

COHERENCE

THROUGH CHIROPRACTIC



Immunity



COHERENCE

THROUGH CHIROPRACTIC

COHERENCE: The quality of forming a unified whole.

Connection. Consistency. Integration. Unity.

COHERENCE THROUGH CHIROPRACTIC is a quarterly publication highlighting chiropractic research focused on vertebral subluxation. It is devoted primarily to serving the educational needs of the general public and the chiropractic profession.

The individual articles and links to other healthcare information in COHERENCE THROUGH CHIROPRACTIC are based on the opinions of the respective authors.

The information provided is not intended to replace advice from a licensed healthcare professional and is not intended as medical advice.

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ARTICLE SUBMISSIONS

If you would like to submit an article to be included in a future issue we encourage the submission of topics focused on vertebral subluxation and the role chiropractic plays in salutogenesis.

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THE CHEMISTRY OF LIFE & HEALTH

It's All Controlled by Your Nervous System

One of the most challenging courses for me when I was attending chiropractic college back in the 80's was *Biochemistry*. In health care education it's considered a "weed out" course meaning if you can't pass these courses you aren't going to be a doctor. Making matters worse are the courses you have to take before that in order to even register for biochemistry – *General Chemistry* and *Organic Chemistry*. I still have nightmares.

Nevertheless, these courses are crucial for understanding how the body works because so much of what goes on in our bodies is based on chemistry and the interactions of various substances. The role of these natural chemicals and how they keep our physiology humming along and keep us healthy is fascinating.

Many of those natural chemicals and substances that keep us healthy do their job through the *immune system*. Your immune system is the guardian and protector of your body and your health. Even some of the names given to immune substances evoke concepts of battles and wars for survival occurring within you - *Natural Killer Cells* for example.

The reason for this is that the internal environment within your body has to be protected and defended against all sorts of internal and external threats to your very existence. The good news is that your body does this much of the time without you even

knowing it. Typically it's only when you are expressing symptoms like a fever, a cold or even pain, that you become aware of your amazing immune system and what it is capable of doing – or *not* doing when it's interfered with.

Even more fascinating is that your immune system does not work alone and in fact like every single other function in your body the immune system is controlled by the nervous system. The *nervous system* is the master control system of the body. Nothing happens in the body without the nervous system knowing about it and coordinating it.

In fact, so intertwined are the immune and nervous systems that the immune system is referred to as a *circulating nervous system* and together they are also referred to as a *Supersystem*. You can imagine that if there is *obstruction* or a *disconnect* between these two systems of the body it is going to be pretty hard to get and stay healthy.

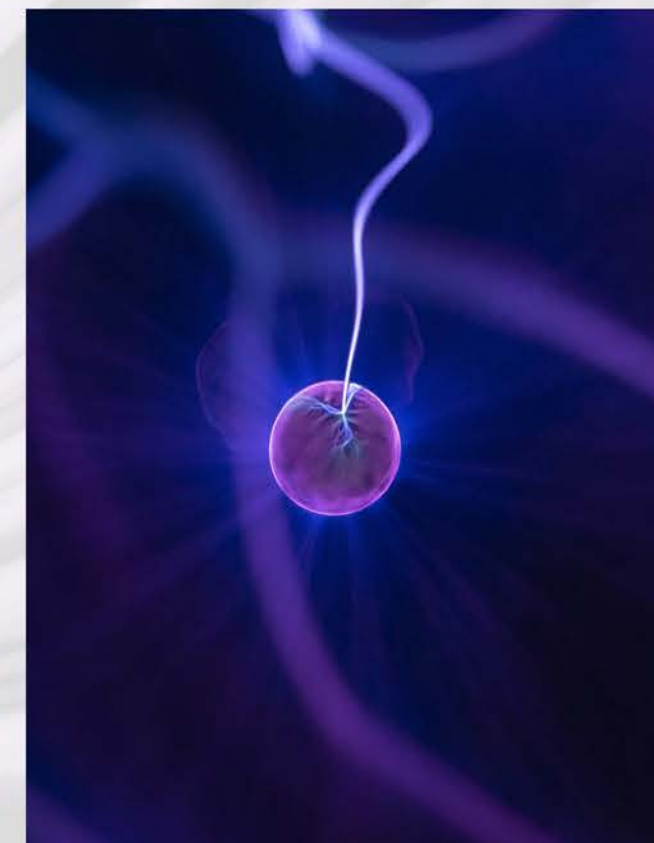
As we will see in this issue of COHERENCE research has shown that people with immune challenges not only have problems with how their immune system chemistry is functioning but they more importantly have problems with how their nervous system is functioning. The philosophy and science of chiropractic teaches us that all health challenges boil down to the inability to *adapt* to the onslaught of physical, chemical and emotional challenges we experience every single day.

This is also the current thinking when it comes to immunity. For purposes of our discussion we will focus on physical disconnections and obstructions between the nervous system, the immune system and the brain – *including the mind*. These can happen due to abnormal, or garbled communication between the brain and the body through the nervous system or it can be through obstruction of blood and cerebrospinal fluid flow into or out of the brain. Think about crossed wires, poorly written computer code or stepping on a garden hose with water flowing through it.

Our body's ability to *adapt* to internal and external health challenges and mount an immune defense and repair response is the key to overcoming the results of the physical, chemical and emotional *stresses* that fundamentally cause all human ailments – *if we cannot adapt to those stresses*. One of the most important ways chiropractors help us do this is to make sure the nervous system is not being obstructed and the connections are good. This is because the nervous system controls and *coordinates* all functions of the body.

Chiropractic is about removing obstructions to the proper functioning of the nervous system and improving connections. These obstructions are caused by shifts in the bones (vertebra) that make up the spine and these shifts obstruct the nervous system and create a disconnect. Because the nervous system controls and coordinates all functions in the body, obstructing or disconnecting it can have an effect on every function of the body - and it often does.

These obstructions are referred to as **vertebral subluxations** in the scientific literature and adjusting them is how chiropractic helps people stay connected and healthy.



In this issue of COHERENCE we'll learn about the role of neurological connections and obstructions in helping those struggling with immune challenges. We'll review just some of the research that has actually been going on for decades that shows how the nervous and immune systems are connected, the role of chiropractic in that process, how the mind can make you well and examples of how this happens.

Chemistry is life and the nervous system is at the heart of it.

Enjoy this issue of COHERENCE!

Matthew McCoy DC, MPH
Editor – COHERENCE



THE CIRCULATING NERVOUS SYSTEM

The Role of Chiropractic in Immunity

The body has the ability to heal itself and chiropractic theory says that when the nervous system is free from obstruction the body can respond more effectively resulting in improved overall health.

Chiropractic is about removing obstructions to the proper functioning of the nervous system, improving connections and the flow of information. These obstructions are caused by shifts in the bones (vertebra) that make up the spine and these shifts obstruct the nervous system and create an obstruction and a disconnect. Because the nervous system controls and coordinates all functions in the body, obstructing or disconnecting it can have an effect on every function of the body - and it often does.

These obstructions are referred to as **vertebral subluxations** in the scientific literature and adjusting them is how chiropractic removes those obstructions and helps people stay connected and healthy.

A person's body repairs damage, fights or prevents

infection and destroys cancer cells through the activity of the *immune system*. For a number of years researchers and neuro-immunologists have described the immune system as a continuation of the nervous system and stated that immune cells are simply a *circulating nervous system*. These claims have been made based on the fact that the nervous system plays such a crucial role in alerting and guiding immune system cells to where damage or an infection is located.

The nervous system is also responsible for localizing the immune response to the specific site of damage or infection. Localization of immune activity prevents a systemic or a greater immune response than the body needs. When this doesn't happen people get what are called *autoimmune diseases* - where the body essentially attacks itself.

Although scientists have known about the nervous system's role in regulating the immune system for years, this concept has finally come to the forefront of scientific research.

Recently the focus of science has shifted from

viewing the nervous and immune systems as separate entities to recognizing that the brain utilizes specific paths to the immune system for the purposes of guiding and controlling the immune response.

There is a two way communication between the nervous system and immune system with *Neuromodulators*, chemical messengers of the nervous system, being released by nerves to guide immune function. The immune system communicates what's happening back to the nervous system by white blood cells' secreting chemical messengers called *cytokines*, a type of *neuropeptide* -- which are chemicals released by cells to communicate with the nervous system.

When the immune system is activated, immune cells also send out an array of specific chemicals, called *immunomodulators*, to influence the function of the nervous system. These *immunomodulators* reach specific target areas in the brain, where they start various recuperative (rebuilding) and protective behaviors such as shivering, sleepiness and an increased propensity to fight attackers.

This is why when people take a couple of aspirin or acetaminophen for pain and fever they may end up battling the sickness even longer because they are stopping these productive processes so they can feel better. Studies suggest that anti-fever therapy prolongs illness by stopping the body from inducing its natural defenses. These chemical pathways of communication are only a few of the



Immune System as Sensory Organ

The immune system acts as a sensory organ, like the eyes or ears, only its spread out over the whole body and transmits information to the nervous system that is just as crucial in guiding a person's actions but much less distinct than sight or hearing. The immune system acts as a network of specialized biosensors designed to pick up information from within and around the body and relay that information to the brain. This causes animals or people to behave in specific ways to promote healing or to guide reactions in the interest of self-preservation. The activation of these functions can be altered by stress.

many routes of communication that the nervous system and the immune system use to keep us healthy.

Channels of Communication

There are many channels of communication between the brain and the immune system. Numerous scientific and medical studies have demonstrated direct nerve supply to the immune system. It has been shown that there is direct contact between nerves and lymphocytes (immune cells that kill viruses and tumor cells) in the spleen and thymus gland (the gland that develops and programs immune cells to attack foreign objects). Obstruction of nerve activity to the spleen has been found to diminish immune responses including the ability of *natural killer cells* to target and destroy viruses and cancer cells.

As far back as 1945 it was demonstrated that the bone marrow itself has an extensive nerve supply. The nerve supply to the bone marrow is a direct link from the nervous system to white blood cells and the immature (new and growing) cells that will eventually become red blood cells and white blood



cells. Nerve stimulation to the bone marrow causes an activation of the immune response by releasing the immune cells into the general circulation. Since all the blood cells in our bodies are produced by the bone marrow this is a *really* important function.

You have no doubt heard about lymph nodes and probably know that when they are swollen it could mean you are sick. Lymph nodes are part of the *lymphatic system* which also plays a major role in immunity. All lymphoid organs including lymph nodes, spleen, etc., have a *direct* nerve supply for the purpose of controlling the immune response. Obstructions of the nervous system have been shown to alter the immune response and the function of these immune cells, specifically white blood cells (lymphocytes). The movement of lymphocytes to an area of the body where they are needed is controlled by the nervous system. Due to the heavy nerve supply of the thymus gland, the nervous system is thought to play a major role in the development of immune cells.

Obstruction of the nervous system can not only slow down the immune process but it can also result in overreactions or hypersensitivities - such as allergies for example. Allergies are an inappropriate immune response to a substance that is not actually harmful to the body. The nervous system causes immune responses to be fast and localized, getting lymphocytes and other immune blood cells to

spring into action. These cells kill bacteria, viruses, parasitic worms, produce antibodies, destroy cancer cells, release chemicals to attract more immune cells and alert the nervous system that there is something wrong, and they stop allergic reactions.

White blood cells lessen the severity of allergies by destroying substances that are harmful or perceived to be harmful by the body. These cells also stop the immune response when it is no longer needed.

The Role of the Chiropractic Adjustment

Obstruction of the nervous system can cause immune system dysfunction and the science of chiropractic says that by removing the nervous system obstruction spinal adjustments can help correct immune system dysfunction. Structural

shifts and poor movement in the spine can adversely affect the immune response by causing the body to incorrectly activate a stress response, which slows the ability of the immune system to react.

Subluxations are obstructions in the nervous system caused by structural shifts in the spinal vertebra which can cause increased or decreased activity of the nervous system. An obstruction in the nervous system can affect the body in two different ways. One reaction the nervous system can have is to become *hyperactive*--the nervous system may bombard the body with excessive chemical messages that cause abnormal changes in growth and activity. When the nervous system is hyperactive over long periods of time it will tend to produce the development of abnormal conditions and disease

processes in the organs or tissues to which it supplies information.

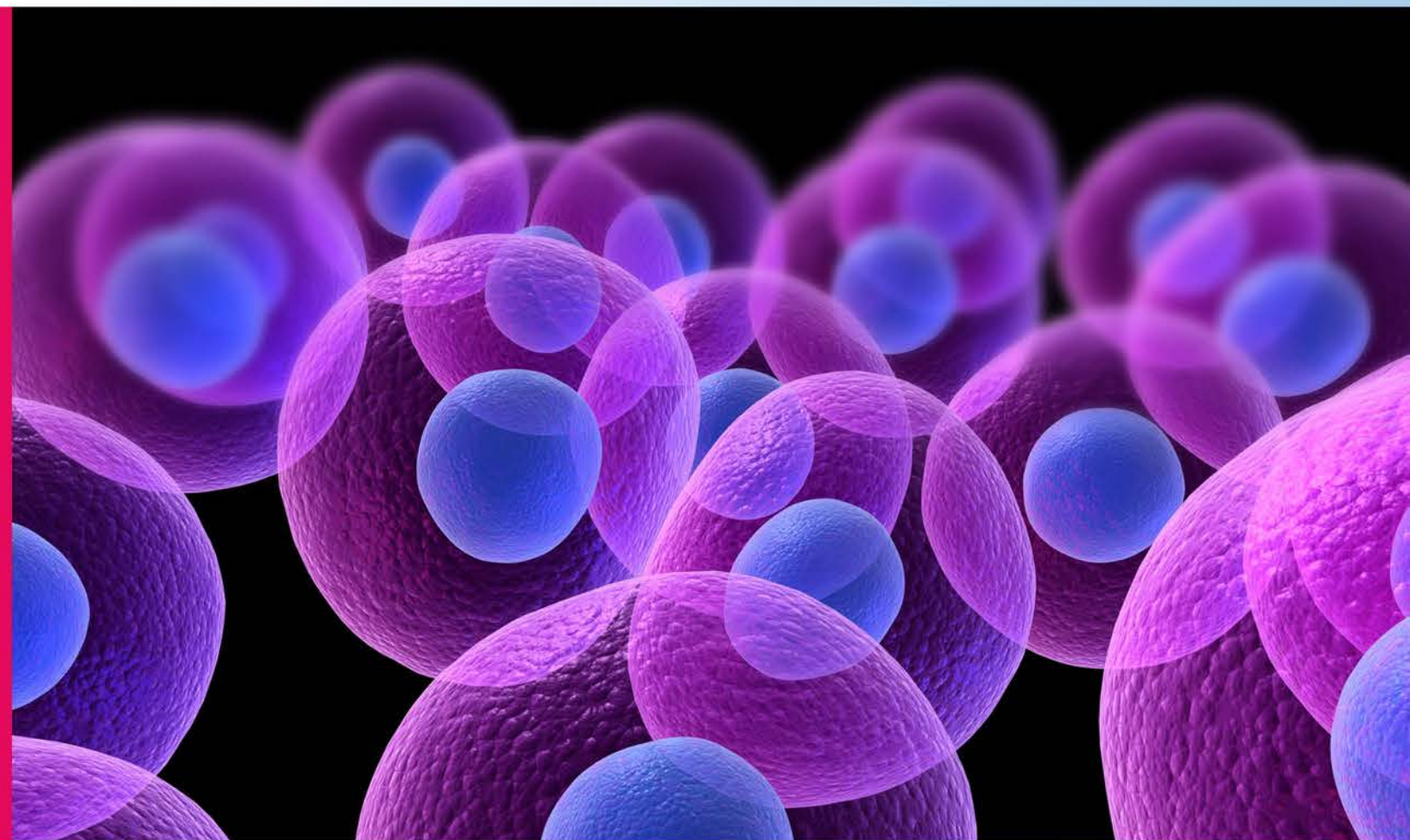
A second way that a disturbance in the nervous system can affect the body occurs when the nervous system becomes *hypoactive*; cells that are normally controlled and suppressed begin working out of control, which in some cases are hypothesized to lead to cancer. All cells are equipped with all the necessary genes to allow them to reproduce, and with proper nervous system function only the appropriate set of genes are activated.

Cancer cells are cells that are growing and functioning out of control because the wrong set of genes has been turned and left on because the nervous system has failed to suppress them. Long term obstruction in the nervous system has also

What Causes Vertebral Subluxations?

Vertebral subluxations are caused by an overload of either a physical, emotional or chemical stress and the body cannot *adapt* to it. When these types of stress exceed the limits of the body's ability to *adapt* a cascade is initiated which leads to subluxation. Subluxations cause obstruction in the nervous system by initiating this sequence of events:

1. Misalignment and/or abnormal motion of the vertebrae
2. Narrowing of the holes between the spinal vertebra where the nerves exit and/or irritation of nerves from the misalignment or abnormal movement
3. Obstruction of the nerves
4. A resulting interference to the flow of mental impulses
5. Spinal adjustments remove the obstruction, correct the subluxation and eliminate these adverse effects.



been shown to be a factor in many disorders including autoimmune diseases, cancer, fibromyalgia and chronic fatigue syndrome.

The contention is that when the obstruction to the nervous system is corrected and the abnormal activities are eliminated, balance in the body can be re-established and the process of disease may be eliminated. An abnormally functioning nerve which is either *hyperactive* or *hypoactive* tends to return to normal function once the obstruction is removed.

However, it is crucial that corrections (adjustments) are given at a frequent interval in order for the normalization to take hold to cause a permanent correction.

Proactive Care Versus Reactive Health Care

Unfortunately the way in which many people care for themselves is reactive. They will wait until a health problem arises before taking any actions to improve their health. Many health issues could be avoided if people took a more proactive stance on health decisions and started to take care of themselves or their children earlier in life. Children raised under chiropractic care have been shown to be less prone to infectious processes such as otitis media (ear infections) and tonsillitis, for example. These children have stronger immune systems and are also better able to cope with allergens such as pollen, weeds, grasses, etc. as compared to children not raised under chiropractic care. There is also a significant decrease in antibiotic therapy use among children receiving chiropractic care.

A Penn State University study of 654 Americans published in the Journal of Social Science and Medicine stated that persons with childhood health problems were twice as likely to develop cancer or chronic lung disease by late middle age. Arthritis was about 33% higher in this group. A childhood of

ill health may be the start of a full gamut of adult illnesses.

Chiropractic science says that chiropractic care removes obstructions to the nervous system which allows the immune system to combat infectious processes and not only helps sick people get well but helps healthy people become much healthier.

Conclusion

The nervous system and the immune system have so many connections that they could correctly be referred to as a *single system*. The nervous system senses damage, infectious agents and foreign bodies with the help of chemical releasing immune cells and deals with these problems by deploying different types of immune cells to carry out specific procedures. Obstructions in the nervous system (subluxations) diminish the ability of an individual to sense and repair damage and combat infection, cancer etc. directly, resulting in diminished health. Research continues to accumulate which supports the relationship between vertebral subluxation, chiropractic adjustments and improved nervous and immune system function.



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Chiropractic's Role in the Chemistry of Our Bodies & Our Health

By weight, the average human adult male is approximately 60% water and the average adult female is approximately 55%. There can be considerable variation in body water percentage based on a number of factors like age, health, water intake, weight, and sex. In a large study of adults of all ages and both sexes, the adult human body averaged 65% water.

Circulating around in all that water in our bodies are chemicals and the study of this is called *biochemistry*. Just as with everything else in the body the nervous system control and coordinates all those chemicals, where they should go and what they should be doing.

That is because the nervous system is the master control system in the body and it's why chiropractic focuses all of its attention on the nervous system. Our body's ability to "adapt" to internal and external health challenges is the key to overcoming the results of the physical, chemical and emotional stresses that fundamentally cause all human ailments – if we cannot adapt to those stresses. One of the most important ways chiropractors do this is to make sure the nervous system is not being obstructed and the connections are good.

Chiropractic is about removing obstructions to the

the proper functioning of the nervous system and improving connections and the *flow* of information. There are lots of chemicals involved in that information flow and you don't want them to become obstructed. These obstructions are caused by structural shifts in the bones (vertebra) that make up the spine and these shifts obstruct the nervous system, create a disconnect and obstruct the flow of chemicals carrying crucial information throughout the body. Because the nervous system controls and coordinates *all* functions in the body, obstructing or disconnecting it can have an effect on every function of the body - and it often does.

These obstructions are referred to as **vertebral subluxations** in the scientific literature and adjusting them is how chiropractic helps people stay connected and keep the information flowing.

Research incorporating health-related quality-of-life assessments and self-reported health assessments by people have found them to be an independent predictor of health outcome and even mortality (death).

Self-reported health has been shown to be independently associated with an increase in mortality among both those with and without chronic health issues. This is true relative to various socioeconomic and age groups as well as in men, women, and over time. This means that if someone tells you their health is *poor* they have an increase in the likelihood that they will die in the near future. Yikes!

Cytokines, Chiropractic & Health

It's time to learn a new word or two, or if you studied chemistry in high school, at least refresh your memory on them. The first is *cytokines*. Cytokines are substances (chemicals in the body), such as *interferon*, *interleukin*, and *growth factors*, which are secreted by certain cells of the immune

system and have an effect on other cells. Cytokines are a category of *signaling* molecules that control immunity, inflammation and the formation of blood cells.

They are pretty important when it comes to health – let's find out *how* important.

Immune signaling has now been shown to affect the brain and produce changes in behavior, cognition, and emotion secondary to cytokines that cause inflammation (inflammation is an immune response). This process is even sometimes called "sickness behavior". In such a state, people experience symptoms of weakness, listlessness, altered sleep patterns, increased pain sensitivity, and a loss of motivation and appetite.

Such changes in health can then be measured via self-rated health constructs with poorer reports of health being associated with increased levels of cytokines. This means that when people tell a doctor they have poor health they most likely have a lot of cytokines floating around in their bloodstream.

What does this have to do with chiropractic? Studies have shown that chiropractic care is associated with

There is clear evidence that chiropractic care has an effect on health and wellness by exerting this effect through the supersystems of the human body—the nervous, immune, and endocrine systems. Chiropractic has a beneficial effect on all three of these systems.

reduction in circulating cytokines and studies involving the role of beta endorphins and other peptides that mediate these effects have also been conducted.

DNA Repair & Chiropractic

In a remarkable and groundbreaking study, researchers Kent et al. assessed the short and long-term effects of chiropractic care on *serum thiol* levels in people who had no symptoms of illness and compared them to those who had disease. Serum thiol is a *surrogate* marker for DNA repair enzyme activity and is related to cellular functioning, repair, and epigenetic activities.

Huh? Let's explain.

One way to determine how healthy you are is to see how well your DNA *repairs* itself – DNA remember are the *building blocks* of life itself. One way to measure DNA repair is by measuring a chemical called *serum thiol*.

Serum thiol levels in this study were examined in patients with active disease and compared with levels in asymptomatic subjects. Subjects had chiropractic care from 8 to 52 weeks. The study showed that serum thiol levels were *lowest* in patients with active disease and with nerve and muscle complaints (back and neck pain for example) and *highest* in people with no symptoms.

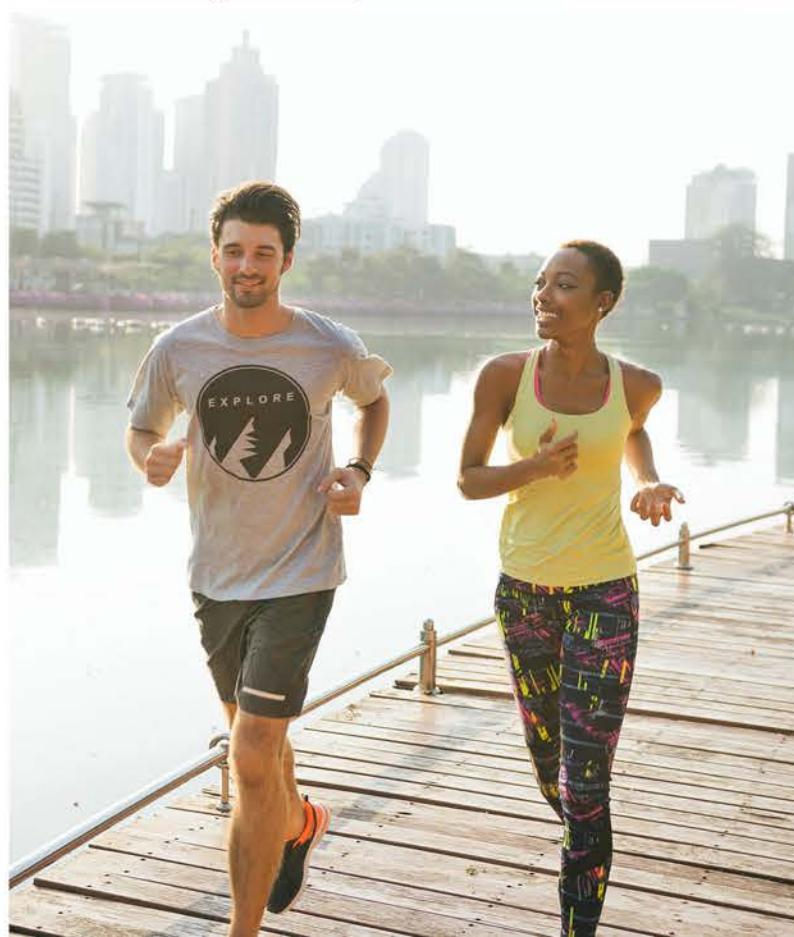
The researchers concluded that people with no symptoms or *wellness* patients under chiropractic care demonstrated *higher* serum thiol levels than patients with active diseases. Measuring these enzymes measures the person's ability to develop resistance to hazardous environmental exposures and *oxidative stress* – oxidative stress is what makes us age faster than we want. When these enzymes are suppressed (lowered) it actually limits a person's life

span and the person's ability to resist serious diseases.

That's not the most fascinating part of this study – the most fascinating part is that the longer the people were under chiropractic care the *better* their body's ability to repair their DNA.

Chiropractic & the Super Systems of the Body

There is clear evidence that chiropractic care has an effect on health and wellness by exerting this effect through the *supersystems* of the human body—the nervous, immune, and endocrine systems. Chiropractic has a beneficial effect on *all three* of these systems. Theories from fields such as *mechanobiology*, for example, focus on *homeostasis* and the balance of mechanical factors that promote health. Mechanobiology is the study of how structural shifts in the spine and the body affect health. This coupled with the studies linking a connection between chiropractic adjustments of the spine and its effects on immune and endocrine function tie together nicely.



Studies that have measured the effect of chiropractic adjustments on the immune system have shown that chiropractic can influence T and B lymphocyte (white blood cell) counts, NK (natural killer) cell numbers, antibody levels, phagocytic activity and plasma beta-endorphin levels. In one study the effect of specific spinal adjustments on the immune system was measured by looking at CD4 cell counts of HIV positive individuals. The CD4 cells, or T-helper cells, are the immune cells that are attacked in HIV patients. The blood tests used in this study were performed by each patient's independent medical center where they were under medical supervision for the condition.

Both of the control groups, one receiving placebo adjustments and the other receiving no adjustments, each experienced about an 8% decrease in CD4 cell counts over a six month period, while the group receiving real chiropractic adjustments experienced a 48% *increase* or improvement in CD4 cell levels over a period of six months. Although chiropractic adjustments helped to greatly improve the ability of seriously ill people with HIV to fight

"If a child's nervous system is being obstructed because of structural spinal shifts (vertebral subluxations) then this will send abnormal information to the brain and will result in the core behaviors and symptoms of autism."

disease, other studies have shown that it should not be restricted to the sick.

Immune competence is also known to substantially decrease with age. In a study comparing people of different ages undergoing chiropractic care, expert immunologists determined that in the 96 chiropractic patients ages 21-87 studied there was *no decrease* whatsoever in immune competency. The only difference between the normal healthy people and the chiropractic group was that the people in the chiropractic group were under long-term chiropractic care (over six months of regular adjustments).

This suggests that chiropractic could potentially optimize whatever genetic abilities these people have, so that they now can fully express immune function, which the normal individuals or diseased individuals did not. This study used blood samples to demonstrate that the nervous system and the immune system may play an important role in the regulation of disease. The researchers stated that these changes occurred due to chiropractic care, not dietary intervention or any other factors. They also stated that there is nothing else that seems to elicit these results. These changes can be initiated at any age and people can have these benefits as long as they choose.

The studies reviewed here have shown that chiropractic may influence T and B lymphocyte



Research studies have shown that chiropractic may influence T and B lymphocyte (white blood cell) numbers, Natural Killer cell numbers, antibody levels, phagocytic activity, and plasma beta-endorphin levels. All of these biochemicals are involved in the function of the immune system and are controlled in large part by the nervous system.

(white blood cell) numbers, Natural Killer cell numbers, antibody levels, phagocytic activity, and plasma beta-endorphin levels. All of these biochemicals are involved in the function of the immune system and are controlled by the nervous system.

From the effects of chiropractic adjustments on flu victims to lung function, CD4 counts, cortisol, and substance P, the literature on adjusting and reducing structural shifts in the spine and removing obstructions to the nervous system leading to improved immune function provides evidence for positive effects.

As can be seen from the preceding review, the concept of improved immune function and its relationship to wellness and the benefits of chiropractic enjoys a great deal of scientific research and it continues to be studied in terms of its meaning in a world shaking off the old paradigm of disease-focused treatment toward a paradigm of empowerment where disease is no longer the focus but instead the focus is the enhancement of the inherent recuperative healing powers of the body. Chiropractic enjoys broad scientific

support for its ability to effect the major control systems of the body and through that connection may exert its effects on health, well-being, and ultimately—wellness.

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Mind Over Matter

The Remarkable Power of Belief

“Other studies indicate that between 60 and 90 percent of all our population’s visits to doctors’ offices are stress- related and probably cannot be detected, much less treated effectively, with the medications and procedures on which the medical profession relies almost exclusively. In other words, the vast majority of the time, patients bring medical concerns to the attention of a healing profession that cannot heal them with *external* tools or devices. Instead, doctors must rely on patients’ *internal* mechanisms. Much of the success the medical profession achieves is not due to anything doctors do or dispense that is inherently healing. We should really attribute the success of many medical treatments to the inherent healing power within individuals.”

This is why the philosophy and practice of chiropractic honors the inherent recuperative powers of the body by not seeking to try and change the chemistry or physiology of the body. Through the adjustment of vertebral subluxations chiropractic seeks to remove obstructions and interference to its function which allows the body to heal itself.

There is a phrase that has been around chiropractic for a very long time that sums this up nicely:

“The body doesn’t need any help, it just needs no interference”

The mind and body are not separate units, but one integrated system. How we act and what we think, eat, and feel are all related to our health. Physicians should be capable of teaching this behavior to patients.
Bernie Siegel

Because of the power of belief, the placebo effect undoubtedly contributes to the effectiveness of health care interventions. It is well documented that some patients will experience an improvement solely because of their expectation the treatment will help them. The word *placebo* comes from the Latin *placere*, meaning ‘I shall please’. The placebo effect is the main reason researchers use randomized controlled trials (RCT). In an RCT neither the patients nor the doctors administering the treatment know who is receiving the real or the placebo treatment until the conclusion of the study.

In a classic 1955 study, Henry Beecher found that 35% of more than 1,000 patients showed improvement from the placebo. More recent trials have found that the placebo effect may be twice as powerful as predicted by the Beecher study. A

recent review of the effectiveness of anti-depressant medications, such as Prozac, Zoloft, and Paxil, found, “75% of the response to the medications examined in these studies was a placebo response, and at most, 25% might be a true drug effect.”

At times it almost seems as if the prevailing attitude in medicine views the placebo effect as an obstacle to the process of finding new and effective treatments. Suppose a double blind trial disclosed the experimental group had a 20% better outcome than the control group. This is considered ‘highly significant’, and you can be sure the drug company’s publicity machine will kick into high gear to promote this new wonder drug.

Let’s change our perspective and look at this from

the point of view of a patient trying to get well. The placebo effect is acknowledged to help between 35-70% of patients, while drug therapy rarely achieves this level of significance.

What is wrong with this picture?

Instead of viewing the placebo effect as an obstacle to be overcome, we should be researching ways to maximize the power of the placebo effect. This a fertile area of research for *psychoneuroimmunology*: helping the mind to initiate and promote the healing process.

Dr. Benson was a medical pioneer who has generated a wealth of research documenting the innate healing ability of the body. His books are filled with clinical pearls such as:

Remarkable Stories of Healing & the Power of the Mind

Krebiozen was a promising new cancer drug in the 1950's. Mr. Wright was a terminal cancer patient dying from advanced lymphosarcoma. His tumors in the neck, axilla, chest, abdomen, and groin were the size of oranges. He was bedridden and his doctor, Dr. Phillip West, drained two liters of lymphatic fluid from his chest due to a blockage of the thoracic duct. Dr. West was one of the doctors chosen to evaluate Krebiozen, and when Mr. Wright learned of this new experimental drug, he begged to be included in the study. However, Mr. Wright was expected to live just a few days and Dr. West had only enough medication for twelve patients. Even though it seemed pointless, Dr. West relented and gave Mr. Wright the drug.

Dr. West administered the first injection on Friday. Considering the grim prognosis, Dr. West did not expect his patient to survive the weekend. He even made plans to transfer the unused Krebiozen drug to a different patient. When he returned to the hospital on Monday, Dr. West was amazed to find Mr. Wright out of bed and well on his way toward a miraculous recovery. His large tumors had "melted like snowballs on a hot stove." Mr. Wright was discharged from the hospital ten days later with his cancer in full retreat.

Unfortunately Krebiozen proved to be an ineffective drug. Mr. Wright was the only patient in the large multi-clinic study to show any improvement. When he heard of these negative results, Mr. Wright became disillusioned and his condition worsened. Within two months he was back on death's door. In an attempt to help his patient, Dr. West devised an experiment.

He told Mr. Wright that contrary to what he had heard, Krebiozen was indeed a promising drug, it was just that the drug lost strength when it was not

fresh. He told Mr. Wright that he was scheduled to receive "a new super-refined, double-strength" product the next day. With this news, Mr. Wright was once again excited to receive the new medicine.

This time with great fanfare, Dr. West administered an injection of saline water. Mr. Wright regained his optimism and his second recovery was even more rapid than his first. He was asymptomatic and apparently cancer free for two months. Unfortunately, the final results of the Krebiozen study came in and the AMA announced to the press, "nation wide tests show Krebiozen to be a worthless drug in the treatment of cancer." When he heard this pronouncement, Mr. Wright's condition once again deteriorated and he was dead two days later.

While this remarkable true story is often quoted as an example of the placebo effect, it also provides a vivid illustration of the power of the mind to control the body. Since 1957, when this case was first presented, much more research into the underlying mechanisms of 'mind-body' healing has been conducted.

In a 1950 study, pregnant women who were experiencing nausea and vomiting typical of 'morning sickness' were given a drug they were told would cure their nausea. What they were actually given was ipecac, a drug given to cause vomiting. Their nausea and vomiting ceased entirely by taking a drug they believed would work. This was not just a subjective improvement. The researchers used a balloon catheter in the stomach to monitor stomach contractions before and after the drug.

A 1987 study looked at two hundred patients with non-specific complaints not attributable to any particular physical ailment. This is a very common occurrence in clinical practice, and accounted for about one-half of the patients seen at this clinic. The patients received what was referred to as either a 'positive' or 'negative' consultation. In a positive consultation the doctor gave the patient a firm diagnosis and confidently remarked they could expect improvement within a few days. In a negative consultation the patient may have been told, "I am not sure that the treatment I am going to give you will have an effect." While both the positive and negative consultation groups thought they were receiving medication, both groups were given vitamins.

64% of 'positive' consultation patients got better within two weeks, versus only 39% of the 'negative' consultation group. In this study, when the diagnosis and treatment information were presented in a positive and confident manner the patients experienced a 25% better outcome.



Leaves from the Japanese lacquer tree cause a contact dermatitis similar to poison ivy. In 1962, 57 high school boys were blindfolded and one arm was brushed with leaves from the lacquer tree, while the other arm was brushed with chestnut tree leaves, that do not normally cause contact dermatitis. However, once the boys were blindfolded, the researchers switched the leaves. Specifically, when the boys were told they were being brushed with chestnut tree leaves they were actually brushed with leaves from the poisonous lacquer tree, and vice versa. Within a few minutes the arm that was brushed with what the boys thought were the poison leaves began to experience burning and itching with raised red bumps. In most cases, the arm that was touched with the poisonous leaves did not react. For these boys, the body created the physiological reaction appropriate for what the mind believed.

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Vertebral Subluxation, Immunity & the Stress Response

Stress plays a major role in many illnesses and can cause problems in the way the immune system functions. One of the reasons that stress has such a harmful effect on health is that certain types of immune cells responsible for attacking microbes (bacteria, viruses, fungi, etc.) are sensitive to certain brain chemicals such as stress hormones (cortisol, adrenaline, etc.), and won't work when they come into contact with these chemicals. When stress hormones are released they can slow the immune response, which would explain why the immune system suffers in people under chronic stress.

The part of the nervous system responsible for releasing these types of chemicals and guiding the stress response is the called the *sympathetic nervous system*. Believe it or not you have probably heard about this part of the nervous system throughout your life. The sympathetic nervous system is responsible for what is called the “fight or flight” response, which causes specific

changes to occur throughout the body in response to dangerous situations. These changes include: opening up the airways in the lungs, increasing heart rate, sending blood to the muscles, sweat glands, eyes and the lower part of the brain to activate “instinct like” responses. Blood is moved away from the digestive tract and the other internal organs.

Whenever the body comes into contact with a harmful stimulus there is an *increase* in activity of the “fight or flight” mechanism. It does this through the *sympathetic nervous system*, while non-harmful stimuli generally *decrease* the fight or flight response. These changes in sympathetic activity can actually be measured by the changes in heart rate, blood pressure and other stress responses. Changes in this part of the nervous system may be associated with the immune abnormalities seen in chronic stress, clinical depression, and aging. However, the nervous and immune system responses are not only guided by stimuli being good or bad, they also depend on the frequency of stimulation. This means that to attain correction in the nervous system, any intervention (like chiropractic) being utilized would have to be administered on a regular basis. This is why it's necessary to have your spine checked regularly for vertebral subluxations and if found make sure they get corrected.

Our body's ability to “adapt” to internal and external health challenges is the key to overcoming the results of the physical, chemical and emotional stresses that block immune function and fundamentally cause all human ailments – if we cannot adapt to those stresses. One of the most important ways chiropractors do this is to make sure the nervous system is not being obstructed and the connections are good. This is because the nervous system controls and *coordinates* all functions of the body – including immune function.

Chiropractic is about removing obstructions to the

proper functioning of the nervous system and improving connections. These obstructions are caused by shifts in the bones (vertebra) that make up the spine and these shifts obstruct the nervous system and create a disconnect. Because the nervous system controls and coordinates *all* functions in the body, obstructing or disconnecting it can have an effect on every function of the body - and it often does.

These obstructions are referred to as **vertebral subluxations** in the scientific literature and adjusting them is how chiropractic helps people stay healthy.

How Your Brain, Mind & Body Are Connected

Psychoneuroimmunology is the interdisciplinary field that explores the connections between the mind, emotions, the brain, central nervous system, and the immune system. That's a lot to take in but if you understand that the human body is not really made up of separate parts but instead is an interconnected whole, then this begins to make more sense.

Since the terms used in neuroscience may not correspond with the terminology used in immunology, and these two fields barely speak the same language used in psychology, the specialists in this field must be able to see the ‘big picture’. These scientific ‘mavericks’ usually have an open mind to alternative ideas and concepts.

D.D. Palmer, an alternative thinker of his time, founded chiropractic in 1895. It is probable that if he were alive today, the science of psychoneuroimmunology would draw D.D. Palmer's interest. In 1910 he wrote:

“While it is a fact, that thoughts are things, are entities, that we influence each other and ourselves for good or bad by our thinking, it is also a fact that it is a mental condition, in and of ourselves. It is one

of the three methods I recognize of creating normal and abnormal nerve and muscle tension. Love or hate, joy or grief, fear or boldness, affect the secretions of glands and follicles.”

The scientific foundation for psychoneuroimmunology was first laid down by Walter Cannon, who wrote the classic text, *The Wisdom of the Body*.⁵ Cannon coined the term *homeostasis* referring to the self regulating ability of the body to maintain a steady and stable balance, despite what is going on in our environment.

The Founder of Chiropractic, D.D. Palmer, would surely find this in keeping with his concept of *innate intelligence* and *tone*. Palmer taught that there was an *innate* or *inborn* intelligence in the human body that kept it functioning and in balance (tone). Cannon's study of adrenal gland function helped him to define the ‘fight or flight’ response. When we are placed under physical or psychological danger, the adrenal gland secretes epinephrine, which causes a bunch of changes in the body. Heart rate and blood pressure rise to prepare the body for physical activity. The pupils dilate and the brain becomes very alert to all sensory input. Because digestion and immune function are not critical to the immediate danger, these functions are *suppressed* meaning they won't work as well.

Stress Response

While the ‘fight or flight’ response is essential for short term survival, sustained stress can damage the body. Another medical pioneer who continued this line of research was Hans Selye. If you have not read his book, *The Stress of Life*, you have missed an entertaining look into a great mind at work. Dr. Selye was clearly one of the ‘mavericks’ who attempted to see the big picture.

Dr. Selye spent his life researching the details of this *General Adaptation Syndrome*. Building upon

Cannon's study of the 'fight or flight' response, Selye discovered that with prolonged and repeated exposure to stressful events, laboratory rats developed a specific pattern of illness:

- Enlargement of the adrenal cortex
- Atrophy of the thymus, spleen, and lymphatic system
- Gastrointestinal ulcers

He subjected the rats to various physical stressors, such as extremes of hot and cold, surgical trauma, strenuous exercise, as well as inflicting 'psychological' stress on the rats. He discovered that regardless of what he used to cause the prolonged stress, the physiological response pattern was remarkably consistent. Dr. Selye called this pattern the *General Adaptation Syndrome*.

Hans Selye died in 1982. For 50 years he wrote 40 books and published more than 1,700 scientific articles researching how the body copes with sustained stress. Most of Dr. Selye's research was on animals and involved physical stressors. However, in humans, most of the stressors we must deal with are psychological.

What symptoms or conditions are likely to be experienced by an individual under chronic stress? Perhaps an even better question is to ask what conditions *do not* have chronic stress as a major contributing factor. The fight or flight response

triggers many changes in the body, such as a dramatic increase in blood flow to the muscles. However, when we do not engage in physical exertion to burn off this excess energy, this short term survival mechanism can create chronic health problems, such as hypertension for example.

The inherent healing power of the body (its innate intelligence) is phenomenal. Anyone who has observed pictures of white blood cells attacking and destroying bacteria cannot help but be in awe of the power and intelligent function of the immune system. Because these immune cells can function *in vitro* (outside the body) researchers initially believed that the immune system did not require nervous system input to function. Psychoneuroimmunology research has shown this to be completely false. The immune system and the nervous system are *completely interconnected* and many researchers refer to the immune system as a "circulating nervous system".

By what mechanism does the brain, mind and nervous system 'talk' to the immune system? When animals are exposed to chronic stress, suppression of immune function will result. This appears to occur via a hormone response through what's called, the *hypothalamic pituitary adrenal axis* - or HPA for short.

David Felten was an MD, PhD researcher who studied nervous system pathways and he made a

remarkable discovery: the immune cells of the thymus, spleen, and lymph nodes are literally covered with nerves. The nerve to gland connections he observed were quite similar to traditional nerve to nerve connections. Felten then sought to investigate the extent to which nerve to gland connections control immune function.

His research found that blocking hormone input only slightly affected immune function, whereas actually *cutting* the sympathetic nerves brought the immune response to a *complete halt*. In effect the nervous system appears to be 'hard wired' to the immune system. We have come to assume that decreased immunity is a 'normal' consequence of growing old. One important result of Felten's research is the discovery that the weakened immune response that occurs with aging is in large part caused by *nerve atrophy* - meaning the nerves are dying and no longer doing their job.

It is estimated that the human nervous system has one hundred billion nerve cells. Each of these cells has between 1,000 and 500,000 connections. It boggles the mind to contemplate the enormous number of connections within the human nervous system. When you understand this it begins to make sense why chiropractors are so focused on making sure there is proper nerve supply from the brain to the body and back again. This is because any obstruction to this flow of information will lead to the body's organs and the immune system not working at 100%.

Conclusion

We are just beginning to uncover the mysteries of the body's inherent healing power. Just as all cells in the body are touched upon by nerves, every cell in our body is covered with thousands of neuropeptide receptors that are produced and move throughout the body for the purpose of transmitting information. Chiropractors say that the

adjustment of vertebra to remove obstructions to the nervous system releases the flow of the *innate intelligence* within the body. If we substitute the terms '*neurotransmitter messenger molecules*' for '*innate intelligence*', perhaps we are closer to a scientific explanation of how chiropractic works. As our knowledge grows, we continue to develop a greater understanding and respect for the words of the founder of chiropractic DD Palmer:

"The Chiropractor looks upon the body as more than a machine; a union of consciousness and unconsciousness; Innate's ability to transfer impulses to all parts of the body—the coordination of sensation and volition: a personified immaterial spirit and body linked together by the soul—a life directed by intelligence uniting the immaterial with the material."

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As Dr. Hans Selye followed his experimental animals over time he discovered three stages to the *General Adaptation Syndrome*:

- The alarm reaction – The initial alarm reaction is essentially the 'fight or flight' response described by Walter Cannon.
- The stage of resistance – When stress is prolonged and the person does not use physical activity to 'work off' the stress response, the body enters a prolonged resistance phase. High cortisol levels will normally trigger a homeostasis feedback loop that reduces hypothalamus and pituitary stimulation of the adrenal glands. However, prolonged stress short circuits this feedback loop and the body maintains a high level of physiological arousal. This is the phase that manifests the triad of adrenocortical stimulation, thymicolymphatic atrophy, and intestinal ulcers.
- The stage of exhaustion – While the time frame differs for each individual, eventually everybody will run out of energy reserves. This phase is also known as *adrenal exhaustion*, and in years past was referred to as a '*nervous breakdown*'. Sustained cortisol levels will suppress immune function and render the individual vulnerable to disease or even death.



CASE STUDY: Immunity & Chiropractic

Young Boy Suffering with Asthma, Allergies and Chronic Colds Finds Relief Following Chiropractic

The patient reported on in this study was a 7-year-old boy who suffered from chronic colds, allergies, and asthma since the age of 5 months. The boy was medicated daily with a prescription of Alavert for allergies and Albuterol for asthma. He had previously taken Claritin for his allergies, then changed to Singulair and finally to the Alavert. His mother reported that when he had asthmatic attacks he would then require nebulizer treatments. Steroid injections were also used "regularly" for his asthma according to his mother.

While in his first year of school (kindergarten), the boy missed 1-2 school days per month due to "colds", asthma and "being sick". The boy required at least once-monthly medical visits due to his various illnesses prior to beginning chiropractic care. He had experienced repeated episodes of tonsillitis and bronchitis in his life.

The mother had gained 70lbs of "waterweight" and had a lot of swelling during her pregnancy. Three

ultrasounds were performed during her pregnancy. The boy's delivery was chemically induced four days past the calculated delivery date. An epidural was given as well as Pitocin, due to a failure to progress during labor.

The first stage of labor lasted 17 hours, at which time a Cesarean-section was performed with local anesthesia. According to the patient's mother, the boy's vaccination history followed the standard medical schedule and at the time of his initial chiropractic visit, the patient was current on receiving all his scheduled vaccinations. He was only breastfed for the first 3-4 weeks after birth and his developmental history revealed that he did not crawl but eventually walked at 10 months of age.

He was examined by the chiropractor who found structural spinal shifts in his neck, mid and low back and his pelvis that were obstructing his nervous system. These obstructions are caused by shifts in the bones (vertebra) that make up the spine. These

The boy in this study had suffered for 7 years with chronic allergies, colds and asthma after experiencing a traumatic birth. Numerous medications taken regularly for years did not help him. Following chiropractic care to reduce his vertebral subluxations his immune system strengthened and all of his health problems resolved.

obstructions are referred to as vertebral subluxations in the scientific literature and adjusting them is how chiropractic helps people.

After just two weeks of first receiving chiropractic care, the patient's mother indicated that the boy was improving. Soon after he was no longer dependent on his prescription medications and his asthmatic episodes were lessening with respect to frequency and intensity of the asthmatic attacks. Furthermore, the boy no longer required his nebulizer treatments after beginning chiropractic care and he no longer suffered from frequent colds, tonsillitis or bronchitis. The patient nor his mother did not report any adverse reactions to the chiropractic care provided.

The researchers called for more studies on the role of chiropractic in managing children suffering from immune challenges.

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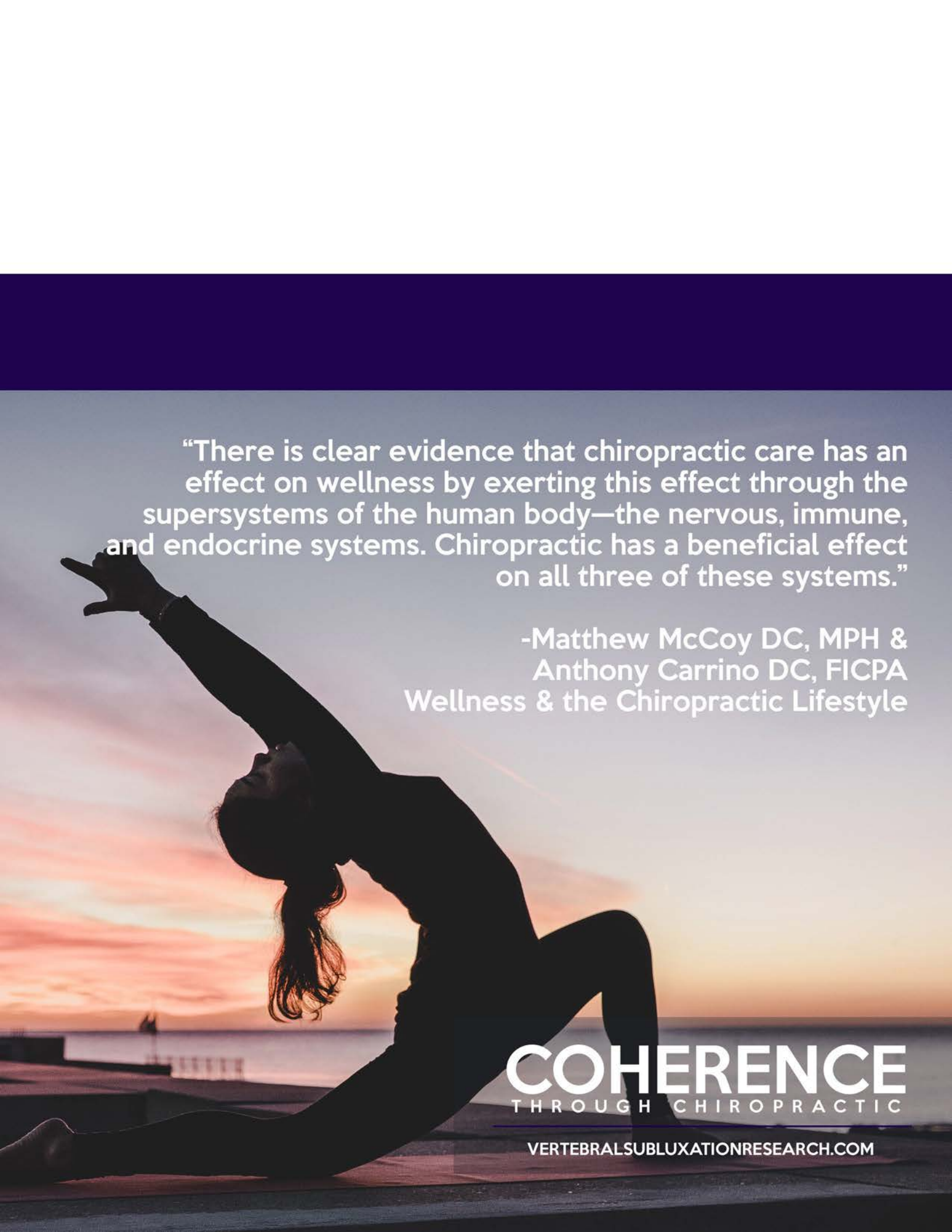
Immunity & Chiropractic: FACTS

Numerous case studies and clinical studies are revealing that there is a relationship between structural shifts in the spine, the nervous system and various problems related to immunodeficiency and allergies. These types of structural shifts in the spine cause obstructions of the nerves and cause a ripple effect through the nervous and immune systems. By removing the structural shifts, chiropractic may improve the function of the nervous and immune systems.

The unique aspect of this research study is the wide range of immune challenges this child had following a difficult pregnancy and traumatic birth. After suffering since birth the parents of the child finally brought him to a chiropractor who checked the child's spine for nerve obstructions, found them and then reduced them.

With everything we know about the relationship between the nervous and immune systems, chiropractic makes perfect sense in the case of autoimmune disorders and allergies. In fact, chiropractic is not treating the allergies or immune dysfunction but re-establishing normal neurological function which benefits the immune system of the patient and allows the body to heal itself

There is an intimate connection between the functioning of the immune and nervous systems. The immune system has even been described as a continuation of the nervous system, with immune cells functioning as the effector cells of the nervous system as it alerts and guides the immune system, mediated by numerous factors such as neurotransmitters and cytokines. This close association of the two systems has long been acknowledged in chiropractic as an underlying feature of why people improve under chiropractic care for various immune problems.

A silhouette of a person in a yoga pose, specifically a variation of the Pigeon Pose (Eka Pada Pashchimotthanasana), is shown against a vibrant sunset background. The person's right leg is bent and tucked under their left leg, while their left leg is extended straight back. Their arms are raised high, with the right arm reaching towards the sky and the left arm extended back. The background features a gradient of orange, pink, and purple hues from the setting sun, with a dark horizon line and a small silhouette of a lighthouse or tower in the distance.

“There is clear evidence that chiropractic care has an effect on wellness by exerting this effect through the supersystems of the human body—the nervous, immune, and endocrine systems. Chiropractic has a beneficial effect on all three of these systems.”

-Matthew McCoy DC, MPH &
Anthony Carrino DC, FICPA
Wellness & the Chiropractic Lifestyle

COHERENCE
THROUGH CHIROPRACTIC

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