

Physio Med Self Help for Non-specific Low Back Pain

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Low back pain is one of the main reasons people visit their Doctor. Eighty percent of people will have low back pain at some point in their lives. Recurrence is very common when people do not know how to help it.

Very few people who feel pain in their low back have a serious medical problem. Ninety percent of people who experience low back pain for the first time get better in two to six weeks. Only rarely do people with low back pain develop chronic back problems.

With these facts in mind, you can be assured that back pain is common, that it usually only causes problems for a short period of time, and that you can take steps to ease symptoms and prevent future problems.

If you are suffering from pain in your lower back, you may be feeling tension, soreness or stiffness. This pain is often referred to as 'non-specific' back pain.

Anatomy of the Area

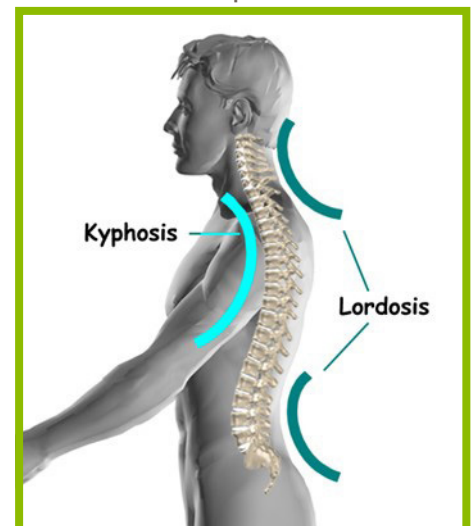
Many important parts make up the anatomy of the back. Understanding the regions and structures of the lumbar spine can help you be more involved in your health care and better able to care for your back problem.

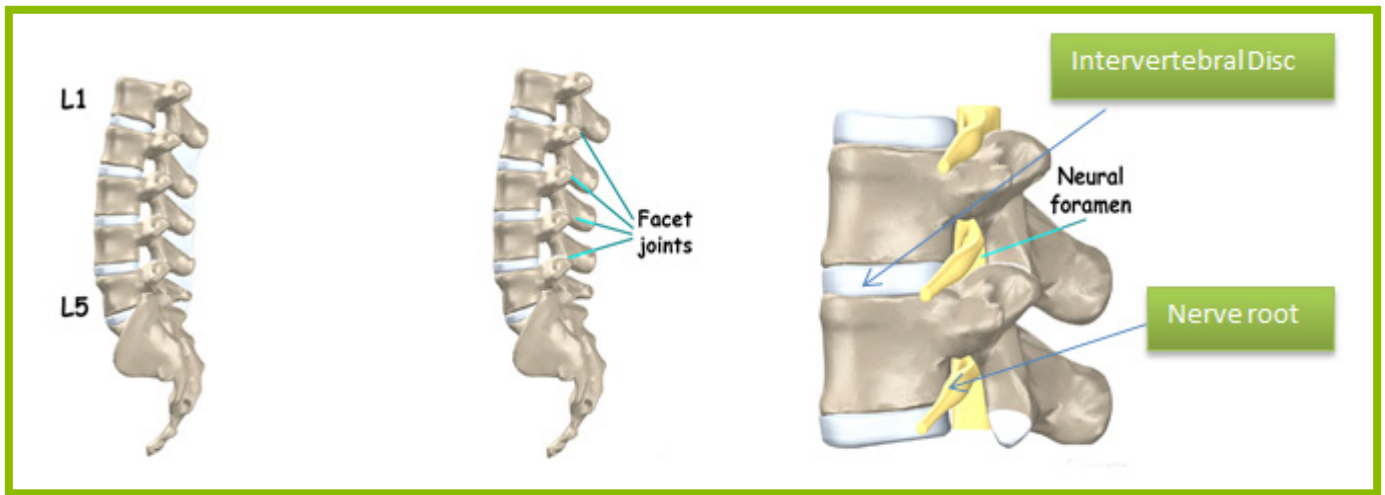
Bones and Joints

The human spine is made up of 24 spinal bones, called vertebrae. Vertebrae are stacked on top of one another to form the spinal column. The spinal column is the body's main upright support. From the side, the spine forms three curves. The neck, called the cervical spine, curves slightly inward. The middle back, or thoracic spine, curves outward. The outward curve of the thoracic spine is called kyphosis. The low back, also called the lumbar spine, curves slightly inward. An inward curve of the spine is called lordosis. Maintaining these curves with minimal muscular effort is called 'good posture' and helps to prevent low back pain.

Three Curves in the Spine

The lumbar spine is made up of the lower five vertebrae. These vertebrae are often referred to as L1 to L5. The lowest vertebra of the lumbar spine, L5, connects to the top of the sacrum, a triangular bone at the base of the spine that fits between the two pelvic bones.





Lower Vertebrae (Lumbar Spine)

Each vertebra is formed by a round block of bone, called a vertebral body. The lumbar vertebral bodies are taller and bulkier compared to the rest of the spine. This is partly because the low back has to withstand pressure from body weight and from movements such as lifting, carrying, and twisting. Also, large and powerful muscles attaching on or near the lumbar spine place extra force on the lumbar vertebral bodies.

A bony ring attaches to the back of each vertebral body. When the vertebrae are stacked on top of each other, the bony rings form a hollow tube that surrounds and protects the spinal cord and nerve roots. Between vertebrae, two large nerves branch off the spinal cord, one on the left and one on the right. The nerves pass through a small tunnel between each vertebra called the neural foramen.

Bony lumps on the top and bottom of the vertebrae interlock when they are stacked on top of each other and these are called facet joints which aid and control the movement of the spine, along with the soft connective tissue structures (e.g. ligaments and muscles).

Connective Tissues and Muscles

Connective tissues are networks of fibre that hold the cells of the body together. Ligaments are strong connective tissues that attach bones to other bones. Several long ligaments connect on the front and back sections of the vertebrae.

A special type of structure in the spine called an intervertebral disc is also made of connective tissue. It provides most of the shock absorption in the spine and also increases the size of the neural foramen. A bulged or herniated disc (as a result of poor posture or incorrect lifting and twisting) can narrow the opening and put pressure on the nerve.

The muscles of the low back are arranged in layers. Those closest to the skin's surface, the superficial layer, are covered by a thick tissue called fascia. The middle layer has strap-shaped muscles that run up and down over the lower ribs, chest, and low back. They join in the lumbar spine to form a thick tendon that binds the bones of the low back, pelvis, and sacrum. The deepest layer of muscles attaches along the back surface of the spine bones, connecting the low back, pelvis, and sacrum. These deepest muscles (known as core stabilisers) coordinate their actions with the muscles of the abdomen to help hold the spine steady during activity which is generated by the other layers of the back muscles and abdominal muscles. Using these core stabilisers correctly is very important to prevent back pain.

Potential causes of Non-Specific Back Pain and Advice to prevent it

Every back problem is different, there are many causes of low back pain and some may have more than one cause or contributing factor. Causes can be physical, mental and emotional and more often than not a combination of all three! Every individual has to find the best way to manage their own condition and occurrence or re-occurrence may be helped by the advice below.

POOR POSTURE

Poor Posture, eventually damages the structures within the back which causes pain and dysfunction. Good posture is the term applied when the 3 spinal curves are maintained with low muscular effort. So poor posture does not just apply to those who sprawl on their sofa, hunch over their desk or slump as they stand – it also includes those who sit perched rigidly on their chair without supporting themselves against the back of it.

- The Standing Posture – avoid the 2 main types of poor posture – Sway Back and Flat Back (see postural advice section)
 - » Maintain the 3 curves with equal weight distribution by keeping your ears, shoulders and hips in a straight line (view from the side)
 - » Raise or tilt your work surface for precision tasks and keep the task at a suitable (comfortable) height so that you don't have to bend e.g. put an upturned bowl under the washing up bowl in the sink
 - » Alter your position regularly so that you don't stand still in one position for longer than 20 minutes
 - » Don't stand for long periods on a hard surface – stand on a cushioned surface, put a mat down or wear shock absorbing (rubber soled) footwear
 - » Don't stand for long periods in high heels or shoes with little cushioning or support
- The Seated Posture – sit unsupported in one position for a few minutes and the lower back muscles fatigue which results in a slouched sitting position – often referred to as a 'C' shape posture which is bad as opposed to an 'S' shape posture which is good (you can see the 3 curves).
 - » In order to maintain the 'S' shape without excess effort and rigidity; sit with both buttocks on the seat (ensure it is stable and firm), take most of your weight equally through the tail bones of the pelvis, rest your feet easily on the floor and support your low back arch with the chair back or if that won't fit properly use an additional cushion / rolled up towel. Your hips should be slightly higher or equal to your knee joint (90 degrees bend)
 - » If sat at a table or desk using a computer the middle row of the keyboard should be level with your elbow and the top of the screen (not the screen casing!) level with eye height
 - » If sat at a table or desk writing the elbow should be just below the table top. A writing slope (or tilted surface) helps stop the body from needing to lean forwards, thus maintaining good posture
 - » Office chairs can be easily altered to fit the individual; however home furniture is not so easy. To check if your sofa / armchair is right for you, you should be able to sit down into the correct position (back supported and feet on the floor) in one motion holding a cup of tea. Also you should be able to stand up again from that position in one motion still holding and not spilling the tea, without putting your hands down
 - * Too deep – pack the back with firm cushions
 - * Too soft – wrap a wooden board in foam and put it under the seat cushions

- * Too low – raise it up using wooden blocks under the feet
- * No back support – used a rolled up towel
- The Sleeping Posture – 40% of our lives are spent in bed therefore the bed and position are important to prevent back problems developing or re-occurring.
 - » Make an assessment of your bed – lay on your back, slide your hand (palm down) between your low back curve (small of your back) and the mattress...
 - * Slide hand through fairly easily with no gap? Sounds OK!
 - * There is a gap? Probably too hard - lay a spare duvet down under your bottom sheet to soften
 - * Struggle to push hand in? Probably too soft – if the mattress is not sagging try putting a board under it to add stability. You may need to replace the mattress / bed if it is sagging
 - » Make sure you have enough space, consider the height (getting on/off and making / changing it), the width and the length. A cramped night's sleep will not help reduce or prevent pain.
 - » Sleeping positions and actions that can help:
 - * Side lying with pillow between knees
 - * Put a pillow under the knees when laying on your back
 - * Put a sleep roll (or rolled up towel) round your waist (especially if side lying)
 - * 'log roll' to turn over in bed (keep body in a straight line, cross ankles and bring arm across body to roll)
 - * Fidget when awake, don't try to lay still
 - * Do not 'heave' sit-up style into sitting from lying on your back, roll over onto your side move your feet over the edge of the bed and use your arm to push you upwards (while your feet move down to the floor as a counter weight).

POOR BODY MECHANICS

Tight, overstretched or weak muscles and stiff joints within the low back and surrounding body parts can cause altered postures and activity in the low back which can cause pain. For example tight hip joints mean that the low back has to over-compensate for the lack of movement which causes increased loading to the low back and therefore pain. Or weak and underused stomach muscles lead to a sway back posture which in time becomes painful. Normally the opposing muscle groups to those which are tight are lengthened and weak and need to be strengthened.

- Tight muscles in your lower back can cause pain, stiffness and weakness
 - » If you feel this is an issue, gently stretch your back muscles to correct their length restoring both comfort and function
 - » Your stomach muscles may be weak, as the stretching starts to work over a couple of days, start some gentle abdominal strengthening and build the effort gradually
- Tight front hip muscles or buttock muscles cause overloading compensation in the lower back and reduced capability and function
 - » If you feel this is an issue, gently stretch your front hip muscles or buttock muscles to correct their length restoring both comfort and function
 - » If your front hip muscles are tight, your buttocks may be weak (and vice-versa) therefore gently strengthen the opposite muscle group to the one you are stretching and build the effort gradually

- Tight stomach muscles cause overloading compensation in the lower back and reduced capability and function
 - » If you feel this is an issue, gently stretch your stomach muscles to correct their length restoring both comfort and function
 - » Your low back muscles may be weak, as the stretching starts to work over a couple of days, start some gentle low back strengthening and build the effort gradually
- Tight posterior thigh muscles (hamstrings) cause overloading compensation in the lower back and reduced capability and function
 - » If you feel this is an issue, gently stretch your hamstring muscles to correct their length restoring both comfort and function
- Weak / underused pelvic floor muscles are a significant cause of instability and irritation in the low back for both men and women respectively. In combination with the deep abdominal muscles and deep low back muscles they make up the muscular pelvic girdle which holds the pelvis (foundation of the spine) in place
 - » You will not feel if this area is tight or weak therefore should undertake strengthening exercises as a matter of course

POOR MANUAL HANDLING TECHNIQUE (LIFTING AND CARRYING)

Lifting and carrying without checking the weight and stability of the load first, or using poor technique is a significant cause of low back pain. Such an activity doesn't just happen at work where you have correct training, policies and equipment to help you, but in the home within such activities as childcare, gardening, housework and DIY.

- Avoid the activity in the first place if that is not possible reduce the load / task
 - » Get help
 - » Use equipment e.g. hoist or trolley
 - » Breakdown the load or distance to be carried
- Assess and clear the route that the load will travel
 - » Ensure all doors are big enough and open
 - » There are no trip / slip hazards
 - » The new location is clear, large enough and at a safe height
- Ensure that you are appropriately clothed
 - » Clothes allow a full range of movement
 - » Shoes are sensible for the task
- Use safe lifting technique – 8 steps to safe lifting (Base Movement)
 - » 1. Assess the load – can you lift it safely
 - » 2. Place your feet at ten-to-two
 - » 3. Bend your knees and stick your bottom out (like a silverback gorilla!)
 - » 4. Back – keep it straight (bend from the hip like a silverback gorilla!)
 - » 5. Neck and head – keep your chin up
 - » 6. Grip – 'front knee, high hand, far corner' and 'back knee, low hand, near corner'
 - » 7. Load – hold it close to your pelvis
 - » 8. Lift using thighs and buttocks for power with stomach and pelvic floor braced

DRIVING

People who spend a large amount of their time driving are more likely to get back problems. This is because the task combines; static posture in a constrained environment, exposure to constant vibration, occasional jarring and it can be a stressful environment and activity.

- Proper adjustment - Starting with the seat in a completely wrong position makes it easier to get the right position so push the seat all the way back, place it as low to the floor as possible and recline the seat 40 – 45 degrees
 - » Bring the seat height up until you can comfortably see the road and instruments and your hips are as high as your knees. If you are still too low, try adding a small cushion or folded towel under your tail bones
 - » Move the seat forward so you can reach and fully depress all the foot pedals with a comfortably bent knee (110 – 135 degrees)
 - » Bring the back forwards until you are reclined at a 100-110 degree angle (check the previous sitting posture information in this leaflet for more detail)
 - » Adjust your headrest so it rests in the middle of your head – it should not push your head forwards!
 - » Adjust the lumbar support so that you have even back support, you can feel it support your lower back comfortably. Use a rolled up towel if your seat lacks sufficient support
 - » Bring the steering wheel down and towards you to minimize reach. You should be able to reach it with a slightly bent elbow and your back resting on the seat back
 - » Now adjust the mirrors – if you start to slouch down or get into a bad position the mirrors will feel like they need to be adjusted – this is your cue to correct your posture!
- Holding the steering wheel
 - » Lower your hands from the ten to two position to the quarter to three and feel your shoulder and neck muscles relax
- Getting in and out
 - » Always remove your wallet from your back pocket before sitting (it causes the pelvis to twist which stresses the back)
 - » When getting in, sit first and then swing your legs into the car
 - » To get out, slide the legs out first and then stand up to decrease low back strain
 - » Give your body a few minutes out of the car before lifting things out of the boot, do a few back straightening movements first
 - » Take frequent breaks to get out and stretch a least every 2 hours
- Exercise in traffic jams
 - » Shrug shoulders, hold for 5 seconds, relax & repeat x 5
 - » Pull shoulder blades back, hold for 5 seconds relax and repeat x 5
 - » Tuck chin in, hold for 5 seconds, relax and repeat x 5

Signs and Symptoms of Non-Specific Low Back Pain

Symptoms from low back problems vary. They depend on a person's condition and which structures are affected. Some of the more common symptoms of low back problems are:

- low back pain
- pain spreading into the buttocks and thighs
- pain radiating from the buttock to the foot

- back stiffness and reduced range of motion
- muscle weakness in the hip, thigh, leg, or foot
- sensory changes (numbness, prickling, or tingling) in the leg, foot, or toes

Rarely, symptoms involve changes in bowel or bladder function. A large disc herniation that pushes straight back into the spinal canal can put pressure on the nerves that go to the bowels and bladder. The pressure may cause symptoms of low back pain, pain running down the back of both legs, and numbness or tingling between the legs in the area you would contact if you were seated on a saddle. The pressure on the nerves can cause a loss of control in the bowels or bladder. If numbness/tingling between the legs, significant weakness in both legs/feet, or changes in bladder/bowel function and feeling occurs, medical help should be sought immediately!

Aiding Recovery with a Home Exercise Programme

When suffering from back pain, the temptation may be to rest in bed until it resides, however this often makes the pain worse. Where possible, the best advice is to stay active and continue your daily activities as normal. Obviously if these activities are adding to the pain then do not continue them, but getting back to work and keeping the area moving is often the best way to minimise the pain.

FIRST AID ADVICE (IMMEDIATELY AFTER THE INJURY)

- Any bed rest should be kept to a maximum of 2 days – any longer the detrimental effects outweigh the benefits
- Pain relieving medication should help with the discomfort. Anti-inflammatory medications can help ease pain and swelling and get people back to activity sooner. These medications include common over the counter drugs such as ibuprofen. Talk to your Doctor or Pharmacist if you have specific questions about which pain reliever is right for you. Also see your GP if over the counter medication is not easing your pain after a day or two
- Apply hot or cold packs to the painful area. You may decide which the best approach is for you. You can buy hot and cold packs from most Pharmacies, but you can also use a hot water bottle or bags of ice or frozen peas (wrapped in a damp tea towel) will often be as good. Both approaches help to reduce the pain sensation, but they also help to increase the blood flow to the area which brings oxygen and nutrients to the tissues to help them heal more quickly.
 - » Ice pack to be applied to the lower back for approximately 20 minutes every 2 hours. It is advised that you check the skin every 5 minutes to avoid the possibility of an ice burn from the cold temperature. Apply frequently in the first 2 days
 - » Hot water bottle to be applied for 20 minutes every 2 hours. The hot water bottle should be warm and not actually hot. If in severe pain avoid a hot bath in case you cannot get out of it.
- Position yourself in the most comfortable position and postures but try to change position every 30 minutes. Avoid sitting for longer than 5 – 10 minutes at a time. For further detail see previous postural advice in this leaflet
- Attempt gentle walking and movement to prevent ceasing up
- Sleep in the most naturally comfortable position on a comfortable surface. For further detail see previous laying postural advice in this leaflet

FURTHER SELF-HELP FOR WHEN YOU ARE IN PAIN

- Do regular gentle mobilising exercises as advised by your Physiotherapist
- For short periods, 10 minutes, lie on your back with your feet up on a chair or pillows to relax the deep muscles that might be in spasm
- Generally keep changing your position every 30 minutes
- Try to walk short distances at least twice a day
- Always take the recommended dose
- Make sure work surfaces are at a comfortable height so you don't have to bend your back
- Replace a sagging mattress

- When performing tasks around the home, keep your back in mind and try to minimise straining or stretching it and pace yourself. For example, squat or kneel when cleaning the bath or reaching for low shelves and use an upright vacuum cleaner, keeping it close to your body. Divide up your tasks by room or activities into bite-sized pieces and rest in between each task
- If you have young children, bend your knees and don't twist to pick them up. Adjust the height of the cot so you don't need to bend. And try to avoid picking toddlers and slightly older children up at all
- Follow the preventative advice outlined previously in this leaflet!

To find out even more about lower back problems,
visit the 'Know Your Body' section of our site.

www.physiotherapyinleeds.co.uk/body-parts/lower-back