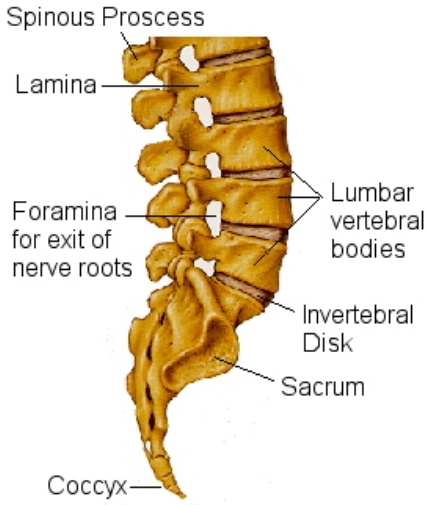
Spinal Fusion

The spinal column (*backbone*) is made of many bones (*vertebrae*) that can all move, in relation to each other. That is why we can bend our backs and turn from side to side. Each vertebra has many joints. With age, each joint degenerates and is capable of hurting with movement.



Spinal fusion is a process by which the vertebrae of the spinal column are fused together. This is done with bone grafts and/or devices such as metal screws and rods, so the back bones will heal into a single, solid bone. This surgery stops movement between bones of the back, and prevents deformity or pain. The segments of the spine that are fused are not flexible, and cannot allow movement.

PURPOSE OF THE PROCEDURE

Spinal fusion is used to treat some of the following problems:

- Injuries to the back.
- Slipped or herniated disk (*cartilage between the vertebrae*).
- Abnormal curvatures (*scoliosis* or *kyphosis*).
- A weak or an unstable back, caused by infections or tumors.

PROCEDURE

- An incision is made over the site of the spine that is to be fused.
- The muscles are separated (*dissected*) from the bone.
- Screws are placed in each vertebra.
- The screws are attached using metal rods.
- If needed, the disks are removed and replaced with plastic implants that will allow fusion in that space.
- Screws and rods limit motion and allow bone growth. Although there is temporary stability provided by the screws and rods, long-term stability is provided by the bone growth of fusion that takes place, for over two years after surgery.
- Bone is the most common material used to promote fusion. Small pieces of bone are placed into the space between the vertebrae to be fused. Sometimes larger, solid pieces of bone are used to provide immediate support.
- Bone may come from the patient (*autogenous bone*) or from other sources.
  - Autogenous bone may be better at helping fusion to occur. Drawbacks include the extra surgery needed to remove bone from the patient's donor site, such as the hip or pelvis. Pain at the donor site can be substantial.
  - Allograft bone (*donated bone*) is available from bone banks.
  - Other bone graft substitutes are being developed but are not yet cost effective substitutes for autogenous bone grafts.
- Many surgeons are no longer using autogenous bone, and are now using substitutes which promote bone growth.

RISKS

- Risks for surgery, in general, include bleeding and infection.
- Infection may be only at the incision site, or possibly as serious as meningitis.
- There is a risk of injury to the neural elements. This can include the nerves or spinal cord.
- Nerve injury results in loss of function, depending on the function of the affected nerve. This can include muscle weakness, loss of bowel or bladder control, numbness, or pain.
- Spinal cord injury may result in loss of bowel or bladder control, loss of ability to move place to place (*ambulation*), or loss of muscle function.
- There is a risk of leakage of cerebrospinal fluid.

PREPARATION FOR THE PROCEDURE

- Consult with your caregiver before surgery.
- Blood today is very safe. It is unlikely a transfusion form another donor would cause problems. It may be possible to bank your blood, so if transfusions are needed, you are not dependent on an unknown donor.
- Depending on your risks and the amount of surgery, your caregiver may have you meet with a nutritionist before your surgery.
- Follow recommended exercise programs before and after surgery.
- Stop smoking and avoid alcohol. Cigarette smoking slows bone growth to nearly half that of a non-smoker. In addition, coughing after an operation causes pain. Stopping smoking decreases your chances of getting pneumonia.

AFTER THE PROCEDURE

- Pain is common for the first couple days following surgery. You will be kept comfortable with medicine.
- You may have a urinary catheter following surgery. This makes it easier for you to urinate, and takes away the need to visit the bathroom.
- The fused spine must remain in proper position until healing takes place. You will be taught how to move correctly and how to stand and walk. While in bed, you will be instructed to turn frequently, using a “log rolling” technique, in which the entire body is moved without twisting the back.
- You may be discharged from the hospital with a back brace or cast.
- Your family will be taught how to provide care at home.

Document Released: 09/15/2004 Document Re-Released: 12/06/2010
ExitCare® Patient Information ©2011 ExitCare, LLC.