



# Adrenocortex Stress Profile (Saliva)



63 Zillicoa Street  
Asheville, NC 28801-1074  
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PAT: **SAMPLE**  
**PATIENT**

**Order Number:** XXXXXXXX

GARY FARR DC

Completed: May 29, 2004

519 Cleveland St

Received: May 19, 2004

Ste 115

Collected: May 19, 2004

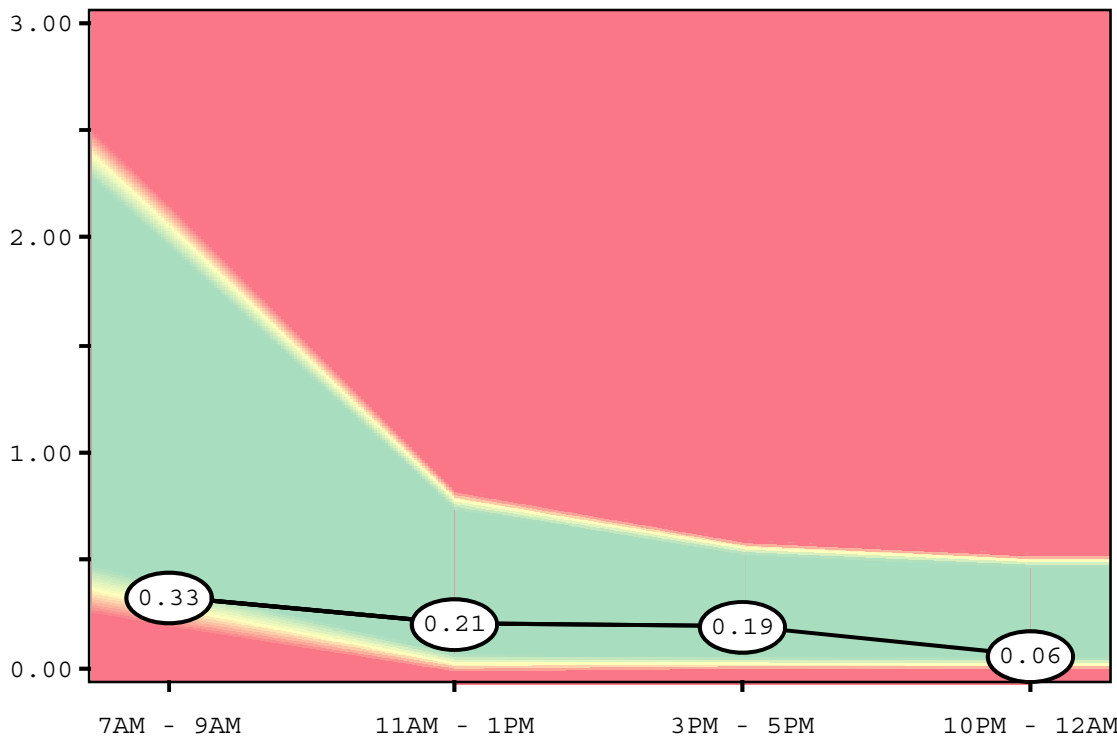
Clearwater, FL 33755

Age: 55

Sex: F

MRN: 000000000

## Salivary Cortisol and DHEA



### Cortisol

#### Reference Range

1 Hour After Rising  
7AM - 9AM:  
0.27-2.06 mcg/dL

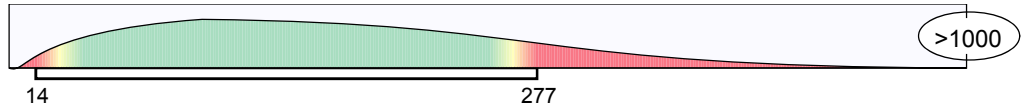
11AM - 1PM:  
0.03-0.77 mcg/dL

3PM - 5PM:  
0.03-0.56 mcg/dL

10PM - 12AM:  
0.03-0.50 mcg/dL

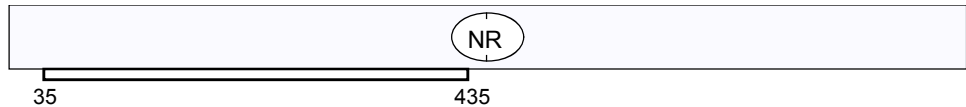
### DHEA 7AM - 9AM

Ref Range  
pg/mL



### DHEA : Cortisol Ratio / 10,000

Ref Range



Histograms are computer-generated illustrations of the expected statistical distribution of values for a large population.

The test for DHEA has been developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

## Commentary

### Lab Comments

**DHEA 7AM - 9AM:**

## Commentary

**DHEA result confirmed by repeat analysis.jdl;5/20/04.**

**Melatonin 7 AM - 9 AM:**

**7 a.m. Melatonin result confirmed by repeat analysis.jdl;5/29/04.**

**Progesterone sample 2:**

**Previous comment was Day 3 Estradiol result confirmed by repeat analysis.jdl;5/25/04., verified by AK at 09:31 on 05/26/04.**

**Day 3 Progesterone result confirmed by repeat analysis.jdl;5/25/04.**

NR=Non-Reportable due to analyte outside the reportable range.

Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

For the patient:

This profile measures the levels of cortisol and DHEA and provides an evaluation of how cortisol levels differ throughout the day. Cortisol levels typically peak shortly after rising and are at their lowest after the onset of sleep.

Cortisol is involved in many important functions in your body, including the metabolism and utilization of proteins, carbohydrates and fats, your body's response to physiological or psychological stress, and the control of inflammation and proper blood sugar levels. Cortisol also helps maintain proper blood pressure, normal nerve and brain activity and normal heart and immune function. DHEA also plays a role in the metabolism of protein, carbohydrates and fats, and works with cortisol to help maintain proper blood sugar levels. DHEA helps regulate body weight, blood pressure and immune function, and is used by the body to make the hormones, testosterone and estradiol.

Too much or too little of cortisol or DHEA can lead to illness, and it is important that these two hormones be in balance with each other.

For the physician:

In this profile, the 7-9 AM cortisol level is within the reference range. Because cortisol levels are typically at their peak shortly after awakening, morning cortisol may be a good indicator of peak adrenal gland function. Morning cortisol levels within reference range suggest a component of normal adrenal function with regard to peak circadian activity.

The 11 AM-1 PM cortisol level is within the reference range. Mid-day cortisol levels may be a good indication of adaptive adrenal gland function since they represent the adrenal glands' response to the demands of the first few hours of the day. Mid-day cortisol levels within reference range suggest a component of normal adrenal function in regard to adaptive response.

The 3-5 PM cortisol level is within the reference range. Afternoon cortisol levels may be a good indication of the adrenal glands' ability to help regulate blood sugar, since they represent a postprandial sample. Afternoon levels within the reference range suggest normal adrenal function, especially in the area of glycemic control.

The 10 PM-12 AM cortisol level is within the reference range. Late-night cortisol levels may be a good indication of baseline adrenal gland function since they typically represent the lowest level during the day. Normal late-night cortisol levels suggest normal adrenal function with regard to baseline circadian activity.

DHEA is above the reference range. High DHEA levels are indicative of lowered capacity to endure physiological or psychological stress/trauma/injury, and decreased immune response. High DHEA levels have also been noted with exogenous DHEA supplementation.

The DHEA: cortisol ratio is non-reportable ("NR") due to the fact that either the DHEA or the 7-9 AM cortisol was

### *Commentary*

below the detectable level or above the maximum value that can be measured accurately and reproducibly for this assay. Please refer to the commentary for the individual analytes for clinical analysis.

A pattern showing cortisol levels within reference range with an elevated DHEA is clinically significant. Elevated DHEA suggests adrenal hyperfunction of the zona reticularis. This pattern may be seen in panic disorders or hypoglycemia, and may represent a decreased ability to tolerate physiological or psychological stress. Normal cortisol along with high DHEA has also been noted in DHEA supplementation.



# Comprehensive Melatonin Profile



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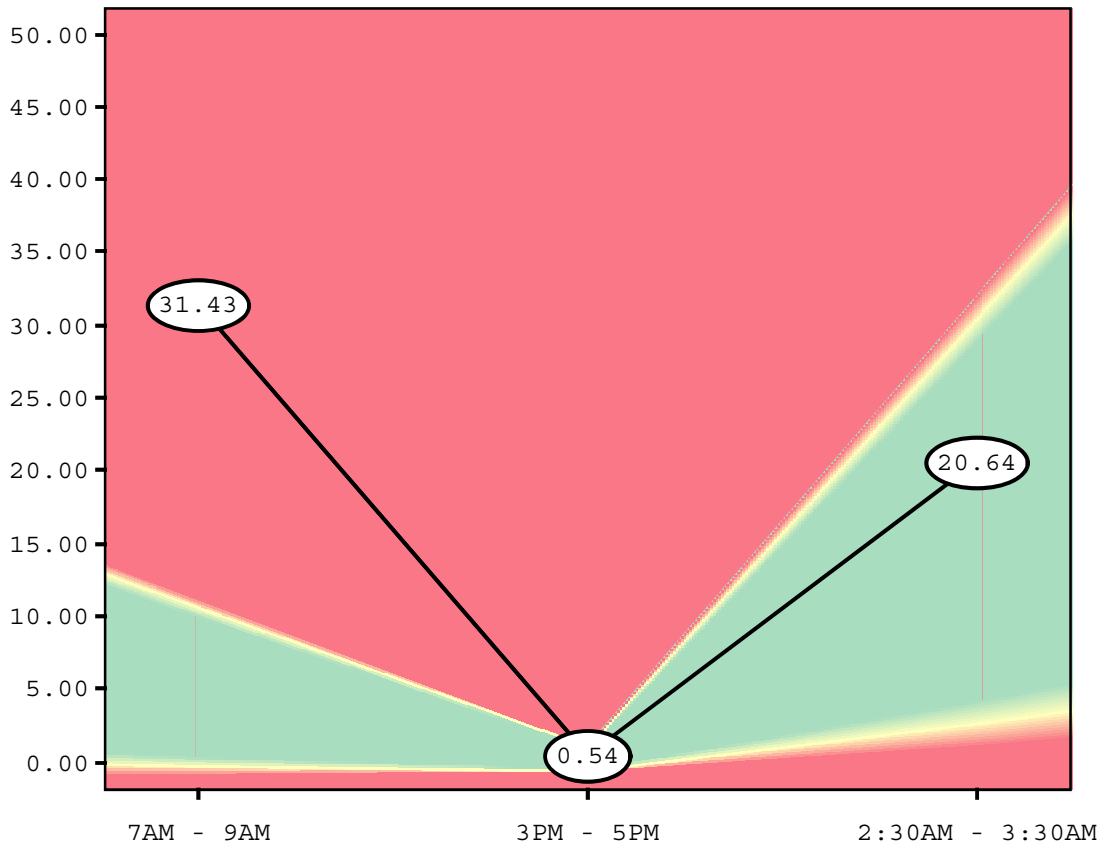
Clearwater, FL 33755

Age: 55

Sex: F

MRN: 000000000

## Salivary Melatonin



### Reference Range

7AM - 9AM: ≤ 10.50 pg/mL

3PM - 5PM: ≤ 0.88 pg/mL

2:30AM - 3:30AM: 2.53-30.67 pg/mL

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**Commentary****Lab Comments****DHEA 7AM - 9AM:**

**DHEA result confirmed by repeat analysis.jdl;5/20/04.**

**Melatonin 7 AM - 9 AM:**

**7 a.m. Melatonin result confirmed by repeat analysis.jdl;5/29/04.**

**Progesterone sample 2:**

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The 7-9 AM melatonin level is elevated.

High morning melatonin levels are often present in individuals with Seasonal Affective Disorder. This may be due to prolonged nocturnal production of melatonin, and/or late onset of its production. High melatonin levels may bring about inhibition of ovulation in women as well as decreased body temperature. High melatonin has been noted in the manic phase of bipolar mood disorder. Many antidepressant drugs may stimulate melatonin production, including fluvoxamine (Luvox), desipramine, and most MAO inhibitors. Prozac may lower melatonin levels.

This profile reveals a disturbance in the circadian rhythm of melatonin. This may influence other hormones such as thyroid, testosterone, and estrogen. As well as playing a crucial role in sleep-wake cycles, melatonin influences other vital functions including cardiovascular and antioxidant protection, endocrine function, immune regulation and body temperature.



# Menopause Profile



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Sex: F

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Clearwater, FL 33755

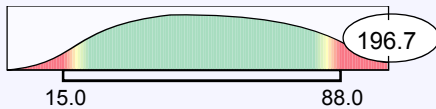
MRN: 0000660296

## Salivary Hormone Results

Sample #	Estrone (E1) (pmol/L)	Estradiol (E2) (pmol/L)	Estriol (E3) (pmol/L)	Progesterone (pmol/L)
1	11.9	7.36	41.6	1,039
2	8.4	8.03	57.5	11,870
3	5.9	4.46	29.4	877
Reference Range	<=9.0	3.00-12.00	<=27.0	50-325

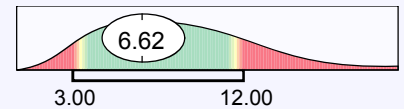
### Testosterone

Ref Range  
pmol/L



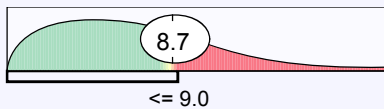
### Average Estradiol

Ref Range  
pmol/L



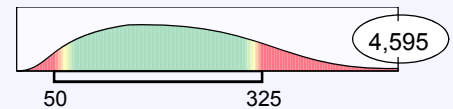
### Average Estrone

Ref Range  
pmol/L



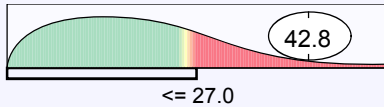
### Average Progesterone

Ref Range  
pmol/L



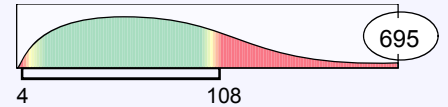
### Average Estriol

Ref Range  
pmol/L



### P/E2 Ratio

Ref Range  
Ratio



Histograms on this report are not based on data from reference populations and should be used for illustrative purposes only.

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## Commentary

### Lab Comments

#### DHEA 7AM - 9AM:

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## Commentary

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**Introduction** Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

This profile measures the levels of progesterone, testosterone, and the three forms of estrogen in your body, estradiol, estrone, and estriol. All of these measurements reflect the amount of hormone directly available to the body, that is the fraction of hormone not bound to binding globulin.

Estrogen, in general, is vital for healthy reproductive and menstrual cycle function. It is also responsible for maintaining secondary sexual characteristics, is required for endometrial (uterine) gland development, and the production of cervical and vaginal mucus. In addition, estrogen positively influences cardiovascular health, bone density, brain function and mood, and libido. Estrogen also reduces bowel motility and stimulates the synthesis of many enzymes in the body. Because of estrogen's stimulatory effect upon the endometrium, levels should be balanced by progesterone.

**Estradiol** is the most potent estrogen, with a potency 12 times that of estrone and 80 times that of estriol. The bulk of estradiol pre-menopausally derives from the ovary, so it is the predominant estrogen during the pre-menopausal years. Although it remains the most potent estrogen among the three, its levels typically decline in menopause, as ovarian function declines.

**Estrone** becomes the primary estrogen as the ovary loses its ovulatory function in menopause. Most of estrone's biosynthesis is dependent upon the production of androstenedione (an androgen) in the adrenal glands and the conversion of androstenedione to estrone (aromatization) in various peripheral tissues, particularly adipose, or fat tissue.

**Estriol** is the least potent estrogen in the body, and is considered to be a mild and brief-acting hormone. Estriol is thought to primarily originate from estrone, via 16-alpha-hydroxyestrone, although some estriol may come directly from androstenedione. Estriol has a much lower affinity for sex-hormone binding globulin (SHBG), so a greater percent is typically available for biological activity. It is thought that estriol may protect against estrogen-associated cancers, although further research is needed to confirm this.

**Progesterone** is also important for normal reproductive and menstrual function, and influences the health of bone, blood vessels, heart, brain, skin, and many other tissues and organs. As a precursor, progesterone is used by the body to make other steroid hormones, including DHEA, cortisol, estrogen, and testosterone. In addition, progesterone plays an important role in mood, blood sugar balance, libido, and thyroid function, as well as adrenal gland health.

**Testosterone** is an important hormone for women, helping to maintain lean body mass, bone density, skin elasticity, blood cell production, and libido.

All three forms of estrogen, progesterone and testosterone must be in proper balance with each other for optimal health.

**Laboratory Results** The averages for estradiol and estrone are both within the reference range, suggesting ample estrogen protection in the body. Any individual estradiol or estrone measurement above or below the reference range is still considered clinically significant.

### *Commentary*

The average estriol is above the reference range. Estriol is metabolized irreversibly from estradiol as well as from estrone via 16 alpha-hydroxyestrone, thus elevated estriol may be a result of enhanced metabolism or be consistent with elevated levels of estradiol and/or estrone. In contrast to these two estrogens, estriol metabolism does not appear to result in the formation of potentially carcinogenic substances. Speculation has also been made that higher circulating levels of estriol correlate with a lower incidence of breast cancer, although other researchers have disputed any cancer-protective properties. The clinical significance of elevated estriol remains to be elucidated.

The average progesterone level is elevated. Any individual progesterone measurement above or below the reference range is still considered clinically significant.

Excessive progesterone has a mild thermogenic effect, may cause breast tenderness by causing an increased aldosterone secretion, and may possibly increase cortisol levels in chronic stress. Because of its anxiolytic effects, excessive progesterone influence can cause sedation or depression, especially when estrogen is low. Elevated progesterone may be a result of adrenal hyperfunction, exogenous steroids, blood contamination of saliva (testosterone and DHEA should both be high), or exogenous progesterone (transdermal progesterone can result in significantly elevated salivary levels which may not correlate with high circulating levels of the hormone).

Testosterone is above the reference range. Elevated levels have been linked to masculinization, hirsutism, and acne. Although testosterone in men is cardioprotective, androgen excess in women can be detrimental, increasing the risk of insulin resistance and dyslipidemia. Elevated levels have also been noted in polycystic ovary disease and, rarely, adrenal hyperplasia. Elevated free testosterone may be a result of increased production in the ovary or adrenal glands, reduced conversion to estradiol, or reduced amounts of sex-hormone binding globulin.