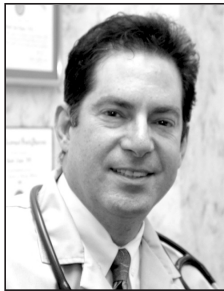


Thyroid-Adrenal Fatigue Syndrome — Or is Your 'Zip Zapped'!

by David Zeiger, D.O.

You used to be an active person full of life and energy. For over 6 months now you can hardly drag yourself out of bed in the morning, a cup or two or three of coffee or cola is needed to just make it out of the door. You haven't slept well in months and now your back and joints hurt whenever you try any strenuous physical activity. Your allergies have gotten worse. You seem to come down with more frequent colds. You're moody, find concentration harder and are often more forgetful. Your interest in friends family, even intimacy has significantly waned. Stress is a significant part of your life. You have a constant urgency that things need to be done or your life will fall apart.



Thousands of men, women, and even some adolescents have experienced all these types of symptoms at one time or another and this is what is referred to as **"ACQUIRED THYROID ADRENAL FATIGUE SYNDROME."** Medical science has acknowledged genetic, environmental and immunological factors that predispose to diseases of the thyroid and adrenal glands. Recent evidence has been supporting that these major energy regulating glands of the body can become dysfunctional through stress, heavy metal toxicity, viral infection and even nutritional deficiency. Furthermore, these master glands are key players in the proper functioning of the nervous/immune system, reparative and reproductive functions of the body.

Yugo™—Can't Go

Your thyroid and adrenal gland are like the gas pedal and the battery, respectively, of a car.

If your battery is dead, then no matter how much you step on the gas pedal, you just won't move. Conversely, if your gas pedal is stuck then you won't be able to get fuel to the engine which then needs to be ignited by a spark from the battery—simple combustion engine mechanics!

As a car needs fuel, ie: gasoline to power the car. The human body also requires fuel in the form of protein, carbohydrate, and fats—the good omega 3 fatty acids—the kind you have been hearing about in the Zone Diet™. Your body burns these fuels and makes that energy in the form of adenosine triphosphate (ATP)—available to your body for repair, defense, maintenance and growth.

Adrenal Gland Power House

The adrenal gland is a small organ that sits like a baseball cap atop each kidney. They have two layers—the inner layer is the medulla which secretes epinephrine and norepinephrine in response to stimulation by the sympathetic nervous system. The first phase of the "flight or fight" response you have to stress or a threat to your life. The outer most layer is the cortex, which secretes hormones, can not only direct the production of energy your cells make, but also makes about 30 different steroid hormones like cortisol, estrogen, progesterone, testosterone, DHEA, and aldosterone (controls sodium, potassium and water balance). This occurs in both men and women.

Cortisol contributes to control of sugar metabolism. In times of stress and low blood

sugar it will stimulate the liver to produce glucose. It affects fat and protein metabolism and prevents inflammation. These effects are beneficial only for about 10 days. If cortisol levels remain elevated longer than 10 days, then marked imbalances in your glucose metabolism, immune system, other hormones like thyroid, sex steroid like estrogen, testosterone, and fat metabolism are impaired.

Stress from disease, injury, emotional trauma and overwork signals the **brain's hypothalamus to release corticotrophin-releasing factor (CRF)** that triggers the **pituitary**, a small gland the size of a peanut at the base of the brain, **(to release adrenocorticotrophic hormone (ACTH)** which in turn signals the **adrenal cortex to secrete cortisol**. These hormones are part of an information circuit, or **hypothalamic pituitary adrenal axis (HPA)**, that regulates each others production to release these hormones when needed.

Normal functioning of the adrenal gland in an unstressed individual shows a circadian or biological rhythm with the highest level around 7-8 a.m., then slowly declining toward night. This allows for optimum functioning of energy, hormone, nervous and immune functions of the body.

Thyroid Gland-Metabolic Enhancer

The function of the thyroid gland is to take iodine, found in many foods, and convert it into thyroid hormones: thyroxine (T4) and triiodothyronine (T3). Thyroid cells are the only cells in the body which can absorb iodine. These cells combine iodine and the amino acid **tyrosine** to make T3 and T4. T3 and T4 are then released into the blood stream and are transported throughout the body where they control metabolism (conversion of oxygen and calories to energy). Every cell in the body depends upon thyroid hormones for regulation of their metabolism. The normal thyroid gland produces about 80% T4 and about 20% T3, however, T3 possesses about four times the hormone "strength" as T4.

The thyroid, like the adrenal gland, is also under the control of the pituitary gland. When the level of thyroid hormones (T3 & T4) drops too low, the pituitary gland produces **Thyroid Stimulating Hormone (TSH)**, which stimulates the thyroid gland to produce more hormones. Under the influence of TSH, the thyroid will manufacture and secrete T3 and T4 thereby raising their blood levels. The pituitary senses this and responds by decreasing its TSH production. One can imagine the thyroid gland as a furnace and the pituitary gland as the thermostat. Thyroid hormones are like heat. When the heat gets back to the thermostat, it turns the thermostat off. As the room cools (the thyroid hormone levels drop), the thermostat turns back on (TSH increases) and the furnace produces more heat (thyroid hormones).

As the hypothalamus regulates pituitary control of the adrenal, it also regulates the thyroid by producing **TSH Releasing Hormone (TRH)**, which tells the pituitary gland to stimulate the thyroid gland. One might imagine the hypothalamus as the person who regulates the thermostat since it tells the pituitary gland at what level the thyroid should be set at. Both thyroid and adrenal gland function are interdependent on one another. For example, prolonged high concentrations of cortisol will inhibit an enzyme that the body uses to make adequate amounts of T3 from T4.

Has your get **UP AND GO...got up** and went?

Do you feel more fatigued after exercise than energized?

Has there been more **STRESS** in your life lately?

Is your sleep generally unrestful?

You may be suffering from

Thyroid-Adrenal Fatigue Syndrome!



healthworksSM

Integrative Medical Clinic

312-255-9444

1165 N Clark St. Suite 608 Chicago, IL 60610

www.healthworksimc.com • zeigerd@healthworksimc.com

Dr. David Zeiger blends the best of conventional and natural alternative medicine for a solution that works.

Strengthen your foundation of health and find relief.

Body Self Repair and Maintenance

Back to the car analogy. If your car could repair its own doors when they got dented, or replace the headlights if broken, then you'd get the idea how these two glands work together to keep you healthy and fight disease. If stress is prolonged, and rest and proper nutrition is not utilized, then eventually the adrenal gland fatigues. The information feedback loops fail and ones own "biological bank account" dries up—so to say. But before the adrenal gland begins to slow down, it allows it to be "overdrawn" for a while. Cortisol is the major stress response hormone after epinephrine. It has the most power to marshall metabolism and effect the production of many other hormones in your body. Elevated cortisol levels, over 10 days due to prolonged stress, will decrease the production of thyroid hormone, damage cellular mitochondria (the cell's energy producing units), convert testosterone to estrogen, make more fat cells, increase inflammation in the tissues of the body and create an imbalance in your immune defense system.

Salivary Hormone Testing

Over the past decade, salivary hormone testing, rather than blood or urine, has become available to more accurately and easily assess thyroid and adrenal hormone levels. Furthermore, this information can be used to infer how well the gland information network: hypothalamus—pituitary-thyroid axis is working!

The elegance of using salivary hormone testing is many. It is non invasive (no painful needle sticks), samples can be collected anytime, anywhere, sample collection does not induce cortisol/stress (as with blood tests), and is more economical.

Treatment Options

Depending on your particular health problems, physical exam, other laboratory testing and the results of salivary hormone testing, I would design an individual treatment plan.

In some cases natural hormone replacement therapy and proper nutritional support is indicated. In others, use of combination homeopathic, herbal and nutritional therapies can be utilized to re-regulate such neurohormonal immune system imbalance.

At healthWorks-Integrative Medical Clinic, I have over a decade of experience using a thorough state of the art integrative medical approach to these problems.

To life and good health,

David J. Zeiger, D.O.

Dr. David Zeiger is board certified Family Physician in private practice. He specializes in Integrative Medicine, treating chronic/acute illness, ie: IBS, Allergies, CFIDS/Fibromyalgia, Woman's health Issues, Diabetes, Hypertension, Thyroid-Adrenal Syndrome, and Neuromuscular Pain Management; using Acupuncture, Osteopathic Medicine, Functional Nutritional Medicine, Homeopathy/Homotoxicology, Neural Therapy, and Ligament Regeneration Therapy.

Contact: David J. Zeiger, D.O., healthWorks-Integrative Medical Clinic, 1030 N. Clark St. Suite 301, Chicago, IL 60610; 312-255-9444/9446 FX, E-mail; zeigerd@healthWorks imc.com.

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