

Sample Report

TEST NUMBER: 0012345 PATIENT NUMBER: N/A Female AGE 39 DATE OF BIRTH: MM/DD/YYYY COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER: **Nordic Laboratories**

TST-123456

ADDRESS:

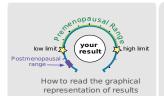
TEST REF:

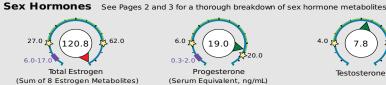
Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH

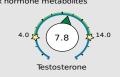
Hormone Testing Summary

All units are given in ng/mg creatinine



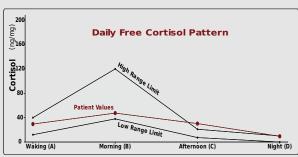


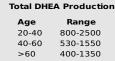




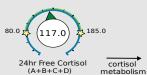
Progesterone Serum Equivalent is a calculated value based on urine pregnanediol

Adrenal Hormones See pages 4 and 5 for a more complete breakdown of adrenal hormones











Free cortisol best reflects tissue levels. Metabolized cortisol best reflects total cortisol production.

Patient reports regular menstrual cycles Last Menstrual Period -

Thank you for testing with us!

Please be sure to always read below for any specific lab comments. More detailed comments can be found on page 7.

Your DUTCH Complete report will include a summary (page 1), a list of all of the hormones tested and their ranges (pages 2,4) as well as a graphical representation of the results (pages 3,5). You will also see a steroid pathway for your reference (page 6) and provider notes. This report is not intended to treat, cure or diagnose any specific diseases.



PATIENT:	Sample Report	

TEST NUMBER: 0012345 PATIENT NUMBER: N/A Female AGE 39 DATE OF BIRTH: MM/DD/YYYY COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER:

TEST REF: **TST-123456 Nordic Laboratories**

Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH

Category	Test		Result	Units	Normal Range
Progesteron	e Metabolism				Premenopausal, luteal range shown.* See below for other ranges. (*unless taking oral Pg)
	b-Pregnanediol	Within range	1838.0	ng/mg	450 - 2300
	a-Pregnanediol	Above range	795.0	ng/mg	120 - 740
Androgen M	etabolism				
	DHEAS	Above range	395.0	ng/mg	23 - 350
	Androsterone	Above range	1673.0	ng/mg	399 - 1364
	Etiocholanolone	Above range	1964.0	ng/mg	371 - 765
	Testosterone	Within range	7.8	ng/mg	4 - 14
	5a-DHT	Within range	3.7	ng/mg	0 - 8.8
	5a-Androstanediol	Above range	46.9	ng/mg	12 - 30
	5b-Androstanediol	Above range	109.7	ng/mg	20 - 75
	Epi-Testosterone	Low end of range	5.4	ng/mg	4.5 - 22.3
Estrogen Me	tabolites				
	Estrone(E1)	Above range	46.8	ng/mg	12 - 26
	Estradiol(E2)	Above range	8.1	ng/mg	1.8 - 4.5
	Estriol(E3)	Within range	9.9	ng/mg	5 - 18
	2-OH-E1	Above range	46.2	ng/mg	4.6 - 14.4
	4-OH-E1	Above range	5.8	ng/mg	0 - 1.8
	16-OH-E1	Low end of range	1.0	ng/mg	1 - 3.5
	2-Methoxy-E1	Above range	12.1	ng/mg	2 - 5.5
	2-OH-E2	Above range	5.0	ng/mg	0 - 1.2

Normal Ranges	Luteal	Postmenopausal		Follicular	Ovulatory
Estrone (E1)	12-26	3.0-7.0		4.0-12.0	22-68
Estradiol (E2)	1.8-4.5	0.3-0.9		1.0-2.0	4.0-12.0
Estriol (E3)	5-18	1.5-4.0		N/A	N/A
2-OH-E1	4.6-14.4	0.4-2.0		N/A	N/A
4-OH-E1	0-1.8	0-0.3		N/A	N/A
16-OH-E1	1-3.5	0.2-0.6		N/A	N/A
2-Methoxy-E1	2-5.5	0.5-1.4		N/A	N/A
			Oral Pg (100mg)		
a-Pregnanediol	120-740	15-50	580-3000	25-100	25-100
b-Pregnanediol	450-2300	60-200	2000-9000	100-300	100-300



PATIENT: Sample Report

TEST NUMBER: 0012345 PATIENT NUMBER: N/A Female

AGE

39 DATE OF BIRTH: MM/DD/YYYY

YYYY-DD/MM COLLECTED: YYYY-DD/MM

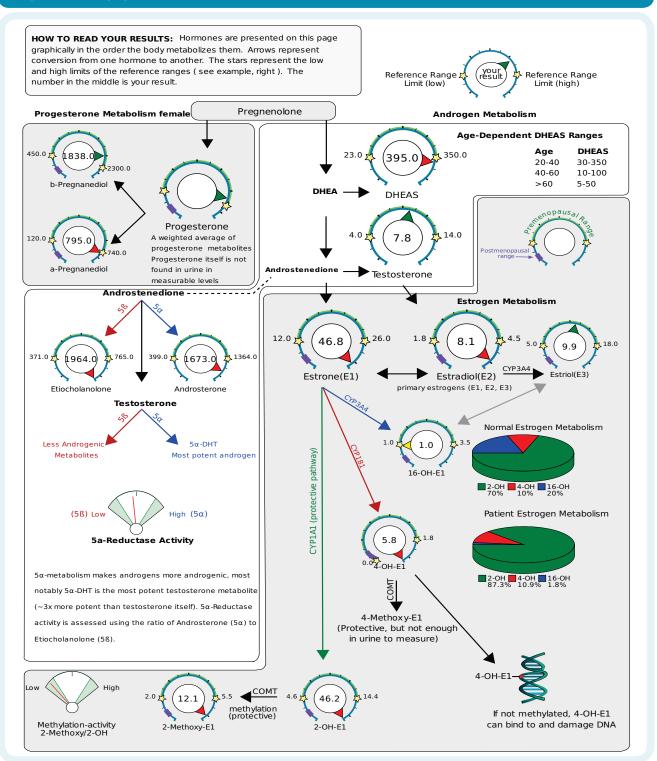
YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER: **Nordic Laboratories**

TEST REF: TST-123456

ADDRESS:

Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH



Nordic Laboratories Aps

Nygade 6, 3.sal • 1164 Copenhagen K • Denmark Tel: +45 33 75 10 00

UK Office:

11 Old Factory Buildings • Stonegate • E. Sussex TN5 7DU • UK Tel: +44 (0)1580 201 687

www.nordic-labs.com info@nordic-labs.com



TEST NUMBER: 0012345 PATIENT NUMBER: N/A Female AGE 39

MM/DD/YYYY

COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER:

TEST REF: **TST-123456**

Nygade 6, 3.sal 1164 Copenhagen K Denmark

Nordic Laboratories

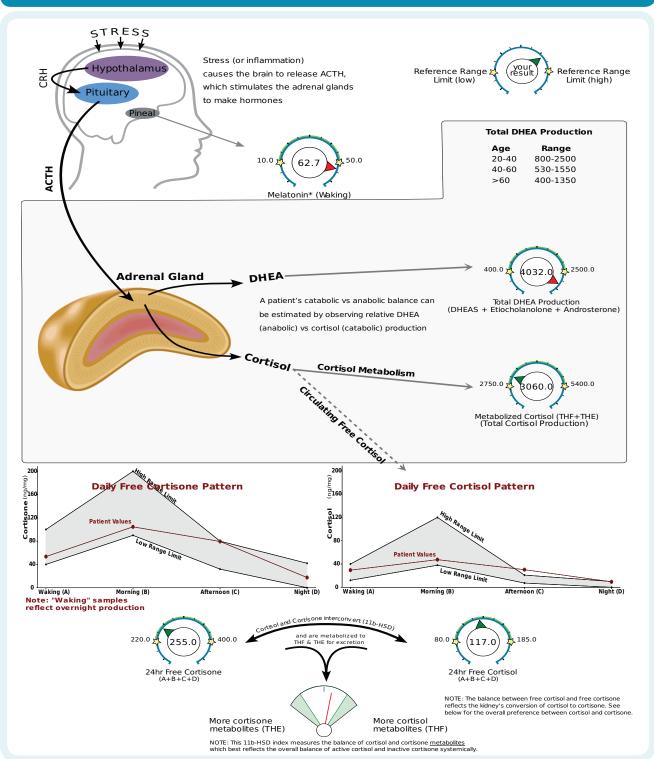
TEST NAME: DUTCH

Category	Test		Result	Units	Normal Range
Creatinine					
	Creatinine A (Waking)	Within range	0.66	mg/ml	0.2 - 2
	Creatinine B (Morning)	Within range	0.83	mg/ml	0.2 - 2
	Creatinine C (Afternoon)	Within range	0.21	mg/ml	0.2 - 2
	Creatinine D (Night)	Within range	0.72	mg/ml	0.2 - 2
Daily Free C	ortisol and Cortisone				
	Cortisol A (Waking)	Within range	29.5	ng/mg	12 - 40
	Cortisol B (Morning)	Low end of range	47.5	ng/mg	38 - 120
	Cortisol C (Afternoon)	Above range	30.3	ng/mg	7.3 - 21
	Cortisol D (Night)	High end of range	9.4	ng/mg	0 - 10
	Cortisone A (Waking)	Within range	53.5	ng/mg	40 - 100
	Cortisone B (Morning)	Low end of range	104.6	ng/mg	90 - 200
	Cortisone C (Afternoon)	High end of range	79.5	ng/mg	32 - 80
	Cortisone D (Night)	Within range	17.5	ng/mg	0 - 42
	24hr Free Cortisol	Within range	117.0	ug	80 - 185
	24hr Free Cortisone	Low end of range	255.0	ug	220 - 400
Cortisol Met	abolites and DHEAS				
	a-Tetrahydrocortisol (a-THF)	Within range	130.0	ng/mg	75 - 265
	b-Tetrahydrocortisol (b-THF)	Low end of range	1173.0	ng/mg	1050 - 2070
	b-Tetrahydrocortisone (b-THE)	Low end of range	1757.0	ng/mg	1550 - 3150
	Metabolized Cortisol (THF+THE)	Low end of range	3060.0	ng/mg	2750 - 5400
	DHEAS	Above range	395.0	ng/mg	23 - 350
Melatonin (*	measured as 6-OH-Melatonin-Sulfate)				
	Melatonin* (Waking)	Above range	62.7	ng/mg	10 - 50



PATIENT: Sam	ple Report			TEST REF: TS	T-123456
TEST NUMBER:	0012345	COLLECTED:	YYYY-DD/MM	PRACTITIONER:	Novdia Laboratorios
PATIENT NUMBER:	N/A		YYYY-DD/MM YYYY-DD/MM	PRACTITIONER.	Nordic Laboratories
SEX:	Female		YYYY-DD/MM	ADDRESS:	Nygade 6, 3.sal
AGE	39		YYYY-DD/MM		1164 Copenhagen K
DATE OF BIDTH.	MANA/DD MANA				Denmark

TEST NAME: DUTCH



Nordic Laboratories Aps

Nygade 6, 3.sal • 1164 Copenhagen K • Denmark Tel: +45 33 75 10 00 UK Office:

11 Old Factory Buildings • Stonegate • E. Sussex TN5 7DU • UK Tel: +44 (0)1580 201 687

www.nordic-labs.com info@nordic-labs.com



PATIENT: **Sample Report**

MM/DD/YYYY

TEST NUMBER: 0012345 PATIENT NUMBER: N/A Female AGE 39

COLLECTED:

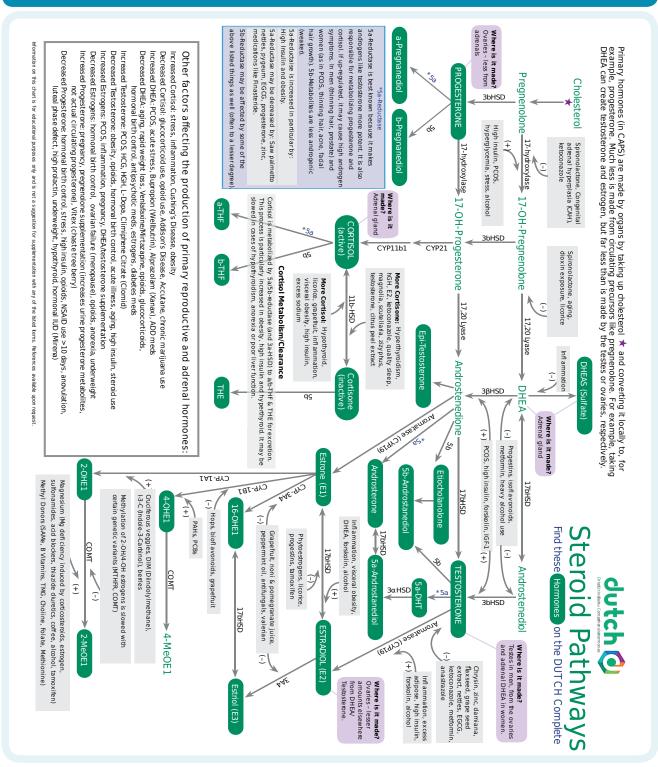
YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER: **Nordic Laboratories**

TST-123456

TEST REF:

Nygade 6, 3.sal 1164 Copenhagen K . Denmark

TEST NAME: DUTCH



Nordic Laboratories Aps

Nygade 6, 3.sal • 1164 Copenhagen K • Denmark

UK Office:

11 Old Factory Buildings • Stonegate • E. Sussex TN5 7DU • UK Tel: +44 (0)1580 201 687

www.nordic-labs.com info@nordic-labs.com



PATIENT: Sample Report

TEST NUMBER: 0012345
PATIENT NUMBER: N/A
SEX: Female

AGE 39
DATE OF BIRTH: MM/DD/YYYY

COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM

YYYY-DD/MM

PRACTITIONER:

TEST REF: TST-123456

R: Nordic Laboratories

ADDRESS:

Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH

Provider Notes

Comments in the report that are specific to the patient ARE IN ALL CAPS.

The other information is general information that we hope you will find useful in understanding the patient's results.

THE PATIENT REPORTED SYMPTOMS OF EXCESS ESTROGEN. THIS CAN BE CAUSED BY EXCESS ESTROGEN OR PROGESTERONE DEFICIENCY. RESULTS SHOULD BE CAREFULLY REVIEWED. WE DO NOT REPORT A PROGESTERONE TO ESTROGEN RATIO. HOWEVER, YOU CAN INVESTIGATE THIS ISSUE BY LOOKING AT THE RELATIVE LEVEL OF THESE TWO HORMONES ON THEIR RESPECTIVE GAUGES.

THE PATIENT REPORTED SIGNIFICANT SYMPTOMS OF EXCESS ANDROGEN LEVELS.

THE PATIENT REPORTED SIGNIFICANT FATIGUE IN BOTH THE AM AND PM.

Progesterone Metabolism: The primary role of progesterone is to balance the strong effects of estrogen. Progesterone metabolites are measured and reflect progesterone levels well because very little progesterone is found in urine, so b-Pregnanediol is typically used a surrogate marker because it is the most abundant metabolite, but we also test the corresponding a-pregnanediol. The average of the two metabolites is reported for progesterone. If levels are in the lower part of the reference range compared to estrogen levels, symptoms of too much estrogen may occur When ordering the DUTCH Complete, you will see Progesterone Serum Equivalent on the summary page 1. The urine metabolites of progesterone have been proven to correlate strongly enough to serum progesterone to provide this value. The correlation is the strongest for values within the premenopausal luteal range. Urine metabolites can at times result in somewhat higher serum equivalent results in the postmenopausal range. For this reason the postmenopausal Serum Equivalent range is slightly higher than typical serum ranges. NOTE: If progesterone is taken orally (also with sublingual), these metabolites are elevated from gut metabolism and results do NOT accurately reflect serum levels.

THE PATIENT REPORTS USE OF TRANSDERMAL PROGESTERONE. EXPECTED LEVELS WITH TOPICAL HORMONES ARE CONTRAVERSIAL AND NOT ENTIRELY CLEAR. SOME PATIENTS SHOW SIGNIFICANT INCREASES IN URINE VALUES WITH TRANSDERMAL HORMONES. OTHER PATIENTS MAY SHOW VERY LITTLE (OR NO) INCREASE IN URINE LEVELS WITH DOSES <100mg. WHEN PATIENTS SHOW SYMPTOM IMPROVEMENT BUT URINE LEVELS HAVE NOT INCREASED SIGNIFICANTLY, IT MAY NOT BE ADVISABLE TO CONTINUE INCREASING DOSING. BECAUSE SALIVARY LEVELS OF HORMONES WITH TOPICAL HORMONES INCREASE TO EXTREMELY HIGH LEVELS, THERE REMAINS SOME UNCERTAINTY ABOUT THE VALUE OF LAB VALUES WITH THIS PARTICULAR SCENARIO. IT MAY NOT BE APPROPRIATE TO ASSUME THAT TOPICALLY APPLIED PROGESTERONE PROTECTS THE ENDOMETRIUM IN THE UTERUS (ESPECIALLY IF ESTROGEN THERAPY IS ALSO GIVEN) IF LEVELS IN URINE DO NOT REACH LUTEAL LEVELS. STUDIES HAVE SHOWN CONFLICTING RESULTS, AND MORE DEFINITIVE RESEARCH IS NEEDED. PROTECTION OF PARTICULAR TISSUE (ENDOMETRIUM, BREAST, ETC) MAY BE DEPENDENT ON PROGESTERONE USED CLOSE TO THE TISSUE OF INTEREST OR CONSIDER AN ALTERNATIVE ROUTE OF ADMINISTRATION SUCH AS ORAL PROGESTERONE.

Androgen Metabolism: This group of hormones is typically thought of as "male" hormones, but they play a key role for women as well. Testosterone is made in the ovaries as well as the adrenal glands. In postmenopausal women, the adrenal glands are the primary source of testosterone. a-DHT (a-dihydrotestosterone) is the most potent androgen (3X more than testosterone), but it is primarily made within the liver and target cells (it is a paracrine hormone) and not by the gonads. a-DHT is subsequently deactivated to a-androstanediol within target tissues and then excreted. Only a fraction of a-DHT formed actually enters circulation as a-DHT (Toscano, 1987). The corresponding beta metabolites (for example b-DHT) are not androgenic. Looking at the balance of androsterone (alpha) and etiocholanolone offer the best approximation of how readily DHT will be made. Elevated androgens can cause general and sexual aggression, increased muscle mass, increased facial/body hair, reduction of fat deposition, and increased libido. Androgen deficiency can lead to decreased sexual function, vaginal dryness, fatique, depression, and bone loss.

5a-Reductase Activity: The competing enzymes 5a and 5b-reductase act on the androgens androstenedione (creating androsterone and etiocholanolone located under the progesterone picture) and testosterone (creating a-DHT and b-DHT). They also metabolize progesterone, and cortisol. The alpha metabolites of androstenedione and testosterone are far more androgenic than their beta counterparts. Consequently, increased 5a-reductase activity may be accompanied by clinical signs of androgenicity (excess facial hair growth, scalp hair loss, acne, irritability, oily skin, prostate issues in men...etc). If the patient heavily favors the 5a pathway and there are concerns of excess androgenicity (or prostate cancer risk), this may be worth addressing.

Estrogen Metabolism: There are two primary issues with respect to estrogens. 1) Estrogen production (is the patient deficient, sufficient, or in excess?) and 2) Estrogen metabolism (is the metabolism of estrogen favorable or unfavorable when looking at the phase 1 hydroxylation and phase 2 methylation pathways?)

While estradiol (E2) is the most potent estrogen, levels of estrone (E1) and estriol (E3) should also be considered when evaluating the patient's estrogen production. It is important to compare the patient's distribution of metabolites from the pie chart (2nd pie chart) to "Normal Estrogen Metabolism" pie chart. If they are making considerably less of the protective 2-OH

Nordic Laboratories Aps

Nygade 6, 3.sal • 1164 Copenhagen K • Denmark Tel: +45 33 75 10 00 UK Office:

11 Old Factory Buildings • Stonegate • E. Sussex TN5 7DU • UK Tel: +44 (0)1580 201 687

www.nordic-labs.com info@nordic-labs.com



PATIENT:	Samp	le Re	port
----------	------	-------	------

TEST NUMBER: 0012345
PATIENT NUMBER: N/A
SEX: Female
AGE 39

MM/DD/YYYY

DATE OF BIRTH:

COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM PRACTITIONER: No

TEST REF: TST-123456

R: Nordic Laboratories

ADDRESS:

Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH

estrogens, consider something to improve this metabolism (DIM, I-3-C, etc). Be advised that increasing 2-OH metabolism will likely lower E1 and E2 as well which may not be warranted if E1 and E2 are already low. It is our position that the ratio of 2:16 OHE1 is not as relevant as has been thought historically (Obi, 2011). Providers may still wish to use this index and it can be calculated by simply dividing the two numbers. A female reference range for the ratio with our methodology is 2.4-6.0

The methylation index will show you how effectively the patient is turning 2 and 4-OH estrogens into methoxy estrogens. Methylation protects against potentially harmful 4-OH estrogens (carcinogenic) made in phase 1 detoxification. Supporting the methylation pathway should be considered if this index is low.

PHASE I METABOLISM LOOKS GOOD FOR THE PATIENT WITH A PREFERENCE FOR 2-OH METABOLISM. PRODUCTS TO INCREASE 2-OH METABOLISM MORE WOULD ONLY BE CONSIDERED IF E1 AND E2 ARE ELEVATED RELATIVE TO 2-OH ESTROGENS. PRODUCTS THAT PUSH FOR THE 2-OH PATHWAY ALSO LOWER E1 AND E2 LEVELS.

DUTCH Adrenal: The HPA-Axis refers to the communication and interaction between the hypothalamus (H) and pituitary (P) in the brain down to the adrenal glands (A) that sit on top of your kidneys. When a physical or psychological stressor occurs, the hypothalamus tells the pituitary to make ACTH, a hormone. ACTH stimulates the adrenal glands to make the stress hormone, cortisol and to a lesser extent DHEA and DHEA-S. Normally, the HPA-axis production follows a daily pattern in which cortisol rises rather rapidly in the first 10-30 minutes after waking in order to help with energy, then gradually decreases throughout the day so that it is low at night for sleep. The cycle starts over the next morning. Abnormally high activity occurs in Cushing's Disease where the HPA-axis is hyper-stimulated causing cortisol to be elevated all day. The opposite is known as Addison's Disease, where cortisol is abnormally low because it is not made appropriately in response to ACTH's stimulation. These two conditions are somewhat rare. Examples of more common conditions related to less severely abnormal cortisol levels include fatigue, depression, insomnia, fibromyalgia, anxiety, inflammation and more.

Only a fraction of cortisol is "free" and bioactive. This fraction of cortisol is very important, but levels of metabolized cortisol best represents overall production of cortisol therefore both should be taken into account to correctly assess adrenal function.

THE MELATONIN TEST IS ONLY VALID AS A BASELINE TEST. IN THIS CASE, MELATONIN VALUES ARE ELEVATED. IF THE PATIENT IS TAKING MELATONIN SUPPLEMENTATION, VALUES OFTEN ARE OFTEN VERY ELEVATED OUTSIDE THE REFERENCE RANGE. THIS IS NOT NECESSARILY DUE TO TOO MUCH MELATONIN. RATHER, THE MELATONIN IS SUBJECT TO FIRST-PASS METABOLISM, WHICH RESULTS IN GREATLY ELEVATED URINE LEVELS. SOME FOODS MAY ALSO CONTAIN SOME MELATONIN (PINEAPPLES, BANANAS, ORANGES, RICE, TOMATOES, AND CORN) RESULTING IN MILD TO MODERATE ELEVATIONS. ALSO SOME PEOPLE JUST MAKE A LOT OF MELATONIN WHICH MAY RESULT IN MILD ELEVATIONS ON THE TEST.

The Daily Free Cortisol Pattern: In healthy adrenal function, cortisol levels are expected to rise in the early morning and fall throughout the day, reaching the lowest point around 1am and peaking 30-60min after waking. The waking sample represents the total of free cortisol throughout the sleeping period. Cortisone is the inactive form of cortisol. Its pattern is of secondary importance, but at times can give additional clarity and is provided on the adrenal page. Typical urine testing (24-hour collection) averages the daily production of cortisol. This approach is not able to properly characterize individuals whose cortisol patterns do not fit the typical rise then fall pattern through the day. Dysfunctional diurnal patters have been associated with health-related problems such as fatigue and insomnia.

The daily total of free cortisol is approximated by summing the four measurements. This calculated value correlates to a 24-hour free cortisol value. It is helpful to compare the relative level of 24-hr free cortisol with metabolized cortisol to understand HPA-axis activity. The total of free cortisol for the day only represents about 1-3% of the total production. The total of the metabolites is a better marker for overall cortisol production.

OVERALL CORTISOL LEVELS ARE APPROPRIATE AS BOTH FREE AND METABOLIZED CORTISOL LEVELS ARE WITHIN RANGE. IF THE DIURNAL PATTERN OF FREE CORTISOL IS AS EXPECTED. THIS IMPLIES NORMAL HPA-AXIS CORTISOL PRODUCTION.

The Cortisone Balance: Cortisol, which is the active hormone, can convert into cortisone, the inactive form. They convert back and forth in different parts of the body. We tell which one you make more of by looking at whether cortisol metabolites (aTHF, bTHF) or coritsone metabolites (bTHE) are made more (compared to what is normal) in the gauge at the bottom of the adrenal page. The deactivation of cortisone (via enzyme 11b-HSD II) occurs predominantly in the kidneys, colon, and saliva glands. The local formation of inactive cortisone from cortisol in the kidney is strongly reflected in urine. Activation of cortisone to cortisol takes place primarily in the liver, adipose tissue, gonads, brain, and muscle. Within these same tissues (mostly the liver) the free hormones are also converted to their metabolites (cortisol to a/b-THF, cortisone to THE). Balance between the two is usually preferred, but making more cortisol than cortisone is sometimes good to help give you enough cortisol if your levels are low however a preference for the active cortisol is enhanced by central adiposity, hypothyroidism, inflammation, and supplements such as licorice root extract. Cortisone formation is enhanced by growth hormone, estrogen, coffee and hyperthyroidism.

Reading the Report: The first page of the Dutch Complete lab report is a summary page while the second page of the Dutch Complete lab report and first page of the Dutch sex hormone and Dutch adrenal test are a classic lab report showing each result and the respective range of each hormone. Reference ranges shown are those of young healthy individuals with females collecting on days 19-21 (mid-luteal phase) of the menstrual cycle. The graphical representation of results on the page that follows allows the viewing of hormone results within the biochemical flowchart to more easily see the relative level of each hormone. The gauge format shows the patient result (represented by the "needle" of the gauge) and the area

UK Office:

Nordic Laboratories Aps

Nygade 6, 3.sal • 1164 Copenhagen K • Denmark Tel: +45 33 75 10 00 11 Old Factory Buildings • Stonegate • E. Sussex TN5 7DU • UK Tel: +44 (0)1580 201 687

www.nordic-labs.com info@nordic-labs.com



PATIENT: Sample Repor

MM/DD/YYYY

TEST NUMBER: 0012345
PATIENT NUMBER: N/A
SEX: Female
AGE 39

DATE OF BIRTH:

COLLECTED: YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM YYYY-DD/MM

PRACTITIONER: Nordic Laboratories

TST-123456

ADDRESS:

TEST REF:

Nygade 6, 3.sal 1164 Copenhagen K Denmark

TEST NAME: DUTCH

between the stars represents the reference range.

Reference ranges are typically set at the 20th to the 80th percentile of young, healthy individuals (DHEAS for example). This means that a result at the low end of a range is lower than 80 percent of young, healthy individuals. Likewise a result at the high end of a range is higher than 80 percent of the population. Some reference ranges are set more widely. For example, slightly elevated progesterone is not generally considered problematic, so its metabolites have reference ranges that extend further (90th percentile instead of 80th).

The "fan" style gauges are used for indexes/ratios such as on 5a-reductase activity, cortisol/cortisone, and estrogen methylation. Because these values are all based on ratios there are no values or units, but they give a general idea of a particular relationship and can tell you how 'turned up' or 'turned down' a particular process is. The middle of the gauge represents an average value, while the lines towards the edge represent results lower or higher than most (80%) of the population. Being outside of any range is not always considered unfavorable. For example, on the estrogen methylation gauge, an elevated level means someone methylates estrogens very effectively which may have positive consequences.

What is actually measured in urine? In blood, most hormones are bound to binding poteins. A small fraction of the total hormone levels are "free" and unbound such that they are active hormones. These free hormones are not found readily in urine except for cortisol and cortisone (because they are much more water soluble than, for example, testosterone). As such, free cortisol and cortisone can be measured in urine and it is this measurement that nearly all urinary cortisol research is based upon. In the DUTCH Adrenal Profile the diurnal patterns of free cortisol and cortisone are measured by LC-MS/MS

All other hormones measured (cortisol metabolites, DHEA, and all sex hormones) are excreted in urine predominately after the addition of a glucuronide or sulfate group (to increase water solubility for excretion). As an example, Tajic (Natural Sciences, 1968 publication) found that of the testosterone found in urine, 57-80% was testosterone-glucuronide, 14-42% was testosterone-sulfate, and negligible amounts (<1% for most) was free testosterone. The most likely source of free sex hormones in urine is from contamination from hormonal supplements. To eliminate this potential, we remove free hormones from conjugates (our testing can be used even if vaginal hormones have been given). The glucuronides and sulfates are then broken off of the parent hormones, and the measurement is made. These measurements reflect well the bioavailable amount of hormone in most cases as it is only the free, nonprotein-bound fraction in blood/tissue that is available for phase II metabolism (glucuronidation and sulfation) and subsequent urine excretion.

Disclaimer: the filter paper used for sample collection is designed for blood collection, so it is technically considered "research only" for urine collection. Its proper use for urine collection has been thoroughly validated.