Southend University Hospital
NHS Foundation Trust

Patient Information Service

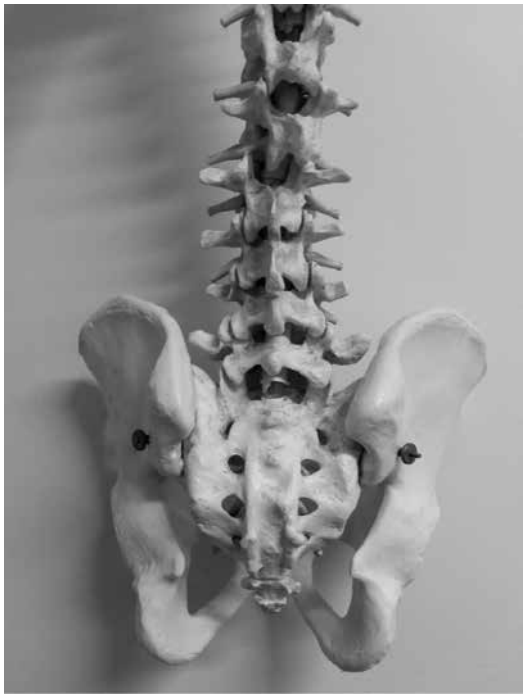
# Guide to lumbar spine surgery

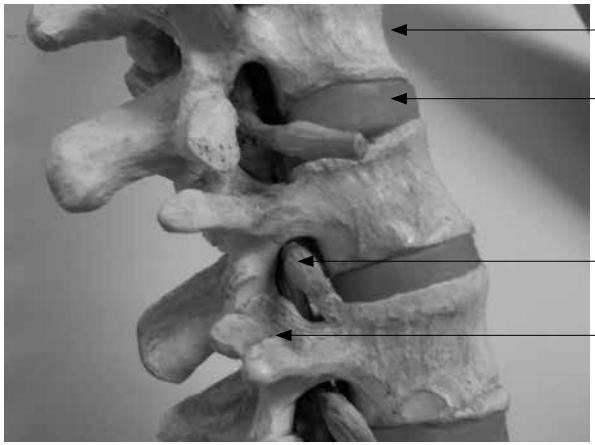
At Southend University we offer several types of lumbar spinal surgery. This guide is designed to give you an overview of what to expect if you elect to undergo one of these procedures and what precautions you should follow afterwards.

Many different staff will be involved in your care including doctors, nurses, healthcare assistants, physiotherapists, occupational therapists, activities of daily living advisors and rehabilitation assistants.

**Your surgeon will be glad to discuss the procedure with you and will be pleased to answer any questions regarding surgery and recovery, so don't be afraid to ask.**

# Spinal anatomy



# Types of spinal surgery

**Discectomy/decompression Surgery**
This is a procedure which relieves pressure on the nerve roots. Pressure can be caused by 'wear and tear' to discs, ligaments and joints. The procedure is usually carried out when pressure from a disc, bone or surrounding soft tissue causes irritation to the spinal nerve roots which may lead to pain, weakness, decreased sensation, pins and needles, numbness or tingling in the leg on the side of the compression.

The surgery aims to relieve compression on the nerve root, decrease leg pain, improve the pins and needles/numbness and improve sensation and muscle power. Although back pain (if present) may decrease following this procedure, the aim is to relieve the leg symptoms rather than the back pain. Improvement may not be immediate and discomfort may continue for as long as nine months to a year, but do not be disheartened – this is normal because nerve tissue is very sensitive and can take a considerable time to recover, especially if you have had your symptoms for a long time. About three out of four patients undergoing this procedure are significantly improved, although there may not be complete relief from pain. The majority of patients are able to return to most of their normal sporting and social activities.

**Spinal fusion surgery**
This is a procedure which aims to permanently stop the movement between two vertebrae. It is usually carried out when you have chronic low back pain resulting from problems with the intervertebral discs. This can also lead to pain, weakness, decreased sensation, pins and needles, numbness or tingling in

the leg. Fusing the vertebrae aims to reduce the mechanical low back pain and associated impingement of nerve roots.

Lumbar spine fusion can be achieved in a number of different ways:

**Postero-lateral uninstrumented fusion** – synthetic and/or local bone graft or bone from the pelvis is placed around the spinal joints and between the vertebrae. During the healing process (usually 6 to 18months) the vertebrae fuse or grow together.

**Postero-lateral instrumented fusion** – in addition to bone grafting, metalwork is used between the vertebrae to stop movement occurring and enhance the fusion.

**Posterior interbody fusion** – bone graft (usually with cages) is placed between the vertebrae, where the disc has been removed, creating a solid block between the two vertebrae. Metalwork is also often used.

**Anterior interbody fusion** – an incision through your abdomen (stomach) is used to expose the disc. The disc is removed and bone graft (usually with a cage) is placed between the vertebrae.

A fusion can be combined with decompression/discectomy if it is indicated.

The possibility that the back pain will significantly decrease varies from one case to another. Generally two thirds of patients undergoing this procedure will have significantly (but not necessarily completely) resolved back pain. If decompression/ discectomy is carried out at the same time, approximately 70 per cent of patients will have significantly reduced leg pain.

## Stabilisation surgery

Stabilisation is a procedure which aims to enhance the normal motion between two or more vertebrae affected by segmental instability. It is usually carried out for spinal fractures or chronic low back pain which results from problems with the intervertebral discs and joints. This can also lead to pain, weakness, decreased sensation, pins and needles, numbness or tingling in the leg. The graft material used for this procedure helps achieve smooth and stable, although restricted, movement between the vertebrae.

## Disc replacement surgery

Disc replacement is a procedure which replaces the worn out disc, while maintaining movement at the operated spinal level. This procedure is used for the treatment of severe or disabling low back pain which has persisted despite non surgical treatment.

The aim of lumbar disc replacement is to recreate normal function whilst relieving the underlying back pain, and prevent problems developing at other levels of the spine. The implant maintains the curve in the lumbar spine. Improvement may not be immediate and can continue for a few months to a year. Two thirds of patients undergoing this procedure are significantly improved, although this may not result in complete relief of pain. The majority are able to return to a full range of normal sporting and social activities.

The long term (more than three years) outcome is not certain. It is not known for sure if the improvement noted shortly after surgery will be maintained in the long term.

## Complications of surgery

The aim of this guide is to be informative. Listed below are potential complications. All procedures have a degree of risk and if you are concerned speak to your consultant or GP.

## General complications

**Wound infection:**
The risk of wound infection following surgery is less than 2 per cent, but sometimes further surgery is needed to clean the wound. This is usually combined with an extended course of antibiotics (commonly about three months).

**Deep vein thrombosis and pulmonary embolism:**
Any operation which leads to a reduction in normal mobility poses a slight risk of blood clots developing in the legs causing pain and/or swelling in the legs. The risk following this procedure is extremely small. There are various ways to reduce the risk of this happening including special stockings, leg pumps and brisk ankle exercises to improve circulation, and drugs to thin your blood. Early mobilisation and avoidance of prolonged bed rest are the most important post operative factors.

In a small number of cases a blood clot can travel to the lungs and cause a pulmonary embolism, leading to breathlessness and chest pain. In extreme cases a pulmonary embolism can be fatal. However, it is possible to treat pulmonary embolism with blood thinning drugs and oxygen therapy.

**Dural tear:**
Sometimes during surgery the waterproof membrane around the nerves is adherent (sticky) to the surrounding structures. If it is torn during the surgery there is a risk of fluid leaking

from the wound, which usually settles down spontaneously without causing any problems. Occasionally, this may be treated with insertion of a spinal catheter and a few days of bed rest. Surgery may be required to correct this problem.

A dural tear can cause severe headaches and sensitivity to light. If this happens after you have been discharged you should seek medical advice in Accident and Emergency.

**Bladder and bowel disturbance:**
There is a very small risk of damage to the nerves that control the bladder and bowel. This could lead to a change in bladder and bowel habits, and on rare occasions, a loss of bladder and bowel control.

**Nerve damage:**
There is a small risk of damage to the nerve roots. The risk of permanent damage is about one per cent. If it occurs you may notice increased numbness in part of your leg and/or some weakness of movement.

**Foot drop:**
If there is damage to a nerve root during surgery and weakness develops it may result in a 'foot drop'. This is a weakness or a complete loss of muscle strength at the ankle. If this occurs, you may be treated with an ankle/foot brace.

**Recurrence/worsening of symptoms: – fusion/stabilisation**
There is a small chance of recurring or worsening symptoms (about 10 to 20 per cent). This could possibly be due to scarring, damage to muscles, ligaments or nerves, further degeneration in the spine levels above or below the level of the fusion/ stabilisation or for no obvious reason.

**Recurrence/worsening of symptoms: discectomy/decompression**
There is a small chance of recurring symptoms (about ten per cent). This could be the result of recurring disc prolapse, scarring around the nerves or narrowing of the space available for the nerves which can occur with wear and tear in the discs and joints in the lumbar spine. There is also a small chance of increased leg pain after surgery and some patients may experience persistent or increased low back pain. This is felt to be related to ongoing disc and facet joint wear and tear. Most people can cope with the back pain, but a few may need further surgery for it.

## Specific complications for anterior lumbar surgery (through the abdomen/stomach)

**Hypogastric plexus injury:**
To expose the lumbar discs through the abdomen a small set of nerves called the hypogastric plexus, lying just in front of the spine, have to be mobilised and retracted. If these nerves are injured, (less than five per cent), this can cause retrograde ejaculation in men. Erection is not affected. Therefore, men undergoing this procedure may want to make arrangement for sperm storage for future use.

**Blood vessel injury:**
To expose the lumbar discs through the abdomen, the blood vessels to and from the legs are exposed, mobilised and retracted. There is a small risk of injury to these vessels, which is usually repaired immediately, and causes no problems afterwards. In rare instances this may be more serious and need further vascular surgery.

**Implant related problems:**
There is a small risk of the implant migrating or dislocating, which could cause nerve or blood vessel injury. This can be serious and may need further surgery.

**Need for further surgery:**
According to different studies, there is a chance that 3 to 24 out of 100 patients undergoing this surgery will need further surgery to the low back.

## Fusion specific complications

**Failure of fusion:**
The possibility that the fusion may not take can vary between 5 to 30 per cent. In some cases this may not cause any symptoms but occasionally further surgery may be required.

## Hospital diary

**Prior to surgery**
You will be asked to attend the pre-admission clinic where you will have several pre-surgery tests including blood tests and checking your heart. You will also have an assessment by the clinic doctor or nurse to determine your individual needs. After reviewing your current condition and investigations, the doctor will discuss with you the details of your surgery and post-operative care. Please note that, based on the up-to-date review, the recommended surgery may be changed from the procedure you were told about when your name was originally added to the waiting list. This will be thoroughly discussed with you.

# On admission to hospital

Your doctor will check the results of your pre-admission tests and may re-examine you. Your care will be planned with you by a qualified nurse.

**Operation day**
You will be asked to stop eating six hours prior to your operation, but may continue to drink until three hours prior to it. You will also need to have a shower and may be given medication to relax you.

After the operation you will be nursed in the post-operative ward before returning to your own ward. When you wake you may find a tube to remove excess fluid from the wound area draining into a bottle situated by your bed. This is normally removed within 24 hours. Your pain relief may be under your control using a patient controlled analgesia (PCA) machine. If not, the nursing staff will give you pain relieving injections or tablets when necessary. A urinary catheter may have been inserted, if it is felt necessary by doctors, just before or after surgery.

**After your operation**
Drip tubes in your arm and drains from your wound may be removed. A catheter may be inserted if you are having difficulty passing urine.

You are required to lie flat on your back from the time of the operation until you are seen by a physiotherapist or the nursing staff. This may be on the same day of your operation or on the day following surgery, depending on your consultant's instructions. The physiotherapist will teach you bed exercises, which you will be expected to do at least three times a day.

These exercises are designed to introduce gentle movement and help strengthen the muscles that support your lower back.

You will be assisted to log roll and transfer to sitting on the edge of the bed. It is not unusual to feel dizzy, light headed or nauseous the first time you get out of bed. You will also take a few steps and sit in the chair for a short period (no longer than 15 to 20 minutes). Whilst sitting you should be well supported and maintain good posture at all times.

**Progressing on**
Your bed exercises will be monitored and progressed as appropriate. You will be assisted to walk and can continue to sit out, but only for short periods. When the physiotherapist feels you are ready you will be taught how to walk up and down stairs or a step as needed.

Your sitting time will be increased as you become more comfortable but it is recommended that you sit for no longer than 30 minutes at a time. You may sit out, more than once during the day, but must pace yourself and take regular rests in bed.

## After discharge

It is essential that you continue to do all the exercises you were taught whilst on the ward. It is your responsibility to do these and is vital to your recovery.

**Equipment**
Prior to discharge you will be assessed using furniture of a similar height to that at your home. If you are struggling with low furniture the rehabilitation team can suggest equipment which may be beneficial to you.

When you have finished with any equipment you have been loaned you should contact the equipment stores using the contact number located on a yellow sticker on equipment or on the paperwork that arrived with it.

**Follow-up care**
Your wound may be closed using either skin glue or with clips or sutures. You will be advised of which method has been used by your nurse prior to discharge. If clips or sutures have been used, these will normally need to be removed after two weeks by your GP practice nurse or a district nurse. If you do not receive an appointment for this please contact the ward.

Your consultant will review your progress in clinic, usually at six weeks and twelve weeks after your operation, at which point you can discuss your return to work.

**Wound care**
There is a small risk of wound infection following surgery. Although a wound infection is serious, the risk is reduced by showering before your operation, antibiotics, and following the advice given below.

1. Avoid prolonged contact with water. You can have quick showers but no baths.
2. Carefully dry the area surrounding the wound.
3. Regularly ask someone to inspect the wound site for swelling or fluid (clear/blood/yellow-green) leak.
4. Following showers, ask a friend/relative to re-dress the wound with clean hands. New dressings can be provided before you are discharged.

5. Some discomfort in the wound site is normal, but if it is getting worse, you should suspect infection.

6. If you have any concerns, contact your consultant's secretary to arrange a wound check. At night or at the weekend, contact your 'Out of hours' GP or attend the Accident and Emergency Department.

**Rehabilitation post discharge**
You will be given a letter and asked to phone to arrange an appointment for a hydrotherapy follow-up, usually two to three weeks after your operation. This is for an assessment and to plan your outpatient rehabilitation.

**The first appointment will be land based.**

## General precautions

It is recommended that the list of precautions below is followed for three months after surgery, unless advised differently by your physiotherapist:

- mobilise and exercise within pain limits and increase as able
- no bending or twisting of the spine
- no sitting on low chairs or sofas
- no sitting up in bed
- continue to log roll in bed and for transfers
- no prolonged sitting (more than 30 minutes)
- no bathing – use showers only

- no heavy lifting
- ALWAYS MAINTAIN GOOD POSTURE WHEN STANDING AND SITTING.

**If you have any residual leg pain or numbness, it can continue to decrease for up to nine months or a year after your operation. Do not be concerned if this has not entirely gone, as it takes a considerable time for the nervous tissue to recover from compression or irritation.**

## General postural advice

The natural curves of the spine should be maintained as much as possible whenever standing, sitting or lying.

**Bending**
Bend your hips and knees – not your back.

**Lifting**
Tighten your tummy muscles before you lift and keep them tightened. Know your limits and only lift what you are comfortable with. Reduce the load when possible into several smaller loads. When carrying keep the object close to your body.

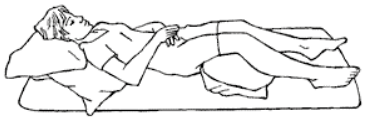

**Twisting**
Avoid twisting – turn the whole body by moving your feet.

**Reaching**
Re-arrange your work area. Avoid reaching and make sure commonly used items are close by.

**Pushing/pulling**
Tighten your tummy muscles first.

## Sleeping

**Lying**
You should either lie on your back or on your side. Whilst lying on your back, a pillow under your knees may help relieve pressure on your lower back. If lying on your side you should always have a pillow between your knees. A pillow under your waist may be beneficial.





**Turning in bed**
You should 'log roll' at all times. You will be shown how to do this on ward. Bend your knees up, one leg at a time. Keeping your knees in line with your body, reach across with your arm and then roll using your knees and shoulders at the same time to avoid twisting in the middle.

**Lying to sitting**
Once you have log rolled onto your side, drop your feet over the side of the bed and at the same time push with your arms to sit up.

## Sitting

Start by sitting in a supportive chair, with good posture and your feet flat on the floor, for no longer than 15 to 20 minutes. If you feel uncomfortable before this time has elapsed you should transfer back to bed. You should increase your sitting time gradually, at your own pace, but it is recommended that you sit for no longer than 30 minutes at a time without a break.

## Mobility/walking

Whilst walking you should maintain a good posture and should not need any walking aids. Initially after the operation you will walk with the support of one or two staff as necessary.

The use of walking aids is not advocated as they encourage you to lean forward and adopt a poor posture.

## Stairs

Use the banister for balance. If one leg is stronger and less painful, lead with this leg going upstairs and take one step at a time. To go downstairs, put the weaker or more painful leg first.

## Functional activities

### Domestic tasks

Approximate times for returning to domestic activities:

| Activity | All surgeries | Different for spinal fusions |
|---|---|---|
| Shopping | 6 weeks | |
| Cooking | 6 weeks | |
| Ironing | 2-3 months | |
| Vacuuming | 2-3 months | |
| Making the bed | 2-3 months | |
| Washing/hanging clothes | 2-3 months | |
| Mopping/sweeping | 2-3 months | |
| Cleaning the bathroom | 2-3 months | |
| Reaching high or low cupboards | 2-3 months | |
| Gardening | 3 months | 4-6 months |

### Sport and other activities

You should not participate in any sporting or other activity until you are reviewed in the clinic at six weeks after your surgery. The table below is a guide only.

| Activity | All surgeries | Different for spinal fusions | Different for disc replacements |
|---|---|---|---|
| Pilates | 6 weeks | | |
| Yoga | 6 weeks | | |
| Swimming | 6 weeks | 2-3 months | 6 weeks |
| Cycling | 3 months | 2-3 months | 6 weeks |
| Golf | 3 months | 4-6 months | |
| Tennis | 3 months | 4-6 months | |
| Running | 3 months | | |
| Badminton | 3 months | 6 months | |
| Light gym weights | 3 months | 2-3 months | |

## Social activities

### Travelling in a car

On discharge you will generally go home in a car. It is recommended that you don't travel in a car for longer than 30 minutes during the first two weeks and break up longer journeys with frequent stops, so you can get out and move around.

To get in the car, push the passenger seat back as far as possible and maintain an upright position for your spine whilst getting into the car and throughout the journey. You may find that holding onto the dashboard and door frame assists you to lower yourself to the car seat.

**Walking**
Being active is the key to optimal recovery. Walking is a low load activity that is suitable for most people from day one following your surgery. The distance you can walk will vary from person to person, but you should aim to increase the distance and time you walk daily. It is important that you always wear supportive footwear and maintain a good posture.

**Driving**
You can usually start to drive when you can sit comfortably and are able to adjust the pedals with your feet. This is usually around one month after surgery (unless told otherwise by your consultant). If possible, take your first drive on quiet roads and make sure you are confident in performing an emergency stop. You will need to adjust your seat to ensure you are maintaining a good posture throughout your journey. Start with short journeys and increase the distance gradually.

**TV/cinema**
Maintain your neutral back curve when watching television or when sitting in the cinema. Take frequent breaks and do not stay in one position for more than 20 to 30 minutes.

**Sex**
As a general rule you should take a passive role, normally lying on your back. Try to avoid bending and twisting your spine.

**Pacing**
This is the way to increase your activity level in spite of any pain or discomfort thus achieving your own personal goals.

1. Start by deciding what your current level of comfortable activity is; that is the number of repetitions of an exercise, eg walking distance, sitting time, number of step-ups etc for each exercise. This is your baseline

2. Increase the activity in a gradual, controlled manner every day or every other day. This should prevent you from overdoing it.

## Exercises

**All exercises should be completed five to ten times at regular intervals throughout the day.**


**Breathing exercises**
Relax your neck and shoulders and place your hands on your stomach. Breathe in deeply through your nose and feel your stomach expanding outwards. Hold your breath for a few seconds then breathe out through your mouth.

Repeat four times every hour.


**Ankle pumps**
Lying on your back or sitting. Paddle your feet and ankles up and down briskly. Repeat for approximately two minutes each hour.

This exercise can begin immediately after surgery and continue until you are fully recovered.


**Quadriceps exercises**
Lying on your back with legs straight. Pull your feet towards you and push your knees down firmly against the bed. Hold for ten seconds then relax.


**Buttock contractions**
Lying on your back with legs straight. Squeeze your buttocks firmly together. Hold for ten seconds then relax.


**Knee bends**
Lying on your back with legs straight. Bend and straighten both legs alternately.


**Knee rolling**
Lying on your back with your knees together and bent. Slowly roll your knees from side to side keeping your upper trunk still.

Do not roll your knees outside the width of your shoulders.


**Transverse abdominus exercise**
Lying on your back with your legs bent, feet together and your back in a neutral position. Pull your tummy button down towards your spine, without moving your pelvis. Hold for ten seconds then relax.

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**Pelvis tilting (not un-instrumented fusion)**
Lying on your back with your legs bent, feet together and your arms by your side. Tighten your stomach muscles and press the small of your back against the bed letting your bottom rise. Hold for ten seconds then relax.

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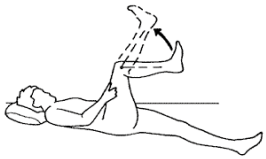
**Single leg flexion in lying**
Lying on your back with your knees bent and feet on the bed. Lift one knee towards your chest. Place your hands behind the knee and draw it into your chest. Hold for ten seconds then relax.



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**Hamstring stretch**
Lying on your back with both legs straight. Bend one hip to 90 degrees and hold behind the thigh. Slowly straighten the knee until a stretch is felt at the back of the thigh. Hold for ten seconds then relax.

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**Side flexion in standing**
Stand and bend sideways at the waist, taking your right hand down towards your right ankle, as far as you are comfortable. Hold for ten seconds, and then return to your starting position. Repeat on the other side.

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**Extension in standing**
Stand straight with feet apart. Support your back with your hands while bending your back as far backwards as possible. Keep your knees straight during the exercise.

## Contact numbers

| | |
|---|---|
| Shopland ward | **01702 385375** |
| Castlepoint ward | **01702 385552** |
| Rehabilitation | **01702 435555 ext 6661** |
| Mr Dannawis' secretary | **01702 435555 ext 5258** |
| Mr Prasads' secretary | **01702 435555 ext 6857** |

If you need to change your physiotherapy follow up appointment please call: **01702 385244**
Lines open 8.30am to 4.00pm, Monday to Friday.

Southend University Hospital
NHS Foundation Trust

# Patient Information Service

If this leaflet does not answer all of your questions, or if you have any other concerns please contact the rehabilitation department on: **01702 435555 ext 6115**.

## www.southend.nhs.uk

For a translated, large print or audio tape version of this document please contact:

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