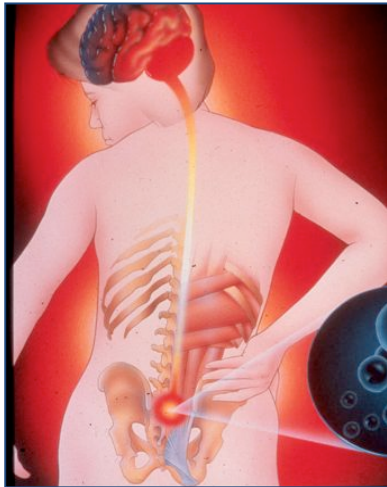


# Understand Your Back & Pelvic Girdle Pain

Written by Diane Lee *Physiotherapist*  
Updated January 2011 ©



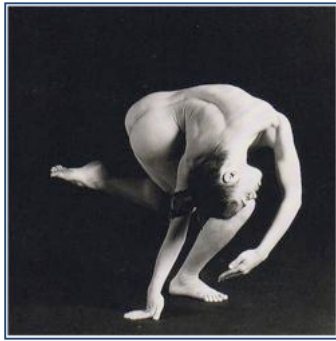
## Introduction

Back pain happens to everyone and, for some, is a life-changing occurrence. The causes are as many as there are structures capable of producing pain – and every tissue in the body is capable of giving us pain. Help from the health care profession is sought when the pain is severe enough to interfere with activities we need, or want to do. What happens next depends on who you choose to consult.

There are many health care practitioners who treat back pain – the family doctor, chiropractor, physiotherapist, massage therapist, acupuncturist, orthopaedic surgeon, neurosurgeon, anaesthetist, rheumatologist, psychiatrist and psychologist to name but a few. Each approaches your problem from a very different perspective and the approach is often based on their formal training and their clinical experience. Their training/experience helps them to develop models some of which are based on scientific evidence and others on long held beliefs and philosophies of care.

What does science tell us about back pain? It all depends on the question asked in the scientific study! It's important to understand the question because it ultimately directs the answer. If one is interested in understanding *what structure is responsible for an individual's pain*, then the research will focus on specific anatomical parts capable of generating pain. Entire models for both assessment and treatment of the low back have been developed following this line of questioning. Highly sophisticated imaging techniques and surgical procedures have been developed to address this question – “What is hurting?” This would be useful clinically if only one structure was responsible for an individual's pain. Unfortunately, multiple structures are often the problem and it is not possible to identify them individually. So we see diagnoses such as ‘non-specific low back pain’. In other words, the pain is not specific to any identifiable structure however, your low back pain is acknowledged. Even if we did know what structure was responsible for the pain, this would not help us in treatment unless we wanted to cut it out or numb it with an anaesthetic – sometimes this is necessary but rarely is this all that is needed.





What information would be gained if the initial research question was *why* is the low back painful? *Why* is the back no longer able to handle simple tasks such as standing, sitting, lifting or even lying down? To answer these questions, the research must explore *how* the region functions in order to appreciate *why* breakdown and pain have occurred. Much research has been done with these questions in mind and today we have new models, which consider physical (sensations you feel), cognitive (ideas you have about your experience i.e. past experiences etc) and emotional (how you feel about your experience) factors such as stress and anxiety and how all three can influence your pain experience.

Living on Earth means that we are never able to escape the influence of gravity. Being upright (bipedal) requires that the gravitational forces be transferred through the low back and pelvis to the two legs. How effective we are at transferring this load over a lifetime dictates how well we can stand at ease, move at will and react when necessary as we age, in other words how well we function. Dysfunction implies that the individual has lost the ability to resist gravity while standing, sitting, lifting etc.

Transferring loads effectively, whether the load is merely our body weight or the addition of extra loads (groceries, children, tool boxes etc), requires proper function of the bones, joints, muscles and nerves. Collectively, all of these systems must be working together to produce smooth effortless movement. The bones can't be broken or effected by disease, the joints must be mobile and yet their motion controlled, the muscles must be strong and flexible to support us while not limiting movement and the nerves must act as a highly sophisticated information system coordinating multiple functions at the same time.



Beautiful movement is like beautiful music; each muscle is like an instrument in the orchestra and must be trained individually. However, beautiful music can only be heard when the conductor orchestrates the individual instruments – you play more, you play less, you be quiet. The nervous system is the conductor for our muscles and training the conductor is what we refer to as motor control training. You cannot strengthen a muscle that the brain is not using, therefore core training must come before core strengthening. This is true for all areas of the body, not just the lumbopelvic core.

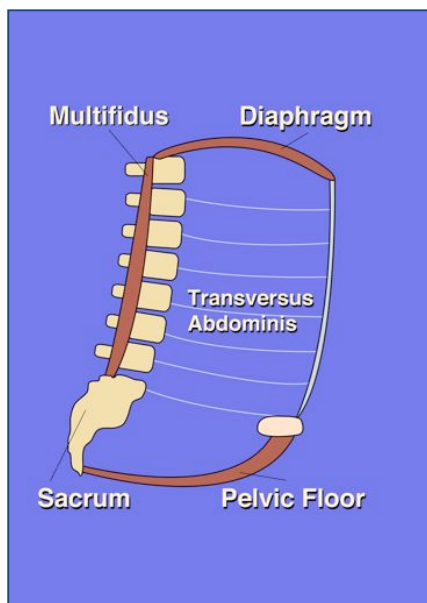
Gravity tries to push us into the ground and this force is called compression. Compression forces the bones of your back together and buckling is, in part, prevented by the structure of the joints and also the intervertebral discs.

When your back is under more compression than it can handle, in other words when it is not being supported by the muscle system, the discs begin to bulge and the joints begin to wear out. The doctor looks at your X-ray, sees the narrowing of the disc spaces, has a CT scan or MRI done and confirms that the intervertebral discs are bulging, considers your age and may tell you that you have degenerative disc disease. This is more often not a disease but rather a statement indicating that you have fallen victim to the compressive force of gravity and haven't been using your muscle system well enough to counteract it. The structures of your back are showing the signs of too much compression and telling you about it by sending your brain signals that it interprets as pain.



How does the muscle system resist gravity and the extra loads we apply to our bodies yet still allow us to move? According to motor control theory, the nervous system orchestrates exactly the right amount of muscle contraction, at the right time for the task you are doing. The net result of this co-activation of muscles is that you are supported, yet still able to move, you have 'stability', or control, as well as mobility.

Let's talk a bit about this muscle system that is orchestrated by the nervous system. It has long been thought that a strong abdomen helps to relieve back pain. While true in part, it's not quite so simple, situps are not the cure for back pain.



The word 'core' is used in both the research and training literature to mean many different things, what is the core? Your core is located between the breathing diaphragm, pelvic floor, abdominal wall (both deep and superficial parts) and back muscles. Research has found that retraining the timing of contraction (synergy) of these muscles is important for restoring function to the lumbopelvic core. Creating neural networks for using this system automatically and efficiently (as opposed to strongly) is the initial goal. This is called core training and again, you cannot strengthen a muscle that your brain is not activating. Once your mind can connect properly to the deeper aspects of this canister, core strengthening exercises can become appropriate. If you begin a core strengthening program without first addressing the sequencing and timing of the muscles you're attempting to strengthen, you will only reinforce the non-optimal patterns you have. If



you always do what you've always done, you'll always get what you've always got.

Transversus abdominis is the deepest abdominal and attaches to the bones of the back posteriorly, as well as the lower six ribs, and runs around the trunk to the front of the abdomen reaching the same muscle on the opposite side through a very important layer of fascia. Below, it attaches to the top of the pelvis all the way around. This muscle is like a corset in shape and in function. When it contracts it draws the bones of the pelvis together and stabilizes them, both in the front of your pelvis and the back. This is easily seen with ultrasound imaging – a biofeedback tool used extensively for both assessment and treatment at Diane Lee & Associates.

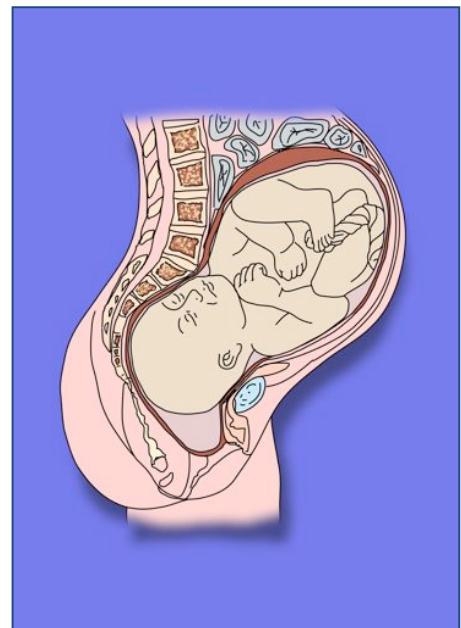
Multifidus has deep and superficial fibers and research has shown that the deep fibres become inhibited and eventually weak whenever you hurt your back. This muscle completes the circle of tension with the transversus abdominis and therefore is very important in controlling the individual bones of your low back and pelvis.

There are four muscles which make up your pelvic floor which really isn't flat like a floor at all but more like a 3 level condominium and they are all very important not only for preventing your pelvic organs from falling out but also for controlling your sacrum, which is the midline bone of your pelvis. When all of these muscles are acting properly your abdominal canister provides you with an inner core of support. Ultrasound imaging can also assess the action of the pelvic floor muscles and a perineal ultrasound evaluation is available at Diane Lee & Associates.

When all of these muscles are performing properly you have a core of support that allows your hips to swing freely as you walk and run. In addition, when the core is working well, your chest will not be gripped or braced and you will be able to breathe easily and be free to rotate or twist your chest.

Consider what happens during pregnancy and delivery – this is a common time for low back pain to begin. The abdominal wall can be very stretched and optimal coordinated activation does *not return* spontaneously after delivery. The midline fascia that connects the left and right sides of the abdominal muscles is stretched in the early stage of all postpartum women and, in some, remains stretched further challenging the function of the abdominal wall as it tries to support the low back and pelvis.

This condition is called a diastasis rectus abdominis and while training is very often able to restore function, on occasion surgery to repair the midline structures is needed. A complete evaluation of the function of the midline fascia requires both a biomechanical evaluation of the ability to transfer loads as well as an ultrasound imaging evaluation. The findings from all of



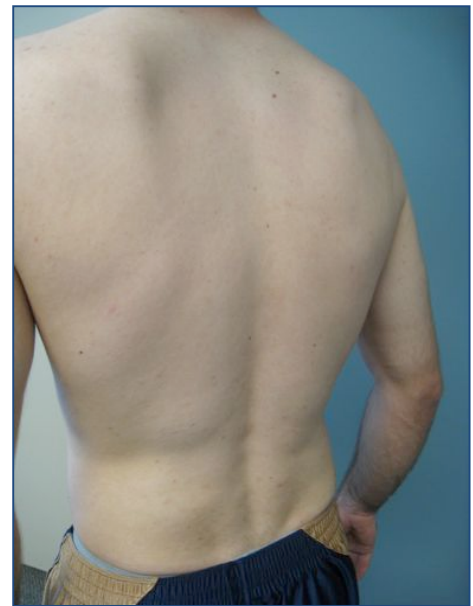


these tests can determine if you will require surgery for restoration of full function. The figure on the left is of a postpartum woman (14 months) whose abdominal wall was significantly stretched and training was not able to fully rectify her appearance or function. She was scheduled for a surgical abdominoplasty (tummy tuck) and achieved both the look and function she desired after. It is important to know that a tummy tuck is not just cosmetic; your abdominal wall is critical for the function of your low back and pelvis.

The pelvic floor is often torn or cut during a vaginal delivery and often very little attention is paid to rehabilitating this muscle. As a result, the posterior back muscles (erector spinae), the oblique abdominals and the posterior pelvic muscles (piriformis and ischiococcygeus) take over and transversus abdominis and the anterior pelvic floor remain lengthened and weak.

Postpartum programs for restoring form and function after pregnancy are critically important for a woman's future health. We have developed a screening examination for all postpartum women and encourage you to have it done if you have any concerns about the function of your abdominal wall and/or pelvic floor.

What about low back pain in men? The pelvic floor is less often a problem but multifidus and transversus abdominis have been shown to get inhibited and ultimately weak with that very first episode of low back pain. A lift and twist or a fall and sprain of a joint, or pull of a muscle can throw the entire muscle system into imbalance. Note the difference in muscle activation in the right and left sides of this young man's back.



There is plenty of research now that suggests that without proper core training before strengthening, the imbalance persists, and the stage is set for recurrent episodes of back pain and future structural changes in your anatomy.

In both men and women, overuse and imbalance of the deep posterior pelvic muscles tends to go along with excessive use of the deep posterior hip muscles which



force the head of the femur anteriorly. This can lead to groin pain and restricted hip movement during walking, running and cross leg sitting. We call these people butt grippers and you can identify them by the shape of the buttock.

Yes ladies, pregnancy can change the shape of your pelvis but it has nothing to do with your bones – it's how you're using your muscles!! If you can't swing your leg freely when you walk (because you are gripping it) you will put extra forces on the joints in your pelvis and low back. Over time these can become painful. What is hurting? The ligaments and joints of your posterior pelvis and low back. Why? Because you are using a muscle strategy that is ineffective for transferring loads freely and effortlessly.

How do we treat this situation? At *Diane Lee & Associates* we use *The Integrated Systems Model* approach co-developed by Diane Lee & Linda-Joy Lee of Discover Physio ([www.discoverphysio.ca](http://www.discoverphysio.ca)). Briefly, this is an approach that combines manual therapy and dry needling to release old compensatory strategies (muscle holding habits that are perpetuated by your brain) with 'exercises' and training to then teach you how to use your body in a more efficient way for whatever it is you choose/need to do.

In this manner we hope to Empower you with the necessary Knowledge, Movement and Awareness to regain a function lumbopelvic core and help to reduce your back or pelvic pain and give you back a healthy active body.

So where do you go from here. Ask yourself this question – Have I been seeking a structural diagnosis i.e. What is hurting? Do I truly understand my own muscle system and how I use this to support my low back and trunk? Do I pay attention to the deep muscle system of my back when sitting, standing, lifting twisting or just use any strategy that comes to me? If you have back pain, you can't do this anymore. It is never too late to improve your function, the muscles are there just waiting to be found. It won't be easy, it's not a quick fix, especially if you have lived with this pain for a long time but the journey is well worth taking.

Give us a call, we'd love to help get you back on track to living with an active, healthy body.

