One Day Hormone Check

GENOVA DIAGNOSTICS

63 Zillicoa Street
Asheville, NC 28801

Patient: **EMILY TEST**
DOB: January 18, 1948
Sex: F
MRN: 0000000004

Order Number: J5070009
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Salivary Hormone Results

Estradiol ♦ pmol/L	2.9

	Reference 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	

Testosterone ♦ pmol/L	<30

	Reference Range
Premenopausal	34-148 pmol/L
Menopausal	34-148 pmol/L
Male	110-513 pmol/L

Estrone pmol/L	5.4

	Reference Range
Menopausal	4.7-18.9 pmol/L

Progesterone ♦ pmol/L	637

	Reference 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	

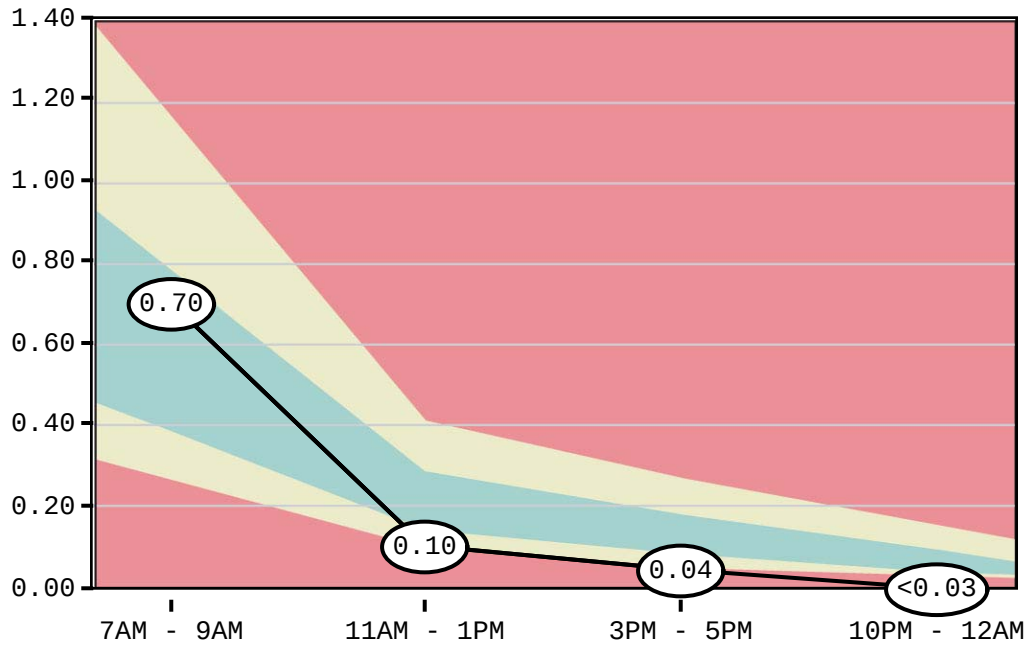
Estriol pmol/L	<70

	Reference Range
Menopausal	<= 133 pmol/L

P/E2 Ratio	220

	Reference Range
Follicular	23-159
Luteal	25-141
Menopausal	33-116

Salivary Cortisol and DHEA



Cortisol ◆

Reference Range

1 Hour After Rising

7AM - 9AM:
0.27-1.18 mcg/dL

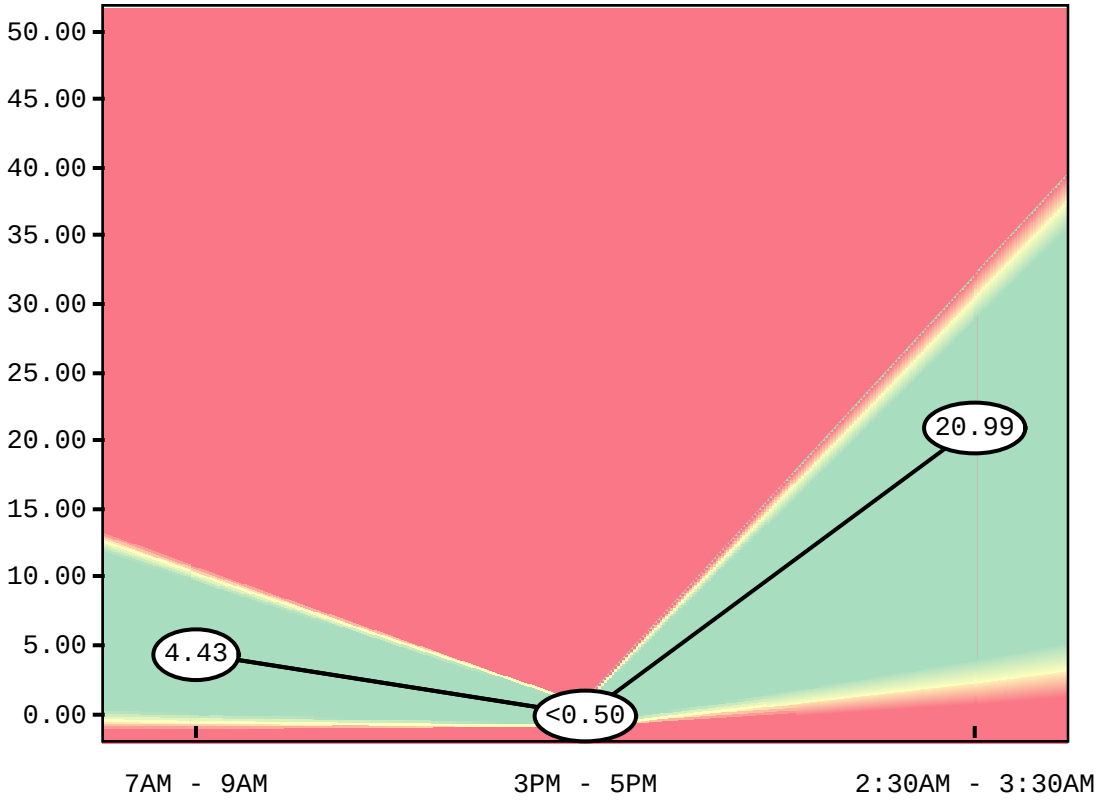
11AM - 1PM:
0.10-0.41 mcg/dL

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

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

Hormone		Reference Range
DHEA 7am - 9am	106	71-640 pg/mL
DHEA: Cortisol Ratio/10,000	151	115-1,188

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

Lab Comments

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: LIA, EIA and RIA.

Commentary

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.

Estrogens play a critical role in female sexual development, menstrual function, protein synthesis, cardiovascular function, bone formation and remodeling, cognitive function, emotional balance and other important health factors. The estrogenic potency of estradiol is 12 times that of estrone and 80 times that of estriol. Estradiol is the primary estrogen in premenopausal women. Estrone is the second most potent estrogen compared to estradiol. After menopause, estrone becomes the primary estrogen as the ovary loses its ability to manufacture estradiol, and it is synthesized in the adrenal glands and fat cells. Estriol is considered to be the mildest and briefest-acting of the three estrogens. Estrogen metabolism and synthesis in men appear to remain relatively stable across the life course.

- In women, lower levels of estrogens have been associated with a variety of clinical symptoms: peri/menopausal symptoms (vasomotor symptoms; mood and memory alterations; atrophic vaginitis, a condition associated with decreased vaginal lubrication and thinner vaginal epithelial; lining diminished skin tone); altered lipid metabolism; accelerated rate of bone loss. Excessive estrogen levels have been associated with increased risk of some hormone-dependent cancers.
- In men, low levels of estrogen may be associated with decreased bone density, cognitive decline and cardiovascular disease. Excessive estradiol levels have been associated with greater risk of stroke and cardiovascular disease, as well as BPH, gynecomastia, decreased sexual function and weight gain. A source of elevated estrogen in men may be associated with men who have a higher body fat percentage, as increased aromatization of testosterone to estradiol can occur in adipose tissue.
- In a large, population based study of salivary sex hormone levels in older adults researchers found: Older men and women had similar estradiol concentrations. Estradiol concentrations have been associated with cognition, mood, and memory in women and, in combination with testosterone and other factors, preservation of memory and cognitive function in men.

Progesterone is 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. Progesterone is primarily produced in the ovaries in premenopausal women and in the adrenal cortex in postmenopausal women. Although progesterone is found in both women and men, the physiologic role in men is poorly understood.

- In women, lower levels of progesterone have been associated with dysfunctional uterine bleeding, and may play a role in osteoporosis and impaired neurological function. Excessive amounts can result in problems such as dysglycemia, alopecia, acne and breast tenderness.
- The clinical significance of elevated or low levels in men is poorly understood. Low progesterone levels may be involved in male infertility. Increased levels of progesterone have been found in states of stress and anxiety in men and women: this may relate to its sedative or stress countering effects.

Testosterone is an androgenic sex steroid/hormone that helps maintain libido, influences muscle mass and weight loss, and plays a role in the production of several other hormones. During the aging process, testosterone levels gradually decline in both sexes, which can lead to loss of bone density. Testosterone concentrations tend to be higher in men versus women.

- In women, imbalances of testosterone have been associated with various forms of coronary heart disease and cardiovascular events, including myocardial infarction in postmenopausal women. Low salivary testosterone levels have also been shown in women with breast cancer compared to age-matched controls. Obese women exhibit higher levels of free salivary testosterone. Excessive amounts are associated with PCOS, acne, oily skin and hirsutism.

Commentary

• In men, lower levels of testosterone are associated with aortic, peripheral vascular, and cardiovascular disease in middle-aged and older men. In some but not all studies, lower levels of testosterone predict increased incidence of cardiovascular events and mortality. Additionally, elevated testosterone can be associated with CVD risk. Men with excessive testosterone may exhibit aggressive behavior or increased irritability, and hair loss (scalp).
• In men and women, low levels of testosterone have been associated with lower coital frequency and loss of sexual desire in men and women. Low levels are also associated with reduced stamina and lean muscle mass, anxiety, depression and cognitive decline in both men and women.

The P/E2 ratio describes the relationship between progesterone and estradiol levels, and is used clinically to ascertain dominance of one hormone compared to the other.
• An elevated ratio may indicate progesterone dominance, and symptoms may be consistent with progesterone excess.
• A low ratio may indicate estrogen dominance, and symptoms may be consistent with estrogen excess.

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 below 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. Low afternoon levels reflect a degree of adrenal fatigue, especially in the area of glycemic control.

The 10 PM-12 AM cortisol level is below 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. Low late-night cortisol levels suggest a degree of adrenal fatigue with regard to baseline circadian activity.

DHEA is within the reference range. Proper levels contribute to the ideal metabolism of proteins, carbohydrates and fats, including efficient glycemic control.

The ratio of DHEA to cortisol is normal. This ratio indicates a relative balance of the adrenal output of androgens and cortisol. Both of the hormones are released in response to ACTH from the pituitary and a normal ratio indicates a balanced function of the hypothalamic-pituitary-adrenal axis.

A pattern showing one or more decreased cortisol levels, while the level of DHEA is within reference range, is clinically significant. This pattern suggests adrenal hypofunction of the zona fasciculata (the primary source of cortisol). At this time there is no evidence of hyperfunction of the zona reticularis (the primary source of DHEA). A degree of adrenal hypofunction is suggested, which has been noted in fatigue disorders, physiological or psychological stress, anxiety, hypotension, and/or hypoglycemia.

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.