dutchplus®

Ordering Provider:
Precision Analytical

PATIENT INFORMATION

Female Sample Report
123 A Street
Sometown, CA 90266

DOB: 2005-01-01
Age: 21
Sex: Female
Last Menstrual Period:

Accession # 01134847

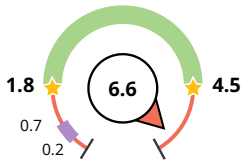
Collection Dates:
2026-01-12 (S1 S1 S2 S3 S5 U1 U2 U3 U4)

Hormone Testing Summary

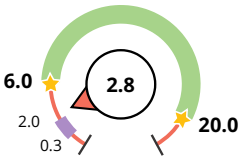
Optimal Luteal Range | Postmenopausal Range | Out of Range | Edge of Range

For an expanded view of results, see pages 2 through 6. For interpretive support, see *About Your Results* pages.

ESTROGEN & PROGESTERONE PRODUCTION



Estradiol (E2)



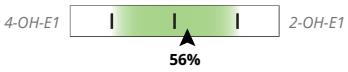
Progesterone (P4)
Serum Equivalent*, ng/mL

*P4 Serum Equivalent (ng/mL) is a calculated value based on urine pregnanediol.

ESTROGEN METABOLISM

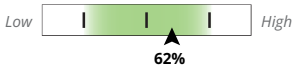
2-OH / 16-OH-E1 Balance

2-OH / 4-OH-E1 Balance



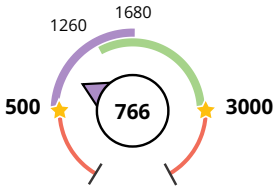
Phase 1 Metabolism

Methylation Activity
2-Methoxy / 2-OH-E1

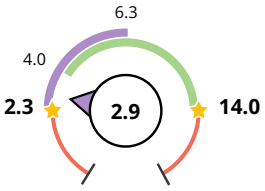


Phase 2 Methylation

ANDROGEN PRODUCTION

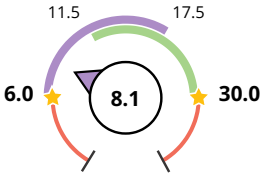


Total DHEA Production
DHEA-S + Etiocholanolone + Androsterone



Testosterone

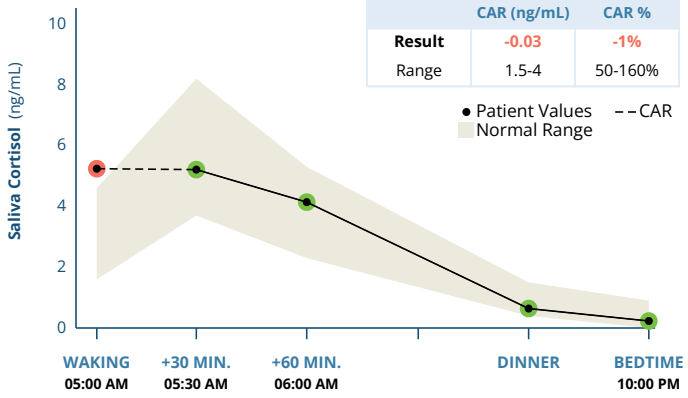
ANDROGEN METABOLISM



5a-Androstanediol
Cellular DHT Production

5a-Metabolism (Androgens)
Androsterone / Etiocholanolone

FREE CORTISOL with CORTISOL AWAKENING RESPONSE (CAR)



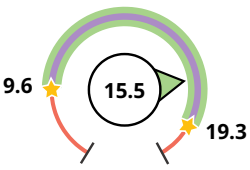
	CAR (ng/mL)	CAR %
Result	-0.03	-1%
Range	1.5-4	50-160%

● Patient Values – – CAR
Normal Range

CORTISOL METABOLISM

Cortisol Clearance Rate
THF + THE / Cortisol + Cortisone

Cortisol Metabolism



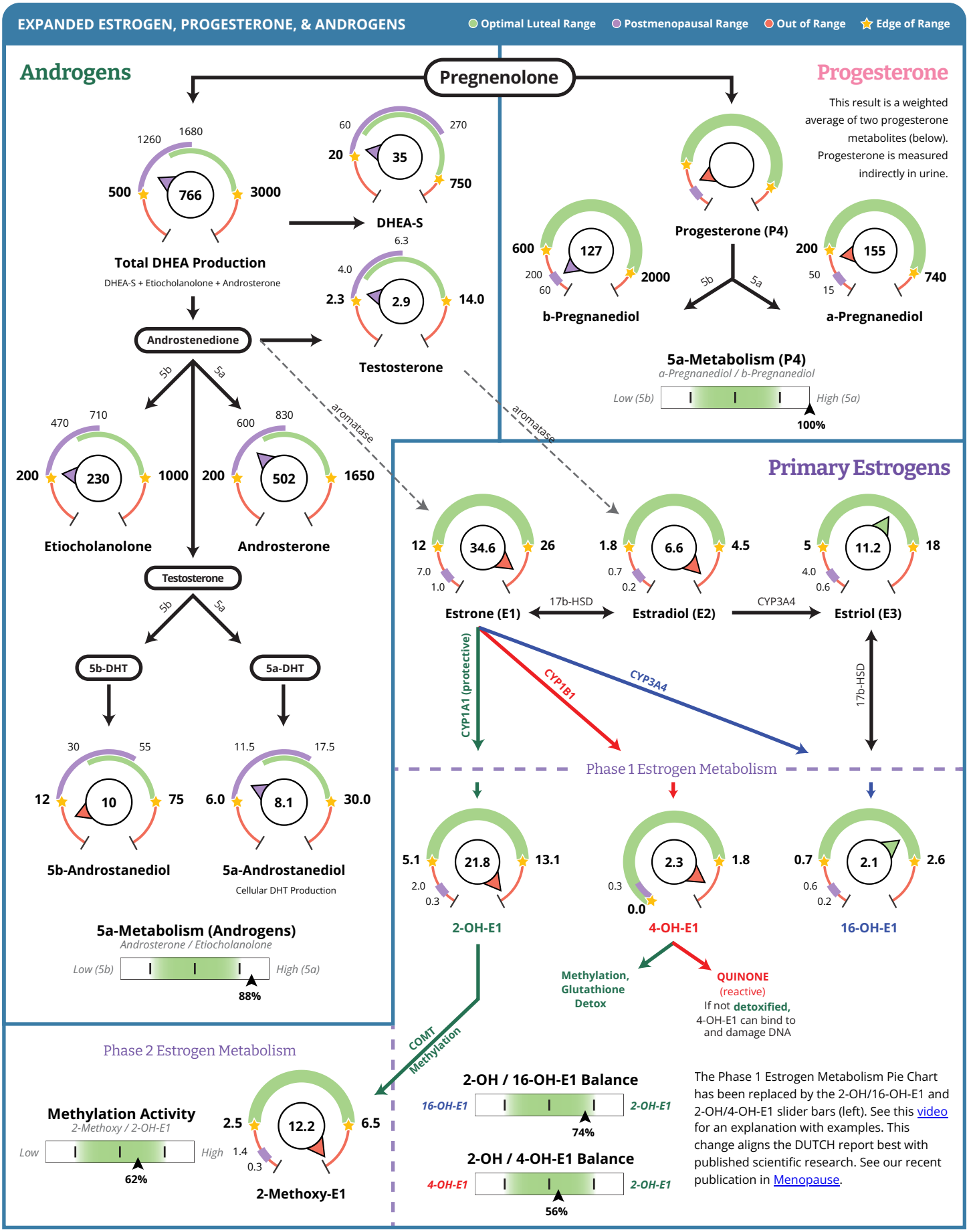
Saliva Cortisol Total
Sum of S1 - 5

Metabolized Cortisol
Total Cortisol Production (THF + THE)

Organic Acid Tests (OATs) Suggests the Following Possible Imbalances | see page 6 for details

Watch | Needs Attention

- Neurotransmitters


EXPANDED ESTROGEN, PROGESTERONE, & ANDROGENS
Optimal Luteal Range
Postmenopausal Range
Out of Range
Edge of Range
Androgens
Pregnenolone
Progesterone
This result is a weighted average of two progesterone metabolites (below). Progesterone is measured indirectly in urine.
1260
1680
500
766
3000
Total DHEA Production
DHEA-S + Etiocholanolone + Androsterone
60
270
20
35
750
DHEA-S
6.3
4.0
2.3
2.9
14.0
Testosterone
Androstenedione
5b
5a
aromatase
470
710
200
230
1000
Etiocholanolone
600
830
200
502
1650
Androsterone
Testosterone
5b-DHT
5a-DHT
30
55
12
10
75
5b-Androstanediol
11.5
17.5
6.0
8.1
30.0
5a-Androstanediol
Cellular DHT Production
5a-Metabolism (Androgens)
Androsterone / Etiocholanolone
Low (5b)
High (5a)
88%
Progesterone (P4)
600
127
200
2000
60
b-Pregnanediol
200
155
50
740
15
a-Pregnanediol
5a-Metabolism (P4)
a-Pregnanediol / b-Pregnanediol
Low (5b)
High (5a)
100%
Primary Estrogens
12
34.6
26
7.0
1.0
Estrone (E1)
17b-HSD
1.8
6.6
4.5
0.7
0.2
Estradiol (E2)
CYP3A4
5
11.2
18
4.0
0.6
Estriol (E3)
CYP1A1 (protective)
CYP1B1
CYP3A4
17b-HSD
Phase 1 Estrogen Metabolism
5.1
21.8
13.1
2.0
0.3
2-OH-E1
0.3
2.3
1.8
0.0
4-OH-E1
0.7
2.1
2.6
0.6
0.2
16-OH-E1
Methylation, Glutathione Detox
QUINONE
(reactive)
If not detoxified, 4-OH-E1 can bind to and damage DNA
COMT Methylation
Phase 2 Estrogen Metabolism
Methylation Activity
2-Methoxy / 2-OH-E1
Low
High
62%
2.5
12.2
6.5
1.4
0.3
2-Methoxy-E1
2-OH / 16-OH-E1 Balance
16-OH-E1
2-OH-E1
74%
2-OH / 4-OH-E1 Balance
4-OH-E1
2-OH-E1
56%
The Phase 1 Estrogen Metabolism Pie Chart has been replaced by the 2-OH/16-OH-E1 and 2-OH/4-OH-E1 slider bars (left). See this video for an explanation with examples. This change aligns the DUTCH report best with published scientific research. See our recent publication in Menopause.

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Sex: Female
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Collection Times:

2026-01-12 05:00AM (S1)
2026-01-12 05:00PM (S1)
2026-01-12 05:30AM (S2)
2026-01-12 06:00AM (S3)
2026-01-12 10:00PM (S5)
2026-01-12 05:00AM (U1)
2026-01-12 07:00AM (U2)
2026-01-12 05:00PM (U3)
2026-01-12 10:00PM (U4)

Ordering Provider:

Precision Analytical

Sex Hormones & Metabolites

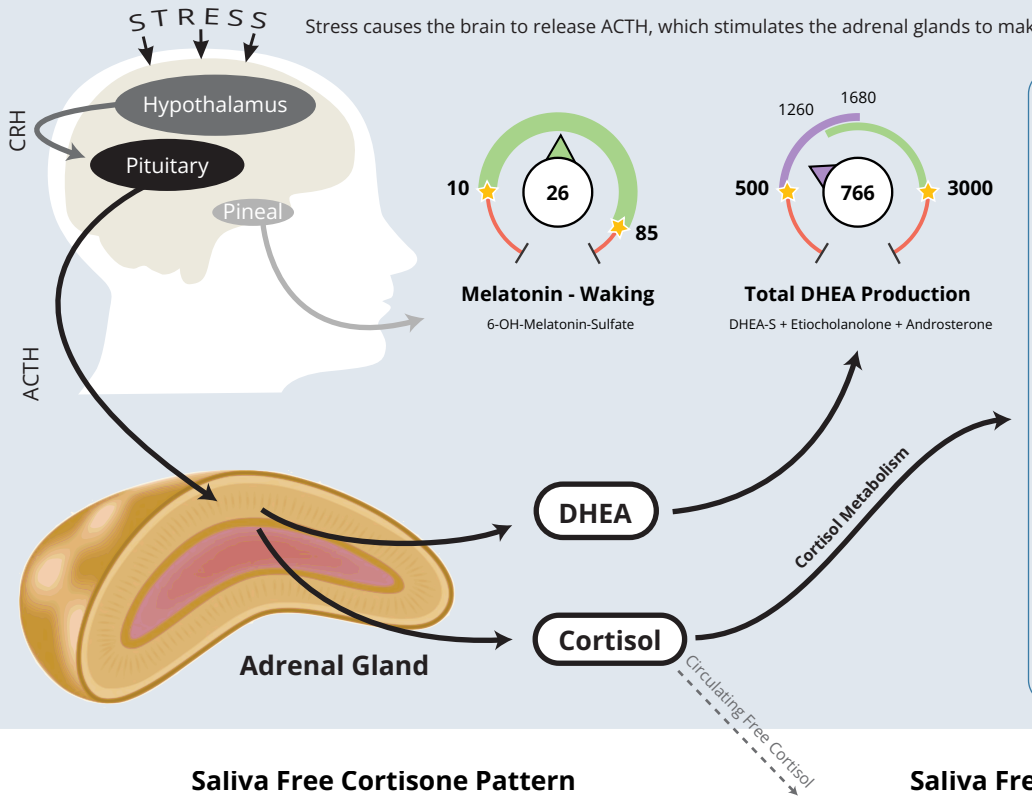
TEST		RESULT	UNITS	LUTEAL*	POSTMENOPAUSAL
Progesterone Metabolites (Urine)					
b-Pregnanediol	Below luteal range	126.7	ng/mg	600 - 2000	60 - 200
a-Pregnanediol	Below luteal range	155.2	ng/mg	200 - 740	15 - 50
Estrogens and Metabolites (Urine)					
Estrone (E1)	Above luteal range	34.63	ng/mg	12 - 26	1.0 - 7.0
Estradiol (E2)	Above luteal range	6.56	ng/mg	1.8 - 4.5	0.2 - 0.7
Estriol (E3)	Within luteal range	11.2	ng/mg	5 - 18	0.6 - 4.0
2-OH-E1	Above luteal range	21.80	ng/mg	5.1 - 13.1	0.3 - 2.0
4-OH-E1	Above luteal range	2.28	ng/mg	0 - 1.8	0 - 0.3
16-OH-E1	Within luteal range	2.12	ng/mg	0.7 - 2.6	0.2 - 0.6
2-Methoxy-E1	Above luteal range	12.22	ng/mg	2.5 - 6.5	0.3 - 1.4
2-OH-E2	Above luteal range	4.23	ng/mg	0 - 3.1	0 - 0.52
4-OH-E2	Above luteal range	0.80	ng/mg	0 - 0.52	0 - 0.12
Total Estrogen	Above range	95.8	ng/mg	35 - 70	3.5 - 15
Metabolite Ratios (Urine)					
2-OH / 16-OH-E1 Balance	Within range	10.28	ratio	2.69 - 11.83	
2-OH / 4-OH-E1 Balance	Within range	9.56	ratio	5.4 - 12.62	
2-Methoxy / 2-OH Balance	Within range	0.56	ratio	0.39 - 0.67	
Androgens and Metabolites (Urine)				**Range**	
DHEA-S	Within range	34.7	ng/mg	20 - 750	
Androsterone	Within range	501.8	ng/mg	200 - 1650	
Etiocholanolone	Within range	229.8	ng/mg	200 - 1000	
Testosterone	Within range	2.93	ng/mg	2.3 - 14	
5a-DHT	Within range	0.8	ng/mg	0 - 6.6	
5a-Androstanediol	Within range	8.1	ng/mg	6 - 30	
5b-Androstanediol	Below range	10.1	ng/mg	12 - 75	
Epi-Testosterone	Within range	2.6	ng/mg	2.3 - 14	

* The Luteal Range represents the expected premenopausal luteal range, collected menstrual cycle days 19-22 of a 28-day cycle. If your patient noted taking oral progesterone, the reference range represents the expected range on 100 - 200 mg of oral micronized progesterone (OMP). The ranges in the table below represent ranges in other times of the cycle your patient may have collected, such as follicular or ovulatory phases.

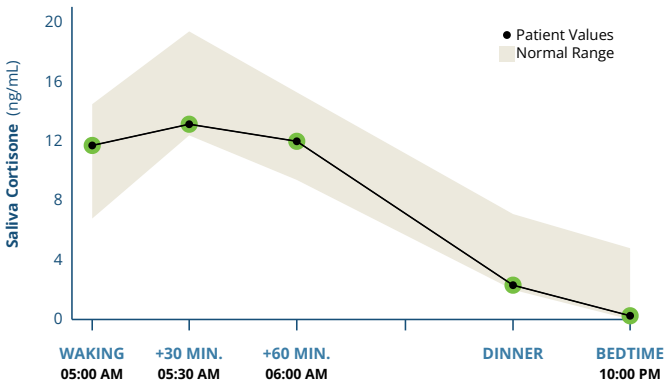
ADDITIONAL NORMAL RANGES	FOLLICULAR	OVULATORY	ON ORAL PG
b-Pregnanediol	100 - 300	100 - 300	2000 - 9000
a-Pregnanediol	25 - 100	25 - 100	580 - 3000
Estrone (E1)	4.0 - 12.0	22 - 68	N/A
Estradiol (E2)	1.0 - 2.0	4.0 - 12.0	N/A

EXPANDED CORTISOL & ADRENAL HORMONES

Optimal Luteal Range | Postmenopausal Range | Out of Range | Edge of Range

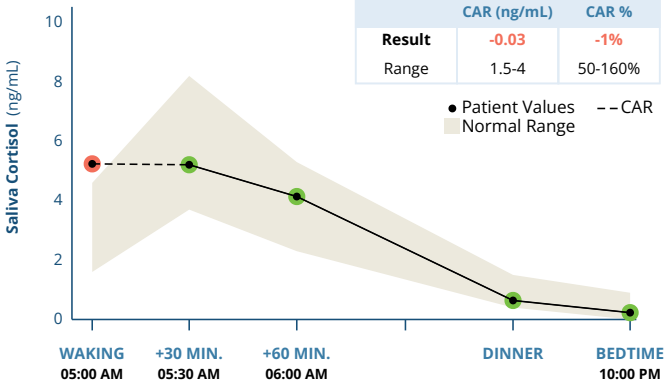


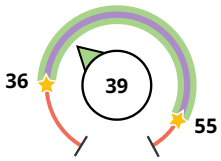
Saliva Free Cortisone Pattern



Saliva Free Cortisol Pattern

	CAR (ng/mL)	CAR %
Result	-0.03	-1%
Range	1.5-4	50-160%





Saliva Cortisone Total

Sum of S1 - 5

Cortisol and Cortisone interconvert (11b-HSD)

Saliva Cortisol Total

Sum of S1 - 5

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Accession # 01134847

Female Sample Report
123 A Street
Sometown, CA 90266

DOB: 2005-01-01
Age: 21
Sex: Female
Last Menstrual Period:

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2026-01-12 06:00AM (S3)
2026-01-12 10:00PM (S5)
2026-01-12 05:00AM (U1)
2026-01-12 07:00AM (U2)
2026-01-12 05:00PM (U3)
2026-01-12 10:00PM (U4)

Ordering Provider:

Precision Analytical

Adrenal Hormones & Metabolites

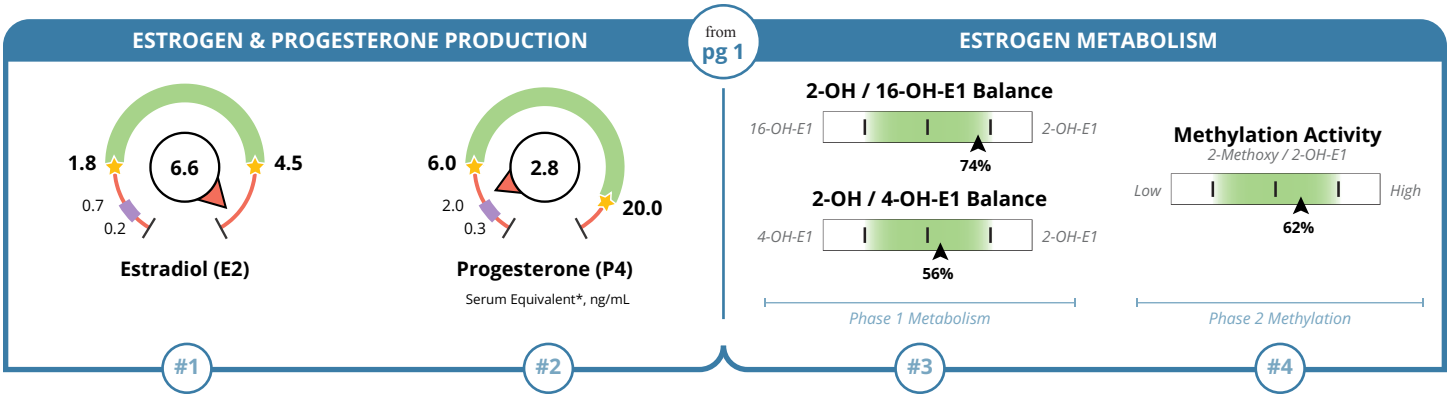
TEST		RESULT	UNITS	NORMAL RANGE
Free Cortisol and Cortisone (Saliva)				
Cortisol Awakening Response (CAR)	Below range	-0.03	ng/mL	1.5 - 4
Cortisol (S1) - Waking	Above range	5.24	ng/mL	1.6 - 4.6
Cortisol (S2) - +30 Min.	Within range	5.21	ng/mL	3.7 - 8.2
Cortisol (S3) - +60 Min.	Within range	4.14	ng/mL	2.3 - 5.3
Cortisol (S4) - Dinner	Within range	0.64	ng/mL	0.4 - 1.5
Cortisol (S5) - Bedtime	Within range	0.23	ng/mL	0 - 0.9
Cortisone (S1) - Waking	Within range	11.72	ng/mL	6.8 - 14.5
Cortisone (S2) - +30 Min.	Low end of range	13.15	ng/mL	12.4 - 19.4
Cortisone (S3) - +60 Min.	Within range	12.00	ng/mL	9.4 - 15.3
Cortisone (S4) - Dinner	Low end of range	2.31	ng/mL	2 - 7.1
Cortisone (S5) - Bedtime	Within range	0.25	ng/mL	0 - 4.8
Saliva Cortisol Total (S1 - 5)	Within range	15.45	ng/mL	9.6 - 19.3
Saliva Cortisone Total (S1 - 5)	Low end of range	39.42	ng/mL	36 - 55
Creatinine (Urine)				
Creatinine (U1) - Waking	Within range	0.29	mg/ml	0.2 - 2
Creatinine (U2) - +2 Hours	Within range	1.22	mg/ml	0.2 - 2
Creatinine (U3) - Dinner	Within range	0.75	mg/ml	0.2 - 2
Creatinine (U4) - Bedtime	Within range	0.82	mg/ml	0.2 - 2
Cortisol Metabolites and DHEA-S (Urine)				
a-Tetrahydrocortisol (a-THF)	Low end of range	119.5	ng/mg	75 - 370
b-Tetrahydrocortisol (b-THF)	Below range	519.1	ng/mg	1050 - 2500
b-Tetrahydrocortisone (b-THE)	Below range	772.0	ng/mg	1550 - 3800
Metabolized Cortisol (THF + THE)	Below range	1411.0	ng/mg	2750 - 6500
DHEA-S	Within range	34.7	ng/mg	20 - 750
Cortisol Clearance Rate (CCR)	Below range	25.7		49 - 110

Organic Acid Tests (OATs)

TEST		RESULT	UNITS	NORMAL RANGE
Nutritional Organic Acids (Urine)				
Vitamin B12 Marker - May be deficient if high				
Methylmalonate (MMA)	Within range	0.9	ug/mg	0 - 2.5
Vitamin B6 Markers - May be deficient if high				
Xanthurenate	Within range	0.78	ug/mg	0.12 - 1.2
Kynurenate	Within range	1.8	ug/mg	0.8 - 4.5
Biotin Marker - May be deficient if high				
b-Hydroxyisovalerate	Within range	7.2	ug/mg	0 - 12.5
Glutathione Marker - May be deficient if high				
Pyroglutamate	Within range	31.7	ug/mg	28 - 58
Gut Marker - Potential gut putrefaction or dysbiosis if high				
Indican	Within range	26.5	ug/mg	0 - 100
Neuro-Related Markers (Urine)				
Dopamine Metabolite				
Homovanillate (HVA)	Within range	4.3	ug/mg	3 - 11
Norepinephrine/Epinephrine Metabolite				
Vanilmandelate (VMA)	Low end of range	2.3	ug/mg	2.2 - 5.5
Neuroinflammation Marker				
Quinolinate	Within range	4.4	ug/mg	0 - 9.6
Additional Markers (Urine)				
Melatonin - Waking				
6-OH-Melatonin-Sulfate	Within range	26.3	ng/mg	10 - 85
Oxidative Stress / DNA Damage				
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	3.6	ng/mg	0 - 5.2

About Your Results | Estrogen & Progesterone

The following *About Your Results* sections include key DUTCH report elements from page 1 to aid your interpretation.



Estrogen-related Patient or Sample Comments:

- The patient reports regular menstrual cycles.

#1. Assess estrogen levels given the patient's reproductive status.

- Estradiol (the most potent estrogen) is **6.6 ng/mg**, which is above the optimal luteal range. Confirm that the patient's samples were collected in the luteal phase to interpret this result.

#2. Assess progesterone levels given the patient's reproductive status.

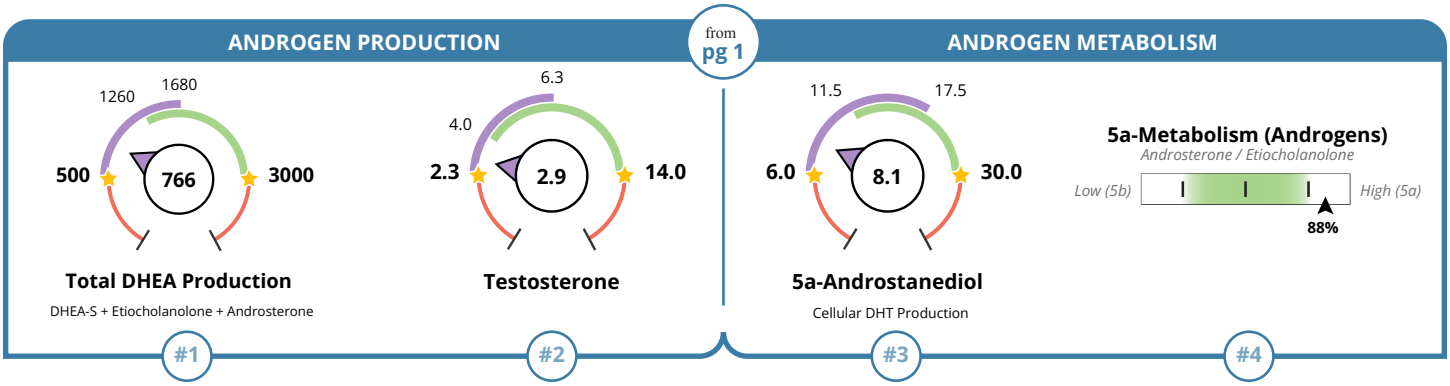
- The progesterone serum equivalent is **2.80 ng/mL**, which is below the optimal luteal range. This may indicate the patient did not ovulate or, if the patient ovulated, progesterone is suboptimal. Confirm that the patient's samples were collected in the luteal phase to interpret this result.
- The balance between progesterone and estradiol is assessed in the luteal phase, which is confirmed when progesterone is in the green range on the dial. In this case the progesterone is below the luteal range, so it it important to confirm sample timing relative to menses. The b-pregnanediol/E2 ratio is **19.3**, which is below the optimal range of 100-500. This can indicate progesterone may be suboptimal relative to estradiol, if peak progesterone was captured.

#3. Assess 2-OH preference in phase 1 estrogen metabolism.

- The 2-OH/16-OH-E1 is higher than **74.0%** of the population, which is in the optimal range, but towards the high end. This indicates a mild preference for the beneficial 2-OH-E1 metabolite compared to the estrogenic 16-OH-E1 metabolite.
- The 2-OH/4-OH-E1 is higher than **56.0%** of the population, which is within the optimal range. This indicates a balance between the beneficial 2-OH-E1 metabolite and the potentially genotoxic (DNA damaging) 4-OH-E1 metabolite.

#4. Assess methylation of 2-OH catechol estrogens.

- The methylation activity is higher than **62.0%** of the population, which is within the optimal range. This indicates optimal estrogen methylation, which is beneficial for efficient estrogen detoxification.



Androgen-related Patient or Sample Comments:

#1. Assess adrenal androgen levels (Total DHEA).

- The total DHEA production is **766 ng/mg**, which is below the optimal premenopausal range, but within the overall range. If paired with low testosterone or low 5a-androstanediol, this may contribute to a low androgen picture. These three DHEA metabolites represent about 75% of adrenal androgens, which are typically the source of more than half a woman's circulating testosterone and a significant portion of circulating estrogens.

#2. Assess testosterone levels.

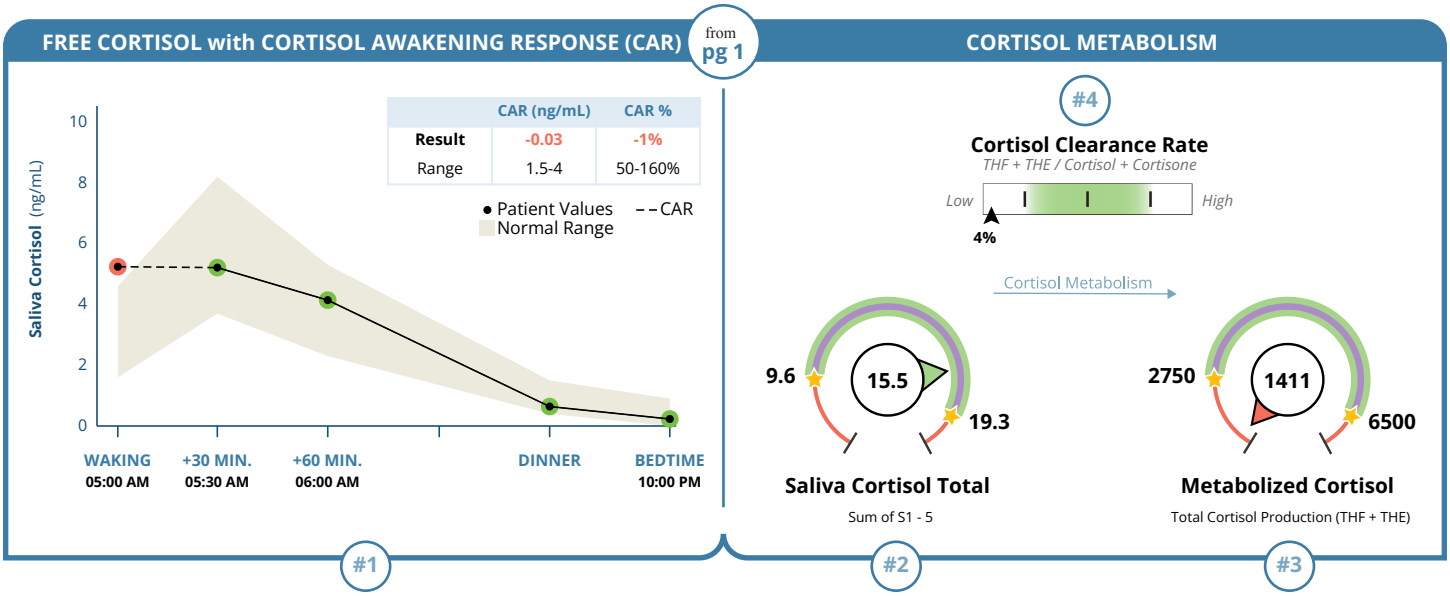
- Testosterone is **2.93 ng/mg**, which is below the optimal premenopausal range, but within the overall range. If paired with low 5a-androstanediol, this may contribute to low androgen symptoms. In most cases, 25-50% of testosterone comes from the ovaries and the rest from adrenal androgen production (see above). Testosterone is a strong androgen and can become 3x more potent if metabolized to 5a-DHT (see below) within target tissue.

#3. Assess cellular production of 5a-DHT via 5a-androstanediol.

- 5a-Androstanediol is **8.1 ng/mg**, which is below the optimal premenopausal range but within the overall range. 5a-Androstanediol reflects the tissue activity of 5a-DHT (the most potent androgen). If paired with low testosterone, this may contribute to low androgen symptoms.

#4. Assess if there is a preference for the more potent alpha metabolism of the androgens.

- The 5a-Metabolism of androgens is higher than **88.0%** of the population, which is above the range. This indicates a preference for the more androgenic pathway. If paired with high androgens, this may contribute to androgen excess symptoms.



Cortisol-related Patient or Sample Comments:

#1. Assess the daily free cortisol pattern including the CAR.

- One or more points on the Saliva Free Cortisol Pattern are out of the optimal range. Note the time of day and whether out-of-range results are low or high at each point.
- The CAR is **-1.00%**, which is negative. When the CAR is negative, it may indicate that the patient was already at their highest cortisol level for the day upon waking. Review the morning sample times carefully. The first two samples of the day are used to calculate the CAR and should be taken immediately after waking and 30 minutes after waking.

#2. Assess the daily total (sum of S1-S5) of free cortisol in circulation.

- The Saliva Cortisol Total is **15.4 ng/mL**, which is within the optimal range. This indicates normal overall cortisol levels.

#3. Assess the total cortisol produced by the adrenal glands (Metabolized Cortisol).

- The Metabolized Cortisol, which reflects the total cortisol output for the day, is **1,411 ng/mg**, which is below the optimal range.

#4. Assess the rate of cortisol clearance from the body.

- The Cortisol Clearance Rate is higher than only **4.00%** of the population, which is below the optimal range. This indicates that cortisol and cortisone are being metabolized at a slower rate than expected. If paired with high free cortisol, this can contribute to high cortisol symptoms.

The previous "About Your Results" pages look at core insights for the DUTCH report shown on the Hormone Testing Summary page, all of which are worth considering for most patients. Next, "Advanced Insights" cover additional features within the DUTCH test that require reviewing the pages after the summary page. These concepts are more complex but can be highly relevant for some patients. Review the concepts and look for patient-specific comments, when notable, in bullets.

ESTROGEN & PROGESTERONE

#1. Assess whether E1, E3, or Total Estrogen levels add more insight into overall estrogenic activity.

While E2 is the most potent estrogen, other estrogens such as estrone (E1), and sometimes estriol (E3), also contribute to overall estrogenic activity. Additionally, examining Total Estrogens (listed on the Sex Hormones & Metabolites page) can provide insight into overall estrogen production, which may not be fully reflected in the E2 result alone.

E1 is 10% as potent as E2 but is typically more abundant, about 5x higher in premenopausal women and 10x higher in postmenopausal women. This makes it a significant contributor to estrogenic symptoms (high or low), especially in menopause. While all estrogens are potent immune stimulators, E1 may promote more inflammatory cytokine production than other estrogens. Reviewing the relative level of E1 to E2 may give further insight into estrogenic symptoms (high or low) and long-term outcomes, especially in menopause. In cases where E1 is significantly different from E2, a note will be here describing the potential impact.

E3 is a weak estrogen that may have anti-inflammatory properties. In most conditions, E3 is not a significant contributor to estrogenic symptoms. However, when supplemented, checking levels may be helpful. Since the route of administration can influence how the test result is interpreted, notes on E3 supplements (such as creams or pills) will be shown here, if applicable.

The Total Estrogen level should be viewed secondarily to the most potent estrogen levels like E1 and E2, which typically match the patient presentation best. For example, Total Estrogen can be high with robust, healthy estrogen metabolism. Therefore, its levels do not always indicate a cause for high or low estrogen-related symptoms. If out of range, the Total Estrogen level will be noted here.

- The Total Estrogen result is 95.8 ng/mg, which is above the optimal range. Review carefully for the timing of the test within the cycle, as this range is set for the luteal phase. Also review for estrogen metabolism. High total estrogens do not always mean the patient has too much estrogen activity, as some estrogen metabolites included in this result are weak or even anti-estrogenic.

#2. Assess if there is a preference for alpha metabolism of progesterone.

The slider bar for 5a-metabolism of progesterone metabolites reflects the balance between a-pregnanediol and b-pregnanediol. Most progesterone is typically metabolized to b-pregnanediol, but a-pregnanediol is an active metabolite that can bind to GABA receptors in the central nervous system. A higher result on the 5a-metabolism (P4) slider indicates that available progesterone has a greater potential for impact on GABA receptors.

- 5a-metabolism of progesterone is higher than **100.0%** of the population, which is above the normal range. This preference indicates more 5a metabolism compared to 5b progesterone metabolites. 5a progesterone metabolites are active on GABA receptors and may impact mood and sleep. This is most relevant when patients have luteal levels of progesterone or higher, and especially relevant for those on oral/sublingual progesterone.

#3. Assess estrogen clearance through phase 1 and 2.

By looking at the parent estrogens (E1, E2) and their breakdown products (2OH, 4OH, 16OH, and 2MeOHE1), we can see how quickly estrogen is being metabolized. If the parent estrogens are higher than the breakdown products, it means estrogen is clearing more slowly, which increases risk of estrogen excess symptoms. Balanced levels show normal clearance, while lower parent estrogens compared to breakdown products suggest faster clearance, decreasing the risk of estrogen excess symptoms.

- The phase 1 estrogen metabolites levels are balanced with the primary estrogens (E1, E2). This indicates normal phase 1 estrogen clearance.

#4. Assess whether any of the estrogen-related organic acids are out of range.

Estrogen levels, metabolites, and metabolism patterns can be influenced by nutrient status, oxidative stress, and gut health. Imbalances in glutathione, B12, B6, gut dybiosis, and oxidative stress markers will be commented on here, if relevant for the patient. This may help identify contributing factors affecting estrogens.

ANDROGENS

#1. Assess if the DHEA-S is relatively lower than the Total DHEA.

DHEA-S is primarily produced in the adrenals through sulfation. Inflammation can inhibit sulfation, lowering DHEA-S levels and diverting DHEA metabolism toward 5a- and 5b-reductase pathways, resulting in higher etiocholanolone (5b-metabolite) and androsterone (5a-metabolite) levels relative to DHEA-S. Review the patient's results to assess if this pattern is present.

#2. Assess the androgen pattern to determine if urine testosterone may not accurately reflect systemic levels (UGT2B17 deletion).

- This advanced topic is only relevant if the patient has low testosterone (T) with other specific patterns of androgen metabolites, especially when levels of Epi-T (see page 3) are much higher than T on the DUTCH Test. In patients that do have a suspicious pattern, urine testosterone may underestimate true testosterone levels. This patient's results do NOT indicate a reason to be suspicious of the urine testosterone levels. For information on this topic, see this video.

#3. While 5a-androstanediol best represents cellular 5a-DHT production, assess if 5a-DHT offers additional insight into androgenic activity.

5a-DHT is testosterone's active metabolite and is three times more potent than testosterone. If elevated, it may contribute to androgen excess symptoms. Research shows 5a-androstanediol may be a better marker of 5a-DHT tissue activity, but the 5a-DHT result may provide additional insight. Review the 5a-DHT result (on the Sex Hormone and Metabolites Table page) alongside other androgens and androgenic symptoms for a more complete interpretation.

#4. Assess whether any of the androgen-related organic acids are out of range.

Androgen levels can be influenced by inflammation and nutrient status. Imbalances in B6 and neuroinflammation markers will be commented on here, if relevant for this patient's androgens. This may help identify factors contributing to androgen imbalances, if present.

ADRENAL

#1. Assess if cortisone (inactive) adds more insight to the free cortisol assessment.

Cortisol is an active adrenal glucocorticoid, while cortisone is an inactive "storage" form. In the saliva gland, a significant amount of cortisol is converted to cortisone before excretion into the saliva. Therefore, salivary cortisone should be considered a reflection or "shadow" of systemic cortisol. The degree to which this happens in an individual may vary. If free cortisone is significantly higher than free cortisol, it may indicate free cortisol levels were higher in circulation (serum) than the salivary free cortisol implies. If free cortisone is lower than free cortisol, this may indicate free cortisol levels were not as high in circulation (serum) as salivary free cortisol implies.

If the cortisone is significantly different from cortisol, there will be a bulleted comment below.

- In this case, free cortisone in the saliva is somewhat lower than the free cortisol. To the degree that this is true, it may indicate the free cortisol levels may not be quite as high in circulation (serum) as the cortisol levels in the saliva imply.

#2. Assess if there is a whole-body preference for (inactive) cortisone or (active) cortisol.

The Systemic Preference slider reflects the balance between cortisol (THF) and cortisone (THE) metabolites and is influenced by systemic cortisol needs. The balance between THF and THE is the best estimation of the systemic balance of cortisol to cortisone. As these metabolites are processed through the liver, the body may shift to cortisol (THF) in response to acute stressors (e.g., immune activation or infection), or toward cortisone (THE) with chronic stress (e.g., long-term inflammation or illness). Review the patient's result to determine if they are out of range.

- The Systemic Preference slider is higher than **61.0%** of the population, which is within the optimal range. This indicates the balance between systemic cortisone and cortisol is normal.

#3. Assess for anabolic-catabolic balance.

- The Total DHEA Production is balanced compared to the Total Cortisol Production. This indicates a balanced state for tissue repair and maintenance.

#4. Assess whether any of the cortisol-related organic acids are out of range.

Cortisol can be impacted by inflammation, nutrient status, and sleep. Imbalances in B12, B6, melatonin, and neuroinflammation markers will be commented on here if relevant for the patient. This may help identify contributing factors affecting cortisol results.

Thank you for choosing DUTCH for your functional endocrinology testing needs!

Please review our DUTCH resources for information on reading the DUTCH test:
For DUTCH Overviews and Tutorials, click here: https://dutchtest.com/tutorials
To view the steroid pathway chart, click here: https://dutchtest.com/steroid-pathway

Finally, please review the patient's results along with their requisition form. It is designed to capture relevant medications, symptoms, diagnoses, sample collection, and notes that may be helpful in interpreting the results.

Additional Comments

Reference Range Percentiles

Reference ranges are developed by testing thousands of healthy individuals, while excluding results from outliers or those on impactful medications. A percentile approach is applied, as is done with most labs. Classic reference ranges use the 95th percentile as the upper end of range and the 5th percentile as the lower end of range. Our DUTCH ranges uses the percentiles found in the table below. We feel these ranges reflect the more optimal range sought in functional medicine practices. The table below shows the percentiles used for the reference range of each analyte on the DUTCH report:

Female Reference Ranges (Updated 6.24.2026)									
	Low%	High%	Low	High		Low%	High%	Low	High
b-Pregnanediol	20%	90%	600	2000	Cortisol Awakening Response (CAR)	20%	90%	1.5	4
a-Pregnanediol	20%	90%	200	740	Cortisol (S0) - Mid-Sleep	0	90%	0	0.9
Estrone (E1)	20%	80%	12	26	Cortisol (S1) - Waking	20%	90%	1.6	4.6
Estradiol (E2)	20%	80%	1.8	4.5	Cortisol (S2) - +30 Min.	20%	90%	3.7	8.2
Estriol (E3)	20%	80%	5	18	Cortisol (S3) - +60 Min.	20%	90%	2.3	5.3
2-OH-E1	20%	80%	5.1	13.1	Cortisol (SX) - Mid-Day	20%	90%	0.5	2.4
4-OH-E1	0	80%	0	1.8	Cortisol (S4) - Dinner	20%	90%	0.4	1.5
16-OH-E1	20%	80%	0.7	2.6	Cortisol (S5) - Bedtime	0	95%	0	0.9
2-Methoxy-E1	20%	80%	2.5	6.5	Cortisone (S0) - Mid-Sleep	0	90%	0	4.8
2-OH-E2	0	80%	0	3.1	Cortisone (S1) - Waking	20%	90%	6.8	14.5
4-OH-E2	0	80%	0	0.52	Cortisone (S2) - +30 Min.	20%	90%	12.4	19.4
2-16-ratio	20%	80%	2.69	11.83	Cortisone (S3) - +60 Min.	20%	90%	9.4	15.3
2-4-ratio	20%	80%	5.4	12.62	Cortisone (SX) - Mid-Day	20%	90%	3.5	9.5
2Me-2OH-ratio	20%	80%	0.39	0.67	Cortisone (S4) - Dinner	20%	90%	2	7.1
DHEA-S	20%	90%	20	750	Cortisone (S5) - Bedtime	0	95%	0	4.8
Androsterone	20%	80%	200	1650	Cortisol Clearance Rate (CCR)	20%	80%	49	110
Etiocholanolone	20%	80%	200	1000	Melatonin (6-OHMS)	20%	90%	10	85
Testosterone	20%	80%	2.3	14	8-OHdG	0	90%	0	5.2
5a-DHT	0	80%	0	6.6	Methylmalonate	0	90%	0	2.5
5a-Androstanediol	20%	80%	6	30	Xanthurenate	0	90%	0.12	1.2
5b-Androstanediol	20%	80%	12	75	Kynurenate	0	90%	0.8	4.5
Epi-Testosterone	20%	80%	2.3	14	b-Hydroxyisovalerate	0	90%	0	12.5
a-THF	20%	90%	75	370	Pyroglutamate	10%	90%	28	58
b-THF	20%	90%	1050	2500	Indican	0	90%	0	100
b-THE	20%	90%	1550	3800	Homovanillate	10%	95%	3	11
					Vanilmandelate	10%	95%	2.2	5.5
					Quinolinate	0	90%	0	9.6
					Calculated Values				
					Total DHEA Production	20%	80%	500	3000
% = population percentile: Example - a high limit of 90% means results higher than 90% of the women tested for the reference range will be designated as "high."					Total Estrogens	20%	80%	35	70
					Metabolized Cortisol	20%	90%	2750	6500
					Saliva Cortisol Total	20%	90%	9.6	19.3
					Saliva Cortisone Total	20%	90%	36	55