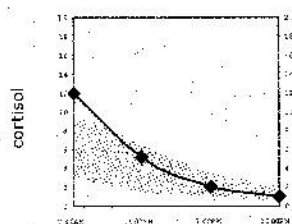


ADRENAL FUNCTION INFORMATION FOR PATIENTS

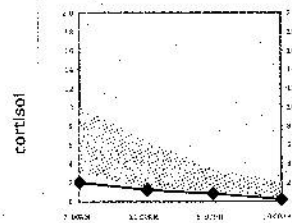


Adrenal Function Graphs



Graph 1

Single Elevated Cortisol



Graph 2

Low Cortisol Throughout Day

- The green shaded area in the above graphs indicates the normal range for cortisol levels throughout the day. Saliva samples are indicated by the dark blue diamonds and are taken first thing in the morning, before lunch, before supper and before bed.
- Graph 1 shows an elevated morning cortisol. A single elevated cortisol point may indicate the Alarm Stage, and be a response to a specific single stressor, or it could be a marker of the beginning of the Resistance Stage.
- Graph 2 shows markedly low cortisol levels throughout the day. This is a classic profile for Adrenal Exhaustion. These people typically have trouble getting up in the morning, feel exhausted, depressed and 'burned out'.

About Stress

Stress is unavoidable, which is why we have physiologic systems in place to help us cope. Under stress, the adrenal glands produce the hormone cortisol plus the catecholamine hormones adrenaline and noradrenaline. Exposure to stress can result in what is known as the General Adaptation Syndrome, which has three major stages:

Alarm Stage

In the Alarm Stage, bursts of the hormones cortisol, adrenaline and noradrenaline are released in response to a stressor, resulting in the traditional "fight, flight or freeze" responses.

Resistance Stage

In the Resistance Stage, the body uses high cortisol levels to free up stored energy that helps the body physically resist the stressor. However, a prolonged Resistance Stage may increase the risk of developing stress related diseases. If cortisol levels remain elevated, symptoms may include: feeling tired but wired, difficulty sleeping, and anxiety. Excess cortisol also interferes with the action of other hormones (progesterone, testosterone and thyroid), creating more hormone imbalance and more symptoms.

Exhaustion Stage

At this stage, the adrenal glands are either depleted from producing too much cortisol or are reacting to the detrimental effects of high cortisol, and thus reduce cortisol production significantly. Symptoms of low cortisol may include fatigue (particularly morning fatigue), increased susceptibility to infection, decreased recovery from exercise, allergies, low blood sugar, burned out feeling, depression and low sex drive. Other hormones can be affected, particularly aldosterone and DHEA. Low aldosterone may result in reduced sodium and potassium levels. Symptoms of low DHEA are not well defined, although low DHEA often occurs with chronic illness.



Since cortisol is the major stress hormone produced by the adrenal glands, measurement of cortisol levels is an excellent means of assessing adrenal gland function.

Why Test Saliva Cortisol

- To accurately assess adrenal function, it is necessary to measure four cortisol levels throughout the day: within half an hour of waking, before lunch, before supper, and before bed.
- Saliva collection is painless and easy to do at home. Blood collection requires a trip to the laboratory, which makes measuring multiple cortisol levels throughout the day very impractical.
- Saliva measures hormone that *actually* gets into tissue, because hormones pass through the tissue of the saliva gland before getting into saliva. Blood measures hormones that *might eventually* get to tissue.
- The stress of a needle puncture for blood collection tends to raise cortisol levels. Saliva collection is generally not considered stressful and therefore does not raise cortisol levels.
- Saliva testing of cortisol is widely accepted in the research community and is rapidly becoming the preferred method for measuring cortisol.



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AN ACCREDITED MEDICAL LABORATORY



Why Test ?

Good health has a lot to do with maintaining balance: the right balance of work and play, the right balance of nutrients in the diet, and the right balance of hormones.

Hormone imbalance may be a result of illness, or may produce symptoms and biochemical changes that eventually lead to illness.

Rocky Mountain Analytical is committed to offering laboratory tests that identify hormone imbalances - so they can be corrected before disease develops!

About Rocky Mountain Analytical

Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. We started in 2002 with saliva hormone testing, and have been growing steadily ever since.

In 2008, we added hair element analysis to our test menu. Exposure to toxic elements can create a wide variety of health problems.

Ask your health care provider for more information about this or any other Rocky Mountain Analytical test.

We're on the web!
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Restoring Adrenal Function

Caring for the adrenal glands means applying body, mind and spirit to the task. Unfortunately, there is no one 'magic pill' to improve adrenal function, so it is important to work with a health care practitioner who can develop an adrenal care program for you.

Complementary medicine practitioners are often the best choice for treating adrenal dysfunction. Conventionally trained health professionals are generally most familiar with the extremes of adrenal function: Addison's disease (no cortisol produced) or Cushing's Syndrome (excessive cortisol released). Patients who are not at either extreme often have difficulty getting their symptoms taken seriously.

Cortisol Deficiency: allergies, fatigue, muscle aches and pains, feeling cold, morning sluggishness, low sex drive, feel unable to cope, feel 'burned out', impaired memory, symptoms of poor thyroid function

Cortisol Excess: irritability, feel 'tired but wired', weight gain around waist, sleep disturbances, bone loss, high blood pressure, loss of muscle mass, insulin resistance, low sex drive, loss of scalp hair

Low morning cortisol is often associated with dehydration and low sodium (salt) levels. This is because the adrenals also produce the hormone aldosterone, which helps regulate salt/water balance. Therefore, your health care provider may recommend you use sea salt and drink plenty of water.

Lifestyle

- Get lots of sleep. At least 8 hours of sleep are needed to properly rest the adrenal glands. It is important not to watch television or review work or other stressful materials in bed as these activities may raise cortisol levels.
- Reduce consumption of refined carbohydrates like white bread and high-sugar foods. Refined carbohydrates cause insulin to be released. Insulin release triggers the release of more cortisol, which causes further stress on the adrenal glands. So, stick to complex carbohydrates like vegetables and whole grains.
- Eliminate caffeine. Caffeine stimulates the release of adrenaline and norepinephrine, adrenal hormones that increase the stress response.
- Reduce stress as much as possible. Take time during the day to relax with meditation, yoga, or some other quiet activity.

Supplements

- Supplements are vitally important in supporting the adrenal glands. Specific vitamins and minerals are needed to make adrenal hormones. Some examples include: the B vitamins, vitamin C, magnesium and various trace minerals.
- There are a variety of herbs and herbal formulae used in treatment of adrenal issues. Many function as adaptogens: natural substances that assist the body in adapting to stress. Adaptogenic herbs help lower or raise cortisol levels depending on the body's needs at that time. Some examples include: rhodiola, ashwaganda, schisandra and ginseng.
- Other supplements like phosphatidylserine, MSM, and tyrosine may also be useful in supporting adrenal function.
- Purified adrenal extracts from animal sources, which contain natural substances that help support the function of the adrenal glands, may also be recommended.

These are just a few strategies that may be used to assist adrenal function. Your health care provider can devise a protocol for you to get you started on the path to wellness.

Information is for educational purposes only. It should not be considered medical advice. Treatment decisions should be made with the knowledge or consent of your health care provider.