# TEST REPORT

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ZRT LABORATORY

**Samples Received**

**Report Date**
04/01/2022

| | | |
|---|---|---|
| **Last Menses** | **Height** | **Waist** |
| **Menses Status**<br>Pre-Menopausal | **Weight** | **BMI** |

| TEST NAME | RESULTS \| 03/30/22 | RANGE |
|---|---|---|
| **Salivary Steroids** | | |
| **Cortisol** | 2.9 L | 3.7-9.5 ng/mL (morning) |
| **Cortisol** | 1.8 | 0.6-1.9 ng/mL (evening) |
| **Cortisol** | 1.7 H | 0.4-1.0 ng/mL (night) |
| **Cortisol** | 1.3 H | 0.4-1.0 ng/mL (night) |
| **Blood Spot Steroids (LC-MS/MS) & Other Analytes** | | |
| **Estradiol** | 122 | 51-302 pg/mL Premeno-luteal |
| **Progesterone** | 13.7 | 4.3-25.3 ng/mL Premeno-luteal |
| **Ratio: Pg/E2** | 112 | Pg/E2 (bloodspot-optimal 100-500) |
| **Testosterone** | 38 | 18-39 ng/dL Premeno-luteal |
| **SHBG** | 54 | 15-120 nmol/L |
| **DHEAS** | 130 | 17-207 µg/dL |
| **Blood Spot Thyroids** | | |
| **Free T4** | 1.7 | 0.7-2.5 ng/dL |
| **Free T3** | 2.9 | 2.4-4.2 pg/mL |
| **TSH** | 1.1 | 0.5-3.0 µU/mL |
| **TPOab** | 42 | 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.*

## Therapies

None



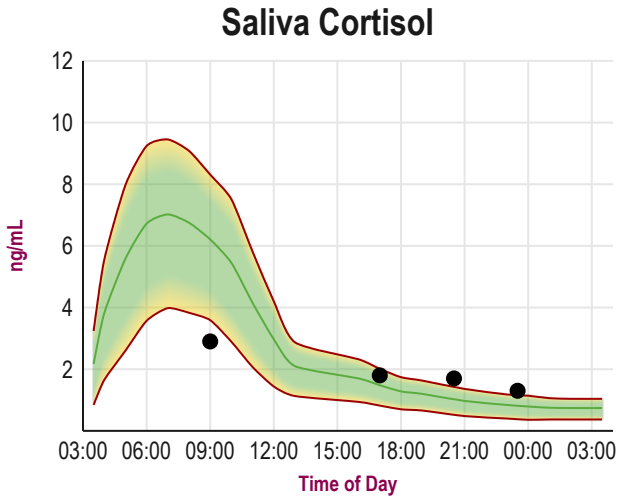
David T. Zava, Ph.D.
Laboratory Director

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

## 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



**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 |
|---|---|
| **Salivary Steroids** | |
| Cortisol | 3.7-9.5 ng/mL (morning); 1.2-3.0 ng/mL (noon); 0.6-1.9 ng/mL (evening); 0.4-1.0 ng/mL (night) |
| **Blood Spot Steroids (LC-MS/MS) & Other Analytes** | |
| Estradiol | <10-26 pg/mLPostmeno or Premeno + Synthetic E; 32-472 pg/mL Pre/Postmeno ERT; 51-302 pg/mL Premeno-luteal; 30-92 pg/mL Early Follicular |
| Progesterone | <0.1-0.9 ng/mL Postmeno, Premeno-Follicular or Premeno + Syn P; 0.5-4.3 ng/mL Oral (100-300mg); 5.2-65.3 ng/mL Topical (10-30mg); 4.3-25.3 ng/mL Premeno-luteal |
| Ratio: Pg/E2 | Pg/E2 (bloodspot-optimal 100-500) |
| Testosterone | 13-38 ng/dL Postmeno or Premeno + Synthetic E; 29-224 ng/dL Pre/PostMenopausal TRT; 18-39 ng/dL Premeno-luteal |
| SHBG | 15-120 nmol/L |
| DHEAS | 17-207 µg/dL |
| **Blood Spot Thyroids** | |
| Free T4 | 0.7-2.5 ng/dL |
| Free T3 | 2.4-4.2 pg/mL |
| TSH | 0.5-3.0 µU/mL |
| TPOab | 0-150 IU/mL (70-150 borderline) |

# TEST REPORT | Patient Reported Symptoms

**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 \| 03/31/22 |
|---|---|
| **Estrogen / Progesterone Deficiency** | 14% |
| **Estrogen Dominance / Progesterone Deficiency** | 32% |
| **Low Androgens (DHEA/Testosterone)** | 27% |
| **High Androgens (DHEA/Testosterone)** | 52% |
| **Low Cortisol** | 32% |
| **High Cortisol** | 24% |
| **Hypometabolism** | 27% |
| **Metabolic Syndrome** | 36% |

| 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 | | | |



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.

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Laboratory Director

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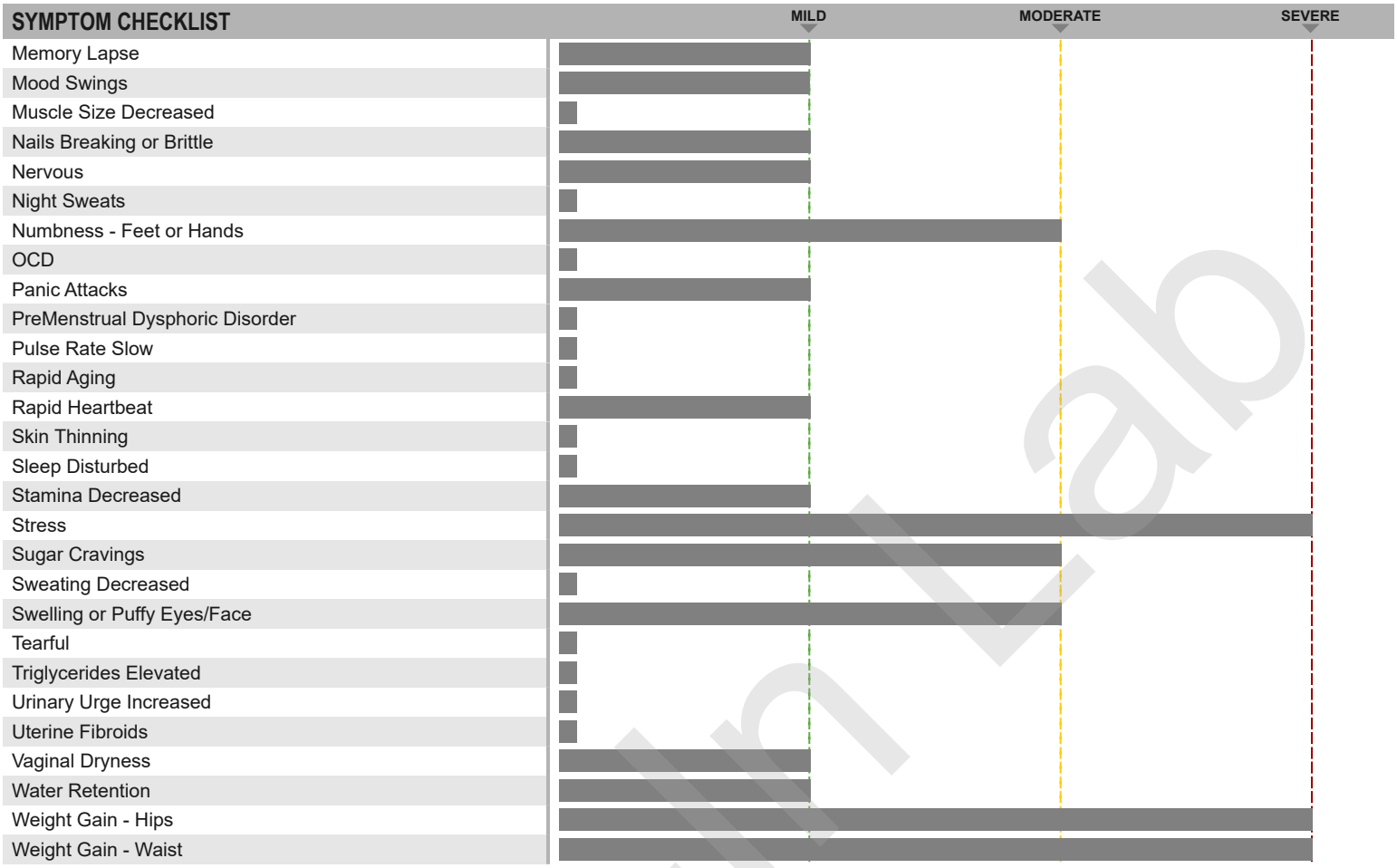
(Ordering Provider unless otherwise specified on page 1)




## Lab Comments

Cortisol is low in the morning, normal during mid day, and high at night. This flattened circadian profile indicates adrenal dysfunction. In an individual without significant stressors, cortisol is highest in the morning shortly after awakening and steadily drops throughout the day, reaching the lowest level during sleep in the very early morning about 2 am. The abnormal pattern seen in these test results indicates some loss of negative feedback control of cortisol to the brain (hypothalamic-pituitary-adrenal axis/HPA). Desensitization of the brain to cortisol often is related to excessive and chronic stressors (emotional, dietary, physical), nutrient imbalances/deficiencies, or the inability to regulate glucose levels (dysglycemia). Adrenal dysfunction, particularly high night cortisol, is associated with symptoms of sleep disturbances, anxiety, memory lapses, fatigue, bone loss, and depression. A high night cortisol may contribute to sleep disturbances and immune dysfunction. Adequate rest and sleep, gentle exercise, proper diet (adequate protein), nutritional (vitamins C and B5) and herbal supplements are some of the natural ways to support adrenal function. 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.

Estradiol (blood spot) is within expected range for a premenopausal woman and well balanced with progesterone (optimal Pg/E2 ratio: 100-500).

Progesterone (blood spot) is within optimal range for a premenopausal woman during the luteal phase of the menstrual cycle. Progesterone should be well balanced with estradiol (optimal Pg/E2 ratio 100-500, when estradiol is within range). If symptoms of estrogen excess (dominance) remain problematic and/or the Pg/E2 ratio is low consider lowering the estrogen burden with improved diet (less red meat and more vegetables with color, gentle exercise, stress reduction, etc.)

Testosterone (blood spot) is within normal range for a premenopausal woman, but symptoms of both androgen deficiency and excess persist. Low androgen symptoms could be due also to other hormonal imbalances (e.g. low or high cortisol, low thyroid) with similar symptom profiles. High androgen symptoms could be due to high androgens at other times of the menstrual cycle and/or recent or current (none indicated) use of contraceptive progestins with androgenic activity. High androgen symptoms such as excessive facial/body hair may also occur when testosterone is within normal range but estrogens and progesterone (both anti-androgens) are low.

SHBG is within normal range. The SHBG level is a relative index of overall exposure to all forms of estrogens (endogenous, pharmaceutical, xeno-estrogens). As the estrogen levels increase in the bloodstream there is a proportional increase in hepatic production of SHBG. Thyroid



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hormone and insulin also play a role in regulating hepatic SHBG synthesis. Thyroid hormone synergizes with estrogen to increase SHBG production while insulin, in excess (caused by insulin resistance) decreases SHBG synthesis. Thus, in individuals with thyroid deficiency and insulin resistance the SHBG level is usually low. SHBG is an important estradiol and testosterone binding globulin that help increase the half life of these hormones in the bloodstream, and also limit their bioavailability to target tissues. SHBG binds tightly to testosterone and its more potent metabolite dihydrotestosterone (DHT). It also binds tightly to estradiol, the most potent of the endogenous estrogens, but about 5 times weaker than to testosterone and DHT. Thus an increase in SHBG results in proportionately less bioavailable testosterone than estradiol.

DHEAS (blood spot) is within range. DHEAS is highest during the late teens to early twenties and then declines progressively with age to the lower levels of the range in healthy men and women. Expect DHEAS to be in the high reference range until the mid-twenties, the mid-range during the thirties to early fifties and in the lower normal range thereafter. Low age-related 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). Symptoms of androgen deficiency may be caused by low age-related DHEAS. Consider DHEA therapy if DHEA and/or testosterone are lower than age-expected levels.

Thyroid hormones (free T4, free T3, and TSH) and thyroid peroxidase antibodies (TPO) are within normal ranges; however, symptoms of thyroid deficiency persist (feeling cold, evening fatigue, low libido, low stamina, brittle nails). This suggests that although T3 is within normal level, it is not functioning normally at the tissue level (i.e., functional thyroid deficiency). Stress is listed as moderate/severe on the requisition form. This often is associated with high cortisol or catecholamines (norepinephrine), which can desensitize target tissues to the actions of T3. Poor response of target tissues to normal circulating levels of T3 may also be caused by heavy metals (particularly mercury), and/or other steroid hormone imbalances (high estradiol, low progesterone, low testosterone). If steroid imbalances are detected by saliva or blood testing, they should be corrected before attempting thyroid therapy. Full evaluation of adrenal cortisol production throughout the day should be performed before attempting thyroid therapy since normal cortisol levels are required for normal thyroid function. Thyroid therapy in individuals with low cortisol levels could result in exacerbation of thyroid deficiency symptoms.