TEST REPORT

8605 SW Creekside Place
Beaverton, OR 97008
Phone: 503-466-2445 Fax: 503-466-1636

ZRT LABORATORY

 # 2018 09 17 111 SB

Ordering Provider:
Regenerus Labs

Samples Received
09/17/2018

Report Date
09/28/2018

Samples Collected
Saliva - 09/08/18 08:45
Saliva - 09/08/18 13:00
Saliva - 09/08/18 18:30
Saliva - 09/08/18 22:00
Blood Spot - 09/08/18 08:45

Patient Name: Sample Report HOR22 Comprehensive Male Profile II
Patient Phone Number: 555 555 5555

Gender	Height	Waist
Male	188 cm	Unspecified
DOB	**Weight**	**BMI**
3/19/1978 (40 yrs)	138 kg	39.0

TEST NAME	RESULTS | 09/08/18	RANGE
Salivary Steroids		
Cortisol	5.8	3.7-9.5 ng/mL (morning)
Cortisol	1.6	1.2-3.0 ng/mL (noon)
Cortisol	2.0 H	0.6-1.9 ng/mL (evening)
Cortisol	1.0	0.4-1.0 ng/mL (night)
Blood Spot Steroids		
Estradiol	96 H	12-56 pg/mL
Testosterone	110 L	400-1200 ng/dL (Age Dependent)
Ratio: T/SHBG	N/A	.7 - 1.0
SHBG	<15 L	15-50 nmol/L
DHEAS	26 L	70-325 µg/dL
Blood Spot		
PSA	2.1	<0.5-4 ng/mL (optimal 0.5-2)
Blood Spot Thyroids		
Free T4*	1.9	0.7-2.5 ng/dL
Free T3	2.6	2.4-4.2 pg/mL
TSH	5.1 H	0.5-3.0 µU/mL
TPOab*	12	0-150 IU/mL (70-150 borderline)

*<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. * For research purposes only.*

Therapies

None

CLIA Lic # 38D0960950
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David T. Zava, Ph.D.
Laboratory Director

Alison McAllister, ND.
(Ordering Provider unless otherwise specified on page 1)

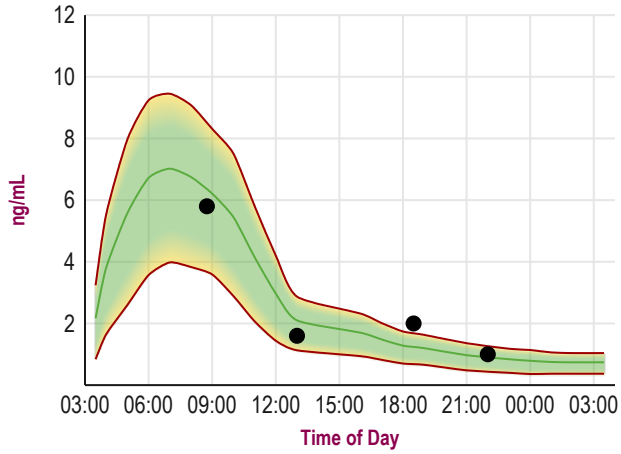
Therapies

Graphs

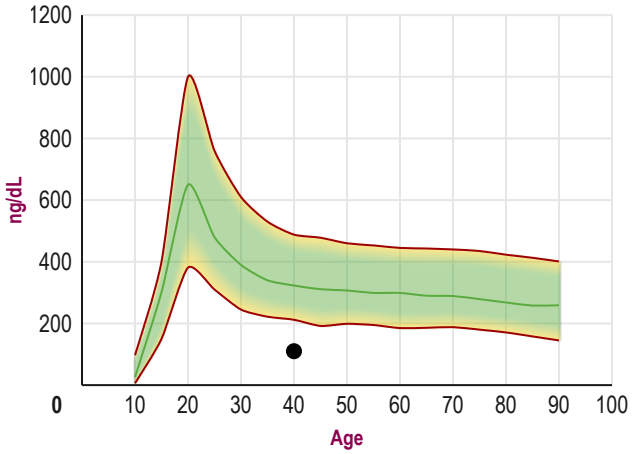
Disclaimer: Graphs below represent averages for healthy individuals not using hormones. Supplementation ranges may be higher. Please see supplementation ranges and lab comments if results are higher or lower than expected.

Average ▼▲ Off Graph

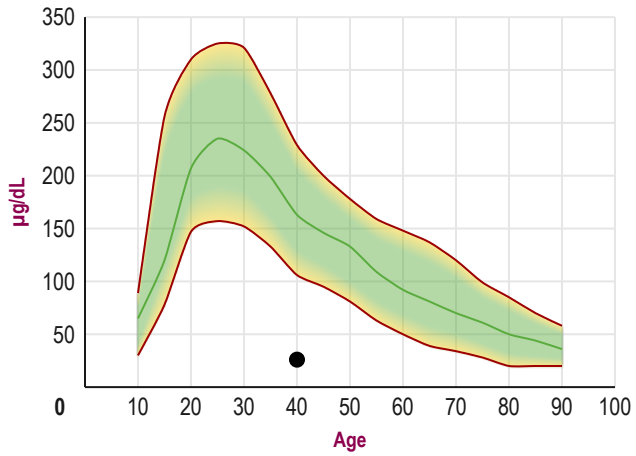
Saliva Cortisol



Blood Spot Testosterone



Blood Spot DHEAS



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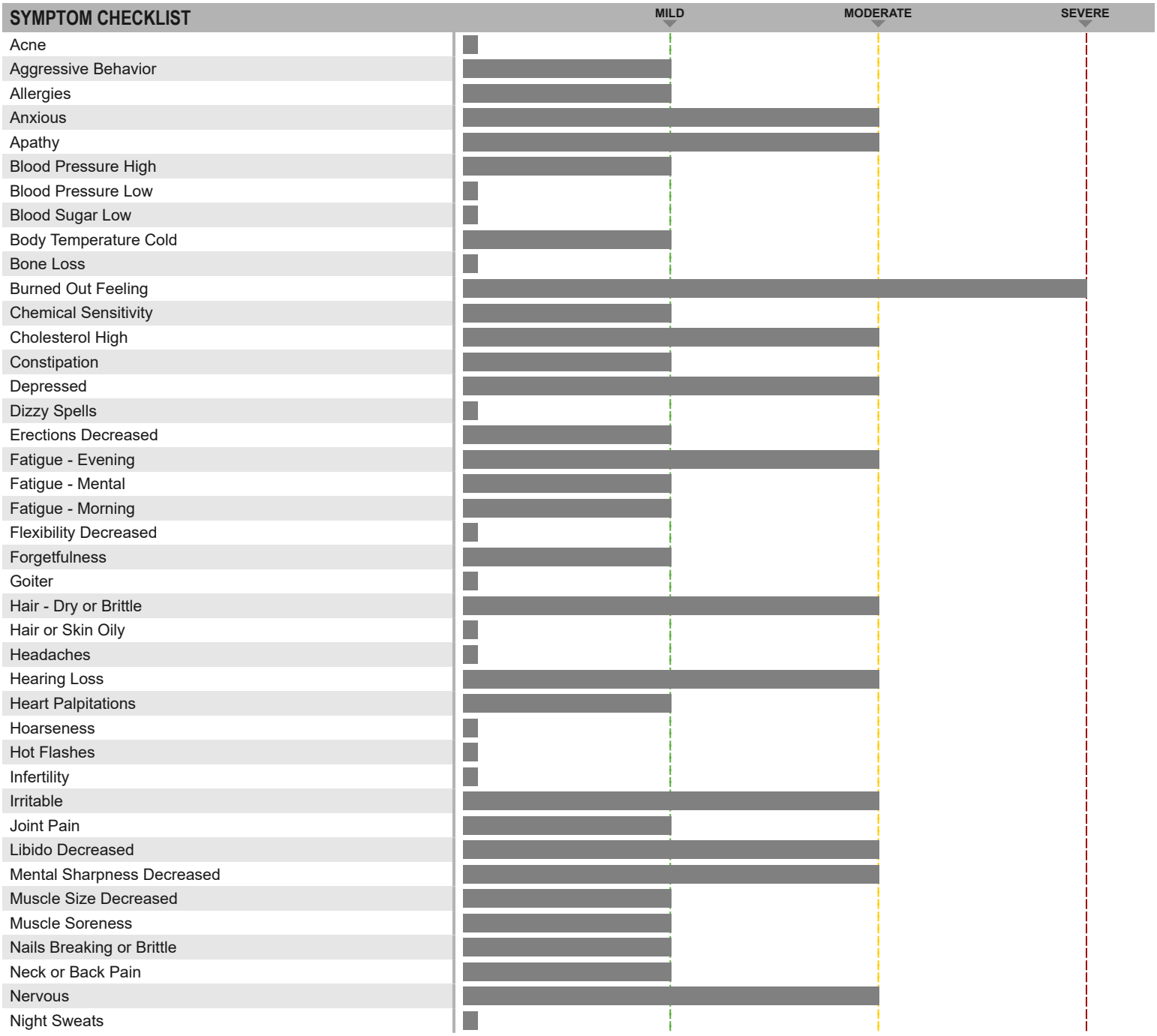
Disclaimer: Symptom Categories below show percent of symptoms self-reported by the patient compared to total available symptoms for each category. For detailed information on category breakdowns, go to www.zrtlab.com/patient-symptoms.

SYMPTOM CATEGORIES	RESULTS | 09/08/18
Estrogen / Progesterone Deficiency	14%
Estrogen Dominance / Progesterone Deficiency	30%
Low Androgens (DHEA/Testosterone)	40%
High Androgens (DHEA/Testosterone)	27%
Low Cortisol	38%
High Cortisol	49%
Hypometabolism	42%
Metabolic Syndrome	51%



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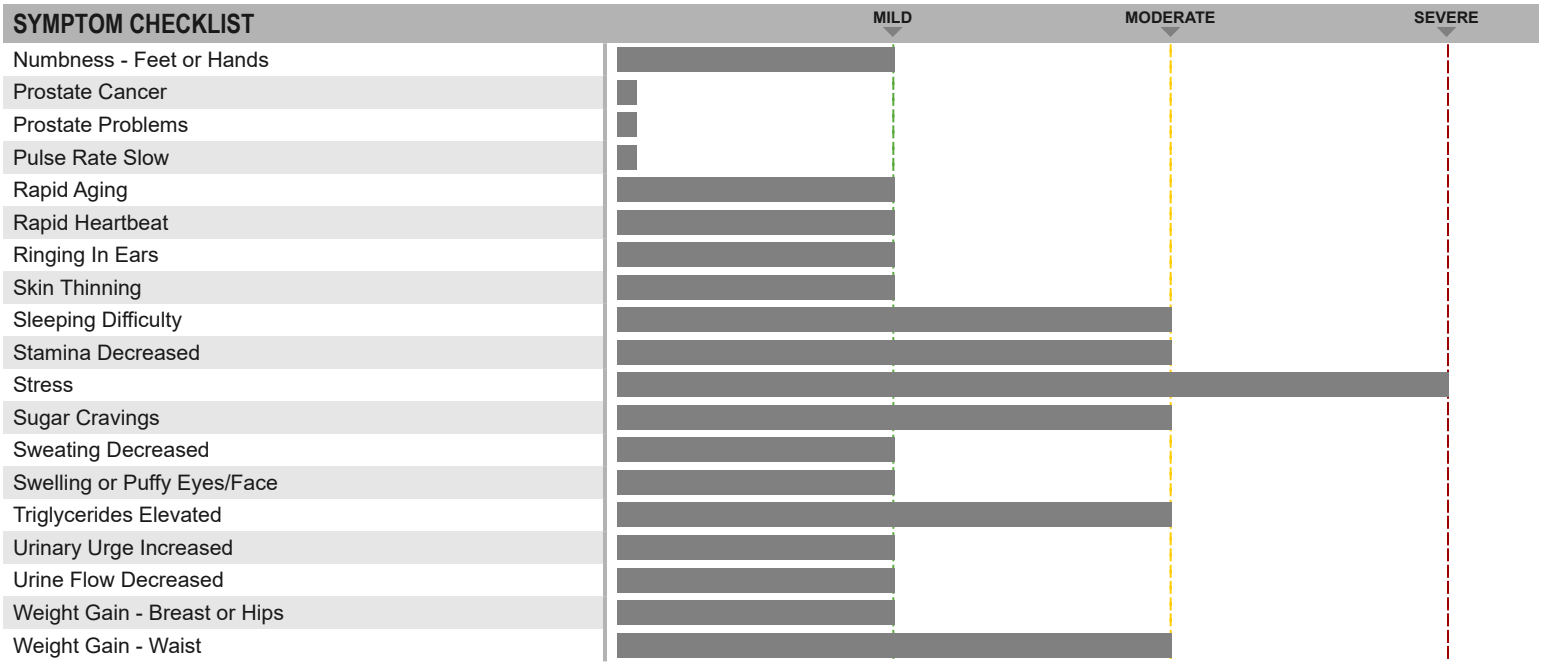

Lab Comments

Cortisol is within normal range in the morning and at noon, rises to a high level in the evening and then drops to a normal range again at night. Higher evening/night cortisol indicates either some form of adrenal stressor(s) that is increasing adrenal gland synthesis of cortisol or supplementation with a glucocorticoid (eg. hydrocortisone used as an anti-inflammatory or some other cortisol analogue used for treating allergies or asthma) or adrenal adaptogen that increases adrenal cortisol synthesis (eg. licorice or ginseng), The most common stressors include: psychological stressors (emotional), physical insults (injury, pain, diseases), chemical exposure (environmental pollutants, excessive medications), hypoglycemia (low blood sugar), and pathogenic infections (bacterial, viral, fungal). Acute situational stressors (e.g., anxiety over unresolved situations, coming home from work to a stressful situation.) can also result in a transient increase in evening/night cortisol levels, which is a normal response to the stressor. Chronic high evening/night cortisol is commonly associated with sleep disturbances, fatigue, depression, weight gain in the waist, bone loss, and anxiety. This condition can also impair the actions of other hormones such as insulin and thyroid, causing symptoms of their deficiency, even though the levels of these hormones may be within normal range (i.e., insulin resistance and thyroid deficiency). For additional information about strategies for supporting adrenal health and reducing stressors, 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.

Estradiol (blood spot) is higher than range for a male, indicating excessive conversion of androgens to estrogens. Testosterone conversion to estradiol can result from increased levels of aromatase, which is found in adipose tissue and induced by cortisol.

Testosterone (blood spot) is lower than the optimal range (400-1200 ng/dL). In men NOT supplementing with testosterone, the level/range of testosterone in whole blood derived from the dried blood spot is nearly identical to testosterone in serum from conventional venipuncture. In the bloodstream testosterone is tightly bound to Sex Hormone Binding Globulin (SHBG), rendering it less available to target tissues. The free and bioavailable fractions of testosterone can be calculated if the total testosterone (this test) and SHBG concentrations are known (www.issam.ch/freetesto.htm). This often referred to as the Free Testosterone Index (FTI). The ideal FTI for men is 0.7-1.0, but levels can drop much lower in older men due to lower testosterone and higher SHBG. When testosterone values drop below about 400 ng/dL and/or the FTI is low, due to elevated SHBG, symptoms of andropause often are more frequent. Low testosterone in men is commonly seen beginning in the fourth decade of life, and is associated with symptoms of aging. Adequate levels of testosterone are essential for a man's health and well being. Testosterone is an important anabolic hormone that helps to maintain both physical and mental health: it prevents fatigue, helps to maintain a normal sex drive, increases the strength of all structural tissues (skin, bone, muscles, heart) and prevents depression and mental fatigue. Testosterone deficiency is associated with symptoms such as erectile dysfunction, decreased sex drive, and decreased mental and physical ability, apathy, loss of muscle mass, and insulin resistance /metabolic syndrome. Stress management, exercise, proper nutrition, dietary supplements (particularly adequate zinc and selenium), and androgen replacement therapy have all been shown to raise androgen levels in men and help counter andropause symptoms. Testosterone therapy is worthwhile considering if symptoms of andropause are problematic and PSA is within normal range.

SHBG (Sex Hormone Binding Globulin) is low for a man 40 and older. Low estradiol, low thyroid, and high insulin often are associated with a low SHBG. SHBG is an indirect index of estrogen interaction with the liver when thyroid and insulin levels are normal. As the estrogen levels increase with aging in males there is a proportional increase in SHBG, assuming thyroid and insulin levels are normal. However, when thyroid hormone (T3) is low or is functioning less efficiently at the cellular level (most common causes are high estrogens, low progesterone, low testosterone and low or high cortisol) hepatic induction of SHBG by estrogens is diminished. Excess insulin, caused by insulin resistance (often

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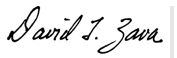
associated with high triglycerides), also suppresses SHBG synthesis by the liver, rendering estrogens and androgens, particularly testosterone and dihydrotestosterone, more bioavailable. Assuming normal thyroid and insulin levels, the SHBG level can be used as relative index of overall exposure to any forms of estrogen (endogenous, pharmaceutical, xeno-estrogens).

DHEAS (blood spot) is lower than the reference range. Blood DHEAS levels are highest in the late teens to early twenties in both males and females and levels steadily decline with age. The reference range spans expected levels from youth (upper limits) to old age (lower limits). A very low DHEAS at any age could indicate adrenal dysfunction. Low DHEAS is often associated with low testosterone (DHEA is a testosterone precursor) and symptoms of androgen deficiency (fatigue, depression, low libido, loss of muscle mass, bone loss, memory lapses). If symptoms of androgen deficiency are/become problematic consider DHEA therapy.

PSA (Prostate Specfic Antigen) is within normal range.

Free T4 is within normal range but free T3 is low-normal and TSH is slightly elevated. Several symptoms (cold body temperature, low stamina) are consistent with lower T3 and slightly elevated TSH. Elevated TSH is expected to occur in 10% of the population, approximately 5% worldwide, and approximately 4-15% in the elderly. In the United States alone, this accounts for 13 million cases of undetected hypothyroidism. Subclinical hypothyroidism, which presents with high TSH, normal free T4, and normal T3, is seen in the majority of hypothyroid patients. TSH values will change prior to any appearance of abnormalities in free T4 or free T3. The TSH will change 100 fold for every 2-fold change in free T4. Since the TSH "set point" appears to be individual, ideal management would include monitoring subtle fluctuations or changes in an individual's TSH results. 17% of subclinical hypothyroidism will progress to overt hypothyroidism. Measurement of thyroid peroxidase antibody is appropriate to help determine course of treatment. Routine screening for TSH is recommended every 5 years after age 35, or more frequently after age 55. Since the TSH "set point" appears to be individual, ideal management would include monitoring subtle fluctuations or changes in an individual's results. If symptoms become more problematic 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.

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



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