

Salivary Hormone Testing



Healthy
Hormones

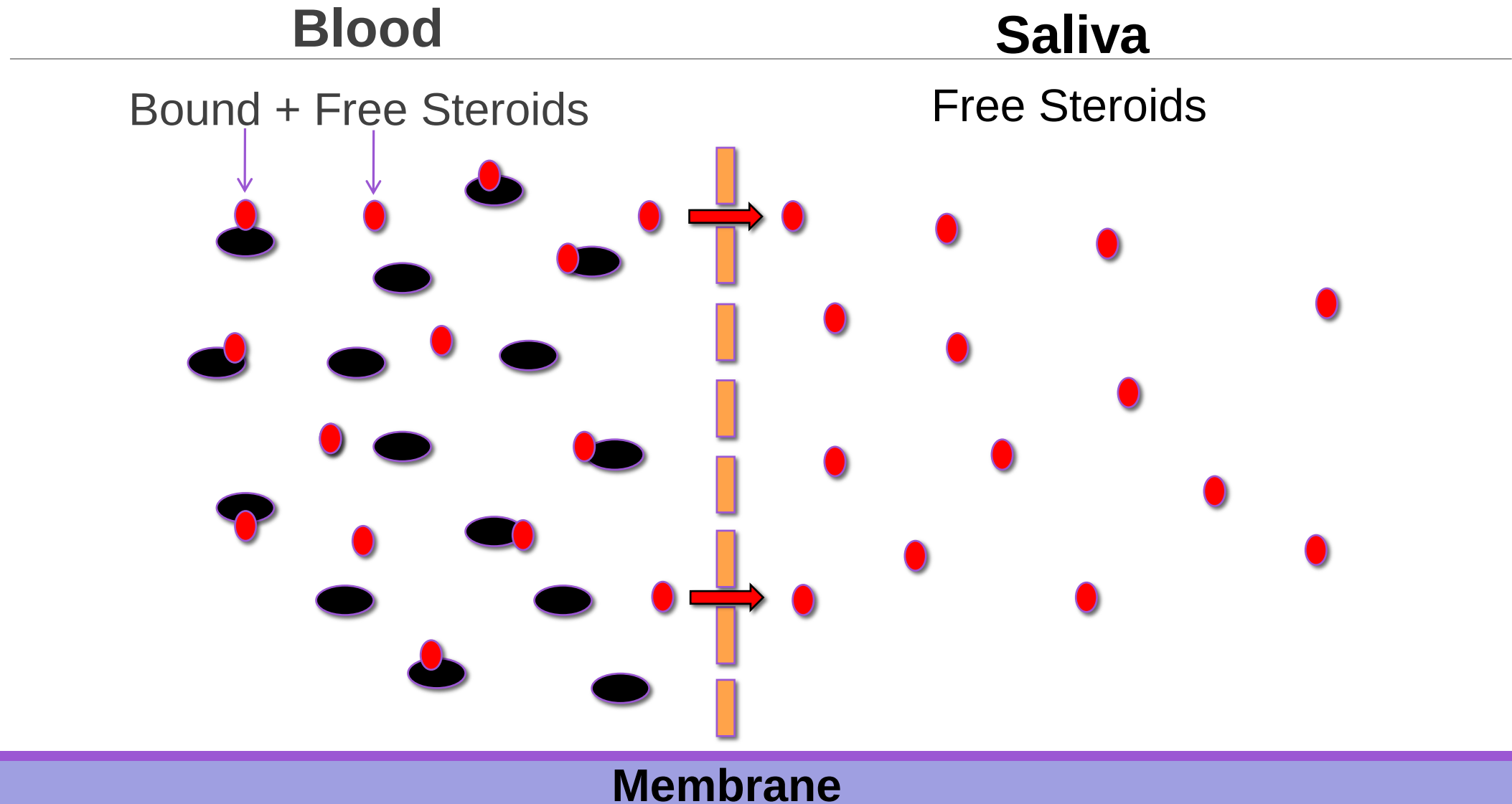
Oral Fluids “Mirror Of The Body”

- Fluid levels of molecules can be use for therapeutic, drug dependency or hormones etc. purposes
- Emotional status – elements connected to depression such as serotonin
- Hormonal status
- Immunological status – cytokines, picks up gut-brain chemicals
- Neurological status – neurotransmitters such as dopamine
- Nutritional and metabolic influences (vitamin, minerals), insulin

Steroids in Blood and Saliva

Blood	Saliva
Total steroid level	Free steroid fraction
Modified by binding proteins	Independant of binding proteins
95 - 98% of the steroids are biologically inactive	Fraction of biologically active hormones only
Problems analyzing the very small concentrations	Sensitive Measurement using Luminescence IA can measure free hormones

Diffusion of Free Steroid from Blood to Saliva



Other Type of Hormone Tests

- Urine: Best for estrogen metabolites – the 95% bound hormones are excreted in urine after the liver de-conjugates them
- 16 hydroxyestrone is best measured in urine – this can be helpful for cancer
- Not good for cortisol because impossible to calculate time frame
- Dried blood spot is more stable than serum blood test making it easier to ship

Effect of Hormone Creams

- Transdermal or topical hormone creams can confuse results
- Do not increase blood levels significantly – making it appear they are not working – yet clients experience an improvement of symptoms
- Salvia test show transdermal levels go up significantly
- Some have used this to suggest saliva is not accurate (because it does not go up in blood).

Oral Fluid Diagnostics

Excellent Medium for *Rapid Testing*

Advantages:

- Accurate measure of clinically validated biomarkers
- Ease of access
- Noninvasive sample collection
- Ideal for multiple or serial sampling
- Reduced risk of disease transmission
- Increased acceptance by clients

Influencing Factors

- Volume of saliva needed to complete entire analysis
- Pretreatment of saliva (freezing, thawing, centrifugation)
- Medication of client (many cause dry mouth as a side effect)
- Disease or treatment of clients, causing dry mouth
 - Sjögrens-syndrome, fibromyalgia
- Benefit of saliva hormone testing
 - sensitivity, specificity, reproducibility, reference values, usefulness of method for intended issues

Reasons for Hormone Profile

- **Amenorrhea, luteal defects:** low Pg
- **Endometriosis:** high Pg
- **Breast cancer:** elevated Estrogen levels
- **Menopause:** side effects counter-acted with HRT
- **Exercise:** menstrual irregularities in athletic women due to high E and low Pg in luteal phase

Measurement of Cortisol, DHEA and Melatonin: Gives more complete picture of endocrine function!

Saliva Sampling

- Use polypropylene tubes (e.g. Sarsteadt)
 - No cotton or polyester rolls
- Collect saliva
 - before brushing teeth or > 30 min after
 - at least 30 min after eating or drinking
 - 3-5 samples within 2 hours
- Avoid blood contaminated samples (even slightly red)
- Saliva samples for steroid measurement - Store for:
 - minimum 1 wk room temp, 2 wks at 2-8 °C, longer periods at -20 °C

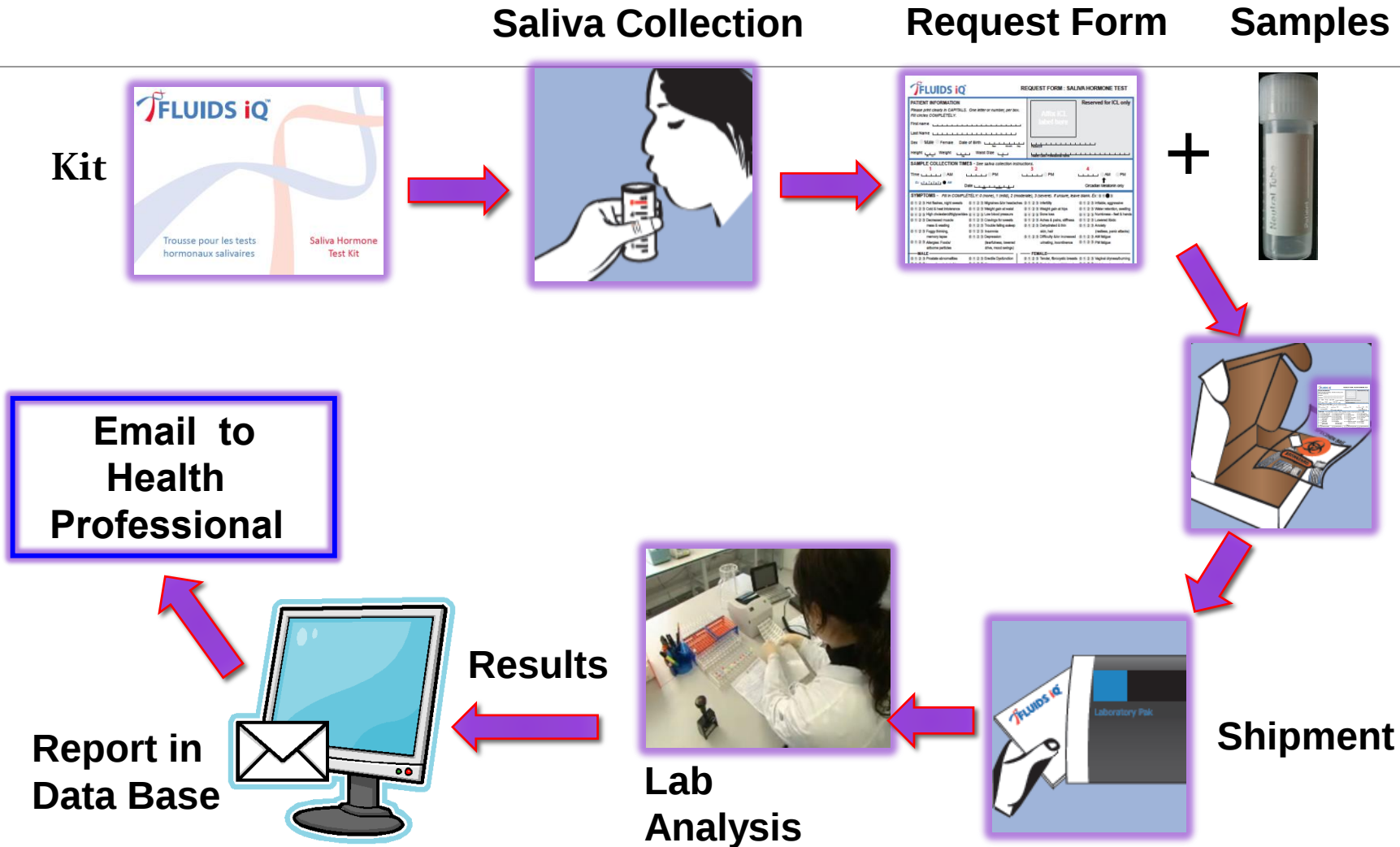
Saliva Collection: Test Kit

1. Saliva Collection Tubes
2. Instruction for Use
3. Request Form
4. Labels for Tubes
5. Biohazard Bag
6. Courier envelope



<https://www.fluidsiq.com/>

Workflow For Test



Request Form in FLUIDS iQ™ Kit

Print Capitals

Time of Collection

Fill Circles Completely

FLUIDS iQ

PATIENT INFORMATION - Please print clearly in CAPITALS. One letter or number, per box. Fill circles COMPLETELY.

First name _____ Last Name _____
Telephone _____ Email _____
Sex ☐ Male ☐ Female Date of Birth _____ Year _____ Month _____ Day _____
Height _____ Ft _____ In _____ Weight _____
Time _____ ☐ AM ☐ PM eg: 0 7 0 0 ☒ AM
Date _____ Year _____ Month _____ Day _____

SAMPLE COLLECTION TIMES - See saliva collection instructions.

_____ ☐ PM _____ ☐ AM _____
Circadian Melatonin _____ ☐ AM ☐ PM

SYMPTOMS - Fill in COMPLETELY: 0 (none), 1 (mild), 2 (moderate), 3 (severe). eg: 0 1 2 3

0 1 2 3 Hot flashes, night sweats	0 1 2 3 Migraines &/or headaches	0 1 2 3 Infertility
0 1 2 3 Cold & heat intolerance	0 1 2 3 Weight gain at waist	0 1 2 3 Weight gain at hips
0 1 2 3 High cholesterol/triglycerides	0 1 2 3 Low blood pressure	0 1 2 3 Bone loss
0 1 2 3 Decreased muscle mass & wasting	0 1 2 3 Cravings for sweets	0 1 2 3 Aches & pains, stiffness
0 1 2 3 Foggy thinking, memory lapse	0 1 2 3 Trouble falling asleep	0 1 2 3 Dehydrated & thin skin, hair
0 1 2 3 Sleep apnea	0 1 2 3 Insomnia	0 1 2 3 Difficulty &/or increased urinating, incontinence
0 1 2 3 Allergies: Foods/airborne particles	0 1 2 3 Depression (tearfulness, lowered drive, mood swings)	

MALE

0 1 2 3 Prostate abnormalities	0 1 2 3 Erectile Dysfunction
0 1 2 3 Loss of scalp hair &/or beard growth	

MENSTRUAL STATUS

Pregnant? ☐ Yes ☐ No Cycle: _____

FEMALE

0 1 2 3 Tender, fibrocystic breasts	0 1 2 3 Irritable, aggressive
0 1 2 3 Periods absent/skipped	0 1 2 3 Water retention, swelling
0 1 2 3 Spotting, heavy bleeding	0 1 2 3 Numbness - feet & hands
	0 1 2 3 Lowered libido
	0 1 2 3 Anxiety (restless, panic attacks)
	0 1 2 3 AM fatigue
	0 1 2 3 PM fatigue

Menstrual Status
1st day of Cycle

Hormone Use:
Block Letters

Health
Professional
chooses Test

Patient
Signs/Dates

Health Professional
Affixes label & Signs

HEALTH CARE PROFESSIONAL

A) Only **ONE** test can be chosen on any request form.

- HORMONE SUITES**
- ☐ Female Wellness (C, DS, E2, Pg, T)
 - ☐ Female Wellness Plus (Cx2, DS, E2, Pg, T)
 - ☐ Female Wellness Daily Cycle (Cx4, DS, E2, Pg, T)
 - ☐ Male Wellness (C, DS, E2, T)
 - ☐ Male Wellness Plus (Cx2, DS, E2, T)
 - ☐ Male Wellness Daily Cycle (Cx4, DS, E2, T)
- B) Test Results – Preferred Language: ☐ English ☐ French
- ☐ In addition to email notification, please send me one blood sample by mail

AUTHORIZATION

Health Professional
Affixes label & Signs

646 Petrolia Rd, Toronto ON M3J 2W3 • 416.663.5227 • 1.844.535.7272

Health Care Professional Signature

PATIENT

I hereby request, authorize and/or consent to laboratory testing by FLUIDS iQ™. My personal information will be stored confidentially and not shared with anyone except as required by law. I understand that results will be sent to my health care professional, are strictly informational and do not serve as a diagnosis or suggestion for treatment.

Patient Signature

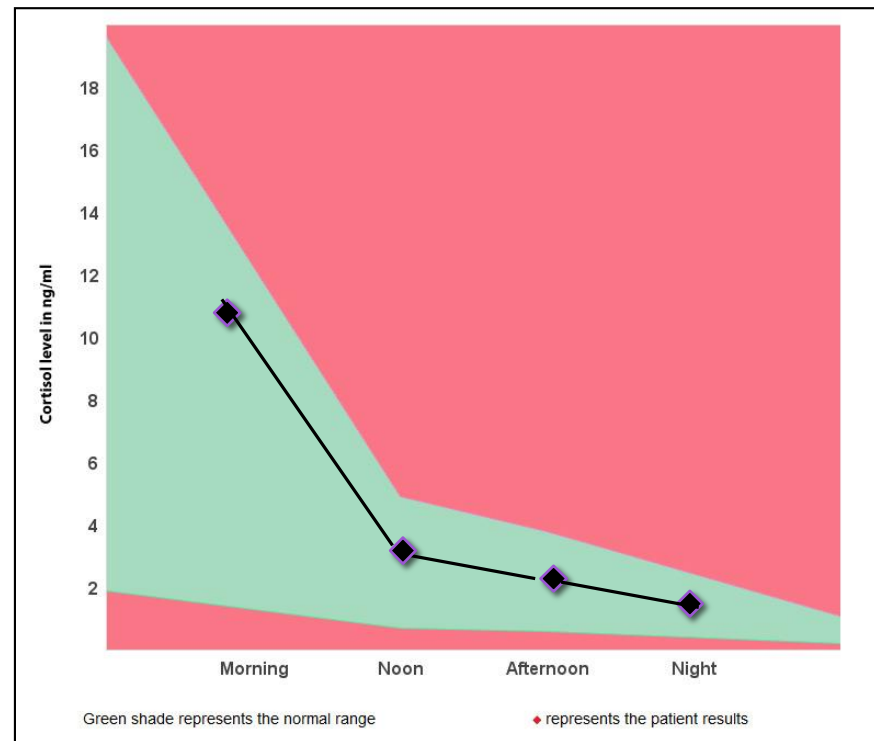
Let's Look At Some Test Results

Normal Cortisol

Diurnal (daily) rhythm is apparent

Total Cortisol:
Sum of the 4 Cs

Elevated levels:
Hypercortisolism or
exogenous source.



Depressed levels: Hypoadrenal function

Elevated Cortisol

Main Physiological Causes

- Stress
- Fasting & blood sugar levels
- Inflammation & pain

Exposure to steroidal hormones such as Pg, may falsely create elevated Cortisol results.

Elevated Cortisol: (Relative or Absolute)

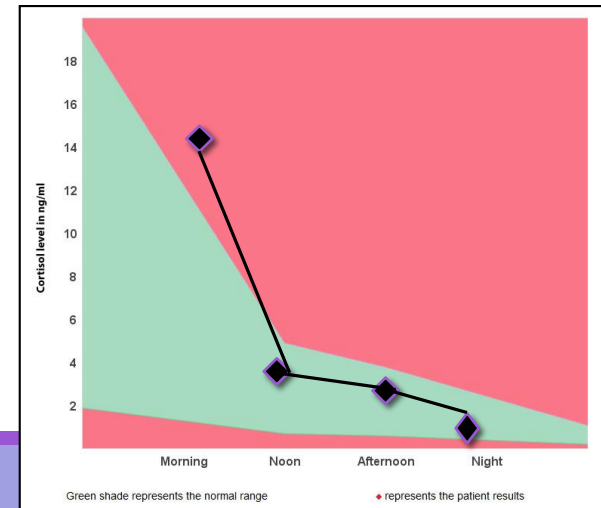
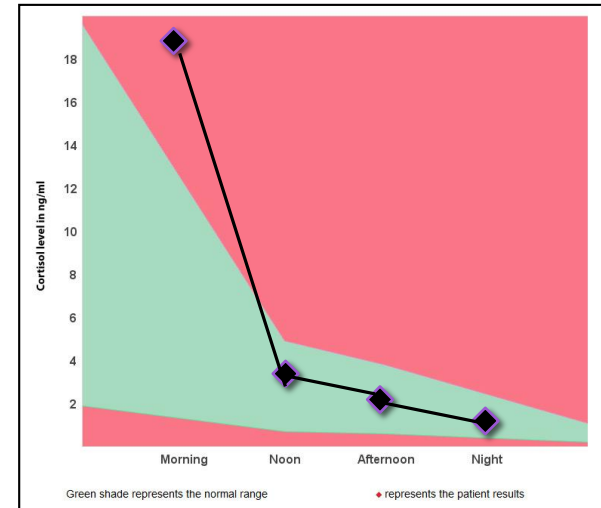
AM Value

Absolute: Mostly due to

- Blood sugar & insulin problems

Relative (also possible)

- Pain on waking
- Waking up stressed

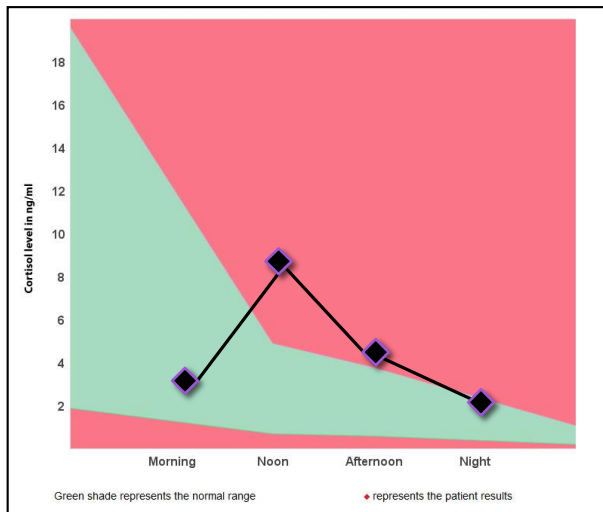


Elevated Cortisol

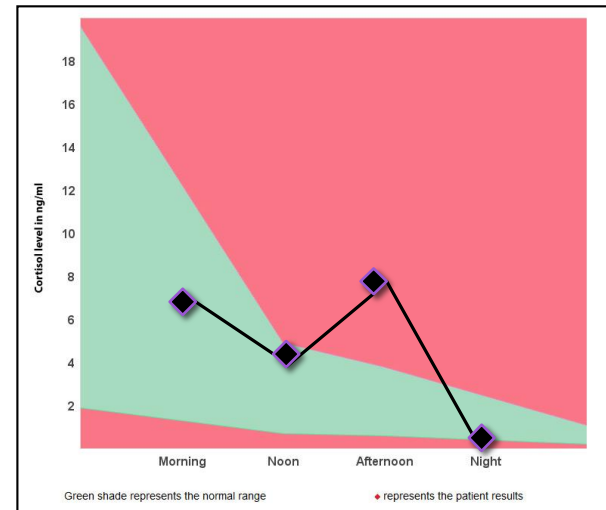
Noon (sometimes with high AM as well)

Possible blood sugar/insulin issue
with late or skipped breakfast

Pain & other Stressors



Skipped Breakfast



Late Breakfast: AM collected late.
Noon collection also normal, elevated in PM sampling

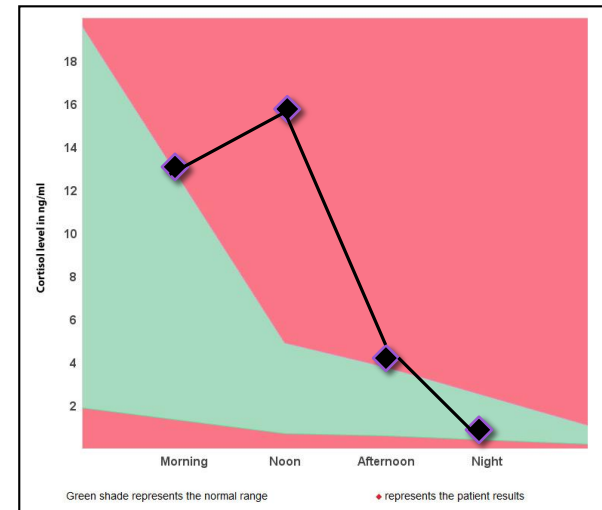
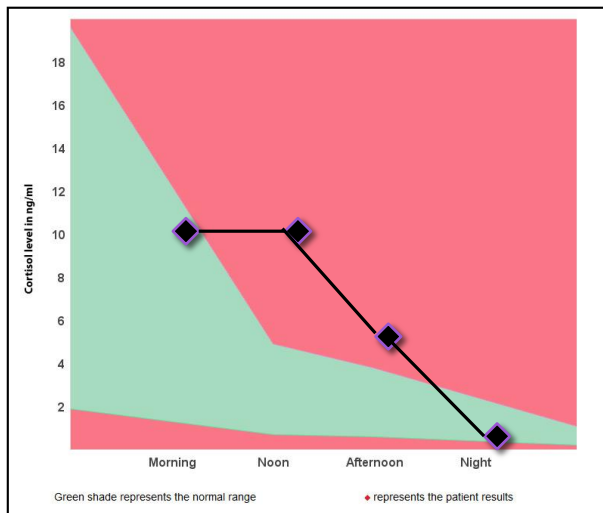
Elevated Cortisol

Throughout Day

Anxiety / high stress

Fibromyalgia / pain

Multiple skipped meals / fasting

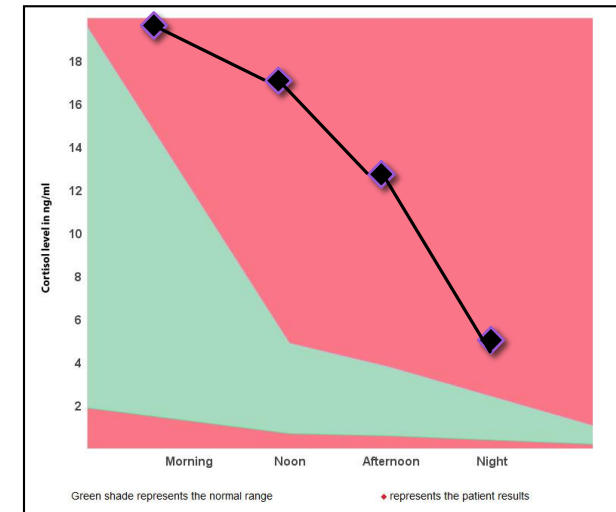
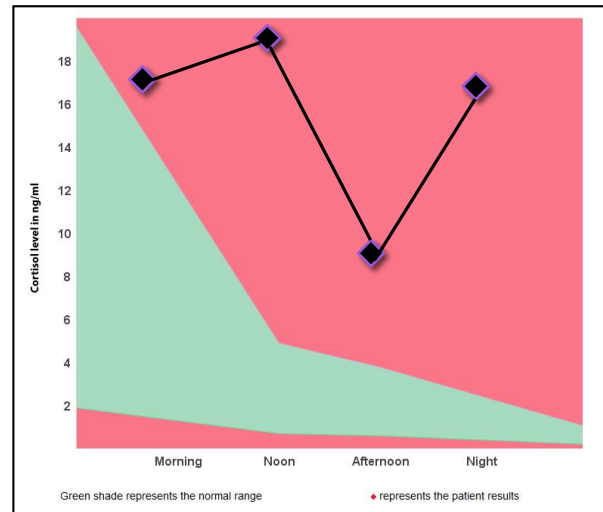
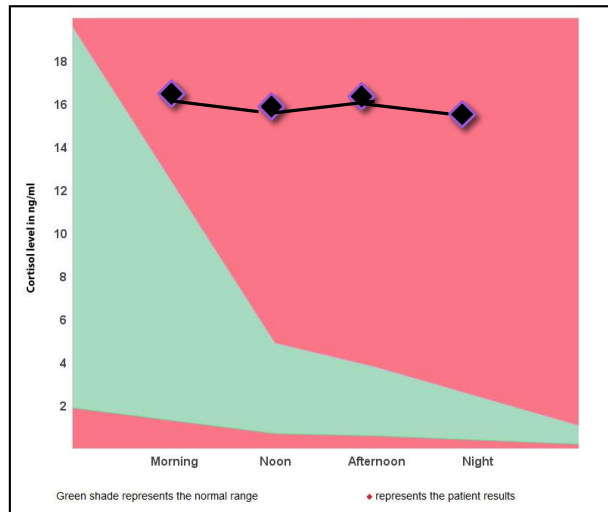


Elevated Cortisol

Very High Throughout Day

Mostly Corticosteroids Drugs or Pg

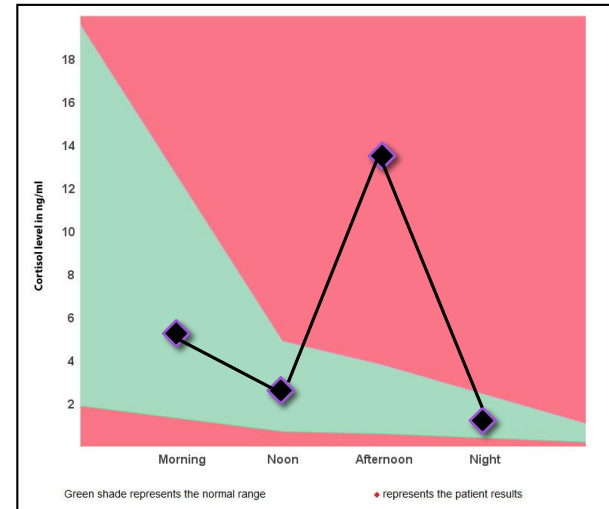
Cushing's Syndrome: Clinical or Sub-Clinical



Elevated Cortisol

Single High Value

- High stress, day of test
- Heavy exercise
- If Night value
 - Stress-induced insomnia

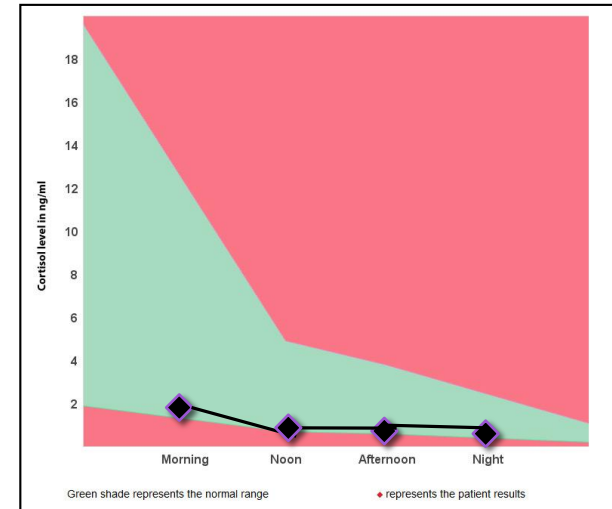


Low Cortisol:

Chronic stress

Adrenal insufficiency (rare)

- Addison's disease
- Recent corticosteroid use such as prednisone



Elevated DHEA-S

- Reference Range (M/F) = 0.2-2.7 ng/ml
- R/O problems that raise Androgen levels
 - Hypothyroidism
 - PCOS
 - **Red = Females only**
 - Hyperprolactinemia (enlargement of organs or tissue)
 - Non-classic Congenital Adrenal Hyperplasia
 - Tumors: Cushing's Syndrome, **Acromegaly** (abnormal growth of hands and feet)

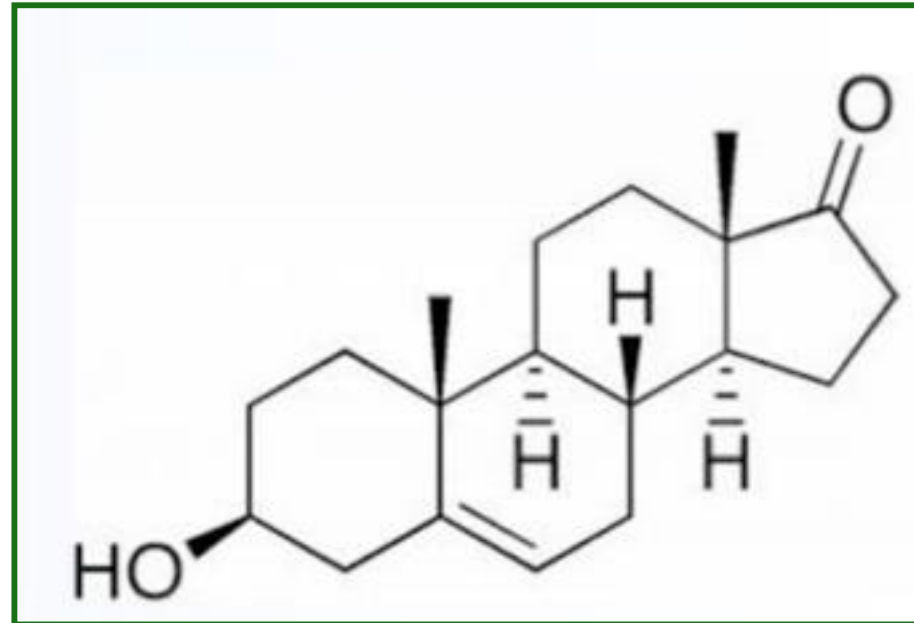
Low DHEA-S

- Reference Range (M/F) = 0.2-2.7 ng/ml

Chronic Stress

Menopause / Andropause

Addison's Disease (Rare)



- **DHEA**

Patient: Jane Doe**Sex:** Female**Age:** 40**Date of Birth:** 1975-05-21**Height:** 5 ft 6 in**Weight:** 121 lbs**Waist size:** 41 in**Accession #:** M12345678**Sample received:** 2015-01-11**Report issued:** 2015-01-16**1st day of last menses:** Day 05, Month 01**Menstrual status:** Regular**Hormones:** Yes, please see next page.**Sample collection:**

2015-01-11 07:30 AM

2015-01-11 12:00 PM

2015-01-11 16:30 PM

2015-01-11 22:00 PM

Health Care Professional: Dr. John Smith**Address:** 646 Petrolia Rd., Toronto, Ontario M3G 2W3

Lab Test Report 1

FEMALE WELLNESS DAILY CYCLE

17-β ESTRADIOL (E2) pg/ml **8.3**

Reference range

Female

21-50 years	Follicular phase	1.3 - 7.8 pg/ml
	Mid cycle	3.8 - 16.0 pg/ml
	Luteal phase	1.2 - 8.4 pg/ml
51-75 years	Post Menopausal	0.6 - 4.4 pg/ml
Male		1.0 - 4.7 pg/ml

PROGESTERONE (Pg) pg/ml **1**

Reference range

Female

	Follicular phase	19.6 - 86.5 pg/ml
	Luteal phase	99.1 - 332.6 pg/ml
	Post Menopausal	6.0 - 56.4 pg/ml
Male		12.7 - 65.1 pg/ml

Pg / E2 RATIO **0.1**

Optimal (Luteal Phase): 100-300 when E2 1.2-3.3 pg/ml

DHEA-S (DS) ng/ml **3.5**

Reference range

Female

0.2 - 2.5 ng/ml

Male

0.2 - 2.7 ng/ml

CORTISOL (C) ng/ml

	Results	Reference range
Morning	28.8	1.6 - 12.6 ng/ml
Noon	9.5	0.7 - 4.9 ng/ml
Afternoon	4.7	0.6 - 3.8 ng/ml
Night	0.8	0.3 - 2.9 ng/ml

CORTISOL : DHEA-S ratio **12.5:**

Results	Reference range
12.5:1	5:1 to 6:1

TESTOSTERONE (T) pg/ml **26**

Reference Ranges

Age (years)	Male	Female
20 - 29	41.4 - 142.5	5.5 - 49.0 pg/ml
30 - 39	31.8 - 100.4	5.2 - 49.0 pg/ml
40 - 49	30.1 - 97.8	4.5 - 49.0 pg/ml
50 - 59	30.0 - 92.0	3.6 - 49.0 pg/ml
60 - 69	23.2 - 86.9	2.9 - 38.8 pg/ml

Lab Test Report 1



[Back to Control Panel >>](#)

RESULTS: SALIVA HORMONE TEST

Accession #: M12345678 • Patient: Jane Doe

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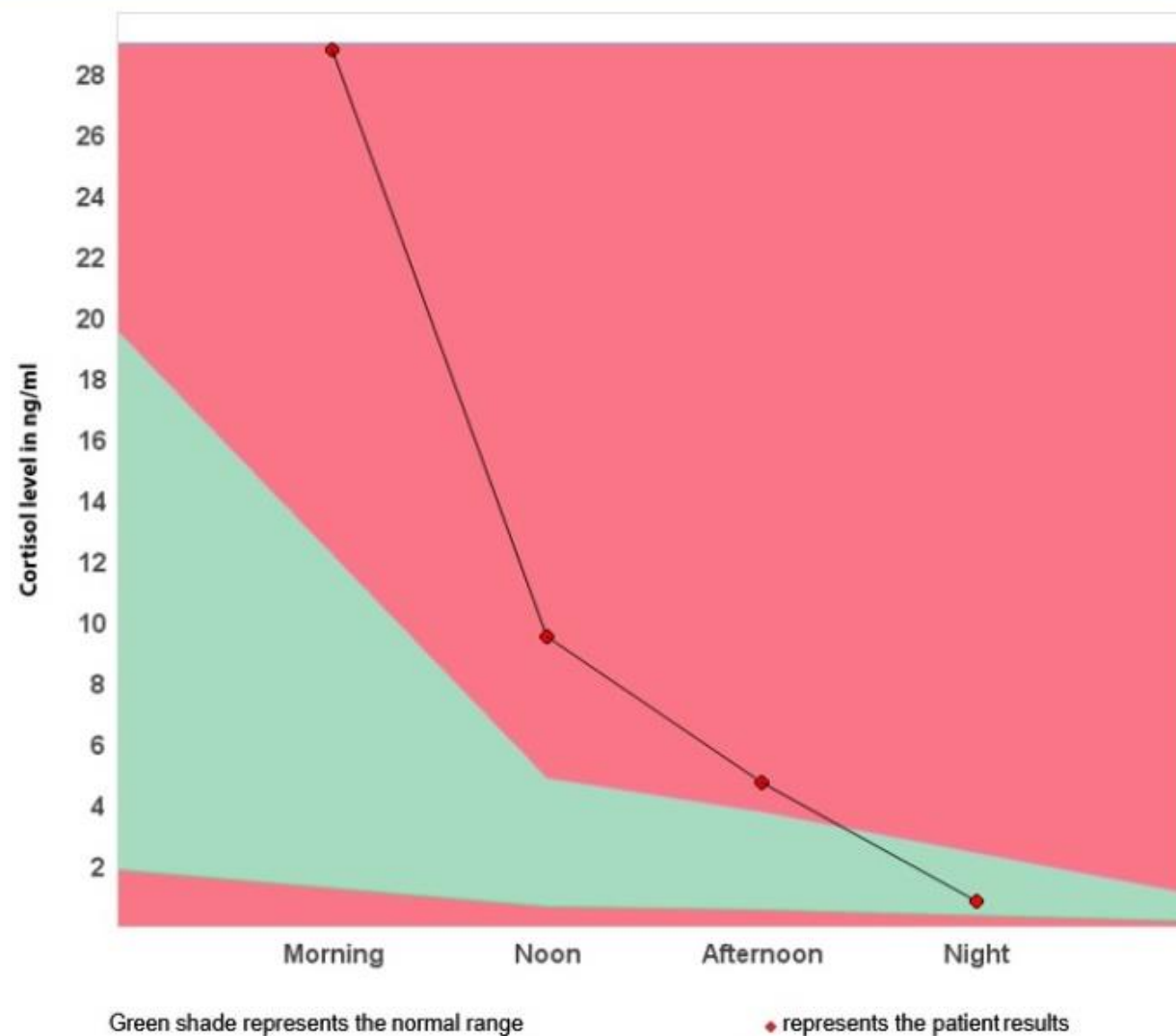
HORMONE USE

Hormone Type	Brand or Source	Delivery	Last Used (Date Time)	Amount (mg)	Times/Day	Days/Month
Estrogens	estro1	oral	2015-01-25 10:30:AM	2 mg	2	15
Progesterone	proge1	oral	2015-01-25 12:30:PM	2 mg	1	15
Testosterone	testo1	oral	2015-01-25 13:30:AM	2 mg	1	15
DHEA	dheas1	oral	2015-01-25 14:30:PM	2 mg	1	15
Thyroid	thyroid1	oral	2015-01-25 15:30:AM	2 mg	1	15

Other DCH4

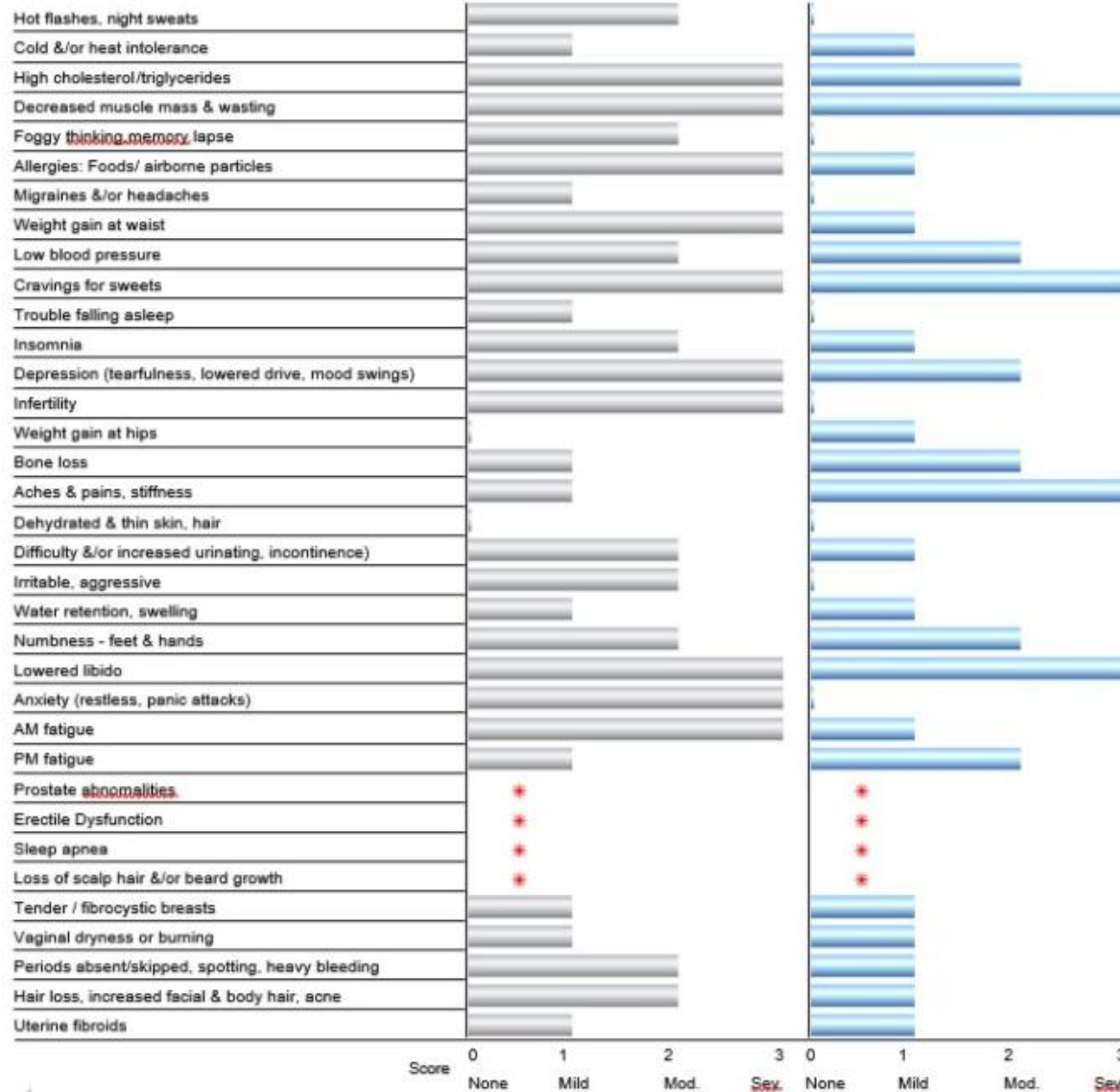
* = Not Entered

Lab Test Report 1



Accession #: M12345662
Results issued: 2014-12-02

Accession #: M12345678
Results issued: 2015-01-16



Lab Test Report 1

Lab Test 1

Understanding Hormone Excess and Deficiency

The comments provided here are for educational purposes only. They should not be interpreted as being diagnostic or treatment recommendations. Those decisions are the responsibility of the health care professional.

Test results above or below the reference range need to be examined with patient's clinical history and may be affected by a variety of unknown variables at the exact moment of specimen collection. Reference ranges assume that the middle 95% of a given sample population is "normal" and the remaining 5% is "abnormal". Although this approach is statistically sound, it assumes that the whole sample population is comprised of a clinically healthy population.

CORTISOL

Cortisol is produced by the adrenal glands, which are controlled by parts of the brain called the hypothalamus and pituitary. Cortisol plays an important role in breaking down glycogen to glucose in liver and muscle tissue. It mobilizes glucose, so as to maintain normal blood sugar levels and is the primary energy source for the brain. Cortisol levels are highest in the early morning (approximately 8 am) and reach the lowest level at about midnight-4 am, or three to five hours after the onset of sleep. Diurnal cycles of cortisol levels are found in human saliva. Cortisol production comes in response to daily stress, as well as emotional upset, infections and surgery. It prevents the release of substances in the body that cause inflammation. It is used to treat conditions resulting from over activity of the B-cell-mediated antibody response. Examples include inflammatory and rheumatoid diseases, as well as allergies. Low-potency hydrocortisone, available as a non-prescription medicine in some countries, is used to treat skin problems such as rashes, and eczema.

Low Cortisol, especially if it remains so throughout the day, may indicate **Adrenal Exhaustion**, which is caused by stress, such as sleep deprivation, emotional stress, poor diet, nutrient deficiencies, and/or synthetic glucocorticoid medications that suppress cortisol production. Chronic stress depletes cortisol and is associated with symptoms of morning and evening fatigue, aches and pains, fibromyalgia, cold body temperature, decreased stamina, slow pulse rate, low blood sugar (sugar craving) and low blood pressure. In addition one often encounters increased allergies (immune dysfunction), and sensitivity to chemicals. Symptoms of thyroid deficiency can also be due to low cortisol levels. Exercise, more adequate sleep, a diet with adequate protein, 'bioidentical' progesterone, adrenal extracts and nutritional supplements are often helpful in correcting low cortisol.

High Cortisol. Although normal cortisol levels are essential for life, chronically elevated levels can be very detrimental. Increased cortisol production by the adrenals is a normal response to routine stress, but when stress is chronic and cortisol output remains high over a prolonged period (months/years), break- down of normal tissues (muscle wasting, thinning of skin, bone loss) and immune suppression can result. Common symptoms of chronic high cortisol include sleep disturbances, fatigue, depression, weight gain in the waist and anxiety. Stress and persistently elevated cortisol levels can contribute to premature aging and chronic illness.

Lab Test 2

Patient: Sally Doe

Sex: Female

Age: 59 yr

Date of Birth: 1957-07-20

Height: 5 ft 6 in

Weight: 160 lbs

Waist size: 38 in

Accession #: 100010616

Sample received: 2016-08-19

Report issued: 2016-08-30

Menstrual status: No cycle

Hormones: No

Health Care Professional:

Address:

Sample collection:

2016-08-17 11:00 AM

2016-08-17 01:45 PM

FEMALE WELLNESS PLUS

17-β ESTRADIOL (E2) pg/ml

2.9

Reference range

Female

21-50 years	Follicular phase	1.3 - 7.8 pg/ml
	Mid cycle	3.8 - 16.0 pg/ml
	Luteal phase	1.2 - 8.4 pg/ml

51-75 years

Post Menopausal	0.6 - 4.4 pg/ml
Male	1.0 - 4.7 pg/ml

PROGESTERONE (Pg) pg/ml

37

Reference range

Female

Follicular phase	19.6 - 86.5 pg/ml
Luteal phase	99.1 - 332.6 pg/ml
Post Menopausal	6.0 - 56.4 pg/ml

Male	12.7 - 65.1 pg/ml
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Pg / E2 RATIO

12.8

Optimal (Luteal Phase): 100-300 when E2 1.2-3.3 pg/ml

DHEA-S (DS) ng/ml

1.5

Reference range

Female

0.2 - 2.5 ng/ml

Male

0.2 - 2.7 ng/ml

CORTISOL (C) ng/ml

Results

Reference range

Morning	7.2	1.6 - 12.6 ng/ml
Night	0.4	0.3 - 2.9 ng/ml

TESTOSTERONE (T) pg/ml

18.3

Reference Ranges

Age (years)	Male	Female
20 - 29	41.4 - 142.5	5.5 - 49.0 pg/ml
30 - 39	31.8 - 100.4	5.2 - 49.0 pg/ml
40 - 49	30.1 - 97.8	4.5 - 49.0 pg/ml
50 - 59	30.0 - 92.0	3.6 - 49.0 pg/ml
60 - 69	23.2 - 86.9	2.9 - 38.8 pg/ml

Act

Go to

Lab Test 2

Patient: Mary Doe

Tel:

Sex: Female

Height: 5 ft 4 in

Email:

Age: 57 yr

Weight: 150 lbs

Date of Birth: 1959-11-13

Waist size: 36 in

Accession #: 100010627
Sample received: 2016-11-01
Report issued: 2016-11-09
Sample collection:
2016-10-28 09:30 AM
2016-10-28 01:30 PM
2016-10-28 05:20 PM
2016-10-28 11:50 PM

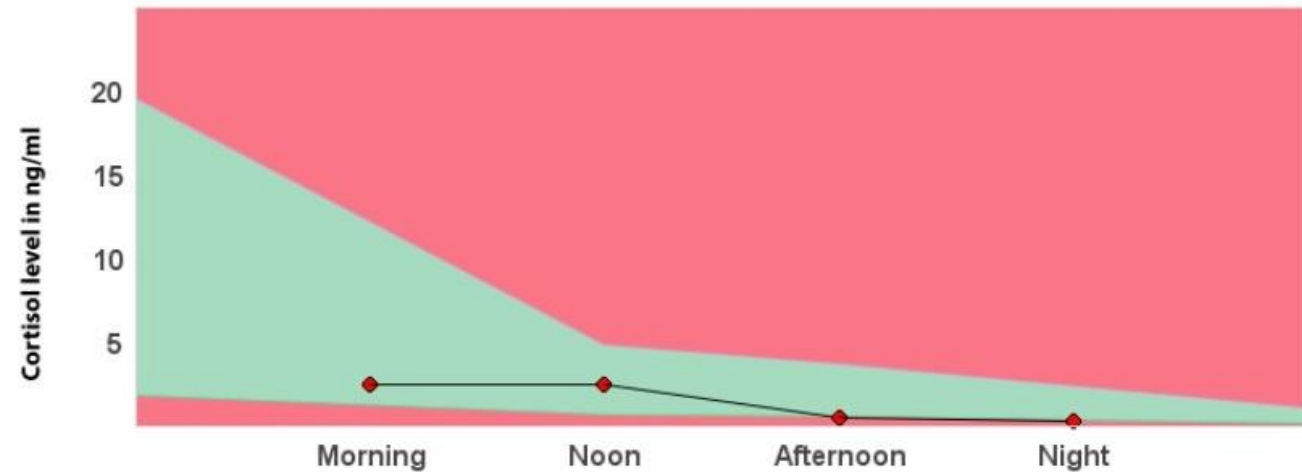
Menstrual status: No cycle

Hormones: No

Health Care Professional:

DIURNAL CORTISOL

HORMONE	RESULT	REFERENCE RANGE	UNITS
Cortisol - morning (30-60 min. after waking)	2.5	1.6 - 12.6 (5.1 - 40.2)	ng/ml (nM/L)
Cortisol - noon	2.5	0.7 - 4.9 (2.2 - 15.6)	ng/ml (nM/L)
Cortisol - afternoon	0.5	0.6 - 3.8 (1.9 - 12.1)	ng/ml (nM/L)
Cortisol - night	0.3	0.3 - 2.9 (1.0 - 9.2)	ng/ml (nM/L)
Cortisol Total	5.9	3.2 - 24.2 (10.2 - 77.1)	ng/ml (nM/L)



Green shade represents the normal range

◆ represents the patient results

Act
Go 1

Lab Test 3

Accession #: M12345672 • Patient: Benjamin Gonshor

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Patient:

Sex: Male

Age: 40

Date of Birth: 1974-08-22

Height: 5 ft 8 in

Weight: 145 lbs

Waist size: 42 in

Accession #:

M12345672

Sample received:

2014-11-30

Report issued:

2014-12-02

Hormones: No

Health Care Professional: Dr. John Smith

Address: 646 Petrolia Rd., Toronto, Ontario M3G 2W3

Sample collection:

2014-11-30

07:30 AM

2014-11-30

: PM

2014-11-30

: PM

2014-11-30

10:00 PM

MALE WELLNESS PLUS

17- β ESTRADIOL (E2) pg/ml

4.6

Reference range

Male

1.0 - 4.7 pg/ml

DHEA-S (DS) ng/ml

1.6

Reference range

Male

0.2 - 2.7 ng/ml

TESTOSTERONE (T) pg/ml

15.6

Reference range

Age (years)

Male

Female

20 - 29

41.4 - 142.5

5.5 - 49.0 pg/ml

30 - 39

31.8 - 100.4

5.2 - 49.0 pg/ml

40 - 49

30.1 - 97.8

4.5 - 49.0 pg/ml

50 - 59

30.0 - 92.0

3.6 - 49.0 pg/ml

60 - 69

23.2 - 86.9

2.9 - 38.8 pg/ml

CORTISOL (C) ng/ml

Results

Reference range

Morning

28.8

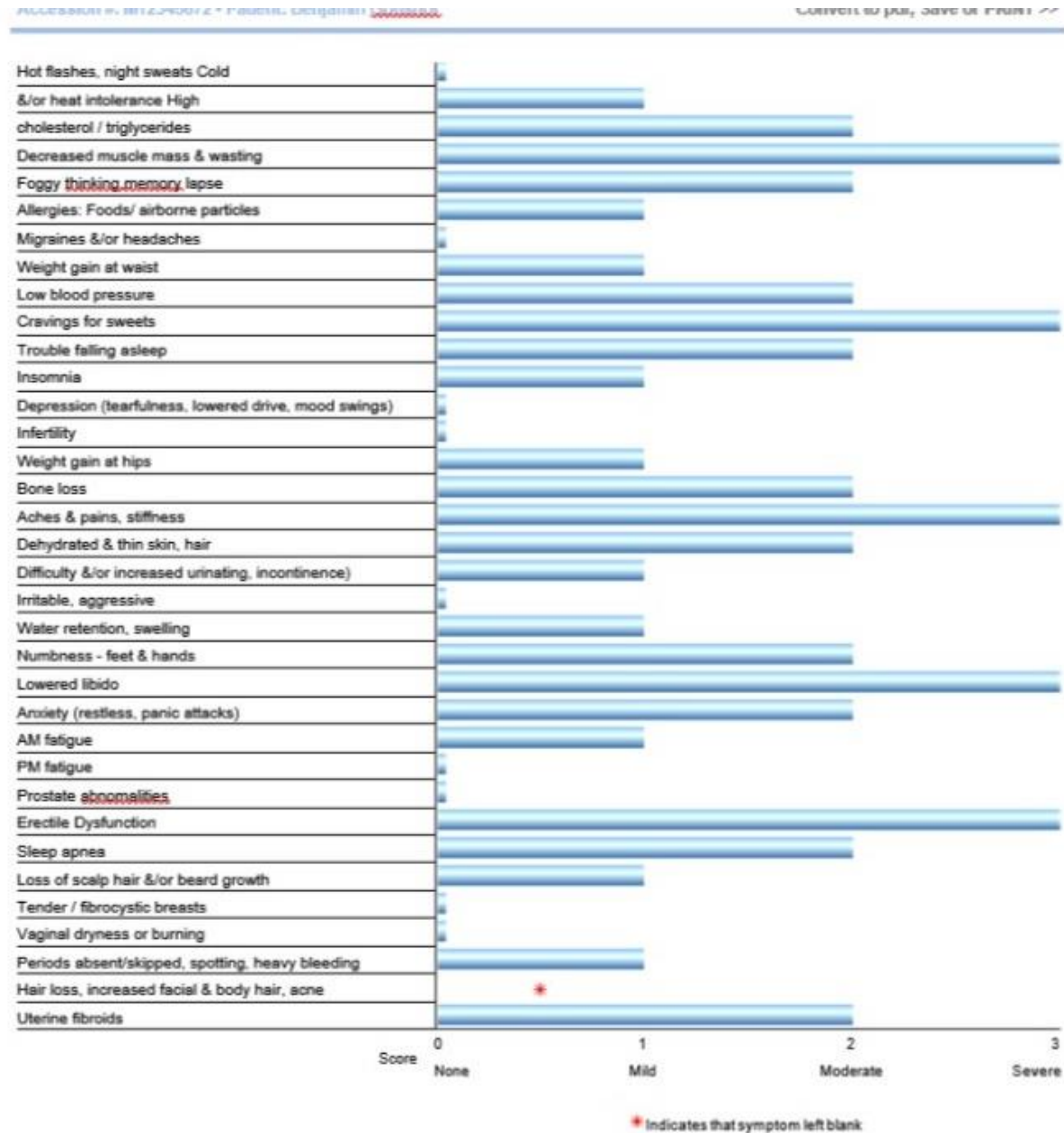
1.6 - 12.6 ng/ml

Night

2

0.3 - 2.9 ng/ml

Lab Test 3



Lab Test 4

Accession #: M12345675 • Patient: John Doe

Convert to pdf, Save or PRINT >>

Patient: John Doe

Sex: Male

Age: 41

Date of Birth: 1974-08-22

Height: 5 ft 8 in

Weight: 145 lbs

Waist size: 42 in

Accession #: M12345675

Sample received: 2014-12-01

Report issued: 2015-06-01

Hormones: No

Health Care Professional: Dr. John Smith

Address: 646 Petrolia Rd., Toronto, Ontario M3G 2W3

Sample collection:

2014-12-01 07:30 AM

2014-12-01 12:30 PM

2014-12-01 06:30 PM

2014-12-01 10:30 PM

MALE WELLNESS DAILY CYCLE

17-β ESTRADIOL (E2) pg/ml

5.5

Reference range

Male

1.0 - 4.7 pg/ml

DHEA-S (DS) ng/ml

1

Reference range

Male

0.2 - 2.7 ng/ml

TESTOSTERONE (T) pg/ml

36.4

Reference range

Age (years)

Male

Female

20 - 29 41.4 - 142.5 5.5 - 49.0 pg/ml

30 - 39 31.8 - 100.4 5.2 - 49.0 pg/ml

40 - 49 30.1 - 97.8 4.5 - 49.0 pg/ml

50 - 59 30.0 - 92.0 3.6 - 49.0 pg/ml

60 - 69 23.2 - 86.9 2.9 - 38.8 pg/ml

CORTISOL (C) ng/ml

Results

Reference range

Morning **28.8** 1.6 - 12.6 ng/ml

Noon **15.3** 0.7 - 4.9 ng/ml

Afternoon **7.8** 0.6 - 3.8 ng/ml

Night **4.7** 0.3 - 2.9 ng/ml

CORTISOL : DHEA-S ratio

56:1

Results

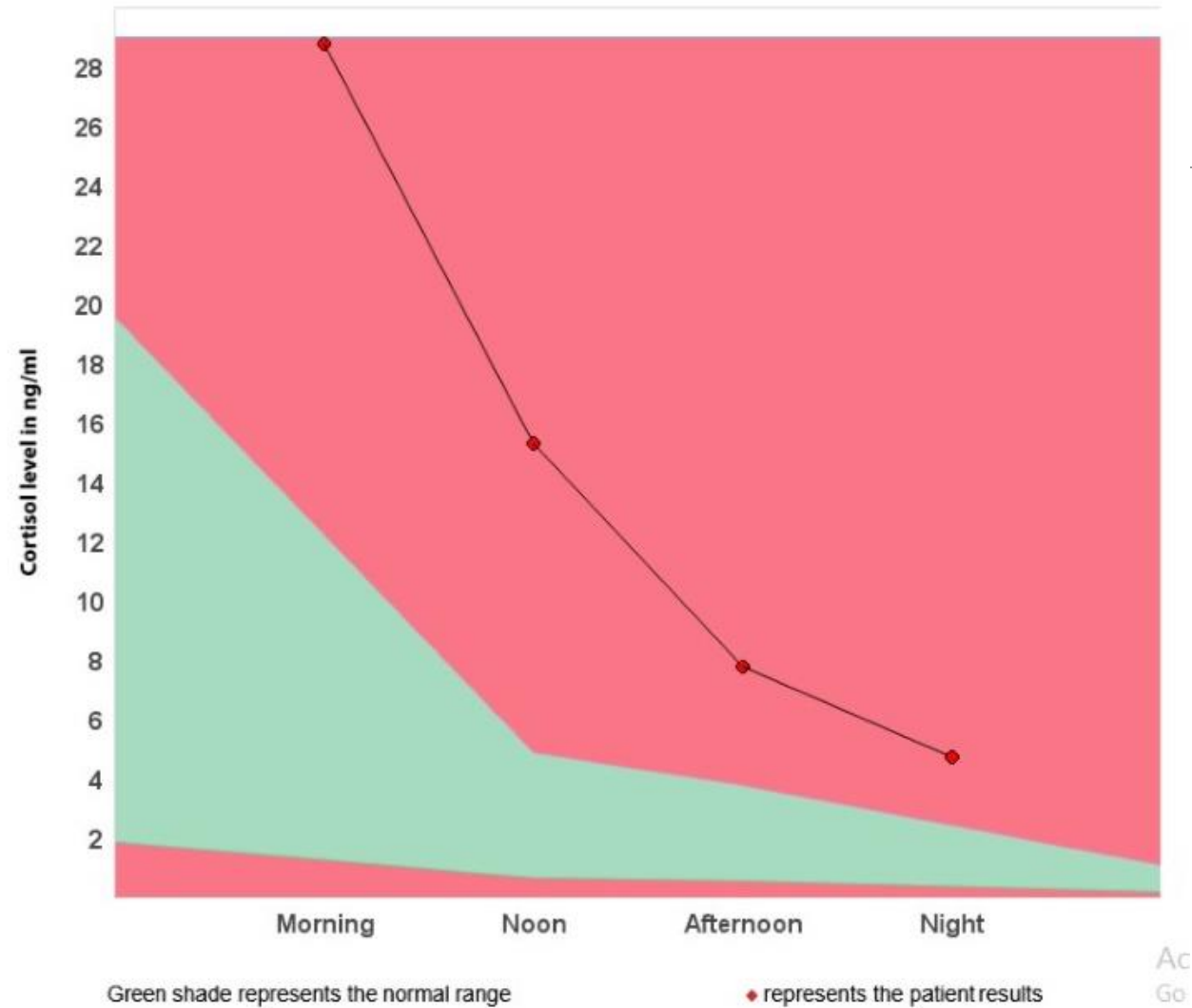
Reference range

56:1

5:1 to 6:1

Activate Vinc
Go to Settings to

Lab Test 4



Lab Test 4

Accession #: M12345672
Results issued: 2014-12-02

Accession #: M12345675
Results issued: 2015-06-01

Hot flashes, night sweats		
Cold &/or heat intolerance		
High cholesterol/triglycerides		
Decreased muscle mass & wasting		
Foggy thinking memory lapse		
Allergies: Foods/ airborne particles		
Migraines &/or headaches		
Weight gain at waist		
Low blood pressure		
Cravings for sweets		
Trouble falling asleep		
Insomnia		
Depression (tearfulness, lowered drive, mood swings)		
Infertility		
Weight gain at hips		
Bone loss		
Aches & pains, stiffness		
Dehydrated & thin skin, hair		
Difficulty &/or increased urinating, incontinence)		
Irritable, aggressive		
Water retention, swelling		
Numbness - feet & hands		
Lowered libido		
Anxiety (restless, panic attacks)		
AM fatigue		
PM fatigue		
Prostate abnormalities		
Erectile Dysfunction		
Sleep apnea		
Loss of scalp hair &/or beard growth		
Tender / fibrocystic breasts		*
Vaginal dryness or burning		*
Periods absent/skipped, spotting, heavy bleeding		*
Hair loss, increased facial & body hair, acne	*	*
Uterine fibroids		*

Ac
Go

Overall Benefits

- Higher standard of care for clients
- Increases patient understanding of overall value of the protocol
- Special Thanks: Dr. Aron Gonshor

