

Concord Sport & Spine Newsletter



“Non-specific Low Back Pain”

As far as I can determine, the expression *non-specific low back pain* (NSLBP), was first used by Deyo and Phillips in 1996. It has come to be accepted terminology by low back pain researchers around the world. A definition of the term was provided by the National Institute for Health and Clinical Excellence in 2009 with their Low Back Pain Guidelines. They stated “Non-specific low back pain is tension, soreness and/or stiffness in the lower back region for which it is not possible to identify a specific cause of the pain. Several structures in the back, including the joints, discs, and connective tissues, may contribute to symptoms” It has been said that “The most common form of low back pain is non-specific low back pain.” (Maher et al 2017). It is widely reported that up to 90% of all low back pain (LBP) seen in primary healthcare falls under this “diagnosis”.

However, NSLBP it is not a diagnosis. It is a nonspecific and unclear term. And often, it is one that confuses and fails to reassure patients. It is an admission by its proponents that they don’t have a clue as to what is happening with 90% of painful backs. And what does this admission say to patients? Depending on their beliefs and perceptions, it could invoke one of several responses. For instance: “does this person know what they are doing?”. Worse still: “they don’t believe me” or “are they’re saying it’s in my head”. Or: “if you don’t know the cause, how can you tell me it’s not serious?” How about “if you don’t know, I insist on getting an MRI because I need to know!”

Patients presenting with acute or severe low back pain are often distressed, particularly if their

symptoms are unfamiliar. In seeking treatment, a primary requirement for their wellbeing is reassurance. According to the literature “patients main concerns are the need to seek **diagnosis**, treatment, cure...reassurance of the absence of pathological abnormality...and **wanting to be believed...**” (Froud et al 2014, cited in Maher et al 2017). Yet the back pain academics suggest we tell our patients that a diagnosis is impossible to provide. And when the patient has to tell friends or family that no one knows the cause of their pain, wouldn’t they be concerned that they are not going to be believed?

Researchers go so far as to say “by definition, NSLBP does not have a known pathoanatomical cause. There are therefore **no specific treatments that can be provided for non-specific low back pain**...management focuses on reducing pain and its consequences...” If this is the case, as a clinician who provides effective specific treatments, could it be that, by some peculiarity, my patients do have a specific cause? Because our imaging techniques are not sensitive enough to trace the source of pain, should we deny our patients important knowledge if our experience, thinking or methods aren’t advanced enough to provide irrefutable proof of the exact area of injury or disease?

When you know the correct questions to ask, and what examination procedures are most relevant, back pain presentations become very familiar. And when you have a specific diagnosis and knowledge of how injured tissues behave, predicting how that condition will respond to treatment becomes quite reliable. To the experienced clinician, unfamiliar

presentations are rare.

Once red flag conditions are excluded, the patient needs to be empowered with knowledge to reassure them that their condition is not serious, and that they will get better. They need an informed and knowledgeable explanation. I educate my patients about their condition, and provide them with a structural diagnosis. The diagnosis is based on sound pathophysiological and anatomical knowledge. Once provided, this makes perfect sense to the patient, because it explains the reasons for the things that have happened to them since their pain began. The patient then 'buys in' to both the explanation and proposed remedy. This is essential, because the patient's role in management is crucial.

There are two areas of science that are very closely drawn upon in the practice of physiotherapy – anatomy and biomechanics. The anatomy is appreciated early in one's career. However, the mechanics of how the moving parts of the body behave in injury and health is a life-long learning experience. Those with significant experience appreciate that LBP is a mechanical condition. Specific forces applied, particularly over extended periods, will result in a predictable response. And once you have seen a particular (or substitute the word 'specific') presentation thousands of times, it becomes routine to identify the patterns that make this condition recognizable. When understanding the mechanical forces at play, therein lies the key to both the causes and the effective treatments for LBP.

Unfortunately, there is a large disconnect between experienced clinicians who treat back pain every day, and non-clinical researchers who look at the available evidence. Those researchers know as much about clinical practice as I do about methodology and statistics (which is very little). Hopefully this will change in the future. Just as the experienced clinician knows the right questions to ask in the clinic, the right research questions need to be asked so as to be relevant to all those poor 'non-specific' sufferers out there.

Discogenic & Ligamentous LBP

As mentioned above. Most LBP we see clinically is 'mechanical'. This means that the symptomatic tissues respond to applied movements and stresses.

This response will be variable, and dependent on the nature and direction of the applied stresses. Careful questioning and movement testing elucidates the likely response, and predicts the tissues involved.

A clear majority of acute (and many chronic) pain presentations demonstrate a pattern where flexion and / or rotation aggravates symptoms. This is because flexion with or without rotation is often the movement which lead to the injury. The obvious example is heavy lifting. However, most episodes arise after a seemingly innocuous movement. This could be reaching forward, brushing teeth, getting out of a chair, or sneezing. In such cases, the cause and aggravating activities are not immediately apparent.

Discogenic LBP

While the intervertebral disc is a somewhat complex structure, the outer annulus fibrosus is, in effect, a circular ligament. As well as containing the nucleus pulposus, it joins vertebral body to vertebral body, and helps to prevent excess separation between these bones. The main forces that will stretch the annular ligaments are bending, twisting, and shear forces (where one vertebral body attempts to slide forward on the ones above and below). Just as with any ligament sprain, exaggeration of these movements can sprain the annulus.

In addition, the inner nucleus makes this ligamentous relationship unique. Functional MRI studies have demonstrated the response of the nucleus to sustained or repeated movement. In a non-degenerative disc, flexion will consistently cause the nucleus to migrate posteriorly, and apply pressure to the posterolateral annulus. This is not rocket science, just standard fluid dynamics. If the flexion forces are repeated enough, the pressure on the outer annulus will pre-stretch it to the point where it is vulnerable to sprain from movements that would normally be harmless. So, while an ankle sprain can only occur with excessive inversion +/- plantarflexion, an annular tear might occur with minimal discernable movement.

When we see a patient with LBP, what are the examination findings that make us suspect a discogenic cause? Firstly, keep in mind that discogenic low back pain is extremely common, particularly with acute presentations. Here are some features that help to

strengthen the diagnosis:

1. Restricted lumbar extension after periods of bending or sitting. The mechanics of nuclear displacement is discussed above. The increased fluid volume in the posterior region of the disc creates a physical restriction to movement. Classically, when the patient stands up from sitting, the low lumbar spine remains somewhat flexed. The stiffness usually eases after seconds to minutes, as fluid pressures equalize. In some cases, the involved segment may remain flexed for hours to days. In this instance, examination will reveal a flattened lower lumbar segment, and compensatory lordosis through the upper lumbar to lower thoracic spine (pictured).



2. Response to repeated extension movements. A diagnostic test used clinically is to determine the symptomatic response to repeated movement. In the case of discogenic dysfunction, repeated extension will often lead to an improvement in symptoms.
3. The presence of a lumbar shift. While not a feature of most acute disc presentations, an acute lumbar shift is due to unilateral disc protrusion until proven otherwise – i.e. almost always. Another confirmatory finding will be a shift that improves with repeated movement – in this case a targeted side gliding maneuver.
4. Symptomatic SLR. A 'positive' SLR (also named Lasègue's sign) is reproduction of symptoms below 45°. However, the SLR test can be informative with symptom reproduction at any angle, with or without referred lower limb symptoms. Acutely, with discogenic LBP the SLR is often restricted and reproduces LBP. As healing progresses, the SLR becomes progressively freer.
5. Mechanism of injury. A bending &/or rotation-



related mechanism should make one suspicious of disc involvement. End of range stress will often injure the disc, and acute pain after minimal movement will certainly implicate the disc, for reasons discussed above.

6. Muscle spasm. While muscle spasm may be a feature of any form of LBP, it is very prevalent with acute discogenic LBP presentations.

Ligamentous LBP

Of course, there are numerous other ligaments within the spine that could be pain generators for acute or persistent LBP. For flexion-related pain, any ligament that is posterior to the axis of motion has the potential to be involved. This includes the supraspinous and interspinous ligaments, capsular ligaments of the apophyseal joints, the iliolumbar ligament complex, and the posterior longitudinal ligament. Torsional forces may affect these and other ligaments, such as the intertransverse ligaments.

The resultant pain could be due to acute sprain, or chronic strain. Sustained stretch on ligaments, due to postural forces, will result in pain generation that can become constant and sometimes severe.

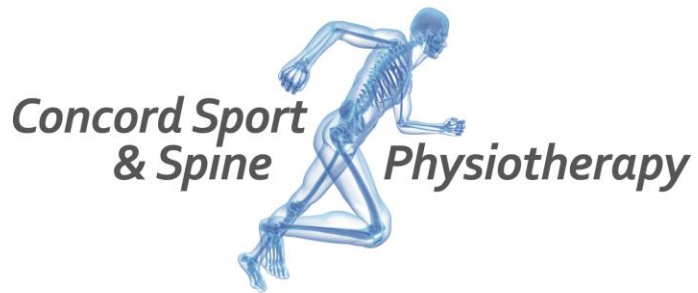
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