

Original paper

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Restoring the balance: an introduction to Equilibrium theory

By John Goetz, author of 'To Health Naturally'

SIGNIFICANT advances in science often come through theories, for example Pasteur's germ theory, Darwin's theory of evolution and Einstein's theory of relativity. In these and many other theories, an underlying general principle explains complicated observations and phenomena. By finding the general principle, a theory organises and simplifies knowledge in a particular field. It transforms thinking – the old familiar world gives way to new understanding.

This paper presents a groundbreaking new theory of human health, *Equilibrium Theory*, which condenses the large body of medical knowledge on human physiology into an easy-to-understand, easy-to-use general principle. The theory conforms to medical science, and goes beyond that science to decipher baffling physiological evidence. Two significant applications come from the theory.

First, *Equilibrium Theory* identifies human nutritional requirements in a fundamental new way – a direct correlation between physiology and nutrition. The resulting nutritional programme provides simple and flexible complete nutrition that adjusts easily for lifestyle and current needs.

Second, *Equilibrium Theory* solves the longstanding mystery of chronic diseases, revealing the mechanisms behind and solutions to osteoarthritis, rheumatoid arthritis, multiple sclerosis (MS), lupus, fibromyalgia, chronic fatigue syndrome and many more.

Except for genetic and environmental factors, physiology and nutrition control health.

Physiology governs internal functions and activities, especially how glands and organs work. Nutrition provides the raw materials, such as vitamins, minerals and trace elements, for glands and organs to synthesise and secrete hormones and other end products necessary for life. Targeted nutrition for each function in the body builds vigorous health and long life, and eliminates diseases and their root causes.

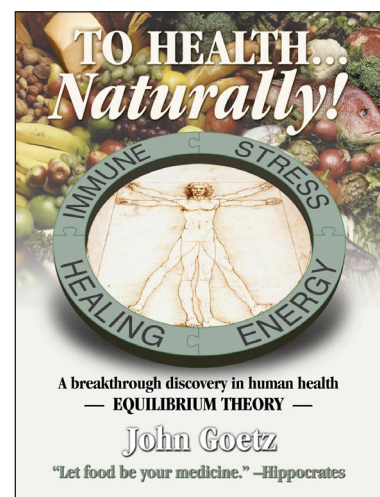
The sciences of physiology and nutrition currently exist in isolation. *Equilibrium Theory* marries these two fundamental health providers with precise correlations, thereby enabling one to truly live Hippocrates' words: "Let food be your medicine." To achieve this coupling, the theory further defines and characterises the medical term, "homeostasis": stability and equilibrium in a physiological system through feedback.

Homeostasis is the internal dialogue of harmony going on in all living things. The great philosophers throughout history teach harmony too – in one's life, mind and relations with others. *Equilibrium Theory* extends that work in progress to the delicate, complicated physical self. And physical harmony, working with and not against one's own internal homeostasis, advances mind-body-spirit wellness.

The physical world confounds and thwarts the human mind at every turn, but it often hides a solution in plain sight. Not so many centuries ago, our ancestors looked up at the sun and full moon in wonder and saw only round sacred objects. A new perspective would change the world forever. During the Renaissance, a corps of discoverers saw spheres and the shadow of a sphere on the moon, and realised that there was something profound about the earth and its place in the solar system. Somewhere health hides a similar secret and simple key... perhaps as follows.

The delicate, complicated physical body lives a hard reality indeed. Eat, drink and breathe, or there's no thinking, acting, living output. Food is the primary input, and food consists of four distinct compositional types: carbohydrates, proteins, fats and fibre. Why four, and does that say something profound about the human body, how it developed and how it handles the challenges of life?

The general principle of *Equilibrium Theory* is the following new understanding of the inner workings of homeostasis. Within the human body and its network of glands and organs, four interconnected functions – Energy, Healing, Stress and



Immune – work in healthy equilibrium, or internal balance. The body’s response to all internal needs and external forces lies within and must adhere to this four-part harmony. Moreover, these tasks are the template for all nutrition. Thus with the perfect symmetry of nature, each food type nourishes one of the four functions: carbohydrates for energy, proteins for healing, fats for stress (cells burn fat instead of glucose, a true definition of stress!), and fibre for immune. The same direct relationship and necessary equilibrium apply to all other nutrients and their nutritional categories: B vitamins, fatty acids, trace metals (minerals), and herbs.

Homeostasis is the basis of natural therapeutics, including nutrition and acupuncture, and therefore an important key in finding natural solutions to health and disease. Using *Equilibrium Theory*, on-target nutrition can build health and eliminate dysfunctions and disease in crucial energy, healing, stress and immune systems. Such complete nutrition is life-giving, restorative and forgiving.

Like other theories, *Equilibrium Theory* involves subjective insight and discovery, and will require objective testing and confirmation. However, two objective findings give immediate credence and weight to this theory:

1. The central concept of a four-part harmony in Energy, Healing, Stress and Immune functions explains all observed human physiology including zinc-copper antagonism and the puzzling results of beta-carotene, cardiovascular and cancer studies; and
2. *Equilibrium Theory* correctly predicts the pathologies of chronic diseases. For example, it reveals why arthritis divides into two main types, and then describes the pathology of both osteoarthritis and rheumatoid arthritis precisely, i.e. osteoarthritis is a degenerative disease in the protein structures of cartilage, while rheumatoid arthritis is an autoimmune disease in the connective tissue of cartilage.

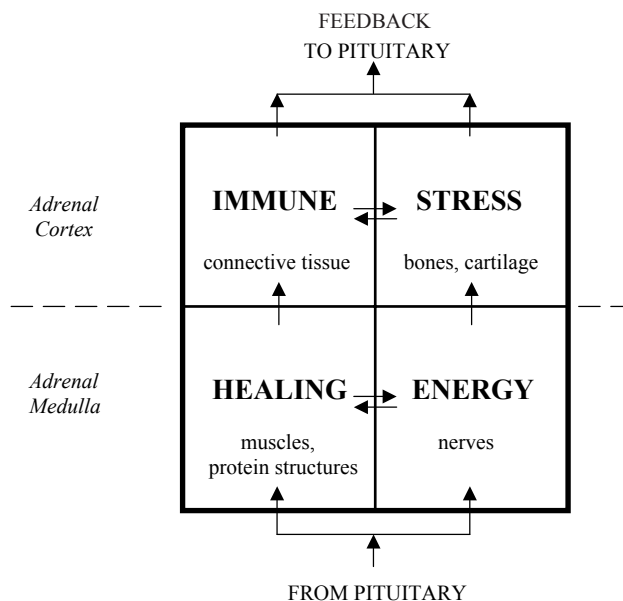
Introduction to equilibrium physiology

The endocrine system largely controls physiological activity in the human body. The major endocrine glands are the pituitary, adrenal, thyroid, pancreas and liver. Other glands act in supporting roles: hypothalamus, pineal gland, sex glands (ovaries or testes), parathyroid gland and the lymphatic system, including thymus and spleen. While the pituitary gland regulates this complicated endocrine system, the physiology of the adrenal gland dictates the action – how the body responds to *all* internal needs and external forces. For this reason, the adrenal gland is critical to homeostasis and health.

Functions

Functions are tasks that are programmed into the human body to meet all the challenges of our environment. The adrenal gland runs the most important task programme, with four primary functions – Energy for today’s activities, Healing of the body, whether normal breakdown and repair or from injury, Stress, i.e. handling stress, and Immune response and system – and many lesser or subfunctions within these primary ones.

The illustratoin above is a construct, a simple model to explain and predict how the complex adrenal gland works. It does not depict physical structure; rather it is a schematic of the primary functions, dependent body systems and normal functional flow



or communication within the endocrine system. It reveals a four-part harmony in the adrenal tasks of Energy, Healing, Stress and Immune. This is the key discovery and central concept of Equilibrium Theory. The adrenal gland undertakes four tasks, often at the same time: energy czar, healing supervisor, stress manager and minister of defence. The gland has two identifiable physical parts: medulla and cortex; and four primary functions: Energy, Healing, Stress and Immune with “dependent body systems” listed under each. The arrows indicate normal functional flow; equilibrium arrows denote balance between functions within the medulla and cortex.

Medulla

The adrenal medulla is divided into two functional (not physical) parts, Energy and Healing. These parts have to be in balance or equilibrium with each other. Neither primary function dominates over the other. Basically, Energy and Healing share medulla resources in a give-and-take relationship, going back and forth depending on current body needs. Energy comes principally from the medulla hormone epinephrine (adrenaline). Nerves are interconnected with and dependent upon Energy/epinephrine, thus the term “dependent body system.” If something goes wrong with Energy functioning, something will go wrong with the nervous system. The other half of medulla equilibrium is Healing (primary adrenal function) and muscles and protein structures in the body (its dependent body system). All muscle diseases lie in this Healing province.

It is common medical knowledge that the adrenal medulla receives pituitary instructions via the central nervous system and neurotransmitters. Reacting to these, it manufactures and secretes two major hormones, epinephrine and norepinephrine. Epinephrine directs fight or flight response, increasing heart rate, cardiac output, blood pressure and carbohydrate metabolism. Norepinephrine, both hormone and neurotransmitter, has like but limited hormonal action, constricting blood vessels and dilating bronchial tubes. Meanwhile, Healing activities largely take place outside of the adrenal gland. Bear in mind that the

illustration does not clarify chemistry or where that chemistry takes place; it models functions and how they interact.

Cortex

The adrenal cortex is similarly divided into two functional parts, Stress and Immune, which have to be in equilibrium. Neither primary function has an absolute right to cortex resources. Stress and Immune are coupled in a dance for life, as are medulla Energy and Healing. Stress, or better said, “the ability to handle stress,” comes from the cortex hormone cortisol. The often-prescribed steroid cortisone is an imperfect copy of cortisol, and an imperfect attempt to restore proper function here. The dependent body system of Stress is bones and cartilage. Stress diseases manifest in bone and cartilage, typically arthritis. Immune system is the other primary function in the back and forth cortex equilibrium tango. Connective tissue is its dependent body system.

Once again, it is common medical knowledge that the cortex

Within the human body and its network of glands and organs, four interconnected functions – Energy, Healing, Stress and Immune – work in healthy equilibrium, or internal balance. The body’s response to all internal needs and external forces lies within and must adhere to this four-part harmony.

manufactures and secretes two steroidal hormones: cortisol (known as a glucocorticoid) for fighting stress and for inflammatory and immune system suppression, and aldosterone (mineralocorticoid) to control sodium/potassium and water balance in the body. The cortex also releases some male hormones. In both sexes, the cortex is directly involved in sexual functioning and connected to the ovaries or testes. Immune system activities occur mostly outside of the adrenal gland and within bone marrow, thymus, spleen and the lymphatic system, there producing B-lymphocytes, T-lymphocytes and other white blood cells.

Dependent body systems

Dependent body systems are systems seemingly in no way connected to the adrenal gland, yet they require proper adrenal functioning and health to maintain their own well being. How can this be? How can these distant, large systems – nerves; muscles and protein structures; bones and cartilage; and connective tissue be brought down to dysfunction and disease by the tiny adrenal gland?

The best explanation is an example, the common worldwide scenario of a lifetime of too much stress wearing out the Primary Stress Function and causing permanent imbalance between Immune and Stress. Immune system dominates, leading to autoimmune diseases, that is the body attacks itself. Responding all the time but with no foreign invaders to fight, the Immune function attacks injured tissue instead. In this case, the autoimmune complaint is arthritis, an attack on bone

cartilage, which in the illustration is the dependent system of a worn-out, exhausted Stress function. In essence, the illustration predicts where the attack will occur and what the underlying cause is; therefore it becomes a powerful tool in understanding and solving this and many other chronic diseases.

Rheumatoid arthritis involves Stress exhaustion and resulting imbalance of the Immune/Stress equilibrium (instead of a normal, healthy Immune/Stress equilibrium). Osteoarthritis adds a dominating Healing exhaustion. Constant inflammation from the attack and mounting cartilage damage produce painful symptoms.

Treating symptoms is endless folly and in the end counterproductive. Cure comes only by correcting the adrenal exhaustion and imbalance, which is the underlying cause. Restore cortex equilibrium and the attack on cartilage will instantly stop. Then, the body can begin healing.

Stress-arthritis is the archetype for chronic diseases. In the same way, other primary functions and subfunctions give rise to distant disease. Energy function disorders can lead to serious nerve diseases such as multiple sclerosis (MS) and amyotrophic lateral sclerosis (ALS, Lou Gehrig’s disease). Healing problems can manifest in muscles with fibromyalgia and other muscle diseases. For Immune, lupus (systemic lupus erythematosus) is an autoimmune assault on connective tissue.

Like arthritis, lupus is autoimmune in character, but the initiating cause is too much Immune with hyperactivity in one or more lymphocyte types, not an exhausted or hypoactive Stress function.

At the other extreme, an exhausted hypoactive Immune function wreaks primary – NOT dependent body system – havoc with susceptibility to infections, colds and flu, candidiasis (yeast infection), shingles (herpes zoster), Legionnaire’s bacteria, cancers, etc.

Where any dependent body system attack comes depends on where the adrenal gland first goes haywire. Sometimes, though, “where” is more complicated than the dependent systems depicted in the illustration. Interactions occur, and other dependent systems exist and are tied to adrenal functions in more complex ways. For example, skin depends upon total medulla health, Energy and Healing together. Heart and red blood cells rely mostly on Stress mechanisms, while white blood cells obviously require well-maintained Immune mechanisms.

Where exactly chronic disease will strike also depends on specific underlying adrenal causes, including subfunction variations and multiple dysfunctions of first cause (the setup for disease) and second cause (precipitating event, often trauma). All these contribute to unique final outcomes and explain the myriad of disease possibilities. The modus operandi of attack on a dependent system is almost always hyperactive Immune (autoimmune) or hypoactive Healing (degenerative) in character, or both.

To cite a complex disease process, osteoarthritis actually develops from two separate dysfunctions. First-cause Stress exhaustion induces arthritis, an autoimmune attack on cartilage. Subsequently, a dominating second-cause Healing exhaustion modifies the disease to a degenerative attack on the protein structures (Healing’s dependent system) of cartilage. And, in fact, this is the exact pathology of osteoarthritis reported in the scientific medical literature.

Osteoarthritis develops from two separate dysfunctions. The triggering cause, Stress exhaustion, induces an autoimmune attack on cartilage. Subsequently, a dominating second-cause Healing exhaustion modifies the disease to a degenerative attack on the protein structures (Healing's dependent system) of cartilage.

Normal Functioning

The arrows in the illustration indicate the course or flow of functioning or tasking. The adrenal gland receives instructions via neurotransmitters and hormones from the pituitary. General instructions come first to the adrenal medulla, which in turn can stimulate the cortex. This then sends feedback to the pituitary to further regulate adrenal response to exactly meet body needs.

This 'feedback loop' is one of thousands in the human body; many involve pituitary oversight. Feedback produces stability and equilibrium in a physiological system, and is technically known as homeostasis or homeostatic mechanism. Loss of homeostasis leads directly to poor health and disease.

The usual work of the adrenal gland, such as handling the daily stress (cortex) of life must first involve energy and epinephrine (medulla). In like manner, the immune system must be brought to action by healing, and in fact healing and immune activities together share the inflammation mechanism. And so a natural division exists in adrenal functioning, not between medulla and cortex, but between the two functional sides of medulla and cortex. Energy and Stress functions go together to form one "action plan" (from one set of general instructions), and likewise for Healing and Immune.

Adrenal equilibriums – Healing/Energy and Immune/Stress – operate at cross-purposes to and yet blend with the two actions plans of Energy/Stress and Healing/Immune. Good adrenal health requires both equilibriums, which move back or forth as needed, and the action plans. Complicated? A little. Adrenal functioning is woven like tapestry, producing a beautiful design in form and function.

The pituitary can at any time override general instructions (the two action plans) and adrenal equilibriums, and write specific instructions to achieve any task, for example: "Immune Function: Urgent, fight the flu." Or, pituitary ACTH (adrenocorticotrophic hormone) orders the Stress hormone cortisol into action. Direct feedback to the pituitary on specific instructions guarantees a correct, measured response. Again, although the pituitary regulates and controls, it is adrenal gland physiology that dictates the action. In effect, it is easier to think of the adrenal gland,

say, adjusting Healing/Energy to fix a skinned knee.

Adrenal equilibrium can be temporarily out of balance. When recovering from surgery, the Healing function dominates over Energy function and one feels like staying in bed – no energy! When fighting the flu, Immune function dominates over Stress function, and the stress of one's job is just too much that day. If this person decides to go to work anyway, the adrenal gland will try to adjust to these two opposites, probably with poor results for both. Not surprisingly, the adrenal gland and body have great difficulty achieving opposite functions in the extreme.

Worse than opposites, however, is one constant effort. For instance, workaholicism – constant job stress, bringing it home, taking it to bed – can leave an individual susceptible to minor immune lapses and in time to serious disease.

The cornerstone of good health is TEMPORARILY out of balance. When temporarily becomes CONSTANTLY, homeostasis and health get out of sync and fall apart. Adrenal equilibriums plead for equilibrium in one's life. Balance, equanimity, harmony – the spiritual teachings of the great philosophers may be rooted in our physical nature, the internal physiology of homeostasis and a four-part harmony in Energy, Healing, Stress and Immune functions.

If healthy, an individual's immune response to the everyday environment is not a problem. It involves killing bacteria viruses, fungi and other pathogens that attempt to invade the body all the time, and with no apparent effect on Stress ability, the opposite function. However, as the difficulty increases – cold, flu, pneumonia – Primary Stress Function loses importance as the endocrine system marshals all its forces to fight the invader. The Immune/Stress equilibrium swings more and more resources to the immune system and attempting any stressful activity at this time proves to be counterproductive to disastrous. One's approach to health should always be ... don't get in the way of the body's natural responses.

Overview

A paradigm shift is occurring in medicine from a disease-based approach to a prevention- and healing-based approach. Naturopathy is at the forefront of this revolution in health care. The basic principles of naturopathic medicine are:

Do the patient no harm; Nature can heal; the human body has the power to heal within it; Treat causes, not effects; Prevention is the best cure; Treat the whole person. Mind-body-spirit wellness.

Equilibrium Theory adds one more vital principle to this holistic model: Internal balance. The body's response to all internal needs and external forces lies within and must adhere to a four-part harmony in Energy, Healing, Stress and Immune functions. This key unlocks the inner world of health.

With this new and detailed understanding of the internal mechanisms of homeostasis, we can optimize health using targeted nutrition for each gland and function in the body. Nutrition supplies the raw materials, and physiology turns out the end products of life's amazing chemistry.

A complete discussion of *Equilibrium Theory* including on-target nutrition for Energy, Healing, Stress and Immune functions and subfunctions is given in the author's book, *To Health... Naturally!* For more information, go to the Internet site: www.tohealthnaturally.com