



Beyond Burnout

An Integrative Approach to Stress, Cortisol & the HPA Axis

From the biology of the stress response to practical, whole-person tools
you can use Monday or in this case... Wednesday morning.

[Dr. Eric Marsden ND] · [July 22, 2026]



WHAT YOU'LL TAKE AWAY

Learning Objectives



Physiology

Describe the acute and chronic stress response and regulation of the HPA axis and cortisol.



Health impact

Explain how HPA-axis dysregulation shapes cardiometabolic, immune, cognitive and longevity outcomes.



Assessment

Select and interpret questionnaires, physical findings, and serum, urine and salivary testing.



Integrative Rx

Apply a stepwise plan across lifestyle, diet, mind-body, botanical and TCM approaches.



Referral

Identify red flags and criteria for pharmacologic and psychological referral.



INTRODUCTION & CASE HOOK · 3 MIN

A Common Situation in Clinical Practice



46-year-old woman

Teaching assistant, elementary school

Presents with fatigue, anxiety and disrupted sleep — and wants to know why she can't lose weight.



Fatigue

Persistent low energy



Anxiety

On-edge, wired but tired



Disrupted sleep

Poor quality, unrefreshing



Food cravings

Sugar & carbohydrate pull



Early insulin resistance

Rising fasting glucose



Weight won't budge

Resistant to loss



The tell: under immense pressure all school year, it takes her a month or more to feel normal again. **So what is her HPA axis doing — and how do we assess and support it?**



BASIC PHYSIOLOGY · 10 MIN

The HPA Axis: A Self-Regulating Loop



Hypothalamus

releases CRH



Pituitary

releases ACTH



Adrenal cortex

releases Cortisol

Negative feedback: cortisol suppresses CRH and ACTH via the glucocorticoid receptor — chronic stress blunts this brake.



Diurnal rhythm

Peak cortisol on waking (CAR), trough overnight.



Allostatic load

Cumulative wear of repeated stress mediators.



“Adrenal fatigue”

Better framed as HPA-axis dysfunction, not gland failure.



The Autonomic Nervous System & the HPA Axis



Sympathetic (SAM axis)

Fight-or-flight, fast (seconds). Adrenal medulla releases norepinephrine & epinephrine.



Parasympathetic (vagal)

Rest, digest & recover. Vagal tone is the brake — measured clinically as HRV.



Shared stress circuitry: the amygdala drives both the hypothalamus (CRH) and the locus coeruleus (sympathetic outflow). CRH stimulates sympathetics; catecholamines potentiate ACTH & cortisol; cortisol upregulates catecholamine synthesis.



ANS → HPA

Chronic sympathetic dominance and low vagal tone (low HRV) sustain CRH and cortisol output and blunt negative feedback.



HPA → ANS

Chronic cortisol lowers HRV, raises resting sympathetic tone and impairs the baroreflex — a self-reinforcing loop.



Clinical lever: low HRV is a measurable marker of combined ANS–HPA dysregulation; slow breathing and HRV biofeedback restore vagal tone and dampen the axis.



CLINICAL IMPACT · 8 MIN

When the Brake Fails: Health & Longevity



Cardiometabolic

Insulin resistance, visceral fat, hypertension, dyslipidemia.



Immune & inflammation

Glucocorticoid resistance drives chronic low-grade inflammation.



Cognitive & mood

Hippocampal/prefrontal impact; anxiety, depression, sleep loss.



Gut-brain axis

Bidirectional HPA and microbiome cross-talk.



Cellular aging

Telomere attrition and cellular senescence.



Healthspan

Accelerated biological aging and reduced resilience.



ASSESSMENT · 15 MIN

A Four-Part Assessment Framework



History & questionnaires

1

Validated tools + lifestyle, timeline and psychosocial context.



Physical exam

2

Signs of hyper- vs hypocortisolism; vitals, body composition.



Laboratory testing

3

Serum, salivary and urinary cortisol — matched to the question.



Interpretation

4

Functional patterns, metabolites, and validated vs exploratory tests.



History & Validated Questionnaires

Anchor the story first, then quantify with validated tools you can track over time.

Key history elements

- Stressor timeline & perceived control
- Sleep, energy & diurnal pattern
- Caffeine, alcohol & substances
- Work, caregiving & financial load
- Trauma & early-life adversity
- Exogenous steroids (inhaled/topical/oral)
- Menstrual, thyroid & metabolic history

PSS

Perceived Stress Scale — global stress appraisal (0–40).

PHQ-9

Depression: 5 mild · 10 mod · 15 mod-severe · 20 severe.

GAD-7

Anxiety: 5 mild · 10 moderate · 15 severe.

MBI

Maslach Burnout Inventory — exhaustion, cynicism, efficacy.

PSQI

Pittsburgh Sleep Quality Index — >5 = poor sleep.

ACE

Adverse Childhood Experiences — cumulative-risk screen.



Physical Exam: Reading the Cortisol State

↑ **Hypercortisolism (Cushingoid)**

- Central obesity, dorsocervical & supraclavicular fat
- Facial plethora / “moon” facies
- Wide (>1 cm) purple striae, easy bruising, thin skin
- Proximal muscle weakness
- Hypertension, hyperglycemia

↓ **Hypocortisolism (Adrenal insufficiency)**

- Fatigue, weight loss, anorexia, nausea
- Orthostatic hypotension, dizziness
- Hyperpigmentation (palmar creases, buccal)
- Salt craving; hyponatremia / hyperkalemia
- Low mood, poor stress resilience

Baseline exam: BP + orthostatics · BMI & waist circumference · thyroid · skin/hair · resting HR and HRV where available. Overt Cushing's or Addison's is rare — most patients show subtle, functional shifts.



Cortisol Testing: Serum, Saliva & Urine



Serum

- Paired AM & PM cortisol (diurnal)
- ACTH & DHEA-S
- Dexamethasone suppression / ACTH stim when indicated
- TSH & metabolic panel for confounders



Saliva

- 4-point diurnal curve & CAR
- Late-night salivary cortisol
- Salivary DHEA; cortisol:DHEA ratio



Urine

- 24-hour urinary free cortisol
- Dried urine metabolites (e.g. DUTCH)
- Total output + metabolite pattern

Match the specimen to the question: serum for gland/axis pathology, saliva for free-cortisol rhythm, urine for total output & metabolism.



ASSESSMENT · INTERPRETATION

Beyond a Single Number: Ratios & Metabolites

Free cortisol tells you rhythm; metabolites tell you total output; ratios tell you how the body handles it.



Cortisol : Cortisone

11 β -HSD enzyme activity — how cortisol is activated/inactivated in tissue and kidney. Shifts with licorice, obesity, thyroid.



Cortisol : DHEA

Catabolic vs anabolic balance. A low ratio (relative DHEA depletion) suggests reduced adrenal reserve and resilience.



Free vs metabolized

Free cortisol can look normal while total production (metabolites) is high or low — reveals rapid vs slow clearance.



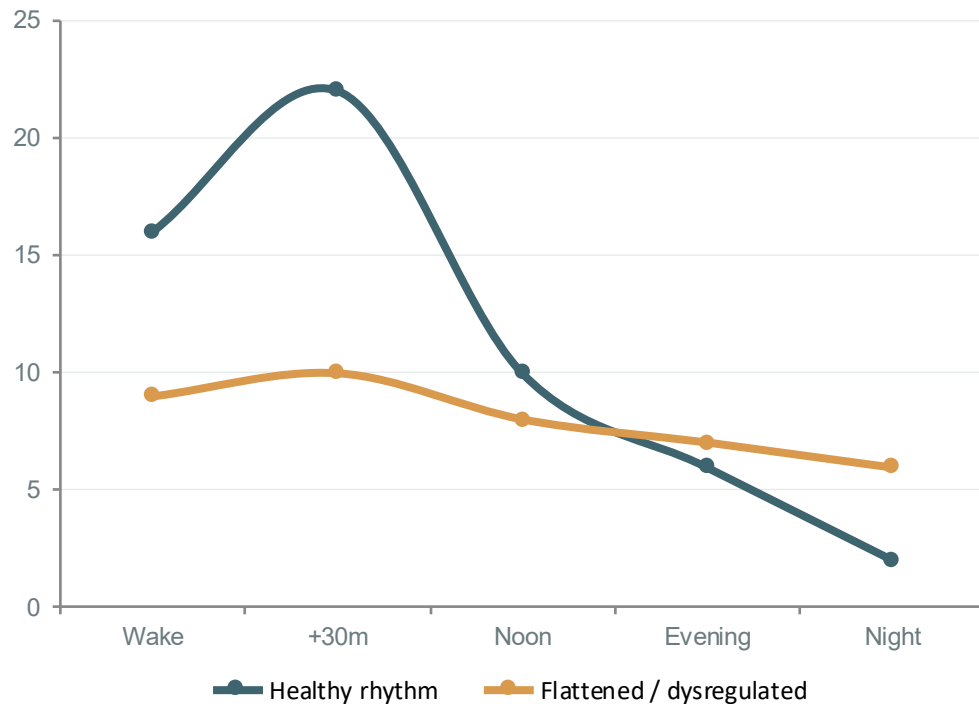
Cortisol metabolites

a-THF, b-THF, THE and the a/b ratio map production and 5 α /5 β reductase activity for a fuller picture.



Interpreting Functional Assessments

Diurnal cortisol curve



1

Flattened curve — Loss of AM–PM slope; linked to chronic stress, burnout, poor sleep and worse health outcomes.

2

Elevated CAR / high AM — Anticipatory stress, early dysregulation; correlate with sleep and mood.

3

Low overall output — Blunted response, advanced HPA dysregulation — rule out true adrenal insufficiency.

4

High evening cortisol — Circadian disruption; targets sleep hygiene and light exposure.

Always correlate patterns with symptoms and validated labs — functional testing guides, it does not diagnose.



ASSESSMENT · PITFALLS

Reading Results Wisely



Timing is everything

Sample at the right point in the diurnal curve; note wake time and shift work.



Pre-analytic variables

Recent exercise, caffeine, illness and collection technique all shift values.



Exogenous steroids

Inhaled, topical and oral glucocorticoids suppress the axis.



Validated vs exploratory

Distinguish evidence-based tests from novel panels; frame uncertainty for patients.



INTEGRATIVE TREATMENT · 20 MIN

Foundations First: Lifestyle & Nutrition

A stepwise, foundation-first plan — build the base before layering targeted therapies.



Sleep & circadian

Sleep hygiene, consistent wake time, morning light.



Movement

Regular activity dosed to capacity; avoid overtraining.



Nature & connection

Time outdoors, social support, workload boundaries.



Dietary pattern

Blood-sugar stability; anti-inflammatory whole foods.



Targeted nutrients

Magnesium, B-vitamins, vitamin C, omega-3s, phosphatidylserine.



Moderate stimulants

Right-size caffeine and alcohol intake.



Mind-Body Interventions & Resources

Evidence-based practices



Breathwork — Slow paced breathing (~6/min), coherent breathing.



HRV biofeedback — Trains vagal tone and stress recovery.



MBSR / meditation — 8-week MBSR lowers perceived stress & cortisol.



Yoga & tai chi — Movement + breath; improves mood and sleep.



Free & app-based support

Free: Insight Timer · UCLA Mindful · Smiling Mind · VA Mindfulness Coach · Palouse Mindfulness (free online MBSR)

Low-cost / freemium:

Calm · Headspace · Ten Percent Happier · HeartMath

Breathing & HRV:

Breathwrk · Othership · elite HRV trackers

Community:

local MBSR courses, yoga studios, peer support & workplace EAP programs



Botanicals I — Adaptogens

Adaptogens buffer the stress response and help normalize the HPA axis. Verify quality, dosing and interactions.

Ashwagandha

Withania somnifera

Lowers cortisol & perceived stress; aids sleep.
Caution: thyroid, pregnancy, nightshade allergy.

Rhodiola

Rhodiola rosea

Anti-fatigue, focus under stress. Best AM; caution in bipolar/agitation.

Holy basil

Ocimum sanctum (Tulsi)

Calming, glycemic support. May affect clotting & fertility.

Asian ginseng

Panax ginseng

Energy & resilience. Caution: hypertension, stimulants, insomnia.

Eleuthero

Eleutherococcus

Endurance & stress tolerance. Caution: hypertension.

Schisandra

Schisandra chinensis

Adaptogenic, hepatoprotective, focus support.



Botanicals II — Mood & Sleep Support



Mood support

Saffron (*Crocus sativus*) — comparable to SSRIs in mild-moderate depression.

St. John's Wort — mild-moderate depression; major CYP/drug interactions (SSRIs, OCPs, warfarin).

Lavender (Silexan) — oral prep for anxiety.

Rhodiola · curcumin · omega-3 — adjuncts with mood evidence.



Sleep support

Valerian · passionflower · lemon balm — calming, sleep-onset support.

L-theanine & glycine — relaxation without sedation.

Magnesium (glycinate) — sleep quality & muscle relaxation.

Tart cherry / low-dose melatonin — circadian timing.

Ashwagandha — dual role for stress-related insomnia.



Traditional Chinese Medicine: Stress Patterns

Pattern differentiation guides herbal formula and point selection — refer to a licensed TCM practitioner.

Liver Qi stagnation

Irritability, tension, sighing, PMS

Formula: Xiao Yao San (Free & Easy Wanderer)

Liver stagnation + heat

Irritability, flushing, insomnia

Formula: Jia Wei Xiao Yao San

Heart–Spleen deficiency

Worry, fatigue, poor sleep, palpitations

Formula: Gui Pi Tang

Heart–Kidney Yin deficiency

Restlessness, night sweats, vivid dreams

Formula: Tian Wang Bu Xin Dan



Common acupuncture points: Yintang · HT-7 (Shenmen) · PC-6 (Neiguan) · LV-3 + LI-4 (Four Gates) · GV-20 (Baihui) · SP-6 · KI-3 · Ear Shenmen



INTEGRATIVE THERAPY → REFERRED CARE

Glandulars & Cortisol Support



Glandulars · integrative

What: adrenal cortex / whole-adrenal ($\pm$ hypothalamic-pituitary) extracts.

Rationale: supply adrenal cofactors/peptides to support a dysregulated-but-intact axis; used for fatigue and low-reserve patterns.

Evidence: largely traditional/anecdotal; few controlled trials.

Cautions: variable potency, possible residual corticosteroids/hormones (can suppress the axis), sourcing & contamination risk; avoid in pregnancy, use care in autoimmunity. Reputable sourcing + informed consent.



Hydrocortisone · referred care

Cornerstone: physiologic glucocorticoid replacement for CONFIRMED adrenal insufficiency (Addison's, secondary AI) — endocrinology-managed.

Controversial: low-dose HC (“Jefferies protocol”) for non-Addisonian fatigue is not standard of care; risks HPA suppression and iatrogenic Cushing's.

Refer when: abnormal serum cortisol/ACTH, positive dexamethasone suppression or ACTH-stim, or signs of true AI.

Rule: any exogenous cortisol suppresses the axis — reserve for diagnosed pathology, with endocrine oversight.



Key distinction: supporting a dysregulated-but-intact axis (lifestyle, adaptogens) is not the same as replacing a failing gland (diagnosed insufficiency, physician-managed). Hormone-containing glandulars and exogenous cortisol both suppress the HPA axis — use only with a clear indication, informed consent and appropriate oversight.



SECTION

Product Knowledge

A pattern-matched formulary — matching products to the cortisol picture and the presenting need.

Clinical examples for education only — not endorsements. Verify current formulations, dosing and interactions, and disclose any commercial relationships.



PRODUCT KNOWLEDGE · CALMING / LOWERING CORTISOL

Products for the Hypercortisol Pattern

CortAlign

adrenal-calming blend

Actives: Ashwagandha, L-theanine, magnolia / phosphatidylserine-type actives.

Use: Blunts elevated (esp. evening) cortisol; calms the “wired” state.

Cortisol Manager

Integrative Therapeutics

Actives: Ashwagandha (Sensoril), L-theanine, magnolia, phosphatidylserine.

Use: Bedtime dosing to lower evening cortisol and ease sleep onset.

Rhodiola Matrix

Cytomatrix

Actives: Standardized Rhodiola rosea (rosavins / salidroside).

Use: AM adaptogen for stress resilience and mental fatigue.



PRODUCT KNOWLEDGE · SUPPORTING LOW OUTPUT / RESERVE

Products for the Hypocortisol Pattern

Ortho Adapt

AOR

Actives: Adrenal glandular + ashwagandha, rhodiola, licorice, vitamin C, B5.

Use: Comprehensive adrenal support for low-reserve / fatigue patterns.



Adrenal SAP

NFH

Actives: Adrenal cortex glandular with B-vitamins and vitamin C.

Use: Targeted cortisol-axis support; cofactors for steroidogenesis.



Adrenal Cortex glandular

cortex extract

Actives: Bovine adrenal cortex concentrate.

Use: Direct support for low cortisol output / poor stress resilience.



Solid Licorice Extract

Wise Woman Herbs

Actives: Glycyrrhiza glabra (glycyrrhizin).

Use: Prolongs cortisol half-life (inhibits 11 β -HSD2). Caution: monitor BP & potassium; avoid in hypertension.





Products for Mood Support

Neurapas balance



Pascoe

Actives: St. John's Wort + passionflower + valerian.

Use: Mild-moderate depression with anxiety/restlessness. Note SJW drug interactions (CYP/OCP/SSRI).

Saffron SAP



NFH

Actives: Standardized saffron (*Crocus sativus*).

Use: Mild-moderate depression; comparable to SSRIs in trials.

Cyto-Theanine



Cytomatrix

Actives: L-theanine.

Use: Calm, focused state; reduces anxiety without sedation.



Products for Sleep Support

Sleep Matrix / Ashwagandha

Cytomatrix

Actives: Ashwagandha-based sleep formula.

Use: Stress-related insomnia; supports onset and HPA calming.



PrizMag (Mg glycinate)

ITL Health

Actives: Magnesium bisglycinate.

Use: Well-absorbed magnesium for sleep quality and muscle relaxation.



Ortho Sleep

AOR

Actives: Melatonin, 5-HTP, GABA, L-theanine, valerian, ashwagandha.

Use: Multi-target support for sleep onset and maintenance.



Melatonin SR

Pure Encapsulations

Actives: Sustained-release melatonin.

Use: Sleep maintenance and circadian timing; low effective dose.





REFERRAL · AS AN INTEGRATIVE PROVIDER

Knowing When & Where to Refer



Manage yourself

Mild depression/anxiety (PHQ-9 / GAD-7 < 10): lifestyle, mind-body, botanicals + watchful waiting with re-screening.



Psychology / therapist

Mild-to-moderate symptoms, or any patient wanting skills-based care: CBT, ACT, trauma-informed therapy, EMDR.



Primary care / prescriber

Moderate-to-severe (PHQ-9 / GAD-7 ≥ 15), functional impairment, or inadequate response: start/adjust SSRIs–SNRIs.



Psychiatry

Severe, refractory, bipolar or psychotic features, complex polypharmacy, or diagnostic uncertainty.



Endocrinology

Suspected Cushing's or Addison's — abnormal serum cortisol/ACTH, positive dexamethasone suppression, very high 24-h UFC.



Urgent / ER

Active suicidal ideation with plan/intent, psychosis, or acute safety risk — refer emergently, do not manage alone.



CASE INTEGRATION • 3 MIN

Case Resolution: Back to Our Patient



What we found

- PSS high, GAD-7 moderate
- Exam: rising waist circumference & BMI; no Cushingoid or Addisonian signs
- Serum curve: high afternoon cortisol with a blunted CAR (flattened slope)
- Low DHEA → elevated cortisol:DHEA ratio (reduced reserve)
- Borderline fasting glucose/insulin (rising HOMA-IR); TSH normal
- Picture: chronic-stress HPA dysregulation driving sleep, cravings & insulin resistance



The integrative plan

- Foundations: circadian reset, protein-forward low-glycemic diet, strength + walking, term-time boundaries
- Mind-body: daily paced breathing + HRV; brief MBSR course
- Calm the evening peak: ashwagandha / Cortisol Manager at bedtime; daytime L-theanine
- Sleep: magnesium glycinate; short-term sleep formula as needed
- Metabolic: target insulin resistance with diet, movement & nutrients
- Refer: therapist for CBT/anxiety skills; primary care for metabolic work-up — no meds needed now



At 8–12 weeks: better sleep and energy, GAD-7 down, evening cortisol lower and weight trending down. She needed axis **support, not replacement** — reassess and adjust.



KEY TAKEAWAYS

Bringing It Together

- 1 The HPA axis and autonomic nervous system form one integrated stress system — chronic stress blunts the brake on both.
- 2 Dysregulation touches metabolism, immunity, mood, cognition and longevity.
- 3 Assess with a four-part framework: history & questionnaires, exam, targeted labs, careful interpretation.
- 4 Treat foundation-first, then layer mind-body, botanical and TCM therapies.
- 5 Refer by severity — therapy, prescriber, psychiatry, endocrinology or ER — and never manage acute risk alone.