

How The Body Works...

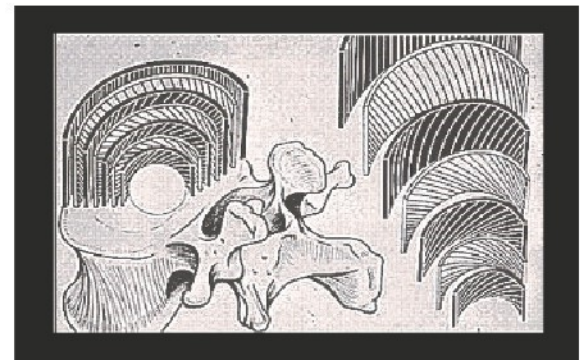
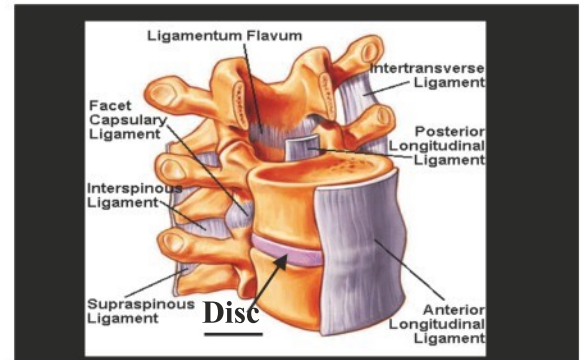
"Herniated Discs" ...A Single Injury or Not?

As physical therapists, we often hear from our patients that they have a "herniated or blown" disc. Many times, these patients and their physicians try to relate their current condition to a single event or injury. While a single traumatic event, like falling from a significant height or a severe motor vehicle accident at high speed could possibly herniate a disc, most disc problems are NOT caused by a single event. This is good news, because it means that you can most likely learn to prevent this type of injury from occurring in your body. Let's learn about the spinal discs and the surrounding structures.

To start with, take a look at the picture of the lumbar spine at the right. The spinal discs are the "soft tissue" located between each bone (vertebrae) in the spine. We often hear that the "disc" is like a jelly donut, with the dough or bread (the annulus) on the outside and the semi-solid jelly (the nucleus) on the inside. While this paints a simple picture of the disc, it leaves a lot of critical information out that you need to protect yourself at work and play. Take a look at the second picture on the right. This picture shows the complex layers of the outer portion of the disc (the annulus) that are basically like strong ligaments laid down on top of each other. Notice the directions of the fibers in these ligaments, they present at an angle as well as in opposite directions from layer to layer. What does this mean to you when you are at work or play. How can you use this information to protect yourself?

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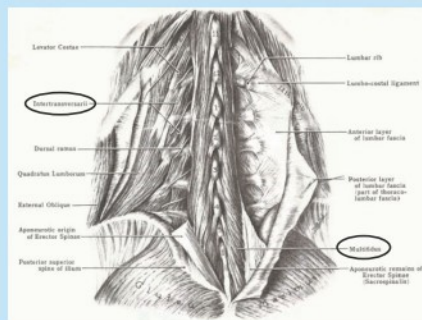


Truths / Myths About Exercise...

Don't Forget the Little Guys!

We often hear someone say, "my back feels WEAK!", and they head to the gym to work out. Typically, the gym offers back extension exercises and other machines to make the "large" muscles of the low back and trunk stronger, but misses the most important group of tissues. In the article above, "*Herniated Discs... A Single Injury or Not?*", we mentioned inappropriate movements as a way to start and accelerate the degeneration of the lumbar disc. So, if exercising the large

muscles of the back, trunk or "core" is NOT the correct way to fix this, what is?



The preceding picture is a "dissection" of the low back muscles and connective tissue. The large muscles of the back have been cut away to show a few of the "little guys" that are right up against the bones of the spine. This does NOT even show the smallest ones.

The small muscles of the spine or low back have two main purposes, and **STRENGTH** and **POWER** are NOT their responsibility! **Continued on Page 2**

True Stories... Surgery Or Not?

What if you began having low back pain, leg and foot pain and had an MRI that looked like this? Would you rush off to surgery?



Hopefully not, since the long-term outcomes of low back surgery are not that beneficial. What this person did was consult his HCE physical therapist. After a careful evaluation determined that the situation was NOT a surgical emergency, the patient decided to give conservative care with the PT a chance. The FIRST visit eliminated 100% of the back pain and 75% of the leg and foot issues. Over the next three months, being seen 1-2 x per week, the patient became symptom free and learned how to manage his own condition. This was over two years ago and NO SURGERY was necessary! No missed work and no unnecessary cost!

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You can think of these fibers like the fibers of a rope. A single fiber is NOT that strong, but the group of fibers and the specific way they are connected to each other make them very hard to break. However, if you put your body in certain positions, like bending forward, twisting, or bending backwards, about "half" (50%) of these fibers are put on slack and CANNOT HELP protect you from causing damage to the other fibers. This is why we tell you to keep your back straight while lifting, squatting and doing other types of heavy work or play activities.

Typically, when we do some damage to our "disc fibers" it begins in the center of the disc and works its way out toward the edge. As these interior fibers weaken, the pressure from the nucleus (the jelly part) begins to create a "bulge" that can be seen on imaging studies. It also begins to impact the way this area of your body functions and can begin a downward spiral of health, ultimately leading to a "herniation or blown disc" many years later. So what if you already have some slight problem with your lumbar discs? Protect it by moving right and read about proper exercises for the back in "Truths / Myths About Exercise" Section of this newsletter.

Truths / Myths About Exercise... From Pg 1 Don't Forget the Little Guys!

First and foremost, these "little guys" are designed to provide very precise control of the lumbar segments in an effort to prevent damage to the important structures (including the discs) in this area. They must "share" the load with other muscles, ligaments and the discs. If the discs begin to wear out, these muscles can get overworked and begin to "fail and complain." The very smallest muscles of the spine, don't do much more than provide a "sense" of position of the bones of the spine. This may sound boring and unimportant, but if your brain does NOT know where your spinal bones (vertebrae) are, then how can they be moved properly to promote healing or prevent degeneration (wearing out)?

We don't have enough room here to discuss what exercises you should be doing, but you should know that the right exercises will be slow, low weight (like body weight), small ranges of motion and lots of repetitions. The idea is that your spine must stay stable, while your arms and legs are doing the work. Contact your HCE physical therapist for more details. **(1-866-398-9169 for more information)**

Healthy / Unhealthy Habits... *The Impact of Smoking on our Lumbar Discs*

We all know that smoking is bad for our health, but do you know why? Let's explore what smoking does related to our bodies and specifically how it can negatively impact the health and / or healing of a lumbar disc.

The primary problem with smoking comes from the Carbon Monoxide gas molecules located in the smoke. Carbon Monoxide is 1000's of times more likely to bind (latch on to) with red blood cells in the lung than oxygen. In other words, there could be 999 oxygen molecules and one Carbon

Monoxide molecule fighting for a spot on a red blood cell, and the Carbon Monoxide molecule will win nearly every time! The problem with this is that oxygen does NOT get to your cells and most of your cells will DIE without enough oxygen.

How bad is this and how long does it last? Research has shown that smoking for 10 minutes (one cigarette) will cut the oxygen delivered to your lumbar discs by FIFTY PERCENT (50%) for up to TWO HOURS. Without oxygen or with this level of oxygen reduction to your cells, your body will have

significant trouble producing energy, cutting inflammation, healing from an injury or overuse, processing the food you eat into things your body needs, fighting off infections, and much, much more.

Oxygen is the most critical "fuel" we need to be alive, smoking can cut the oxygen that you get in HALF! Please think about this!