

## PROVIDER RESOURCE SERIES

# Adrenal Function Profile

## Salivary Testing of Cortisol

### Epidemiology

Individuals today are exposed to frenetic unbalanced lifestyles. Commonly, individuals experience continuous stress from emotional stressors (e.g. marital, financial, occupational) to physical stressors (e.g. sleep deprivation, caffeine, pain, extreme exercise) without any rejuvenation. Individuals with chronic stressors will commonly produce elevated adrenal hormones presenting with multiple symptoms from anxiety to infertility. While many individuals are able to cope, the adrenal glands may, over time, start to have an impaired response to stressors. Also known as "adrenal burnout" or "adrenal fatigue," adrenal insufficiency may present with a constellation of symptoms from chronic fatigue to allergies. Given the pace of modern, multi-tasking life, everyone is at risk, but the problem is more prevalent among professionals (e.g. medical professionals, police officers, executives and teachers).

### Physiology

The adrenal cortex and specifically the zona fasciculata, secretes approximately 15-20mg of cortisol per day. Under the direction of the hypothalamus and pituitary and through a negative feedback loop, the zona fasciculata is stimulated by the hormone ACTH as in response to stressors. Cortisol has a wide range of effects on mind and body and interacts with reproductive, and thyroid as well as with immunological systems. Cortisol is part of the nuclear super family of hormones that shares and compete for receptors with progesterone, mineralcorticoids and androgens. Low cortisol levels are associated with decreasing attention span, fatigue, and blood sugar imbalances. High cortisol levels are commonly associated with anxiety, hypothyroidism, bone loss and also blood sugar imbalances.

### Hormone Testing

Cortisol can be collected once in the morning, twice a day (morning and bedtime), or if symptoms warrant, it is advisable to further evaluate diurnal adrenal function. In this case, four specimens are acquired: morning (within hour of waking), before lunch, before dinner and before bedtime. Saliva is particularly well suited for measurement of cortisol because there is no anticipatory rise in cortisol as is the case for venipuncture. Due to its non-invasive nature, saliva is increasingly recognized as the method of choice for assessing adrenal function and is the methodology most commonly used in clinical studies.

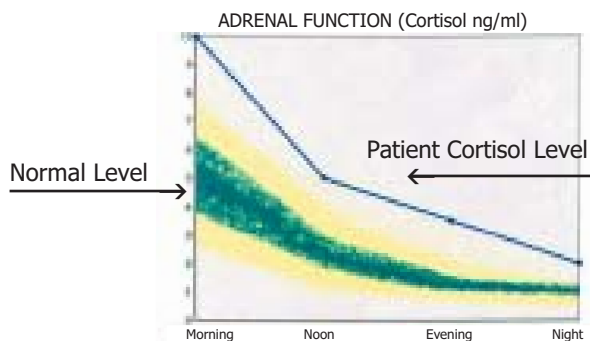


### Symptoms of Adrenal Dysfunction

Individuals experience symptoms of:

- morning and/or evening fatigue
- increased susceptibility to infection
- poor recovery from exercise
- chemical sensitivity
- unstable blood sugar
- "burned out" feeling
- allergies
- insomnia
- apathy
- depressed mood
- low sex drive

Since both high and low cortisol levels are associated with multiple symptoms, cortisol testing often provides the answers to complicated health situations. Adrenal dysfunction often mimics other hormonal and health conditions, leading patients to visit multiple physicians without success. Successful identification and treatment improves patient symptoms as well as providing an objective measurement of improvement.



Example above illustrates chronically elevated cortisol - a reflection of stress overload—which, particularly in combination with low androgens, impacts the biochemical pathways that lead to accelerated bone loss.



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