

Working to relieve the pressure!

What is a Lumbar Puncture (LP)?

A lumbar puncture (LP) is the insertion of a needle into the cerebrospinal fluid, (CSF) within the spinal canal. This fluid surrounds the spinal cord and the brain, and in part acts as a shock absorber, protecting the delicate structures that make up the central nervous system. It is termed a "lumbar puncture" because the needle goes into the lumbar portion (the 'small') of the back.

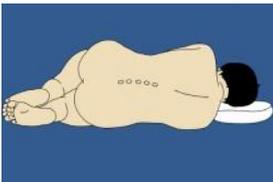
Other names for a lumbar puncture include spinal tap, spinal puncture, thecal puncture and rachiocentesis.

What are Lumbar punctures used for?

Lumbar punctures are used to diagnose a number of medical conditions. Laboratory analysis of the cerebrospinal fluid can tell doctors important things about the health of the central nervous system and whether any infection is present. As the needle is inserted into the spinal canal, the pressure of the fluid can be measured. The 'normal' pressure of cerebrospinal fluid (which is measured in mm/H₂O or cm/H₂O) is considered to be 8 - 25cm (or 80 - 250mm). Pressure over 25cm (250mm) is generally classified as intracranial hypertension.

In IIH, lumbar punctures are used to diagnose intracranial hypertension. They may also be used therapeutically for relief of symptoms and to protect vision. The human body produces around a pint of CSF every day though, and the pressure of CSF can very quickly (within hours) return to pre-lumbar puncture levels, which results in a high pressure headache returning. Because of this and the risks associated with LP, not many doctors will perform therapeutic lumbar punctures unless in an emergency situation.

How are lumbar punctures performed?

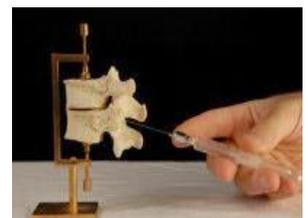


The most common position used is lying on your side in the foetal position. You will lie on your side with your back parallel to the edge of the bed and be facing away from the doctor. You will be asked to lie with one pillow under your head with your neck bent down towards your chest, with a pillow between your knees and your knees pulled up towards your chest. This is so that your spine is straight and the spaces between the vertebrae are opened as widely as possible.

The doctor will find the correct area to perform the lumbar puncture by feeling the top of your pelvic bone and following an imaginary line around your back to your spine. They will then press on the vertebrae in the lumbar area, in the small of your back to find the right part of the spine (the needle is usually placed between the 3rd and 4th lumbar vertebrae) and mark the spot where the needle is to be inserted.

Local anaesthetic is injected into the small of the back (the lumbar area), the area is sterilised using an antiseptic solution and a needle is inserted in between the vertebrae into the spinal canal.

Once the spinal canal is pierced and the CSF starts to flow, a measuring device called a manometer is attached that looks rather like a large thermometer and the opening pressure of the CSF is measured.



Some of the fluid will be collected for microbiological analysis to check for infection and then an amount of fluid will be drained off to get the CSF pressure within normal ranges before the needle is taken out and the area dressed.

If the doctor has difficulty in performing the lumbar puncture i.e. sometimes the needle may hit bone or it may be difficult to drain the CSF fluid even though the needle is in the right area, it may be necessary to perform the procedure under x-ray or ultrasound guidance.

It is important that you tell the person performing the lumbar puncture if you feel pain. Also, there must be no more than 3 attempts to insert the needle in to your spine. Any more than three attempts may result in an incorrect reading and the procedure should be stopped and re booked for another day. You have the right to tell the person performing the lumbar puncture to stop at any time.

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What happens after a Lumbar puncture?

After a lumbar puncture you will be told to lie down for at least an hour. Some hospitals may let you go after an hour if you feel well enough, some may make you stay for 4 hours, and others may make you stay in hospital overnight.



You should take things easy for 24-48 hours following a lumbar puncture. Once the local anaesthetic wears off, the area will be sore and painful for 1-3 days afterwards. The most important things after a lumbar puncture are rest and drink plenty of fluids.

You may feel okay after a lumbar puncture, but it's important that you rest because moving around a lot and doing strenuous exercise can slow the healing of the internal puncture wound, which can cause it to continue "leaking" and can cause a low pressure headache. Children should not take part in PE when they return to school for at least a week.

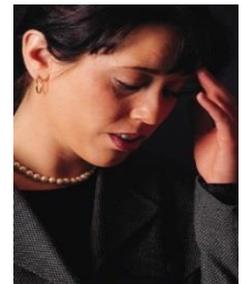
Are Lumbar Punctures safe?

A lumbar puncture is a very safe and very common procedure. Like many medical procedures there are some (uncommon) risks. When spinal fluid is removed during a lumbar puncture, the risks include headache, brain herniation, bleeding, bruising and infection. These complications are very uncommon, with the exception of headache. A post Lumbar Puncture headache can start from hours afterward the LP up to 1 - 3 days later. For IIH patients the length of time you remain lying flat after the procedure doesn't affect how likely you are to develop a post lumbar puncture headache.

Post Lumbar Puncture headache – Low Pressure Headache

Post lumbar puncture low pressure headache occurs in 10% to 30% of patients within 1 to 3 days and can last 2 to 7 days.

The amount of fluid drained off during a lumbar puncture varies (there doesn't seem to be a link between the amount of fluid drained and the incidence of developing low pressure), but over the 72 hours following a lumbar puncture, due to 'leaking' of the puncture site, approximately 100ml of additional fluid is lost.



This can lead to low CSF pressure causing severe headache, neck stiffness and nausea that is worsened by sitting or standing, but not everyone gets this.

If you do develop a low pressure post lumbar puncture headache, the best treatment is to rest, lying down flat with no pillows and to drink plenty of fluids. It is also suggested that additional caffeine can help – but check with your doctor first.

If you are at all concerned or the headache lasts for longer than 7 days you should contact the hospital where the lumbar puncture was performed.

If the headache continues, a very effective procedure called a blood patch, can be carried out, where a small amount of your own blood is injected into the site of the lumbar puncture. This forms a clot and stops the leaking of any further CSF.