

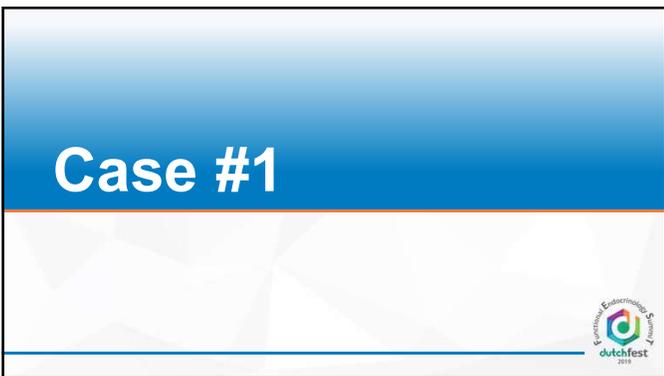


Women's Health and Hormonal Axis
Part 3: Case Studies
Monique Class, APRN and Joel Evans, MD

1



2



3

Case #1 - HPI

- 32-year-old female who presents with:
- Trying to conceive x 1 yr
- Acne
- Irregular cycles (32-60d)
- Weight gain of 15 lbs
- Normal BMI but elevated waist circumference at 37in
- Vegetarian (really *carbaterian* when queried)
- 1 week prior to ovulation, patient experiences
 - Bloating
 - Increased hunger, including cravings for sugary foods
 - Painful cramps and heavy bleeding with onset of menses



4

Labs from her GP were “WNL”

- Fasting Glucose 99
- Fasting insulin not done
- Hgb A1C 5.6
- CBC WNL
- TSH 3.2
- TG 138
- Lipids WNL

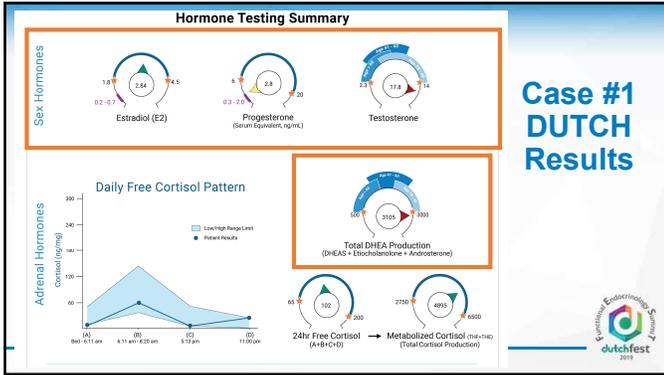


5

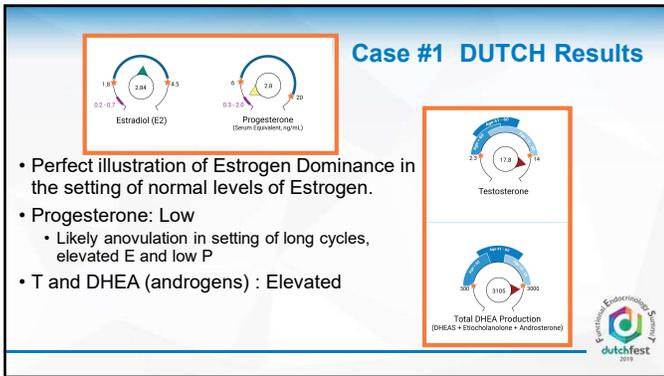
At first glance...What is going on?



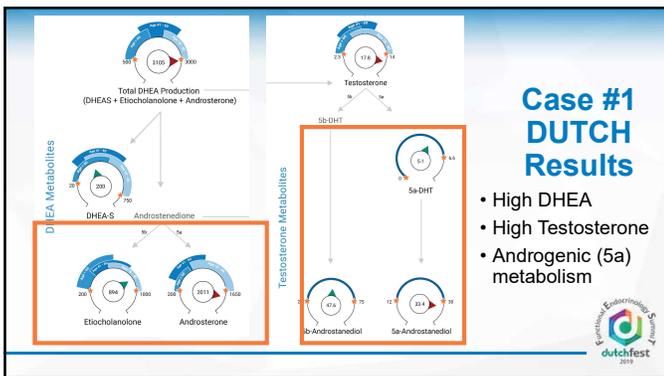
6



7



8



9

Case #1 – Serum Results

- Free T4 1.0 (NL)
- Free T3 2.8 (L Normal)
- **Insulin 14.0**
- Hgb A1C 5.6
- Fasting Blood Sugar 99
- LH/FSH ratio 2.8 (H Normal)



10

Teaching Points on PCOS



11

Diagnostic Schemes still in use today

Signs and Symptoms	NIH 1990	Rotterdam Consensus 2003 (2 of 3)	Androgen Excess Society 2006
Hyper androgens	R	NR	R
Oligo or amenorrhea	R	NR	NR
PCO by U/S		NR	NR

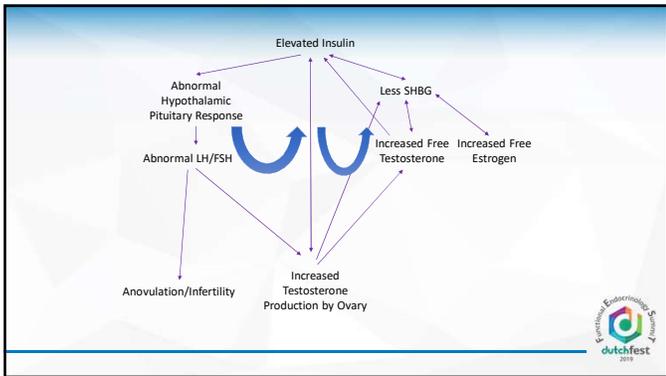
12

Pathophysiology

- Elevated insulin is the most likely underlying cause.
- Elevated Insulin leads to altered function of the hypothalamus so FSH and LH are not secreted properly.
 - More LH is secreted which causes more androgens to be made
 - Ovulation does not occur
 - Estrogens are not opposed by Progesterone causing E excess.
- Elevated insulin leads to decreased SHBG.
 - Decreased SHBG leads to increase in free testosterone.
- Elevated insulin alters enzymes in ovary to make more androgens
- Increase in Testosterone FURTHER decreases SHBG
- Increase in free testosterone leads to androgenized symptom complex as well as increased estrogen due to conversion.
- Experimental evidence shows that increased androgens cause increased insulin in women.
 - Diabetes Metab Res Rev*, 2008 Oct;24(7):520-32



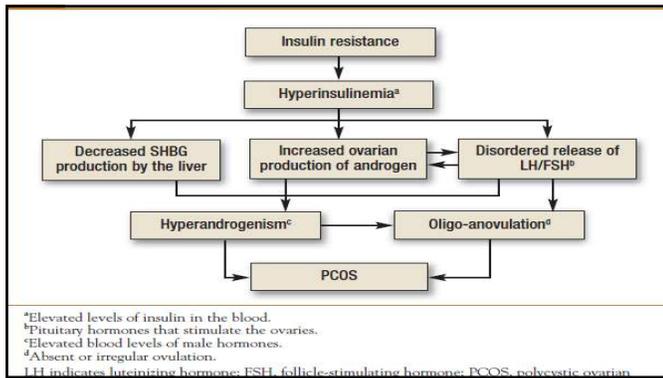
13



14

In other words....

15



16



17

Medical Hypotheses 79 (2012) 104–112

This novel paradigm in PCOS aetiology suggests that disturbances in bowel bacterial flora (“Dysbiosis of Gut Microbiota”) brought about by a poor diet creates an increase in gut mucosal permeability, with a

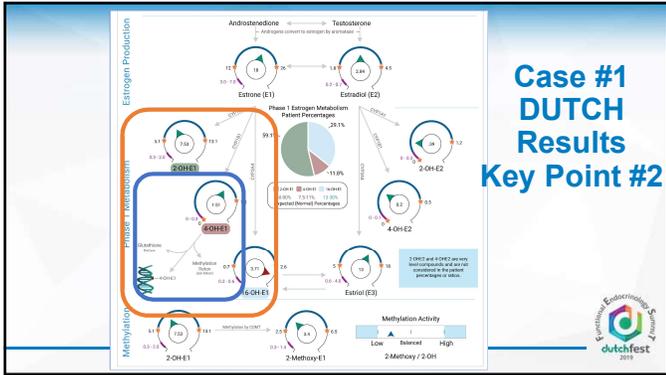
activation of the immune system interferes with insulin receptor function, driving up serum insulin levels, which in turn increases the ovaries production of androgens

(DOGMA) theory of PCOS can account for all three components of the syndrome-anovulation/ menstrual irregularity, hyperandrogenism (acne, hirsutism) and the development of multiple small ovarian cysts.

^aApproved, 189 Adelaide Road, Dúnceach, South Australia, Australia
^bUniversity of South Australia, School of Pharmacy and Medical Sciences, Frome Road Adelaide, South Australia, Australia

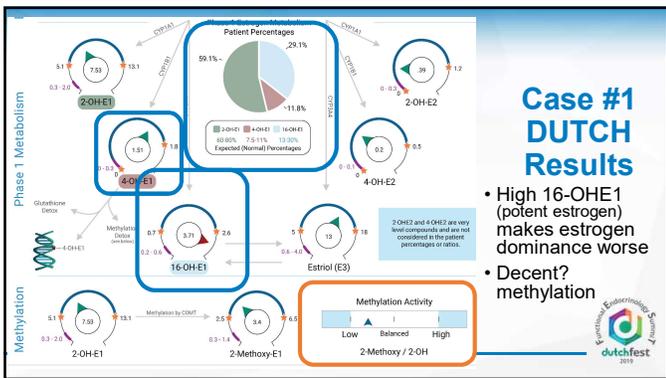
dutchfest 2018

18



**Case #1
DUTCH
Results
Key Point #2**

19



**Case #1
DUTCH
Results**

- High 16-OHE1 (potent estrogen) makes estrogen dominance worse
- Decent? methylation

20

Case #1 – DUTCH Results

- Low progesterone metabolites
- High estrogens in relation to P and altered E metabolism, especially 16-OH-E1 and 4
- Androgens trending high
 - High testosterone
 - High total DHEA and 5 alpha metabolites

**Suspect PCOS and start to treat.
What would you do?**



21

How to figure it out:

- Normalize insulin and glucose
- Decrease Stress
- Decrease inflammation



22

Endocr Regul. 2018 Oct 1;52(4):208-221. doi: 10.2478/enr-2018-0026.

Polycystic Ovary Syndrome as a systemic disease with multiple molecular pathways: a narrative review.

Carvalho LML¹, Dos Reis FM², Candido AL², Nunes FFC³, Ferreira CN^{3,4}, Gomes KB^{5,3}.

© Author information

- 1 Instituto de C
- 2 Faculdade d
- 3 Faculdade d
- 4 Colegio Tecn
- 5 Instituto de C

This endocrinopathy (PCOS) is associated with many metabolic disorders such as dyslipidemia and insulin resistance, Inflammation is likely to play an important role in the promoting these metabolic imbalances

Abstract
 Polycystic Ovary Syndrome (PCOS) is characterized by hyperandrogenism, amenorrhea, and polycystic ovaries. This endocrinopathy is associated with many metabolic disorders such as dyslipidemia and insulin resistance, with increased risk of type 2 diabetes mellitus, metabolic syndrome, and cardiovascular complications. Inflammation is likely to play an important role in the promoting these metabolic imbalances, while prothrombotic and pro-oxidative mechanisms further contribute to the cardiovascular risk of these patients. The etiology of PCOS is still not fully understood, but there is evidence of genetic and environmental components. This review aims to discuss some molecular pathways associated with PCOS that could contribute to the better understanding about this syndrome. Recent evidence suggests that intrauterine exposure of female mice to an excess of anti-Müllerian hormone may

23

Inflammation increases Insulin



24

Treatment Plan



25

Case #1 - Treatment

- Normalize insulin and glucose
- Decrease inflammation
- Enhance ovulation
- Decrease Stress



26

Case #1 - Treatment

- Low Glycemic Food Plan
 - Types of vegetarian protein (avoiding processed soy "meats")
 - Off FIT sensitive food
 - TRF start with 12 hours moving up
 - Fish oils 2,000 mg
 - Vit D 5,000 IU
 - Protein powder to optimize amino acid balance and gut repair
 - Dioxinal 1 BID
 - Insinase 1 before meals
 - Probiotic



27

Case #1 - Treatment

- Stress reduction
 - Mantra in evening (5 minutes)
 - Awareness practice
- Exercise
 - Walking 15 minutes at lunch



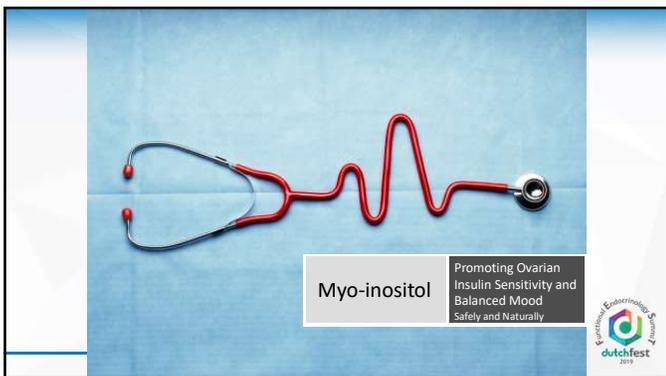
28

Case #1 - Treatment

- As a result of DUTCH results and suspecting PCOS
 - 500mg Chaste Tree Berry extract, daily
 - DIM or I3C 2 daily (Improves estrogen metabolism)
 - Liquide Glutathione 5ml (for the 4-OH)
 - Methyl B complex
 - Myo-inositol powder, 2 grams BID



29



Myo-inositol

Promoting Ovarian Insulin Sensitivity and Balanced Mood
Safely and Naturally



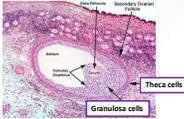
30

How Myo-Inositol Works:

1. Myo-inositol (MI) **improves the way the ovarian follicles use insulin and glucose** — the energy supply necessary to fuel follicular growth, development and ovulation
2. Supplementing with MI, a precursor to D-chiro-inositol (DCI) may offset a defect in ovarian tissue availability or altered metabolism of DCI, permitting the activation of enzymes that control glucose metabolism and energy production in the ovaries
3. Providing MI at 4 grams per day increases MI in human follicular fluid **influencing follicular maturity — a marker of good quality oocytes and increased fertility.**

NOTE:
DCI and MI: two of the nine naturally occurring isomers of inositol.
Both MI and DCI isomers improve ovarian insulin sensitivity.
MI is widely distributed in nature where DCI is rare.

Insulin resistance localizes in the ovaries and disrupts steroidogenesis in the theca cells, causing an increase in testosterone precursors



Granulosa cells
Theca cells

Garit S et al. Randomized double-blind placebo-controlled study of the effect of myo-inositol on ovarian hyperandrogenemia and reproductive factors in women with PCOS. *Eur Rev Med Pharmacol Sci* 2007;31:1841-54

dutchfest 2019

31

Case #1 – 7 Month Follow-up

- Acne is greatly improved
- Lost weight = 12 lbs
- Waist circumference 34
- Cycles are regular 28-31 day
- Heavy, painful menses improved
- Fasting Insulin 6
- Hgb A1C 5.5

dutchfest 2019

32

Case #1 – 10 Month Follow-up
“I’m not getting my period”

Pregnant!

dutchfest 2019

33

Case #2



34

51 y/o woman with symptomatic fibroids and strong family hx of breast cancer. Wants HELP!

- 51 yo P0 LMP 3 weeks ago wants to decrease her risk of breast cancer. She is concerned because her mother was recently diagnosed with early stage BrCa at age 78 and she is seeing this in her friend group as well as in her extended family. Ashkenazi Jewish.



35

51 y/o woman with symptomatic fibroids and strong family hx of breast cancer. Wants HELP!

- PMH:
 - Fibroids and heavy bleeding x 4 years
 - Borderline blood sugars x last few years.
 - Been told she needs to lose weight
 - Dense Breasts on Mammogram (last mammo 2 months ago)
 - BRCA test NEG
 - Cardio CRP 4.6



36

- ROS:
 - BM 3x per week
 - Occasionally has intermittent diarrhea and gas shortly after eating
 - Joint aches, especially knees
 - Under a lot of stress: Finances, Marriage, Children going to College
- PE and labs:
 - BMI 25 , BP 135/85
 - Fasting Glu 105, Fasting Insulin 18
 - Hgb 9, HCT 28



37

What we know:

- She has a strong FH of breast cancer.
- She is overweight.
- She has insulin resistance.
- She is estrogen dominant due to her dense breasts, fibroids and heavy periods
- She is inflamed from her elevated Cardio CRP and knee pain
- Her gut is out of balance and inflamed from her constipation alternating with pain and diarrhea.
- She is under stress.
- She is anemic from her heavy bleeding.



38

What we now know: She is at increased risk of Breast Cancer because:

- She has a strong **FH** of breast cancer.
- She is **overweight**.
- She has **insulin resistance**.
- She is **estrogen dominant** due to her **dense breasts, fibroids** and heavy periods
- She is **inflamed** from her **elevated Cardio CRP** and knee pain
- Her **gut is out of balance and inflamed** from her **constipation** alternating with pain and diarrhea.
- She is under **stress**.



39

•These are estrogen dominant concerns, so the framework is to **decrease estrogen intake and formation** and **increase estrogen elimination**.



40

•That means:

- Organic, whole foods w/o hormones or xenoestrogens
- Flax seed which doubles as fiber and aromatase inhibitor
- Probiotic and healthy gut to decrease beta glucuronidase
- Eliminate constipation with Mg, Aloe or additional fiber if Flax isn't enough
- Natural aromatase inhibitor's like green tea
- Detox nutrients (refer to slide in talk 2)
- Check for Detox SNP's (methylation and estrogen metab) and adjust diet and supps as needed



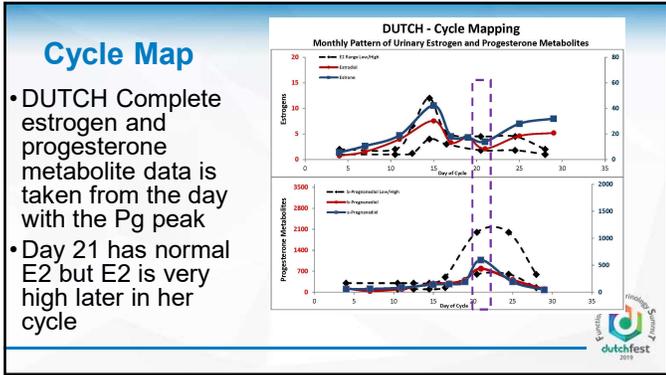
41

More nutritional Recommendations:

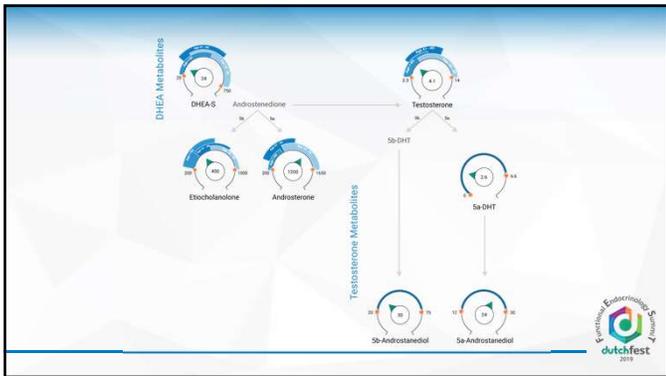
- Eat the rainbow every day
- No refined sugar
- Cruciferous Vegetables
- Herbs and Spices (ginger and Turmeric)
- Green Tea
- Organic, non-GMO Soy
- Reduced Caloric Intake
- www.keep-a-breast.org



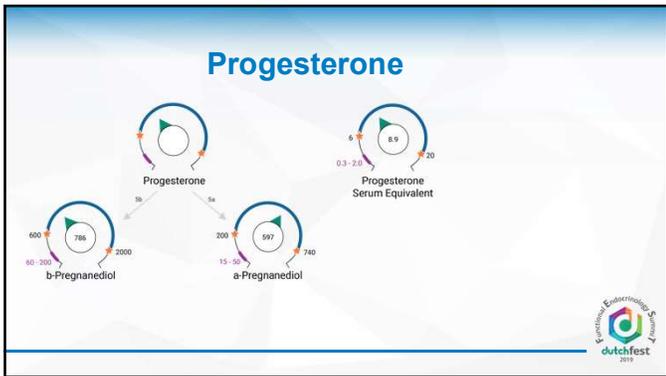
42



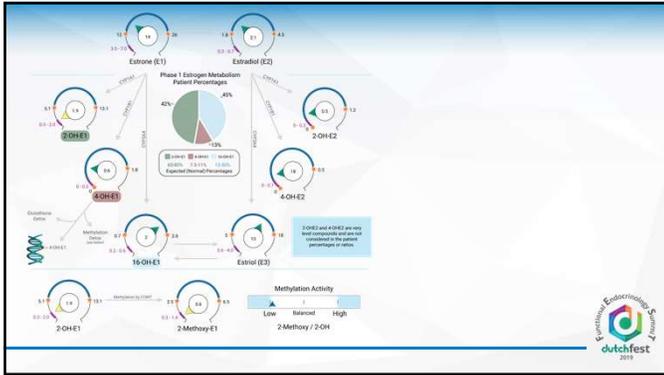
43



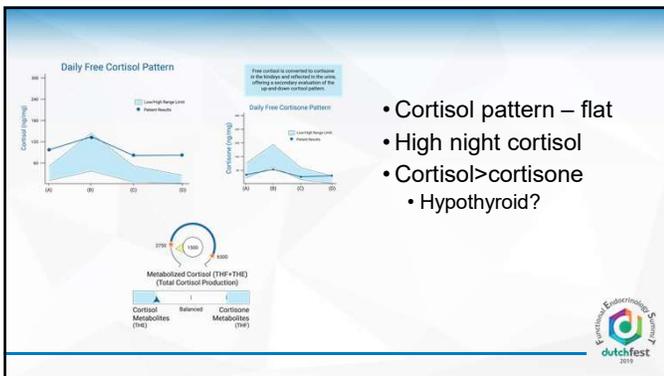
44



45



46



47

More things to do:

- Reduce inflammation (PGE2 stimulates aromatase)
- Reduce stress (Stress is pro-inflammatory)
- Normalize body weight (Obesity reduces SHBG and leads to more free Estrogen)
- Normalize blood sugar and insulin (Insulin lowers SHBG) with LGI Diet
- Elimination Diet or Food Sensitivity Testing to Identify Dietary Sources of Inflammation.
- **TEST FOR MTHFR and COMT AND NORMALIZE E METAB**

dutchfest 2019

48

Case #3



49

Case #2 - HPI

- 42-year-old female who presents with:
 - Former competitive athlete with irregular cycles when younger
 - Overweight and looking very tired
 - High stress end of life care for mother (who has osteoporosis)
 - Early menarche (mother menopausal at 44)
- “Menopausal” symptoms
 - Insomnia – trouble falling asleep, interrupted sleep, mind races
 - Significant VMS (better since starting Pg therapy)
 - Vaginal dryness and painful intercourse
 - Decreased libido
- LMP – 6 months ago



50

Case #2

- Meds: 200mg oral micronized progesterone qhs
- Supplements: Multivitamin



51

Case #2 Labs

- DUTCH Plus
- Serum:
 - FSH: 80
 - TSH: 1.1, fT3: 2.3, fT4: 0.9 rT3: 11 Negative Antibodies
 - Fasting Blood Sugar: 116
 - Hgb A1C: 5.9
 - CBC: 14/45.0
 - CMP w/ Creatinine 1.0
 - DHEA-S: 150



52

Case #2 DUTCH Plus Results



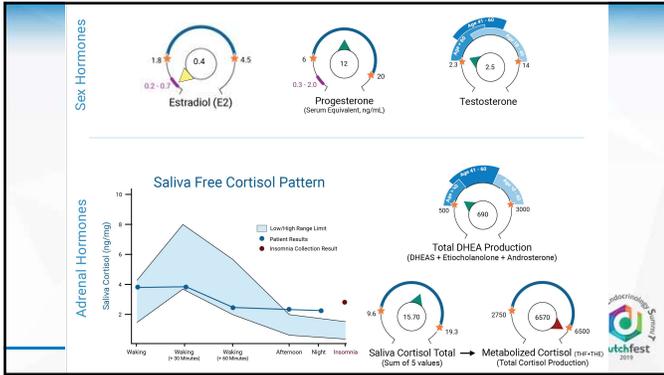
53

Case #2 – DUTCH Results

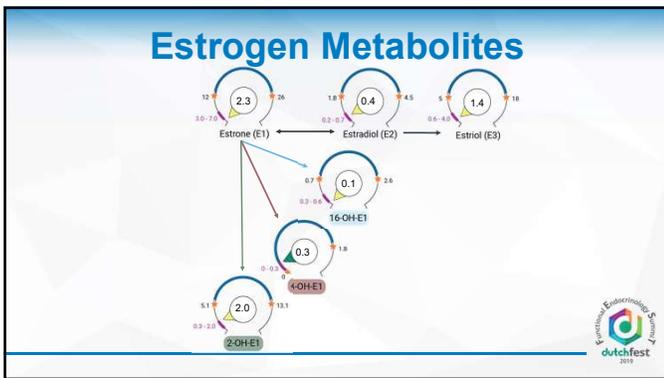
- Patient reports very irregular cycles and hasn't had a cycle in approximately 6 months
- Estrogens in the postmenopausal range
- Androgens low normal across the board
- Flat CAR and overall cortisol with high levels in the afternoon, evening and in the middle of the night (insomnia sample)



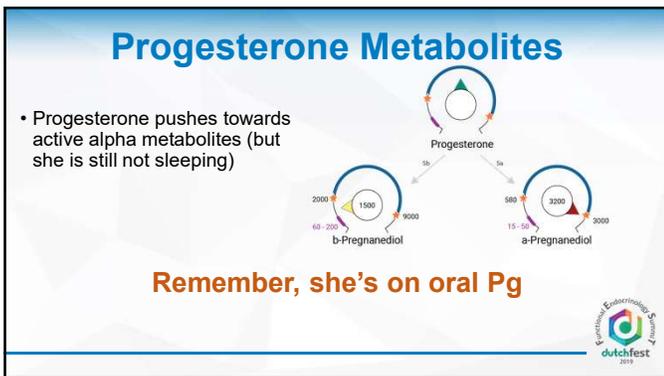
54



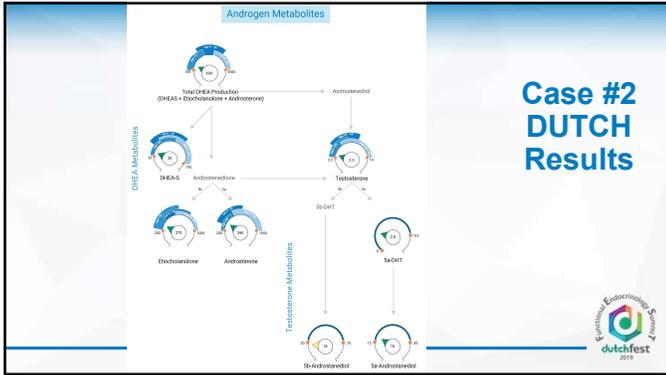
55



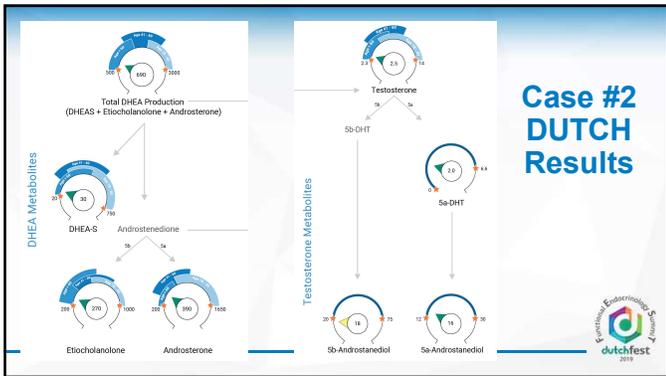
56



57



58



59

Case #2 – Treatment?

- Normalize the Pillars of Health
- Pay attention to stress
- Clean up diet and normalize blood sugar
- Exercise
- Sleep!!! (Phosphatidyl Serine)
- Herbal Support
- Consider Estradiol Patch

Erasmus Universiteit Rotterdam dutchfest 2019

60
