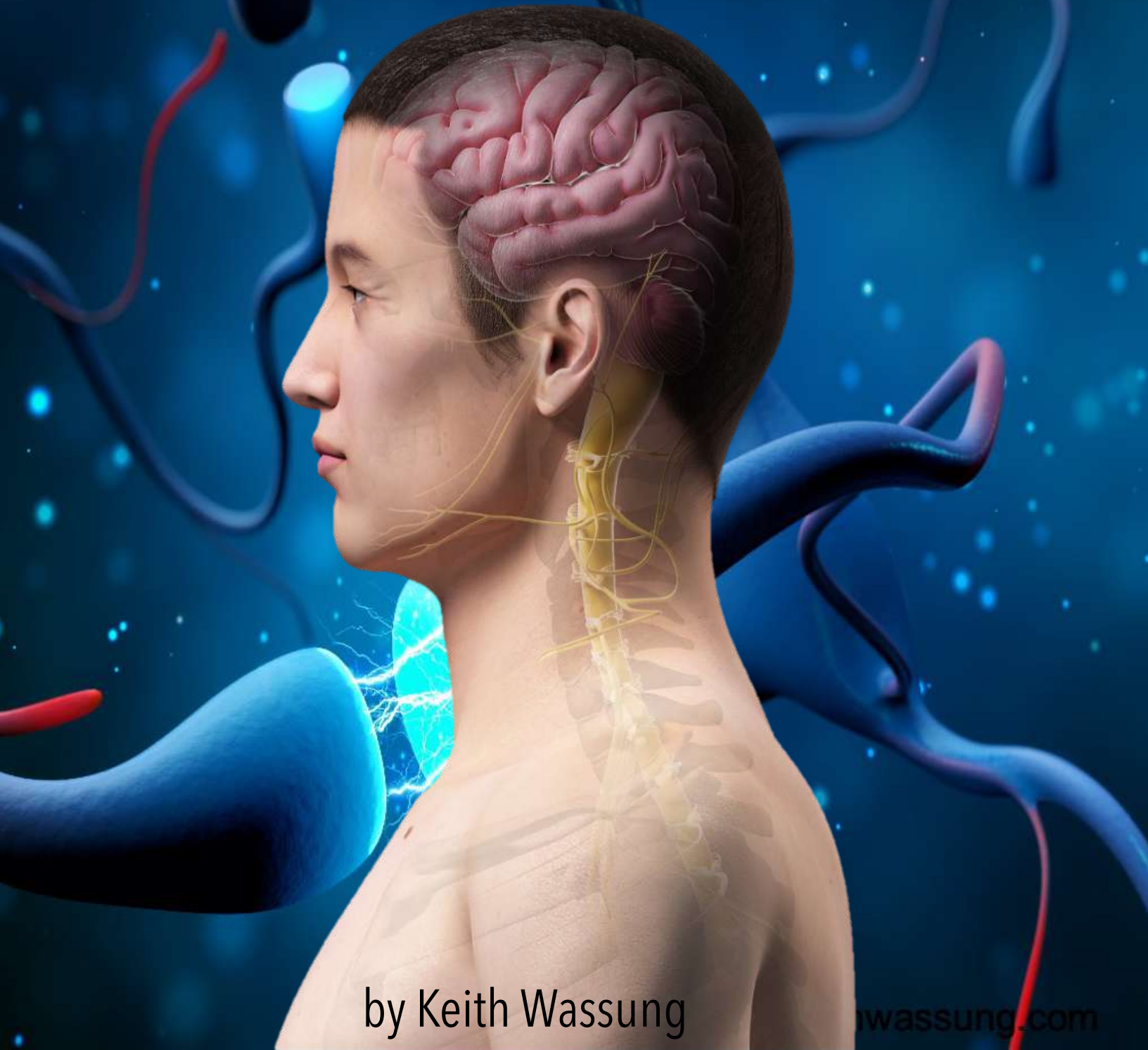


THE NERVOUS SYSTEM CONTROL OF THE IMMUNE SYSTEM



by Keith Wassung

www.wassung.com

The past 20 years of health science and research has seen a tremendous increase in the knowledge and understanding of the human immune system, mostly due to cancer and AIDS research. The findings have completely changed our approach to health care as we slowly change from a disease/symptom model to one in which the function and communication of the immune system is optimized.



A NEW APPROACH TO IMMUNITY

"The inability of antibiotics to wipe out disease entirely and the emergence of antibiotic resistant bacteria and super infections have led many distinguished researchers and physicians to conclude that the answer to disease is not to create stronger medicines. Rather, we say the solution lies in attacking the disease from the inside out by strengthening the body's natural defense network." ¹

Dr. Robert Roundtree, Immunotics

IMMUNE SYSTEM FUNDAMENTALS



Our bodies are constantly under attack from foreign invaders such as environmental toxins, pollutants, bacteria, germs and viruses.

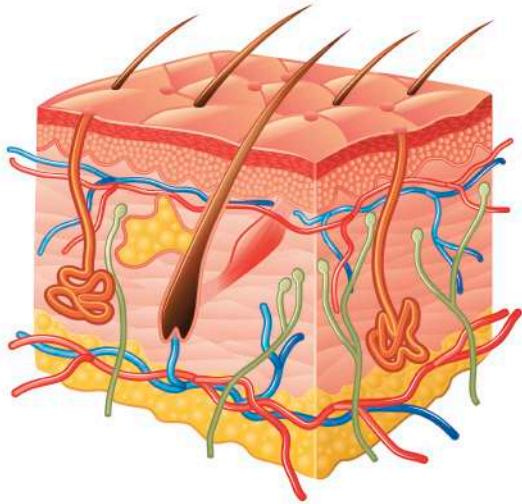
The immune system is our body's natural defense against these attackers. The immune system is made up of organs, structures and white blood cells whose job it is to identify and destroy disease causing organisms such as bacteria, viruses, fungi, parasites and even the body's own cells that have malfunctioned.

The immune system is divided into two components, **non-specific** and **specific**.

The breakdown is for classification purposes only as there is a constant and complex interaction, coordination and communication between all parts of the immune system.

Non-Specific: also referred to as innate or non-adaptive. They are generally able to distinguish foreign antigens, but are unable to recognize specific invaders. They will respond to a foreign antigen in the same manner, despite repeated exposures.

They do not adapt and improve their effectiveness against previously encountered antigens. Non-specific components include:



Physical Barriers: skin, mucosa, stomach acid

Chemical Agents: lysozymes complement

Effector Cells: macrophages, natural killer cells

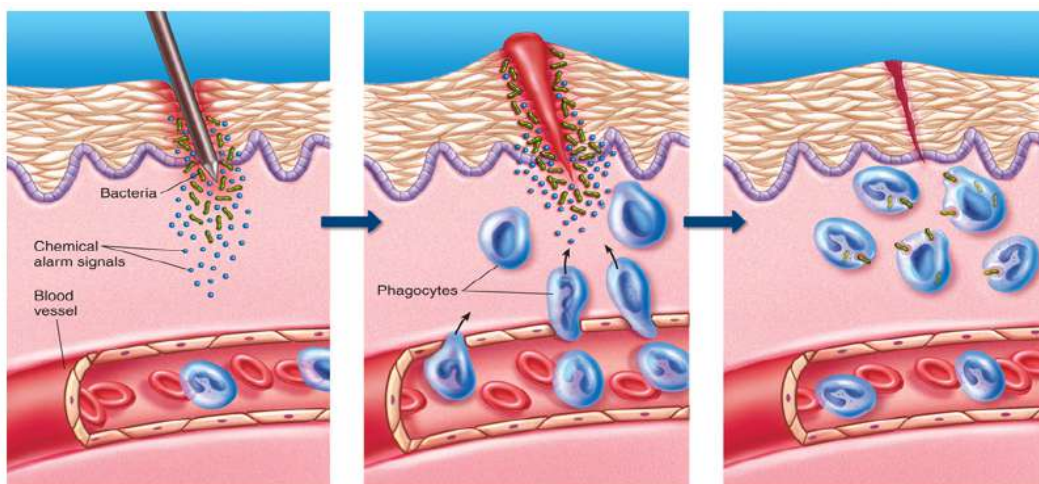
Specific: also referred to as acquired immunity or adaptive. Is able to distinguish foreign cells from self-cells and can distinguish one foreign antigen from another. Acquired immunity cells have mechanisms for selecting a precisely defined target and for remembering the specific antigen so that subsequent exposures will result in a more effective and efficient response.

Components of the specific system are broken down into 2 categories, humoral and cell mediated.

Humoral: are the B cells, which differentiate into plasma cells, which then produce antibodies. B cells require the assistance of macrophages, T cells, and sometimes complement in order to destroy foreign antigens.

Cell Mediated: does not involve antibodies but rather involves the production of specific T lymphocytes or T cells. Cell mediated is directed primarily against antigens embedded in the membrane of cells. It is most effective in removing virus-infected cells, but it also assists B cells in defending against fungi, intracellular bacteria and protozoan.

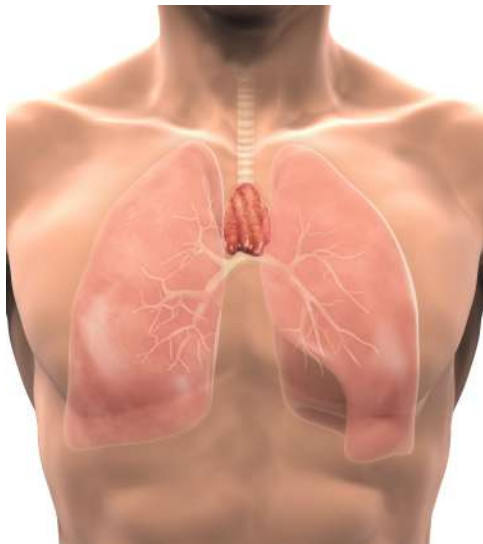
Cellular immunity protects the body by causing activation of antigen-specific cytotoxic T cells which destroy body cells displaying epitopes of foreign antigen on their surface; and by stimulating cells to secrete a variety of cytokines which influence the function of other cells involved in the immune and inflammatory process.



When tissue injury occurs, whether caused by bacteria, trauma, chemicals or heat, multiple substances, such as bradykinin, histamine, prostaglandins and serotonin are released which allow the central nervous system to control and coordinate the healing and repair of the affected tissue.

This process is called inflammation and it strongly activates the macrophages system to begin to remove the damaged tissue and antigens. Inflammation is a vital part of the healing process and when it is delayed or inhibited, healing is incomplete.

Thymus and T cell function



The thymus is a small, ductless gland, located in the anterior section of the chest cavity.

The thymus consists of two lobes that are connected by aeroler tissue. It is a primary lymphoid organ, and it often referred to as the "master gland of the immune system."

In the thymus, lymphoid cells undergo a process of maturation and selection prior to being released into the circulation of the immune system. This process allows T cells to develop self-tolerance (distinguishing self from non-self).

While developing in the thymus gland, any T cell that reacts to the thymus's major histocompatibility complex (MHC) is eliminated. It is estimated that anywhere from 95-99% of all T cells are eliminated during this process. T cells that tolerate the MHC are allowed to mature and leave the thymus where they circulate in blood and lymph.

The entire repertoire of T cells is approximately 10^{16} with each T cell having as many as 100,000 receptor sites on its surface. T cells are classified as cytotoxic or killer T cells, suppressor T cells, and helper T cells, which are further, classified as Th1 and Th2 helper T cells. The proper balance and ratio of these various T cells are critically important in maintaining proper immunological function.

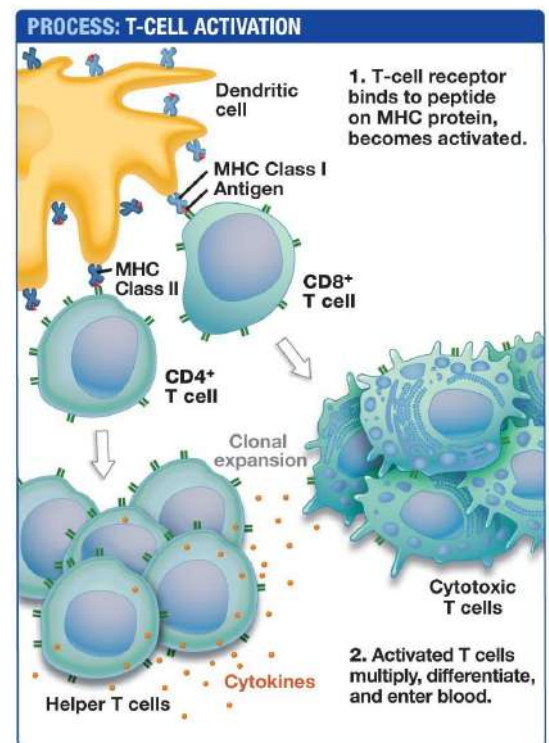
"The thymus derived lymphocytes or T cells are pivotal to the control and homeostasis of the immune system." ²

QMC~ Institute of Infection and Immunity

Although the thymus has historically been thought to only serve a purpose early in life, a growing body of research is clearly demonstrating that the thymus serves many purposes throughout life.

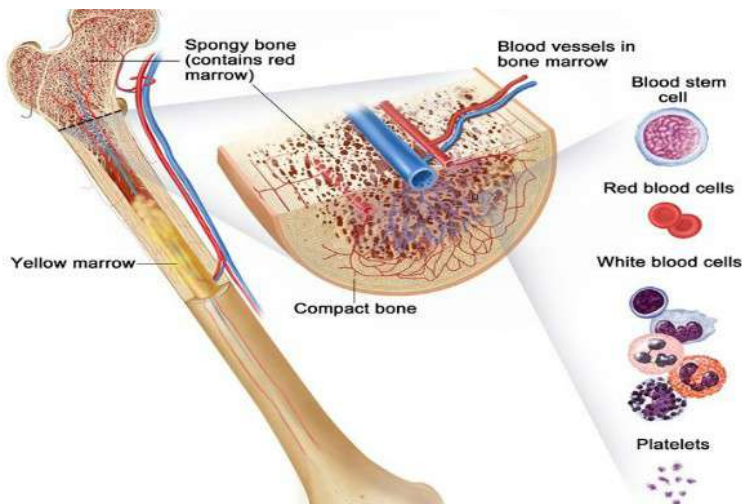
"Traditional approach has always maintained that the thymus is only functional in the early part of a person's life and atrophies and remains inert following puberty, but new research clearly shows that the thymus gland plays a lifelong role in immune function." ³

Nature



Have we underestimated the importance of the thymus in humans?

Recent immunological research has concentrated on the complex and subtle interactions between T cells, B cells and accessory cells. In these studies, little attention has been given to the adult thymus gland.



Modern textbooks of disease and anatomy all stress that the gland undergoes fatty involution with age in man, but omit reference to the statements here and there in the literature that the gland is active and produces lymphocytes throughout life.

To suggest that bone marrow, which also builds up fat throughout life, is atrophic and not important to adults, we would have to deny all modern hematological concepts.

“Yet few people take a parallel view of the thymus except perhaps those investigating aging and thymic hormones, in both of these areas of research it is obvious that the thymus must be active throughout life for continued health.” ⁴

National Library of Medicine

"It has been estimated that complete thymic atrophy would not occur until the age of 120 years and there is evidence to suggest that even in the very old, sufficient thymic function may be retained to allow for native T cell differentiation." ⁵

Frontiers in Bioscience

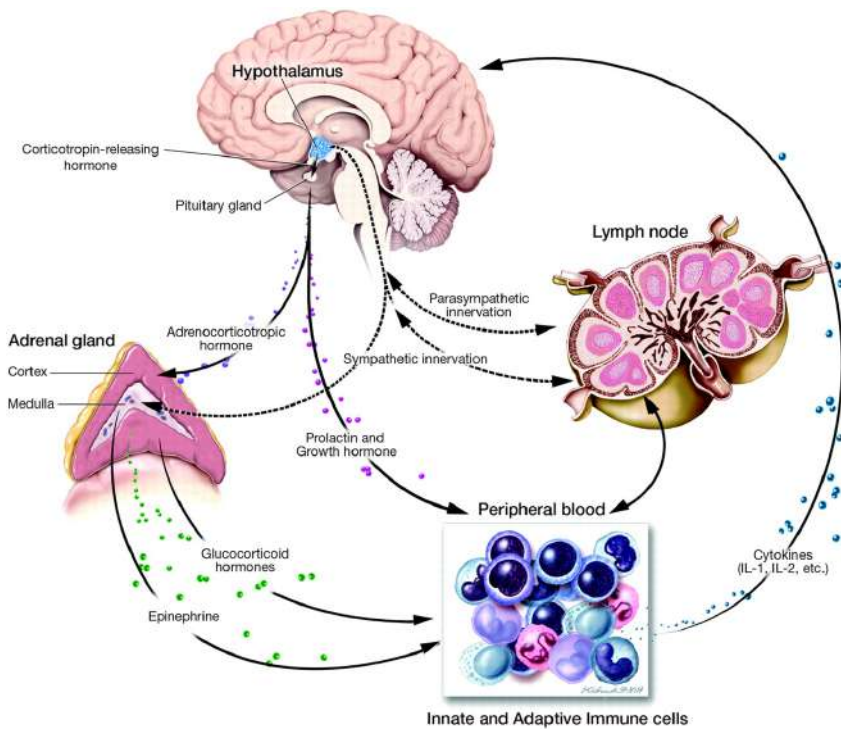
Research has discovered that the thymus gland produces a variety of hormones. Since 1990, several different peptide hormones naturally secreted by the thymus gland have been discovered and clinically tested. These include the Thymosins, a group of 40 related peptides, Thymoprotein and Thymulin. Collectively, these thymus gland hormones have been shown to have a broad range of action, well beyond maturing and differentiating T cells, including:

- increasing key immune signals called lymphokines or cytokines.
- causing greater number of T cells to develop IL-2 receptors more rapidly.
- increasing rapid white blood cell proliferation and activation.
- preventing tissue wasting that occurs with thymus gland atrophy.
- reduces and controls autoimmune reactions.
- preventing bone marrow injury and blood cells reduction following cancer treatments.
- increasing disease fighting antibodies, yet reducing the level of "allergic antibodies".

These are just some of the many ways that thymus gland hormones have been shown to enhance, balance and restore immune system competence.

Central Nervous System & Immune System

Neuro-endocrino-immunology is a point of intersection in the field of immunology. It is also referred to in scientific literature as psychoneuroimmunology. The emerging concept is that the cells of the immune system and inflammatory systems communicate directly with the peripheral and or central nervous system.

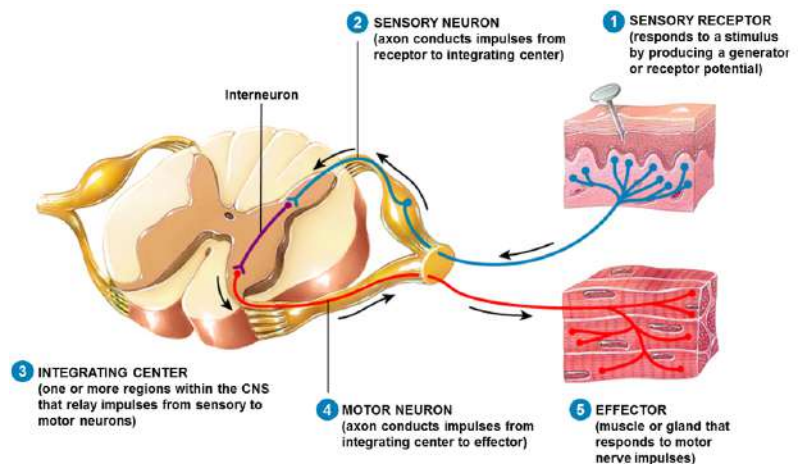


This connection or communication pathway is also mediated via the bloodstream, and therefore involves hormonal communication. The term hormone not only signifies classical endocrine systems, but also molecules released by the nervous and immune systems which have functional effects from some distance.

Thus, the brain and the nervous system are part of a neuroimmunoregulatory network in which each of the various components not only communicate with each other, but also regulate additional sites in the body.

There are two main pathways that connect the brain and the immune system, namely the autonomic nervous system, (made up of the sympathetic and parasympathetic components), and the hypothalamic-pituitary-adrenal-axis (HPA). In order for the two systems to influence one another, they must have a mechanism by which to communicate. The main type of communication is mediated by chemical messengers which are released by nerve cells, endocrine organs and immune cells.

The immune system is composed of lymphoid tissues, and the fact that these tissues are innervated with sympathetic nerve fibers adds support to the evidence that the central nervous system directly influences immune function. Not only do nerve fibers form neuro-effector junctions with lymphocytes and macrophages, but certain neurotransmitters secreted from these nerves are able to have effects on distant blood cells.



The nervous system affects the immune system both directly and indirectly. The direct effect is via the synapsing of neurons with white blood cells in lymphoid tissues, while the indirect effect is through blood-borne neurotransmitters and hormones, which activate receptors on the white blood cells surface.

“Vertebrates achieve internal homeostasis during infection or injury by balancing the activities of pro-inflammatory and anti-inflammatory pathways. Endotoxins, produced by all gram negative bacteria, activate macrophages to release cytokines that are potentially lethal. The central nervous system regulates systemic inflammatory responses to endotoxin through humoral mechanisms. Activation of afferent vagus nerve fibers by endotoxins or cytokines stimulates hypothalamic-pituitary-adrenal axis responses.”⁶

Nature

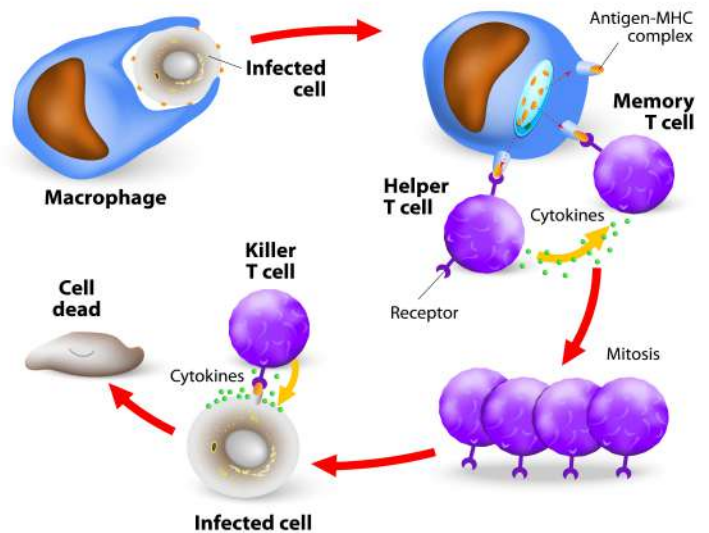
CNS REGULATION OF T CELL ACTIVITY

Anatomically, all of the lymphoid organs are innervated and there is a regular pattern of close spatial relationships between nerve fibers and T lymphocytes, mast cells and macrophages.

In addition, specific receptors for several neurotransmitters have been detected on T cells, B cells, and monocytes. Thus, the nervous system is able to:

- Induce T cell function, including cytokine secretion, proliferation, integrin-mediated adhesion and migration.
- Modify T cell membrane potential and thereby affecting the gating of specific voltage gated channels.
- Modulate antigen driven, CR mediated, T cell function.

CELL-MEDIATED IMMUNE RESPONSE



“Collectively, the available data indicates that a complex network of interactions between neurons and T cells is involved in determining the balance between Th1 and Th2 regulating signals, which affects the outcome of the immune response.”⁷

IMMUNOLOGY TODAY

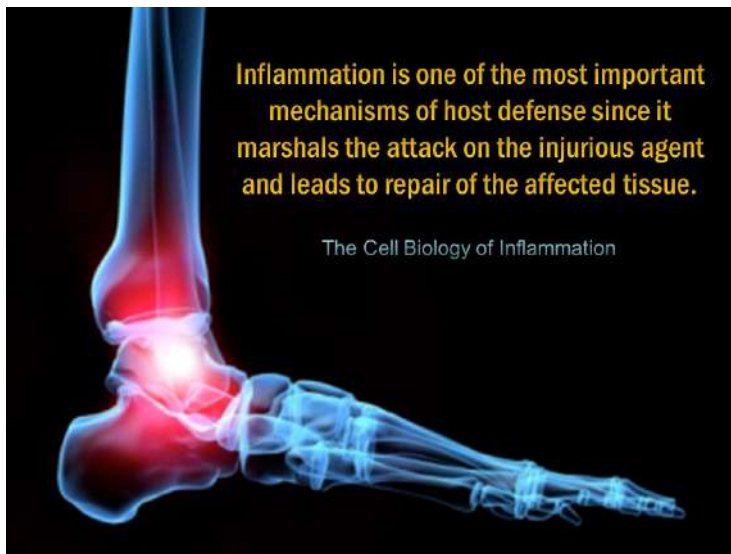
Basic studies shed light on immune function

Immunologists at Oregon State University have recently uncovered some important clues as to how the immune system works at a fundamental level. The key, scientists say, is understanding how some of the T cells, which are sort of the quarterback of the immune system that directs other cells to go do their dirty work, can get stimulated to do their work even better, or tone it down in the case of an autoimmune conditions.

One of the things that have intrigued scientists is the apparent correlation between inflammation and a dysfunctional immune response, especially with autoimmune diseases. Steroid treatments, for instance, which have strong anti-inflammatory effects, are often used to treat autoimmune disorders. "But using a powerful steroid drug, which can have many side effects, to indirectly affect something as delicate as the immune system is like hitting an ant with a sledgehammer", according to Anthony Vella, an assistant professor of microbiology at OSU. "What we have tried to identify is exactly how the process of inflammation is related to immune function and what cellular processes are involved." In one recent breakthrough,



the OSU research program determined that inflammation in conjunction with the activation of other T cell stimulatory molecules can help T cell growth and increase the number of "fighting" T cells. In experiments, OSU researchers showed that injecting mice with an antigen caused significant death of the antigen-responsive T cells; however, when inflammation was present, it prevented the death of these cells. In cell membranes of certain bacteria, there is a natural bacterial lipid called lipopolysaccharide, or LPS. It appears that LPS can play a role in causing inflammation, and keeping activated T cells alive. OSU

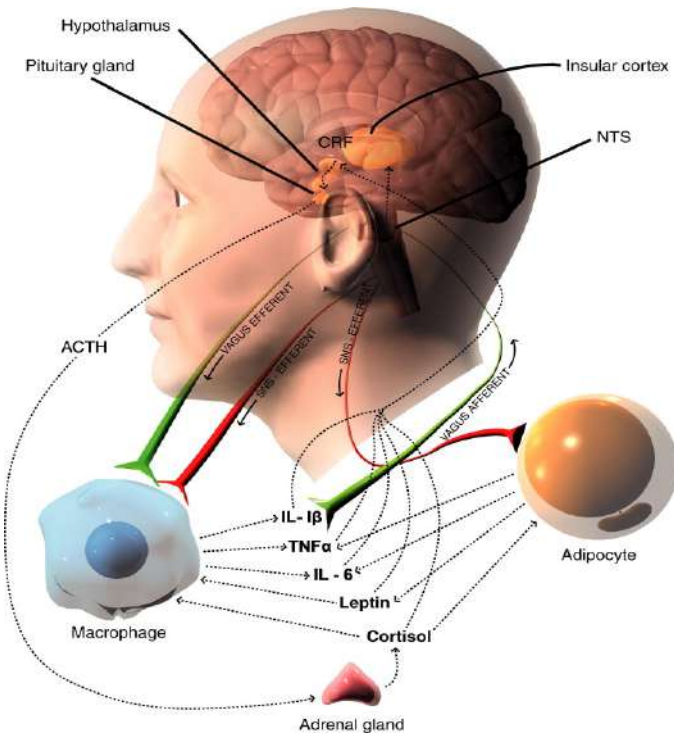


researchers have also shown that the LPS inflammatory signal, which prevents T cell death, is dependent upon IL-1 and TNF stimulation of IL-6. This result is of interest beyond immunology, since IL-6 is a major factor involved in neurological function. Vella speculates that there may be a potential link between nervous system and T cell survival. ⁸

OSU- Immunology Research Dept.

CYTOKINES: chemical messengers

Cytokines, also known as lymphokines, are low-molecular weight proteins that are involved in communication between cells. Their purpose is to induce or regulate various immune or inflammatory responses. Immune system disorders may occur if cytokine production or regulation is impaired.



There are four major categories of cytokines:

Interferons, so named because they interfere with replication. The major types of interferon are: Interferon Alpha (IFN α) Interferon Beta (IFN β) Interferon Gamma (IFN γ)

Colony Stimulating Factors (CSF), support the growth and differentiation of various elements including the bone marrow which regulates the differentiation of bone marrow stem cells.

Tumor Necrosis Factor (TNF), plays a major role in inflammatory response and cell apoptosis.

Interleukins, which is the largest group of cytokines and are so named because their fundamental function is the inter communication between various populations of white blood cells.

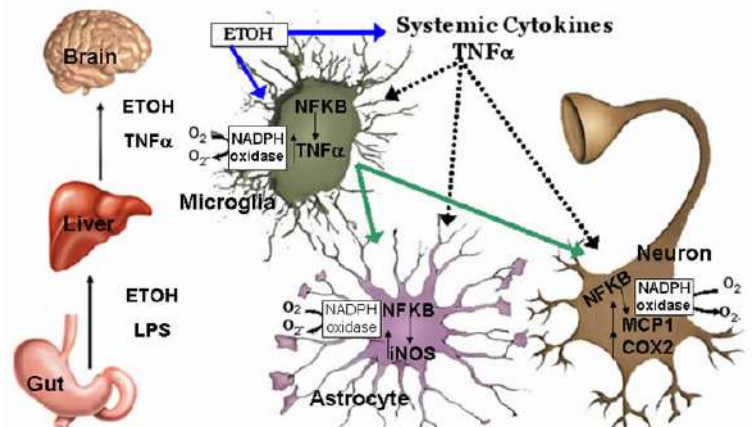
The range of cytokine effects have found to be far wider with the recent discovery of small proteins that influence the migration of cells and attract them to the sites where they are needed.

This process is called chemotaxis; the cytokines that emanate from sites of damage to bring in these cells are the chemokines.

"In the absence of cytokines for the helper T cells, the remainder of the immune system is almost paralyzed."⁹

Guyton's Anatomy and Physiology

The importance of the cytokines in the host response to injury, invasion and infection can scarcely be overstated. Without them, the body's ability to fight off pathogens, repair damage, and maintain health would be seriously impaired and far less effective. Full protection against disease, injury, and even the normal wear and tear of living requires the participation of many different bodily systems. It is the cytokines that orchestrate, coordinate and integrate them.

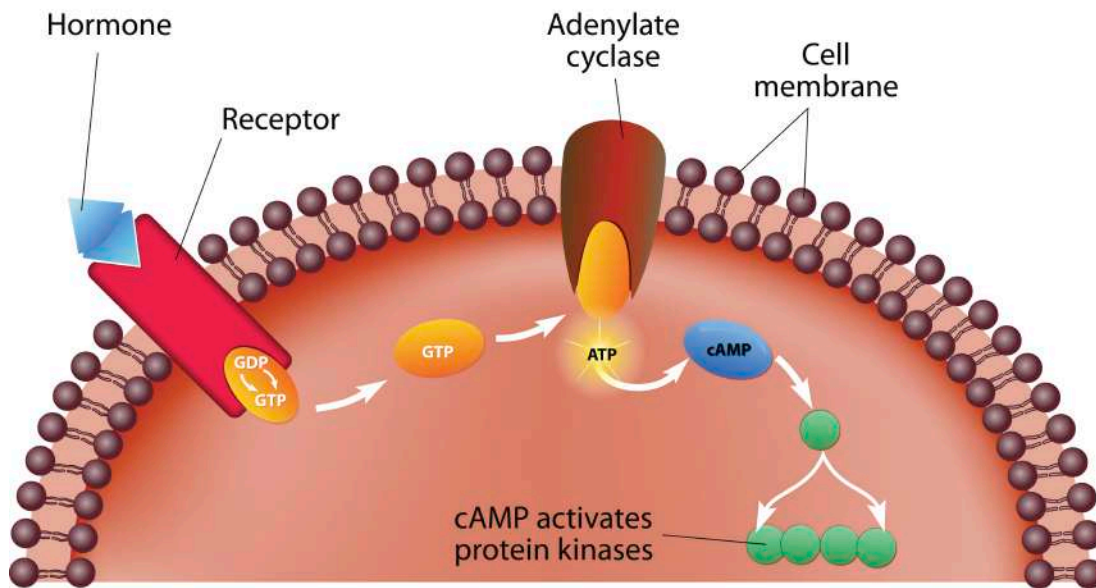


Cytokines as bridges that connect the brain and the immune system.

“On the basis of our present knowledge, it can be proposed that at least three main pathways exist connecting the brain and the immune system: humoral, neural, and endocrine. Cytokines, soluble transmitters, once considered specific to the immune system, do act and can be produced by the central nervous system and represents a common chemical language between the two systems.”¹⁰

Institute of Molecular Biology

MECHANISMS OF HORMONE ACTION



"No one could survive without precise signaling in cells. The body functions properly only because the cells constantly communicate with each other."¹¹

Scientific American



The immune system is so complex in its relationship to organs, glands, and cells that immune dysfunction and immune suppression can create a drastic negative effect on the entire health and homeostasis of the body.

The thymus gland and T cell function play such a pivotal and important role in generating and regulating immune response that a deficiency or imbalance in their function will cause immune system dysfunction or suppression to occur.

Researchers Find Textbook-Altering Link Between Brain, Immune System

In a stunning discovery that overturns decades of textbook teaching, researchers at the University of Virginia School of Medicine have determined that the brain is directly connected to the immune system by vessels previously thought not to exist.



That such vessels could have escaped detection when the lymphatic system has been so thoroughly mapped throughout the body is surprising on its own, but the true significance of the discovery lies in the effects it could have on the study and treatment of neurological diseases ranging from autism to Alzheimer's disease to multiple sclerosis.

IMMUNE SYSTEM DYSFUNCTION

There are some sixty-five million Americans who suffer from a dysfunctional immune system and the number is growing at a rapid rate.



Much of the increase has been due to the aggressive and invasive approach of treating symptoms with medication, as opposed to restoring and maintaining the proper function of the immune system. Among the manifestations of immune disorders include

Autoimmune, in which the cells of the immune system confuse normal body cells with foreign antigens and attack them. Autoimmune disorders include: rheumatoid arthritis, asthma, allergies, lupus, diabetes and multiple sclerosis.

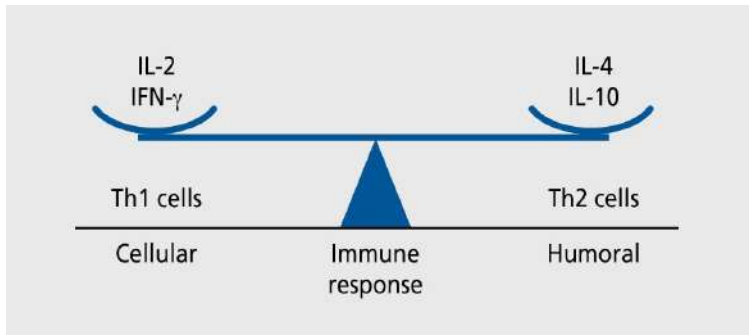
Immunodeficiency disorders are characterized by a weak immune system response and are often associated with chronic infections. They include Epstein-Barr, AIDS, viral infections, otitis media, and even cancer may result from immune suppression.

The cause of autoimmune and immunodeficiency disease has yet to be completely understood, and it is likely that a variety of factors are involved. But a growing number of researchers, including the 1999 Nobel Prize winner in medicine, Dr. Gunter Blobel, are looking at a breakdown in the cell to cell communication of the immune and nervous system to be a leading contributor of immune system dysfunction.

Alteration in cell death pathway sheds light on autoimmune disease.

A cell's ability to commit suicide, a process scientists call "apoptosis", is an important feature that the body uses to prevent overgrowth of cells and to get rid of cells that it no longer needs. The National Institute of Allergy and Infectious Disease (NIAID) researchers describe a mutation in immune system cells in patients with autoimmune lymphoproliferative syndrome or ALPS, that interferes with cell death. In ALPS patients, immune cells do not die; instead they remain activated, proliferate continuously, and attack the body resulting in uncontrolled cell growth. Abnormalities in the communication of these interacting cells lead to dysregulation of the immune response.¹²

National Institute of Health



Th1 and Th2 lymphocytes and their characteristic cytokines possess opposite roles in the regulation of the immune system. Th1 cytokines participate mainly in the regulation of the cellular defense while Th2 lymphocytes activate B cells and regulate the immunoglobulin synthesis and switch via their characteristic cytokines.

As Th1 and Th2 cytokines can inhibit the secretion of the opposite type of cytokines, the changes in this sensitive Th1/Th2 balance is thought to be critical in the pathogenesis of several immunological disorders. Th1 dominance has been described in several organ specific autoimmune diseases including diabetes, rheumatoid arthritis, and Crohns disease.

"There is now abundant evidence to show that clinical disease including autoimmune disease, infectious disease and allergic disorders are due to abnormal communication and signaling pathways in the human body." ¹³

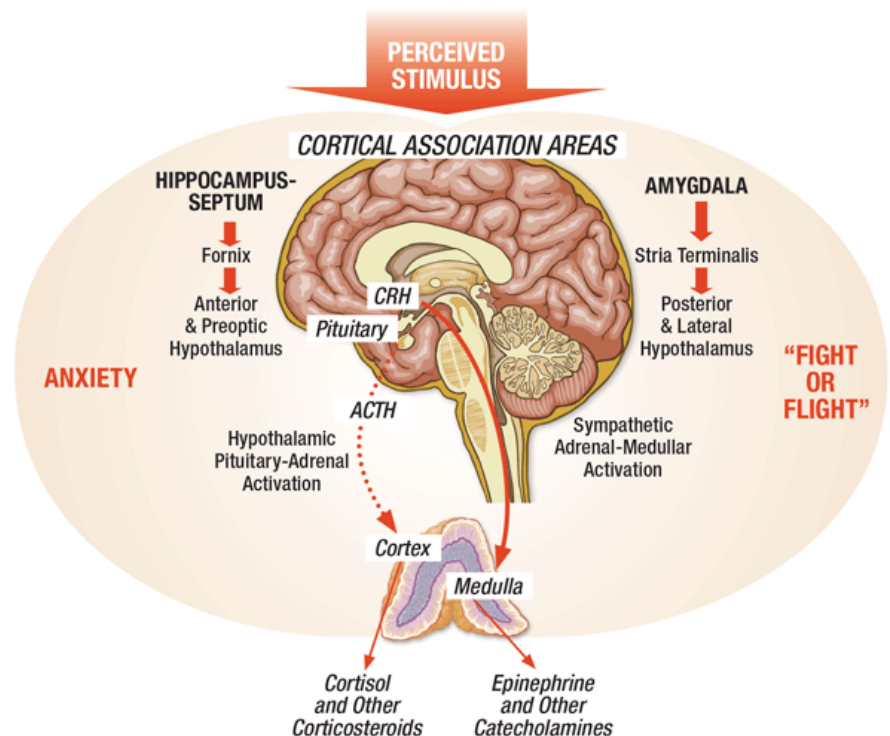
Harvard School of Public Health

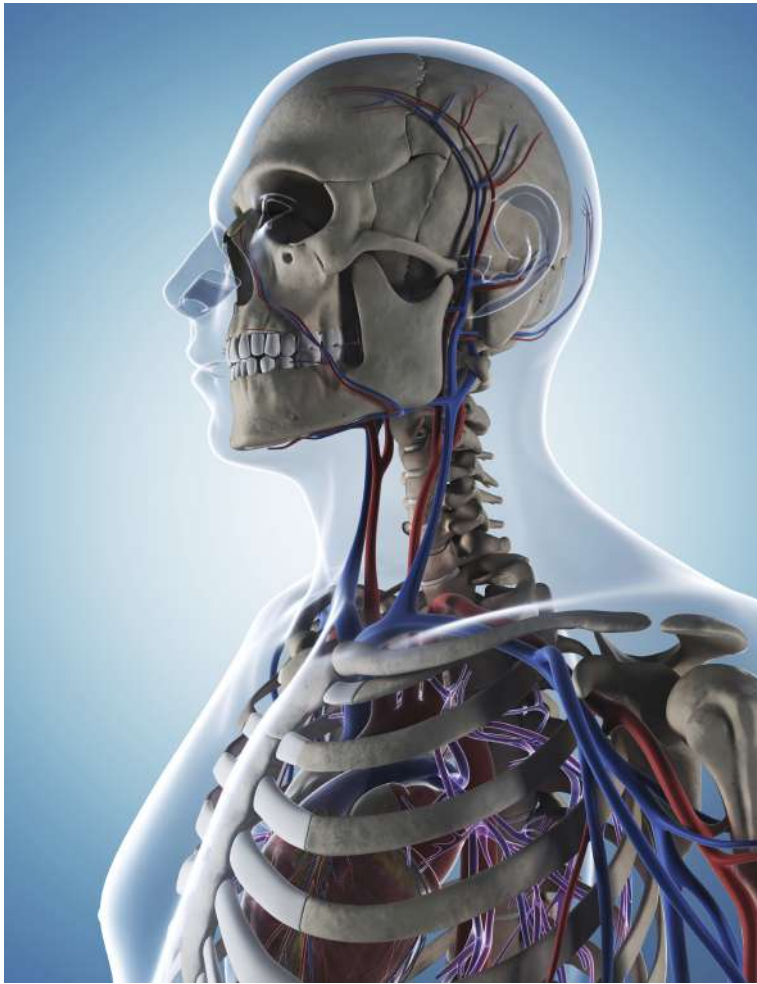
Immune Dysfunction and Stress

Substantial research has clearly demonstrated that a wide range of stress can deplete immune system resources and adversely affect neurological and biological communication resulting in abnormal levels of B and T cells, decreased responsiveness of natural killer cells, and fewer IgA antibodies to be secreted in the saliva.

Stress can be defined as "a state of disharmony or threatened homeostasis provoked by psychological, environmental, and physiological stressors."

Stress is also invoked as an important part of the normal response to stimuli and should not be thought of as an abnormal reaction since it involves the "fight or flight" principle.





Much of this response is mediated through the hypothalamic-pituitary pathway and is integrated in the hypothalamus to monitor and control certain functions such as the sympathetic nervous system and endocrine system.

Although stress is generally associated with negative connotations, it is a double-edged phenomenon. The body would not be able to survive without the acute stress response, as it prepares the body for short, emergency responses to potentially life threatening situations.

However, a lingering stress response to non-emergency situations is bad and can lead to chronic health conditions. Stress becomes a hazard to the body when the communication systems of the body are interrupted or overwhelmed by a variety of physical, chemical or emotional stressors.

Types and Causes of Stress

Physical: The primary cause of communication breakdown is nerve interference in the spinal column. When the spine is in its proper, structural position, it protects the nerve pathways and allows the nervous system to send and receive information.

However, because the spine is moveable, it is also susceptible to various physical stresses and forces which can cause the spinal vertebra to lose their proper, structural position. These spinal misalignments cause abnormal reflexes, loss of normal mechanoreceptor function, and nerve interference which reduces the overall effectiveness of the communication of the body.

Chemical: There are more drugs designed to treat and suppress components of the inflammatory response than any other single category in the world, in fact there are more drugs whose primary purpose is to inhibit the normal communication of the nervous and immune system than all of the rest of the drugs combined.



Drugs may result in a temporary reduction of symptoms, but they do little to improve and optimize the actual healing process and often lead to dangerous side effects and immune system disorders.



Antibiotics have become a popular weapon in the medical arsenal against disease. Although no one would argue with the appropriate use of antibiotics, there is a tremendous volume of research which clearly demonstrates that antibiotics have been grossly overused resulting in weakened immune systems and stronger bacteria and foreign microbes.

Emotional: There is an abundant body of scientific research to support the concept that emotional stress has a negative impact on the immune system. Thoughts and emotions can trigger complex chemical reactions that affect multiple body systems and particularly the immune system. Periods of intense emotional stress can result in decreased levels of natural killer cells, sluggish killer T cells, and diminished macrophage activity.



Conclusion

At all biological levels (molecular, cellular, organ), communication between elements is essential for the proper functioning of system. This communication process is essential to the homeostasis of the body. The foundation of health begins with a properly function nervous system to the extent that we can equate levels of function and healing capability with the ability of the nervous system to send and receive information. The trend in immunological research clearly demonstrates that restoring, balancing, facilitating and maximizing the communication systems of the body is the key to optimal health and immune function.



"Pressed by patients and advancing technology, health care will soon change its focus from treatment to enhancement, from repair to improvement, from diminished sickness to increased performance. The transformation has already begun. Accompanying this will be an increased emphasis on psychoneuroimmunology, the science that deal the minds role in helping the immune system to fight disease. Which will become a vitally important clinical field-perhaps the most important field in the 21st century." ¹⁴

Michael Crichton, M.D.

References

1. Roundtree, R. Immunotics, Putnam & Sons New York, 2000, p.10
2. Jorgensen, L "Bioscience" May 1999, p.42
3. Koup, R & Douek, D "Changes in thymic function with age and treatment of HIV infection" Nature, Dec 17, 1988 p.396
4. Kendall, M, "Have we underestimated the importance of the thymus in man" Experiential, National Library of Medicine, Nov 15, 1984 40(11) 1181-5
5. Pawlee, G, Remarque, E "T cells and aging" Frontiers in Bioscience, Jan. 15, 1998 p.53
6. Boronovikova, L "Vagus nerve stimulation attenuates the systemic inflammatory response to endotoxin" Nature, May 25, 2000 p. 458
7. Adoroni, L "Regulation of T cell response by CNS presenting cells" Immunology Today, March 2000, 21:141
8. Vella, A "Basic studies shed light on immune function" Oregon State University, 12-17-1998
9. Guyton A. Guyton's Anatomy and Physiology" WB Saunders and Co. Philadelphia, 2000
10. Grazia, M "Cytokines as bridges that connect the brain and the immune system" Milano Institute of Molecular Neurobiology, Nov. 1999
11. Scott, J, & Dawson, T "Cell communication: The inside story" Scientific American, June 2000
12. Leibnitz, R. "Alteration in cell death pathway sheds light on autoimmune disease" National Institute of Health, July 8, 1999
13. Swanson, T "HMS Research Review" Oct.1999 p.19
14. Crichton, MD "Greater Expectations" Newsweek Sept 24, 1990 p. 58





CHIROPRACTIC PATIENT EDUCATION AND MARKETING TOOLS

Keith Wassung
1.843.743.8351
info@keithwassung.com

750 CHIROPRACTIC DIGITAL POSTERS




CURRENT THEORIES SUGGEST THAT A CENTRAL NERVOUS SYSTEM DYSFUNCTION IS INVOLVED IN THE INITIATION OF MIGRAINE HEADACHES.

CEPHALALGIA
Rizzoli M, et al. (2017) Genetic epidemiology of migraine and cluster headache Cephalalgia 37:663-70

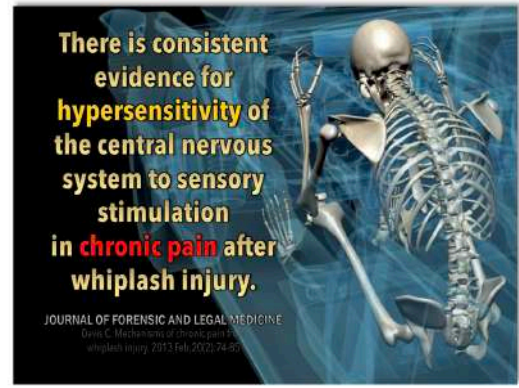
"Loss of the natural curve of the cervical spine leads to incrementally increased stresses about the cervical spine."

KENNETH K. HANSRAJ, M.D.
Assessment of stresses in the cervical spine caused by posture and position of the head and spine surgery, Nov. 2014, Vol. 25, no. 277-279



There is consistent evidence for hypersensitivity of the central nervous system to sensory stimulation in chronic pain after whiplash injury.

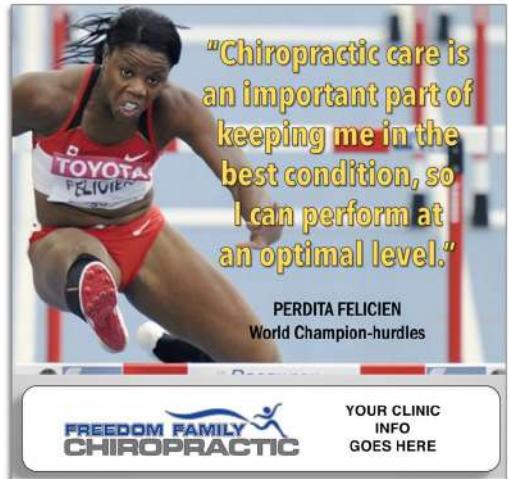
JOURNAL OF FORENSIC AND LEGAL MEDICINE
 David C. Hochman et al. (2002) The effects of whiplash injury 2(3):74-80




Homeostasis and nervous system function are ultimately connected with posture.

AMERICAN JOURNAL OF PAIN MANAGEMENT
 Lannon, J. (1994, January). American Journal of Pain Management

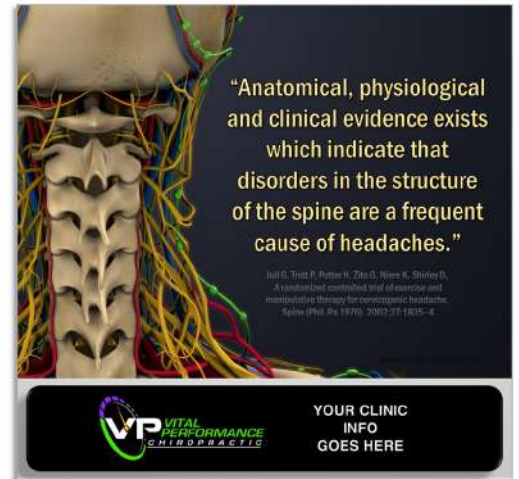
VP VITAL PERFORMANCE CHIROPRACTIC YOUR CLINIC INFO GOES HERE



"Chiropractic care is an important part of keeping me in the best condition, so I can perform at an optimal level."

PERDITA FELICIAN
 World Champion-hurdles

FREEDOM FAMILY CHIROPRACTIC YOUR CLINIC INFO GOES HERE



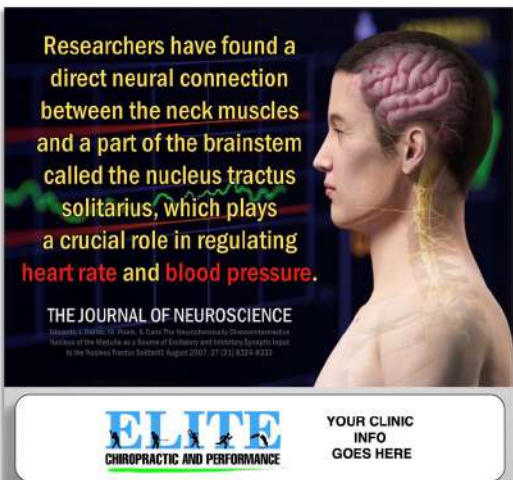
"Anatomical, physiological and clinical evidence exists which indicate that disorders in the structure of the spine are a frequent cause of headaches."

Julia G. Trott, R. Pollock, N. Zito, D. Niles, K. Shirley, D. A randomized controlled trial of exercise and manual therapy for cervicogenic headache. Spine (Phila Pa 1976). 2002;27:1824-4

VP VITAL PERFORMANCE CHIROPRACTIC YOUR CLINIC INFO GOES HERE

Researchers have found a direct neural connection between the neck muscles and a part of the brainstem called the nucleus tractus solitarius, which plays a crucial role in regulating heart rate and blood pressure.

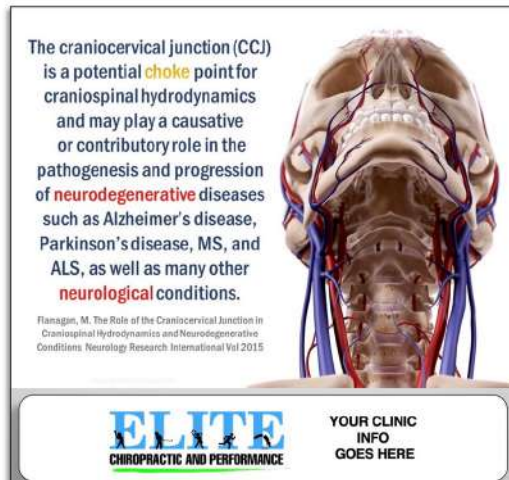
THE JOURNAL OF NEUROSCIENCE
 Shadmehr R, et al. (2007) The Nucleus Tractus Solitarius as a Source of Excitatory and Inhibitory Synaptic Input to the Nucleus Reticularis. J Neurosci. August 22, 2007; 27(33):9234-9242



ELITE CHIROPRACTIC AND PERFORMANCE YOUR CLINIC INFO GOES HERE

The craniocervical junction (CCJ) is a potential choke point for craniospinal hydrodynamics and may play a causative or contributory role in the pathogenesis and progression of neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, MS, and ALS, as well as many other neurological conditions.

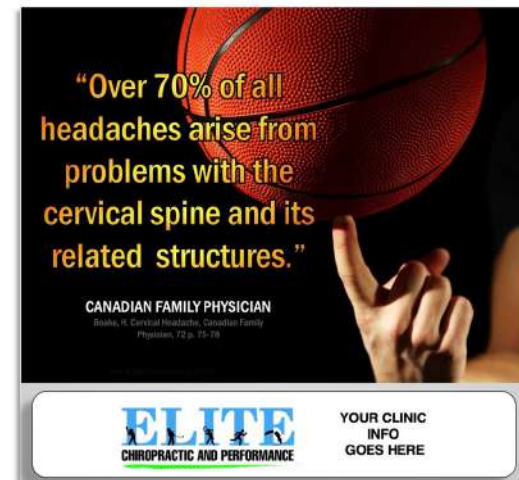
Flanagan, M. The Role of the Craniocervical Junction in Craniospinal Hydrodynamics and Neurodegenerative Conditions. Neurology Research International Vol 2015



ELITE CHIROPRACTIC AND PERFORMANCE YOUR CLINIC INFO GOES HERE

"Over 70% of all headaches arise from problems with the cervical spine and its related structures."

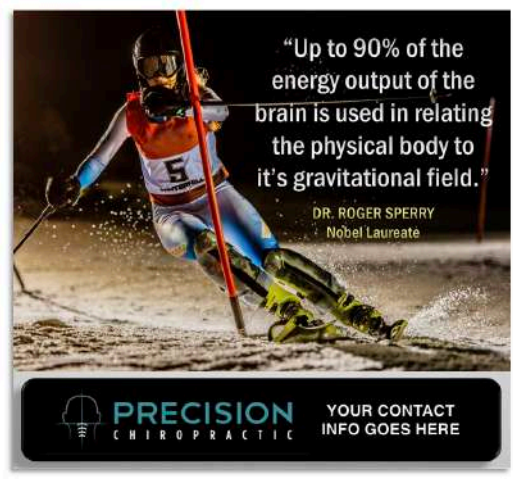
CANADIAN FAMILY PHYSICIAN
 Bialik, J. Cervical Headache. Canadian Family Physician. 72 p. 75-79



ELITE CHIROPRACTIC AND PERFORMANCE YOUR CLINIC INFO GOES HERE

"Up to 90% of the energy output of the brain is used in relating the physical body to it's gravitational field."

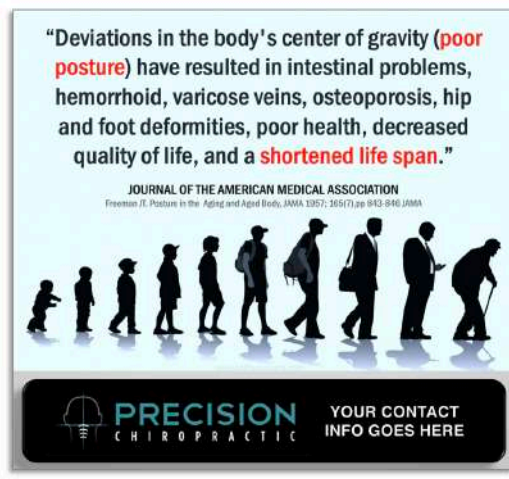
DR. ROGER SPERRY
 Nobel Laureate



PRECISION CHIROPRACTIC YOUR CONTACT INFO GOES HERE

"Deviations in the body's center of gravity (poor posture) have resulted in intestinal problems, hemorrhoid, varicose veins, osteoporosis, hip and foot deformities, poor health, decreased quality of life, and a shortened life span."

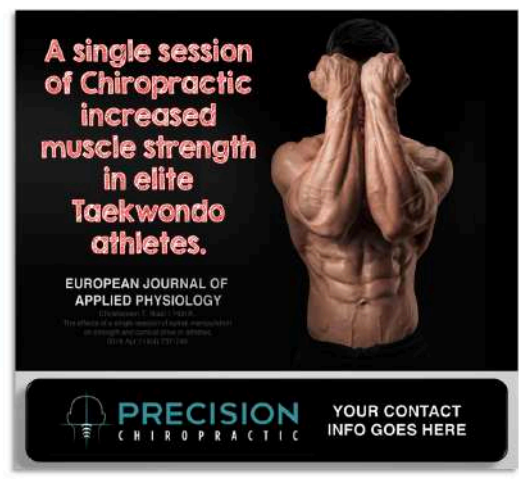
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
 Freeman JT. Posture in the Aging and Aged Body. JAMA 126(7): 265(7): pp 942-946 JAMA



PRECISION CHIROPRACTIC YOUR CONTACT INFO GOES HERE

A single session of Chiropractic increased muscle strength in elite Taekwondo athletes.

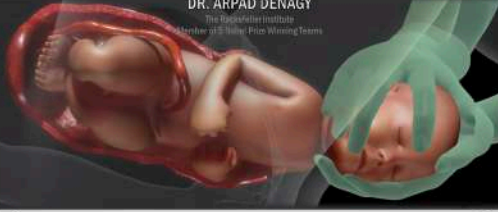
EUROPEAN JOURNAL OF APPLIED PHYSIOLOGY
 The effects of a single session of chiropractic on strength and central drive in taekwondo. Br J Sports Med 2006;40:1045-50



PRECISION CHIROPRACTIC YOUR CONTACT INFO GOES HERE

“Interference to the nervous system results in damage within a short period of time and therefore, Chiropractic care should begin at birth on a preventive basis.”

DR. ARPAD DENAGY
The Kapaseller Institute
Member of 3-time Prize Winning Teams



FREEDOM FAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



A study with 316 children showed significant improvement with colic in response to Chiropractic adjustments. The three month long study showed a satisfactory of Chiropractic adjustments in 94% of the cases. The improvements occurred after an average of only three adjustments within two weeks.

Kingsport R, Nelson N and Jacobson J (2008) Infantile colic treated by chiropractic: a prospective study of 316 cases. Journal of Manipulative Physiol Ther. 31(6):463-471, 2008.

RESTOREFAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE

A study published in the Journal of Allergy and Clinical Immunology found that children who ran a fever during their first year were less likely to develop allergies later in childhood than children who did not experience fevers.

LeKew Williams et al. The relationship between early fever and allergy sensitization at age 5 to 7 years. Journal of Allergy and Clinical Immunology 113(2):257-266, 2004.



FREEDOM FAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



Dr. Godfrey Gutmann, a German physician, conducted a study of over 1,000 newborns shortly after birth. He discovered that more than 80% of the infants had suffered trauma to their cervical spinal region resulting in vertebral subluxations.

Gutmann, G. (1987). "Blocked Atlantal Nerve Syndrome in Babianand Infants. Neurologie Medica, pp. 9-10.

RESTOREFAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



The proper development and function of the nervous system is a primary key to maximizing the human genetic potential of health, healing and performance.

Molecular Genetics in Developmental Neurobiology
Published in: Applied Neurology, December 1998
Copyright: permission was granted to Restore Family Chiropractic, 2012

FREEDOM FAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



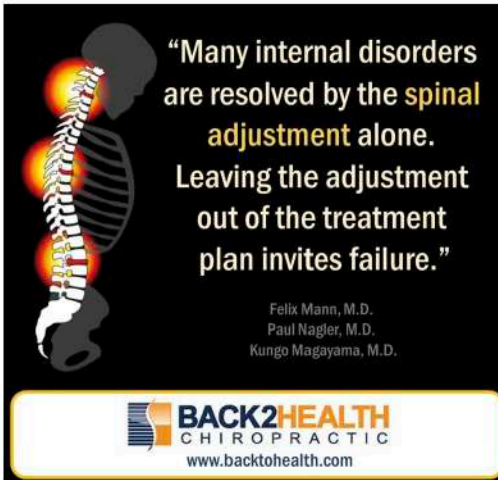
332 children with chronic ear infections participated in a study to demonstrate the correlation between Chiropractic adjustments and the resolution of ear infections.

Each child, ranging in age from 27 days to 5 years, was given a series of Chiropractic adjustments. The results showed that close to 80% of the children in this study experienced no ear infections within the six month period following their initial visits.

JOURNAL OF CLINICAL CHIROPRACTIC PEDIATRICS
Volume 14, Number 1, Winter 2005, pp. 1-10

RESTOREFAMILY CHIROPRACTIC

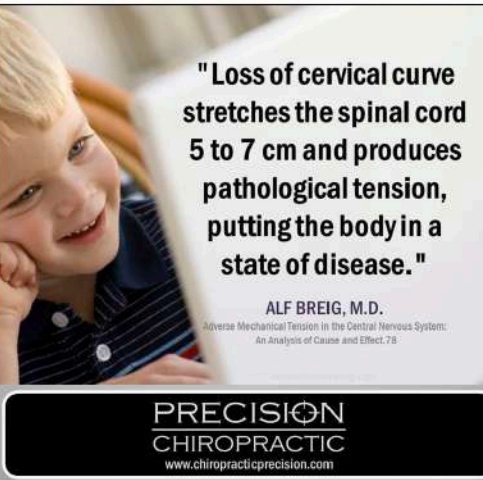
YOUR CLINIC CONTACT INFO GOES HERE



“Many internal disorders are resolved by the spinal adjustment alone. Leaving the adjustment out of the treatment plan invites failure.”

Felix Mann, M.D.
Paul Nagler, M.D.
Kungo Magayama, M.D.

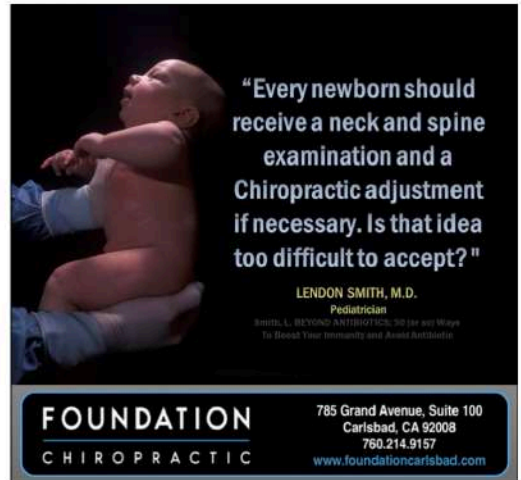
BACK2HEALTH CHIROPRACTIC
www.backtohealth.com



“Loss of cervical curve stretches the spinal cord 5 to 7 cm and produces pathological tension, putting the body in a state of disease.”

ALF BREIG, M.D.
Adverse Mechanical Tension in the Central Nervous System:
An Analysis of Cause and Effect.78

PRECISION CHIROPRACTIC
www.chiropracticprecision.com



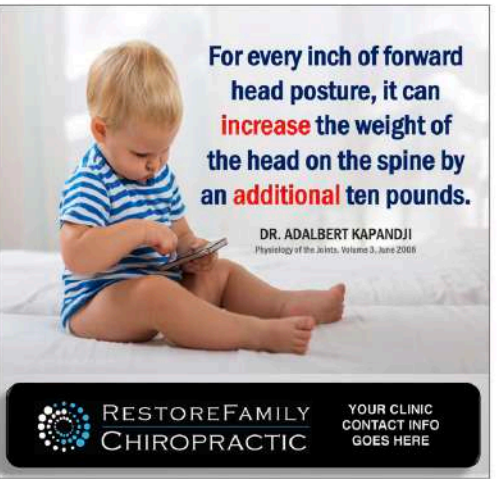
“Every newborn should receive a neck and spine examination and a Chiropractic adjustment if necessary. Is that idea too difficult to accept?”

LENDON SMITH, M.D.
Pediatrician

SMITH, L. BEYOND ANTIBIOTICS: 90 Day and More
To Boost Your Immunity and Avoid Antibiotics

FOUNDATION CHIROPRACTIC

785 Grand Avenue, Suite 100
Carlsbad, CA 92008
760.214.9157
www.foundationcarlsbad.com

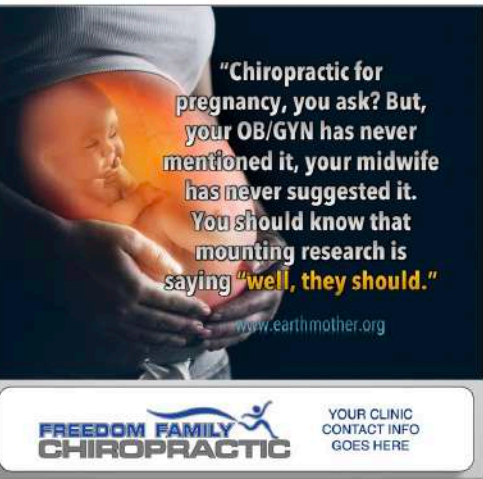


For every inch of forward head posture, it can increase the weight of the head on the spine by an additional ten pounds.

DR. ADALBERT KAPANDJI
Physiology of the Joints, Volume 3, June 2008

RESTOREFAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



“Chiropractic for pregnancy, you ask? But, your OB/GYN has never mentioned it, your midwife has never suggested it. You should know that mounting research is saying “well, they should.”

www.earthmother.org

FREEDOM FAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE



Research suggests that spinal adjustments may have a direct effect on certain aspects of immune function. This study showed that when the thoracic spine was adjusted, the respiratory burst cycle of white blood cells was enhanced.

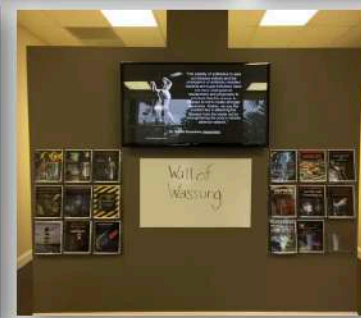
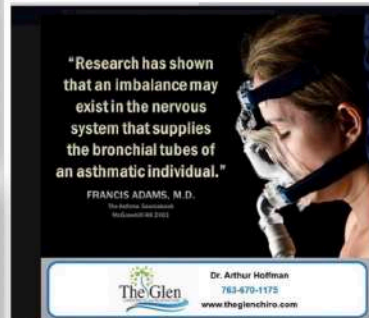
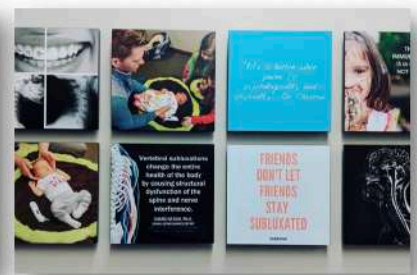
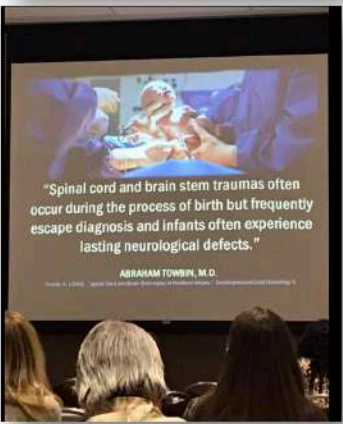
Brennan, P. & Hondius, M. Priming of Neutrophils for Enhanced Respiratory Burst By Manipulation of the Thoracic Spine. 89

RESTOREFAMILY CHIROPRACTIC

YOUR CLINIC CONTACT INFO GOES HERE

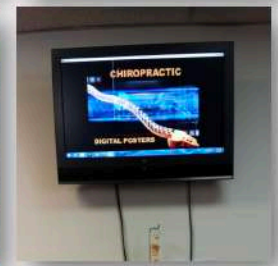
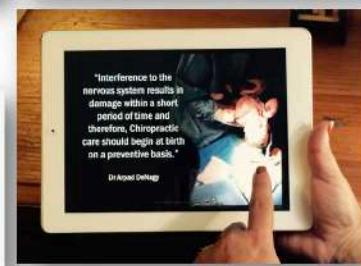
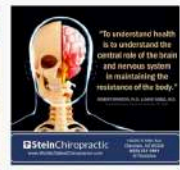
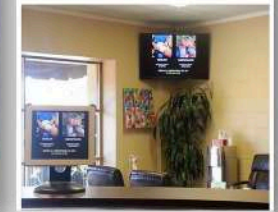
Mike Lynch • Keith Wassung
October 25, 2017 at 11:30 PM Boulder, CO

Hey Keith- thanks for being an incredible asset to the Chiropractic profession. We've been using your slides and education materials in the office for 3yrs and they continually provide HUGE value. We consistently get positive feedback on the slides we play in our hot seat area and practice members are always asking for copies of the education materials to give to others looking for help. Having these all set up with our office info and logo are key to getting easy referrals. Keep doing what you do. More Chiropractors need your products implemented in their offices to educate their practice members and drive in new patients!



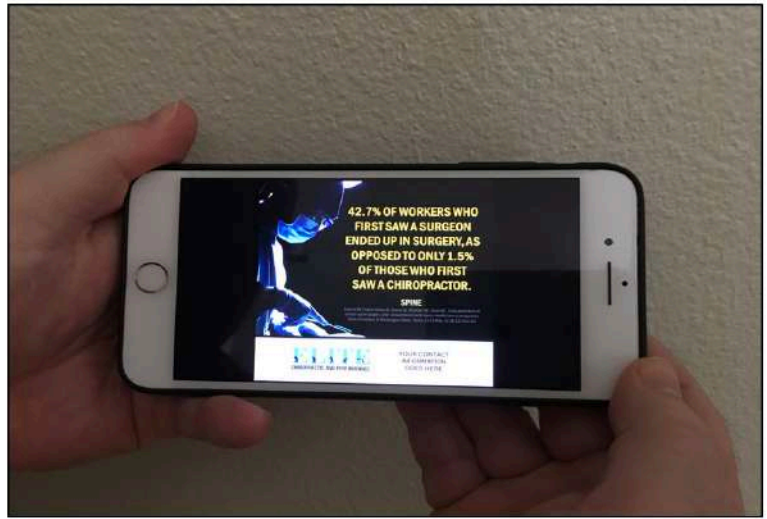
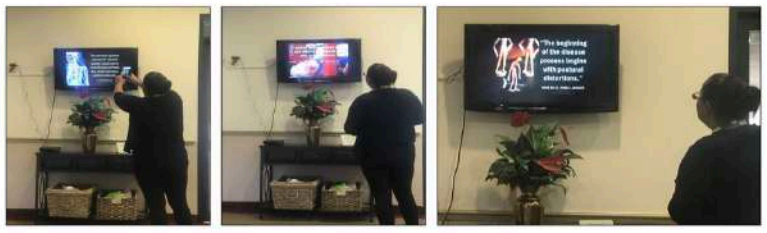
Joseph P. Kametz • Keith Wassung
11 mo.

Love the new Pregnancy and Pediatrics powerpoint slides Keith Wassung. Thank you! They look great in lobby. They have been very effective engaging parents because I'm getting more questions from parents about kids. The series are on both and Apple TV is put on top screen in lobby. Works beautifully with minimal bandwidth necessary. Thanks Keith! Brian Duncan App Via UC

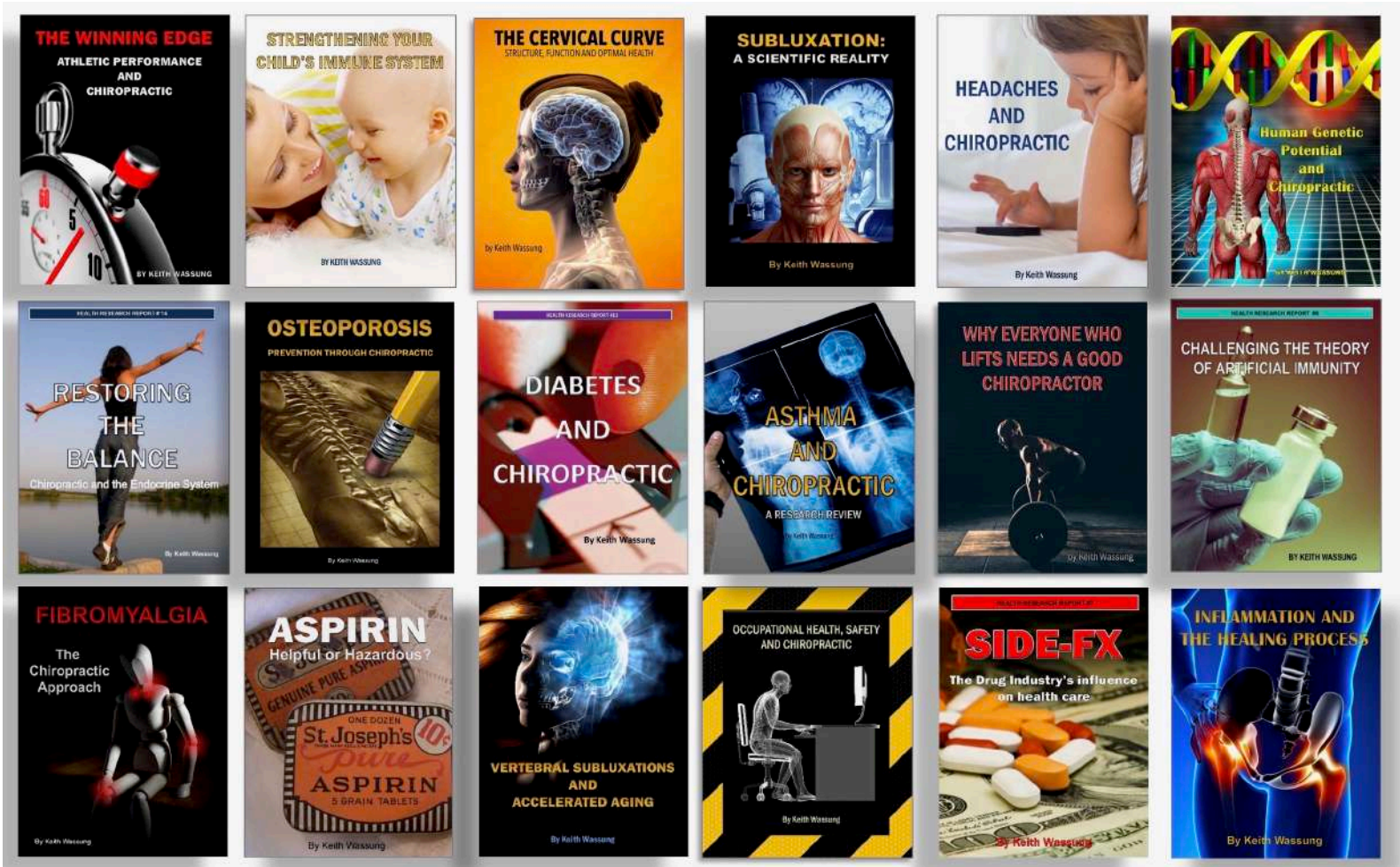


RUN THIS ENGAGING PRESENTATION IN YOUR RECEPTION ROOM OR OTHER PATIENT AREAS

WHEN YOUR PATIENTS SEE SLIDES THEY LIKE (AND THEY WILL.) YOU SEND THEM THE CUSTOMIZED JPEG. NOW THEY HAVE THEIR FAVORITE SLIDES ON THEIR PHONES AND CAN EASSILY SHOW AND SHARE WITH OTHERS AS WELL AS POST ON THEIR OWN SOCIAL MEDIA PAGES.



20 HEALTH RESEARCH E-REPORTS



"Over 70% of all headaches arise from problems with the cervical spine and its related structures."
Canadian Family Physician

HEADACHES AND CHIROPRACTIC

FREE CHILD HEADACHE RESEARCH

Download This Manual To Learn Safe & Effective Ways to HELP Your Child!

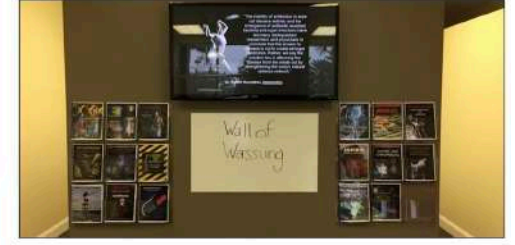
First & Last Name:

Email:

[Sign Up Now](#)

I want to get the FREE Research to Learn More

© TheChiropractor.ca 1998. Topics from 48 Issues. All Shared With Anyone.



COMPLIMENTARY HEALTH E-REPORTS

1. Asthma and Chiropractic
2. Strengthening Your Child's Immune System
3. Osteoporosis: Prevention Through Chiropractic
4. Human Genetic Potential and Chiropractic
5. Restoring the Balance
6. The Winning Edge
7. The Cervical Curve
8. Fibromyalgia: The Chiropractic Approach
9. Challenging the Theory of Artificial Immunity
10. Diabetes and Chiropractic
11. CNS control of the immune system
12. The role of inflammation in the healing process
13. Aspirin: Helpful or Hazardous
14. Antibiotics: 20th century time bomb
15. Subluxation: A Scientific Reality
16. Side-FX
17. Occupational Health and Chiropractic
18. Pediatric Headaches and Chiropractic
19. Vertebral Subluxations and Accelerated Aging
20. NFV Research

Hormonal imbalances can be the result of either too much or too little glandular activity. Spinal nerve interference and its resulting decrease in function may be a significant cause of endocrine dysfunction and hormonal related health problems.

"Lesions of the hypothalamic input nuclei may produce a variety of symptoms, including diabetes, insulinopeny, obesity, sexual dysfunction, amenorrhea, and loss of temperature control."

Correlative Neuroanatomy and Functional Neurology

"Studies have shown that more than fifty percent of hyperlipidemic patients have damage to the pathways in their nervous system."

Journal of Neurology, Neurosurgery & Psychiatry

Research at the Still Institute showed that spinal lesions near pathological changes in the blood, urine, and tissue fluids. Spinal lesions at the C1-C2 level were associated with abnormal function of the pituitary gland and abnormal hormone responses."



"With few exceptions, hormone deficit hormone excess is of pathologic origin in the neural path, supply the hypothalamus."

Harrison's Principles of Internal Medicine

Posture related issues in the workplace results in 34% of all lost workday injuries and illnesses.



The presence of vertebral subluxations can often be detected by an examination of a person's posture. There is a large amount of research which shows the relationship between poor posture and a temporarily functioning nervous system which leads to health problems.

POSTURE & HEALTH

- Posture and normal physiology are interrelated.
- Posture affects and moderates every aspect of the immune system, from breathing to hormonal production.
- Normal posture is evolved in patients with chronic and acute related diseases.
- "Improvements" and "reversals" in spinal function are ultimately connected with posture.
- Despite the considerable evidence that posture affects physiology and function, the significant influence on posture is not addressed by most physicians."

American Society of Pain Management

"The beginning of the disease process starts with postural distortion."

Dr. Hans Seyde, Nobel Laureate



Healthy posture is largely determined by three factors: skeletal structure, soft tissue integrity and neurological control. Evolution in any of these components can result in dysfunction, instability, weakness and loss of neurological control.

"Up to 90% of the energy output of the brain is used in relating the physical body to its gravitational field."

DR. ROGER SPERRY, Nobel Laureate

blinded, prospective, comparative, pilot, randomized, clinical trial was performed with 18 of both sexes from a judo team currently on a national level. One group received care and one did not. Measured analysis group demonstrated that the grip strength athletes receiving chiropractic improved to those not receiving chiropractic."



ASPIRIN AND BLEEDING

Every aspirin that is taken causes a small amount of bleeding. A microscope will show that the blood movement of someone who takes one aspirin a day will contain blood. This is because aspirin thins the blood by disrupting the platelets in the blood. These platelets are responsible for blood clotting that is an important part of the body's natural healing process. For those people who are treated by a variety of surgery are warned not to take aspirin for several days prior to their surgery because the bleeding is almost unavoidable.



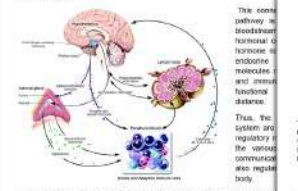
UNITED STATES PHARMACOPEAL CONVENTION

During the last two weeks of pregnancy may cause bleeding problems in the fetus, delivery in the newborn infant. Also, too much use of aspirin during early months of pregnancy may increase the length of pregnancy, prolong labor, cause a dangerous delivery, or cause severe bleeding in the mother before, during, or after."

INDIVIDUALS: 1 CLOSE OF 2 REGULAR STRENGTH EFFECTS NORMAL CLOTTING FOR AS LONG AS 7 DAYS.

These are just some of the many ways that thymus gland is shown to enhance, balance and restore immune system function.

Central Nervous System & Immune System



Neuro-endocrine-immunology is a point of intersection in the field of research in scientific literature as psychoneuroimmunology. The emerging stress immune system and inflammatory systems communicate directly with the nervous system.

The cone pathway in the hypothalamus, hormonal or endocrine molecules and immune functional distance.

Thus, the system and regulatory of the various components also regulate body.

There are two main pathways that connect the brain and the immune system: the nervous system (made up of the sympathetic and parasympathetic systems) and the hypothalamic-pituitary-adrenal axis (HPA). In order for the two systems to have a mechanism by which to communicate, the main type of chemical messenger which are released by nerve cells, endocrine organs.

The immune system is composed of lymphoid tissues, and the fact that these tissues are associated with sympathetic nerve fibers adds support to the evidence that the central nervous system directly influences immune function. Not only do nerve fibers from neuro-effector junctions with lymphocytes and macrophages, but these nerves are able to have effects on blood cell counts.

THE OSTEOPOROSIS EPIDEMIC

Osteoporosis is a major public health threat for 29 million Americans, with 3.5 million annual treatment costs for osteoporosis exceed \$3.5 billion.



"It used to be dogma that the brain was shut away from the actions of the immune system, isolated from the outside forces of nature. But that's not how it is at all. It turns out that the brain talks directly to the immune system, sending commands that control the body's inflammatory response to infection and autoimmune diseases."

Medical News Today

"The nervous system plays an important role in both the control and safety of the immune response. This study shows that the brain to affect the body as a whole and general state of health is amazing."

HUMAN ANATOMY AND PHYSIOLOGY

Dr. Robert Adair, a psychiatrist at the University of Rochester School of Medicine, performed the key experiments to prove the brain-immune system interface system connection. The following summarizes the essential evidence of the connection between the brain, the nervous system, and the immune system.

- NERVE ENDINGS ARE FOUND IN THE TISSUES OF THE IMMUNE SYSTEM
- CHANGES IN THE CENTRAL NERVOUS SYSTEM ALTER IMMUNE RESPONSES AND TRIGGERING AN IMMUNE RESPONSE ALTERS CENTRAL NERVOUS SYSTEM ACTIVITY
- LYMPHOCYTES ARE CHEMICALLY RESPONSIVE TO HORMONES AND NEUROTRANSMITTERS

Immune system cells have receptor molecules on their surfaces that allow them to receive information from the nervous system and other parts of the immune system.

"The focus of science has shifted from separate entities of the immune system to an integrative embryology model. In the new immune concept, the brain has specific, two-pathways in the immune system."

THE LANCET

"Up to 90% of the energy output of the brain is used in relating the physical body to its gravitational field."

DR. ROGER SPERRY, Nobel Laureate

A Chiropractic spine and the spinal curves develop in resistance to stresses that affect the body.



The cervical spine consists of 7 vertebrae — the same as all mammals — from the top of the neck to the long-necked giraffe. The cervical bones, the vertebrae, are 1.5 inches smaller in size when compared to other spinal vertebrae.

The purpose of the cervical spine is to contain and protect the spinal cord, support the skull, and enable diverse head movement (i.e., rotate side to side, bend forward and backward).

Between each vertebra (with the exception of the sacrum between C1-C2) are springy discs of tough cartilage with a pulpy core that compress when under pressure to absorb shock. These discs are subjected to tremendous forces.

Strong ligaments and muscles surround the spine to stabilize the vertebrae and to control movement. The cervical spine has a unique structure that is related to its important biomechanical functions.

vertebral subluxations can be by an examination of a person's posture. There is a large amount of research which shows the relationship between poor posture and a temporarily functioning nervous system which leads to health problems.



Healthy posture is largely determined by three factors: skeletal structure, soft tissue integrity and neurological control. Evolution in any of these components can result in dysfunction, instability, weakness and loss of neurological control.

Healthy posture is largely determined by three factors: skeletal structure, soft tissue integrity and neurological control. Evolution in any of these components can result in dysfunction, instability, weakness and loss of neurological control.

Healthy posture is largely determined by three factors: skeletal structure, soft tissue integrity and neurological control. Evolution in any of these components can result in dysfunction, instability, weakness and loss of neurological control.

"The beginning of the disease process starts with postural distortion."



"Up to 90% of the energy output of the brain is used in relating the physical body to its gravitational field."

DR. ROGER SPERRY, Nobel Laureate

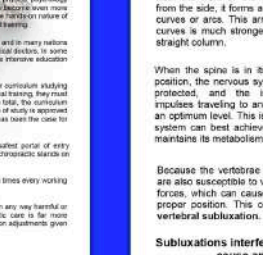
THE EDUCATION AND TRAINING OF A DOCTOR OF CHIROPRACTIC

Educational requirements for doctors of chiropractic are among the most stringent of any of the health care professions. The typical aspect of a chiropractic college has always attracted highly qualified students who graduate with a degree in chiropractic. This degree is a graduate level education, including courses in biology, organic and inorganic chemistry, physics, psychology and related lab work. Once accepted into an accredited chiropractic college, the student is required to complete a minimum of 4,200 hours of classroom, laboratory and clinical experience. The course of study is approved by an accrediting agency which is fully recognized by the U.S. Department of Education. This has been the case for more than three decades.

Use other primary health care doctors, chiropractic students spend a significant portion of their curriculum studying clinical subjects related to evaluating and caring for patients. Typically, as part of their professional training, they must complete a minimum of 4,200 hours of classroom, laboratory and clinical experience. The course of study is approved by an accrediting agency which is fully recognized by the U.S. Department of Education. This has been the case for more than three decades.

Recent focus insurance and cost issues have consistently shown that chiropractic is the safest, most cost-effective health care available to the public today. Although its treatments are more expensive, chiropractic care is far more profitable than its need for drugs, surgery or hospitalization. Of the nearly one million adjustments given every day in this country, comparable are emergency care.

The spine is composed of 24 individual vertebrae, stacked on top of one another. The spine is straight when viewed from the front or the rear. When viewed from the side, it forms a series of geometric curves or arcs. This arrangement of spinal curves is much stronger than a more rigid straight column.



When the spine is in its optimal structural position, the nervous system pathways are protected, and the integrity of nerve impulses traveling to and from the brain at an optimum level. This is when the nervous system can best achieve homeostasis and maintain its metabolism.

Because the vertebrae are movable, they are also susceptible to various stresses and forces, which can cause them to lose their proper position. This condition is called a vertebral subluxation.

Subluxations interfere with the normal flow of nerve impulses, causing an increase or decrease of nerve activity.

This is why we are often referred to as the "nerve center."

Vertebral subluxations are referred to as scientific literature names including nerve dysfunction, impingement, dysfunction, axon disorder phenomena, and neuropathy, not well many others.

Clinical Neurosciences

"Abnormalities of central afferent and efferent pathways have been revealed by evoked potential studies in diabetic patients. Central nervous system abnormalities are more frequent in patients with peripheral neuropathy, but evoked potential can be abnormal even in patients without neuropathy."



CHIROPRACTIC

Chiropractic is a health care system that is founded on the premise that a properly functioning nervous system is essential to overall health and function of the human body.

Doctors of Chiropractic detect and correct vertebral subluxations by physically adjusting the spine. This restores the nervous system to an optimum level of function, which maximizes the body's inherent healing potential.

Chiropractic adjustments restore normal nerve function, improve spinal biomechanics, range of motion, reflex arcs and posture, all of which are essential to a properly functioning nervous system.

Doctors of Chiropractic are experts in spinal structure and body mechanics. Chiropractic adjustments restore and maintain the structural integrity of the body by correcting spinal subluxations. Chiropractors emphasize the importance of posture to overall health, a concept that has been often overlooked in traditional methods of health care.

REFERENCES

1. Whittaker, J. A. (1998). "The Role of the Spine in Health and Disease." *Journal of Chiropractic Medicine*, 1(1), 1-10.
2. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
3. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
4. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
5. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
6. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
7. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
8. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
9. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.
10. "The Spine: Structure and Function." *Journal of Chiropractic Medicine*, 1(1), 1-10.

Last page of each report is customized with clinic logo, contact information and digital hyperlinks.

Full citations for each reference

Full citations for each reference

Full citations for each reference

Full citations for each reference

Full citations for each reference

COMPLIMENTS OF

PACIFIC FAMILY CHIROPRACTIC

Dr. John Williams
433 Madison Park Drive
Seattle, Washington 98101
206.421.1395
www.pacificfamilychiropractic.com
www.facebook.com/pacificfamily

Dr. James Waddewill, Neurosurgeon

Dr. T. N. Lee

www.kathleenwebb.com



12 POWER POINT LECTURES



THE SCIENCE OF PATIENT EDUCATION, COMMUNICATION AND REFERRALS

Keith Wassung

Includes 12 scripted and narrated Power Point Presentations, 4 instructional videos and a complete step by step guide to internal patient education and referral programs, as well as community outreach and marketing programs including:

- New Patient Procedures
- Drill Down Case History
- Scheduling New Patient Classes
- Scheduling Community Lectures
- Opening and Closing Lectures
- Developing Effective Referral Pipelines
- Recalls and Reactivations
- A different approach to Spinal Screenings
- Developing Occupational Health Programs
- Leveraging Networking and Referrals
- Health Jeopardy Program for Schools
- Exponential Digital Marketing
- Getting more Kids Under Care
- Keys to Retention
- Staff Hiring Procedures.
- And much more.

ONE-TIME FEE OF \$399 includes annual updates.

843.743.8351

info@keithwassung.com

HEALTH ISSUES RESEARCH SERIES

INFANTILE COLIC AND CHIROPRACTIC

HEALTH ISSUES #34

Infantile colic is a common condition affecting approximately one out of every four infants. The condition is characterized by inconsolable crying and stomach sensitivity in seemingly normal babies. The cause of colic is still unknown although research has shown that subtle spinal nerve interference, often due to the rigors and stress of routine birthing procedures can be a contributing factor.

100 newborns were physically examined and assessed for structural dysfunctions of the spinal column. 99% of these newborns had at least one immovable joint between bones in the upper cervical/occiput region.

The vague nerve controls many crucial bodily functions, including mood, immune response, digestion, and heart rate. It establishes one of the connections between the brain and the gastrointestinal tract and sends information about the state of the internal organs to the brain. Colic could be associated with subluxations or spinal nerve interference, particularly in the region of the vagus nerve, which could explain the relationship between colic, stomach and digestive issues in newborns.

A study of over 1000 infants with infantile colic revealed that Chiropractic adjustments significantly improved their crying behavior.

A study with 316 children showed significant improvement with colic in response to Chiropractic adjustments. The three month long study showed a satisfactory Chiropractic adjustment in 94% of the cases. The improvements occurred within an average of only three Chiropractic adjustments within the first two weeks.

J. MANIPULATIVE PHYSIOLOGICAL THERAPEUTICS
Knapton, N. *Journal of Manipulative and Physiological Therapeutics*, 2002, 25(2): 122-26

Over 2000 mothers reported improvements across all aspects of infant behavior studied, including feeding problems, sleep issues, excessive crying and pain after the infants received Chiropractic adjustments.

Dr. Miller, M.D., M.D., Medical Director of Precision Chiropractic and the author of *Infant Colic* is a Chiropractor who specializes in infant care. Visit his website at www.infantcolic.com

ELITE SPINE AND HEALTH CENTER
YOUR CLINIC INFO GOES HERE

TEN COMMON HEALTH COMPLICATIONS OF SPINAL CORD TRAUMA

HEALTH ISSUES #32

Because the spinal cord is critical to so many body functions, spinal cord trauma, however slight, can cause a wide range of secondary complications as demonstrated in a recent comprehensive study.

Bladder control: The stomach and intestines may continue to function, but control of bowel movements is often altered or lost.

Blood clots: Clotting can be of particular concern for spinal cord injury patients as immobility reduces blood flow through the veins.

Pneumonia/Asthma: Both are common long-term health issues because muscles associated with breathing are often weakened, especially in cases of thoracic injury.

Autonomic Dysreflexia: This condition occurs when a stimulus below the injury site triggers a message to the brain that cannot be received normally. The bladder will continue to store urine from the kidneys, but the brain may not be able to control the bladder because lesions to the spinal cord still affect the neurological communication.

Circulation issues: Spinal cord injuries can result in circulation problems ranging from low blood pressure when sitting up to swelling of the extremities.

Respiratory System Complications: The neurological level of injury will determine what kind of breathing problems the patient may encounter.

Muscle tone: Patients with spinal cord injuries might experience one of two common types of muscle tone issues.

Fitness and Wellness: Limited mobility may lead to a more sedentary lifestyle, putting the patient at risk of obesity, cardiovascular disease, and diabetes.

Social Health: Socially, fertility and sexual function is often affected after a spinal cord injury.

WORLD JOURNAL OF ORTHOPAEDICS, Issue 11, April 2013
Clinical complications of spinal cord injury, *WJOT*, 2013, 11(4): 219-23

PRECISION CHIROPRACTIC
YOUR CONTACT INFORMATION GOES HERE

HEADACHES AND CHIROPRACTIC

HEALTH ISSUES #33

Although headaches are not caused by just one source, a growing body of research clearly demonstrates that a majority of headaches are caused by problems in the cervical spine. The vertebrae of the cervical spine can become misaligned because of excessive or repetitive stress. These misalignments irritate the nerves in the neck and cause muscle tension all of which can contribute to a variety of headaches.

"Anatomical and clinical evidence exists which indicates that disorders in the structure of the cervical spine are a frequent cause of headaches."

MODERN MANUAL THERAPY OF THE VERTEBRAL COLUMN
W.S. Green, Volume 2: 228

"Headaches are frequently caused by compression of cervical nerve roots and prolonged tension of the neck muscles."

BASIC NEUROLOGY
Dunn, J. *Medical Review*, 1928

"Headaches are more frequently caused by spinal stress than any other condition."

JOURNAL OF OCCUPATIONAL TRAUMA
Mathison, J. *Journal of Occupational Trauma*, 1998

"Over 70% of all headaches arise from problems with the cervical spine and its related structures."

CANADIAN FAMILY PHYSICIAN
Dunn, J. *Canadian Family Physician*, 1928

Current theories suggest that a central nervous system dysfunction is involved in the initiation of migraine headaches with subsequent activation of the trigeminovascular system.

CEPHALALGIA
Revised 11th Edition, *Medical Terminology of Health and Human Services*, 17480-79

Chiropractic adjustments of the cervical spine were found to be superior in terms of reducing tension headache frequency, intensity, and also improving functional status of patients when compared to standard medical treatments.

SPINE
Winters, E., *Spine*, 1970, *Spine*, 1970, 1(12): 1148-55

Cervical spinal adjustments are associated with significant improvement in headache outcomes in trials involving patients with neck pain and/or neck dysfunction and headaches.

DUKE EVIDENCE REPORT
Winters, E., *Spine*, 2002, *Spine*, 27(26): 2947-51

ELITE SPINE AND HEALTH CENTER
YOUR CLINIC INFO GOES HERE

THALAMIC NEURON THEORY

HEALTH ISSUES #37

The Thalamus is the central nervous system's control center for all diseases. The Thalamus Neuron Theory (TNT) postulates that the central nervous system (CNS) is involved in all disease processes as the CNS not only processes incoming physical and chemical information from the periphery but also sends out physiological commands to the periphery in order to maintain homeostasis for the entire body.

Any event that can adversely affect this central neural circuitry is therefore capable of inducing pathological changes, leading to chronic disease states.

These pathological states can be reversed by dehabitation through manipulation or modulation of the abnormal neural circuits by physical means.

MEDICAL HYPOTHESES
Lee, T. *Medical Hypotheses*, 1984, 10(10): 598-602

"Hypertension or hypotension neurons along a neural chain prevent normal nerve transmission causing disturbances in the homeostasis of the cells, tissues and organs."

Dr. T. Lee, Academy of Pain Research

This theory matches the chiropractic approach to restoration and protection of health due to the relationship between structures, specifically the spine and musculoskeletal systems, and function, particularly as coordinated by the nervous system.

Chiropractic adjustments restore proper spinal structure to facilitate optimal neurological communication in the body.

"Neuroscience has begun to provide an understanding, in elegant detail, of the organization and physiology of the nervous system and of the alterations of nervous system function that occur in various diseases."

"This understanding is firmly based on an appreciation of the structure of the nervous system and of the interrelationship between structure and function."

STEPHEN G. WAXMAN, M.D., Ph.D.
Corticospinal Neuroanatomy, 271st edition

PRECISION CHIROPRACTIC
YOUR CONTACT INFORMATION GOES HERE

POSTURE AND YOUR HEALTH

HEALTH ISSUES #18

Upright posture and mobility were associated with different cognitive processes, suggesting different underlying neural mechanisms. These results provide evidence for a link between postural alignment and cognitive functioning in healthy older adults.

FRONTIER IN AGING NEUROSCIENCE
Associated with *Chiropractic Aspects of Cognitive and Older Adults*

"Older men and women with hyperkyphotic posture have higher mortality rates."

GERIATRIC SOCIETY
Hale, C. *Geriatrics*, 2009, 64(10): 18-21

"Posture affects and moderates every physiological function, from breathing to nervous system function, and despite the considerable evidence that posture affects physiology and function, the significant influence of posture on health is not addressed by most physicians."

AMERICAN JOURNAL OF PAIN MANAGEMENT
Linton, S. *Spine*, 2008, *Spine*, 33(24): 2600-2601

"Deviations in the body's center of gravity (poor posture) have resulted in intestinal problems, hemorrhoid, varicose veins, osteoporosis, poor health, decreased quality of life, and a shortened life span."

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
Hale, C. *Journal of the American Medical Association*, 2009, 302(10): 1200-1201

"The beginning of the disease process starts with postural distortion."

Dr. Hans Seyler, Nobel Laureate

"Chiropractic focuses on the anatomy of the spinal cord and the nerves that branch out from it. Even minor deviations of the spine caused by poor posture can impair the working of a nerve and the body part it supplies."

MIRIAM STODARD, M.D.
Journal of Chiropractic, 1974, 1(2): 1-2

ELITE SPINE AND HEALTH CENTER
YOUR CLINIC INFO GOES HERE

RESEARCHERS FIND TEXTBOOK ALTERING LINK BETWEEN BRAIN & IMMUNE SYSTEM

HEALTH ISSUES #9

In a stunning discovery that overturns decades of textbook teaching, researchers at the Virginia School of Medicine have determined that the brain is directly connected to the immune system by vessels previously thought not to exist.

"We believe that for every neurological disease that has an immune component to it, these lymphatic vessels may play a major role."

UVA CENTER FOR BRAIN, IMMUNOLOGY AND GENA

A continuous monitoring of the immune system activities, and then responding by the somatosensory and autonomic nervous systems, is important to maintain health and a balance of afferent and efferent neuronal activity must always be maintained to avoid pathology.

Researchers no longer need to ask questions such as, "How do we study the immune response of the brain?" or "Why do multiple sclerosis patients have immune system attacks?" "Now we can approach this mechanistically - because the brain is like every other tissue connected to the peripheral immune system through meningeal lymphatic vessels."

DR. KENNETH KIPPUS, DIRECTOR
UVA Center for Brain Immunology and Gen

ALIGN CHIROPRACTIC
Dr. Cody Rodewald
A NEW CHIROPRACTIC EXPERIENCE. PRODUCE, SUBDUCE, AND HEAL.

18201 Kennon Avenue
Lakeville, MN 55044
(952) 595-6397
www.alignchiro.com

SPINAL FUNCTION AND HORMONAL HEALTH

HEALTH ISSUES #36

The limbic system is the area of the brain that maintains homeostasis and the hypothalamus is perhaps the most important part of the limbic system. When the body is in a state of homeostasis, the precise amount of hormones are released into the bloodstream and the body functions smoothly, but when the control mechanism malfunctions, the results can be severe and even life altering.

"The hypothalamus receives signals from all possible sources in the nervous system, thus the hypothalamus is a collecting center for information regarding the efficient well-being of the body and in turn, much of the information is used to control receptors of the globally important pituitary gland."

GLYTIUM'S PHYSIOLOGY
Holtzman, J. *Journal of Manipulative and Physiological Therapeutics*, 1998, 21(2): 105-110

"We have receptors, hormone deficiency or hormone excess is the result of pathological interferences in the neural pathways that supply the hypothalamus."

HARRISON'S PRINCIPLES OF INTERNAL MEDICINE
18th Edition, 2012, McGraw-Hill, 213-215

Spinal nerve interference and its resulting disease in function may be a significant cause of endocrine dysfunction and hormonal related health problems.

Lesions of the hypothalamic region may produce a variety of symptoms, including diabetes insipidus, obesity, sexual dysfunction, somnolence, and loss of temperature control."

CORRELATIVE NEUROANATOMY
Casey, J. 19th Edition, Lippincott Williams & Wilkins, Philadelphia, 2012

"Today, neuroscientists know that in many cases, psychopathology (depression) arises because of dysfunction in particular brain structures or particular brain chemicals."

AMERICAN SCIENTIST
Jacobs, B. *American Scientist*, 2011, 119(1): 40-42

"The name, 'hypothalmo-pituitary-adrenal-axis dysfunction' is an accurate medical description, but would never make it into the headlines."

DR. PHILIP GOLDSMITH
Scholar of Manipulative Nature and Neuroanatomical Research

PRECISION CHIROPRACTIC
YOUR CONTACT INFORMATION GOES HERE

PREGNANCY AND CHIROPRACTIC

HEALTH ISSUES #15

The science of Chiropractic is founded on the premise that a properly functioning nervous system is the foundation of health, and that the structural integrity of the spinal column must be maintained in order to facilitate optimal nervous system transmission and communication. More women are discovering the many benefits associated with Chiropractic care during pregnancy as well as labor and delivery.

Biomechanical changes and stress to the neuromusculoskeletal system are present during and immediately after pregnancy. Chiropractic evaluation and care during pregnancy may be considered a safe and effective means of treating pregnant patients.

Wegman, C. "Pregnancy and Chiropractic: A Review of the Literature" *Journal of Chiropractic*, 2002, 29(2): 2-10

57% of nurse-midwives respondents recommended Chiropractic to their pregnant patients to address pregnancy related issues.

Hansen, J. *Journal of Chiropractic*, 2002, 29(2): 11-15

Dr. Irvin Henderson studied the effect of Chiropractic adjustments on labor and delivery reporting that women who received chiropractic adjustments in their third trimester were able to carry and deliver their child with much more comfort.

Henderson, J. *AMA Records*, 1987, 1(1): 10-11

"Regular adjustments can make pregnancy less stressful and delivery less uncomfortable. Chiropractic care can continue safely until the day of delivery."

"Encouraging regular Chiropractic and maternal self care increases a patient's probability of a successful natural delivery."

Chiropractic care during pregnancy can provide multiple benefits for women including:

- Maintaining a healthier pregnancy.
- Controlling nausea.
- Reducing the time of labor.
- Reducing time of delivery.
- Relieving back pain.

BRAIN & BODY CHIROPRACTIC
YOUR CLINIC INFO GOES HERE

BIRTH TRAUMA AND VERTEBRAL SUBLUXATIONS

HEALTH ISSUES #16

The modern birth process, even under routine conditions, is frequently the first cause of vertebral subluxation. Due to the structure of the infant's spine, spinal subluxation from the birth process is more likely to result in spinal cord trauma with nerve interference than in damage to the vertebral segments and soft tissues.

"Birth canal stress injuries follow stretching caused by shoulder dystocia, breech extraction, or hyper abduction of the neck in cephalic presentations. Associated traumatic injuries, such as subluxations of the cervical spine may occur."

The earlier abnormal spinal function could be recognized and corrected in a child's life, the greater the opportunity that child will have for neurological development."

DR. DAVID HEILIG
Journal of Chiropractic, 2002, 29(2): 16-18

"Interference to the nervous system results in damage within a short period of time and therefore, Chiropractic care should begin at birth on a preventive basis."

DR. ARPAD DENAGY, The Rockefeller Inst.

"Spinal cord and brain stem traumas often occur during the process of birth but frequently escape diagnosis, and infants often experience lasting neurological defects."

ABRAHAM TOWERN, M.D.
1930, *Journal of Chiropractic*, 7(1): 1-2

Dr. Geoffrey Gutman conducted a study of 1000 newborns shortly after birth. He discovered that over 80% had suffered trauma to their cervical spine region.

Gutman, G. 1982, *Journal of Chiropractic*, 29(2): 16-18

"Many birth injuries do not result in infant death but may still significantly affect the neurodevelopmental outcome."

CLINICS IN PERINATOLOGY
Falk, R. M. *Journal of Chiropractic*, 1982, 9(1): 1-2

PRECISION CHIROPRACTIC
YOUR CONTACT INFORMATION GOES HERE

TMJ: THE CHIROPRACTIC APPROACH

HEALTH ISSUES #11

TMJ is short for temporomandibular joint. There's one on each side, and they attach your jaw to the bottom of your skull. The muscles near them let you to open and close your mouth, but sometimes, the joints get out of line. You might have heard that problem called TMJ, but it's actually TMD—temporomandibular joint disorder. Up to 15% of adults have TMJ/TMD, and it affects women twice as often as men. There are many things that can contribute to this disorder, but a growing body of research is demonstrating the involvement of spinal nerve dysfunction and the role that a Chiropractor can play in helping to resolve these issues.

"There is a significant relationship between TMJ and neck pathologies."

JRNL OF INTERDISCIPLINARY MIND & DENTAL SCIENCE
Sara N. Nash, D. Stephen M. Coatsworth, D. Daniel Spivey II
Temporomandibular Joint Dysfunction, 19, 2019

JRNL CHIROPRACTIC MED
Paula E. Fisher, D. Roy, R. Chiropractic Treatment of Temporomandibular Dysfunction, 2015, Dec. 19(4)

Collaboration between a dentist and a chiropractor may help to provide quick resolution for patients with TMD. Taking into account the neurological and biomechanical connection to the cervical spine, dentists and chiropractors have the potential to help patients through co-management.

JOURNAL CHIRO MED
Rues, L. DC, MS, FRCPC, 2002-2014 Mar 19 | 11 \$5.41

"Chiropractic can often resolve issues associated with TMJ disorders"

CLEVELAND CLINIC
TMJ: A Chiropractic & Pediatric Med Approach, Dec 12, 2014

When a patient's TMD is due to incorrectly positioned vertebrae in the neck, a chiropractor may be able to help ease this condition.


COLGATE RESEARCH

The correlation between jaw disability and neck disability was significantly high. These findings emphasize the importance of considering the cervical spine when evaluating and treating patients with TMD.

BIOMED RESEARCH INTL
Giovanna, A. Gaddoni, A. Amis, S. Cervical dysfunction is associated with neck disability, 2015-512792

A study showed that patients with TMJ had greater forward head posture than the control group.

JOURNAL ORAL & FACIAL PAIN
Lee, W. Okeson, J.P. Lindhorst, 2. The relationship between forward head posture and TMJ, 1999, 16:1-7



YOUR CLINIC INFO GOES HERE

BOXING, MARTIAL ARTS AND CHIROPRACTIC

HEALTH ISSUES #12

The goal of the boxer and martial artist is to train the body and mind to harness power, speed, balance, coordination and timing to be the best they can be. This is heavily dependent on a finely tuned nervous system to allow the important reflexes to function properly. It is why boxers and martial artists at all levels often receive periodic Chiropractic adjustments to ensure peak performance in training and in competition.

A group of judo athletes receiving chiropractic significantly improved their grip strength compared to a group not receiving chiropractic.

JRNL OF MANIPULATIVE & PHYSIO THER.
Hessley, B. Effect of chiropractic adjustments on grip strength in elite judo athletes, 2012, Jun 3, 30-41

"I have to have an adjustment before I go into the ring. I found that going to a chiropractor three times a week helps my performance. The majority of boxers go to chiropractors to get that extra edge."

EVANDER HOLYFIELD
Heavyweight Boxing Champion

A single session of chiropractic increased muscle strength in elite Taekwondo athletes.


EURO JRNL OF APPLIED PHYSIOLOGY
Christiansen, S. Effect of a single session of spinal manipulation on strength & central drive in athletes, 2018 April 18(4) 221-249

"I've been seeing a chiropractor since I was a teenager. It has been the change in my life that has allowed me to participate in professional athletics and to achieve six world championships."

FRANK SHAMROCK

"Without chiropractic I would not have won the championship."

PAUL VADEN
IBF WORLD 41 MIDDLEWEIGHT CHAMPION



YOUR CONTACT INFORMATION GOES HERE

ADHD AND CHIROPRACTIC

HEALTH ISSUES #10

Attention-deficit/hyperactivity disorder (ADHD) is a developmental neurobehavioral disorder characterized by symptoms of inattentiveness, hyperactivity, and impulsiveness. It affects up to 10% of children and 5% of adults worldwide. The number of children being diagnosed with ADHD has increased 53 percent in the past decade. Emerging research is demonstrating that spinal nerve dysfunction may play either a primary cause or significant contributing factor in ADHD.

"Up to 50% of children with ADHD exhibit motor abnormalities including altered balance and postural abnormalities."

GAIT POSTURE
Bulwark, P. Gabriel, K. Frings, M. Postural and gait performance in children with attention deficit/hyperactivity disorder, 2009 Feb 23(2): 248-54

Humans are born with a reflex called "symmetric tonic neck reflex" (STNR). This reflex helps us to operate our upper and lower body independently. This can be achieved through crawling for at least six months. It has been found that at least 75 percent of those diagnosed with ADHD/learning disorders had immature symmetric tonic neck reflex contributing to their condition.

"Disruption of neurological signaling results in ADHD-like behavioral manifestations."

NEUROSCI
Hernandez, S. Anomalous electrical manifestations of spinal cord signaling results in ADHD-like behavioral manifestations, 2016, Dec. 2016, 7

The reduction of the upper cervical vertebral subluxation was concomitant with improved quality of life, sleep and visual evoked responses in a patient with Attention Deficit Disorder.

Dorothy M. Improvement in Quality of Life in Patient with ADHD
Journal Upper Cervical Ortho. Feb. August 27, 2017:7-8

"Our findings found improvement in ADHD symptoms as well as behavioral, social, or emotional difficulties, and (they) provide supporting evidence on the effectiveness of chiropractic in the treatment of children with ADHD."

Evans, D.V. 2010 May-Jun; 63(1): 82. The obstructive case of ADHD with attention-deficit/hyperactivity disorder: a retrospective case series.



**785 Grand Avenue, Suite 100
Carlsbad, CA 92008
760.214.9157
www.foundationcarlsbad.com**

CHIROPRACTIC AND BLOOD PRESSURE

HEALTH ISSUES #1

Elevated blood pressure is one of the leading risk factors for global mortality. A growing body of research is demonstrating the relationship between spinal structure and systemic issues including blood pressure. Chiropractic adjustments are not a treatment for blood pressure issues. Their purpose is to restore and maintain proper spinal structure and alignment to allow the body to function properly and to optimize its inherent healing capability.

"High correlation has been observed between disorders of the cervical spine and hypertension."

BIOMED RESEARCH INTERNATIONAL
Zeng, H. H. Advances in Chiropractic
Chiropractic World, November 2011

Researchers have found a direct neural connection between the neck muscles and a part of the brainstem called the medulla oblongata, which plays a crucial role in regulating heart rate and blood pressure.

THE JOURNAL OF NEUROSCIENCE
Giovanna, A. Gaddoni, A. Amis, S. Cervical dysfunction is associated with neck disability, 2015-512792

A comprehensive study revealed a significant association between loss of cervical lordosis and decreased vertebral artery function. The decreases included diameter, flow volume and peak systolic velocity.

MEDICAL SCIENCE MONITOR
Sara N. Nash, D. Stephen M. Coatsworth, D. Daniel Spivey II
Temporomandibular Joint Dysfunction, 19, 2019

"Cervical spondylosis may be one of the causes of secondary hypertension."

MEICINE
Giovanna, A. Gaddoni, A. Amis, S. Cervical dysfunction is associated with neck disability, 2015-512792

75 patients showed statistically significant changes in blood pressure following Chiropractic adjustments.

JRNL. MANIPULATIVE PHYSIOL. THER.
Hessley, B. Effect of chiropractic adjustments on grip strength in elite judo athletes, 2012, Jun 3, 30-41

Anatomical abnormalities of the cervical spine at the level of the atlas vertebra are associated with relative ischemia of the brainstem circulation and increased blood pressure. Manual correction of this misalignment resulted in reduced arterial pressure.

JOURNAL OF HUMAN HYPERTENSION
Hessley, B. Effect of chiropractic adjustments on grip strength in elite judo athletes, 2012, Jun 3, 30-41



YOUR NAME & CONTACT INFO GOES HERE

THE CRANIOCERVICAL JUNCTION

in Systemic Health and Neurodegenerative Conditions

HEALTH ISSUES #12

The CranioCervical Junction is a complex region where the skull and upper cervical spine connect. It is composed of 2 joints—the atlantooccipital and the atlantoaxial joints—and houses the spinal cord, multiple cranial nerves, and many important blood and lymphatic vessels that supply the head and neck. Thus, the CCJ must protect its contents while simultaneously allowing significant head and neck mobility. Neural tissue is flexible and susceptible to compression. Cranio-cervical junction abnormalities can cause or contribute to cervical spinal cord or brain stem compression. A landmark paper published in the Neurology Research International revealed astonishing relationships between biomechanical abnormalities of this region and systemic health issues and conditions.

"The CranioCervical Junction (CCJ) is a potential choke point for craniospinal hydrodynamics and may play a causative or contributory role in the pathogenesis and progression of neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, MS, and ALS, as well as many other neurological conditions."

A growing body of scientific research is demonstrating the relationship between spinal function and systemic health.

Anatomical abnormalities of the cervical spine at the level of the atlas vertebra are associated with relative ischemia of the brainstem circulation and increased blood pressure. Manual correction of this misalignment has been associated with reduced arterial pressure.

"With few exceptions, hormone deficiency or hormone excess is the result of pathological manifestations in the neural pathways that supply the hypothalamus."

PRINCIPLES OF INTERNAL MEDICINE.

JOURNAL OF HUMAN HYPERTENSION
Hessley, B. Effect of chiropractic adjustments on grip strength in elite judo athletes, 2012, Jun 3, 30-41

ELITE SPINE AND HEALTH CENTER YOUR CLINIC INFO GOES HERE

MUSICIANS AND CHIROPRACTIC

HEALTH ISSUES #10

There is a high rate of injury to musicians that can impact performance and in many cases can be career ending. Inconsistent posture, overuse, stress, insufficient rest, excessive force and incorrect ergonomic technique all contribute to chronic pain and injuries that spill the end to careers. The use of regular Chiropractic care has proven to be evaluated to musicians at all levels of performance.

60% of musicians will experience an injury that affects their ability to play their instrument, and these performance-related injuries are even common among the school aged talented students.

FRONTIERS IN PSYCHOLOGY
Hernandez, S. Anomalous electrical manifestations of spinal cord signaling results in ADHD-like behavioral manifestations, 2016, Dec. 2016, 7

Spinal dysfunction leads to neurological stress, which weakens your health and makes your body more prone to break down. Chiropractors can often correct these areas of spinal dysfunction, so that your body begins to function better.


ALLEGRO MUSIC JOURNAL
VOL. 01, #1, JAN 2021

Musicians who are serious about their craft should consider getting checked by a Chiropractor.

INTERNATIONAL MUSICIAN JOURNAL
Giovanna, A. Gaddoni, A. Amis, S. Cervical dysfunction is associated with neck disability, 2015-512792

"I need regular Chiropractic adjustments to balance my body. It definitely assists my concentration, endurance and performance quality."

HANS-PETER DROBISCH, World Renowned Flutist



**785 Grand Avenue, Suite 100
Carlsbad, CA 92008
760.214.9157
www.foundationcarlsbad.com**

THE ROLE OF FEVER IN HEALING AND REPAIR

HEALTH ISSUES #10

Fever is a systematic response to infection. It is generally agreed that moderate elevation of body temperature improves the body's disease fighting ability. A fever caused by infection actually helps the body destroy its microbial invaders.

HUMAN ANATOMY & PHYSIOLOGY

A fever can help your child's body fight off infection. Many illness-causing microbes do best at the body's normal temperature.

A fever raises the temperature beyond which certain microbes need to reproduce. A fever also helps your child's immune system into high gear, speeding the production of beneficial white blood cells.

A growing body of research shows that letting a fever run its course may reduce the length and severity of such illnesses as colds and flu.

AMERICAN ACADEMY OF PEDIATRICS

One of the reasons that you feel bad when you have the flu, is that higher levels of interferon cause you to have certain symptoms, including fever and chills. This is evidence that your body is working hard to get rid of the virus.

CELLULAR & MOLECULAR LIFE SCIENCES
Mishra, R. Gupta, S. Roberts, S. A novel antiviral mechanism of interferon-α in the inhibition of hepatitis B virus replication, 2019, 10:200

"Fever is the body's normal response to infection. It's a natural defense mechanism. A high temperature triggers the body's production of infection fighting white blood cells and inhibits the growth of viruses and bacteria. If you lower the fever, you may be affecting the body's ability to respond to that infection."

PEDIATRICS
Sullivan, E. Fever and Antigenemia in the Children, Pediatrics, Nov 2011, 128:1175-81

Scientists have found more evidence that elevated body temperature helps certain types of immune cells to "kill" better, and that the immune system might be temporarily enhanced functionally when our temperatures rise with fever.

JOURNAL OF LEUKOCYTE BIOLOGY
Miao, A. Zhang, L. Kojanacki, L. Chen, S. CD4+ T cells use effector cells to reduce the viral load in HIV-1 infection, 2019, 10:200

AMERICAN ACADEMY OF PEDIATRICS

A study published in the Journal of Allergy and Clinical Immunology found that children who ran a fever during their first year were less likely to develop allergies later in childhood than children who did not experience fevers.

L. Gault, Williams The relationship between early fever and allergic sensitization in age 6-7 year. Journal of Allergy and Clinical Immunology 111(2):281-286 (2004)



YOUR CLINIC INFO GOES HERE

FOOTBALL AND CHIROPRACTIC

HEALTH ISSUES #12

Football players of all ages, from youths to professionals utilize Chiropractic because it is a drug-free way to better health and performance. Chiropractic adjustments help ensure that the body functions as efficiently as possible, which can maximize healing, ensure optimal recovery from all types of injuries as well as help in the prevention of injuries.

31 percent of NFL teams use Chiropractors in an official capacity as part of their staff and a full 77 percent of the trainers have referred players to a Chiropractor.

"Performing at my best is important to me and should be to everyone. Getting adjusted regularly, along with practicing other good health habits, are all part of my goals, to win in life and on the field."

AARON RODGERS
TWO-TIME LEAGUE MVP SUPER BOWL XLV MVP

"As long as I see the Chiropractor, I feel like I am one step ahead of the game."

TOM BRADY
5X Super Bowl Champion

"I definitely try to get on a basis where I use Chiropractic at least twice a week. I would definitely say it helps me to perform at a higher level."

EMMITT SMITH, NFL Hall of Fame

"Do I believe in Chiropractic? Let me answer it this way, I've sent over 30 of my teammates, including All-Pro quarterback Joe Montana to the Chiropractor. Because of Chiropractic, I have never missed a game in 8 years. What does that tell you about my feelings about Chiropractic?"

ROGER CRAIG, NFL 80's All Decade Team



**2880 Middle St
Little Canada, MN 55117
(651) 484-6783
www.truechiro.com**

TEXT NECK AND YOUR HEALTH

HEALTH ISSUES #12

Text-Neck is a global epidemic and people all over the world, especially the younger generations are suffering the effects.

MSNBC
News, 2014, September, 2014

The neck of the human body is a bio-mechanical marvel. It possesses a wide range of mobility in nearly every direction and serves as a conduit for the major blood vessels to the brain and is the primary pathway of the central nervous system.

This region is one of the most important areas of the body and its structural integrity and function are absolutely critical to overall health.

"A typical high school student may spend an extra 5,000 hours in poor posture per year due to cell phones and mobile devices."

KENNETH K. HANSRAJ, M.D.
"Assessment of Cervical In the Spinal Upper Cervical by Posture and Position of the Head" Health and Spine Surgery, Nov. 2014, Vol 3.

When you bend your head forward at 15 degrees, its weight effectively increases from 10 pounds to 27 pounds. At 45 degrees, your head exerts 49 pounds of force, and at 60 degrees, 80 pounds—this is like carrying an eight-year-old child around on your neck for several hours a day.

Research has demonstrated a strong association between forward head posture and decreased respiratory strength and function.

Kapriel E. Vardanian, E. BBS, E.
"Temporally dynamic and chronic neck pain patients." Chiropractic 2009, 49:297, 731-18.



YOUR CLINIC INFO GOES HERE

PRICE LIST

100	Chiropractic Digital Posters	\$199
200	Chiropractic Digital Posters	\$299
300	Chiropractic Digital Posters	\$349
100	Athletes, Fitness and Chiropractic Digital Posters	\$199
100	Pregnancy and Pediatrics: A Chiropractic Approach Digital Posters	\$199
100	Under Pressure (Blood Pressure, Hearth Health) Digital Posters	\$199
100	Spinal Heath in the workplace Digital Posters	\$199
50	Golf Performance and Chiropractic Digital Posters	\$100
750	Digital Posters Bundled Set (all of the above)	\$499
20	Health Research E-Reports	\$299
1	Patient Education, Marketing and Communication Package	\$399
DELUXE BUNDLE: 750 Posters + 20 E-Reports + Marketing Package		\$599
All prices include customization of materials ~ interest fee split payment plans available		

HEALTH ISSUES AVAILABLE VIA MONTHLY SUBSCRIPTION
OR BUNDLED PACKAGE FEE. ASK FOR DETAILS

Everything in the deluxe bundle package is a
one-time fee which includes customization
and annual updates.

Questions or to place your order call
1.843.743.8351

Or email to info@keithwassung.com

THE EDUCATION AND TRAINING OF A DOCTOR OF CHIROPRACTIC

Educational requirements for doctors of chiropractic are among the most stringent of any of the health care professions. The typical applicant at a chiropractic college has already acquired nearly four years of pre-medical undergraduate college education, including courses in biology, inorganic and organic chemistry, physics, psychology and related lab work. Once accepted into an accredited chiropractic college, the requirements become even more demanding — four to five academic years of professional study are the standard. Because of the hands-on nature of chiropractic, and the intricate adjusting techniques, a significant portion of time is spent in clinical training.

Doctors of chiropractic — who are licensed to practice in all 50 states, the District of Columbia, and in many nations around the world — undergo a rigorous education in the healing sciences, similar to that of medical doctors. In some areas, such as anatomy, physiology, rehabilitation, nutrition and public health, they receive more intensive education than their MD counterparts.

Like other primary health care doctors, chiropractic students spend a significant portion of their curriculum studying clinical subjects related to evaluating and caring for patients. Typically, as part of their professional training, they must complete a minimum of a one-year clinical-based program dealing with actual patient care. In total, the curriculum includes a minimum of 4,200 hours of classroom, laboratory and clinical experience. The course of study is approved by an accrediting agency which is fully recognized by the U.S. Department of Education. This has been the case for more than three decades.

Records from insurance and court cases have constantly shown that chiropractic is the safest portal of entry health care available to the public today. Although no healthcare procedures are 100% safe, chiropractic stands on its record of safety and effectiveness unmatched in healthcare.

The chiropractic adjustment is a safe, efficient procedure which is performed nearly one million times every working day in the United States.

There is a singular lack of actuarial data that would justify concluding that chiropractic care is in any way harmful or dangerous. Chiropractic care is non-invasive, therefore, the body's response to chiropractic care is far more predictable than its reactions to drug treatments or surgical procedures. Of the nearly one million adjustments given every day in this country, complications are exceedingly rare.

COMPLIMENTS OF



CHIROPRACTIC CONNECTIONS

Dr. Josh Pulver
267 Creekside Dr #100
Petoskey, MI 49770
231.348.7540

www.chiroconnections.com