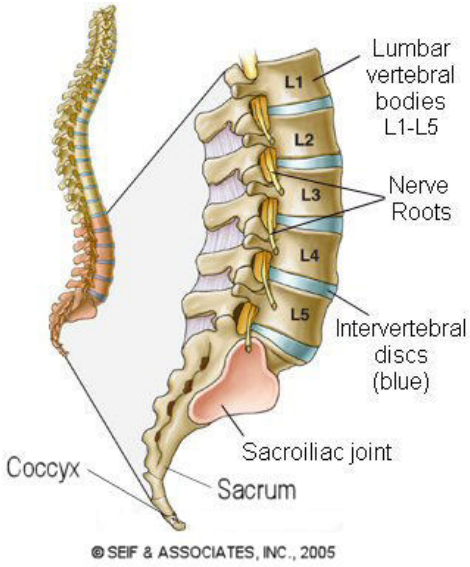
Lumbar or Cervical Fusion

The spine is made up of *building blocks* (bones) that stand on top of each other. These bones are called *vertebrae*. Cushions separate the vertebrae. These cushions are called *intervertebral discs*. These cushions are often what is damaged when someone says they have a:

- Slipped disc.
- Herniated a disc.

These discs:

- Have soft, gelatin-like centers.
- Serve as shock absorbing pads in your back.
- Prevent the vertebrae from rubbing together.
- Provide the flexibility of the spine. This allows you to move your head and flex your back.



Vertebrae and the Spinal Cord

The *spinal cord* is the large bundle of nerves in your back that carries messages from your brain to the nerves in your body. Inside each vertebrae is an open space for the spinal cord to go down. Nerves exit through holes in the vertebrae. Nerves exit to the left and to the right. These nerves exit off the spinal cord through a small opening called a *foramen*. Nerves that exit through these spaces supply all the nerves of your body below the neck. The spinal cord and nerves carry messages that tell your muscles what to do. They also allow you to feel *sensation* (feeling). For example, you can tell if something is hot or cold.

CAUSES

Some bone disorders of the back require surgery. These problems include:

- **Herniated Disc:** Herniated disc is a common back pain diagnosis. This is also known as a slipped or *ruptured* (broken) disc. One of the reasons for this is a drying out (*dehydration-loss of body fluids*) of the discs as we grow older. This means the soft gelatin-like centers dry and flatten out. In this condition, the center of the disc bulges through the ring around the outside of the disc (*annulus*). With this degeneration, the vertebrae get closer together and cause pressure against the nerves. This can cause pressure on a nerve and produce pain in the area supplied by that nerve. Herniated discs commonly occur from injuries or other sudden movements.
- **Bone Spurs & Spinal *Stenosis* (narrowing):** As we age there are often bony growths that develop. These growths are bone spurs, also known as *osteophytes*. Bone spurs are the body's natural response to the *inflammation* that results from the aging spine. The collection of calcium that turns into the bone spur is a type of natural *fusion* (coming together of parts). However, as they grow and extend, the vertebral openings or spaces become narrower. Either the spinal canal and/or the *foramen* (the opening for nerve passageways) become smaller. This narrowing may cause a pinching *(compression)* of the spinal cord or the spinal nerve root. This can cause pain, weakness, numbness and loss of coordination in the neck or upper *extremities* (arms/hands and legs/feet).

TREATMENT

Pinching of the nerves is a common cause of long standing pain. When this happens, a procedure is performed to relieve the pressure on the pinched nerve roots, or spinal cord. The procedure is done to stop the movement of your spine pressing on the nerves. This relieves the pain. The procedure to stop the spine from moving is called a *fusion*.

An *incision* (cut by the surgeon) is usually made over the area of the pinched nerve. After exposing the pinched nerves, the neurosurgeon uses an operating microscope and removes the affected disc, taking the pressure off the nerves or spinal cord. This is called *decompression*. The area where the disc was removed is then filled with

a bone graft that will fuse the vertebrae together over time. This means it causes the vertebral bodies to grow together. The bone graft may be obtained from your own bone (your hip for example), or is sometimes also obtained from a bone bank. This is similar to a blood bank, only the bone comes from human donors who have recently died. This type of graft is referred to as *allograft bone*. The preformed bone plug is safe and will not be rejected by your body. It does not contain blood cells.

In some cases, the surgeon may use hardware to make the spine more stable. This means that metal plates or other hardware may be used to:

- Provide extra support to the back.
- Help the bones grow together more easily.

A fusion procedure takes a couple hours to several hours, depending on what needs to be done. Your caregivers and surgeons will be able to answer your questions for you.

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