



Advantages of Labrix Clinical Services, Inc.

We Cater to the Healthcare Practitioner...



Jay H. Mead, MD FASCP
Chief Medical Director

- Labrix sample collection tubes are small; only 1 ml of saliva is required from the patient. Other laboratories require up to 7.5 ml for the AM sample alone. (See our actual tube size below)
- Labrix has a guaranteed five (average of two) business day turn-around time upon receipt by the laboratory.
- Labrix pools the four samples collected throughout the day and gives you an average of the values for estrone, estradiol, estriol, progesterone, testosterone and DHEA. While these hormones do not have diurnal rhythms, their values fluctuate greatly throughout the day. Therefore, an average of these hormones is considerably more relevant than a single AM value.
- Labrix collection tubes are color coordinated to simplify the timed sample collection process. Additionally, straws are provided for sample collection, which reduces the risk of specimen contamination.
- Labrix offers professional pricing.
- Labrix has one kit and one set of instructions for all test panels.
- Labrix offers FDA approved testing and is New York State Certified.
- Labrix is a CLIA and New York State certified laboratory, directed by a board certified pathologist with over 25 years of clinical laboratory experience.
- Labrix offers secure website access for practitioners to retrieve their patient's results (www.labrix.com).
- Labrix offers testing for practitioners only. Labrix will not discuss test results directly with patients. Patients are referred back to the practitioner for consultation and follow-up.
- Provider education and patient outreach resources are available to help educate your patients about the importance of saliva hormone testing and hormone balancing.
- Staff clinicians are available 5 days per week to discuss results interpretation with healthcare providers with a Labrix testing account.



Actual Tube Size

Which Hormones Should I Test?

By Jay H. Mead, MD FASCP

Eight Hormone Assessment Panel

Estrogen, Progesterone, Testosterone, DHEA and 4x Cortisol

The [Comprehensive Hormone Assessment Panel](#) (estrogen, progesterone, testosterone, DHEA and four diurnal cortisol) is an excellent starting place for evaluating hormone function in the body. This panel tests both reproductive (sex) and adrenal hormones. If you are testing only the sex hormones you are missing valuable information that could lead to more effective treatment strategies.

The Whole Picture

Clinically it may be obvious to test the estrogen, progesterone and testosterone, but it is equally important to [look at the foundation](#) of the balance/imbalance: DHEA and cortisol – the adrenal hormones. Sex hormones are made in both the gonads and the adrenal glands. Often when the reproductive system is out of balance the adrenal glands go into overtime in an attempt to compensate. Conversely, when the body is under a great deal of [stress](#), the adrenal glands produce cortisol and DHEA which reduce gonadal hormone production.

Cortisol

As we age and our production of sex hormones changes the adrenals will maintain a central role in sustaining optimal health and function. The AM cortisol level represents the maximum output of cortisol for the [entire 24 hour period](#) and initiates and maintains waking day activity and function. Cortisol level at noon, late afternoon, and night indicates the pattern of

cortisol production over the 24 hour period and can highlight adrenal exhaustion.

DHEA levels are equally important because this hormone has a central role in [disease prevention](#) and health optimization, and is often referred to as the “anti-aging hormone”. Including DHEA and cortisol along with the sex hormones in testing results from testing the [reproductive hormones is very significant clinically](#) and once both of these systems are addressed, most patients’ symptoms will improve. Measuring DHEA and cortisol production is your first glimpse into the status of the connection between the two endocrine organs.

Once treatment begins the [Short Comprehensive Hormone Assessment Panel](#) (estrogen, progesterone, testosterone, DHEA and AM, PM cortisol) is an ideal retest. If symptoms of adrenal fatigue are still severe consider testing all cortisols.



Test Results: Hormone Report



Report Number:
-S0074

Provider:
Sample Reports
16255 SE 130th Ave
Clackamas, OR 97230

Patient Info:

Amber Sample H

Age:56 **Gender:**F

Menopausal Status:

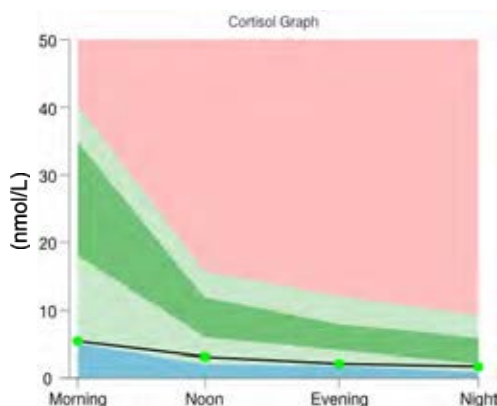
Hysterectomy (Ovaries Not Removed)

amber.sample@sample.com
123 A St.
Suite BPortland, OR 97123

Sample Collection	Date/Time
Morning	07/06/2014 0730
Noon	07/06/2014 1130
Evening	07/06/2014 1500
Night	07/06/2014 1940

Samples Arrived	07/08/2014
Results Reported	07/08/2014

	Saliva Hormone Test	Result	Units	L	WR	H	Reference Range
HORMONES	Estrone (E1)	9.34	pg/ml		◆		5.8-34.2 post menopausal
	Estradiol (E2)	1.53	pg/ml		◆		1.0-3.2 post menopausal (1.5-10.8 supplementation)
	Estriol (E3)	10.72	pg/ml		◆		<66.0 (67.0-708.0 supplementation)
	EQ (E3 / (E1 + E2))	0.99		↓			low <1.0; WR >1.0; optimal >1.5
	Progesterone (Pg)	987.38	pg/ml		◆		500-3000 supplementation
	Ratio of Pg/E2	645.35				↑	200-600 pre; post with supplementation
	Testosterone	64.39	pg/ml			↑	6.1-49.0 female (30.0-60.0 supplementation)
ADRENALS	DHEA	24.49	pg/ml	↓			106.0-300.0 female
	Cortisol Morning	5.45	nmol/L		◆		5.1-40.2; optimal range: 18-35*
	Cortisol Noon	3.12	nmol/L		◆		2.1-15.7; optimal range: 6-12*
	Cortisol Evening	2.09	nmol/L		◆		1.8-12; optimal range: 4-8*
	Cortisol Night	1.67	nmol/L		◆		0.9-9.2; optimal range: 2-6*



Hormone Interpretations:

- Estrone and estradiol are within the reference ranges, however the Estrogen Quotient (EQ) is suboptimal. Estriol is less potent than the other estrogens and when present in sufficient quantities (as indicated by an optimal EQ) it plays an antagonistic role, and may govern the proliferative effects of estrone and estradiol. Although estriol level is above the reference range (likely do to individual variance), estriol supplementation is a consideration to optimize this quotient and reduce associated risks. * References available upon request.
- Progesterone to estradiol (Pg/E2) ratio and reported symptoms are consistent with estrogen dominance. Supplementation with topical progesterone to correct this relative deficiency is a consideration.
- DHEA level is consistent with stress response or supplementation (not reported), although metabolic syndrome cannot be ruled out. Serum vitamin D, fasting glucose and insulin testing may be warranted.
- Adrenal gland function appears reasonably adequate. Query thyroid insufficiency (perhaps related to iodine deficiency).

Notes:

L=Low(below range) WR=Within Range (within range) H=High (above range)

DHEA, Testosterone, Estrone and Estriol results are for investigational use only.

*Apply only when all four cortisols are measured. Clinical interpretations may override these generalized optimal ref. ranges.

**The Pg/E2 ratio is an optimal range established based on clinical observation. Progesterone supplementation is generally required to achieve this level in men and postmenopausal women.

Adrenal Phase:



Jay H. Mead MD FASCP
Labrix Clinical Services, Inc
Medical Director



Estrogen Dominance is Really Progesterone Deficiency

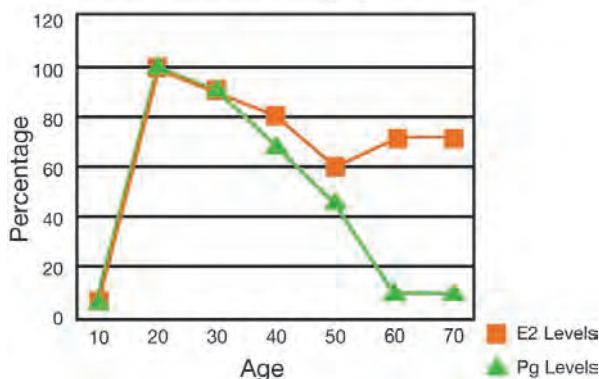
By Jay H. Mead, MD FASCP

The term “[Estrogen Dominance](#)” can be confusing at times because it is less related to the amount of circulating estrogen and more related to the ratio of estrogen to progesterone in the body. Contrary to popular belief, Menopause and PMS are not the result of estrogen deficiency although estrogen levels do decline during the latter phases of a woman’s reproductive cycle

More relevant is that the estrogen levels drop by approximately 40% at menopause while progesterone levels plummet by approximately 90% from premenopausal levels. It is the relative loss of progesterone that causes the majority of symptoms termed “[Estrogen Dominance](#)”. The disproportionate loss of progesterone begins in the latter stages of a woman’s reproductive cycle, when unbeknownst to her the luteal phase of the menstrual cycle begins to malfunction.

The malfunction is initiated when the remnant tissue of the follicle (corpus luteum), the primary source of progesterone, begins to lose its functional capacity. By about [age 35](#) many of these follicles fail to develop, creating a relative progesterone deficiency. As a result, ovulation does not always occur and progesterone levels steadily decline. It is during this period that a relative progesterone deficiency, or what has become known as estrogen dominance, develops.

Evolution of Estrogen Dominance



Typical symptoms of estrogen dominance are:

- Mood Swings
- Irritability
- Depression
- Irregular Periods
- Heavy Menstrual Bleeding
- Hot Flashes
- Vaginal Dryness
- Water Retention
- Uterine Fibroids
- Decreased Libido
- Headaches
- Fatigue
- Weight Gain: Hips, Thighs and Abdomen
- Sleep Disturbance (Insomnia, less REM sleep)
- Breast Tenderness/Fibrocystic Breasts
- Bone Mineral Loss (Osteoporosis)
- Short-term Memory Loss
- Lack of Concentration
- Dry, Thin, Wrinkly Skin
- Thinning of Scalp Hair
- Increased Facial Hair
- Diffuse Aches and Pain

Patients experiencing a majority of these symptoms most likely will benefit from [natural hormone replacement](#). The most effective way to assess hormone status is to test saliva for the appropriate hormone levels. Saliva is the best method for testing “functional” or “active” tissue levels of hormones.

The Progesterone/Estradiol (Pg/E2) reference ranges are optimal ranges determined by Dr. John R. Lee M.D. While they are not physiological ranges, they are optimal values for the [protection](#) of the breasts, heart and bones in women, and the prostate in men. Salivary values within these ranges have been shown by Dr. Lee to decrease both breast and prostate cellular proliferation, thereby providing protection to these vital tissues.

Andropause and Metabolic Syndrome

By Jay H. Mead, MD FASCP

Declining testosterone levels are commonly seen in men beginning in the fourth decade of life.

Suboptimal or low testosterone levels in males are often associated with symptoms of aging and are referred to as [andropause or male menopause](#). This is the equivalent of menopause in women when ovarian production of estrogens and progesterone begins to decline.

Testosterone is an important anabolic hormone in men, meaning it plays important roles in maintaining both physical and mental health. It increases energy, prevents fatigue, helps maintain normal sex drive, increases strength of all structural tissues such as skin/bone/muscles including the heart, and prevents depression and mental fatigue. Testosterone deficiency is often associated with symptoms such as [night sweats, insulin resistance, erectile dysfunction, low sex drive, decreased mental and physical ability, lower ambition, loss of muscle mass and weight gain in the waist](#). The primary cause of this increase in girth is visceral fat not excessive subcutaneous fat (fat under the skin).

The visceral fat cells are the most insulin resistant cells in the human body.

They have excess hormone binding receptors for cortisol and androgens and decreased receptors for insulin (resistance to insulin). As a person ages hormone levels change in favor of insulin resistance. [The cortisol and insulin levels rise while progesterone, growth hormone and testosterone decline](#). The visceral fat cell with its increased receptors, blood supply and innervation, begins to collect more fat in the form of triglycerides. A

vicious cycle is initiated, which if not interrupted with natural hormone balancing, will lead to abdominal obesity, diabetes and high cholesterol levels. [This phenomenon is known as metabolic syndrome](#).

Stress management, exercise, proper nutrition, dietary supplements (particularly adequate zinc and selenium), and androgen replacement therapy (controversial in prostate cancer) have all been shown to raise androgen levels in men and help counter andropause symptoms. The “trick” is to know how much testosterone is required for each individual male. This is where knowing the [salivary testosterone levels](#) come into play. Initial salivary testing and follow up salivary monitoring are crucial for determining the most optimal prescription. Free testosterone can also be calculated in serum using [total testosterone, SHBG and PSA levels](#). With these levels one can calculate the Free Testosterone Index (FTI). [The normal FTI range is 0.7-1.0. If one's FTI is below 0.7, testosterone therapy should be initiated](#). The final dosage will be the amount required to correct the FTI ratio.

Prior to initiation of testosterone therapy the PSA level needs to be within the expected range.

There is no evidence that testosterone increases the risk of [prostate gland cancer](#); however, if cancer has already developed testosterone may accelerate its growth. The PSA test is a good guide as to presence or [absence of cancer](#) and is a good indicator of inflammation within the prostate gland.



How do I test hormones? *Saliva or Serum?*

Saliva vs. Serum:

Why is saliva testing truly superior to serum for accurately monitoring transdermal (topically applied) hormones?

Saliva testing is proving to be the most reliable medium for measuring hormone levels. Hormone levels in saliva accurately represent the amount of hormone delivered to receptors in the body, unlike serum which represents hormone levels that may or may not be delivered to receptors of the body. Clinically, it is far more relevant to test the amount of hormones delivered to the tissue receptors as this is a reflection of the active hormone levels of the body.

The majority of hormones in the blood exist in one of two forms: free (5%) or protein bound (95%). While 95% of the hormones in the body are protein bound, it is only the 5% free hormones that are biologically active. Saliva measures the free bioavailable hormone levels in the body, while serum measures only the protein bound non-bioavailable hormone levels. Therefore, serum is a much less accurate measurement than that of saliva when assessing functional hormone levels.

Saliva Measures the “Unbound” Biologically Active or Free Hormone Levels in the Body:

When blood is filtered through the salivary glands, the bound hormone components are too large to pass through the cell membranes of the salivary glands. Only the unbound hormones pass through and into the saliva. What is measured in the saliva is considered the “free”, or bioavailable hormone, that which will be delivered to the receptors in the tissues of the body.

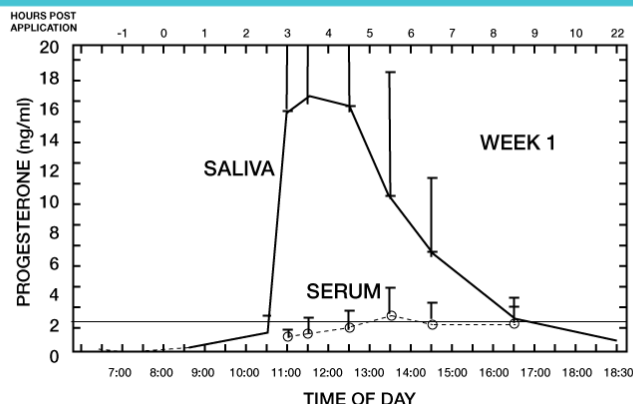
Serum Measures the “Protein Bound” Biologically Inactive Hormone Levels in the Body:

In order for steroid hormones to be detected in serum, they must be bound to circulating proteins. In this bound state, they are unable to fit into receptors in the body, and therefore will not be delivered to tissues. They are considered inactive, or non-bioavailable.

Only Saliva Testing Measures Topically Dosed Hormones:

The discrepancy between free and protein bound hormones becomes especially important when monitoring topical, or transdermal, hormone therapy. Studies show that this method of delivery results in increased tissue hormone levels (thus measurable in saliva), but no parallel increase in serum levels. Therefore, serum testing cannot be used to monitor topical hormone therapy.

Saliva and Serum Progesterone Following Percutaneous Application of 20mg Progesterone



Topical Supplementation can be monitored best in saliva