

G E T B A C K

ONE DAY, I might meet whoever came up with the design for the human body. I hope I do. I've noticed a lot of areas needing improvement.

Knees are a poor design. They're ugly, easy to injure, and often wear out, requiring replacement. They're less reliable than Lucas Electrics.

Coronary arteries are yet another problem area: How about some redundancy? At least the brain has the Circle of Willis, a ring shaped structure at the base of the brain with four inputs (two carotid and two vertebral arteries) that feeds the vessels supplying the brain. That way, the loss of one or two inputs isn't always a disaster. The heart: Nothing. One little clot and you can be a goner.

Worst of all, IMHO, is the design of the back. Half of all working adults in the US have a back problem each year, of whom about one in five needs to see a professional. And back problems are the leading cause of disability in people younger than 45. Even though 90% of acute back problems resolve spontaneously within a month, there are plenty of problems that need specific care, such as infections, tumors, some fractures, neurological deficit, and back pain due to problems in other parts of the body.

In my opinion, certain kinds of back pain are best evaluated by a medical doctor (M.D. or D.O.) as opposed to a chiropractor. These include pain that occurs immediately after an injury such as a fall or motor vehicle accident; new back pain in people under 20 or over 50; back pain with leg pain, numbness or weakness; back pain associated with fever, vomiting, or other systemic symptoms; back pain with loss of bladder and/or bowel control; back pain that's worse while supine, or much worse at night; pain occurring after a recent infection (like a kidney infection); or pain in people who've had cancer, or have a weakened immune system from an organ transplant, HIV, or long-term use of steroids.

On the other hand, for acute back pain that's less than a week old, studies show that chiropractors may do a better job than M.D.-type doctors. However, one of the best kinds of doctors for back pain is often an osteopathic physician. Their education includes most of what M.D. students get, in addition to specific training on treating back problems.

The back has several components, but the most pain nerves are in the disc, the facet joints, ligaments, and muscles attached to the back. To understand what can hurt, you need to know what the back is, and what it does.

The load bearing is done by the vertebrae, or backbones, and the discs. Each of the two dozen or so vertebrae has a cylindrical body filled with strong, spongy bone: The flexible disc is between each vertebra. The disc has a soft jelly-like inside with a tough covering called the annulus.

Behind each vertebral body is a bony arch, and inside that arch runs the spinal cord, containing the nerves connecting the body to the

brain. All the arches together form the spinal canal; the top of each side of the arch touches the bottom of the arch above it, forming the "facet joint." Ligaments keep the vertebrae from moving too much (if they did, they could damage the spinal cord). There's a ligament running down the back of the vertebral bodies between them and the spinal cord, called the posterior longitudinal ligament. It's also between the spinal cord and the back of the disc.

At the top/back of each arch is a bony extension like the fin on a shark, called the spinous process, which gives back muscles a place to attach. There's a transverse process sticking out each side of the arch, too, also for muscle attachment. Nerves to the body exit to the side through the space between the arches; these spaces are called the vertebral foramen.

Each pair of vertebrae forms one "spinal motion segment," which has a pair of spinal nerves exiting to the right and left, a pair of facet joints, muscles, a disc, and a pair of arches forming the spinal canal in that segment. If you understand these structures, you can understand all the many different causes of back pain. And by understanding them, you can help eliminate them by changing what you do.

For motorcyclists, a lot of what you do depends on what you ride, and the kind of riding you do. There are two extremes of riding positions: Think of a racer on a sportbike, with her back bent far forward, hips flexed, hugging the tank; and a cruiser who's leaning back, feet up on the highway pegs. These people are putting strain on different parts of their spine.

And there's more than just the riding position in terms of the effect on the back: Other equipment makes a big difference, too. If a rider has his compression damping set too high, or if his preload is off, there's going to be unnecessary repeated squeezing

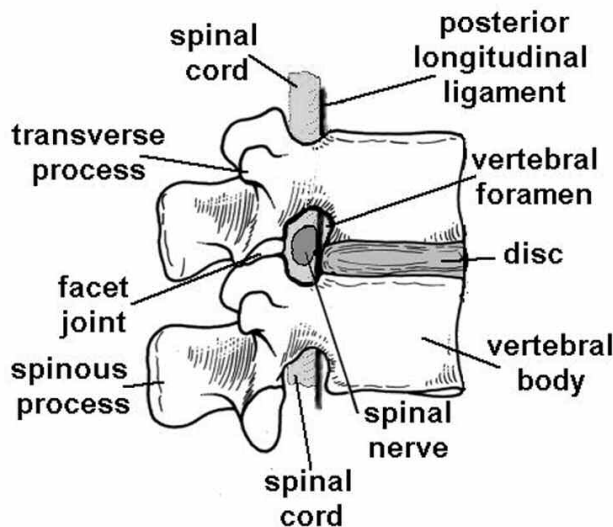
of the disks when he hits a pothole or a bump. This aggravates certain conditions a lot more than others.

A windscreen can make a big difference in how a ride affects your back, too. If you have a lot of wind on your torso and you have to counter that pressure with your arms and/or your abdominal muscles, you're adding to the compression forces on your back. On the other hand, if you've got a windshield that's exactly the right height, you're essentially leaning on a pillow of air, greatly reducing the load on your back. One of the nicest things about my BMW R1100RSL is the adjustable windscreen and the adjustable seat height: I can tune it to what I need.

Next month we'll talk about specific kinds of back problems; clues as to which is which; what to do when your back "goes out;" and, most importantly, when surgery is or isn't a good idea.

I'll be back.

Spinal Motion Segment



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