FEM: First AM Comp - Urine Profile + Metabolites

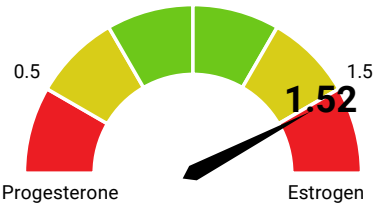
Patient Information	Clinician/Order Information	Sample Information
2021 Test Female 5	**Tamara Densmore**	**Accession# S-0223-0001823**
	Physicians Lab Inc	Collected: 2/8/2023
DOB: 5/20/1971 **Age: 51**	+18773168686	Received: 2/15/2023
Gender: Female	Order date: 2/15/2023	Reported: 2/15/2023 10:42:01 AM
Phone: +18773168686		Collection time: **1st** 7:05 AM
Patient ID: eb8764d0		
Height: N/A Weight: N/A		

1st Day of Last Menses	Days Between Periods	Menstrual Cycles	Hysterectomy	When?	Ovaries Removed	When?	Pregnant?
N/A	N/A	N/A	N/A		N/A		N/A

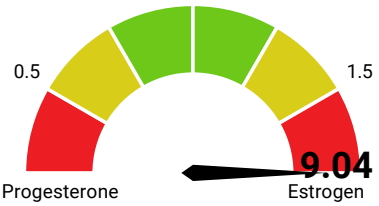
Category	Type	Delivery	Duration of Use
Hormone			

Analyte	Unit	Observation	Results	Reference Range
Alpha-Pregnanediol	ng/mg CR	High	433.7	26 - 338
Alpha-Pregnanediol (w/ Oral Pg)	ng/mg CR		433.7	257 - 2389
Beta-Pregnanediol	ng/mg CR	High	1811.17	201 - 1669
Beta-Pregnanediol (w/ Oral Pg)	ng/mg CR		1811.17	1600 - 12474
Total Estrogen Load	ng/mg CR	High	251.29	30 - 130
Estrone	ng/mg CR	High	12.5	1.7 - 8.5
Estradiol	ng/mg CR	High	6.39	0.8 - 3.3
Estriol	ng/mg CR		7.62	2.8 - 11.2
2-Hydroxyestrone	ng/mg CR	High	40.31	2 - 8.4
16a-Hydroxyestrone	ng/mg CR	High	9.94	<=1.43
4-Hydroxyestrone	ng/mg CR	High	39.47	<=1.2
Testosterone	ng/mg CR	High	38.55	2.3 - 7.8
Dihydrotestosterone	ng/mg CR	High	21.76	<=3.2
Average DHEA-S	ng/mg CR		73.47	38 - 507
Free DHEA	ng/mg CR		16.95	6.1 - 17.3
Anabolic/Catabolic Ratio	Ratio		1.37	0.5 - 1.5
Waking Cortisol	ng/mg CR		10.44	7 - 31

Total Estrogen/Progesterone Ratio



Total Estrogen/Progesterone Ratio (w/ Oral Pg)



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Progesterone Markers

	Units	Observation	Target Ranges
Alpha-Pregnanediol	ng/mg CR	High	
Beta-Pregnanediol	ng/mg CR	High	
Alpha-Pregnanediol (w/ Oral Pg)	ng/mg CR		
Beta-Pregnanediol (w/ Oral Pg)	ng/mg CR		

Estrogen Markers

	Units	Observation	Target Ranges
Total Estrogen Load	ng/mg CR	High	
Estrone (E1)	ng/mg CR	High	
Estradiol (E2)	ng/mg CR	High	
Estriol (E3)	ng/mg CR		

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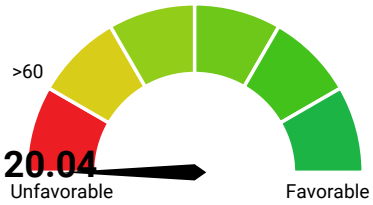
Estrogen Metabolism Markers

	Units	Observation	Target Ranges
2-Hydroxyestrone (2-OHE1)	ng/mg CR	**High**	2 – 8.4 – 40.31
16a-Hydroxyestrone (16a-OHE1)	ng/mg CR	**High**	< 1.43 – 9.94
4-Hydroxyestrone (4-OHE1)	ng/mg CR	**High**	< 1.2 – 39.47
2-Methoxyestrone (2-oMeE1)	ng/mg CR		3.1 – 8.08 – 15.8

Methylation Ratio



The methylation ratio is low indicating methylation support is needed. When 2-OHE1 is very low (under 0.9), this ratio has limited interpretive value and can be ignored. Low methylation can be caused by low levels of donor methyl groups or genetic mutations in the COMT, MTHFR and other methylation markers. Phase II support, including methyl-donor supplements and dietary considerations (paleo-like), can increase methylation. If the patient is taking methyl donor supplements, make certain B-vitamins are included, when increasing methylation, to help eliminate excess methyl groups and prevent methyl trapping (most often seen in patients with compromised COMT activity).

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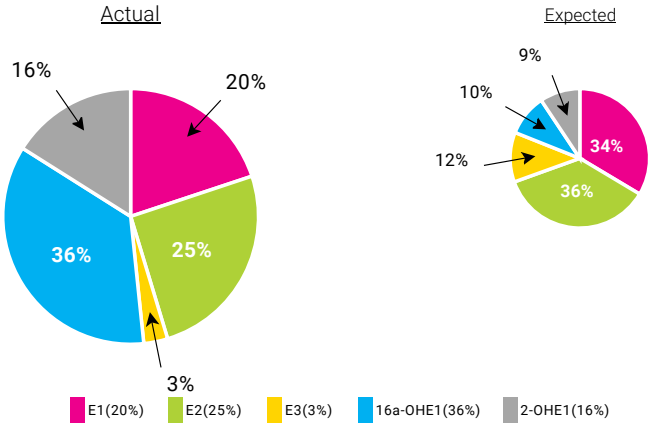
Total Estrogen Load

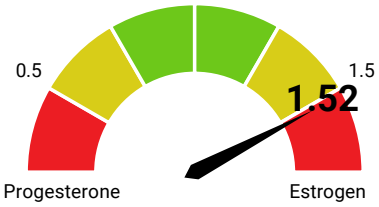
Total Estrogen Load
weighted by binding affinities



This patient has an elevated Total Estrogen Load with elevated 16a-OHE1. The Total Estrogen Load considers the binding affinity of each estrogen analyte at the receptor. Due to the high estrogenic strength of 16-a-OHE1, low 2:16 ratios can contribute to higher than expected total estrogen levels ,even when E1, E2 and E3 are normal/low. Improving the 2:16 ratio and increasing Phase I metabolism will likely lower 16a-OHE1 and the Total Estrogen Load. 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 assess the balance between estrogen and progesterone for the best clinical outcomes.

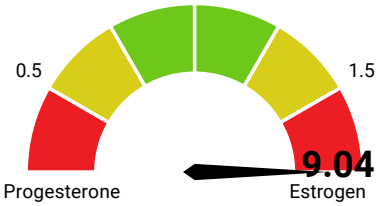
Estrogen/Progesterone Ratio

Total Estrogen/Progesterone Ratio



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.

Total Estrogen/Progesterone Ratio (w/ Oral Pg)



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.

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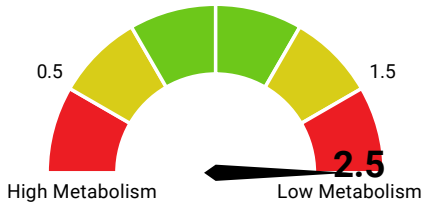
Androgen Markers

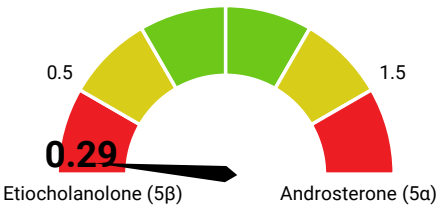
	Units	Observation	Target Ranges
Testosterone	ng/mg CR	High	2.3 – 7.8 (38.55)
Dihydrotestosterone (5a-DHT)	ng/mg CR	High	< 3.2 (21.76)
Testosterone Metabolites	ng/mg CR	High	21.9 – 70.1 (140.58)
Average DHEA-S	ng/mg CR		38 – 507 (73.47)
Free DHEA	ng/mg CR		6.1 – 17.3 (16.95)
Etiocholanolone	ng/mg CR		120 – 421 (228.38)
Androsterone	ng/mg CR	Low	147 – 593 (91.05)

Testosterone/Metabolite Ratio



The levels of testosterone metabolites are lower than expected in relative ratio to testosterone and 5-alpha-reductase (5aR) activity is low. Some patients may experience lower androgen effect than expected for their testosterone levels because the testosterone may be “pooling” as a result of decreased metabolism. When metabolites are lower than expected with decreased 5aR activity, it can indicate increased aromatase activity resulting in increased estrogens as well. If estrogen levels are higher than expected, consider lowering aromatase activity through increased zinc, celery, Resveratrol, cruciferous vegetables or other aromatase inhibitors. DHEA supplementation can increase 5aR activity to increase downstream metabolism and decrease aromatase activity as well.

5α-Reductase Activity



5-alpha-reductase (5aR) activity appears low but may not be clinically relevant if other 5a levels are higher 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. Low 5aR activity can be an indicator of backdoor metabolism of androgens, higher levels of aromatase activity, lower 5a-Pregnanediol or lower levels of the downstream metabolites of testosterone and cortisol. Patients who have lower 5aR activity (5aR ratio < = 0.5) may need a higher dose of testosterone during therapy, if testosterone metabolites are also low. Optimal balance exists when the ratio is nearest 1 (center).

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HPA-Axis Markers

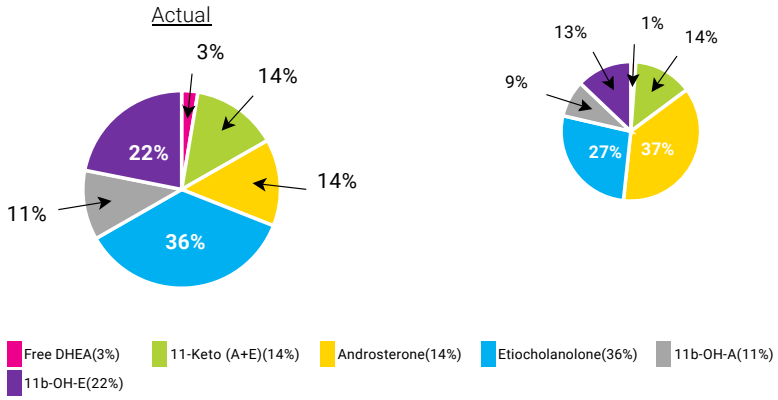
	Units	Observation	Target Ranges
Waking Cortisol	ng/mg CR		7 – 31, 10.44
Waking Cortisone	ng/mg CR	Low	26 – 75, 25.81
Free DHEA	ng/mg CR		6.1 – 17.3, 16.95
Total 17-Ketosteroids	ng/mg CR	Low	730 – 1522, 653.67

Cortisol/Metabolite Ratio

The Cortisol:Metabolite Ratio is elevated and cortisol metabolites are low. This indicates that metabolism of cortisol is decreased; resulting in a pooling effect of free-cortisol levels that can make free-cortisol appear higher than actual adrenal output (see the cortisol curve to assess adrenal function). Decreased metabolism of cortisol is often caused by hypothyroidism and certain inflammatory responses. Certain 17-Hydroxystroids are also cortisol metabolites, and as such, should be in balance with 17-Ketosteroids for optimal function (see Anabolic/Catabolic ratio)

Total 17-Ketosteroids

Anabolic



This patient's 17-ketosteroids are low. Decreases in 17-ketosteroids can be the result of low DHEA levels, hyperthyroidism, depressed adrenal function, kidney issues, hypopituitarism or decreased testicular function. 17-ketosteroids are formed during metabolism of androgenic sex hormones (specifically DHEA) and are released by the adrenal glands (M/F) and the testes (M). To examine the balance between the 17-ketosteroids, compare the "actual" chart on the left to the "expected" chart on the right representing the relative ratios of each. 17-ketosteroids should also be in balance with 17-hydroxysteroids to achieve optimal clinical results (see anabolic/catabolic ratio).

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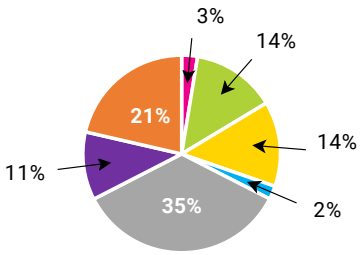
HPA-Axis Markers Continued

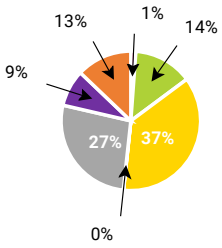
Total 17-Ketosteroids

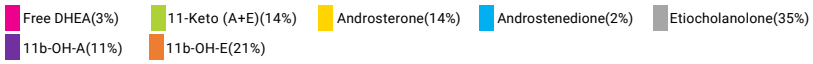
Anabolic

Actual



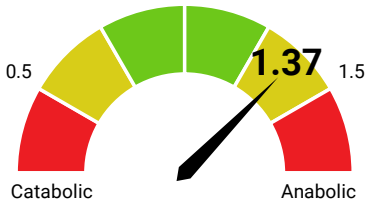
Expected





This patient's 17-ketosteroids are low. Decreases in 17-ketosteroids can be the result of low DHEA levels, hyperthyroidism, depressed adrenal function, kidney issues, hypopituitarism or decreased testicular function. 17-ketosteroids are formed during metabolism of androgenic sex hormones (specifically DHEA) and are released by the adrenal glands (M/F) and the testes (M). To examine the balance between the 17-ketosteroids, compare the "actual" chart on the left to the "expected" chart on the right representing the relative ratios of each. 17-ketosteroids should also be in balance with 17-hydroxysteroids to achieve optimal clinical results (see anabolic/catabolic ratio).

Anabolic/Catabolic Ratio

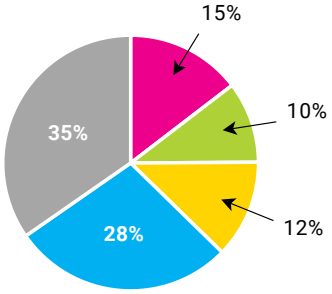


This patient is balanced between anabolic steroids and catabolic steroids, creating a bio-environment for cell proliferation and tissue health to perform at optimal levels while still allowing for detoxification and responses to stress. The optimal ratio is 1 (center). When results near the low end(more catabolic - left yellow zone) or the high end (more anabolic - right yellow zone) of the normal range, the anaboblic/catabolic ratio is approaching an imbalance.

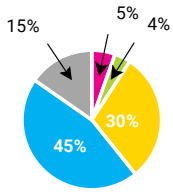
Total 17-Hydroxysteroids

Catabolic

Actual



Expected



The results shown indicate low catabolic (17-hydroxysteroid) metabolites. This can be due to low cortisol, low cortisol metabolism or both. Other possible causes include androgen therapy, high DHEA levels, hypothyroidism, imbalances of sex hormones and other adrenal issues. The balance between anabolic and catabolic metabolites is important and can be assessed in the anabolic/catabolic ratio.

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Patient Result History

Analyte	Unit	2/15/2023 | (S-0223-0001823)		
		Observation	Results	Reference Range
Creatinine	mg/dL		100.0	30 - 300
Estrogen and Progesterone Markers				
Alpha-Pregnanediol	ng/mg CR	High	433.7	26 - 338
Alpha-Pregnanediol (w/ Oral Pg)	ng/mg CR		433.7	257 - 2389
Beta-Pregnanediol	ng/mg CR	High	1811.17	201 - 1669
Beta-Pregnanediol (w/ Oral Pg)	ng/mg CR		1811.17	1600 - 12474
Alpha-Pregnanediol / Beta-Pregnanediol Ratio	Ratio		1.11	0.5 - 1.5
Total Estrogen Load	ng/mg CR	High	251.29	30 - 130
Estrone	ng/mg CR	High	12.5	1.7 - 8.5
Estradiol	ng/mg CR	High	6.39	0.8 - 3.3
Estriol	ng/mg CR		7.62	2.8 - 11.2
2-Hydroxyestrone	ng/mg CR	High	40.31	2 - 8.4
16a-Hydroxyestrone	ng/mg CR	High	9.94	<=1.43
4-Hydroxyestrone	ng/mg CR	High	39.47	<=1.2
E Quotient	Ratio	Low	0.4	>=1
2-Methoxyestrone	ng/mg CR		8.08	3.1 - 15.8
2:16 Ratio (2-OHE1/16α-OHE1)	Ratio		4.06	>=4
Methylation Ratio	Ratio	Low	20.04	>=60
Total Estrogen/Progesterone Ratio	Ratio	High	1.52	0.5 - 1.5
Total Estrogen/Progesterone Ratio (w/ Oral Pg)	Ratio	High	9.04	0.5 - 1.5
Androgen Markers				
Testosterone	ng/mg CR	High	38.55	2.3 - 7.8
Dihydrotestosterone	ng/mg CR	High	21.76	<=3.2
Testosterone Metabolites	ng/mg CR	High	140.58	21.9 - 70.1
Testosterone/Metabolite Ratio	Ratio	High	2.5	0.5 - 1.5
Androsterone	ng/mg CR	Low	91.05	147 - 593
Etiocholanolone	ng/mg CR		228.38	120 - 421
5-alpha-Androstanediol	ng/mg CR	High	66.26	2.8 - 14.2
5-beta-Androstanediol	ng/mg CR		52.56	14 - 54
Free DHEA	ng/mg CR		16.95	6.1 - 17.3
Average DHEA-S	ng/mg CR		73.47	38 - 507
DHEA Total	ng/mg CR	Low	424.2	649 - 1315
5α-Reductase Activity	Ratio	Low	0.29	0.5 - 1.5
Androstenedione	ng/mg CR	High	14.35	0 - 1.2
HPA - Axis Markers				
Waking Cortisol	ng/mg CR		10.44	7 - 31
Waking Cortisone	ng/mg CR	Low	25.81	26 - 75
Pregnanetriol	ng/mg CR		302.6	170 - 423
Allo-Tetrahydrocortisol	ng/mg CR		127.38	53 - 155
Tetrahydrodeoxycortisol	ng/mg CR		89.94	46 - 106
Tetrahydrocortisone	ng/mg CR	Low	244.74	564 - 1194
Tetrahydrocortisol	ng/mg CR	Low	108.31	369 - 795
11-Keto (Androsterone + Etiocholanolone)	ng/mg CR		90.16	62 - 213
11b-Hydroxyandrosterone	ng/mg CR		72.88	36 - 134
11b-Hydroxyetiocholanolone	ng/mg CR		139.9	57 - 202
Cortisol Metabolites	ng/mg CR	Low	480.43	1160 - 2183
Cortisol: Metabolite Ratio	Ratio	High	4.27	0.5 - 1.5
Total 17-Ketosteroids	ng/mg CR	Low	653.67	730 - 1522
Total 17-Hydroxysteroids	ng/mg CR	Low	872.97	1492 - 2637
Anabolic/Catabolic Ratio	Ratio		1.37	0.5 - 1.5
Cortisol/Cortione 11B-HSD II	Ratio	High	2.41	0.4 - 1.2

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