Nordic Laboratories

PATIENT:	[redacted]			TEST REF:	[redacted]
TEST NUMBER:	[redacted]	RECEIVED:	10/17/2016	PRACTITIONER:	Friederich Damore Chloe Bjoerk
PATIENT NUMBER:	N/A	TESTED:	10/20/2016		
GENDER:	Female	COLLECTED:	10/12/16 08:30 10/12/16 12:15 10/12/16 17:00 10/12/16 22:20 10/12/16 08:00	ADDRESS:	Brigadevej 4, 2 tv 2300, København S
AGE:	53				
DATE OF BIRTH:	[redacted]				

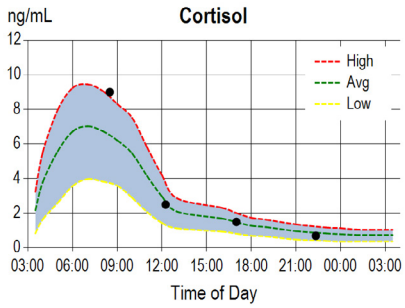
TEST NAME: Fertility Profile (Saliva: Cx4) (Blood Spot: E2, Pg, T, DS, SHBG, TSH, FT3, FT4, TPO, FSH, LH)

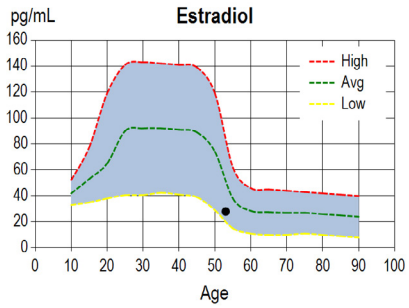
Test Name	Result		Units	Range
Cortisol (Saliva)	9.0		ng/mL	3.7-9.5 (morning)
Cortisol (Saliva)	2.5		ng/mL	1.2-3.0 (noon)
Cortisol (Saliva)	1.5		ng/mL	0.6-1.9 (evening)
Cortisol (Saliva)	0.7		ng/mL	0.4-1.0 (night)
Estradiol (Blood Spot)	28	L	pg/mL	43-180 Premeno-luteal or ERT
Progesterone (Blood Spot)	5.5		ng/mL	3.3-22.5 Premeno-luteal or PgRT
Ratio: Pg/E2 (Blood Spot)	196			Pg/E2 (bloodspot-optimal 100-500)
Testosterone (Blood Spot)	56		ng/dL	20-130 Premeno-luteal or TRT
DHEAS (Blood Spot)	194		µg/dL	40-290
SHBG (Blood Spot)	61		nmol/L	15-120
Free T4 (Blood Spot)*	1.1		ng/dL	0.7-2.5
Free T3 (Blood Spot)	3.0		pg/mL	2.5-6.5
TSH (Blood Spot)	1.6		µU/mL	0.5-3.0
TPOab (Blood Spot)*	129		IU/mL	0-150 (70-150 borderline)
LH (Blood Spot)	8.3		U/L	0.5-12.8 Premenopausal-luteal
FSH (Blood Spot)	5.6		U/L	0.6-8.0 Premenopausal-luteal

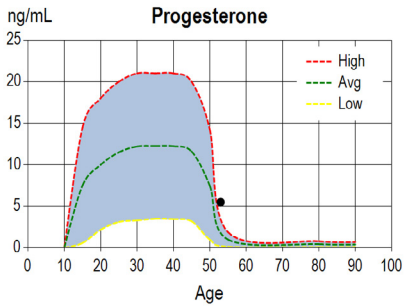
<dL = Less than the detectable limit of the lab.
N/A = Not applicable; 1 or more values used in this calculation is less than the detectable limit.
**For research purposes only.*

Therapies
None Indicated

Disclaimer: Graphs below represent hormone levels in testers not using hormone supplementation and are provided for informational purposes only. Please see comments for additional information if results are higher or lower than expected.







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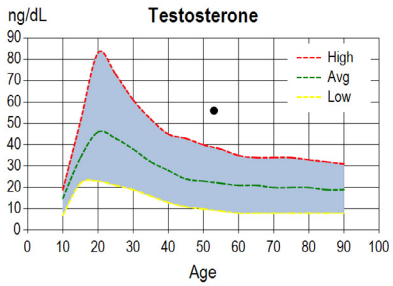

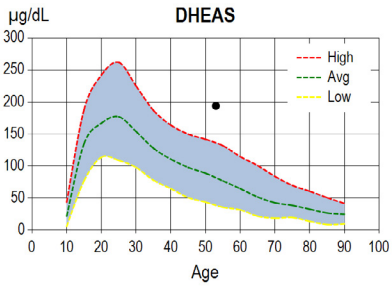

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2016 10 17 324 SB **Helle Toft Schou**

Lab Comments

Infertility is a complicated syndrome involving hormonal and physical dysfunction for both men and women that cannot be fully assess by ZRT testing. Depending on how many months a couple has been trying, may determine the amount of warranted workup. On average 1 year of trying for a woman under the age of 35 is suggested and 6 months for women over the age of 35 is recommended. Additional evaluation may include physical disorders including: assessing whether the fallopian tubes are open, presence of uterine fibroids or uterine polyps, uterine septum or ovarian cysts. Men may be assessed for sperm quality and quantity. In addition, immunological, genetic or blood clotting issues may also be a factor in infertility for couples not achieving pregnancy for unknown reasons.

Cortisol is within normal reference range throughout the day and is following a normal circadian rhythm. Symptoms were not reported. If the adrenal glands are only producing normal levels of cortisol under a high stress situation, this would indicate that the adrenals are becoming exhausted. The most common stressors that can raise cortisol levels include psychological stressors (emotional), hypoglycemia (low blood sugar), physical insults (pain or injury), exposure to toxic chemicals, and infections (bacteria, viruses and fungi). Situational stressors (e.g., anxiety over unresolved situations, school exams, travel, work-related problems, holiday season, etc.) can also acutely raise cortisol levels, which is a normal response to the stressor. Cortisol levels should return to normal several hours following the acute stressor. However, if any of these stressors persist the adrenal glands may become exhausted, wherein cortisol levels will eventually fall below normal. Healthy adrenal function and continued production of cortisol is dependent on adequate sleep, proper diet (adequate protein-particularly problematic in vegetarians), sufficient nutrients (particularly vitamins C and B5), and cortisol precursors (pregnenolone and progesterone). 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.

Estradiol (blood spot) is lower than the observed range for a premenopausal woman during the luteal phase of the menstrual cycle. This could indicate anovulation during this cycle (more common as menopause approaches with irregular menstrual cycles), collection of blood during early follicular phase of the cycle, use of a hormonal contraceptive (none indicated-lowers ovarian synthesis of estradiol, progesterone, and testosterone), use of herbs containing high levels of phytoestrogens, or, in rare cases, ovarian failure (confirmed with high FSH).

Progesterone (blood spot) is within expected low end of the range for a premenopausal woman during mid-luteal phase of the menstrual cycle. Progesterone should be well balanced with estradiol (optimal Pg/E2 ratio 100-500, when estradiol is within mid-physiological range). Confirming ovulation with use of the ovulation predictor kits would be beneficial. In addition, therapies that support and induce ovulation would likely be beneficial (e.g. Vitex agnus-castus, Dong quai, maca, clomid). It is not uncommon for women to have occasional anovulatory cycles, but if routine can limit the opportunities for pregnancy.

Testosterone (blood spot) is within normal range for a premenopausal woman. 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.

DHEAS (blood spot) is within mid-normal range.

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 SHGB production while insulin, in excess (caused by insulin resistance) decreases SHGB 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.

Free T4 and free T3 are within normal ranges.

TSH is within normal range; however, this does not exclude the possibility of a functional thyroid deficiency if symptoms of thyroid deficiency are problematic.

Thyroid peroxidase (TPO) antibodies are borderline positive, suggesting a possible evolving issue with Hashimoto's autoimmune thyroiditis. If symptoms of thyroid dysfunction become more problematic it would be worthwhile to recheck TPO levels. Antibodies to this enzyme may cause an increase in autoimmune dysfunction around the thyroid causing an increase in inflammatory cytokines, increased T cells, and NK cell function. The autoimmune reaction to the thyroid tissue results in destruction of the thyroid cells with consequent release of high levels of thyroid hormones (T4 and to a lesser extent T3), which results in a hyperthyroid state. Continued destruction of the thyroid gland results in fibrosis and eventual depletion of the thyroid

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hormone, thus causing a hypothyroid state. Clinical studies show that selenium supplementation is helpful in decreasing TPO antibody levels and thus helps prevent autoimmune destruction of the thyroid gland (Duntas et al. Eur J Endocrinology 148: 389-393, 2003).

LH and FSH are within range for a premenopausal woman. LH and FSH were assumed collected during the luteal phase (defaulted when not date is given) of the menstrual cycle (day 1 = 1st day of cycle). Ideally, LH and FSH should be run on day 3 of the menstrual cycle for their best evaluation.

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