

# Female 24-hour Urine Comprehensive Hormone

Patient Information Clinician/O		Clinician/Orde	r Information	Sample Information					
Jane Doe DOB: Gender: Female Phone: Patient ID:	Age:	Practitioner Name Facility Name Order		Accession# 0122-0000000 Collected: 2/2/2022 Received: 2/2/2022 Reported: 2/2/2022 12:49:24 PM					
Height: ** Weig	ght: ***	aato: <u>2</u> , <u>2</u> ,		Collection time:	<u>1st</u> 9:30 AM	<u>2nd</u> 1:30 PM	<u>3rd</u> 5:30 PM	<u>4th</u> 9:30 PM	<u>5th</u> 5:30 AM
1st Day of Last Menses 1/4/2022	Days Betwo	een Periods	Menstrual Cycles Irregular Periods	Hysterectomy NO	When?	Ovaries Re NO	emoved	When?	Pregnant? NO
Category Hormone		Туре		Delivery			Duration of Use		

Analyte	Unit	Observation	Results	Reference Range
Alpha-Pregnanediol	ng/mg CR	Low	16.09	26 - 338
Alpha-Pregnanediol (w/ Oral Pg)	ng/mg CR	Low	16.09	257 - 2389
Beta-Pregnanediol	ng/mg CR	Low	141.99	201 - 1669
Beta-Pregnanediol (w/ Oral Pg)	ng/mg CR	Low	141.99	1600 - 12474
Total Estrogen Load	ng/mg CR		37.99	30 - 130
Estrone	ng/mg CR		4.35	1.7 - 8.5
Estradiol	ng/mg CR		1.12	0.8 - 3.3
Estriol	ng/mg CR		3.32	2.8 - 11.2
2-Hydroxyestrone	ng/mg CR		3.91	2 - 8.4
16a-Hydroxyestrone	ng/mg CR		0.24	<=1.43
4-Hydroxyestrone	ng/mg CR		0.62	<=1.2
Testosterone	ng/mg CR	Low	0.92	2.3 - 7.8
Dihydrotestosterone	ng/mg CR		0.73	<=3.2
Average DHEA-S	ng/mg CR	High	689.54	38 - 507
Free DHEA	ng/mg CR		12.02	6.1 - 17.3
Anabolic/Catabolic Ratio	Ratio		0.81	0.5 - 1.5

Total Estrogen/Progesterone Ratio



Total Estrogen/Progesterone Ratio (w/ Oral Pg)



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## **Progesterone Markers**



## **Estrogen Markers**





## **Estrogen Metabolism Markers**





The Methylation Ratio is favorable.	

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### **Total Estrogen Load**



The patient has a normal Total Estrogen Load. The Total Estrogen Load considers the binding affinity of each estrogen analyte at the receptor. To examine the balance between total estrogen components, compare the "actual" chart on the left to the "expected" chart on the right representing the pathways of estrogen metabolism and their relative ratio to one another. Next, examine the Progesterone: Estrogen ratio to determine the balance between estrogen and progesterone for the best clinical outcomes.

### **Estrogen/Progesterone Ratio**





Total Estrogen/Progesterone Ratio (w/ Oral Pg)



Only review this ratio when the patient is NOT taking oral progesterone. This patient has either too much estrogen or too little opposing progesterone. Achieving balance between estrogen and progesterone (ratio nearest 1) produces optimal clinical outcomes.

Only review this ratio when the patient IS taking oral progesterone. This patient has either too much estrogen or too little opposing progesterone. Achieving balance between estrogen and progesterone (ratio nearest 1) produces optimal clinical outcomes.



#### **Androgen Markers** Units Observation **Target Ranges** 2.3 7.8 Testosterone ng/mg CR Low 0<mark>.92</mark> < 3.2 Dihydrotestosterone (5a-DHT) ng/mg CR 0.73 21.9 70.1 **Testosterone Metabolites** ng/mg CR 28.77 507 38 Average DHEA-S High ng/mg CR 689.54 17.3 6.1 12.02 Free DHEA ng/mg CR 120 421 Etiocholanolone ng/mg CR 136.13 147 593 Androsterone 367.15 ng/mg CR The levels of testosterone metabolites are higher than expected in relative Testosterone/Metabolite Ratio ratio to testosterone and elevated 5-alpha-reductase (5aR) activity may be causing this imbalance. The most optimal ratio is 1 (center). 5a-DHT, a 5aR metabolite of testosterone, is more androgenic than testosterone and elevated testosterone metabolites can contribute to normal/high androgen 0.5 1.5 effect, even if testosterone is low. 29 Ω **High Metabolism** Low Metabolism

5a-Reductase Activity



5-alpha-reductase (5aR) activity appears elevated but may not be clinically relevant if other 5a levels are lower than 5b levels. Confirm this value by comparing 5a-pregnanediol to 5b-pregnanediol, testosterone to 5a-DHT, and cortisol to a-THFs in this report. Optimal balance exists when the ratio is nearest 1 (center). An elevated 5aR ratio (>=1.5) may contribute to symptoms associated with excess androgenic effects such as acne, unwanted facial hair growth in women, hair loss in men and other symptoms. These patients may also see elevated levels of testosterone or cortisol metabolites.









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## **HPA-Axis Markers**





The Cortisol:Metabolite Ratio is normal. This means that the levels of free cortisol can be taken at face value because the rate of cortisol metabolism is balanced with the amount of free-cortisol. (see the cortisol curve to assess adrenal function). Certain 17-Hydroxystroids are also cortisol metabolites, and as such, should be in balance with 17-Ketosteroids for optimal function (see Anabolic/Catabolic ratio)



## **HPA-Axis Markers Continued**



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## **Patient Result History**

Analytic	11.3	2/1/2022   (0122-0000000)					
Analyte	Unit	Observation	Results	Reference Range			
Creatinine	mg/dL		167.55	30 - 300			
Estrogen and Progesterone Markers							
Alpha-Pregnanediol	ng/mg CR	Low	16.09	26 - 338			
Alpha-Pregnanediol (w/ Oral Pg)	ng/mg CR	Low	16.09	257 - 2389			
Beta-Pregnanediol	ng/mg CR	Low	141.99	201 - 1669			
Beta-Pregnanediol (w/ Oral Pg)	ng/mg CR	Low 141.99		1600 - 12474			
Alpha-Pregnanediol / Beta-Pregnanediol Ratio	Ratio	0.53		0.5 - 1.5			
Total Estrogen Load	ng/mg CR		37.99	30 - 130			
Estrone	ng/mg CR		4.35	1.7 - 8.5			
Estradiol	ng/mg CR		1.12	0.8 - 3.3			
Estriol	ng/mg CR		3.32	2.8 - 11.2			
2-Hydroxyestrone	ng/mg CR		3.91	2 - 8.4			
16a-Hydroxyestrone	ng/mg CR		0.24	<=1.43			
4-Hydroxyestrone	ng/mg CR		0.62	<=1.2			
E Quotient	Ratio	Low	0.61	>=1			
2-Methoxyestrone	ng/mg CR	Low	2.4	3.1 - 15.8			
2:16 Ratio (2-0HE1/16α-0HE1)	Ratio		16.29	>=4			
Methylation Ratio	Ratio		61.38	>=60			
Total Estrogen/Progesterone Ratio	Ratio	High	3.26	0.5 - 1.5			
Total Estrogen/Progesterone Ratio (w/ Oral Pg)	Ratio	High	19.41	0.5 - 1.5			
	Androgen Marker	rs					
Testosterone	ng/mg CR	Low	0.92	2.3 - 7.8			
Dihydrotestosterone	ng/mg CR		0.73	<=3.2			
Testosterone Metabolites	ng/mg CR		28.77	21.9 - 70.1			
Testosterone/Metabolite Ratio	Ratio	Low	0.29	0.5 - 1.5			
Androsterone	ng/mg CR		367.15	147 - 593			
Etiocholanolone	ng/mg CR		136.13	120 - 421			
5-alpha-Androstanediol	ng/mg CR	Below Detection Limit	-	2.8 - 14.2			
5-beta-Androstanediol	ng/mg CR		28.04	14 - 54			
Free DHEA	ng/mg CR		12.02	6.1 - 17.3			
Average DHEA-S	ng/mg CR	High	689.54	38 - 507			
DHEA Total	ng/mg CR		1205.29	649 - 1315			
5α-Reductase Activity	Ratio	High	1.97	0.5 - 1.5			
Androstenedione	ng/mg CR		0.45	0 - 1.2			
HPA - Axis Markers							
Waking Cortisol	ng/mg CR		11.49	7 - 31			
Mid-morning Cortisol	ng/mg CR		15.2	15 - 50			
Afternoon Cortisol	ng/mg CR		19.96	8 - 25			
Evening Cortisol	ng/mg CR		8.9	5 - 16			
Bedtime Cortisol	ng/mg CR		5.84	1 - 10			
Waking Cortisone	ng/mg CR		28.51	26 - 75			
Mid-morning Cortisone	ng/mg CR	Low	33.61	45 - 128			
Afternoon Cortisone	ng/mg CR		31.12	30 - 83			
Evening Cortisone	ng/mg CR		23.61	20 - 60			
Bedtime Cortisone	ng/mg CR		17.93	1 - 37			
24-hour Cortisol	ng/mg 24hr CR		28.16	19 - 38			
24-hour Cortisone	ng/mg 24hr CR	Low	33.64	39 - 74			
Pregnanetriol	ng/mg CR		189.48	170 - 423			
Allo-Tetrahydrocortisol	ng/mg CR		111.16	53 - 155			
Tetrahydrodeoxycortisol	ng/mg CR	Low	21.77	46 - 106			
Tetrahydrocortisone	ng/mg CR		970.89	564 - 1194			
Tetrahydrocortisol	ng/mg CR	Low	283.8	369 - 795			
11-Keto (Androsterone + Etiocholanolone)	ng/mg CR		76.53	62 - 213			
11b-Hydroxyandrosterone	ng/mg CR		42.49	36 - 134			
11b-Hydroxyetiocholanolone	ng/mg CR		61.73	57 - 202			
Cortisol Metabolites	ng/mg CR		1365.85	1160 - 2183			
Cortisol: Metabolite Ratio	Ratio		1.1	0.5 - 1.5			

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### Accession# 0122-0000000

Analuta	Unit	2/1/2022   (0122-0000000)			
Allalyte	Unit	Observation	Results	Reference Range	
Total 17-Ketosteroids	ng/mg CR	Low	696.5	730 - 1522	
Total 17-Hydroxysteroids	ng/mg CR		1577.1	1492 - 2637	
Anabolic/Catabolic Ratio	Ratio		0.81	0.5 - 1.5	
Cortisol/Cortione 11B-HSD II	Ratio	High	1.65	0.4 - 1.2	

