

Test Results



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2014 03 10 001 B



Samples Arrived: 03/10/2014
Date Closed: 03/14/2014

Samples Collected:

John Smith MD
1234 Clinic Street
West Otis, MA 01245

Tammy Trueblood

Menses Status: Hysterectomy (ovaries removed)
Gender: Female

Last Menses: Unspecified
DOB: 6/1/1966 (47 yrs) Patient Ph#: 5555555555

BMI: 23.4
Height: 66 in
Weight: 145 lb
Waist: 32 in

Test Name	Result	Units	Range
Estradiol (blood spot)	<10	pg/mL	<10-49 Postmenopausal
Progesterone (blood spot)	<0.1	ng/mL	<0.1-0.8 Postmenopausal
Ratio: Pg/E2 (blood spot)	0	L	Pg/E2 (bloodspot-optimal 100-500)
Testosterone (blood spot)	<10	L ng/dL	10-45 Postmenopausal
DHEAS (blood spot)	39	L ug/dL	40-290
Cortisol (blood spot)	25.0	H ug/dL	8.5-19.8 (morning), 3.3-8.5 (evening/night)
SHBG (blood spot)	59	nmol/L	15-120

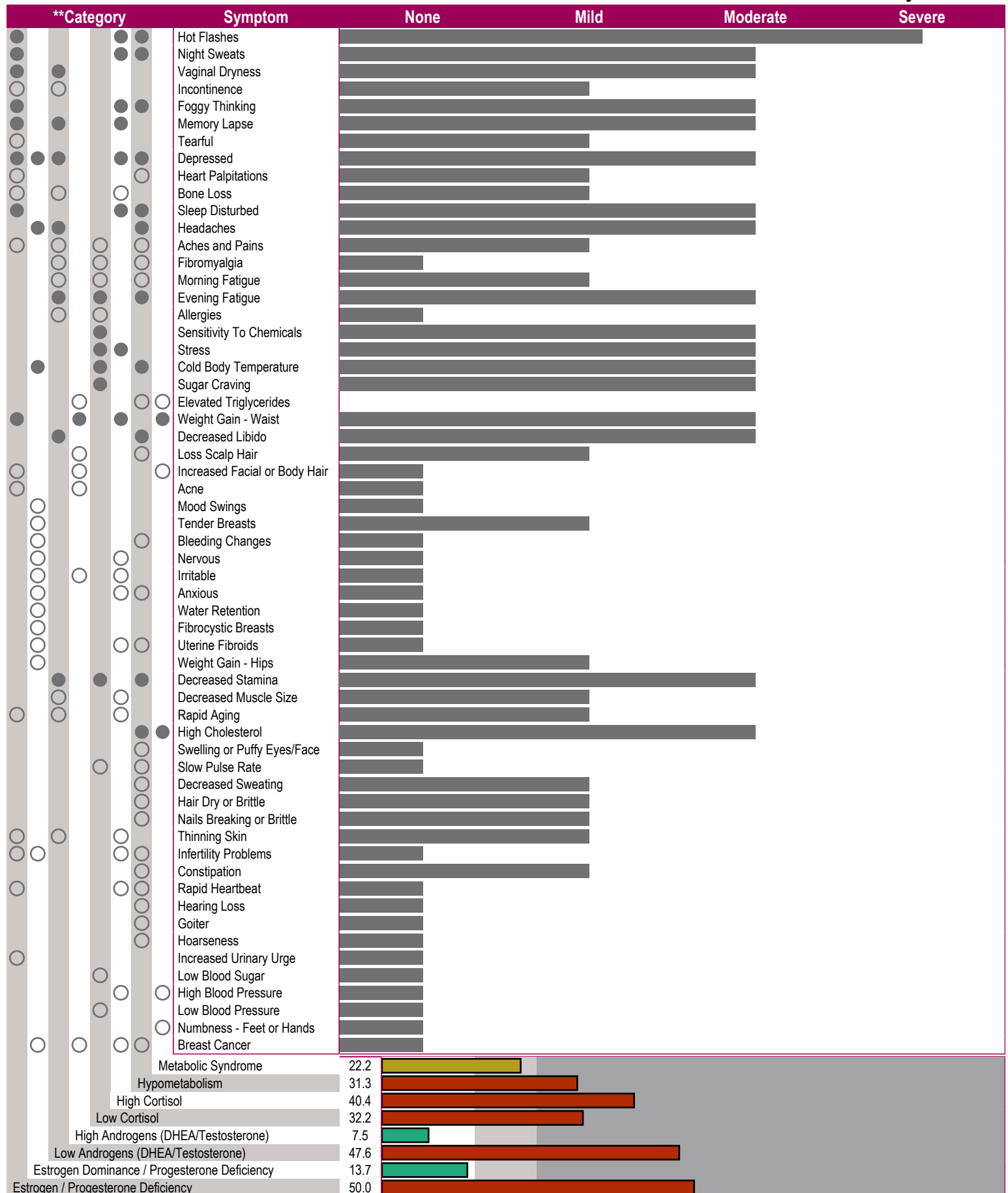
Therapies

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 (blood spot) - pg/mL	43-180 Premeno-luteal or ERT; <10-49 Postmenopausal
Progesterone (blood spot) - ng/mL	3.3-22.5 Premeno-luteal or PgRT; <0.1-0.8 Postmenopausal
Ratio: Pg/E2 (blood spot)	Pg/E2 (bloodspot-optimal 100-500)
Testosterone (blood spot) - ng/dL	20-130 Premeno-luteal or TRT; 10-45 Postmenopausal
DHEAS (blood spot) - ug/dL	40-290
Cortisol (blood spot) - ug/dL	8.5-19.8 (morning), 3.3-8.5 (evening/night); 3.3-8.5
SHBG (blood spot) - nmol/L	15-120



**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.

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(Laboratory Director)

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Lab Comments

Estradiol is within the lower end of the range for a postmenopausal woman. This individual has had her ovaries removed which lowers the level of estradiol, as well as its precursor testosterone. Symptoms of estrogen deficiency are self-reported as problematic. Consider estrogen replacement therapy (assuming no contraindications) in combination with natural progesterone.

Progesterone (blood spot) is within the expected lower range for a postmenopausal woman. In women NOT supplementing with progesterone the postmenopausal level is expected to be less than 1 ng/ml. In postmenopausal women supplementing with estrogens, progesterone therapy is often helpful in preventing symptoms of estrogen imbalance when the progesterone/estradiol ratio is optimal (100-500).

Testosterone (blood spot) is low, consistent with low androgen symptoms. Low testosterone likely is due to oophorectomy (surgical removal of the ovaries). In females, testosterone level is highest during youth and drops steadily with age. About half of the testosterone is produced by the ovaries and their surgical removal results in a precipitous drop in circulating testosterone and an increase in symptoms of androgen deficiency. Symptoms/signs most commonly associated with low testosterone include: low libido, incontinence, vaginal dryness, fatigue, memory lapses, depression, and bone loss. Testosterone is an anabolic hormone essential for creating energy, maintaining optimal brain function (memory), regulating the immune system, and building and maintaining the integrity of structural tissues such as skin, muscles, and bone. Low serum testosterone has been correlated with low bone mass in both perimenopausal and postmenopausal women (Oronzo et al. Eur J Epidemiology 16: 907-912, 2000; Slemenda et al. J Clin Invest 97: 14-21, 1996). Low androgens have also been correlated with a higher prevalence of autoimmune problems such as lupus and rheumatoid arthritis (Masi AT. Clin Exp Rheumatol 1995; 13(2):227-240). Because the blood testosterone level is low, it would be worthwhile to evaluate bone density periodically (yearly) and to consider androgen supplementation to prevent long term health issues, particularly osteoporosis and increased fracture risk.

DHEAS (blood spot) is lower than range. Low DHEAS, as well as testosterone, is common in women who have had their ovaries removed, and suggests adrenal fatigue. Low DHEAS is often associated with low testosterone (DHEA is a testosterone precursor) and symptoms of androgen deficiency (fatigue, depression, vaginal dryness, low libido, loss of muscle mass, bone loss, memory lapses). Self-reported symptoms indicate androgen deficiency, consistent with low DHEAS. Consider DHEA therapy if cortisol is within normal range. DHEA therapy can cause a transient suppression of cortisol and exacerbate symptoms of cortisol deficiency assuming cortisol is low.

Morning cortisol (blood spot) is high, consistent with symptoms characteristic of adrenal stressors. The most common adrenal gland stressors include psychological stressors (emotional), hypoglycemia (low blood sugar), physical insults (pain or injury resulting in inflammation), exposure to toxic chemicals, and/or infections (bacteria, viruses and fungi). When any of these stressors persist the adrenal glands either continue to meet the demands of the stressor, wherein cortisol levels remain high (as seen in this test), or become exhausted, wherein cortisol levels fall below normal. While high cortisol production by the adrenal glands is a normal response to stressors and is essential for health, if persistent this can lead to excessive breakdown of normal tissues (muscle wasting, thinning of skin, bone loss), dysregulation in the function of other hormones (sex hormones, insulin, thyroid), and immune suppression. Chronic high cortisol, particularly if it is elevated throughout the day or high at night, is associated most commonly with some of the reported symptoms (sleep disturbances, vasomotor symptoms, fatigue, depression, weight gain in the waist, bone loss, anxiety). A high night cortisol will lower melatonin production and may contribute to sleep disturbances and immune dysfunction. Because only a morning cortisol was tested, it would be worthwhile to evaluate SALIVARY cortisol levels 4x throughout the day to determine the circadian rhythm and overall tissue bioavailability of cortisol. In some individuals a high morning cortisol can be followed by low, normal, or continued high levels throughout the day. For additional information about strategies for supporting adrenal health and reducing stressors that raise cortisol levels, 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.

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 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.