

Test Results

2014 01 15 001 SB



Samples Arrived: 01/15/2014
Date Closed: 01/18/2014

Samples Collected:
Saliva: 01/11/14 07:14
Saliva: 01/11/14 12:43
Saliva: 01/11/14 18:42
Saliva: 01/11/14 23:13
Blood Spot: 01/11/14 07:27

Jane McDoe MD
8605 Southwest Creekside Place
Beaverton, OR 97008

Polly B Systic
1 Hirsuit Lane
Portland, OR 97213

Menses Status: Pre-Menopausal - Irregular
Gender: Female

Last Menses: 12/24/2013
DOB: 6/14/1984 (29 yrs) Patient Ph#: 555 555 5555

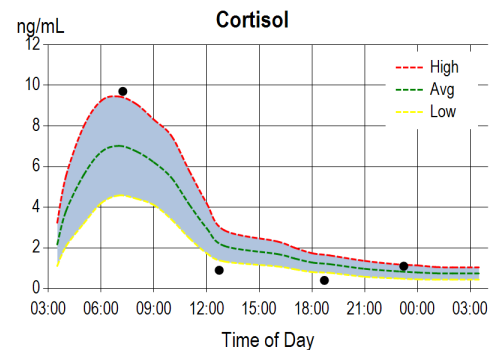
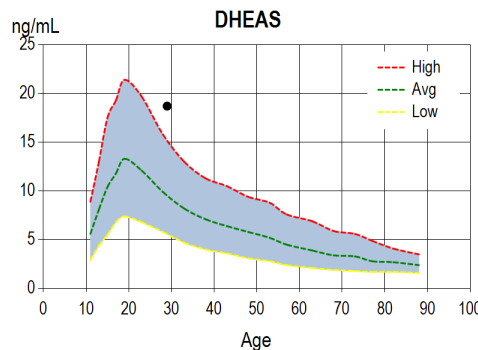
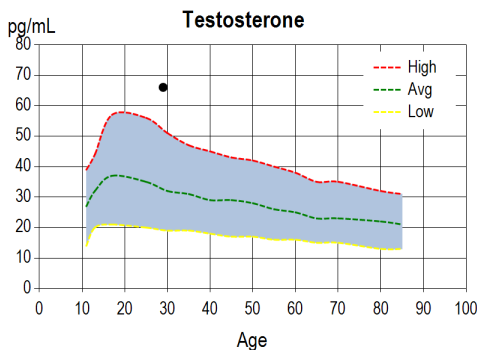
BMI: 28.3
Height: 63 in
Weight: 160 lb
Waist: 33 in

Test Name	Result	Units	Range
Estradiol (saliva)	2.9	pg/mL	1.3-3.3 Premenopausal (Luteal)
Progesterone (saliva)	43	L pg/mL	75-270 Premenopausal (Luteal)
Ratio: Pg/E2 (saliva)	15	L	Optimal: 100-500 when E2 1.3-3.3 pg/mL
Testosterone (saliva)	66	H pg/mL	16-55 (Age Dependent)
DHEAS (saliva)	18.7	ng/mL	2-23 (Age Dependent)
Cortisol (saliva)	9.7	H ng/mL	3.7-9.5 (morning)
Cortisol (saliva)	0.9	L ng/mL	1.2-3.0 (noon)
Cortisol (saliva)	0.4	L ng/mL	0.6-1.9 (evening)
Cortisol (saliva)	1.1	H ng/mL	0.4-1.0 (night)
Free T4 (blood spot)	0.9	ng/dL	0.7-2.5
Free T3 (blood spot)	2.8	pg/mL	2.5-6.5
TSH (blood spot)	4.2	H µU/mL	0.5-3.0
TPO (blood spot)*	12	IU/mL	0-150 (70-150 borderline)
LH (blood spot)	11.8	U/L	0.5-12.8 Premenopausal-luteal
FSH (blood spot)	2.5	U/L	0.6-8.0 Premenopausal-luteal

*For research purposes only.

Therapies

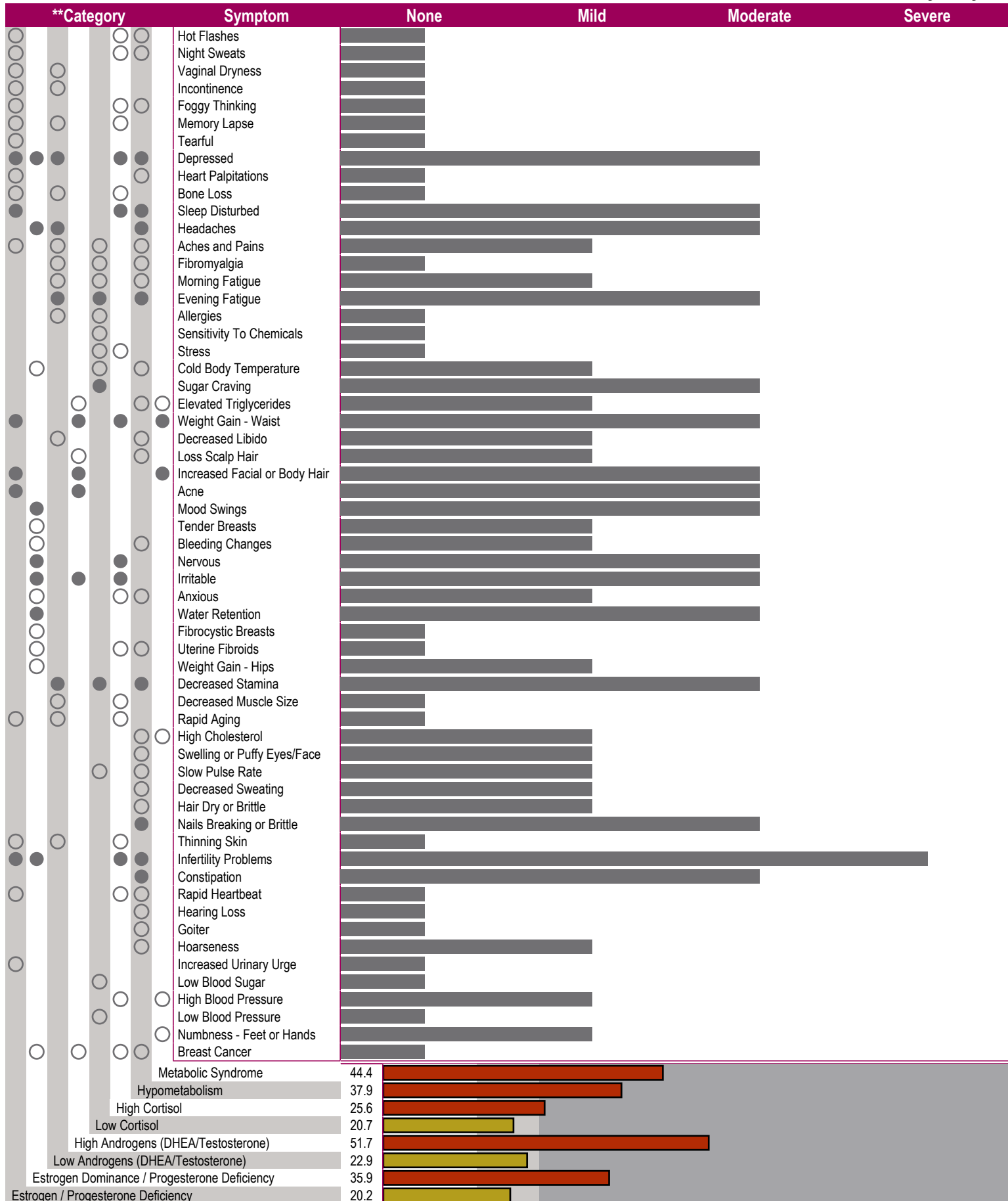
None



ZRT Laboratory Reference Ranges

Disclaimer: Supplement type and dosage are for informational purposes only and are not recommendations for treatment. For a complete listing of reference ranges, go to www.zrtlab.com/reference-ranges.

Test Name	Women
Estradiol (saliva) - pg/mL	0.5-1.7 Postmenopausal (optimal 1.3-1.7); 1.3-3.3 Premenopausal (Luteal); 0.8-12 Estrogen Replacement (optimal 1.3-3.3); 0.5-2.2 (Synthetic HRT, Contraceptive); 0.5-1.7 Premenopausal (follicular)
Progesterone (saliva) - pg/mL	12-100 Postmenopausal; 12-100 Premenopausal (Follicular); 75-270 Premenopausal (Luteal); 30-300 Oral Progesterone (100-300 mg); 200-3000 Topical, Troche, Vaginal Pg (10-30 mg); 10-53 Synthetic Progestins (HRT, Contraceptive)
Ratio: Pg/E2 (saliva)	Optimal: 100-500 when E2 1.3-3.3 pg/mL
Testosterone (saliva) - pg/mL	16-55 (Age Dependent)
DHEAS (saliva) - ng/mL	2-23 (Age Dependent)
Cortisol (saliva) - ng/mL	3.7-9.5 (morning); 1.2-3.0 (noon); 0.6-1.9 (evening); 0.4-1.0 (night)
Free T4 (blood spot) - ng/dL	0.7-2.5
Free T3 (blood spot) - pg/mL	2.5-6.5
TSH (blood spot) - μ U/mL	0.5-3.0
TPO (blood spot) - IU/mL	0-150 (70-150 borderline)
LH (blood spot) - U/L	1.6-9.3 Premenopausal-follicular; 0.5-12.8 Premenopausal-luteal; 15.0-64.0 Postmenopausal
FSH (blood spot) - U/L	2.4-9.3 Premenopausal-follicular; 0.6-8.0 Premenopausal-luteal; 31-134 Postmenopausal



**Category refers to the most common symptoms experienced when specific hormone types (eg estrogens, androgens, cortisol) are out of balance, i.e., either high or low.

The above results and comments are for informational purposes only and are not to be construed as medical advice. Please consult your healthcare practitioner for diagnosis and treatment.

David T. Zava
David T. Zava, Ph.D.
(Laboratory Director)

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Composed by: 1163977140 at 3/13/2014 9:45:51 AM

Lab Comments

Estradiol is within range, but is in the upper 1/3rd of the optimal range (1.3-3.3 pg/ml). High-normal estradiol, low progesterone, and high androgens (testosterone and/or DHEAS) strongly suggest cystic ovaries (PCOS). PCOS is usually caused by insulin resistance, which itself is most commonly a result of poor diet (e.g. excessive consumption of carbohydrates), sedentary lifestyle, smoking, stress (high cortisol), excessive hormone replacement therapy (particularly excessive estrogens, but exacerbated by synthetic progestins), and genetic predisposition. Excessive estrogen and low progesterone is often associated with symptoms of estrogen dominance; however, synthetic progestins in oral contraceptives and testosterone itself are estrogen antagonists and often attenuate symptoms of estrogen dominance. Exercise, stress reduction, weight reduction, dietary modification, and balancing hormones with natural hormone replacement therapy (when appropriate) have been shown to be the most effective NATURAL ways of treating insulin resistance. Other pharmaceutical medications (e.g. contraceptive progestins) are effective at reducing symptoms (e.g. acne) caused by high androgens but can exacerbate insulin resistance.

Progesterone is low, consistent with anovulatory cycles (no ovulation) and/or a luteal phase deficiency (ovulation with low progesterone production). Women with irregular cycles are commonly anovulatory. Low progesterone may contribute to symptoms of both estrogen excess (dominance) and estrogen deficiency, particularly if estradiol is fluctuating erratically as it does with irregular menstrual cycles. Natural progesterone supplementation often helps stabilize symptoms of estrogen imbalance.

High testosterone suggests one of the following: excessive endogenous production by the ovaries (usually cystic-PCOS) or adrenal glands, supplementation with testosterone (none indicated) or exposure to someone using it. Chronic high testosterone is often associated with one or more symptoms of androgen excess (excess facial/body hair, acne, oily skin and hair, weight gain in the waist, increased agitation). If these symptoms are not problematic this usually indicates that the exposure to testosterone is acute or stress/cortisol levels are high (cortisol inhibits the actions of testosterone at the tissue level). Cystic ovaries (PCOS) is usually caused by insulin resistance, which in turn, is caused by poor diet (e.g. excessive consumption of carbohydrates), sedentary lifestyle, obesity, smoking, stress (high cortisol), excessive hormone replacement therapy, oral contraceptives, and genetic predisposition. Insulin resistance can eventually lead to a constellation of conditions known as the metabolic syndrome, which include weight gain in the waist, unhealthy blood lipid profile (high triglycerides and cholesterol), high blood sugar and insulin, and high blood pressure. If not corrected with exercise, weight reduction, dietary modifications, stress reduction, hormone balancing, and/or pharmaceutical medications (e.g. metformin), these conditions predispose to significantly increased lifetime risk for developing serious health problems such as diabetes, cardiovascular disease, stroke, and cancer (Stoll, *Int J Obes Relat Metab Disord.* 2002; 26 (6): 747-53). A high testosterone level in combination with a high fasting blood insulin level is strongly predictive of insulin resistance and indicates a need for aggressive intervention to prevent adverse long-term effects on health. For more information, see: www.ovarian-cysts-pcos.com/index.html; www.pcosupport.org; or "PCOS, the Hidden Epidemic" by Samuel Thatcher, MD.

DHEAS is high-normal for the expected age range. DHEAS is highest during the late teens to early twenties (10-20 ng/ml) and drops steadily with age to the lower end of range by age 70-80 (2-9 ng/ml). High-normal age-range DHEAS levels are common in well trained athletes and individuals supplementing with DHEA or adrenal adaptogens that stimulate adrenal production of DHEA. High DHEAS may be associated with high androgen symptoms (loss of scalp hair, increased facial/body hair, acne).

Salivary cortisol is not following a normal circadian rhythm. The abnormal circadian pattern seen in these test results (high morning and night with low levels during the day) indicates some form of stressor (emotional, dietary, physical), nutrient imbalances/deficiencies, and/or dysglycemia (poor regulation of blood sugar levels). High morning cortisol is often an indication of low blood glucose (hypoglycemia) and part of the counter regulatory mechanisms to raise the blood glucose level. Low mid-day cortisol suggests stress-induced adrenal fatigue due to the inability of the adrenal glands to meet the demands of a stressor, or the use of hormonal medications that inhibit cortisol synthesis (androgens such as testosterone and DHEAS) or increase its clearance (thyroid). Returning high night cortisol often results from recovery of the adrenal glands in response to stressors or cortisol-suppressive medications. A normal physiological level of cortisol is essential for the actions of thyroid at the tissue level and high or low cortisol can result in a functional thyroid deficiency (normal thyroid levels but symptoms of thyroid deficiency caused by cortisol imbalance). Correction of adrenal cortisol imbalance should first be considered prior to thyroid therapy. For additional information about adrenal dysfunction and strategies for adrenal support and balancing cortisol levels the following books and journal articles are worth reading: "Adrenal Fatigue", by James L. Wilson, N.D., D.C., Ph.D.; "The Cortisol Connection", by Shawn Talbott, Ph.D.; "The End of Stress As We Know It" by Bruce McEwen; "Awakening Athena" by Kenna Stephenson, MD.

Free T4 is within normal range but lower than the optimal range of 1-2.5. Reported symptoms indicate thyroid deficiency; therefore, it would be worthwhile to consider thyroid therapy or modification of any hormonal imbalances (eg. high estradiol, low progesterone, low testosterone, high or low cortisol) that might impede optimal thyroid function.

Free T3 is within low-normal range and symptoms are suggestive of hypometabolism. A normal T3 does not exclude the possibility of a "functional" thyroid deficiency caused by other hormonal imbalances such as excess estrogen, low progesterone, low testosterone, low or high cortisol (usually associated with excessive stress), and low growth hormone (IGF-1).

TSH is high. Although most laboratories have a TSH range of 0.35-5.50, new studies are finding that the mean and median values are 1.0-1.5mU/l . TSH levels >3.0 are now considered abnormal due to changes by the endocrinology association - see www.aace.com for more information. Some experts believe that TSH should be kept below 2.0 for optimal health. Elevated TSH is often associated with symptoms of hypothyroidism, which include fatigue, decreased stamina, depression, rheumatic pain, sleep disturbances, cold extremities or feeling cold, reduced body temperature, brittle nails, dry course hair, hair loss, infertility, low libido, puffy eyes and face, decreased sweating, menorrhagia, and/or constipation. Periodic TSH monitoring is recommended if clinical symptoms of thyroid deficiency persist. T3 results may help guide treatment decisions. Thyroid therapy may be worthwhile considering if T4 and/or T3 are low and symptoms of thyroid deficiency are problematic.

Thyroid peroxidase (TPO) antibodies are low indicating that Hashimoto's autoimmune thyroiditis is unlikely.

LH and FSH are within normal ranges but the ratio of LH to FSH is high, consistent with cystic ovaries. In obese premenopausal women LH is less likely to be outside of the expected range, but the ratio of LH to FSH is usually high.