**Adrenal Insufficiency**

**What Is Adrenal Insufficiency?**

Adrenal insufficiency refers to the inability of the adrenal glands to produce a normal quantity of hormones. It may also be defined as a reduced ability to cope with stress. It is one of the most common imbalances in our population today.

Adrenal insufficiency is not to be confused with Addison's disease. Addison's disease is more or less a total adrenal gland shutdown.

Adrenal insufficiency is also different from adrenal burnout. Adrenal burnout is a more severe mineral imbalance which affects the energy-producing mechanisms of the body. In burnout, the body is basically unable to cope with stress. The symptoms of burnout are similar to those of adrenal insufficiency, but are more extreme and require longer to correct.

**About The Adrenal Glands**

The adrenal glands are often referred to as the stress glands or the fight-or-flight glands. The fight-or-flight response is mediated by the adrenal medulla. The fight-or-flight response is the way our bodies respond to stress.

The stress response prepares the body to run or fight. Blood pressure, pulse rate and blood sugar levels increase. Blood is shunted away from the digestive organs and toward the muscles and brain. The pupils dilate and the speed of reflexes increases.

The stress response is caused by the action of the adrenal hormones. Symptoms of adrenal insufficiency can be directly traced to a reduced secretion of these hormones when under stress. Adrenal hormones are divided into two groups, those produced in the adrenal medulla and those produced in the adrenal cortex.

Hormones produced in the medulla are epinephrine and norepinephrine. These are powerful, fast-acting neurotransmitters which initiate the fight-flight response. They are also sometimes called adrenalin and noradrenalin. The hormones produced by the adrenal cortex are aldosterone, cortisol and cortisone. The cortical hormones have a slower, more prolonged action.

Aldosterone is called a mineralocorticoid hormone. Its primary function is to increase sodium retention by the kidneys. Aldosterone levels roughly correlate with sodium levels on a hair mineral analysis. Aldosterone is a pro-inflammatory hormone required to initiate a healing reaction.

Cortisol and cortisone are referred to as glucocorticoid hormones because they cause conversion of amino acids and glycogen to glucose. The corticosteroids are anti-inflammatory and provide a mild sense of euphoria. Cortisol levels roughly correspond to the potassium level on a hair mineral analysis.

A balance between aldosterone and cortisol is necessary to maintain one's health. This balance is associated with the ratio of sodium to potassium on a hair analysis. If aldosterone secretion is high ratio-wise to cortisol, inflammatory conditions such as gastritis, colitis, arthritis, bursitis and sinusitis prevail. This often corresponds with a high ratio of sodium to potassium on a hair analysis.

If cortisol secretion is high ratio-wise to aldosterone, diseases such as diabetes, immune-deficiency syndromes, infection, arteriosclerosis, atherosclerosis, cataracts, glaucoma, coronary heart disease or cardiomyopathy may prevail. This corresponds to a low ratio of sodium to potassium on a hair analysis. Dr. Eck determined the ideal sodium/potassium ratio is about 2.5:1 in an unwashed sample of head hair.

**Symptoms Of Adrenal Insufficiency**

Adrenal insufficiency is commonly associated with the following symptoms, which can vary from mild to extreme.

* fatigue
* decreased tolerance to cold - poor circulation
* low blood sugar level (hypoglycemia)
* low blood pressure
* allergies
* apathy or depression
* low stamina
* low self-esteem due to low energy output
* joint aches and pains
* low levels of gastric hydrochloric acid
* tendency to constipation
* muscle weakness
* need for excessive amounts of sleep
* fears, due to low energy and secondary copper toxicity
* lowered resistance to infection
* subnormal body temperature

**Causes Of Adrenal Insufficiency**

Causes of adrenal insufficiency may include:

* **Genetics.** Genetics can affect the adrenal glands. Also, genetic defects can be a cause of physical and emotional stress that can weaken the adrenal glands.
* **Congenital Weakness.** Congenital means present at birth. However, it is not related to the genes. It is caused by nutritional deficiencies of the mother that are passed on to the child. It may also be caused by toxic metals or other toxins passed on from the mother's body that interfere with the functioning of the adrenal glands. This is a very common cause of adrenal insufficiency today.
* **Nutritional Imbalances.** These can begin early in childhood with inadequate diets, diet inappropriate for one's oxidation type, poor food quality, or digestive problems that prevent proper nutrition. Even natural foods today often are low in vital minerals and do not provide adequate nutrition. Pesticides, heavy metals, bacteria, solvents and other organic chemicals can all act as stressors that weaken the adrenal glands.
* **Other possible stressors** include pressures from family, school, work, social pressure, financial stress and others. People who force their bodies to "run or fight" all the time by any means will tend to exhaust their adrenal glands. The 'fight-or-flight' tendency must be balanced by adequate rest and sleep.
* **Stimulants.** Most stimulants whip the adrenal glands. This may cause one to feel better for a while, but the long-term effect is to weaken the adrenal glands. Stimulants include sugar, alcohol, caffeine, theobromine in chocolate, amphetamines and other medical drugs, cocaine, heroin and others. Other types of stimulants can include loud noise, loud music, light stimulation such as strobe lights in night clubs, excessive exercise and excessive vibration. Anger, fear and worry can actually act as stimulants as well. Note that stimulant use can be a result, as well as a cause of adrenal insufficiency. A person who is tired, due to weak adrenal glands, may be attracted to stimulants such as drugs, loud music, or anger to feel better temporarily.
* **Infections, Energetic and Structural Imbalances.** These are all internal stressors that, if left uncorrected, can eventually weaken the adrenal glands by forcing the body to mount a chronic stress response to these irritants.
* **Toxic Substances.** These may include chlorine in water, polluted air, mercury from dental fillings, household chemicals, food additives, pesticide exposure, dusts, molds and pollens. These often cause allergies that can be controlled with cortisone, the adrenal hormone. Medical therapy, particularly cortisone or prednisone therapy, weakens the adrenal glands by creating hormone imbalances.
* **Mental Attitude.** One's attitude makes a great difference in determining the stress response. Worry, fear, anger and resentment tend to increase the stress response. An attitude of gratitude, and compassion for oneself and others tends to diminish the stress response. Understanding the impermanence of the body and the world we live in, emotional detachment and detachment from all form, and a single-minded desire to extend love can greatly diminish the stress response.

**Detection Of Adrenal Insufficiency**

It is often possible to assess adrenal insufficiency based upon symptoms. Anyone who is tired, allergic, intolerant to cold, with symptoms of low blood sugar, weakness and low blood pressure, most likely has some degree of adrenal insufficiency.

Blood tests may be useful to detect serious adrenal insufficiency. A serum sodium level less than 130 mEq/L and a serum potassium greater than 5 mEq/L may be noted. A low glucose levels and elevated blood urea nitrogen (BUN) may also be present. Other factors, however, can affect the serum readings.

A urine test for adrenal function involves measuring the 17-ketosteroids, a breakdown product of the adrenal hormones. Measuring the ketosteroids alone is not considered accurate. To perform the test properly, an injection of ACTH (adreno-cortical stimulating hormone) is given first. Then urine is collected and measured for 17-hydroxycorticosteroids (17-OHCS) and 17-ketogenic steroids (17-KGS).

Measurement of 17-OHCS and 17-KGS without the ACTH loading is not useful and may be misleading. The loading dose of ACTH measures how well the adrenal glands respond to the pituitary. Many people with adrenal insufficiency are relatively without symptoms if the adrenal glands are not called upon to respond.

**Hair Analysis**

The only medical treatment for adrenal insufficiency is cortisone replacement therapy. Unfortunately, this therapy is accompanied by serious side effects. While a few cases may require cortisone if an adrenal shutdown is extreme, most cases of adrenal insufficiency can be improved by a scientific nutrition and lifestyle program. In our experience, the best approach involves:

The hair must not be washed at the laboratory. This is because washing at the laboratory erratically removes sodium and potassium, critical minerals for adrenal assessment.

**According to the research of Dr. Paul Eck, the following are indicators of adrenal insufficiency on a hair analysis:**

* Sodium level less than 25 mg%
* Potassium level less than 10 mg%
* Sodium/potassium ratio less than 2.5:1
* Sodium/magnesium ratio less than 4.17:1
* Calcium/potassium ratio greater than 10:1

The more of these indicators that are present, the greater the evidence of adrenal insufficiency. Also, the more extreme the values, the more suggestive of adrenal insufficiency problems.

**Correction Of Adrenal Insufficiency**

An individual in burnout has a very difficult time maintaining normal blood sugar levels. The reason is that the normal energy pathway for production of glucose from carbohydrates and fats is not operating well. Hence one desires to consume sugar directly to provide fuel for the cells.

* Nutritional assessment through tissue mineral analysis.
* A wholesome diet of natural foods appropriate for one's oxidation type and digestive ability.
* Nutritional supplements to reduce stress and enhance adrenal activity. The adrenal glands especially require vitamins A, C, E, pantothenic acid, manganese and zinc. Adrenal glandular substance is also recommended to provide adrenal nucleoprotein and other specific nutritional factors to help rebuild the adrenal glands.
* Supplements to enhance overall metabolism, eliminate toxic metals and enhance absorption and digestion of food.
* Lifestyle modification to reduce harmful stressors.
* Techniques to improve one's ability to cope with stress. This can include biofeedback, meditation, relaxation techniques, etc.
* Attitude adjustment, including letting go of resentment, blame, attachments and fears that stimulate but also can paralyze the adrenal glands.

Blood sugar regulation depends upon many factors including optimal adrenal activity, the secretion of insulin and cortisone, optimal liver function, as well as adequate digestion and assimilation of carbohydrates and fats.

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