Adrenal Fatigue

About The Adrenal Glands

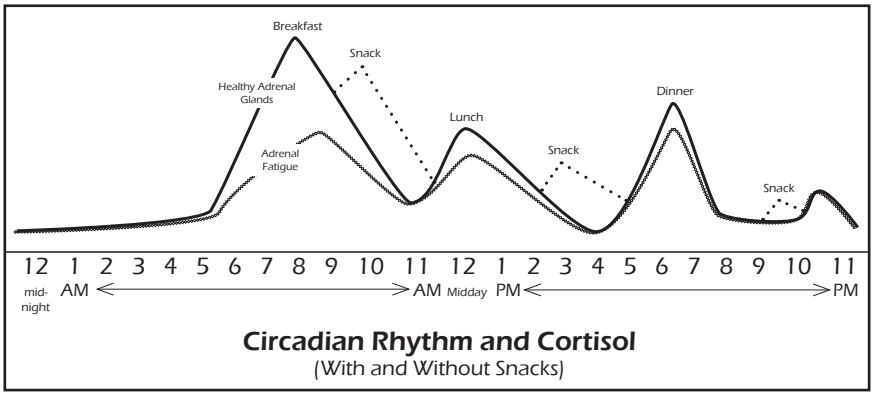
The adrenal glands are small, triangular glands located on top of both kidneys. They are made of two parts which perform separate functions in the body. The outer region is called the ***adrenal cortex*** and it secretes hormones called corticosteroids (e.g., cortisol and corticosterone), mineralocorticoids (e.g., aldosterone), and androgens (e.g., DHEAs and androstenedione). The corticosteroids control the body's use of fats, proteins and carbohydrates, and influence the body's inflammatory reaction and immune system. Aldosterone is responsible for regulating the level of sodium excreted in the urine which is important for blood volume and blood pressure regulation. The androgens excreted by the adrenal glands play a role in manufacturing other sex hormone such as testosterone, progesterone and oestrogen.

The ***adrenal medulla*** is the inner part of the adrenal gland and it secretes the hormones adrenaline and noradrenaline. Through their effect on multiple systems in the body these hormones help a person to cope with physical and emotional stress.

The Importance of Cortisol

Cortisol is often referred to as the 'stress hormone' and has a number of roles in the body by influencing blood sugar levels, inflammation, immunity, energy production, blood pressure and cardiovascular responses. Cortisol also has a significant impact on our mood and behaviour.

The secretion of cortisol varies throughout the day. In people with healthy adrenal glands, coritsol levels follow a diurnal pattern with the highest levels secreted at approximately 8.00am and the lowest between midnight and 4.00am. It is the rising cortisol levels at 8.00am that helps us wake up in the morning. The diurnal pattern of cortisol secretion is demonstrated in the figure below.



Circadian Rhythm and Cortisol
(With and Without Snacks)

When the body is under stress, the adrenal glands increase the secretion of cortisol (and adrenaline). Short-term, this hormone can help aid in survival through its impact in increasing energy reserves, heightening memory function and lowering pain sensitivity. Long-term elevation of cortisol, however, can have detrimental effects. Prolonged elevations in the bloodstream have been associated with impaired cognitive performance, suppressed thyroid function, decreased levels of serotonin, blood sugar imbalances and insulin resistance, decreased bone density, decreased muscle tissue, high blood pressure, lowered immunity, and increased abdominal fat. The end result may not only be poor physical health but worsened mental health including anxiety and depression.

How Do the Adrenals Get Fatigued?

Because the adrenal glands are responsible for cortisol production, chronic, excessive output of cortisol can eventually 'exhaust' our adrenal glands and lead to a condition referred to as 'adrenal fatigue.' Our adrenals are not given the time to rest and recuperate and therefore no longer function at optimal levels. The end result is lowered cortisol output by the adrenals. This effect is shown in the figure below.

Symptoms of Adrenal Fatigue

Adrenal fatigue can produce a large array of symptoms and some of them are listed below:

- ✓ Difficulty getting up in the morning
- ✓ Continuing fatigue not relieved by sleep
- ✓ Craving for salt or salty foods
- ✓ Lethargy (lack of energy)
- ✓ Increased effort to do every day tasks
- ✓ Decreased sex drive
- ✓ Decreased ability to handle stress
- ✓ Increased time to recover from illness, injury or trauma
- ✓ Light-headedness when standing up quickly
- ✓ Mild depression
- ✓ Moodiness
- ✓ Lack of enjoyment or happiness with life

- ✓ Increased premenstrual symptoms
- ✓ Worsening of symptoms if meals are skipped or inadequate
- ✓ Less focused/ fuzzy thoughts
- ✓ Decreased memory
- ✓ Feeling tired until 10am, and an afternoon low between 3-4pm. Tendency to get a second wind at night.
- ✓ Sensitivity to exhaust fumes, smoke or chemicals
- ✓ Dark circles under eyes
- ✓ Allergies
- ✓ Carbohydrate cravings e.g., breads, sugar, sweets
- ✓ Lack of thirst
- ✓ Difficulty exercising
- ✓ Heartburn/indigestion
- ✓ Heart disturbances (e.g., palpitations, racing heart)
- ✓ Low blood pressure
- ✓ Headaches/migraines
- ✓ Sensitivity to light and/or noise

Assessment of Adrenal Fatigue

Formal testing for adrenal fatigue is completed though saliva testing for the hormone cortisol and, to a lesser extent, DHEAs. Saliva tests for testosterone, oestrogen, and progesterone can also be an indicator for adrenal health.

Saliva samples for cortisol are typically taken a number of times throughout the day (i.e., morning, lunch and evening) and can be completed in the convenience of the home. Unfortunately, this test is largely unrecognised by mainstream doctors although is well accepted in nutritional and naturopathic medicine.

Treatment for Adrenal Fatigue

Effective treatment for adrenal fatigue is multi-faceted, involving nutritional, herbal, psychological and lifestyle changes and, occasionally, medication. Some of the crucial aspects of treatment include:

- ✓ ***Sleep.*** Intervention aimed at improving sleep patterns is necessary for people suffering from sleep problems.
- ✓ ***Caffeine consumption.*** Excessive caffeine from coffee and other caffeine-containing products can have detrimental effects on the adrenal glands. Avoidance or minimisation of caffeine is therefore recommended.
- ✓ ***Stress management.*** High stress places strain on the adrenal glands. A range of stress management techniques can help modify stress levels.
- ✓ ***Exercise.*** Participating in frequent, low-intensity exercise is important for healing the adrenals. Excessive, intense exercise, however, can be counterproductive.
- ✓ ***Diet.*** Eating natural, high quality foods are a crucial component of intervention. Eating refined, sugary and highly-processed foods places strain on the adrenals and does not provide the necessary nutrients required by the adrenals. A wholesome breakfast is also a must!
- ✓ ***Regular meals.*** Eating every three to four hours is important for the adrenals as this stabilises blood sugar levels. This means that the adrenal glands will not have to do extra work to increase blood sugar levels.
- ✓ ***Nutritional & herbal supplementation.*** Some important vitamins and minerals for adrenal health include vitamin C, B-vitamins, vitamin E, magnesium, and zinc. Important herbs include rhodiola, withania, ginseng, and licorice.
- ✓ ***Medication.*** When the adrenals are significantly fatigued some people may require prescription medication to help boost cortisol levels. Such medications include hydrocortisone and DHEA.

Recommended Reading:

Adrenal Fatigue: The 21st Century Stress Syndrome (2001). By James L. Wilson.

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