

## **Subluxations, Homeostasis & Hormonal Imbalance**

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The word "homeostasis" describes the body's ability to maintain relatively stable internal conditions even though the outside world is constantly changing. Homeostasis indicates a dynamic state of equilibrium or a balance in which internal conditions change and vary but always within relatively narrow limits. Communication within the body is essential for homeostasis and is accomplished chiefly by the nervous and endocrine systems.

**HOMEOSTASIS:** (ho`me-o-sta'sis) a tendency to stability in the normal body state (internal environment) of the organism. It is achieved by a system of control mechanisms activated by negative feedback. 1

Many of the most vital functions of the human body are influenced by the endocrine system, which consists of glands that secrete hormones, or chemical messengers into the bloodstream. The hypothalamus, located in the brain, acts like a radar, receiving incoming information from the nervous system. It then uses this information to manufacture hormones that either target specific part of the body, or to target other glands to produce specific hormones for homeostatic regulation.

The endocrine system consists of the hypothalamus, pituitary gland, pineal gland, the thyroid gland, the parathyroid gland the pancreas, the adrenal glands, the ovaries and the testes. All of the organs of the endocrine system are glands, but not all glands are part of the endocrine system. Other organs that produce hormones, but are not part of the endocrine system include the placenta in the pregnant female, glands in the gastro-intestinal tract, structures in the heart and blood vessels, and structures in the kidneys.

Hormones are the body's internal chemical messengers. They carry the information that controls the function of almost all of the body's cells and tissues. Most hormones are themselves are controlled by a mechanism called feedback, which is similar to a thermostat in a central heating system. When a gland is working harder than the body needs it to, the

hormone system switches off; when the body needs the gland to speed up, the nervous system turns on the switch again.

Hormones reach every part of the body, and the membrane of every cell has receptors for one or more hormones that stimulate or retard a specific body function. The hypothalamus, located at the base of the brain, acts as the mastermind that coordinates hormone production, producing regulatory or releasing hormones; these travel a short distance through special blood vessels and nerve endings to the pituitary gland, which is often referred to as the "master gland". Attached to the hypothalamus by a short stalk, the pea-sized pituitary gland hangs from the base of the brain and is composed of two parts, an anterior and a posterior lobe. Some of its hormones act indirectly by stimulating target glands to release other hormones. Others have a direct effect on the function of target glands or tissues.

Hormones can work in astonishingly small concentrations. On the high end, the ratio of hormone molecules to blood molecules is 1 to 5 billion, and on the low end side the ratio is 1 to 5 zillion, ( 1 in 5,000,000,000,000,000) This would be the equivalent of putting one drop of liquid in a swimming pool that was filled with the water of 660 railroad boxcars. A train with 660 boxcars would be six miles in length.

## **HORMONAL IMBALANCE & HEALTH PROBLEMS**

When the body is in a state of homeostasis, the precise amount of hormones are released into the bloodstream and things proceed smoothly. But when the control system malfunctions- either too much or too little of a particular hormone is secreted, or when an organ or a tissue does not respond efficiently- the results can be severe and can result in numerous health conditions including, but not limited to, thyroid disorders, diabetes, osteoporosis, and depression. Thyroid disorders are either classified as "hypo-thyroid" meaning too little thyroid activity or "hyper-thyroid" meaning too much thyroid activity. At any given time in the U.S. more than twenty million people suffer from a thyroid disorder, More than ten million women have a low grade thyroid imbalance and nearly eight million people with the imbalance remain un-diagnosed. More than 500,000 new cases of thyroid imbalance occur each year.

15.7 Million Americans have diabetes and it is estimated that 5 million of them are undiagnosed. Each year there are 789,000 new cases of diabetes. diabetes is the 7th leading

cause of death in the U.S. and total direct and indirect costs of diabetes in the U.S is over 100 billion dollars. 2

The endocrine pancreas is regulated by hormonal activity controlled by the hypothalamus. The dysfunction of the regulation of islet hormone secretion as well as its mechanisms and the pathophysiology of the islet dysfunction is primarily a breakdown in the neuroendocrine control. 3

Osteoporosis is a major health threat for 28 million Americans, 80% of which are women. Annual treatment costs for osteoporosis exceeds 15 billion dollars. One out of every two women and one in eight men will have an osteoporosis-related fracture at some time in their life.

"Interference with bone remodeling-that is, the imbalance between bone formation and bone reabsorption-underlies nearly every disease that influences the skeleton. Most such disorders are caused by imbalances in hormones and related chemicals in the blood." 4

"The key to stopping osteoporosis lies in a balanced body chemistry and a delicate balance of minerals in order to maintain a calcium homeostasis in the blood" 5

Depression is on pace to be the world's second most disabling disease ( after heart disease) by the year 2000; already the World Health Organization ranks it first among women and fourth overall. In the United States, depression afflicts 18 million people at any given time, one in five over the course of a lifetime and costs over 40 billion dollars a year in lost work time and health care. 6

The term "depression" often carries a stigmatism with it that denotes a certain sort of sadness, but research has revealed that the majority of the cases of clinical depression are due to imbalances in hormonal levels and are related to a dysfunction in neurological signaling and chemistry.

"Today, neuroscientists know that in many cases, psychopathology ( ie depression) arises because of dysfunctions in particular brain structures or particular brain chemicals" 7

"In fact, it takes an incredibly strong person to bear the burden of the depression condition. The name, "hypothalmo-pituitary-adrenal-axis dysfunction" an appropriate jargony medical description that is accurate but would never make it into the headlines" 8

## **TRADITIONAL APPROACH TO HORMONAL HEALTH**

The medical approach to endocrine disorders and hormonal imbalances is to use a variety of drugs in an attempt to artificially compensate for a hormone deficiency. In the case of an overactive gland, radiation and surgical procedures are used. Drugs and related synthetic chemicals may be necessary and appropriate in certain situations, but they do little to correct the cause of the disorder or imbalance since they can do nothing to correct the original cause of the problem, which is often in the system of the control mechanism. Drugs often create an even greater chemical imbalance, which can result in harsh side effects that are much worse than the original condition.

"Too many medical remedies get in the way of the body's ability to heal itself" 9

The General Accounting Office, an investigative branch of Congress, released a report in the 1990's stating that more than one-half of the new drugs developed and approved by the FDA, had severe or fatal side effects that were not found or not reported until years after the drug had been in widespread use. The GAO reviewed all drugs ( 198 in all) released from 1985-1990 and discovered that 102 of them had side effects serious enough to warrant either withdraw from the market or major re-labeling.<sup>10</sup>

## **CENTRAL NERVOUS SYSTEM**

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. It is the "brain" of the brain and is the single most intricate and amazing part of the brain. The hypothalamus controls homeostasis in the brain by way of feedback. The combined neurological and endocrine function of the hypothalamus allows it to play a prominent role in the regulation of numerous body functions.

The main function of the hypothalamus is homeostasis, or maintaining the body's status quo. Factors such as blood pressure, body temperature, fluid and electrolyte balance, and body weight are held to a precise value called the set point. Although the set point can migrate from day to day it is remarkably fixed.

To achieve this task, the hypothalamus must receive inputs about the state of the body, and must be able to initiate compensatory changes if anything drifts out of range. The Hypothalamus constantly receives millions of nerve messages from complex areas of the rest of the Nervous system including the nucleus of the solitary tract, reticular formation, the

retina, the circumventricular organs, the limbic and olfactory systems, sense organs, neocortex, osmoreceptors, as well as numerous touch receptors.

"The hypothalamus receives signals from all possible sources in the nervous system, thus, the hypothalamus is a collecting center for information concerning the internal well being of the body, and in turn, much of this information is used to control secretions of the globally important pituitary gland." 11

This input into the hypothalamus allows it to regulate and integrate heart rate, blood pressure, respiratory rate, digestion, emotional responses, behavior, sex drive, body and skin temperature, appetite, thirst and body fluids, sleep cycles, metabolism, and much more. The effectiveness of the hypothalamus is directly proportional to the functional capability of the nervous system to send and receive nerve messages and especially to maintain the integrity of those nerve messages as they travel along the spinal cord

### **SPINAL CORD & NERVE INTERFERENCE**

The spinal cord is both a cable and a switchboard. As a cable, it connects the brain with the rest of the nerves in body. As a switchboard, it coordinates muscle movements, reflexes and other activities under its direct control. The spinal cord is actually a direct extension of the brain, composed of the same kind of nerve cells, nerve fibers and supporting glial cells as those of the brain. It is also protected by the same three coverings (the meninges) and the same fluid (cerebral spinal) that house and protect the brain

The spinal column is composed of 24 movable vertebrae. The spine is straight when looked at from the front or the rear. When viewed from the side, the spine forms a series of geometric curves or arcs. When the spine is in its optimum structural position, the nervous system is protected, and the integrity of nerve impulses traveling to and from the brain is at an optimum level. This is when the control system of the body can best achieve homeostasis.

Because the vertebra are moveable, they are also susceptible to certain stresses and forces which can cause them to lose their proper position. This leads to stress in the vital nerve system. This condition is known as a "vertebral subluxation". Subluxations interfere with the normal flow of nerve impulses and can cause either an increase or decrease of nerve activity. Other references in the scientific literature which describe subluxations are: spinal lesions, nerve dysfunction, dysponesis, nerve impingement, neuritis.

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 region may produce a variety of symptoms, including diabetes, insipidous, obesity, sexual dystrophy, somnolence, and loss of temperature control" 12 Correlative Neuroanatomy & Functional Neurology

"Studies have shown that more than fifty percent of hyperthyroid patients have damage to the pathways in their nervous system" 13 Journal of Neurology, Neurosurgery & Psychiatry

"Research at the A.T. Still Institute showed that spinal lesions resulted in pathological changes in the blood, urine, and tissue fluids. Spinal lesions of the atlas and axis ( C1& C2) were associated with abnormal function of the pituitary which resulted in abnormal hormone secretions. 14 Still Research Institute.

With few exceptions, hormone deficiency or hormone excess is the result of pathologic manifestations in the neural pathways that supply the hypothalamus. 15 Harrison's Principles of Internal Medicine

## **CAUSES OF VERTEBRAL SUBLUXATIONS**

Vertebral subluxations can be caused by any force or stress to which the body is unable to adapt. Examples of this would include automobile accidents, work related injuries repetitive motions events, sports and recreational pursuits, poor posture, poor bending, lifting and sleeping habits, and various types of chemical and emotional stress.

The body can adapt to the stress as long as the nervous and endocrine systems are capable of responding normally. All types of stress can not only cause vertebral subluxations, but it creates a viscous cycle in which the body can no longer adapt to stress as a result of a compromised nervous system.

## **CHIROPRACTIC**

The purpose of Chiropractic is the detection and correction of vertebral subluxations which is accomplished by physically adjusting the spine. This restores the nervous system pathways to an optimum level of function, which maximizes homeostasis and the body's inherent healing ability. Chiropractic is not a treatment for disease, nor do Doctors of Chiropractic claim to

cure disease. Chiropractors simply remove nerve interference from the spine, and with a restored nervous system, the body is able to restore and maintain its own optimum level of balance.

Research studies as well as tens of thousands of case studies done in Chiropractic clinics have demonstrated that the correction of vertebral subluxations improves neurological function and health and allows the body to recover from a wide variety of health conditions, including many endocrine disorders.

#### Human Growth Hormone Overused in Children

In July 2003 the U.S. Food and Drug Administration (FDA) approved Humatrope, a bioengineered form of human growth hormone (HGH) made by Eli Lilly pharmaceutical company, for kids who are short but otherwise healthy.

Supporters say this will allow children of short stature access to the hormone, which could add inches to their final adult height. However, those who are opposed fear that the hormone will be overused to treat what is essentially a cosmetic issue and there are significant risks involved. They also fear that there will be significant off-label use of the drug, as athletes and aging individuals often seek HGH for its supposed muscle building and anti-aging effects.

References available on-line at: [www.icpa4kids.com](http://www.icpa4kids.com)

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