

Figure 10: Plates, rods and screws have been implanted to provide further stabilization

5. Surgical Closure

Your surgeon will close the incision and dress it with a wound covering at the conclusion of the surgery. As with any surgery, spinal surgery carries certain risks. Your surgeon will explain all the possible complications of the surgery, as well as side effects.

What Implants Could Be Used In My Surgery?

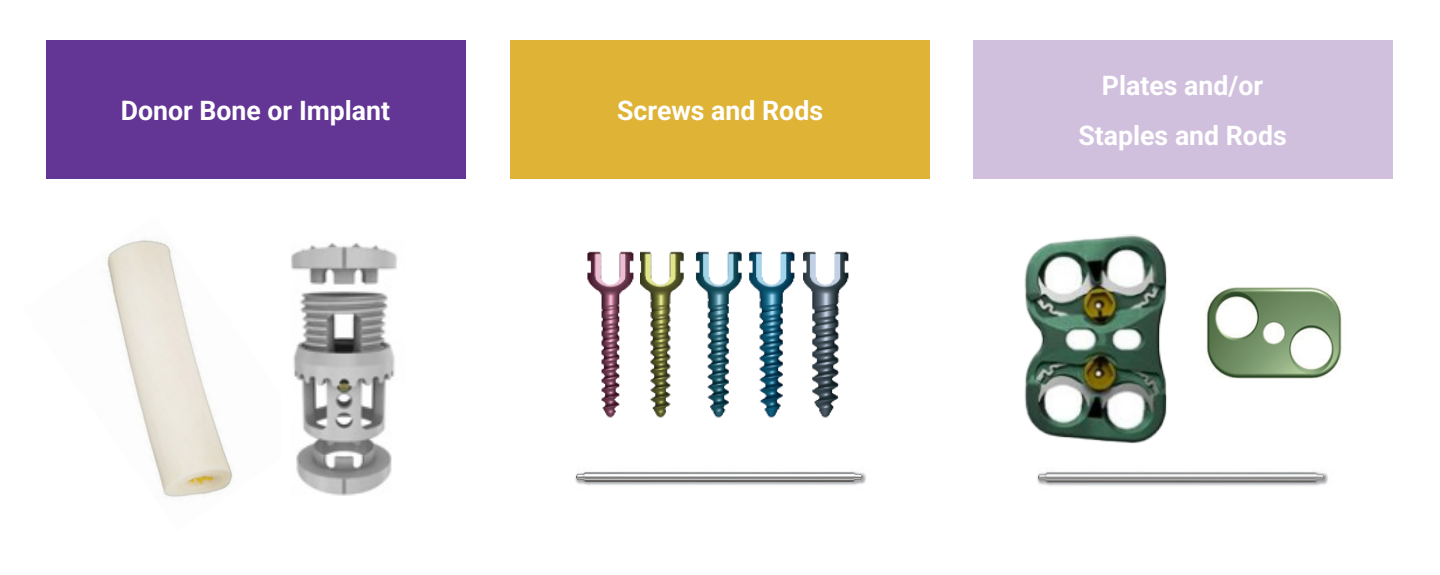

Figure 11: Implants typically used in a vertebral body replacement

What Does Recovery Look Like?

Recovering from Lumbar Spine Surgery

In the days following your procedure, your surgeon, nurses and physical therapists will closely monitor your condition and progress. Although the recovery process varies for each patient, here is what you might expect in the days following surgery:

- After back surgery, some patients are able to go home the same day or the next day, so most of the recovery time is spent at home. You may be asked to walk the day of or day after your surgery.
- It may be easier to wear shirts that have zippers or button up the front, rather than those that go on over the head during the initial recovery period.
- In some cases, surgery through the abdomen may disrupt normal digestion. These patients may be instructed to follow a liquid-only diet until digestion returns to normal.
- Your doctor may prescribe pain medication. Driving must be avoided while taking certain medications or muscle relaxants. Speak to your doctor about any medications he or she prescribes for you.

- All patients are advised to move carefully. Certain activities like lifting anything heavy and bending over should be avoided immediately following surgery. Your surgeon will tell you when it is safe to resume normal activities.
- Some patients may be required to wear a back brace to avoid unsafe movement and to provide stability. If this happens, you will be shown how to put the brace on and take it off. You also will be given instructions on when to wear it.
- Smoking or any type of nicotine intake increases the risk of complications and may interfere with the bone-healing process required for a successful fusion. Speak with your doctor to better understand the risks associated with smoking or nicotine intake.
- Physical therapy may be helpful as you return to normal activity during the recovery period. The amount of physical therapy that is needed will be determined for each patient based upon individual goals and progress. Work with your physical therapist to determine what activities are right for you.

Frequently Asked Questions

These FAQs are not a substitute for medical advice from your doctor. Please be sure to speak with your doctor about any questions regarding your specific symptoms, diagnosis and treatment options.

Q: Can I shower after surgery?

A: Depending on the size and location of your surgical incision and what kind of dressing is applied to the surgical site, you may have special instructions for showering. Your surgeon may ask you to wait to shower after surgery for anywhere from one to three days. Don't soak in water (e.g., bathtubs, swimming pools) until your doctor says it's okay. As always, ask your doctor what is best for you.

Q: Will I have a scar?

A: Yes. Due to the nature of surgery in general, you will have a scar. Your surgeon may recommend a topical treatment to help reduce scar formation.

Q: When can I drive?

A: It is typical for surgeons to advise that patients only return to driving once they are no longer taking pain medication(s) and once they feel comfortable turning the head in all directions. Please ask your doctor prior to driving.

Q: When will I be able to return to work?

A: This will depend on the nature of your job. People with labor intensive jobs may take longer to get back to work, while people with desk jobs may be able to return sooner. The amount of time can range anywhere from two to twelve weeks. Ask your doctor about the best plan for you to get back to work.

Q: Can I travel?

A: In general, your surgeon will recommend waiting until you feel comfortable enough to travel. As always, ask your doctor what is best for you.

Q: How long will I have restricted activities?

A: Many surgeons recommend that their patients wait twelve weeks before returning to normal activities. Please ask your doctor when you can resume normal activities, as every person is different.

Glossary

Donor bone: bone graft that comes from a donor and is referred to as allograft bone. Allograft bone usually comes from bone banks that harvest the bone from cadavers

Facet joints: surfaces, or joints between the spinal bones that allow for motion

Intervertebral disc: soft structure found between each of the spinal bones that acts as a shock absorber

Natural bone material: bone material that can come either from a patient's own body (autograft) or be donated (see donor bone) from a bone bank after being harvested from a
cadaver (allograft)

Neural foramen: opening through which the spinal nerves pass on their way from the spinal canal to the arms or legs

Osteoporosis: a condition in which bone density and quality are below normal levels

Metastatic spinal tumor: abnormal growth that originates elsewhere in the body and then spreads to the spine

Primary spinal tumor: abnormal growth in a vertebral body or the tissues that form the spinal cord and nervous system

Spinal fusion: permanent connection of two or more vertebrae in the spine, eliminating motion between them. Spinal fusion involves techniques that are designed to mimic the normal healing process of broken bones

Thecal sac: soft tubular structure that contains the spinal nerves

Vertebra(e): spinal bones

References:

1. Forstein DA, Bernardini C, Cole RE, Harris ST, Singer A: Before the breaking point: Reducing the risk of osteoporotic fracture. J Am Osteopath Assoc 2013;113 (2 suppl 1):S5-S24.
2. Cooper GM. "The Development and Causes of Cancer." The Cell: A Molecular Approach. 2nd edition. Sunderland (MA): Sinauer Associates; 2000.
3. Bilsky MH, Lis E, Raizer J, Lee H and Boland P. The Diagnosis and Treatment of Metastatic Spinal Tumor. The Oncologist. Issue 4. 1999. 459-469. Print.
4. Williams R, Foote M, Deverall H. Strategy in the Surgical Treatment of Primary Spinal Tumors. Global Spine Journal. Volume 2. No. 4. 2012. 249-265. Print.

In general, surgical treatment options presented by your surgeon are aimed at relieving pressure on nerve roots in an attempt to address pain.

Some of the images in this brochure depict VB Spine's products. Please speak to your doctor if you have questions about these products or anything else in this brochure.

The information presented is for educational purposes only. VB Spine is not dispensing medical advice. Please speak to your doctor to decide if spinal surgery is right for you. Only your doctor can make the medical judgment regarding which products and treatments are right for your own individual condition. Spinal surgery carries certain risks. Your surgeon will explain all the possible complications of the surgery, as well as side effects. Each spinal surgery patient will experience a different post-operative activity level, depending on his/her own individual clinical factors. Your doctor will help counsel about how to best maintain your activities in order to recover properly from your surgery. Such activities include not engaging in high-impact activities that could de-stabilize any instrumentation that may have been implanted.

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