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Collection Date: 2005/2/1
Collection Time(s): 8:00
Sample Received: 2005/2/1
Reported On: 2005/03/09

SALIVA HORMONE TEST REPORT

Accession Number: 7056

Provider: Rocky Mountain Analytical Unit A 253147 Bears paw Road NW Calgary AB T3L 2P5	Client: Jane Doe 123 Any Street Busby AB T0G 0H0	Age: 51 DOB: 1954/1/1 Gender: Female Status: No Menses
Phone: Fax:	(403) 655-5555	Health #:

Hormone	Status	Result	Range	Units	Range Applied
Estradiol	Within range	4.1	1.0 - 5.0	pg/ml	Last menses >30 days ago: presumed anovulatory
Progesterone	Below range	< 20	20 - 50	pg/ml	Postmenopause endogenous
Testosterone	High end of range	40	15 - 45	pg/ml	Female testosterone endogenous
DHEAS	High end of range	10	2.0 - 11	ng/ml	Female DHEAS endogenous
Cortisol AM	High end of range	9.8	3.0 - 10	ng/ml	Sampled within 1 hour of waking

Hormone Therapies

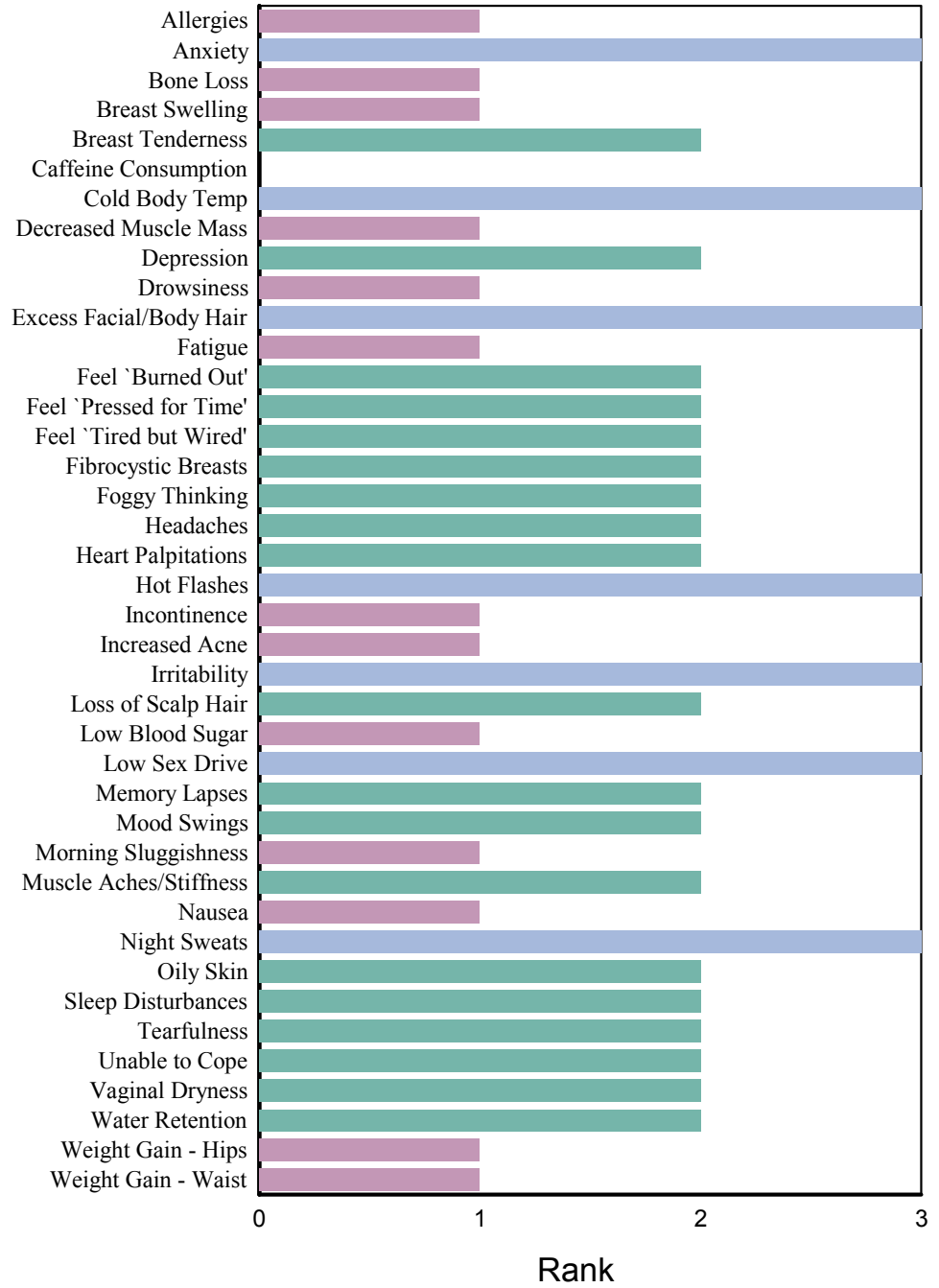
None Reported



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Symptoms



Note: only symptoms which have been marked 0 to 3 on the requisition form are displayed above.

Breast tenderness is listed as a significant complaint for this patient. Breast tenderness usually indicates an estrogen-progesterone imbalance. If estrogen is being supplemented along with progesterone, and a typical progesterone dose is being used, then the problem can usually be addressed by decreasing the estrogen dose, stopping estrogen or switching from oral to transdermal progesterone. Occasionally, progesterone is within normal limits, yet the problem can still be addressed nicely by supplementation with topical progesterone. If no hormones are being supplemented, then it is a question of addressing the issue: high/high normal estradiol or low progesterone. Sometimes both estradiol and progesterone are within range, or sometimes breast tenderness persists despite topical progesterone therapy; in these cases, there is usually another factor at play, such as low testosterone, high cortisol, or excess caffeine consumption.

Symptoms of hypothyroidism are present. These may include cold intolerance/feeling cold all the time, depression, weight gain, fatigue, headaches, thinning hair, and aching muscles, although not all these symptoms will be present in every individual. Other symptoms (not inventoried here) can include constipation, dry skin and muscle cramps. (Baiser W, Hertoghe J, Eeckhaut W. *J Nutritional Env Med* 2000;10:105-113.) Note that these symptoms may be present in the face of normal thyroid studies such as TSH. This is known as a functional deficiency state in which the blood level of a hormone is normal, but the action of the hormone at the tissue level is being blocked by other hormone imbalances. For example, unopposed/insufficiently opposed estrogen replacement and excessive estrogen dosing are common causes of hypothyroid symptoms. Similarly, high cortisol can oppose the action of thyroid hormone at the tissue level. Note also that these symptoms may persist despite supplementation with T4 (Synthroid, Eltroxin, L-throxine). In this situation, conversion of T4 to T3 (the more active form) may be blocked by high cortisol or deficiencies of nutrients including selenium and zinc.

Strictly speaking, vasomotor symptoms including hot flashes and night sweats reflect sympathetic nervous system (SNS) instability. Hence these symptoms are dependent on many factors such as stress, serotonin and norepinephrine neurotransmitter balance in the brain, and adrenal function/cortisol levels. They are not "pure" symptoms of estrogen deficiency (Prior J. *Endocrine Rev* 1998;19:397-428), and in fact, these symptoms may co-exist with symptoms of estrogen dominance. Vasomotor symptoms can be seen with many different patterns of hormone imbalance, such as low progesterone, low testosterone, low or high DHEAS, high estradiol, high cortisol. In general, vasomotor symptoms will improve when all the hormones are in balance. (Note: A one year trial of progesterone cream demonstrated efficacy compared to placebo, for the control of vasomotor symptoms (Leonetti HB, Longo S, Anasti JN. *Transdermal progesterone cream for vasomotor symptoms and postmenopausal bone loss. Obstet Gynecol.* 1999 Aug;94(2):225-228).)

Estradiol is normal but the patient is complaining of vaginal dryness. The net estrogen signal delivered to the estradiol receptor will depend on many factors besides the estradiol level, including the relative balance of other hormones (T3, testosterone and cortisol). Low DHEAS is also associated with vaginal dryness, although this is a typical low estrogen symptom. Despite the normal saliva estradiol level, consideration might still be given to a trial of vaginal estrogen therapy such as a vaginal ring, tablet or compounded estrogen (estradiol and/or estriol cream). Note that whether estrogen is given orally, vaginally or through the skin, it should always be accompanied by bio-identical progesterone, in order to optimize the clinical response.

The ratio of Pg/E2 is 1.4. On average the most commonly-observed ratio in regularly cycling women in the luteal phase is in the range 8-30, with 15 being the median value. A low or low normal ratio usually indicates an excess of estrogen relative to progesterone and may accompany

symptoms of estrogen dominance (water retention, weight gain at the hips, migraines, irritability, breast tenderness, history of fibrocystic breasts) or may affect the balance of other hormones including testosterone and thyroid hormone. (Relative estrogen excess may impair thyroid function, leading to symptoms of low thyroid such as fatigue, depression, cold intolerance, and weight gain despite normal routine thyroid tests.) Supplementation with transdermal bio-identical progesterone may be worth considering for overall hormone balance as well as symptom relief, even if progesterone is within normal limits.

Both testosterone and DHEAS are high normal/high and BMI is greater than 27. Symptoms of elevated androgens are present. (Symptoms of elevated testosterone may include acne, increased facial hair growth, oily skin and abdominal weight gain, although any given individual may not have every one of these symptoms.) Note that some supplements may also elevate androgen levels, including immune function supportive supplements, wild yam extract and Vitex. In postmenopausal/surgically menopausal women, the clinical picture of high androgens and elevated BMI may be associated with insulin resistance/metabolic syndrome. Weight reduction, low refined carbohydrate intake and insulin sensitizers such as metformin may be helpful in some cases.

The morning cortisol level is toward the high end of the range and some of the listed symptoms are consistent with elevated cortisol throughout the rest of the day and evening. Symptoms of excess cortisol can include bone loss, anxiety, irritability, low sex drive, problems with memory, brain fog, feeling pressed for time, feeling 'burned out', fatigue, heart palpitations, breast tenderness, thinning of scalp hair, morning sluggishness and vaginal dryness, although not all these symptoms are present in a given individual. Assessment of adrenal function via a four point cortisol profile may be helpful in this case.

The ratio: A.M. Cortisol/DHEAS is 1.0. This ratio normally increases with age. Based on a large in-house analysis of more than 15,000 samples at ZRT Laboratory in Portland, the ratio at age 20 is approximately 0.6; at age 45 it is 1.0; at age 60 it is 1.5 and at age 75 it is 2.3. This is because DHEAS declines with age whereas morning cortisol stays the same or increases slightly. If the ratio is higher than expected, based on the patient's age, this may be indicative of unbalanced adrenal function (cortisol too high or DHEAS too low). Factors which can contribute to imbalance include acute or chronic stress, obesity, metabolic syndrome/diabetes, and hypothyroidism. If the ratio is lower than expected for age, and DHEAS is within normal limits, this may simply be an indicator of healthy aging (i.e. preservation of DHEA output with age); however, a lower-than-expected ratio for age may also be due to low cortisol, high DHEAS, or both.



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Note: The College of Physicians and Surgeons of Alberta considers saliva hormone testing and some forms of bio-identical hormone replacement to be complementary medicine. The interpretation comments have not been evaluated or approved by any regulatory body. Commentary is provided to clinicians for educational purposes and should not be interpreted as diagnostic or treatment recommendations.*