

# TEST REPORT

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# 2019 08 20 100 SB

Ordering Provider:  
Dr Feelbetter

Samples Received  
08/20/2019

Report Date  
08/26/2019

Samples Collected  
Saliva - 08/15/19 05:30  
Saliva - 08/15/19 12:00  
Saliva - 08/15/19 17:00  
Saliva - 08/15/19 21:00  
Blood Spot - 08/15/19 06:00

Patient Name: Weight Management, Thyroid Add-On  
Patient Phone Number: 555 555 5555

<b>Gender</b> Female	<b>Last Menses</b> 07/27/2019	<b>Height</b> 5 ft 7 in	<b>Waist</b> 38 in
<b>DOB</b> 5/1/1977 (42 yrs)	<b>Menses Status</b> Pre-Menopausal - Irregular	<b>Weight</b> 255 lb	<b>BMI</b> 39.9

TEST NAME	RESULTS   08/15/19	RANGE
<b>Salivary Steroids</b>		
Estradiol	2	1.3-3.3 pg/mL Premenopausal (Luteal)
Progesterone	28 L	75-270 pg/mL Premenopausal (Luteal)
Ratio: Pg/E2	14 L	Optimal: 100-500 when E2 1.3-3.3 pg/mL
Testosterone	15 L	16-55 pg/mL (Age Dependent)
DHEAS	1.9 L	2-23 ng/mL (Age Dependent)
Cortisol	6.8	3.7-9.5 ng/mL (morning)
Cortisol	1.8	1.2-3.0 ng/mL (noon)
Cortisol	0.4 L	0.6-1.9 ng/mL (evening)
Cortisol	1.8 H	0.4-1.0 ng/mL (night)
<b>Blood Spot</b>		
Vitamin D, 25-OH, D2	<4	<4 if not supplementing (< 10 nmol/L)
Vitamin D, 25-OH, D3	14 L	20-80 ng/ml (50-200 nmol/L)
Vitamin D, 25-OH, Total	14 L	20-80 ng/ml (50-200 nmol/L)
<b>Blood Spot Thyroids</b>		
Free T4	0.5 L	0.7-2.5 ng/dL
Free T3	1.9 L	2.4-4.2 pg/mL
TSH	3.4 H	0.5-3.0 µU/mL
TPOab	3	0-150 IU/mL (70-150 borderline)

TEST NAME	RESULTS   08/15/19	RANGE
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**Blood Spot CardioMetabolic Markers**

Insulin	16.5 H	1-15 µIU/mL (optimal 2-6)
Hemoglobin A1c	6.3 H	<6%

<dL = Less than the detectable limit of the lab. N/A = Not applicable; 1 or more values used in this calculation is less than the detectable limit. H = High. L = Low.

**Therapies**

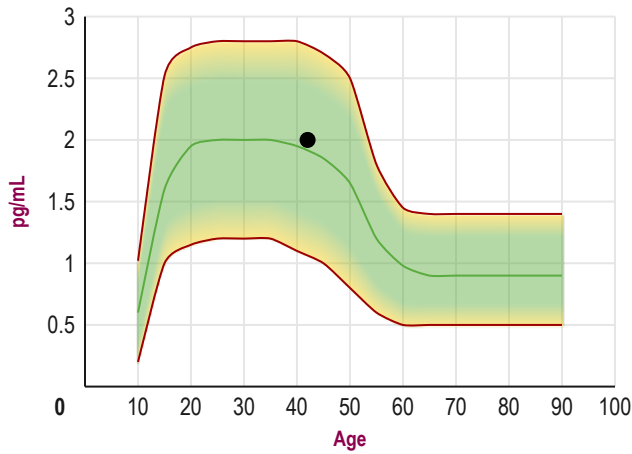
None

**Graphs**

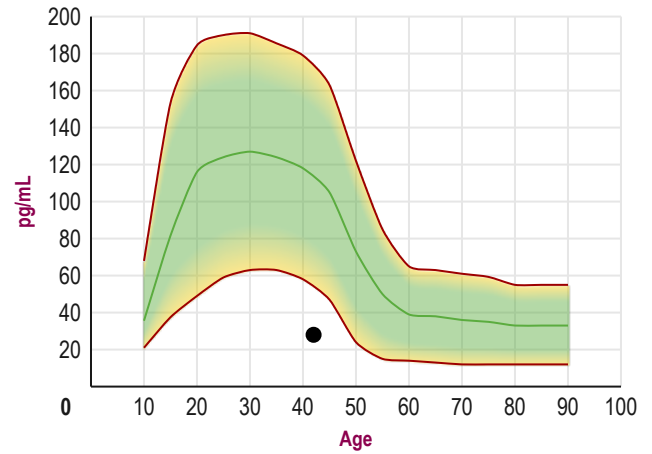
**Disclaimer:** Graphs below represent averages for healthy individuals not using hormones. Supplementation ranges may be higher. Please see supplementation ranges and lab comments if results are higher or lower than expected.

Average Off Graph

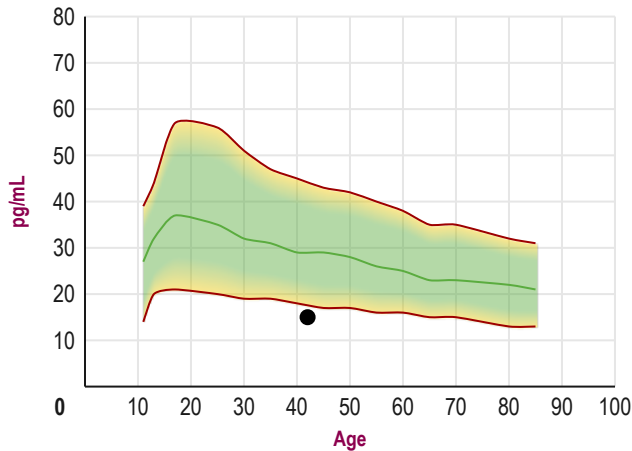
**Saliva Estradiol**



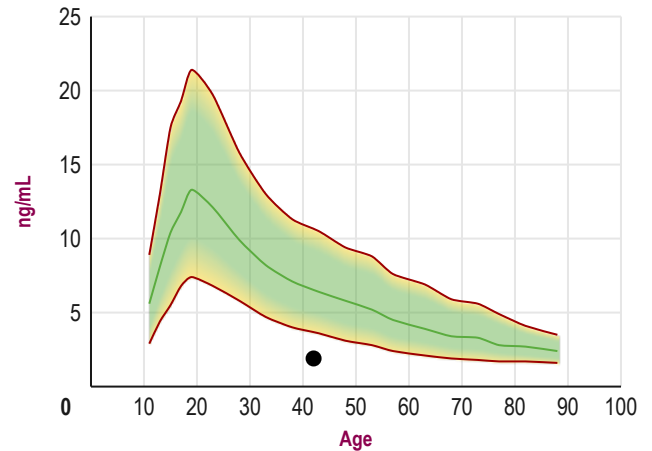
**Saliva Progesterone**



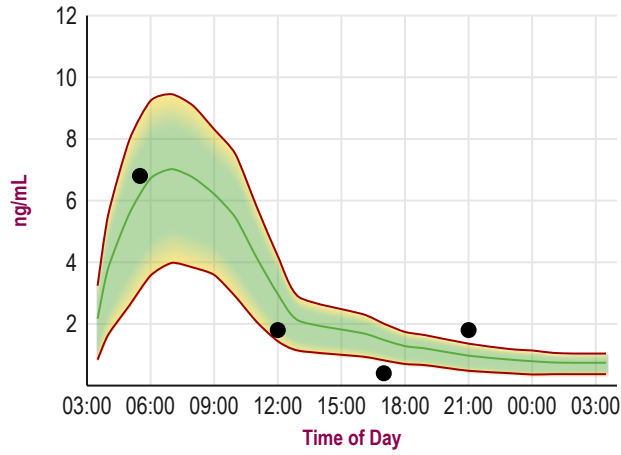
**Saliva Testosterone**



**Saliva DHEAS**



### Saliva Cortisol



# TEST REPORT | Patient Reported Symptoms

Weight Management, Thyroid Add-On  
# 2019 08 20 100 SB

**Disclaimer:** Symptom Categories below show percent of symptoms self-reported by the patient compared to total available symptoms for each category. For detailed information on category breakdowns, go to [www.zrtlab.com/patient-symptoms](http://www.zrtlab.com/patient-symptoms).

SYMPTOM CATEGORIES	RESULTS   08/15/19
Estrogen / Progesterone Deficiency	46%
Estrogen Dominance / Progesterone Deficiency	27%
Low Androgens (DHEA/Testosterone)	38%
High Androgens (DHEA/Testosterone)	53%
Low Cortisol	43%
High Cortisol	42%
Hypometabolism	28%
Metabolic Syndrome	56%

SYMPTOM CHECKLIST	MILD	MODERATE	SEVERE
Aches and Pains			
Acne			
ADD/ADHD			
Addictive Behaviors			
Allergies			
Anxious			
Autism Spectrum Disorder			
Bleeding Changes			
Blood Pressure High			
Blood Pressure Low			
Blood Sugar Low			
Body Temperature Cold			
Bone Loss			
Breast Cancer			
Breasts - Fibrocystic			
Breasts - Tender			
Chemical Sensitivity			
Cholesterol High			
Constipation			
Depressed			
Developmental Delays			
Eating Disorders			
Fatigue - Evening			
Fatigue - Morning			
Fibromyalgia			
Foggy Thinking			
Goiter			
Hair - Dry or Brittle			
Hair - Increased Facial or Body			
Hair - Scalp Loss			
Headaches			
Hearing Loss			
Heart Palpitations			
Hoarseness			
Hot Flashes			
Incontinence			
Infertility			
Irritable			
Libido Decreased			
Mania			

SYMPTOM CHECKLIST	MILD	MODERATE	SEVERE
Memory Lapse			
Mood Swings			
Muscle Size Decreased			
Nails Breaking or Brittle			
Nervous			
Night Sweats			
Numbness - Feet or Hands			
OCD			
Panic Attacks			
PreMenstrual Dysphoric Disorder			
Pulse Rate Slow			
Rapid Aging			
Rapid Heartbeat			
Skin Thinning			
Sleep Disturbed			
Stamina Decreased			
Stress			
Sugar Cravings			
Sweating Decreased			
Swelling or Puffy Eyes/Face			
Tearful			
Triglycerides Elevated			
Urinary Urge Increased			
Uterine Fibroids			
Vaginal Dryness			
Water Retention			
Weight Gain - Hips			
Weight Gain - Waist			

## Lab Comments

Estradiol is within range. Maintaining healthy estradiol levels promotes a healthy distribution of fat in hips, thighs, breasts, and subcutaneous tissue. Estrogen also supports good cholesterol ratios and enhances serotonin production, which helps regulate hunger. Fat tissues contain the enzyme aromatase (plus six other enzymes) that converts androgens (testosterone) to estrogens, so maintaining a healthy weight can decrease your risk of estrogen stimulated diseases like breast cancer. For women who need to lose weight, estrogen levels may drop as weight drops, so low estrogen symptoms may appear as you achieve your weight loss goals.

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. Bio-identical progesterone supplementation often helps stabilize symptoms of estrogen imbalance.

Testosterone is low. Adequate testosterone is necessary to build and maintain lean muscle mass which is directly tied to metabolic rate and calorie burning to help with weight loss. Low testosterone in both sexes is associated with increased fat deposition and reduced muscle mass which contributes to obesity and health risks for diabetes and heart disease. Deficiencies of testosterone and/or DHEA can lead to a drop in vitality and a reduced inclination to exercise. Weight gain itself, with its resulting hormone imbalances can trigger a drop in the androgens.

DHEAS is low. DHEA partners with testosterone as an anabolic hormone to build bone and muscle mass, libido, and immunities. Adequate DHEA (and testosterone) contributes to increased lean muscle which boosts metabolic rate and calorie burning to help with weight loss. DHEA may also enhance insulin sensitivity and naturally increases serotonin, which helps to control satiety and appetite.

Cortisol is not following a normal circadian rhythm and is oscillating from normal in the morning and at noon, to low in the evening, to high at night. Low evening cortisol may indicate adrenal exhaustion caused by daily stressors or the use of medications mid-day that suppress evening cortisol synthesis (e.g. DHEA or testosterone therapy) or increase cortisol clearance (thyroid medication). Recovery of cortisol to a high level at night suggests recovery/rebound from an acute stressor earlier in the day, use of some form of anti-inflammatory glucocorticoid supplementation (e.g. hydrocortisone, prednisone, Betamethasone, etc.) or adrenal booster (herbs or nutrients that support adrenal gland synthesis of cortisol). The most common adrenal stressors that might raise cortisol levels at night include psychological stressors (emotional-anxiety over unresolved situations, etc), physical insults (pain, injury), exposure to toxic chemicals, dysglycemia (inability to properly regulate blood sugar-common in

diabetic and pre-diabetics with insulin resistance) and pathogenic infections (bacterial, viral, fungal). While high cortisol production by the adrenal glands is a normal acute response to stressors and is essential for health, chronic stressors often lead to HPA axis dysfunction and eventual low cortisol levels. Chronic high cortisol is associated most commonly with symptoms of sleep disturbances, fatigue, depression, anxiety, and weight gain in the waist. When adrenal cortisol output remains high over a prolonged period of time (months/years), this can lead to excessive breakdown of normal tissues (muscle wasting, thinning of skin, bone loss) and immune suppression. For additional information about strategies for supporting adrenal health and reducing stress(ors), the following books 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.

Vitamin D3 is exceptionally low and considered deficient. This level is much lower than the ranges considered insufficient (20-30 ng/ml) or sufficient (30-80 ng/ml). While optimal levels are still being researched, the Endocrine society recommends keeping levels above >30 ng/ml. Other researchers have suggested that vitamin D levels are optimal between 50-80 ng/ml. Vitamin D deficiency has been closely associated with a wide range of conditions and diseases, which include cardiovascular disease, stroke, osteoporosis, osteomalacia, cancer, and autoimmune diseases such as multiple sclerosis, rheumatoid arthritis, and diabetes (types 1 and 2) (for review see: Holick MF. NEJM 357: 266-281, 2007). Lack of adequate sunlight resulting from geographical location (northern climates), excessive clothing, working indoors during daylight hours, purposely avoiding sunlight with clothing and sunscreens, and aging of the skin contribute to low vitamin D levels. Vitamin D3 may be increased by eating foods high in D3 (fish), exposing the skin to sunshine without sunscreen during mid-day for 15-20min (latitudes below Boston, MA), use of a UVB light, and/or supplementation with Vitamin D3.

This individual should be considered as clinically hypothyroid with low free T4 and free T3 in combination with high TSH. Signs/symptoms of hypothyroidism often include: fatigue, decreased stamina, depression, rheumatic pain, sleep disturbances, cold extremities or feeling cold, reduced body temperature, brittle nails, dry coarse hair, dry skin, hair loss, infertility, low libido, puffy eyes and face, decreased sweating, menorrhagia, and/or constipation. Many of these symptoms are reported. Thyroid treatment is strongly advised, as repercussions of hypothyroidism may be severe. Mortality, especially in elderly, is higher for those admitted to the hospital for non-thyroid diseases. This may be due to increased sensitivity to anesthesia, analgesics, narcotics, increased anemia, hypoventilation, lower sodium and/or impaired temperature control. Treatment with combination T4 and T3 or T3 alone (slow release) is likely to be more successful than just T4 supplementation alone, particularly since high stress hormones such as cortisol increase T4 conversion to the bio-inert reverse T3. Adrenal monitoring for cortisol by saliva testing is **STRONGLY** advised before commencing thyroid therapy. Thyroid therapy can increase preexisting problems of hypoadrenia (low cortisol) by increasing liver metabolism and clearance of cortisol.

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

High fasting insulin indicates insulin resistance or a non-fasting sample (note: fasting insulin assumes no food or beverages, other than water, for at least 10 hours prior to blood collection). Insulin resistance predisposes to significantly increased lifetime risk for developing more 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 associated with elevated triglycerides. Exercise, stress reduction, weight reduction, dietary modification, and creating a better hormonal balance with natural hormone replacement therapy have been shown to be effective natural ways of treating insulin resistance and should be discussed with your doctor. In women, low or high estradiol, progesterone, or testosterone, as well as high cortisol can lead to insulin resistance. Correction of any of these hormonal imbalances (i.e., increase testosterone and decrease cortisol) in combination with lifestyle changes (exercise, improved diet, stress reduction) can help correct insulin resistance and prevent long term adverse health risks.

Hemoglobin A1c (HbA1c) is within normal range, but higher than optimal. HbA1c is a measure of red blood cell hemoglobin glycation and reflects the average blood glucose for the previous 3 months. The American Diabetic Association recommends the following HbA1c levels: normal <5.7%, prediabetes 5.7%-6.4%, and diabetic >6.5%. People with diabetes have higher HbA1c values because their bodies have difficulty managing their blood sugar levels (hyperglycemia). With persistently higher levels of HbA1c, there is increased risk of developing problems such as eye disease, kidney disease, nerve damage, heart disease, and stroke.

Therapeutic considerations: Decreasing simple carbohydrates, increasing exercise, and optimizing BMI. Even small changes like a 5 min walk after meals can have profound changes in blood sugar control. Supplements like chromium, gymnema, and fiber may be helpful.