

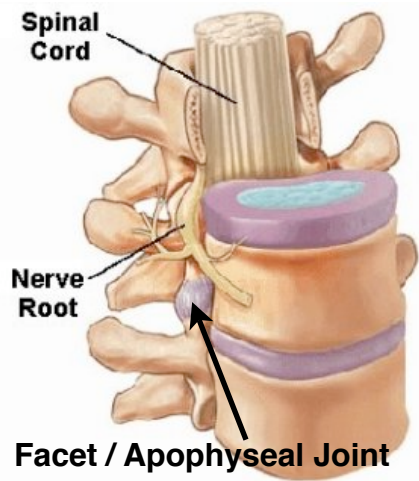
"Oh, my aching back"- The Treatment of Back-Pain with Acupuncture

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Back pain is one of the most common medical complaints that the U.S. population has and seeks for medical attention. According to the National Institute of Health, approximately \$50 billion was spent in 2007 on disability and medical care towards the treatment of back-pain. Why is this such an expensive problem? Why are neck and back problems so common? The answer lies in the joints.

A Lesson in Spine Anatomy:

The human spine is made up of 33 individual vertebrae. 24 of these are movable. They include 7 cervical vertebrae in the neck, 12 vertebrae in the thoracic or mid-back, and 5 vertebrae in the lumbar or low-back. These 24 bones may have limited individual movement, but when used collectively, give us a surprising range of movement and flexibility. A complex interplay between ligaments, tendons, and muscles can allow us to (when working properly) move as the most graceful dancer or (when not working



point of the vertebral bodies.

properly) cause us to lay stuck on the living room floor after trying to lift the new TV. These vast network of ligaments, tendons and muscles not only give us the strength and coordination to move our bodies in innumerable directions, they also serve to limit or restrict our backs from too much flexion (bending). Limiting excessive flexion protects the spinal cord and prevents extreme loading on any one

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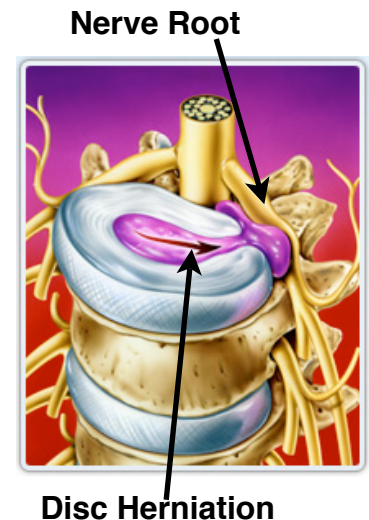


Each of the vertebra is separated by cartilage called the intervertebral disc. The disc acts as both a shock-absorber and as a central pivot when the spine needs to rotate or flex. Intervertebral discs are comprised of a core of a soft gelatinous material called the nucleus pulposus⁽³⁾. Surrounding this material is a ring of more firm material called the annulus fibrosus. This combination of a soft deformable material contained by a more firm structure is often compared to a jelly donut.

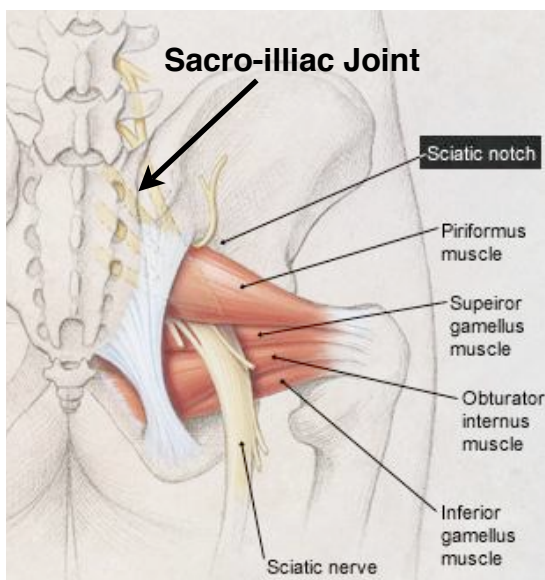
Along with the discs, the vertebrae are also connected at a set of overlapping structures called the facets. Ligaments between the facets serve to additionally support the spine and limit the amount of movement occurring between adjacent facets. Collectively, these facets and the associated ligaments are called apophyseal joints.

So Why Does My Back Hurt?

All of these ligaments, muscles, tendons that we've discussed, and even the outer-most sections of the annulus fibrosus have high concentrations of nerves throughout, and consequently, can be a source of back pain when something goes wrong. With such a large number of ligaments and moving parts (joints), its no surprise that back pain is so common.



The source of pain that is most often discussed is damage to a nerve root. The nerve root is the primary branch of a nerve that exits the spinal cord through openings in the vertebrae. This opening can be limited or interrupted through either a bulge or rupture of the annulus fibrosus (disc herniation), narrowing of the spinal canal (spinal stenosis), or even a compression of the disc itself. In other words, something is pressing on the nerve root. When a back specialist is deciding if surgery is appropriate for back pain, he/she is most often looking for this type of situation. Specifically, they are looking for a place were either cartilage or bone is pressing or “pinching” on a nerve root. If they do indeed find this situation, they may elect to surgically remove part of the offending bone or cartilage.



We can't complete a summary of back pain without discussing sciatica. Sciatica is a specific form of back pain that can begin in the low-back and continue down into the buttocks, legs, and the groin. It is the result of impingement to the sciatic nerve; a relatively large bundle of nerves that begin at the nerve roots of the three lowest vertebrae. Sciatica

is incredibly common and is often caused by one of three things; a disc bulge or herniation of one of the three lowest intervertebral discs, impingement of the nerve by the piriformus muscle, or pain in the a sacro-iliac (S.I.) joint. The S.I. joint refers to the interface between the sacrum (lower most fused part of the spine and the illium (hip). I include S.I. joint pain in with scatica, because the symptoms of S.I. joint pain often mimic sciatica. Without medical imaging techniques like MRI or a thorough medical assessment, it is difficult to differentiate between the two.

So, what happened? Why did you get a disc herniation at 32 years old when you just watched a TV program highlighting a 78 year old who just finished the Boston Marathon? There are lots of reasons. Causes can include diet, exercise (or the lack thereof), smoking cigarettes, inadequate stretching, occupation, genetic predisposition to certain back injuries, and yes....aging.

As we get older, we dry out. In other words, new cells aren't made as quickly as old one's die out. Disc cartilage will typically contain less water and will get more rigid and brittle. Another interesting fact is that the specific cells designed to hold water and stay spongy thrive at a very specific compressive pressure⁽¹⁾. If the pressure on the cells is either too low or too high, they will not produce the material that holds water (proteoglycan) to keep the cartilage soft. This scenario often occurs after a back injury due to trauma. An uneven load occurs on the discs due to damage, misalignment, etc. As a result, regions in the disc may be under excessively high pressure and other areas under excessively low pressure. Both circumstances will contribute to disc de-hydration and thus accelerate the degradation of the discs.

Great! Now I Know Why I Hurt. What Can I Do?

The goal of self treatment is two-fold, encourage proper alignment in the spine to ensure that any compressive load is even and make sure that the disc cartilage is fed with adequate nutrition to grow and repair itself properly. Simple steps can include exercises and stretching such as yoga that help strengthen the abdominal muscles and low back, proper nutrition that includes lots of proteins and fats, supplements such as glucosamine sulfate, and the proper use of inversion tables or other traction devices to relieve pressure and improve circulation. These "home remedies" can make a tremendous impact on making your back more durable, less prone to injury, and help decrease or eliminate several kinds of back pain including disc problems

Of course, there's always surgery as an option. Regardless of the procedure, the goal is either to remove the offending bone or cartilage that may be pressing on a nerve root, or completely replace the cartilage with bone and fuse the vertebrae together to eliminate any movement that could cause further damage. Surgery is definitely not the "silver bullet", however. Back surgeons will admit there is no guarantee that the surgery will actually get rid of your back pain. It comes down to comparing the risk of complications and scarring involved in surgery versus the pain and possible nerve damage in NOT having surgery. In fact, a survey was reported in the Journal of American Medical Association⁽⁷⁾ interviewing a set of people who reported pain due to a

disc herniation; half of which “fixed” it with surgery and the other half did not. Two years after surgery, there was statistically no difference in amount of pain between the two groups. This also supported the idea that many disc bulges and herniations can eventually heal themselves⁽⁵⁾

Thinking Outside the Box: Back Pain and Chinese Medicine

Thus far, you’ve read the standard information on spine anatomy and back pain that can be found on any number of text books, websites or journal articles. Is that it? If I have a bulging or herniated disc, I’m destined to suffer a lifetime of pain? Not exactly. A very common misconception is that the presence of such structural problems is guaranteed to cause pain. This is NOT true. A classic study cited by Newsweek⁽²⁾ involved sending 98 people with no back pain through an MRI to image the structure of their spine. Almost two-thirds of those showed spine or disc problems. The article also mentions other studies that reinforce this mysterious disconnect between what we see on medical imaging versus what type of pain we actually feel. This brings into question our entire relationship between physical damage to the body and our perception of pain. A small handful of prominent physicians have observed that a strong connection exists between back pain and depression or stress⁽²⁾. How is this possible? While this may be a revolutionary discovery in Western Medicine, the connection between emotions, pain, and disease has been long recognized in Traditional Chinese Medicine (TCM).

Instead of trying to identify the structural source for back pain, TCM tends to differentiate between the character of the pain. For example, is the pain worse in the morning when you first wake, or is it worse after a day of working and exercise? Is it more of a localized sharp stabbing pain, or is it more of a dull ache that comes and goes and moves around in the back. Does it feel better with applied heat or after you ice it?

Health and Disease According to Traditional Chinese Medicine

One of the more common systems used in TCM to identify disease is the 8 Principal Theory. We look at diseases in terms of either side of 4 distinct components. Rather than going into a detailed treatise on Chinese Medical Theory, we will summarize the 8 Principal Theory below:

External vs. Internal: Is the problem the result of external cause such as a flu virus, skin conditions due to some environmental irritant, or physical injury due to trauma? Or is it due to an internal problem or imbalance within the body.

Hot vs. Cold: Does the problem have a hot component or cold component? Cold problems will often feel cold, feel better with warmth, have a dull and achey feel, have a gradual onset, slow movement, and produce copious amount of clear fluids such as frequent urination. Problems with a hot component however, feel hot, tender to the touch, feverish, have a rapid onset, may be red or inflamed, produce dark or scanty fluids, and can lead to rapid outbursts of anger.

Yin vs. Yang: A Yin based problem is one that pertains to the (for lack of a better word) “goo” of the body. Yin is considered the substantive material within the body that circulates including blood, water, lymph, urine, sweat, semen, mucous. Yin has a cooling nature and is strongly associated to the female. Yang, on the other hand, is considered to be the energy needed to drive the “goo”. Yang has a warming nature and is strongly associated with the male. Yin and Yang function best when they are in complete balance. A simple metaphor is a candle where the wax represents the Yin and the flame represents the Yang. Too much of either will result in a candle that will either burn too brightly and consume it self (too much Yang or not enough Yin), or it will have the wax drown out the flame and extinguish it. (too much Yin or not enough Yang).

Excess or Deficiency: Is the problem due to our bodies simply running low on certain things? This could include water, nutritional deficiencies, blood, and even Qi (energy). Or is the problem due to an excess or a localized buildup of something within the body. A common example is term we call “Qi stagnation” where energy within the body gets “clogged” at a certain area leading to localized pain or tenderness.

Within Chinese Medicine, these principals will pertain to both the internal organs such as the kidneys and liver as well as some of the substances such as blood and Qi. Most diseases, including back pain, can involve numerous combinations on these principals⁽⁶⁾.

Chronic Low-Back Pain

From a TCM perspective, most back-pain that has a gradual onset, can be described as dull, weak, and achey and feels worse at the end of the day or after prolonged work is due to a Kidney Qi deficiency. This could have been initiated by several factors that have weakened the Kidney area over time including lack of exercise, overwork such as repeated heavy lifting, excessive sexual activity, or childbirth. Tonifying local acupuncture points corresponding to the Kidneys is essential for this type of problem

Acute Mid-Back Pain

A very common area where people will feel back pain is just medial (inside) of the shoulder blade. This can also be an extension of the tender or tight type of pain that can be felt at the upper parts of the trapezius muscles. Typically, this type of pain is due to a Liver Qi Stagnation. Factors such as stressed work environment, anger, depression, or even prolonged sitting at desk can obstruct the Liver’s function of ensuring proper flow of Qi. This will often manifest as as Qi stagnation in the Urinary Bladder Channel.

Disc Herniation and Sciatica

The underlying cause of disc herniations is often a deficiency or weakness, but will then result in the sharp stabbing pain when a disc rupture or sprain occurs as described as

Qi or Blood Stasis. Both reducing the blood and Qi stagnation along with tonifying the underlying deficiency is required to resolve these types of problems.

Keep in mind, these are by no means the only causes of back pain. Our purpose here is to show some examples of the more common types of back pain and how they are viewed from a Traditional Chinese Medical perspective.

Seriously, How do Needles Help Fix my Back?

As stated earlier, there is a mysteriously large disconnect between structure problems seen in the spine and the amount of pain that is felt. We've already mentioned that common sources of back pain include degeneration of the spine, muscle spasms, irritation of nerves around local damage, and even emotional disturbances such as depression. Acupuncture has been found to be effective in stimulating circulation, decrease muscle spasms, reduce pain through stimulating B-endorphin release ⁽⁴⁾, and reducing stress. The beauty with acupuncture is that the risks and side-effects of treatment are nearly non-existent.

No one specific healing modality is perfect for all types of back pain, but many people have found relief with acupuncture. It is a safe, powerful, and relatively inexpensive option to drugs and/or surgery. So, before you resign yourself to a lifetime of pain, discomfort, drugs, degenerative treatments like cortisone, or risky surgery, give traditional chinese acupuncture a try. You'll be surprised how something so simple can help such a complex problem.

End Notes:

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