

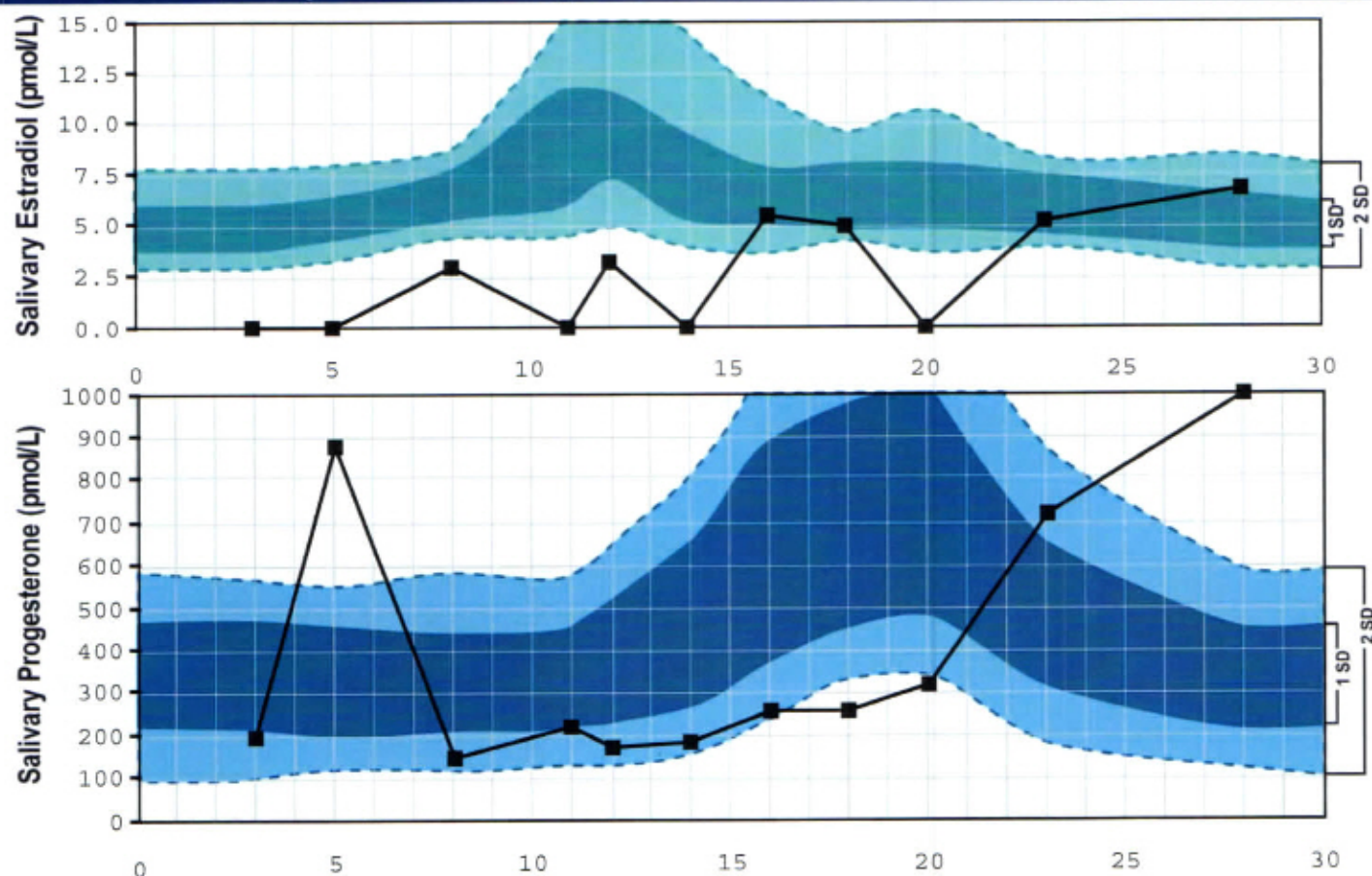


Completed: July 10, 2014

Received: July 08, 2014

Collected: June 30, 2014

### Salivary Estradiol & Progesterone Activity plus Testosterone Level



Day of Cycle	3	5	8	11	12	14	16	18	20	23	28	Avg.
Estradiol	<2.5	<2.5	2.9	<2.5	3.1	<2.5	5.4	4.9	<2.5	5.1	6.7	3.7
Progesterone	190	878	146	215	166	178	253	253	313	717	995	391
P/E2 Ratio	>76	>351	50	>86	54	>71	47	52	>125	141	149	109

**Estradiol Ref Range**  
 Follicular: 2.8 - 8.8 pmol/L  
 Peak\*: 4.5 - 19.1 pmol/L  
 Luteal: 2.8 - 8.2 pmol/L  
 Menopausal: 3.7 - 9.4 pmol/L  
 Male: 3.1 - 7.4 pmol/L

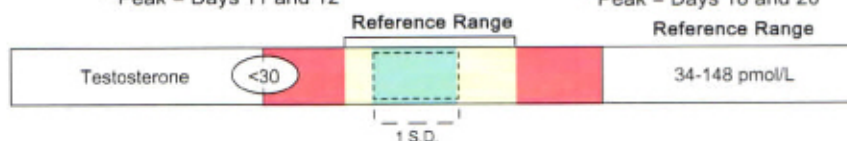
\* Peak = Days 11 and 12

**Progesterone Ref Range**  
 Follicular: 120 - 593 pmol/L  
 Peak\*: 328 - 1385 pmol/L  
 Luteal: 145 - 797 pmol/L  
 Menopausal: 163 - 669 pmol/L  
 Male: 141 - 529 pmol/L

\* Peak = Days 18 and 20

**P/E2 Ratio Ref Range**  
 Follicular: 23 - 159  
 Luteal: 25 - 141  
 Menopausal: 33 - 116

**Testosterone Ref Range**  
 Premenopausal: 34 - 148 pmol/L  
 Menopausal: 34 - 148 pmol/L  
 Male: 110 - 513 pmol/L





## Commentary

### Lab Comments

*The recommended sample collection may not have been followed. Physician should confer with patient to confirm collection times before attempting to interpret results. Dates/times of collection provided on samples are as follows: 7:10am 6/4, 7:35am 6/5, 7am 6/9, 7:00 (no AM/PM) 6/11, 7:30am 6/12, 8am 6/14, 7:30am 6/16, 7:30am 6/18, 7:15am 6/20, 7:30 (no AM/PM) 6/23, illegible 6/28, 8am 6/29, 11:15am 6/29, 3pm 6/29, 9pm 6/29, 2:30am 6/30. 07/08/2014 hc2*

Reference ranges are based on morning collection.

The Reference Range for each day is a statistical interval representing 95% or 2 Standard Deviations (2 S.D.) of the reference population. One Standard Deviation (1 S.D.) is a statistical interval representing 68% of the reference population. Values between 1 and 2 S.D. are not necessarily abnormal. Clinical correlation is suggested.

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has not been cleared by the U.S. Food and Drug Administration.

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.

The first half of the menstrual cycle (Follicular Phase) culminates in an Estradiol peak between Days 10-14 (in a 'perfect' 28 day cycle - counting from first day of last menses). The second half of a 28-day menstrual cycle (Luteal Phase) should demonstrate a Progesterone peak between Days 18-22, which coincides with a smaller Estradiol rise. Alterations in this normal hormonal cycling may be indicative of anovulation or luteal phase defects, which may be associated with menstrual bleeding problems. Finally, menstrual cycle lengths often vary from 24-35 days. While the follicular phase may vary in duration, the luteal phase is relatively fixed at 14 days.

**Average Calculations:** Whenever Estradiol or Progesterone results are below detectable levels or above instrument linearity levels, those values displayed are used to calculate the averages.

**Deficient follicular estradiol:** One or more estradiol levels are low during the follicular phase of the cycle. This may occur with normal aging, ovarian dysfunction, low body mass, strenuous exercise, chronic stress, or use of oral contraceptives.

**Excess follicular progesterone:** One or more elevated levels of progesterone are noted in the follicular phase. This is not an uncommon finding and may represent adrenal activity or a persistent corpus luteum from the previous cycle. This finding is not necessarily associated with symptoms, but may accompany prolonged bleeding or polycystic ovary syndrome.

**Deficient luteal estradiol:** Low levels of estradiol that appear on one or more days of the luteal phase may result from ovarian insufficiency, low body mass, strenuous exercise, chronic stress, inflammation, or certain medications, including oral contraceptives. Low levels may be associated with anovulation, scanty periods, or depression-type PMS.

**Excess luteal progesterone:** One or more high levels of luteal progesterone are present in this profile. This finding is present in some types of PMS, particularly those associated with fatigue, depression and blood sugar complaints. Elevated salivary progesterone may also reflect current or recent use of transdermal progesterone.

**Commentary**

**Testosterone** is below reference range. Low testosterone may be associated with greater risk for osteoporosis, difficulty maintaining lean body mass, decreased libido and suggest effects of aging, and/or ovarian and adrenal hypofunction.



# Comprehensive Melatonin Profile



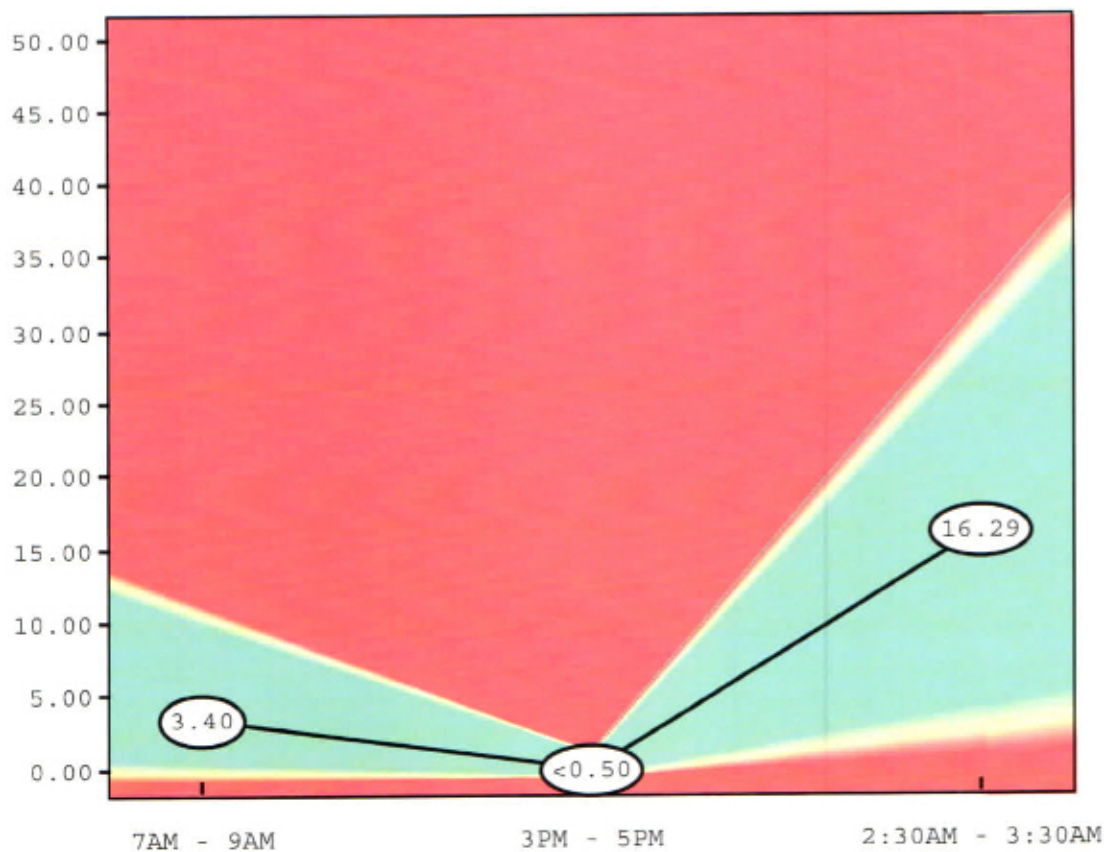
63 Zillicoa Street  
Asheville, NC 28801  
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## Salivary Melatonin



### Reference Range

7AM - 9AM:  $\leq 10.50$  pg/mL

3PM - 5PM:  $\leq 0.88$  pg/mL

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



## Commentary

### Lab Comments

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The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has not been cleared by the U.S. Food and Drug Administration.

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Melatonin activity is normal throughout the sample period revealing a normal melatonin circadian rhythm.

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.



# Adrenocortex Stress Profile (Saliva)



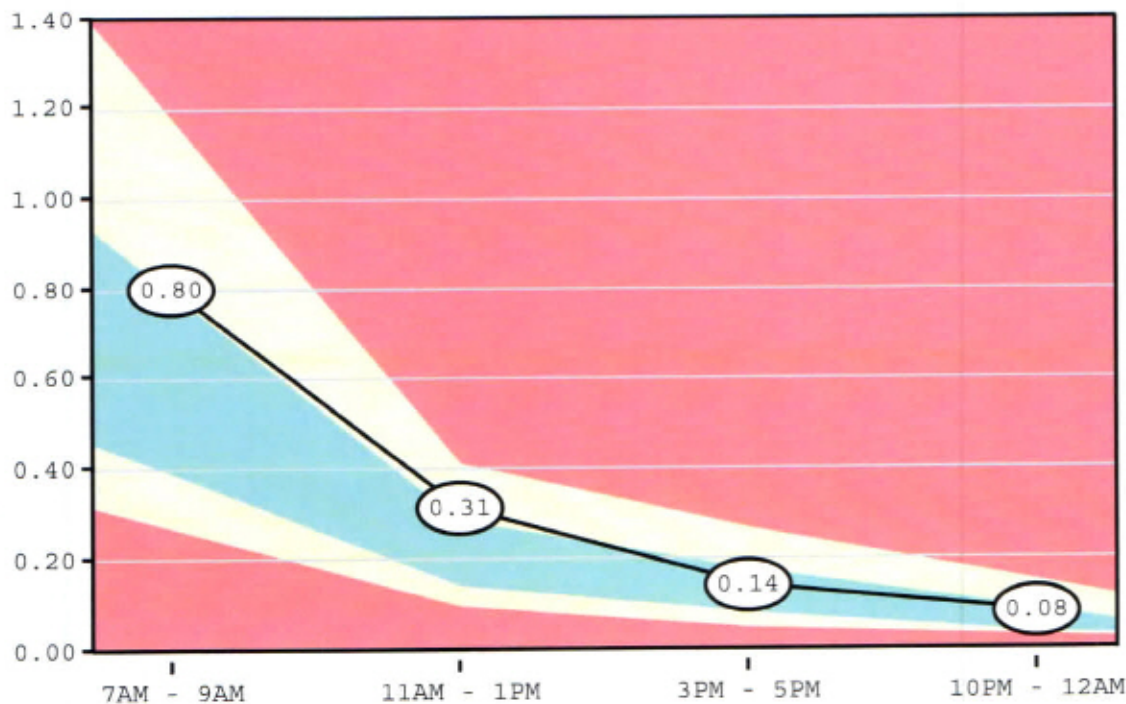
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## Salivary Cortisol and DHEA



### Cortisol ♦

#### Reference Range

1 Hour After Rising  
7AM - 9AM:  
0.27-1.18 mcg/dL

11AM - 1PM:  
0.10-0.41 mcg/dL

3PM - 5PM:  
0.05-0.27 mcg/dL

10PM - 12AM:  
0.03-0.14 mcg/dL

Hormone	Reference Range	Reference Range
DHEA 7am - 9am	54	71-640 pg/mL
DHEA: Cortisol Ratio/10,000	68	115-1,188

## Commentary

### Lab Comments

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times before attempting to interpret results. Dates/times of  
collection provided on samples are as follows: 7:10am 6/4, 7:35am 6/5,  
7am 6/9, 7:00 (no AM/PM) 6/11, 7:30am 6/12, 8am 6/14, 7:30am 6/16,*



## Commentary

7:30am 6/18, 7:15am 6/20, 7:30 (no AM/PM) 6/23, illegible 6/28, 8am 6/29, 11:15am 6/29, 3pm 6/29, 9pm 6/29, 2:30am 6/30. 07/08/2014 hc2

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has not been cleared by the U.S. Food and Drug Administration.

Methodology: EIA and LIA

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 below the reference range. Decreased DHEA levels may be seen in thyroid disorders, cardiovascular disease, obesity, reduced immunity, rheumatologic diseases, and excess cortisol production, or with administration of pharmacological doses of glucocorticosteroids. Low DHEA levels are indicative of a lowered capacity to endure physiological or psychological stress/trauma/injury, and may present with abnormal immune response, with increased incidence of autoimmune disease.

A low DHEA: cortisol ratio is generally associated with chronic stress and hypothalamic-pituitary-adrenal imbalances. While often observed in individuals as they age, it may also be associated with cognitive and mood disorders, anxiety, and depressive symptoms. DHEA levels in women tend to decrease more rapidly with aging (especially between 50-60 years of age) than DHEA levels in men.

A pattern showing cortisol levels within reference range with a low DHEA is clinically significant. Low DHEA

**Commentary**

suggests adrenal hypofunction of zona reticularis. In such a shift, there is increased probability of dysglycemia. This pattern represents a component of adrenal hypofunction, which has been noted in fatigue disorders, post-traumatic stress disorders, and chronic physiological or psychological stress.