Unraveling the Perimenopause Puzzle:

Hormone withdrawal, Nervous System Dysregulation, and DUTCH insights

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The Transition Years: From Hormone Instability to Hormone Withdrawal

Perimenopause

- Average onset 36-45 years
- Begins 4-8 years before final period
- Progesterone declines first
- Erratic ovarian output
- Unstable hormone regulation

Menopause

- 12 months without a period (clinical definition)
- Average age is 51
- ⅓ life spent on post-menopause
- Persistent low Estradiol (E2) and Progesterone
- Historically under-studied in medicine

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The Three Estrogens

- Estriol (E3) - Protective
- Estradiol (E2) - Primary Regulator
- Estrone (E1) - Reactive/Reactor

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Estriol (E3): Protective, Not Regulatory

- Weakest Estrogen receptor activity of all estrogens
- Primarily elevated during pregnancy
- Supports uterine/placental tissues
- Does not meaningfully regulate the central or autonomic nervous system

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Estradiol (E2) = The Regulator

- The body's primary hormone for brain support
- Works directly in the brain and nervous system
- Helps keep your mood, focus, and brain-body communication steady
- Supports Serotonin (your brain's feel good signal)
- Keeps the nervous system feeling safe and regulated
- Helps balance stress hormones (Cortisol and DHEA)
- Supports energy production

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Estrone (E1) = The Reactor

- Becomes dominant in perimenopause and postmenopause
- Made outside the brain (fat, skin, and muscle)
- Weak and inconsistent signaling
- Does not affect Serotonin (brain signaling)
- Does not help the nervous system feel safe
- Does not balance stress hormones (Cortisol and DHEA)
- Cannot restore brain control of hormones

As estradiol (E2) falls and estrone (E1) rises labs may look "normal," but the brain is functionally estrogen deprived.

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Estradiol (E2) & Progesterone = Whole-Body Regulators

Structural & Strength

- Bone strength
- Muscle repair & recovery
- Joint, ligament & connective tissue support

Stress & Immune

- Stress response (HPA-axis)
- Inflammatory control
- Immune system Regulation

Metabolism and Energy

- How your body burns fat for fuel
- Blood sugar balance & insulin response
- Heart and blood vessel health

Brain & Nervous System

- Mood stability & emotional resilience
- Mental clarity & focus
- Sleep quality & recovery
- Nervous System regulation

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Estradiol (E2) & Progesterone = Whole-Body Regulators

Skin, Hair, Eyes, & Tissue Health

- Skin thickness, hydration & elasticity
- Hair growth & hair loss patterns
- Nail strength
- Collagen production
- Eye moisture & tear stability (dry eyes
- Retinal/visual health (macular support)

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Whole-Body Effects of Estradiol & Progesterone Withdrawal

Brain & Mood

- Anxiety / irritability
- Low mood / depression
- Brain fog
- Poor focus & memory
- Increased threat sensitivity (nervous system on high alert)

Sleep

- Difficulty falling asleep
- 2-4 am waking
- Light, non-restorative sleep
- Night sweats

Autonomic/Stress

- Palpitations
- Higher resting heart rate
- Feeling on edge or unable to relax (can't shut off)
- "Wired but tired"
- Poor stress tolerance

Metabolic

- Visceral fat gain
- Insulin resistance
- Carb cravings
- Fatigue
- Slower recovery from exercise

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Whole-Body Effects of Estradiol & Progesterone Withdrawal

Musculoskeletal / Tissue

- Joint aches
- Slower healing
- Loss of bone density
- Tendon stiffness
- Pelvic Floor weakness or changes
- Reduced strength or muscle tone

Skin, Hair, Eyes and Nails

- Brittle nails
- Thinning or dry hair
- Slower wound healing
- Dry or irritated eyes
- Changes in vision

Inflammatory/Immune

- Increased inflammation
- Headaches / migraines
- Gut changes / bloating
- Autoimmune flares

Cardiovascular Health

- Changes in cholesterol levels
- Increased blood pressure
- Reduced circulation / vascular flexibility

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Hormone Changes → Whole-Body Dysregulation (Everything starts to feel off)

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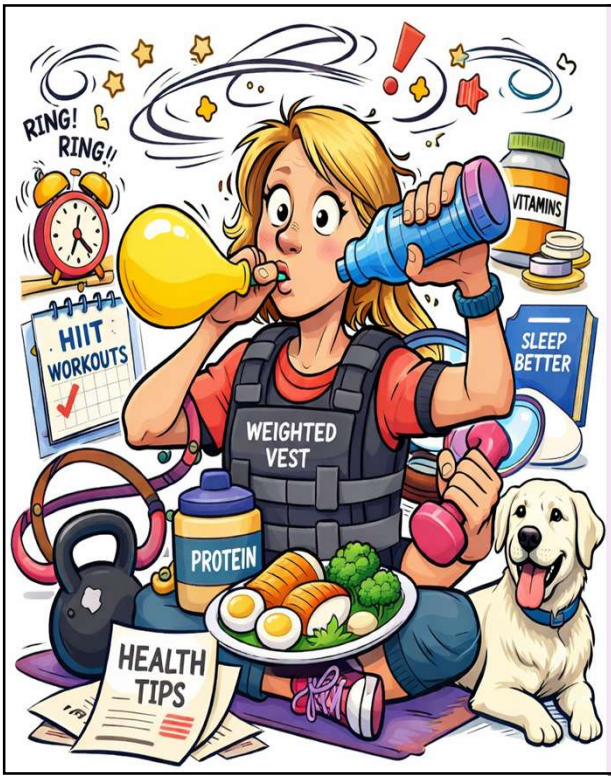

You Can't Optimize a Dysregulated Nervous System

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It's a *nervous system regulation* problem before it is a hormone-level problem.

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When Estradiol and Progesterone start to decline

⮟

The Nervous System becomes Dysregulated

⮟

The Stress System (HPA-Axis) Loses Control

⮟

Stress Hormones (Cortisol and DHEA) Rhythms Break Down

⮟

The Body Gets Stuck in Stress Mode

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Your Nervous System Has Two Main Parts

Central Nervous System/CNS (Brain)

- Processes information
- Decides: safety vs threat
- Sends signals to the body

Autonomic Nervous System/ANS (Body Response)

- Runs automatically
- Stress Mode (sympathetic nervous system or flight or fight)
- Calm Mode (parasympathetic nervous system or rest and recover)

Your Brain decides → your body follows

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Why Estradiol Matters to the Nervous System

Helps your brain-body communicate clearly
Keeps your nervous system more stable
Helps your body to feel calm and in control

How it works ➤ Serotonin

Estradiol has a direct affect on serotonin

- ➔ Supports its production
- ➔ Slows its breakdown
- ➔ Improves receptor sensitivity in the brain
- ➔ Enhances signaling between brain cells

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Serotonin Helps your Brain & Body Feel Safe

How Serotonin Helps your Brain and body (CNS)

- Calms fear and stress
- Helps your brain better sense and respond to the body clearly

How Serotonin Helps your Stress System (ANS)

- Keeps Stress hormones (cortisol and DHEA) balanced

How Serotonin Supports recovery

- Keeps metabolism running smoothly
- Supports digestion
- Improves Sleep (helps make melatonin)

Serotonin tells your body it's safe–so it can, heal, recover, and function better

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When Serotonin is Low

The nervous system loses its “calm and control” signal

- Anxiety, on edge, or easily irritated
- Sleep becomes lighter or disrupted
- Temperature swings (hot or cold more easily)
- Body feels more sensitive (aches, pains, tension)
- Harder to relax or fully calm down

Hormone changes often show up first as a stressed, overwhelmed nervous system

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Why Progesterone Matters to the Nervous System

Helps your brain and body slow down
Keeps your nervous system steady
Helps you feel calm and in control

How it works ➤ GABA

Progesterone has a direct effect on GABA.

- ➔ Supports its production
- ➔ Enhances its calming effect on the brain
- ➔ Improves how the brain responds to it
- ➔ Strengthens calming signals between brain cells.

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GABA Helps your Brain & Body Slow Down and Recover

How GABA Helps your Brain and Body (CNS)

- Calms racing thoughts and overactivity
- Helps your brain feel more settled and in control

How GABA Helps your Stress System (ANS)

- Helps regulate the brain's stress command center
- Helps the body shift out of fight or flight mode

How GABA Supports Recovery

- Helps the body to fall asleep and stay asleep
- **Relaxes muscles and eases discomfort**
- **Supports deep rest and recovery**

GABA tells the body it's safe to slow down, recover, and restore

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When GABA is Low

The nervous system loses its "brake and settle" signal

- Feeling wired, tense, or unable to relax
- Sleep becomes light, restless, or fragmented
- Breathing may feel shallow or hard to slow down
- Muscles hold more tension or guarding
- Harder to recover after physical activity

Hormone changes often show up first as a stressed, overwhelmed nervous system

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When these hormones becomes unstable, your brain and body lose clear communication, making it harder to adapt, recover, and regulate your response to physical stress.

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The HPA-Axis: Your Brain Stress Command Center

(Hypothalamus-Pituitary-Adrenal)

How your body decides to go into stress mode

Hypothalamus: Threat Detector

- Constantly scans your body and environment
- Looks at energy, inflammation, hormones, breathing, and safety
- If something feels off →it sends a “stress signal”

Pituitary: The Signal Sender

- Receives the message from the hypothalamus
- Sends a stronger signal to the Adrenal Glands

Adrenal Glands: The Stress Response

- Release hormones to help you handle a situatio
- Cortisol → gives you energy and helps you to responds to stress
- DHEA → supports recovery, resilience, and mood

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How Estradiol (E2) and Progesterone Regulate Your Brain Stress Command Center (HPA-Axis)

They regulate how the hypothalamus decides what is stress vs. safe

Estradiol (E2) → through Serotonin

- Helps the hypothalamus interpret stress vs. safety
- Prevents the stress system from overreacting

Progesterone → through GABA

- Calms hypothalamus activity
- Signals safety and reduces stress output
- Allows cortisol to decrease and DHEA rhythm to recover

When E2 and progesterone decline

↓

Stress Command Center (HPA axis) destabilizes

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Cortisol rises

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Stress Mode takes over (fight or flight)

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Nervous system shifts into a threat state

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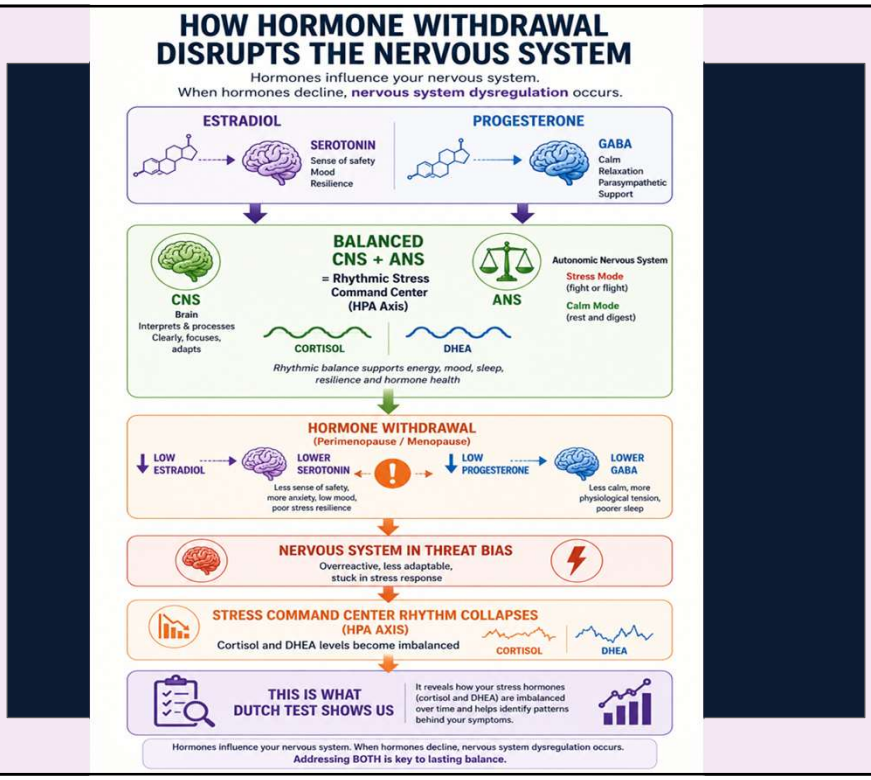

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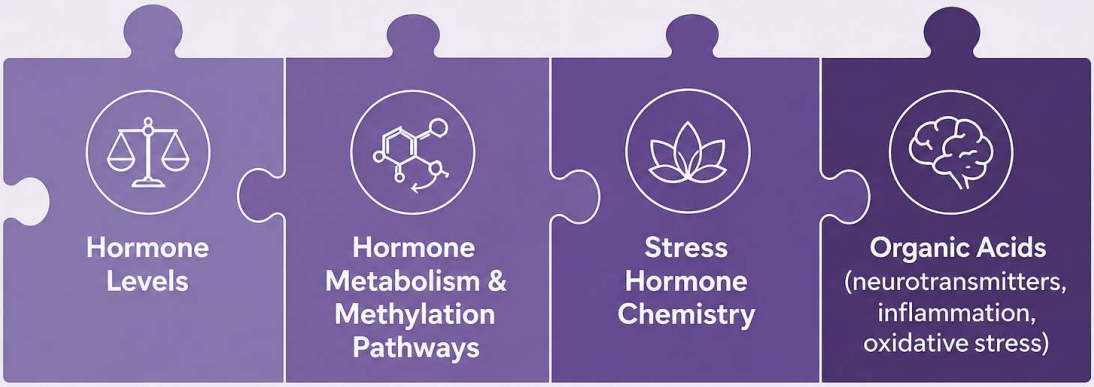
Functional Medicine & DUTCH Testing

ANOTHER PIECE OF THE PERIMENOPAUSE PUZZLE

A dried urine test that provides a comprehensive picture of hormone function, not just hormone levels.



Helps identify factors that may be contributing to nervous system dysregulation and reduced adaptability during perimenopause.

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Why NOT Blood or Saliva?

BLOOD SERUM

- Snapshot–one moment in time
- No metabolism/methylation pathways
- Very limited cortisol information

SALIVA

- Shows cortisol rhythm but limited detail
- No metabolism/methylation pathways

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Systems Measured

The DUTCH test evaluates four key systems that can impact PRI outcomes:

1. Sex hormones
2. Adrenal/stress response + autonomic nervous system
3. Hormone metabolism and detoxification
4. Organic acids (brain function + neuroinflammation + oxidative stress)

When these systems are dysregulated, the nervous system can lose adaptability and can contribute to patients not being responsive to PRI treatment and/or continue being symptomatic.

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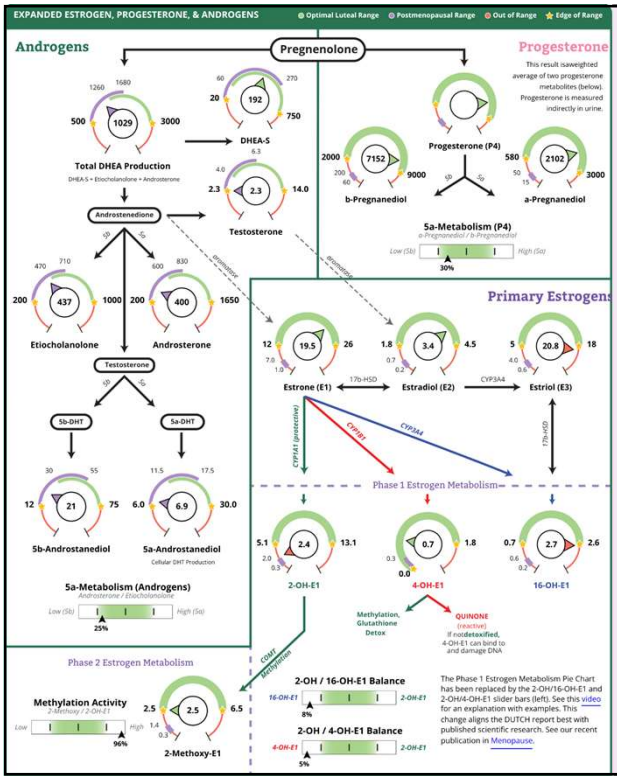

Sex Hormones

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Estradiol: The Nervous System Stabilizer

In perimenopause, estradiol fluctuates unpredictably. These fluctuations reduce nervous system stability:

- Increased pain sensitivity and susceptibility to injury
- Poor exercise recovery
- Insomnia
- Anxiety/Depression
- Heart Palpitations
- Temperature dysregulation
- Agitation
- Brain fog

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Functional Medicine Approach for Dysregulated Estradiol

- Nutritional Support: blood sugar balancing, anti-inflammatory diet
- Phytoestrogens: red clover, flaxseed, black cohosh, Pueraria Mirifica
- Liver Detox Support (Mg, B vitamins, TMG, SAMe)
- Stress Management
- Consider Bioidentical HRT

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Progesterone: The Calming Hormone

Progesterone acts as a natural nervous system stabilizer. It dampens HPA axis activation.

When progesterone drops — cortisol rises more easily

Clinical Signs:

- Heightened anxiety
- Agitation/Mood swings
- Insomnia
- Heavy or frequent menstrual bleeding
- Weight gain
- Bloating/fluid rentention

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Functional Medicine Support for Low Progesterone

- Stress reduction/management
- Blood sugar stabilization
- Magnesium (glycinate)
- B6 (pyridoxine)
- Chaste Tree/Vitex
- Consider bioidentical Progesterone

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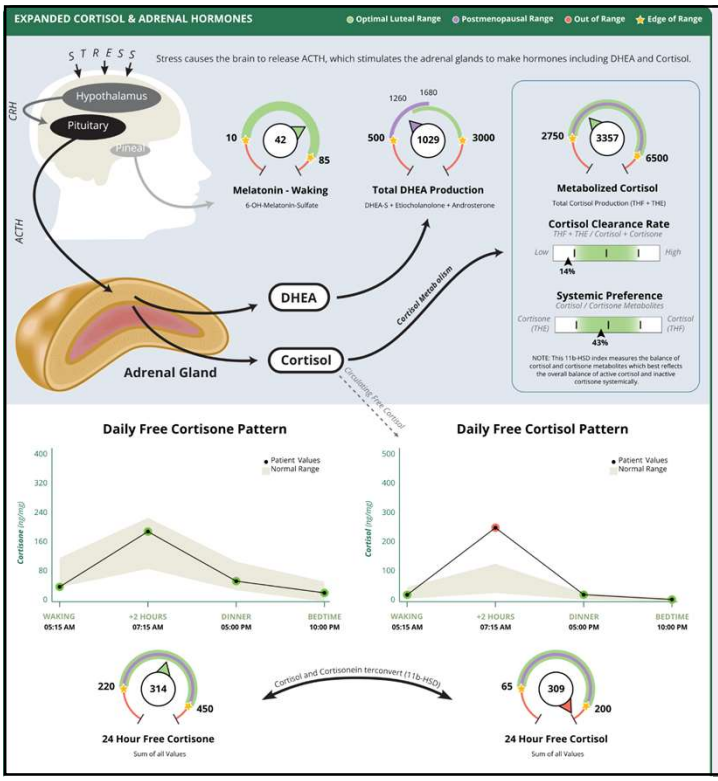

Adrenal/Stress + Autonomic Nervous System

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Adrenal/Stress + Autonomic Nervous System

Metabolized and Free Cortisol (saliva tests only Free Cortisol)

- Free cortisol is represents 1-5% of the cortisol in our body
- Metabolized allows us to understand total daily production and liver clearance to evaluate adrenal load

DHEA/DHEA-S

- DHEA is the active form that converts into testosterone and estrogen
- DHEA-S is the sulfated/stored form which acts as a stable reserve
- DHEA-S converts back to DHEA as it is needed

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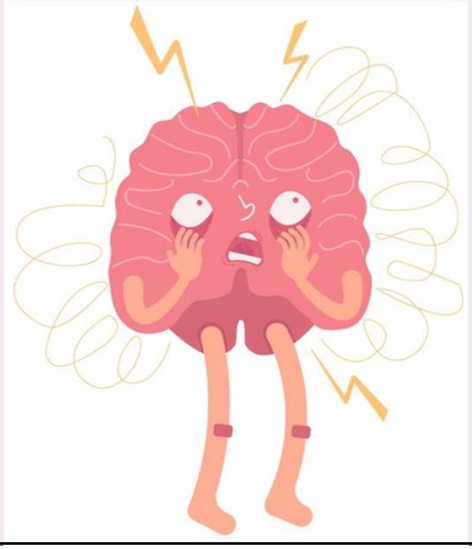
Elevated Cortisol

When cortisol stays elevated, the body remains in flight or fight mode

Nervous System Impact:

- Fatigue
- Mid-section weight gain
- Nighttime waking
- Anxiety
- Sugar cravings
- Brain fog



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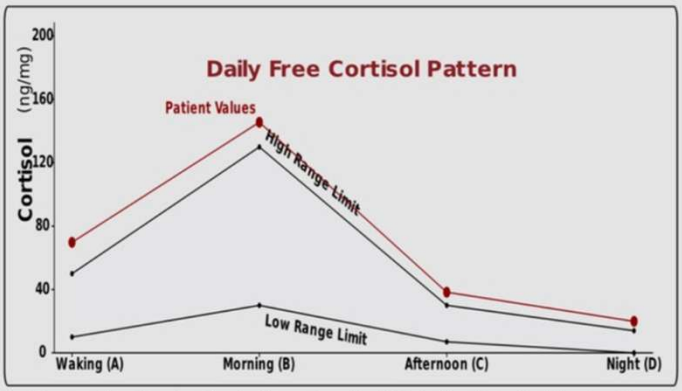
Elevated Cortisol

Adrenal Hormones See pages 4 and 5 for a more complete breakdown of adrenal hormones



Total DHEA Production

Age	Range
20-39	1300-3000
40-60	750-2000
>60	500-1200

Total DHEA Production
(DHEAS + Etiocholanolone + Androsterone)

24hr Free Cortisol
(A+B+C+D)

cortisol metabolism

Metabolized Cortisol (THF+THE)
(Total Cortisol Production)

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

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Functional Medicine Treatment Considerations

- Blood sugar stabilization
- Reduce stimulants (caffeine, no fasting)
- No high impact aerobic exercise (no HIIT or SIT workout)
- Individualized adaptogens (ashwaghanda, rhodiola, phosphatidyl serine)
- Sleep and circadian rhythm repair
- Breathing and vagal nerve signaling (PRI neutrality)

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Low Cortisol

Elevated cortisol if left unsupported, can eventually lead to low cortisol

Clinical Signs:

- Fatigue
- Poor recovery from exercise
- Brain fog
- Low libido

ANS Presentation:

- Low blood pressure
- Dizzy/lightheaded
- Tremor/Shaky

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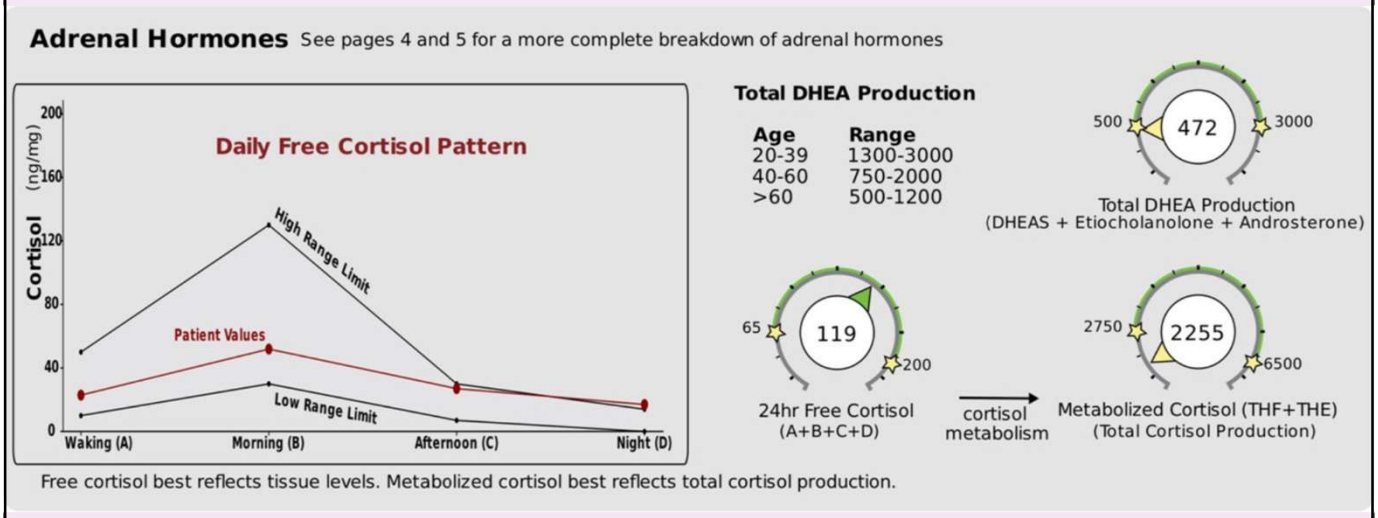
Low Cortisol



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Functional Medicine Approach to Low Cortisol

- Blood sugar stabilization (with diet)
- Avoid excessively low carb
- Gentle HPA axis support (Adaptogens such as licorice root, Vitamin C, B5 and Magnesium)
- Improve sleep and circadian cues/morning sunlight
- Low impact exercise including resistance training
- Stress reduction techniques

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FM Approach to Dysregulated Cortisol Metabolism

- Support cortisol clearance (B vitamins, TMG, Choline, Mg, CoQ10)
- Support production if low with adaptogens
- Heavy focus on circadian rhythm
- Reduce hidden stressors
  - Patient stuck in a pattern that is not neutral
  - Inflammation
  - Blood sugar swings
  - Gut bacterial imbalance/hidden infection (eg. H. Pylori)
  - Weight loss (if obesity is factor)
  - Thyroid imbalance

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DHEA (Dehydroepiandrosterone): Resilience Hormone

- Precursor to Estrogen and Testosterone
- Modulates neurotransmitter activity
  - Increases GABA and dopamine
  - Supports serotonin signaling
  - Counterbalances cortisol
    - Acute stress causes both DHEA and cortisol to rise
    - Chronic stress causes DHEA to drop and cortisol can stay high or drop
- Supports
  - Mood stability
  - Motivation
  - Cognition
  - Stress tolerance

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DHEA (Dehydroepiandrosterone): Resilience Hormone

- Low DHEA = reduced adrenal resilience
  - Can cause persistent fatigue and low moods
  - Frequently linked to reduced muscle mass, increased abdominal fat, brain fog and weakened immune system
- High DHEA = body is in “output mode” not “regulation mode”
  - Restlessness
  - Irritability/anxiety
  - Headaches, acne and hair loss

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FM Approach to Dysregulated DHEA

Low DHEA treatment support

- Gelatinized Maca
- 25-35g of protein at each meal
- Avoid overtraining
- Improve sleep
- DHEA supplementation

High DHEA treatment support

- Phophatidyl serine
- Saw Palmetto
- Ovasitol
- Blood sugar balancing nutrition plan

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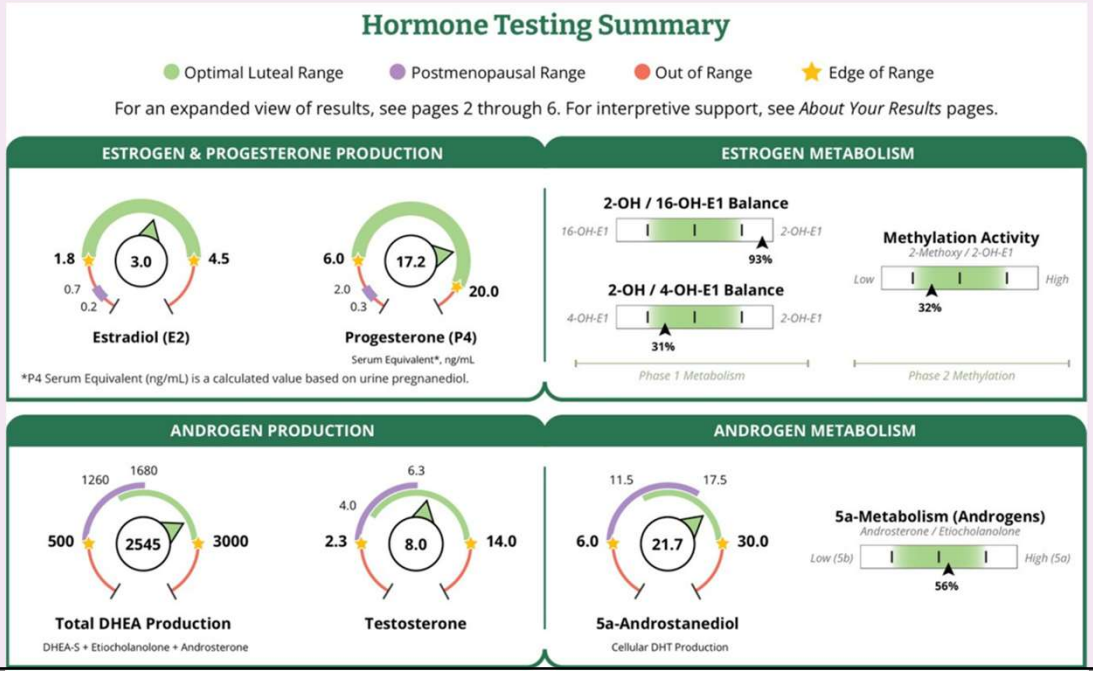
Estrogen Metabolism/Methylation



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Estrogen Metabolism (Phase 1)

Even when estrogen levels are normal, metabolism of estrogen can drive nervous system dysregulation.

- 2-OH = protective
- 16-OH = highly estrogenic
- 4-OH = inflammatory and reactive (can harm DNA)
- Suboptimal metabolism creates a state of chronic inflammation
  - Aggressive menstrual cycles/PMS
  - Increased pain sensitivity

Studies have shown a higher incidence of breast cancer in those with a higher estrogen metabolism down the 4-OH pathway.

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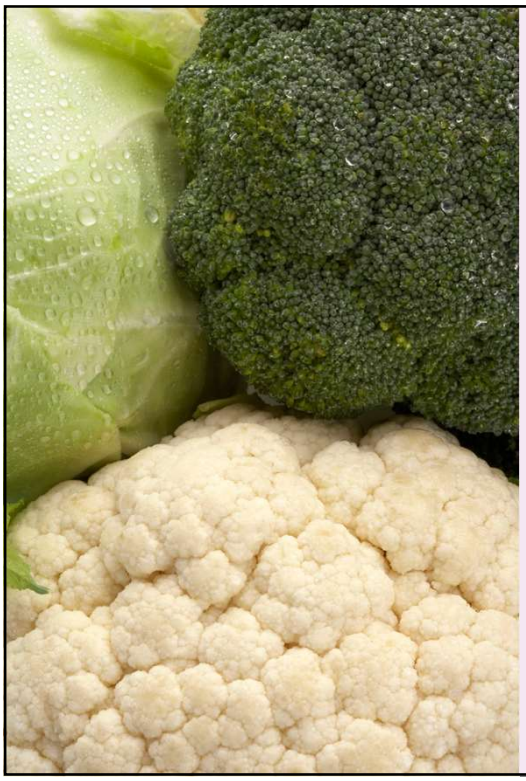

FM Approach to Supporting E2 Metabolism (Phase 1)

- DIM/I3C - Broccoli Sprouts - Cruciferous Vegetables (contain Sulforaphane)
- Calcium-d-glucarate
- Resveratrol
- Quercetin
- Fiber
- Hydration
- Adequate bowel movements

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Estrogen Methylation (Phase 2)

- COMT enzymes convert the estrogen metabolites into a water soluble compound for extraction out of the body.
- Poor methylation causes buildup of reactive estrogen metabolites leading to:
  - Neuroinflammation
  - Increased pain sensitivity and tone
  - Heightened threat perception
  - Increased oxidative stress
  - Contributes to dysregulated HPA axis

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FM Approach to Supporting Methylation (Phase 2)

- Methylated B Vitamins
- Choline
- TMG (Trimethylglycine)
- SAMe
- Magnesium
- Zinc
- Methionine
- Exercise
- Avoid smoking and alcohol consumption

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Organic Acids

Urinary biomarkers that provide insight into neurotransmitter metabolism, detoxification, and inflammation

TEST		RESULT	UNITS	NORMAL RANGE
Nutritional Organic Acids (Urine)				
Vitamin B12 Marker - May be deficient if high				
Methylmalonate (MMA)	Within range	1.2	ug/mg	0 - 2.5
Vitamin B6 Markers - May be deficient if high				
Xanthurenate	Within range	0.50	ug/mg	0.12 - 1.2
Kynurenate	Within range	1.7	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	Low end of range	30.5	ug/mg	28 - 58
Gut Marker - Potential gut putrefaction or dysbiosis if high				
Indican	Within range	28.8	ug/mg	0 - 100
Neuro-Related Markers (Urine)				
Dopamine Metabolite				
Homovanillate (HVA)	Low end of range	3.1	ug/mg	3 - 11
Norepinephrine/Epinephrine Metabolite				
Vanilmandelate (VMA)	Within range	3.4	ug/mg	2.2 - 5.5
Neuroinflammation Marker				
Quinolinate	Within range	4.6	ug/mg	0 - 9.6
Additional Markers (Urine)				
Melatonin - Waking				
6-OH-Melatonin-Sulfate	Within range	36.4	ng/mg	10 - 85
Oxidative Stress / DNA Damage				
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	2.6	ng/mg	0 - 5.2

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FM Approach to Organic Acid Imbalance

- Anti-inflammatory diet
- Antioxidant support (glutathione, NAC, Vitamin C)
- Support gut microbial balance
- Improve sleep quality
- Support mitochondria (lifestyle changes, CoQ10/Ubiquinol, Mg, ALA, Omega-3 Fatty Acids)

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Tying It All Together

If you are a perimenopausal woman and experiencing nervous system dysregulation symptoms — consider an underlying mechanical or cellular imbalance.

Functional Medicine and Postural Restoration (PRI) are all about finding the root cause, providing individualized care, and optimizing cellular health.

PRI is working with the nervous system mechanically.
Functional Medicine is working with the nervous system chemically.

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PRI: Another Piece of the Puzzle

What is PRI?

Postural Restoration Institute® (PRI) looks at patterns and normal asymmetries of the human body—and how those patterns influence:

Movement/Breathing/Respiration/Nervous System Regulation

PRI helps to restore better position, breathing mechanics, and body awareness so the body can move forward with more ease, balance and adaptability.

PRI is one piece of the puzzle that helps the body feel safer, move better, and regulate more effectively.

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How PRI Supports Estradiol-Type Nervous System Regulation

Neutrality (pelvis, trunk, neck):

- Helps the brain receive clearer information from the body
- Improves body awareness and movement control
- Helps the body feel safe and less “stuck” in stress mode

Estradiol supports the nervous system chemically.

PRI supports the nervous system through movement, position, and sensory input.

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How PRI Supports Progesterone-Type Nervous System Regulation

Breathing and Ribcage Position:

- Supports smoother, calmer breathing
- Helps the body feel safer and less stressed
- Improves the ability to relax and recover
- Supports nervous system regulation through respiration

Progesterone supports the nervous system chemically.

PRI supports the nervous system through breathing, ribcage position, and sensory input.

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How PRI Alternation Supports Nervous System Regulation

Alternation = your body's ability to shift, rotate, and adapt side to side

- Improves communication between the left and right sides of the brain and body
- Restores healthier breathing pattern
- Helps the nervous system move out of "stress mode" and into a more adaptable state
- Improves the body's ability to adapt and recover from physical demands
- Supports vagus nerve function and feelings of safety and calm
- Supports healthier cortisol and stress recovery rhythms

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How PRI Supports Hormone-Type Nervous System Regulation

Estradiol supports coordination. Progesterone supports stability. PRI enchances both mechanically.

When hormone support decreases, mechanical regulation becomes even more important for nervous system stability.

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Hormone Support: Another Piece of the Puzzle

What is Hormone Support?

Hormone support helps address the changes that occur as estradiol and progesterone decline during perimenopause and menopause.

These hormone changes can influence:

Movement | Sleep | Stress Response | Energy | Mood | Temperature Regulation | Nervous System Regulation

How It Helps

Appropriate hormone support may help improve:

Sleep quality, stress resilience, temperature regulation, mood, energy, recovery, and nervous system stability.

Finding the Right Support

Work with a knowledgeable menopause provider who understands the whole-body effects of hormone changes.

Local option:

Amy McCracken, DNP, APRN, MSCP
Founder, My Menopause
Lincoln, NE

Bridget Brodecky, MSN, APRN, MSCP
My Menopause

Out-of-town option:

Find a certified menopause provider through the

Menopause Society Certified Practitioner Directory

Hormone support is one piece of the puzzle that can help restore stability, resilience, and nervous system regulation.

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PRI
HRUSKA CLINIC
WHEN TO CONSIDER:
Pain or tension without a clear injury
Poor posture or imbalances
Breathing challenges (shallow breathing, shortness of breath)
Movement limitations or stiffness
Muscle-skeletal pain or dysfunction (neck, back, hips, shoulders, jaw, etc.)
Chronic pain or musculoskeletal issues
Recurring injuries or slow recovery
Dizziness, vertigo, POTS, or autonomic challenges
Feeling "stuck" or not moving as well as you used to
We look at how your body is organized and moving so your nervous system can function and adapt more effectively.
FUNCTIONAL MEDICINE
WHEN TO CONSIDER:
Digestive issues (bloating, gas, constipation, diarrhea)
Food sensitivities or inflammatory symptoms
Fatigue or low energy despite rest
Autoimmune concerns
Chronic stress or adrenal dysfunction
Difficulty with weight, blood sugar, or cravings
Nervous system symptoms: POTS, vertigo, dizziness, tinnitus, neuropathy, etc.
You've addressed hormones and lifestyle changes but still feel stressed, inflamed, or off balance
DUTCH TEST:
Advanced hormone and adrenal testing to identify imbalances and guide personalized hormone support.
HORMONE SUPPORT
WHEN TO CONSIDER:
Perimenopause or menopause symptoms (hot flashes, night sweats, sleep issues, brain fog)
Irregular or heavy periods
Mood changes, anxiety, or irritability
Low energy or fatigue
Low libido or vaginal dryness
You've tried other things and still don't feel like yourself
You feel "stuck" in stress mode and can't seem to reset
We match your hormone support with your symptoms and create a hormone support plan personalized for you.
THREE PIECES. ONE PURPOSE.

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It's About Nervous System Regulation
Help the body feel safe again
Reduce stress load and support a sense of safety.
Restore nervous system regulation
Improve balance between the stress and rest-and-digest systems.
Improve resilience, recovery, and function
Build capacity to adapt to life's demands.
Support better movement, sleep, energy, and stress adaptability
So you can feel and function your best.
PRI
HRUSKA CLINIC
FUNCTIONAL
MEDICINE
HORMONE
SUPPORT
When the nervous system regulates better, the body functions better.

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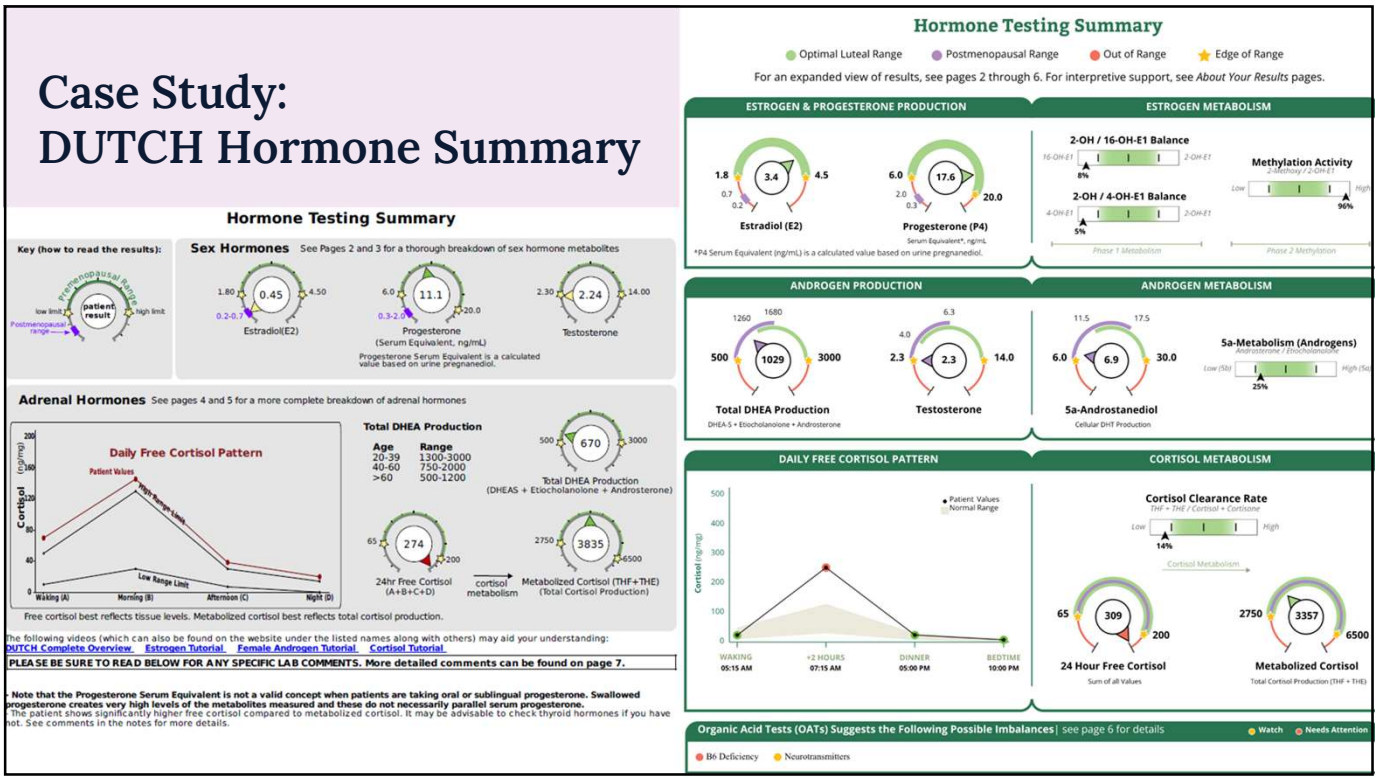
Case Study:
DUTCH Hormone Summary



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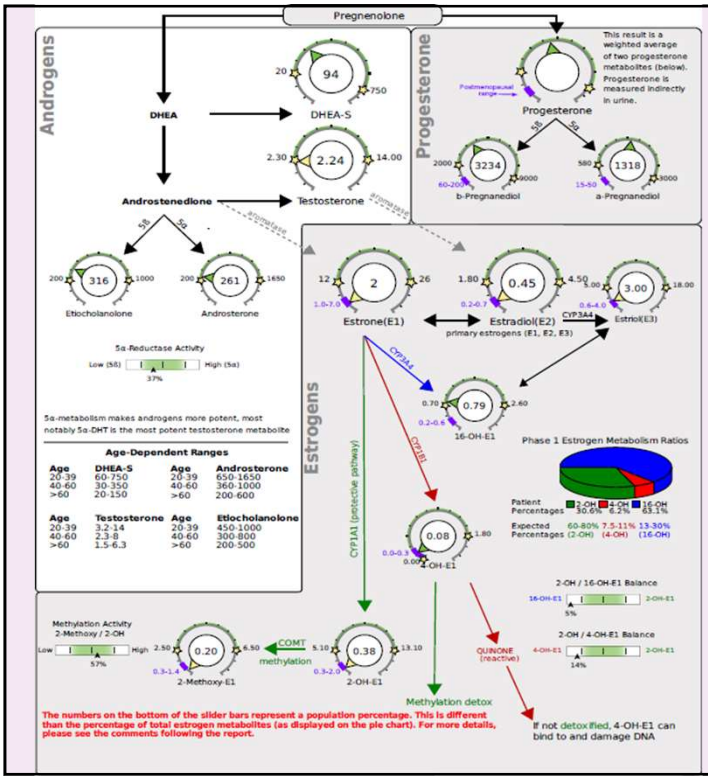

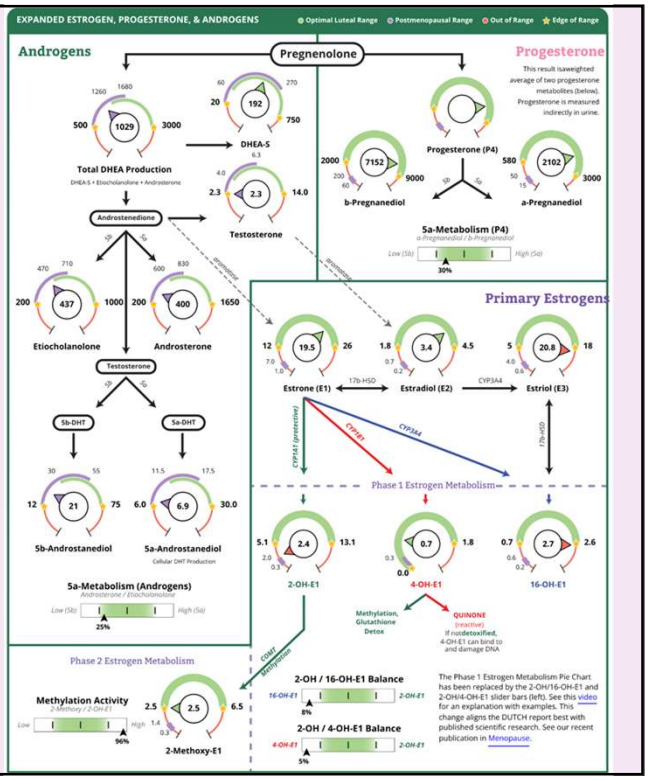

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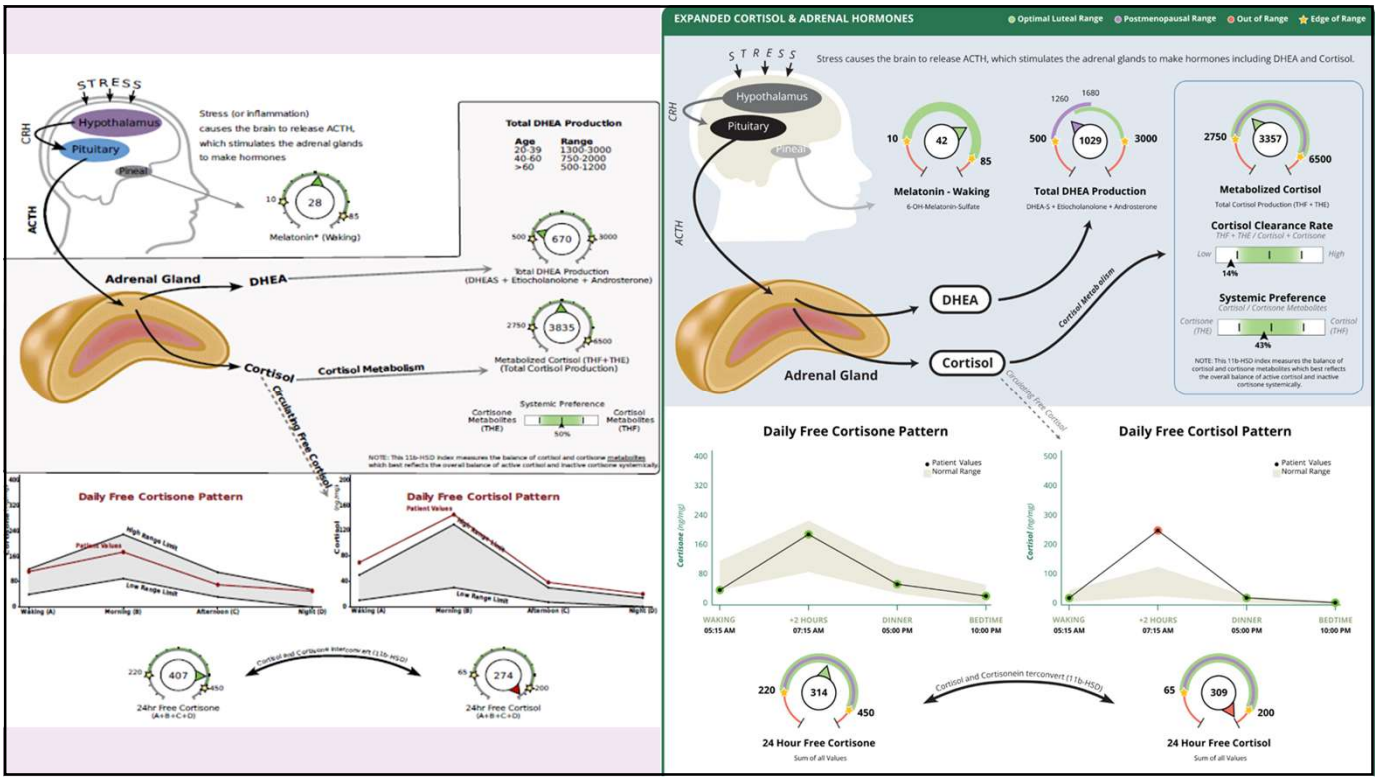
STRESS
Hypothalamus
Pituitary
Pineal
CRH
ACTH
Stress (or inflammation) causes the brain to release ACTH, which stimulates the adrenal glands to make hormones
Melatonin* (Waking)
Total DHEA Production
Age Range
20-39 1300-3000
40-60 750-2000
>60 500-1200
Adrenal Gland
DHEA
Total DHEA Production (DHEAS + Etiocholanolone + Androsterone)
Cortisol
Cortisol Metabolism
Metabolized Cortisol (THF+THE) (Total Cortisol Production)
Circulating Free Cortisol
Systemic Preference
Cortisone Metabolites (THE)
Cortisol Metabolites (THF)
NOTE: This 11b-HSD index measures the balance of cortisol and cortisone metabolites which best reflects the overall balance of active cortisol and inactive cortisone systemically.
Daily Free Cortisone Pattern
Daily Free Cortisol Pattern
Patient Values
High Range Limit
Low Range Limit
Waking (A)
Morning (B)
Afternoon (C)
Night (D)
24hr Free Cortisone (A+B+C+D)
24hr Free Cortisol (A+B+C+D)
Cortisol and Cortisone interconvert (11b-HSD)
EXPANDED CORTISOL & ADRENAL HORMONES
Optimal Luteal Range
Postmenopausal Range
Out of Range
Edge of Range
Stress causes the brain to release ACTH, which stimulates the adrenal glands to make hormones including DHEA and Cortisol.
Melatonin - Waking
6-OH-Melatonin-Sulfate
Total DHEA Production
DHEA-S + Etiocholanolone + Androsterone
Metabolized Cortisol
Total Cortisol Production (THF + THE)
Cortisol Clearance Rate
THF + THE / Cortisol + Cortisone
Low
High
Systemic Preference
Cortisol / Cortisone Metabolites
Cortisone (THE)
Cortisol (THF)
Cortisol Metabolism
Circulating Free Cortisol
Daily Free Cortisone Pattern
Daily Free Cortisol Pattern
Patient Values
Normal Range
Cortisone (ng/mg)
Cortisol (ng/mg)
WAKING 05:15 AM
+2 HOURS 07:15 AM
DINNER 05:00 PM
BEDTIME 10:00 PM
24 Hour Free Cortisone
Sum of all Values
Cortisol and Cortisonein terconvert (11b-HSD)
24 Hour Free Cortisol
Sum of all Values

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Resilience Restored
Thank you

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