



dutch cases

DISCLAIMER

Please be aware that different healthcare providers may have varying approaches to lab testing and interpretation. The selection of specific tests, methodologies, and treatment recommendations can differ based on the provider's training, experience, and the individual needs of the patient. Providers should always use their best clinical judgment when making decisions for patient care.

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Case 6: Tanya

Amenorrhea Evaluation

Case 6: Tanya, a 29-yo female with Amenorrhea

Chief Complaints

- Amenorrhea
- Hot flashes
- Anxiety
- Afternoon fatigue

PMHx

- Amenorrheic x 16 months
- History of restricted dieting and intense exercise
- ACE (adverse childhood events) score = 6

Medications

- None

Physical Exam

- 5' 6"; 112 lbs.; BMI 18.1 (low)
- BP 96/72 mm Hg
- Pulse 55 bpm

Pertinent Serum Labs

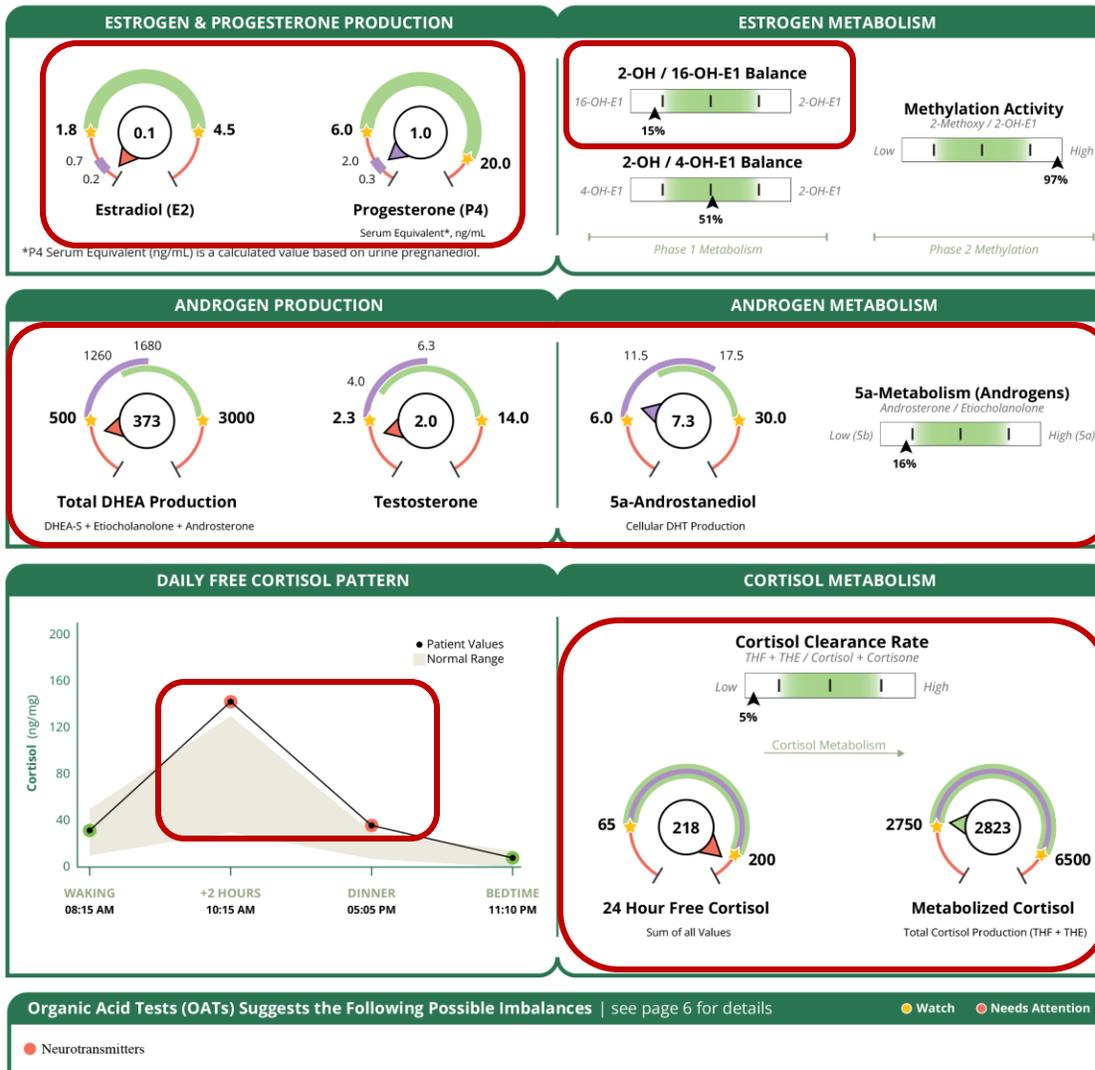
- Low WBC count (**L**)
- Low Thyroid: fT4 0.6 (**L**), fT3 2.1 (**L**)
- Vitamin D: 12 ng/mL (**L**)
- LH: 0.4 (**L**); FSH: 1.3 (**L**)



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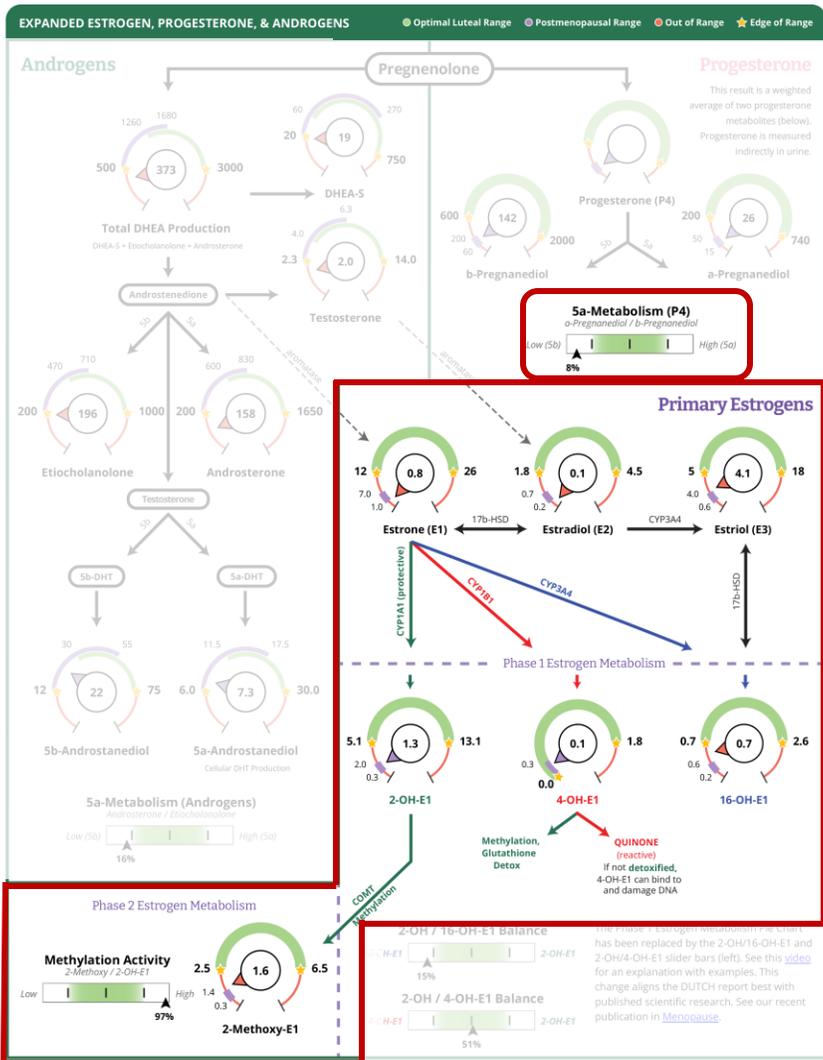


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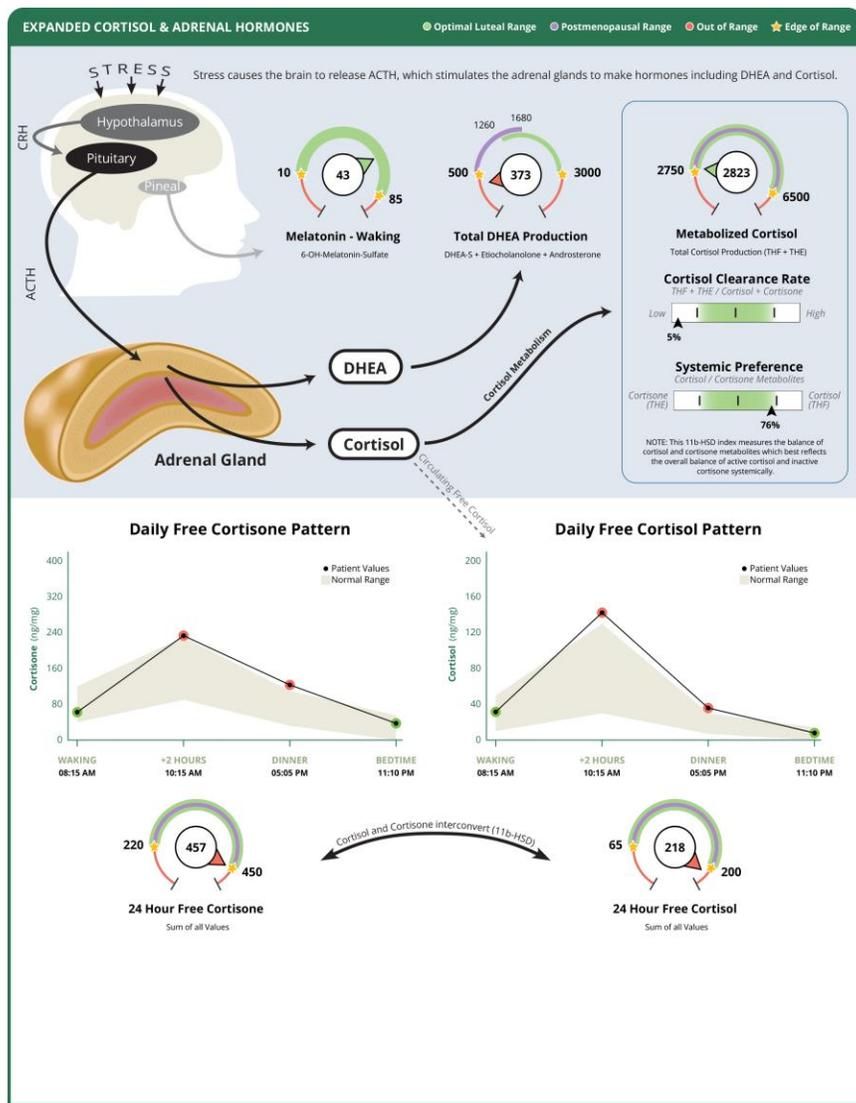
Sex Hormones & Metabolites

TEST	RESULT	UNITS	LUTEAL*	POSTMENOPAUSAL
Progesterone Metabolites (Urine)				
b-Pregnenediol	Below luteal range	142.0	ng/mg	600 - 2000
a-Pregnenediol	Below luteal range	26.4	ng/mg	200 - 740
Estrogens and Metabolites (Urine)				
Estrone (E1)	Below luteal range	0.78	ng/mg	12 - 26
Estradiol (E2)	Below luteal range	0.12	ng/mg	1.8 - 4.5
Estriol (E3)	Below luteal range	4.1	ng/mg	5 - 18
2-OH-E1	Below luteal range	1.27	ng/mg	5.1 - 13.1
4-OH-E1	Within luteal range	0.14	ng/mg	0 - 1.8
16-OH-E1	Below luteal range	0.65	ng/mg	0.7 - 2.6
2-Methoxy-E1	Below luteal range	1.58	ng/mg	2.5 - 6.5
2-OH-E2	Low end of luteal range	0.49	ng/mg	0 - 3.1
4-OH-E2	Within luteal range	0.06	ng/mg	0 - 0.52
Total Estrogen	Below range	9.2	ng/mg	35 - 70
Metabolite Ratios (Urine)				
2-OH / 16-OH-E1 Balance	Below range	1.95	ratio	2.69 - 11.83
2-OH / 4-OH-E1 Balance	Within range	9.07	ratio	5.4 - 12.62
2-Methoxy / 2-OH Balance	Above range	1.24	ratio	0.39 - 0.67
Androgens and Metabolites (Urine)				
Range				
DHEA-S	Below range	19.2	ng/mg	20 - 750
Androsterone	Below range	157.7	ng/mg	200 - 1650
Etiocholanolone	Below range	196.3	ng/mg	200 - 1000
Testosterone	Below range	1.99	ng/mg	2.3 - 14
5a-DHT	Within range	1.4	ng/mg	0 - 6.6
5a-Androstenediol	Within range	7.3	ng/mg	6 - 30
5b-Androstenediol	Within range	22.3	ng/mg	12 - 75
Epi-Testosterone	Below range	1.2	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-Pregnenediol	100 - 300	100 - 300	2000 - 9000
a-Pregnenediol	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

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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	1.5 ug/mg	0 - 2.5
Vitamin B6 Markers - May be deficient if high			
Xanthurenate	Within range	0.72 ug/mg	0.12 - 1.2
Kynurenate	Within range	3.2 ug/mg	0.8 - 4.5
Biotin Marker - May be deficient if high			
b-Hydroxyisovalerate	Within range	6.3 ug/mg	0 - 12.5
Glutathione Marker - May be deficient if high			
Pyroglutamate	Below range	24.4 ug/mg	28 - 58
Gut Marker - Potential gut putrefaction or dysbiosis if high			
Indican	Within range	19.9 ug/mg	0 - 100
Neuro-Related Markers (Urine)			
Dopamine Metabolite			
Homovanillate (HVA)	Below range	1.9 ug/mg	3 - 11
Norepinephrine/Epinephrine Metabolite			
Vanilmandelate (VMA)	Below range	2.0 ug/mg	2.2 - 5.5
Neuroinflammation Marker			
Quinolate	Within range	3.4 ug/mg	0 - 9.6
Additional Markers (Urine)			
Melatonin - Waking			
6-OH-Melatonin-Sulfate	Within range	42.8 ng/mg	10 - 85
Oxidative Stress / DNA Damage			
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	1.5 ng/mg	0 - 5.2

- The pyroglutamate is low. Although the majority of patients have higher levels than this result, the significance of low urinary pyroglutamate has not been established in scientific literature.
- The HVA, a metabolite of dopamine, is below the normal range. This may be seen with low dopamine or with slow methylation. Review dopamine-related symptoms before initiating treatment.
- The VMA, a metabolite of epinephrine/norepinephrine, is below the normal range. This may be seen with low adrenal output. Reviewing cortisol may help determine the root cause.

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Goals of Treatment

DUTCH Test Goals

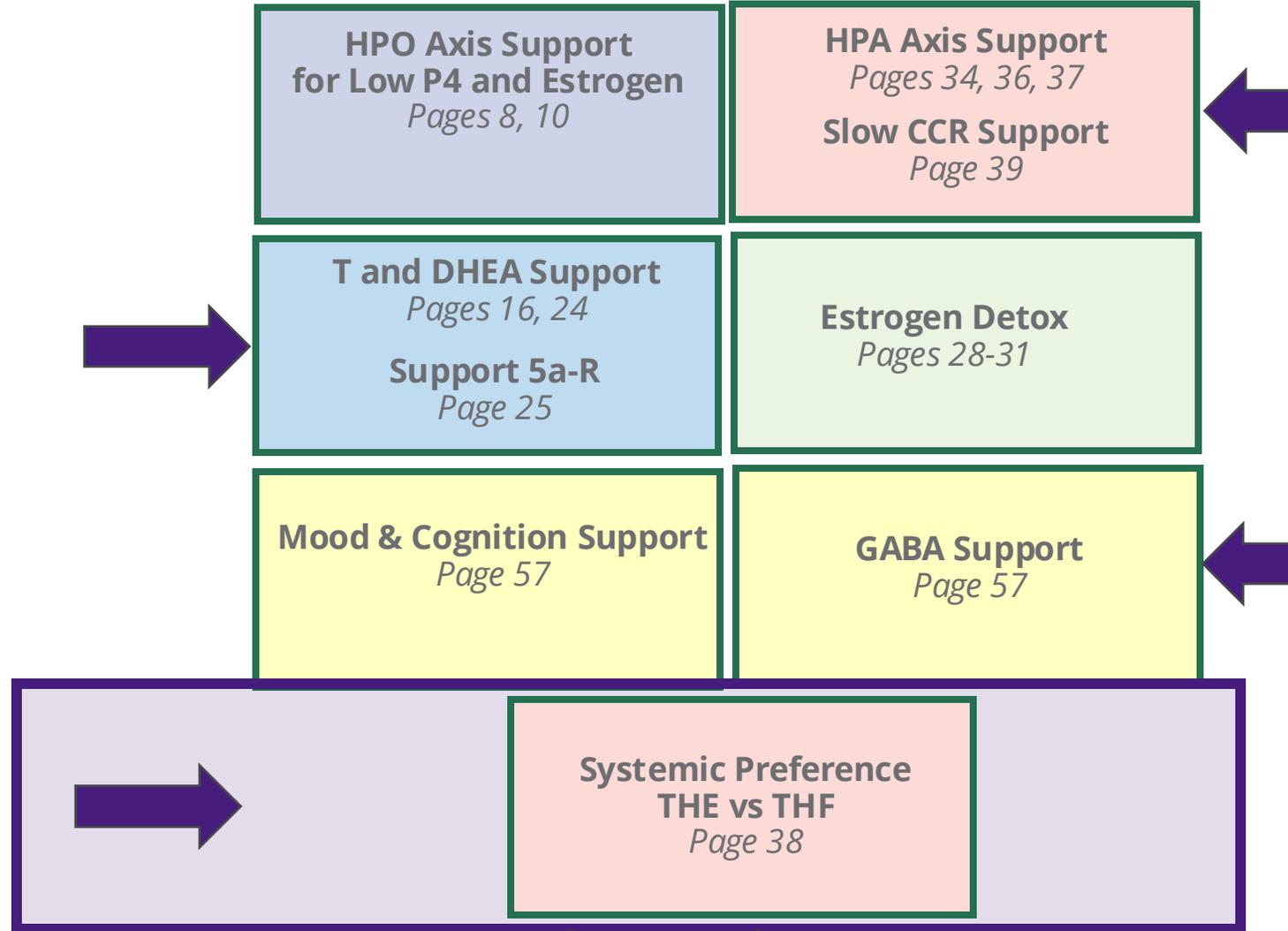
- Normalize estrogen and progesterone levels
- Support healthy 2-OH/16-OH ratio
- **Support low androgens**
- Lower free cortisol, support the CCR **and lower Systemic THF Preference**
- Support low neurotransmitters

Blood Lab Goals

- Improve overall nutrient levels
- Support thyroid and vitamin D

Lifestyle Goals

- Increase caloric intake
- Replace some overly strenuous exercise with gentle movement
- Reduce stress/anxiety



○ HPO Axis Support

○ HPA Axis Support

○ Other Hormone support

○ OATs Support

○ Symptom Support

○ Detox Support

○ Lifestyle Support

○ Other Support

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Sample Treatment Plan:

Medications

- Consider bioidentical E2 + Progesterone therapy **to reduce hot flashes and support overall health until menstruation resumes**

Supplements

- Consider 10 mg DHEA daily, increase to 25 mg if tolerated **to improve anabolic/catabolic balance**
- Consider Vitex extract 200-500 mg daily **to support the HPO axis**
- Consider Multivitamin 1 BID with food
 - **To restore nutrient levels, support hormones**
 - Consider Vitamin D 3000 IU daily
 - **To support bone and immune, improve serum**
- Consider Fish oil supplement
 - **To support hormone production & 2-OH pathway**
- Consider L-theanine 100-200 mg bid **to support GABA, lower cortisol, reduce anxiety**

Diet

- **Goal:** increased caloric intake to 2000-2400 kcal/day and 3-4 meals plus snacks through the day, include protein smoothie in am including ground flax (phytoestrogen)
 - **To increase BMI (goal 20) for return of menses**
 - **Balance blood sugar and avoid lows**
 - **Reduce hot flashes**
 - **Improve CCR and improve Systemic Preference**

Lifestyle

- Consider replacing daily 5 miles runs with 30 min walks, 1 day of rest
 - **Decrease body stress and lower caloric need**

Referrals

- **Referral** for CBT, look for practitioner with experience treating patients with eating disorders
 - **Reduce anxiety and manage stress**
 - **Improve relationship between self, food, & body**



Polling Question:

What was the key finding that influenced your treatment plan the most?

- A. Low estrogen and progesterone
- B. Low 2-OH/16-OH-E1 balance
- C. Low androgens
- D. High 24 hour free cortisol and slow CCR

Reflection:

How would low 5a-reductase activity impact DHEA dosing?



- 1. How do you know your treatment plan is working?**
- 2. When would you retest?**
- 3. Which DUTCH panel would you order?**

Thank You!

DUTCH Fest 2026

