

## Dr. Lipoff: What is Disc Pain?

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*"If you cannot get rid of the family skeleton, you may as well make it dance."* – George Bernard Shaw

Some 80 million Americans have back pain each year. Much of this occurs in the low back and involves the disc, which is located between the vertebra or the bones of your spine. The inside of the disc is a jelly-like material while the outer surface is tough like a tire. The disc's purpose is to allow for motion between vertebral segments, act like a hydraulic shock absorber and to distribute forces throughout the spine.

The inner layer is about 80 percent water when we are younger but loses hydration and nutrients as we age. Between degeneration and decreased water content, people can lose about three inches of height due to these changes. This is why our parents and grandparents appear to shrink as they get older.

This outer fibrous layer has interlocking fibers that withstand pressure weight is applied to the disc. It takes roughly 300 pounds of pressure to tear this outer ring. These fibers also prevent excessive motion of the joints when we move.

If you press straight down on a donut the jelly spreads out evenly. When you compress the front edge of the donut continuously over many years, it forces the jelly to the other side of the donut. This is essentially what happens to our discs when we bend forward or lift incorrectly.

When the outer edge is under too much stress, it causes a bulge or protrusion in the outer fibers. The bulging can occur on any side of the disc. This malformed disc can put pressure on the nerves or the spinal cord, and cause local or radiating pain into your arms or legs.

Notably these changes do not have to be the result of a specific injury, but may be caused by the accumulation of minor events that stress the spine. That is why repeating movements that negatively affect your posture can have a long lasting result, and a painful one at that.

A permanent decrease in the thickness of a disc from abnormal loading or repetitive movement can drastically reduce your range of motion, may alter the normal rotation of the joints, cause pain and lead to arthritis.

During a flare-up you may notice a severe tilt to one side (antalgia), trouble standing up, difficulty sitting or a bodily shift that looks like your upper body is three inches to one side of your waist. There may be pain shooting out sideways from the level involved or it may irritate a nerve and send sharp or numbing sensations into your arms or legs.

Coughing, sneezing and using the toilet can make things worse because they all make the disc enlarge. If you sneeze and the disc enlarges it will tap the nerves close by and you will feel it. Leaning forward and placing your hands on your knees may help reduce the sharpness of the cough or sneeze by increasing the space between your vertebrae, the discs and the nerves.

Several factors can contribute to how healthy your discs are over the years. The most common are stress to the area, the workload, posture, nutrition and exercise, as well as smoking. The normal aging of a disc will cause it to potentially dehydrate, shrink, harden and develop faulty biomechanics for lifting. When posture, ergonomics and all the other abuse is added to the equation it only further compounds the problem. This is why chiropractors realign your spine; to keep better balance between the muscles and bones so stress is reduced and this can prevent damage to your body.

Poor posture can double low back pressure when lifting incorrectly. If you raise an item higher than your waist you are only increasing the stress on your spine when you lift. This could result in a 10 – 15 fold increase in pounds of pressure per square inch of the disc depending how much you lift, how you bend to grab it and how far away from you the object is in relation to your body.

Factoring the 10 – 15 times the weight when lifting improperly in front of the body formula into everyday life, lifting a 10-pound can of paint out of a car trunk would be up to 150 pounds of pressure on the low back. So in my case, bending to pick up a 60-pound dog would be an even 900 pounds of pressure per square inch on my back. That's what dropped me when I was 26.

The most common area to be affected by a disc problem is the lower lumbar spine, in the middle of your back at the level where your belt would be. The 4th Lumbar disc, also known as L4, and L5, the next one below it, are the two discs typically involved in more than 95 percent of back pain. They take most of the abuse from bending to lift heavy loads, bad posture or repetitive movements.

Each disc's mechanical behavior is dependent on its location, like at the belt line where it is a fulcrum for lifting. Higher in the lumbar spine would require less bending for lifting than required by the lower spine.

Every time each disc is compressed, it forces water and metabolic waste out. And more weight is directed to the outer annular layer of the disc. When you sit or lay down the disc is relaxed and replenishes itself with nutrients and fluids. This pumping mechanism to move fluids in and out of the disc allows the disc to stay healthy by maintaining its nutritional and mechanical requirements.

Making one mistake lifting a heavy object, a light weight, stumbling or even a single fall can result in damage to a disc. When someone double dared you to lift something ridiculously heavy, and you did, or you carried your big brother on your back when he outweighed you by 40 pounds; these are classic examples of how we start a future of back problems.

When we lift a laundry basket of wet clothes and turn to put it on the counter we are loading the disc and compressing it down under pressure.

The lumbar disc is especially vulnerable to something known as fatigue failure because it has a poor blood supply. While it is loaded, it has fluids and nutrients being pushed out of it and no new nutrients can make it in. That's like trying to blow air into a balloon while someone is squeezing it. Air coming out is greater than the air you are trying to inflate the balloon with; so it never inflates or gets new air inside the balloon.

As the disc is under increased pressure it influences disc cell metabolism and may accelerate the degeneration of the disc. This explains why constant lifting or stress can increase the likelihood of experiencing disc degeneration as we age. The pressure doesn't allow cells to function properly and no new nutrients ever

make it into the disc during this stress so they can be replenished.

It's like doing yard work for a long period of time. With no new workers, with energized muscles and hydrated discs to help, the ones that you are still working become increasingly less effective, exhausted and are more susceptible to injury.

Forms of treatment vary as does the response to care. Chiropractic, physical therapy, acupuncture, massage, medications, ice or heat may all play an initial role in your care. X-rays and MRI films may be needed as well depending on your history, response to care or severity of symptoms. You may even have to try cortisone shots to reduce inflammation. Like any health condition, surgery should be a last resort unless you are in an emergency situation.

Learn safer ways to do things in your life so you too can prevent back pain. Use common sense and treat your body with respect. If you've never had back pain or a disc problem, it doesn't mean chiropractic wouldn't help keep you well. Like brushing your teeth before you need to see the dentist for major work.

I'd rather keep you well than have to repair you. It's a much longer process. Respect your back. Be kind to it and don't abuse it. Every pro team has chiropractors for their athletes to help keep million dollar athletes healthy. Why not you?

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He received his Bachelor of Science degree from Syracuse University in 1990, a Doctorate of Chiropractic (D.C.) from New York Chiropractic College (NYCC) in 1994 and he became a Certified Fitness Trainer (CFT) in 2005.

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***Want to meet Washington Capitals Players? John Carlson, Karl Alzner and Troy Brouwer will be attending a Foundation 4 Heroes Autograph Fundraiser at City Tap House in DC on November 9th. Lots of sports memorabilia will be auctioned off. City Tap House is also having a Halloween Party with a \$1000 1st Prize for best costume. Both events benefit the Foundation 4 Heroes. Check our facebook page for more details. Don't miss this opportunity.***