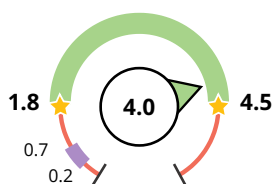


Ordering Provider:

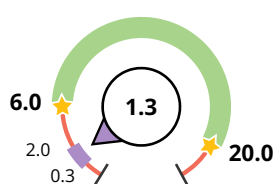
Precision Analytical

Hormone Testing Summary

ESTROGEN & PROGESTERONE



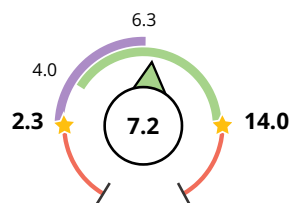
Estradiol (E2)



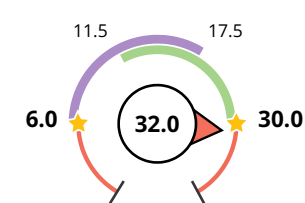
Progesterone

Serum Equivalent*, ng/mL

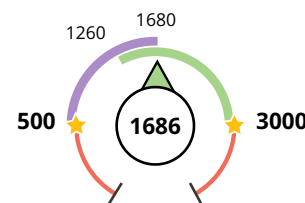
ANDROGENS



Testosterone



5a-Androstenediol

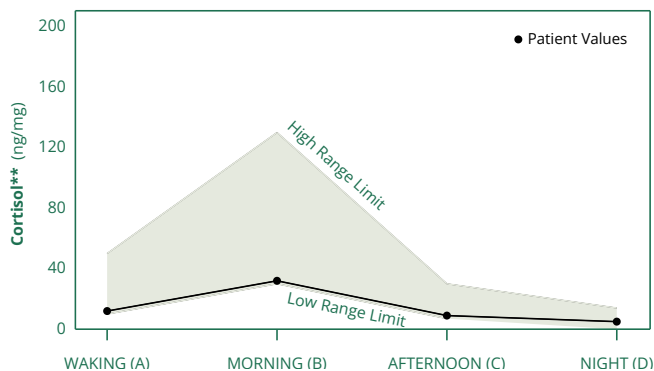


Total DHEA Production

DHEA-S + Etiocholanolone + Androsterone

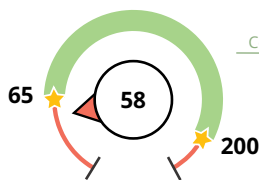
CORTISOL

Daily Free Cortisol Pattern



Cortisol Clearance Rate

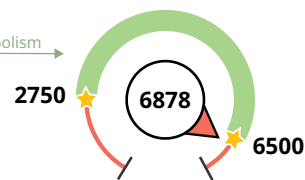
THF + THE / Cortisol + Cortisone



24hr Free Cortisol

A + B + C + D

Cortisol Metabolism



Metabolized Cortisol

Total Cortisol Production (THF + THE)

Optimal Luteal Range Postmenopausal Range Out of Range Edge of Range

*Progesterone Serum Equivalent is a calculated value based on urine pregnanediol.

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

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2022-06-13 06:00AM (U)
2022-06-13 03:00PM (U)
2022-06-13 08:00PM (U)**DOB:** 1976-01-01**Age:** 46**Sex:** Female**Last Menstrual Period:**

2022-05-25

Ordering Provider:

Precision Analytical

Sex Hormones & Metabolites

TEST		RESULT	UNITS	LUTEAL*	POSTMENOPAUSAL
Progesterone Metabolites (Urine)					
b-Pregnanediol	Below luteal range	100.0	ng/mg	600 - 2000	60 - 200
a-Pregnanediol	Below luteal range	49.0	ng/mg	200 - 740	15 - 50
Estrogens and Metabolites (Urine)					
Estrone (E1)	High end of luteal range	24.01	ng/mg	12 - 26	1.0 - 7.0
Estradiol (E2)	High end of luteal range	4.00	ng/mg	1.8 - 4.5	0.2 - 0.7
Estriol (E3)	High end of luteal range	16.0	ng/mg	5 - 18	0.6 - 4.0
2-OH-E1	Below luteal range	3.58	ng/mg	5.1 - 13.1	0.3 - 2.0
4-OH-E1	Within luteal range	1.20	ng/mg	0 - 1.8	0 - 0.3
16-OH-E1	Above luteal range	2.80	ng/mg	0.7 - 2.6	0.2 - 0.6
2-Methoxy-E1	Below luteal range	1.35	ng/mg	2.5 - 6.5	0.3 - 1.4
2-OH-E2	Within luteal range	0.74	ng/mg	0 - 3.1	0 - 0.52
4-OH-E2	Within luteal range	0.41	ng/mg	0 - 0.52	0 - 0.12
Total Estrogen	Within range	54.1	ng/mg	35 - 70	3.5 - 15
Metabolite Ratios (Urine)					
2-OH / 16-OH-E1 Balance	Below range	1.28	ratio	2.69 - 11.83	
2-OH / 4-OH-E1 Balance	Below range	2.98	ratio	5.4 - 12.62	
2-Methoxy / 2-OH Balance	Below range	0.38	ratio	0.39 - 0.67	
Androgens and Metabolites (Urine)				Range	
DHEA-S	Below range	16.0	ng/mg	20 - 750	
Androsterone	Within range	1195.0	ng/mg	200 - 1650	
Etiocholanolone	Within range	474.6	ng/mg	200 - 1000	
Testosterone	Within range	7.16	ng/mg	2.3 - 14	
5a-DHT	High end of range	6.2	ng/mg	0 - 6.6	
5a-Androstanediol	Above range	32.0	ng/mg	6 - 30	
5b-Androstanediol	Within range	42.6	ng/mg	12 - 75	
Epi-Testosterone	Within range	8.6	ng/mg	2.3 - 14	

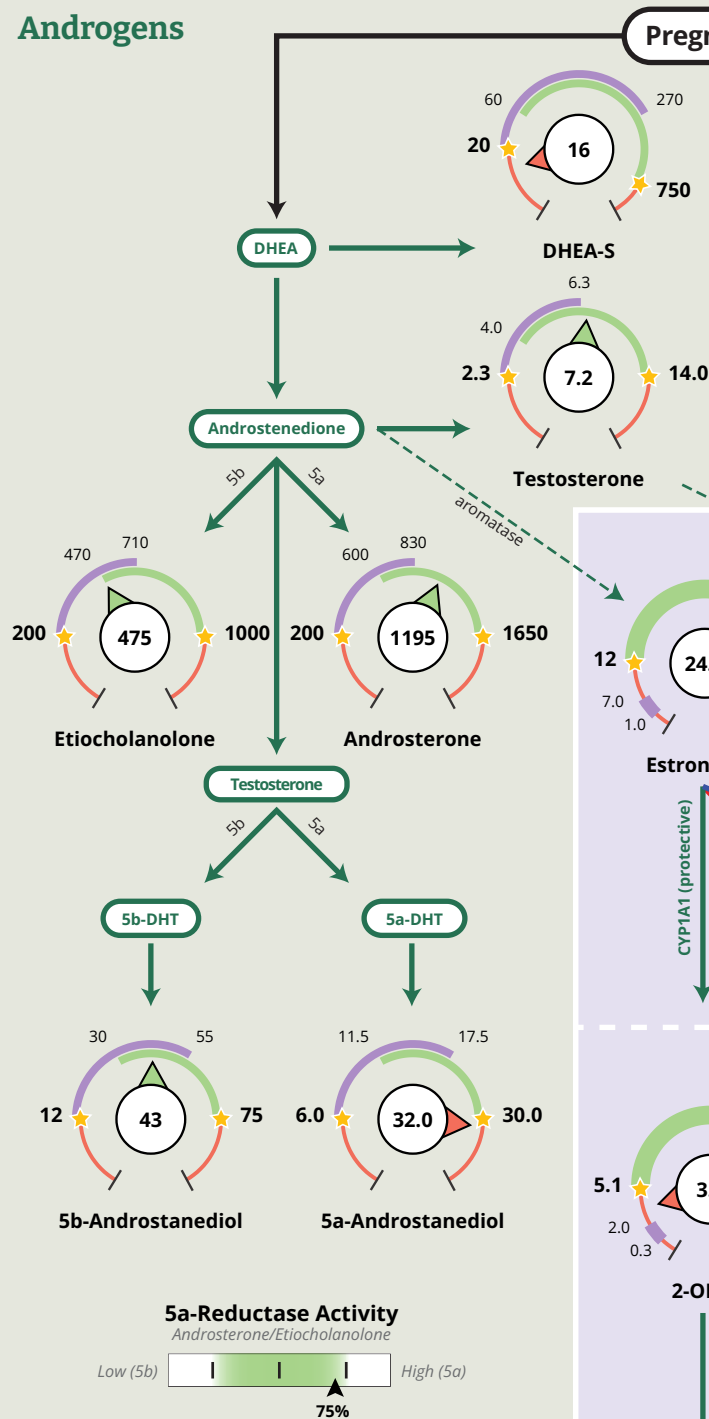
* The Luteal Range represents the expected premenopausal luteal range, collected menstrual cycle days 19-22 of a 28-day cycle. If your patient noted taking oral progesterone, the reference range represents the expected range on 100 - 200 mg of oral micronized progesterone (OMP). The ranges in the table 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

SEX HORMONES & METABOLITES

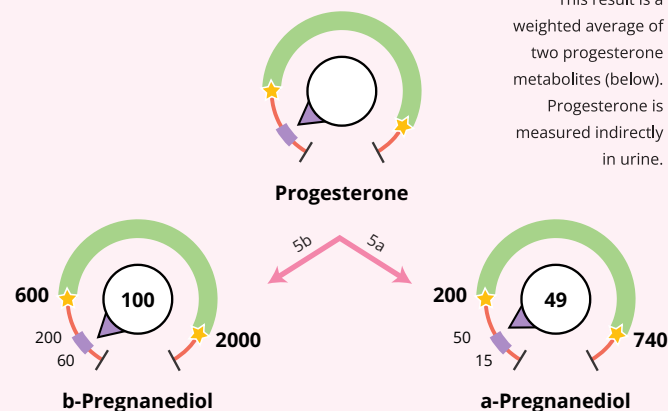
● Optimal Luteal Range ● Postmenopausal Range ● Out of Range ★ Edge of Range

Androgens

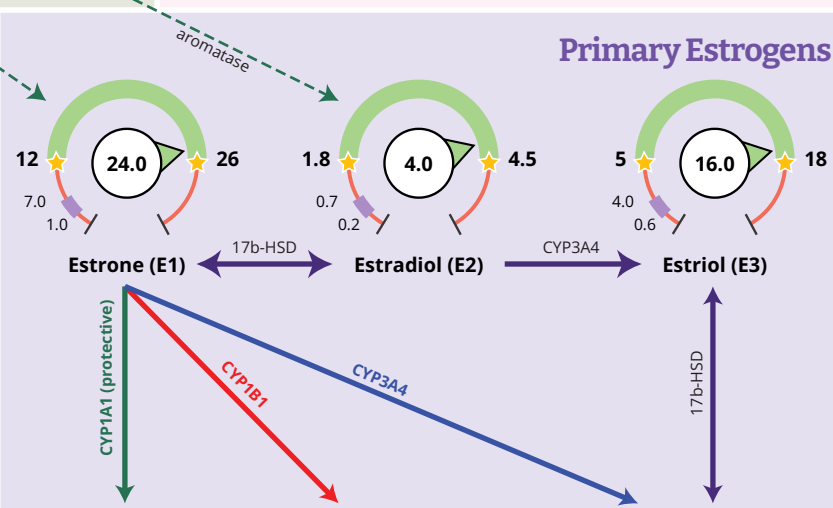


Progesterone

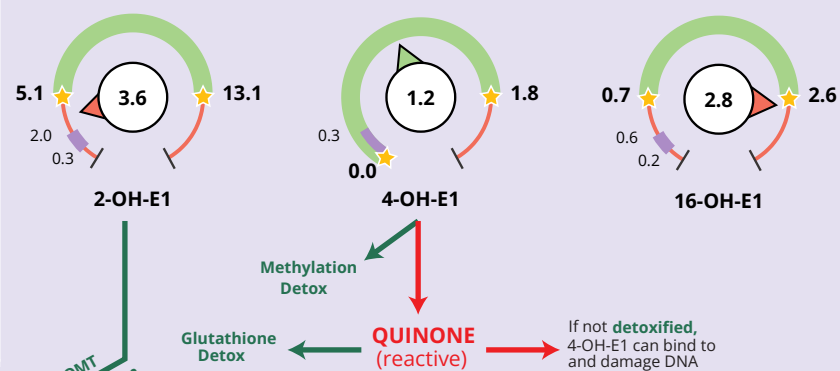
This result is a weighted average of two progesterone metabolites (below). Progesterone is measured indirectly in urine.



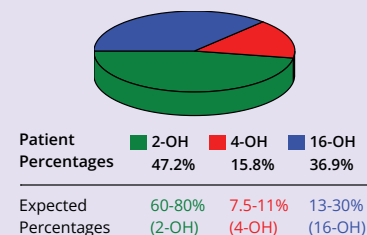
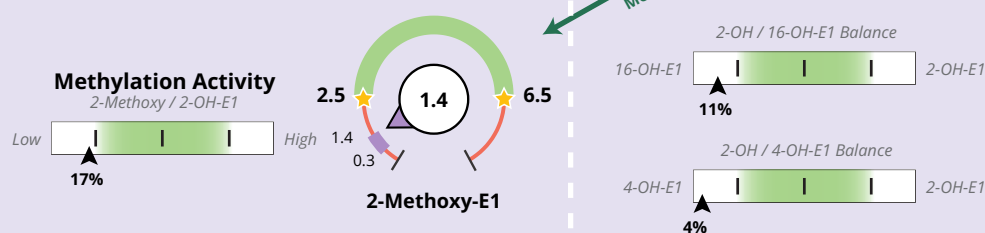
Primary Estrogens



Phase 1 Estrogen Metabolism



Phase 2 Estrogen Metabolism

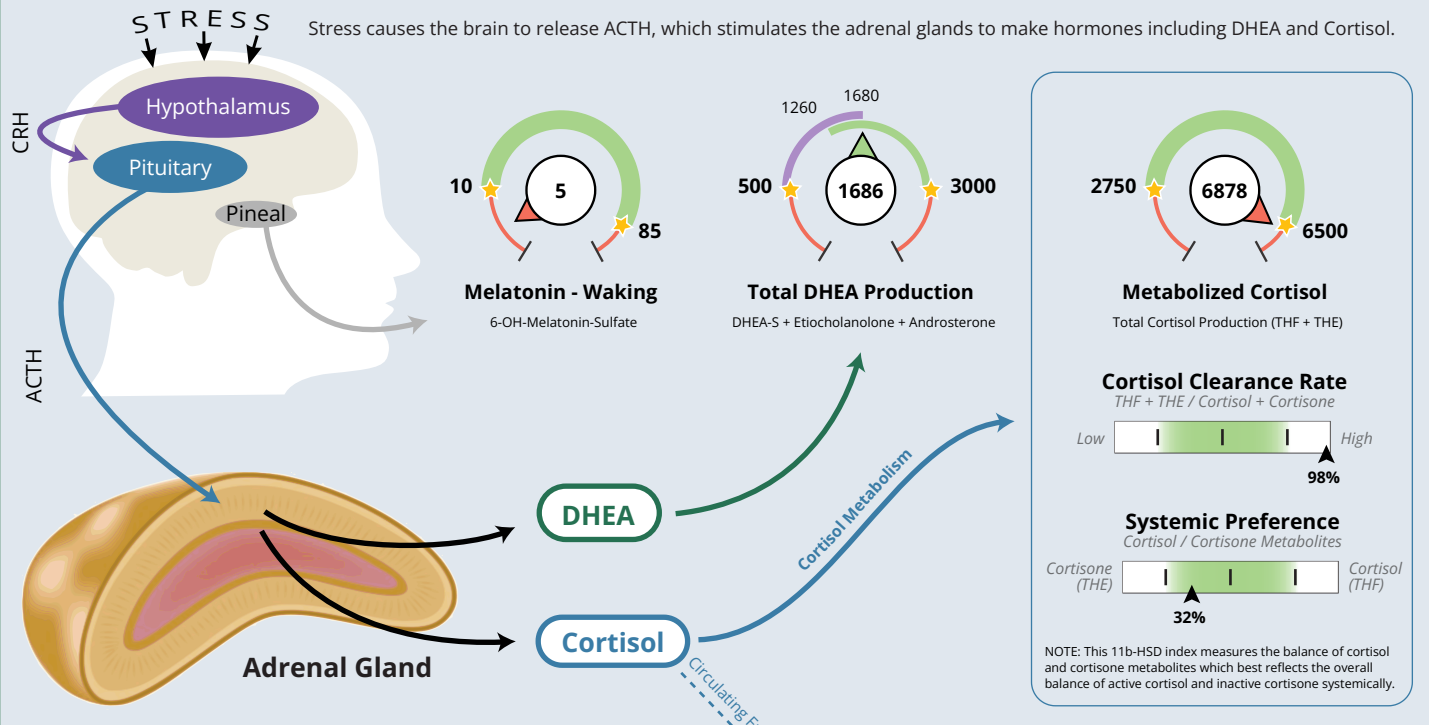


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123 A Street
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2022-05-25**Ordering Provider:**
Precision Analytical

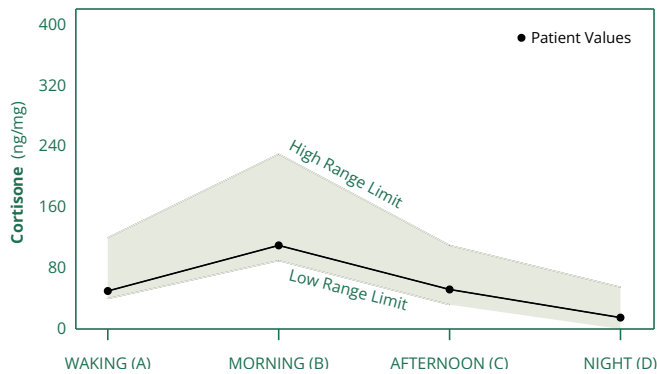
Adrenal Hormones & Metabolites

TEST		RESULT	UNITS	NORMAL RANGE
Daily Free Cortisol and Cortisone (Urine)				
Cortisol A - Waking	Low end of range	12.0	ng/mg	10 - 50
Cortisol B - Morning	Low end of range	32.0	ng/mg	30 - 130
Cortisol C - Afternoon	Low end of range	9.0	ng/mg	7 - 30
Cortisol D - Night	Within range	5.0	ng/mg	0 - 14
Cortisone A - Waking	Low end of range	50.0	ng/mg	40 - 120
Cortisone B - Morning	Low end of range	110.0	ng/mg	90 - 230
Cortisone C - Afternoon	Within range	52.0	ng/mg	32 - 110
Cortisone D - Night	Within range	15.0	ng/mg	0 - 55
24hr Free Cortisol	Below range	58.0	ng/mg	65 - 200
24hr Free Cortisone	Low end of range	227.0	ng/mg	220 - 450
Creatinine (Urine)				
Creatinine A - Waking	Within range	0.50	mg/ml	0.2 - 2
Creatinine B - Morning	Within range	0.72	mg/ml	0.2 - 2
Creatinine C - Afternoon	Within range	0.48	mg/ml	0.2 - 2
Creatinine D - Night	Within range	0.34	mg/ml	0.2 - 2
Cortisol Metabolites and DHEA-S (Urine)				
a-Tetrahydrocortisol (a-THF)	Above range	464.0	ng/mg	75 - 370
b-Tetrahydrocortisol (b-THF)	Within range	2318.9	ng/mg	1050 - 2500
b-Tetrahydrocortisone (b-THE)	Above range	4095.1	ng/mg	1550 - 3800
Metabolized Cortisol (THF + THE)	Above range	6878.0	ng/mg	2750 - 6500
DHEA-S	Below range	16.0	ng/mg	20 - 750
Cortisol Clearance Rate (CCR)	Above range	24.1		6 - 12.5

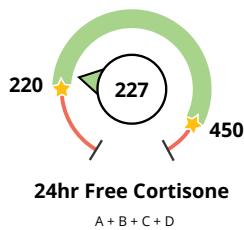
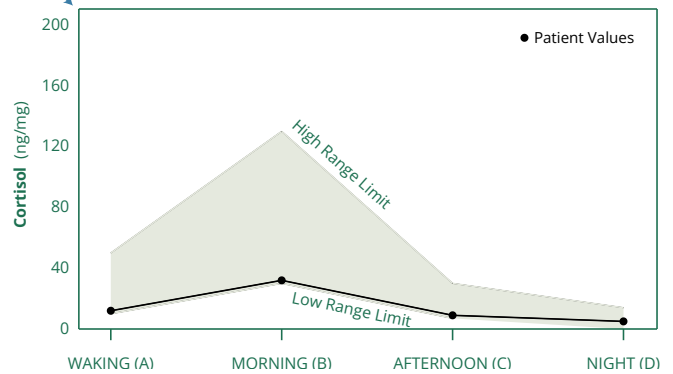
ADRENAL HORMONES & METABOLITES



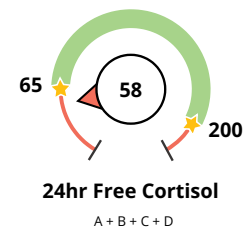
Daily Free Cortisone Pattern



Daily Free Cortisol Pattern



Cortisol and Cortisone interconvert (11b-HSD)



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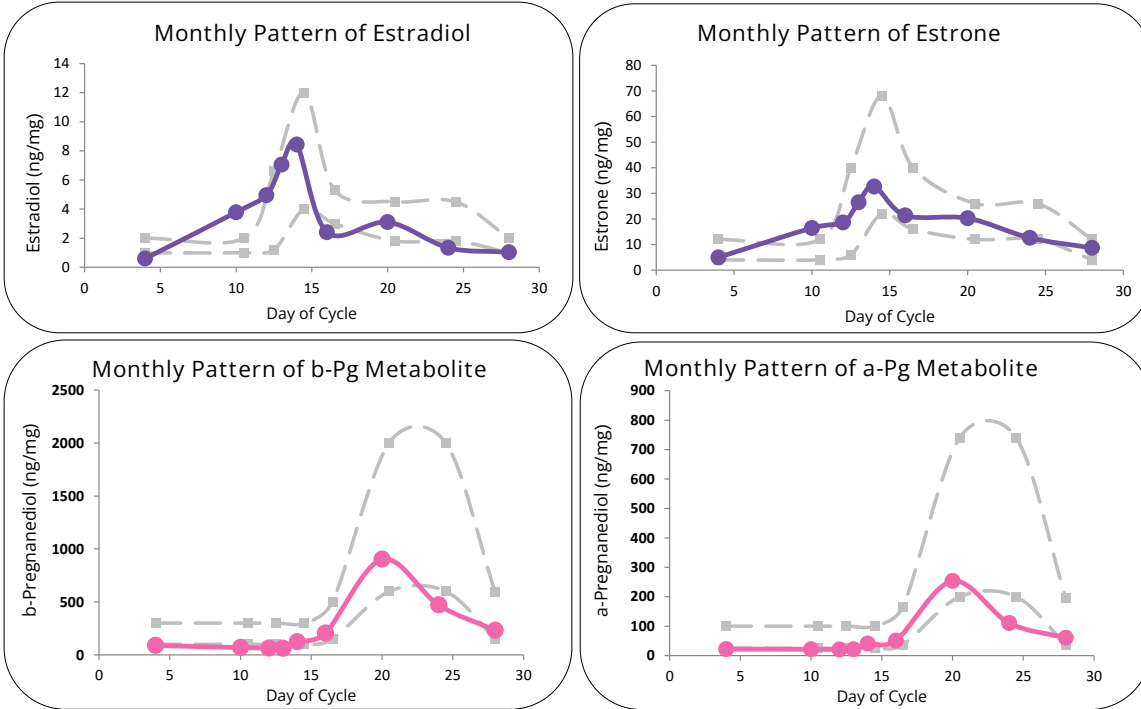
Ordering Provider:

Precision Analytical

Organic Acid Tests (OATs)

TEST		RESULT	UNITS	NORMAL RANGE
Nutritional Organic Acids (Urine)				
Vitamin B12 Marker - May be deficient if high				
Methylmalonate (MMA)	Above range	4.9	ug/mg	0 - 2.5
Vitamin B6 Markers - May be deficient if high				
Xanthurenate	Above range	1.23	ug/mg	0.12 - 1.2
Kynurenate	Above range	5.4	ug/mg	0.8 - 4.5
Biotin Marker - May be deficient if high				
b-Hydroxyisovalerate	Within range	7.9	ug/mg	0 - 12.5
Glutathione Marker - May be deficient if low or high				
Pyroglutamate	Within range	42.0	ug/mg	28 - 58
Gut Marker - Potential gut putrefaction or dysbiosis if high				
Indican	Above range	114.0	ug/mg	0 - 100
Neuro-Related Markers (Urine)				
Dopamine Metabolite				
Homovanillate (HVA)	Within range	4.4	ug/mg	3 - 11
Norepinephrine/Epinephrine Metabolite				
Vanilmandelate (VMA)	Within range	4.3	ug/mg	2.2 - 5.5
Neuroinflammation Marker				
Quinolate	Above range	13.2	ug/mg	0 - 9.6
Additional Markers (Urine)				
Melatonin - Waking				
6-OH-Melatonin-Sulfate	Below range	5.3	ng/mg	10 - 85
Oxidative Stress / DNA Damage				
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	2.6	ng/mg	0 - 5.2

Estrogen (E) patterns can be seen below in green. Progesterone (Pg) patterns can be seen below in purple. Normal ranges are within the gray dashed lines. See page 2 for more information.



All values given in ng/mg creatinine

Measurement	1	2	3	4	5	6	7	8	9
Day(s) of Cycle	4	10	12	13	14	16	20	24	28

The days listed above were used for measurements. Two samples are used and listed for long cycles or patients without a normal cycle.

Estradiol (E2)	0.60	3.78	4.95	7.06	8.43	2.40	3.10	1.34	1.03
Estrone (E1)	5.0	16.5	18.6	26.5	32.7	21.4	20.3	12.6	8.7
a-Pregnanediol	22	22	21	21	41	51	253	111	60
b-Pregnanediol	89	69	64	63	124	206	902	471	232
b-Pregnanediol/E2 Ratio	149	18	13	9	15	86	291	351	225
Creatinine		1.58	1.48	1.56	1.60	1.09	0.94	1.33	1.07

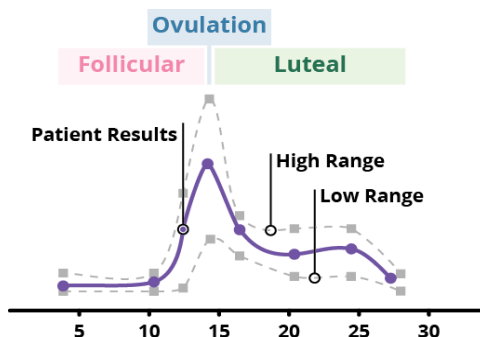
Sample (#7) with the highest b-Pg value (902) is used for E and Pg metabolites for DUTCH Complete or Plus if ordered.

Normal Ranges	Follicular	Ovulatory	Luteal	Postmenopausal
Estradiol	1-2ng/mg	4-12ng/mg	1.8-4.5ng/mg	0.2-0.7ng/mg
Estrone	4-12ng/mg	22-68ng/mg	12-26ng/mg	1.0-7.0ng/mg
a-Pregnanediol	25-100ng/mg	25-100ng/mg	200-740ng/mg	15-50ng/mg
b-Pregnanediol	100-300ng/mg	100-300ng/mg	600-2000ng/mg	60-200ng/mg

b-Pregnanediol/E2 ratio is typically 50-300 in the follicular phase, <100 during ovulation, and 100-500 in the luteal phase. Creatinine normal range, 0.2-2.0 mg/mL. Values outside this range may be less certain due to under or overhydration.

Thank you for testing with us! If this is your first report, you are encouraged to watch our educational videos on how to read the report at www.dutchtest.com in the [video library](#). The comments below include general information that we hope you will find useful in your understanding of the patient's results. These results and comments are not intended to diagnose any specific conditions.

You'll find four stacked graphs with the reference ranges and the patient's results mapped out. The top graphs represent estrogen (E) production, and the bottom graphs represent progesterone (Pg) production. The horizontal axis shows the cycle days (0-30+) and the vertical axis shows hormone concentration or hormone metabolites being measured. Healthy cycles typically range from 21-35 days. The patient likely submitted many samples over one cycle, and we have selected the 9 most relevant measurements. Some measurements from longer cycles are from two-day averages to ensure transitory E and Pg peaks are not missed.



For most cycles <34 days, measurements are made from single days, selected to best represent overall patterns of ovulatory & luteal peaks. The day 4 sample set is usually collected at the end of the cycle, four days after menses (used for DUTCH Complete/Plus), but is plotted at the beginning of the cycle as above. If a DUTCH Complete or Plus was ordered, data for the E and Pg metabolite values are taken from the day on the Cycle Mapping associated with the progesterone (b-pregnanediol) peak in the luteal phase.

The first part of the cycle (days 1-14) is the "follicular phase," ovulation typically occurs mid-cycle, and the "luteal phase" refers to the 2nd half of the cycle (days 14 until menses). These phases may shift in patients with atypical cycle lengths. Levels may still be considered normal in short or long cycles even if the timing of the E or Pg peaks are at different times.

In the top graphs, we follow both primary estrogens, estrone (E1) and estradiol (E2). In a typical cycle, estrogen rises in the follicular phase, which stimulates the luteinizing hormone (LH) surge from the brain about 24-36 hours before ovulation, which leads to the production of Pg the second half of the cycle (measured by its primary pregnanediol metabolites). Pg rises only after ovulation has occurred, reaching its peak 5-7 days later, then begins to decrease before the onset of menses. When Pg does not rise it indicates that the patient is likely not ovulating. A weak rise in Pg can also indicate either no ovulation or a weak corpus luteum (luteal phase defect), which is associated with poor egg maturation, difficulty maintaining a secretory endometrium and infertility. Ranges for Pg are similar for a postmenopausal woman or a cycling woman who is in the follicular phase. In the table near the bottom of page 1 below the graphs, the patient's results are displayed in a table. This includes creatinine, which is used to correct for hydration. If creatinine is very low or very high, hormone measurements from that day may be less reliable.

Below are four different cycle patterns that may help with interpretation ([video tutorial here](#))

