



# The Wellness Family

Dr. Greeley Keeps You Informed

## Chemical Stressors

When asked about chiropractic care generally, or vertebral subluxation specifically, it's very common for our minds to go directly to neck or back pain. The average person will almost always connect a physical injury to the presence of vertebral subluxation and the need for chiropractic care, but that is not the only equation.

### Causes of Subluxation

Vertebral subluxation is more simply defined as nerve interference; signals sent from the brain, down the spinal cord and out via nerves to the muscles, organs and glands are being inhibited. When this happens it is the presence of vertebral subluxation but it is not always the result of a physical stressor. There are actually three causes of subluxation: physical, emotional and chemical.

Physical stressors are the more obvious: a fall or tumble; repetitive stress injuries sustained during sports or gymnastics; and strains or traumas caused by improper lifting, bending or twisting. These and other physical injuries may result in a vertebral subluxation.

Emotional stressors are a little less obvious but are easily understood. Emotional stress is felt in many ways. For instance, when stressed or scared the body will tense up and actually create a physical response to the source of the original emotion. Additionally, studies have shown that as an adaptive response to stress, there is a change in the serum level of various hormones including corticotropin-releasing hormone (CRH), cortisol, catecholamines and thyroid hormone. These changes may be required for the fight or flight response.

If the stress is prolonged, the hypothalamus will trigger the release of adrenocorticotrophic hormone (ACTH) from the anterior pituitary gland. This will then stimulate the adrenal cortex to release steroid hormones called corticosteroids. Corticosteroids then turn on transcription of certain genes in the nuclei of target cells.

In other words, when stressed or afraid, our bodies release various hormones to create a biomechanical response. Yet, what if the source of that stress or fear is a prank? What if there is actually no real danger? Our body has just released a deluge of hormones, we're in fight or flight mode, and we're geared up, charged, ready to defend ourselves against... nothing. What happens to all those hormones that are flooding our body, entering cells, affecting muscles, and preparing to help us defend ourselves? When we look at subluxation this way, it's easy to see how emotional stressors may very well affect our spine and result in nerve interference.

### The Third Cause

Of the three causes of vertebral subluxation, the most difficult to understand may well be chemical stressors; however, this is made easier when we consider the adaptability of the human body. It is a biomechanical organism made up of many different regulatory systems that when working together properly will respond to a change in conditions. When this change in conditions (whether external or internal) can't be modified, it may result in discomfort, illness or even disease.



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Since the body is a self-regulating system, it responds to chemicals as it does to foreign invaders: the immune system will respond and attempt to right the chemical balance in the body. Again, this process may create a biomechanical response which can affect the spine and result in nerve interference or vertebral subluxation.

### Dietary Sources

The most common source of chemical stressors will be in the diet. These include processed sugar, refined carbohydrates, bleached and processed grains and unhealthy fats. Along with preservatives, additives, artificial flavors, colors and sweeteners, and other chemicals in highly processed and packaged food items.

Additional chemicals consumed include caffeine, alcohol and nicotine. Any chemical we put in our body is going to affect our overall health and irritate the optimal function of the nervous system creating nerve interference.

### Household Sources

Commonly overlooked sources of chemicals found in our homes include those that we use to clean our homes, our furniture, our clothes and even ourselves. Unless they are specifically marketed to be organic and chemical-free, the majority of household cleaning supplies are sludge made up

of chemical compounds, even furniture polish and laundry detergent. Shampoos, conditioners and cosmetics are also known to contain chemicals.

The Environmental Working Group (EWG) has made it their mission to help empower the public to avoid toxic chemicals. Skin Deep is an educational tool they offer that rates personal-care products based on their safety and potential for toxicity. Sadly, cosmetic products and their ingredients (with the exception of color additives) are not subject to FDA approval. For many reasons, including "trade secrets," it is rare that chemicals will be tested.

It's estimated that there are about 80,000 chemicals on the market in the U.S. that have never been tested. In 1976, the Toxic Substances Control Act gave the EPA authority to monitor chemicals, but it was written in such a way that it created challenges when the EPA attempted to obtain the information necessary to run tests. When the law passed the EPA allowed an estimated 62,000 chemicals to remain on the market without testing; since then only about 200 new chemicals have actually been tested prior to being released to the public. Of that 200, fewer than a dozen have been restricted.

To put this into perspective, let's compare the FDA, which has banned only 11 products, to the European cosmetics law where the EU has restricted more than 1,000 products. They require that the manufacturer prove the chemical is safe prior to releasing it to the public as opposed to the U.S. where chemicals are not subject to FDA approval.

This is difficult to accept since these chemicals affect our families. The EWG did a study in 2008 that revealed the presence of 16 different chemicals from 4 chemical families in the bodies of 20 American girls between the ages of 14 and 19. These chemicals included phthalates, triclosan, musks and parabens which are all commonly used in cosmetics and other personal-care products.

### **Prescription and Non-Prescription Sources**

Another common source is pharmaceuticals and over-the-counter medications. There is a reason these drugs are often referred to as chemicals. Dana Kolpin, a research hydrologist for the U.S. Geological Survey, has said, "All pharmaceuticals, by design, are meant to elicit a biological response." There is no medication (prescription or otherwise) that was not designed to have an effect on the body. They are designed to create a response.

Tragically, studies have shown that many of these chemicals are not metabolized by the body and so they pass to the environment through human waste. Rebecca Klaper and colleagues at the University of Wisconsin-Milwaukee recently tested Lake Michigan and found evidence of 32 pharmaceuticals and personal products in the water and 30 in the lake's sediment.

Ecologists have long acknowledged that pharmaceuticals are polluting the environment.

### **The Chiropractic Response**

Clearly, no matter how hard we try, it's not going to be possible to completely shelter ourselves and our children from all exposure to chemicals. We live in a society that makes that next to impossible. But with education and research we can at least avoid some of the more blatant chemicals. Making dietary changes, researching the best household cleaning supplies, and using the EWG's website and program (Skin Deep) to pick the best personal-care products, is a start.

The biggest concern must be how exposure to these substances is affecting our health and what to do about it. Regular chiropractic checkups and adjustments will surely be the first step to reversing the vertebral subluxations being caused by these chemical stressors.



*Dear Patient,  
Dr. Greeley is dedicated to providing you with the absolute best in family wellness care. So take a moment today to discuss with your Family Wellness Chiropractor any concerns you may have regarding your family's overall health and wellness.*

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