

Starting Strength

Back Pain and Back Strength

by

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There are times when The Conventional Wisdom and The Reality of the Situation are at odds. Our recent presidential election provides a poignant example, as does the idea that running makes you skinny, that little kids always tell the truth, and that we have to pass another law so you'll stop doing things we don't like.

Here's another one: Your back hurts, so you have to rest it, stretch it, go to the chiropractor for 30 visits, and then get your "core" stronger with situps and various odd-looking movements performed on a balance ball, and if that doesn't work, surgery will. The reality is that your back hurts because you are a bipedal, upright human over the age of 30, you can't alter this fact, and the best way to make it stop hurting is to make it stronger with squats and deadlifts.

Deadlifts and barbell squats for a low back in chronic pain sounds like the stupidest idea that has ever appeared in print, I know. It flies in the face of The Conventional Wisdom. The fact is that it works nearly 100% of the time if you do it correctly, and that 90% of the time a stronger back not only stops hurting but also returns you to full unencumbered activity in less than a month.

Some background information: back pain is the Number One (#1!) cause of missed workdays in the US – and by extension the rest of the planet. This is because back pain is the common denominator of human existence, and has been for quite some time. Our spines are wonderful structures that provide flexibility to our torsos while protecting the major non-brain part of our nervous system. All vertebrates share this structure, from fish to felines to Freemasons – and Freemasons have the most problems with their backs.

This is because their spines are all constructed the same basic way, while they occupy different mechanical environments. The repetitive-looking segments of their spines are composed of bony blocks (the vertebral bodies) and flexible blocks (the intervertebral discs). These blocks are sequentially arranged so that the protective bony segments are separated by flexible segments, so that the fish can swim, the feline can curl up in your lap, and the Freemason can genuflect when it's appropriate.

We're all subject to the same gravity – at least until Elon Musk gets his Mars project sorted out. Fish are suspended in water, and the vertebral segments that compose their spines are essentially unloaded by gravity. The cat stands on four feet, and her spine is loaded in *shear*, with the force of gravity applied to the weight of her body perpendicular to her back. Our Freemason stands on two

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feet, upright as an oak tree, and this applies the force of gravity to his back in *compression* – parallel to his spine, essentially squishing his intervertebral discs between his bony vertebral bodies. Same discs as the fish and kitty, different mechanical history because he’s a biped.

Fish and quadrupeds have been around a lot longer than we have, and our spines are basically just upright versions of structures that were not designed to function in compression, but which have to do so anyway. We can handle shear pretty well when we pick things up from the ground, since our muscles protect this position, and most of us are never in a bent-over position all day long. Upright is our normal posture between naps and shoeing horses. So here we are, upright with a vertical spine that still wants to be horizontal, with all the problems that come along with it, and a very good reason to solve these problems.

The primary problem with this anatomical variation is that human spines degenerate under their compressive environment over time – *all of them*. If you do an MRI study of 1000 adults over the age of 30, virtually *all of them* will read positive for some type of spinal degeneration pathology. By the time you are a full-grown adult, something will have changed in your back that can be interpreted as a potential cause of back pain. This is an unfortunate fact, and it has several interesting implications.

1. If you are over 30 and have chronic back pain and you go to the doctor and the doctor orders a diagnostic test – an x-ray, CT, or MRI – he *will* find something wrong with your back. But the thing he finds wrong may or may not be the cause of the pain, since everybody will have something wrong whether they have back pain or not.

It is important to understand that **every adult has degenerative spinal changes, but not every adult has chronic back pain.**

2. Some backs that are badly degenerative on the MRI do not hurt, while some backs that are not terribly screwed up hurt all the time, and maybe hurt in places where there is nothing on the MRI that explains the pain. This means that “degenerative disc disease” may be the cause of your back pain, and it also *may not* be the cause of your back pain. Not everybody with a positive MRI for DDD has pain, and some people with only very mild degeneration are crippled with the pain.

This is because back pain is not always explained as damage or inflammation within the structures of the spine. It may have to do with an individual’s interpretation of what pain is, which may explain why exercise is often effective in teaching people that pain has a lot to do with perception.

3. As a result of this fact, if the doctor happens to be a surgeon *he can always find something to operate on* – since there will *always* be something wrong he can see on the test. Most of them know this, and are conservative with surgical recommendations. But if you are in enough pain, you may insist on a surgical procedure when that procedure is quite unnecessary. Roughly 1/3 of back surgery is what could be called “successful” in that it relieves the pain (usually the acute-type, that comes on suddenly as the result of an identifiable injury), 1/3 does absolutely nothing for the pain, and 1/3 actually makes the pain worse.

Therefore, 2/3 of back surgery is unsuccessful. Think carefully before you decide.

There is, however, another option. One of the interesting things about operating a gym and running a large interactive website has been my exposure to a large number of humans over the age of 30 – a large number of people with human spines that are in some stage of degeneration. The vast majority of them, me included, have experienced back pain from time to time. Since they are mostly all humans, this would be consistent with everyone’s experience.

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The difference is that their back pain – when it occurs – is manageable in intensity, short in duration, and is experienced less frequently than yours. This is because their backs are stronger than yours.

My boards are filled with examples of desperate people who come to barbell strength training after a long period of chronic back pain in the hope of some improvement, and who are then amazed when 3 weeks later their pain is either gone or satisfyingly diminished. These people use squats and deadlifts to treat their back pain – they use *improved strength* and the process that most effectively produces improved strength to treat their back pain – and it works.

This should not be entirely surprising, since stronger muscles can better support an aging human spinal column better than weaker muscles. You can't do much about the effects of compression and aging on an upright animal's spine – although regularly and progressively loaded bones and discs are denser and more resilient than the soft bones and discs of a sedentary person – but you *can* improve the ability of the muscles that support it to do their job.

This is the basis of some therapists' attempt to treat back pain with exercises that work “the core” muscles – the little-bitty muscles deep in the body that support the spine. The problem with this approach is two-fold. First, the small muscles are not the only muscles that support the spine. The large muscles of the lower back and the biggest mass of abdominal muscle tissue cannot be adequately strengthened by the bodyweight-only exercises typically used in these movements, and second, the spinal flexion and extension movements typically employed can actually aggravate the already-inflamed spinal components – the facet joints, nerve roots, and swollen discs – that are causing the pain most of the time. The exercises are not heavy enough to make anything stronger, and the isolated flexion and extension actually do more harm than good.

A failure to strengthen the large muscles is a failure to address the problem – spinal stability. As a degenerative spine ages, it loses its ability to occupy the same positions it once had. To a fish or a feline, or a kid, wiggling the spine in various positions is not a problem, but the Freemason's degenerated spine has lost the intervertebral disc thickness that once permitted the wiggling, and has probably developed enough osteoarthritic bony overgrowth that wiggling it around causes the associated soft tissue to be aggravated by the “pokeyness” of the wiggling.

The normal function of the big muscles around the spine is stabilization, an especially important function for an older human with spinal degeneration. The small muscles contribute, but the biggest muscles are obviously capable of doing the primary stability work better than the smaller muscles. In fact, the big muscles do most of *all* the body's work, as is obvious to anyone who has loaded hay on a trailer – what got sore, the big muscles in your hips, back, and legs, or your Superior Gemellus?

Any exercise that works the big muscles also works the small muscles, because when the weights get heavy every muscle has to contribute. This means that barbell exercises like properly-performed squats and deadlifts done with a perfectly flat back not only work the bigger muscles, but everything else, big and small, that keeps your back perfectly flat. As your deadlift progresses from 35 pounds to 135 pounds to 275 pounds over time, *all* of the muscles that keep your spine stable get stronger and more capable of doing their job, *because they have to*: the increase in load forces an increase in strength in everything that is stressed.

And the progressive process of acquiring this strength *teaches you that you are not broken*. Not all pain is the result of structural back inflammation. Some aspects of pain are actually learned behavioral responses, i.e. the “naming” of the sensation as pain – sensations that other people have too, since they have the aforementioned aging human spines, but which they do not interpret as “pain.” Deadlifting a progressively heavier barbell increases your confidence in your ability to perform normal human

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movements with your spine again, and dramatically alters your perception of pain as a result. Situps and tricks performed on a balance ball cannot do this, because they fail to load and strengthen the big muscle mass, and because they fail to challenge your ability to relearn important positional capability like these two important barbell exercises do.

It may seem counterintuitive to squat with a barbell when your back hurts. Think past the superficial to the cause of the problem: nothing can strengthen a weak back that is not strong enough to be stable better than an exercise that progressively strengthens the back while keeping it stable. Nothing can teach a weak back that being stronger is better than the movements which both require and produce that strength. Situps, which use very few muscles, not much muscle mass, and no added weight cannot increase the strength of the “core” muscles for more than a few workouts. Squats and deadlifts, which use almost every big muscle in your body including all the little ones in your “core,” and which load and strengthen the spine itself, get stronger for years.

I know you're afraid of making it hurt more, but there is a weight that is light enough to use on a barbell that won't hurt your back. Start there with proper technique and increase the weight. Your back is an old human back. Sorry, can't do anything about that. You want a strong old human back, or a weak old human back? The choice is yours.

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