

Test Results

2013 06 26 001 SB



Samples Arrived: 06/26/2013
Date Closed: 06/29/2013

Samples Collected:
Saliva: 06/21/13 06:45
Saliva: 06/21/13 11:30
Saliva: 06/21/13 18:35
Saliva: 06/21/13 23:15
Blood Spot: 06/21/13 06:35

Doctor ZRT

Wanda Waite

Menses Status: Pre-Menopausal - Irregular
Gender: Female

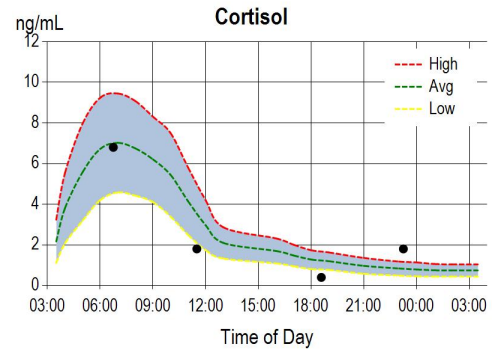
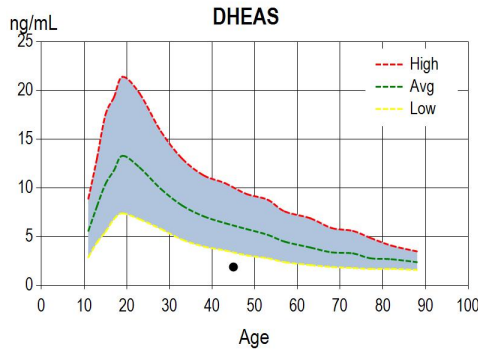
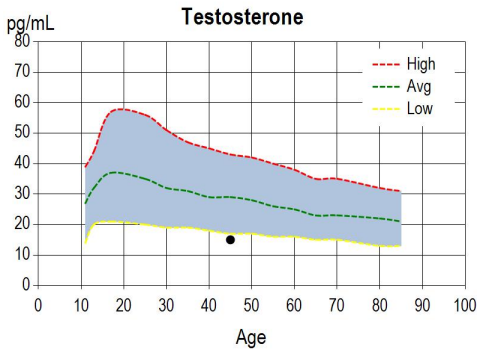
Last Menses: Unspecified
DOB: 6/13/1968 (45 yrs) Patient Ph#: 555 555 5555

BMI: 26.6
Height: 65 in
Weight: 160 lb
Waist: 34 in

Test Name	Result	Units	Range
Estradiol (saliva)	2	pg/mL	1.3-3.3 Premenopausal (Luteal)
Progesterone (saliva)	28	L pg/mL	75-270 Premenopausal (Luteal)
Ratio: Pg/E2 (saliva)	14	L	Optimal: 100-500 when E2 1.3-3.3 pg/mL
Testosterone (saliva)	15	L pg/mL	16-55 (Age Dependent)
DHEAS (saliva)	1.9	L ng/mL	2-23 (Age Dependent)
Cortisol (saliva)	6.8	ng/mL	3.7-9.5 (morning)
Cortisol (saliva)	1.8	ng/mL	1.2-3.0 (noon)
Cortisol (saliva)	0.4	L ng/mL	0.6-1.9 (evening)
Cortisol (saliva)	1.8	H ng/mL	0.4-1.0 (night)
TSH (blood spot)	3.4	H µU/mL	0.5-3.0
Insulin (blood spot)	16.5	H mIU/mL	1-15 (optimal 2-8)
Hemoglobin A1c	6.3	H %	< 6%
Vitamin D, 25-OH, D2	<4	ng/mL	<4 if not supplementing (< 10 nmol/L)
Vitamin D, 25-OH, D3	14	L ng/mL	32-100 ng/ml (80-250 nmol/L)
Vitamin D, 25-OH, Total	14	L ng/ml	32-100

Therapies

None



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.

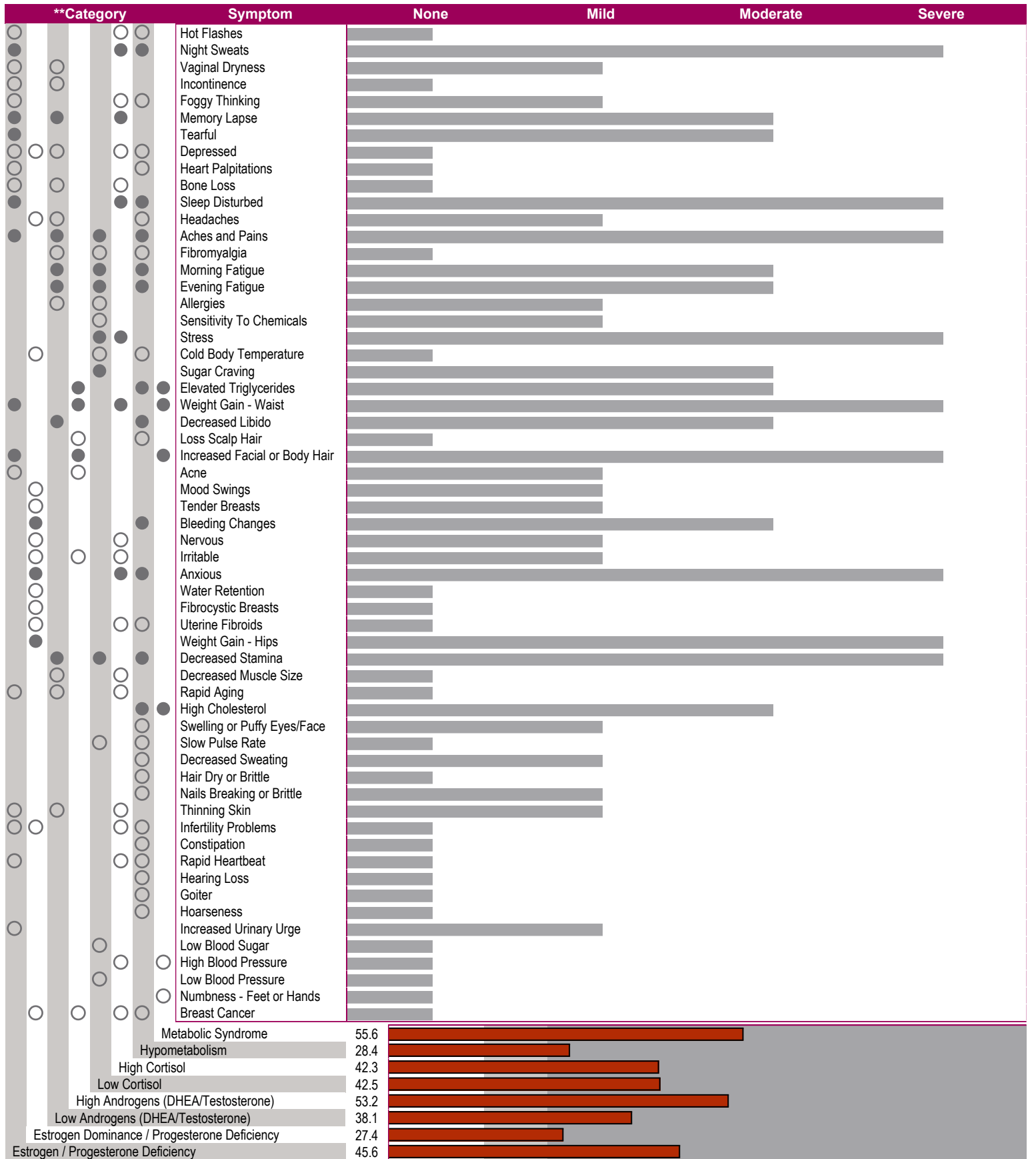
David T. Zava
David T. Zava, Ph.D.
(Laboratory Director)

CLIA Lic # 38D0960950

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)
TSH (blood spot) - μ U/mL	0.5-3.0
Insulin (blood spot) - mIU/mL	1-15 (optimal 2-8)
Hemoglobin A1c - %	< 6%
Vitamin D, 25-OH, D2 - ng/mL	<4 if not supplementing (< 10 nmol/L)
Vitamin D, 25-OH, D3 - ng/mL	32-100 ng/ml (80-250 nmol/L)
Vitamin D, 25-OH, Total - ng/ml	32-100



**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.

Lab Comments

Estradiol is within optimal range but reported symptoms are consistent with both estrogen deficiency (hot flashes/night sweats) and estrogen dominance (weight gain, water retention, low thyroid). Estrogen Dominance can inhibit the action of the thyroid gland best known for its metabolic function governing weight. This occurs when an excess of estrogen relative to low progesterone triggers increased thyroid binding globulin (TBG), a protein which binds up thyroid hormones decreasing bioavailability, thus hindering metabolism and weight loss. Many of the listed symptoms (weight gain, low stamina, low libido) suggest a functional thyroid deficiency caused by estrogen and progesterone imbalances, low androgens (testosterone, DHEAS), and adrenal imbalance of low and/or high cortisols.

Progesterone is low which contributes to symptoms of estrogen dominance/imbalance. As progesterone decreases with age, stress, and fluctuating hormones, insulin is released more rapidly and more often. This triggers sugar cravings and overeating. It would be worthwhile to consider natural progesterone supplementation to help balance estrogen levels for weight control. Exercise, diet, herbs, and/or nutritional supplements (e.g. cruciferous vegetable extracts) are also helpful for correcting symptoms of estrogen imbalance.

Pg/E2 ratio is low and is an indicator of estrogen dominance, defined as an excess of estrogen relative to insufficient progesterone levels. Estrogen dominance predisposes to weight gain and difficulty keeping weight off by shifting body fat to the hips and thighs and decreasing availability of active thyroid hormone, thus slowing metabolism. A balanced estrogen/progesterone ratio is necessary to lose or maintain body weight. The two hormones working together also serve to increase insulin sensitivity and reduce fat storage.

Testosterone is low and is associated with reduced muscle mass and corresponding increase in fat deposition. Adequate testosterone is essential to build and maintain lean muscle mass which is directly tied to metabolic rate and calorie burning. Deficiencies of testosterone and/or DHEA contribute to obesity and related health risks for metabolic syndrome and diabetes. Deficiencies may also cause a drop in energy and lower the inclination to exercise.

DHEAS is low and may suggest adrenal fatigue, particularly if cortisol is also low and symptoms are indicative of low adrenal function. DHEA is the precursor of testosterone and as an anabolic ('building-up') hormone, partners with testosterone to build lean muscle mass, a direct driver of metabolism. Both androgens boost metabolic rate and calorie burning to help with weight management. DHEA may also enhance insulin sensitivity and naturally increase serotonin, helping to control appetite and satiety, thus assisting weight loss. In individuals with very low levels, supplementation of DHEA in the 5-25mg dosing range usually raises DHEAS to levels seen in mid-life (5-8ng/ml).

Cortisol is not following a normal circadian rhythm. Low evening cortisol suggests adrenal insufficiency usually caused by chronic, unresolved mental/emotional/physical stress. Common weight-related symptoms of low cortisol include cravings for sugar in the form of sweets or refined carbohydrates that trigger weight gain. Since adequate cortisol is essential for thyroid function, low levels can lead to a sluggish metabolism and slow/stalled weight loss. High cortisol particularly at night, lowers production of the sleep hormone melatonin and disrupts appetite hormones, leading to increased feelings of hunger, and reduced satiety. High cortisol also stimulates specific enzymes in fat cells that promote abdominal fat storage, and insulin resistance with weight gain in the waist typical. Developing a strategy to minimize stressors that raise cortisol is a key to weight management. Recommended reading: "Adrenal Fatigue", by James L. Wilson, N.D., D.C., Ph.D.; "The Cortisol Connection", Shawn Talbott, Ph.D.; "Fight Fat After 40", Pamela Peeke, M.D.; "Demystifying Weight Loss", Pamela W. Smith, M.D.; "Hormone Weight Loss", Alicia Stanton, M.D.

TSH is high. This level is strongly associated with hypothyroidism, low metabolic rate, and obesity. Impaired thyroid function can be induced by elevated cortisol levels which reduce bioavailability of active thyroid hormones. This lowering of the metabolic rate contributes to weight gain and impedes weight loss. Thyroid therapy may be worthwhile considering if T4 and T3 testing reveals low levels and symptoms of thyroid deficiency are problematic.

High fasting insulin is indicative of insulin resistance, which predisposes to central obesity and significant lifetime risk for developing serious health conditions such as metabolic syndrome (high blood pressure, excessive weight gain in the waist, elevated blood lipids), diabetes, and cardiovascular disease. Insulin resistance is also associated with elevated triglycerides. In women, imbalances of estradiol, progesterone, or testosterone, as well as high cortisol can lead to insulin resistance. Correction of any of these hormonal imbalances in combination with lifestyle changes (exercise, improved diet, stress reduction) can help reduce insulin resistance, weight gain, and adverse risks.

HbA1c is elevated. HbA1c is a measure of red blood cell hemoglobin glycation. Because red blood cells have about a 120 day life span, a high HbA1c reflects mean hyperglycemia (elevated glucose) for the previous 3 months. An HbA1c of more than 6% is predictive of type 2 diabetes and cardiovascular disease risk. With persistently high HbA1c levels, there is increased risk of developing problems such as eye disease, kidney disease, nerve damage, heart disease, and stroke. The recommendation is to measure HbA1c every 3-6 months, and treat to a target level of <7%. If these recommendations are successfully followed in most people with diabetes, long-term complications, especially microvascular, can be significantly reduced.

Vitamin D3 is low. D-deficiency is common in obesity and strongly associated with increased body fat and hyperinsulinemia.

Follow-up from the ongoing Framingham Heart Study, (Diabetes, 2010;59:242-248), found that Vitamin D deficiency is strongly associated with variations in subcutaneous, and especially, visceral adiposity, the more dangerous form of fat that accumulates around vital organs and deep within the abdomen. Lack of adequate sunlight in northern climates, working indoors during daylight hours, avoiding sunlight with excessive clothing and sunscreens, and aging of the skin, contribute to deficiencies. Vitamin D levels may be increased by eating foods high in D3 (fish), exposing the skin to sunshine (without sunscreen) mid-day for 15-20min, use of a UVB light, and/or supplementation with Vitamin D3.