

Lumbar Fusion

(PLIF, TLIF, POSTERO LATERAL FUSION AND INTERSPINOUS DEVICES)

Sometimes it is necessary to perform a lumbar spinal fusion. This is done to create a bony union between two or more lumbar vertebrae, in order to stabilise the spine. It is usually done for instability which may arise from an injury or from wear and tear changes. It may also be secondary to extensive decompressive surgery or may be made necessary by a gradual dislocation from an inborn abnormality. Other causes are infection, tumour or a previous fusion that has failed to unite.

A spinal fusion operation is also sometimes performed following lumbar disc removal, nerve decompression, removal of vertebral bodies or for the correction of spinal deformity.

In order to improve the chances of successful bony union, internal supports and pedicle screws are often used. Internal devices may consist of blocks of bone, plastic or metal, which are introduced between the vertebrae. Instrumentation consists usually of pedicle screws with rigid linkages. These pedicle screws pass through the pedicles of the vertebrae and achieve a strong hold on the vertebrae. They are then inter-connected with a rod.

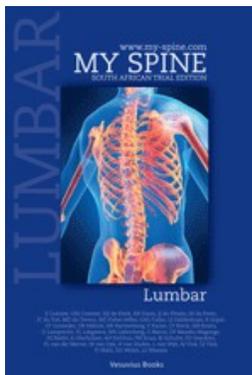
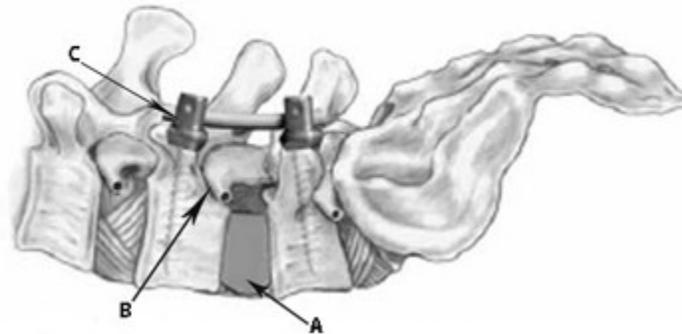
The proper fusion is achieved through bone growth. The bone is placed between and around certain segments of the adjacent vertebrae, which then grow together. Many of the interspinous devices do not constitute a proper fusion as the aim is not bony growth, but rather to keep the distance between the spinous processes and allow for the spinal canal to be capacious, thus reducing nerve compression due to a narrowing of the canal.

These operations often need bone to be harvested from the iliac crest (the hip) of the patient through usually a separate incision, because at this stage the use of the patient's own bone for fusion is still regarded as the gold standard. Sometimes the decompression operation yields enough excised bone that can be collected and prepared to be used for the bone graft. Allograft from a bone bank or synthetic material (inducing bone growth) is also used by some specialists for this purpose.

The main aim of the fusion operation is to achieve bony fusion. If this is not achieved, then the operation has failed and if the patient continues to have symptoms, another operation might have to be performed in the future. Bone growth is variable and depends on many factors. These vary from person to person.

It is usually assumed that bone growth takes place from six weeks onward and significant bone growth usually only occurs within three to six months. If it takes longer than a year, then it is called a delayed union and if it takes longer than two years one must assume that the fusion is unlikely to unite.

If decompression of the nerves are required, removal of damaged disc or even more extensive removal of the spinous processes and laminae may be needed. In this case the nerves and the spinous dural sleeve (the membrane that contains the nerves) will



form part of the operating field. In these cases the bone transplant has to be placed on and in-between the transverse processes on the side of the spinal canal.

Ward care

The initial phase of the post-operative care consists mainly of managing the post-operative pain and of early detection of complications. Usually you would be expected to get out of bed on the first or second day after surgery. You may usually walk around as much as you want depending on the stability of your spine. Your specialist will advise you about this.

You should avoid sitting for too long or on too low a seat, because this may cause strain on the back and result in pain. Your specialist may recommend a period of time during which you should refrain from sitting. Your specialist also may or may not require you to wear a brace until the bony growth has advanced to the stage where the brace can be discarded.

Discharge

You would normally be discharged at about five to ten days after surgery, depending on the degree of pain and disability you are experiencing and on the absence of any complicating wound factors or concern about your general health at the time.

The hospital staff will assist you in obtaining your follow-up consultation bookings, the prescribed analgesics to take home, the sick leave-certificate to be provided by your doctor and the instructions regarding wound care provisions in the post-operative period.

Rehabilitation

It is important that you gradually become more active and mobile and that you follow an exercise program.

Your return to work should depend on a realistic assessment of your ability to perform your work. After a spinal fusion, it would usually be after two to three months, depending on the type of work you do and the circumstances under which you perform your work.

It is important to follow the exercise program according to the guidelines laid down by your physiotherapist and later by your biokineticist. You should refrain from exercises that involve impact until you are much more comfortable. Jogging, mountain biking and equestrian pursuits usually have to be delayed for some months.

Follow-up

You will generally be seen by your specialist between two and six weeks following surgery, but you may be seen earlier if there are any complications. The spinal fusion would ordinarily be examined by means of an X-ray of your back a few months after the operation, to evaluate the bone growth between the two vertebrae.

It is important to realise that you will have to protect your back for the rest of your life and apply good back habits.

