

DMAR™

Intuitive Integrative Medicine

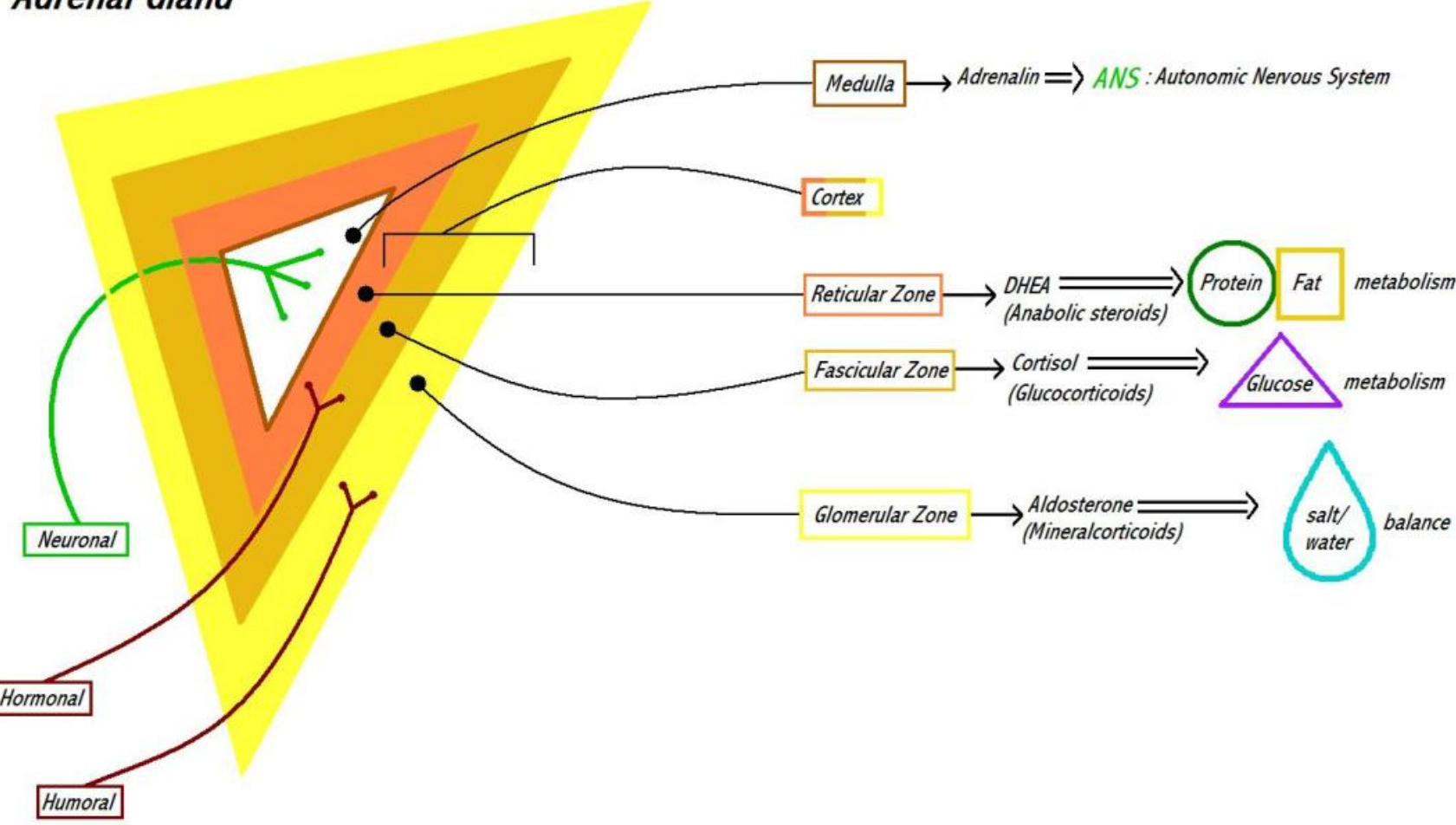
Assessing and Treating Adrenal Fatigue

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Adrenals: Mediator of Stress

- Atop of kidneys= Ad-Renals
- Mediator of response to environment
- The only endocrine gland that responds to
 - Hormonal stimulus
 - Neural stimulus
 - Humoral Stimulus

Adrenal Gland



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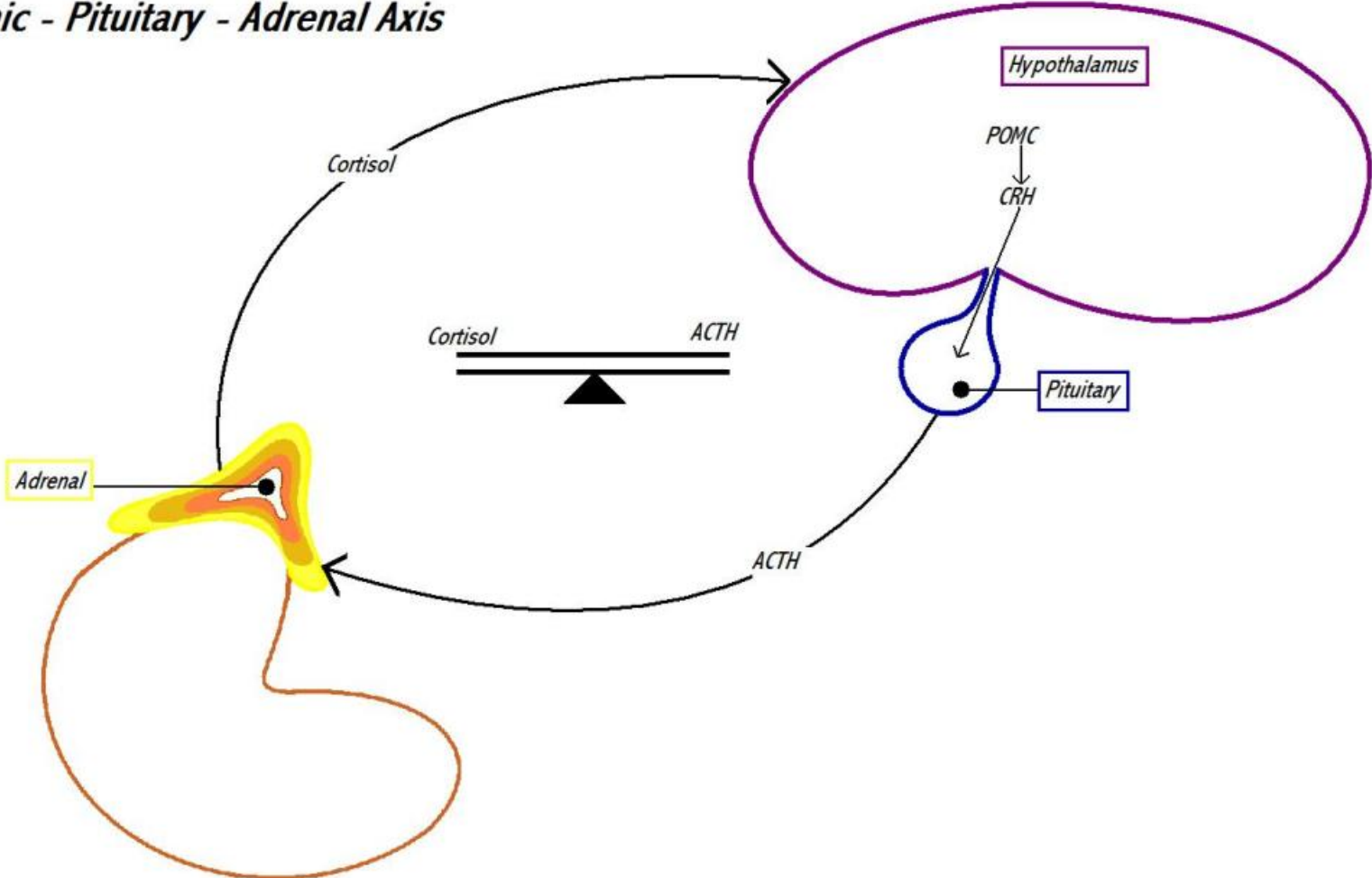
Adrenal Stimuli

- **Hormonal** = hypothalamic-pituitary axis driven by a negative feedback system of glucocorticosteroids and androgens (cortisol, cortisone, and DHEA)
- **Humoral** = blood born stimuli like electrolyte imbalance to release mineral-corticosteroids (aldosterone)
- **Neuronal** = CNS directly drives ANS response to release peptides (adrenaline and noradrenaline)

Hypothalamic-Pituitary-Adrenal Axis

- Stress response induces hypothalamic production of proopiomelanocortin (POMC)- a 242 AA polypeptide
- POMC breaks down to cortico releasing hormone (CRH) in response to low glucocorticoids, hypoglycemia, fever, stress
- POMC also breaks down to thyroid releasing factor (TRF), glucose releasing factor (GRF), melanocyte stimulating hormone (MSH) and endorphins
- CRH stimulates pituitary release of adrenocorticotrophic hormone (ACTH) - a 30 AA polypeptide
- ACTH stimulates adrenal cortex release of cortisol with negative feedback loop

Hypothalamic - Pituitary - Adrenal Axis



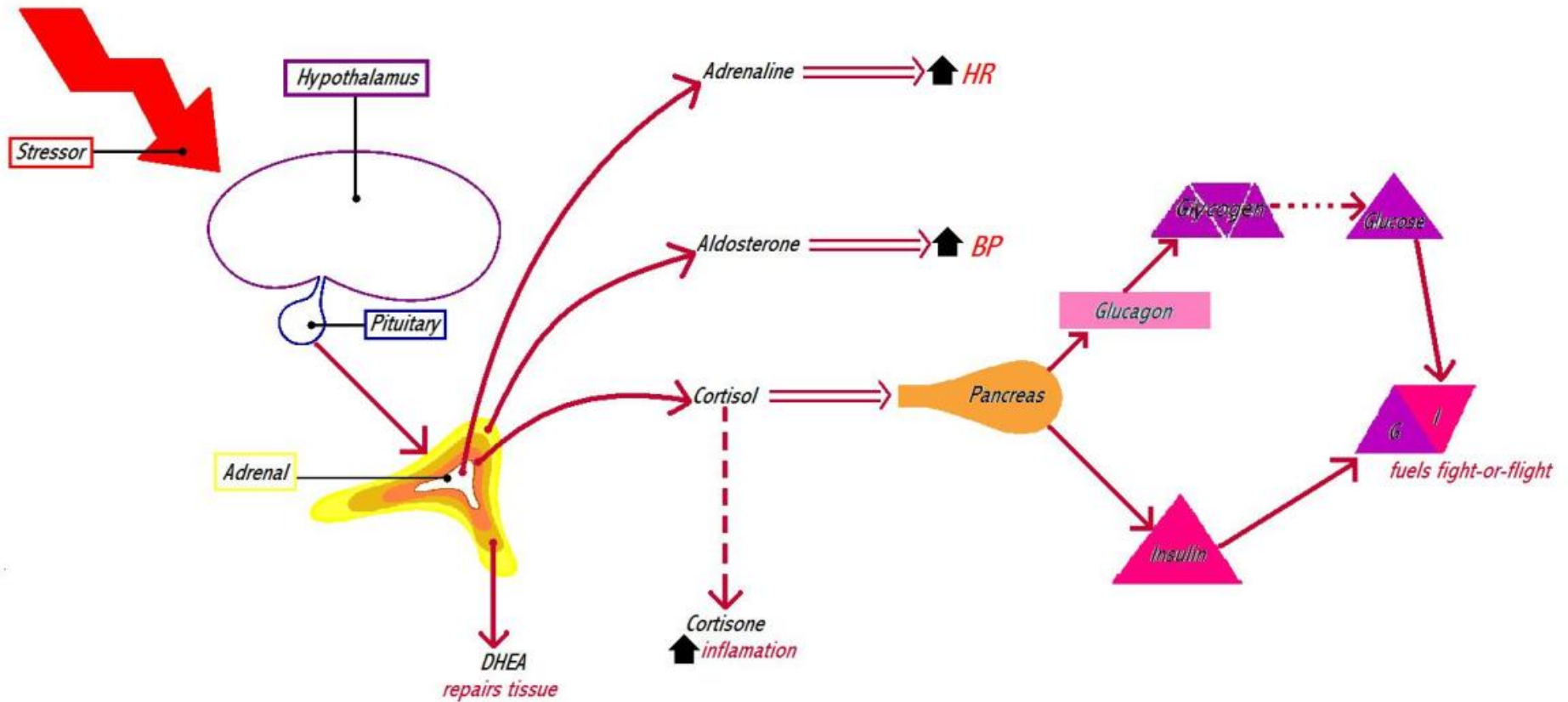
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Real or Perceived Stress

Same Reaction

- Phase I: CNS stimulates adrenal medulla release of adrenaline
- Phase II: ACTH stimulates adrenal cortex release of cortisol
 - Cortisol stimulates pancreatic release of glucagon which releases stored glycogen from liver and muscles
 - Glycogen broken down to glucose which stimulates pancreatic release of insulin
 - Insulin escorts glucose into cells to fuel fight or flight response
- Phase III: cortisol converted into anti-inflammatory cortisone
- Phase IV: DHEA rises in response to rising cortisol to metabolize protein and fat to repair tissue damaged in the flight or fight

The Stress Response

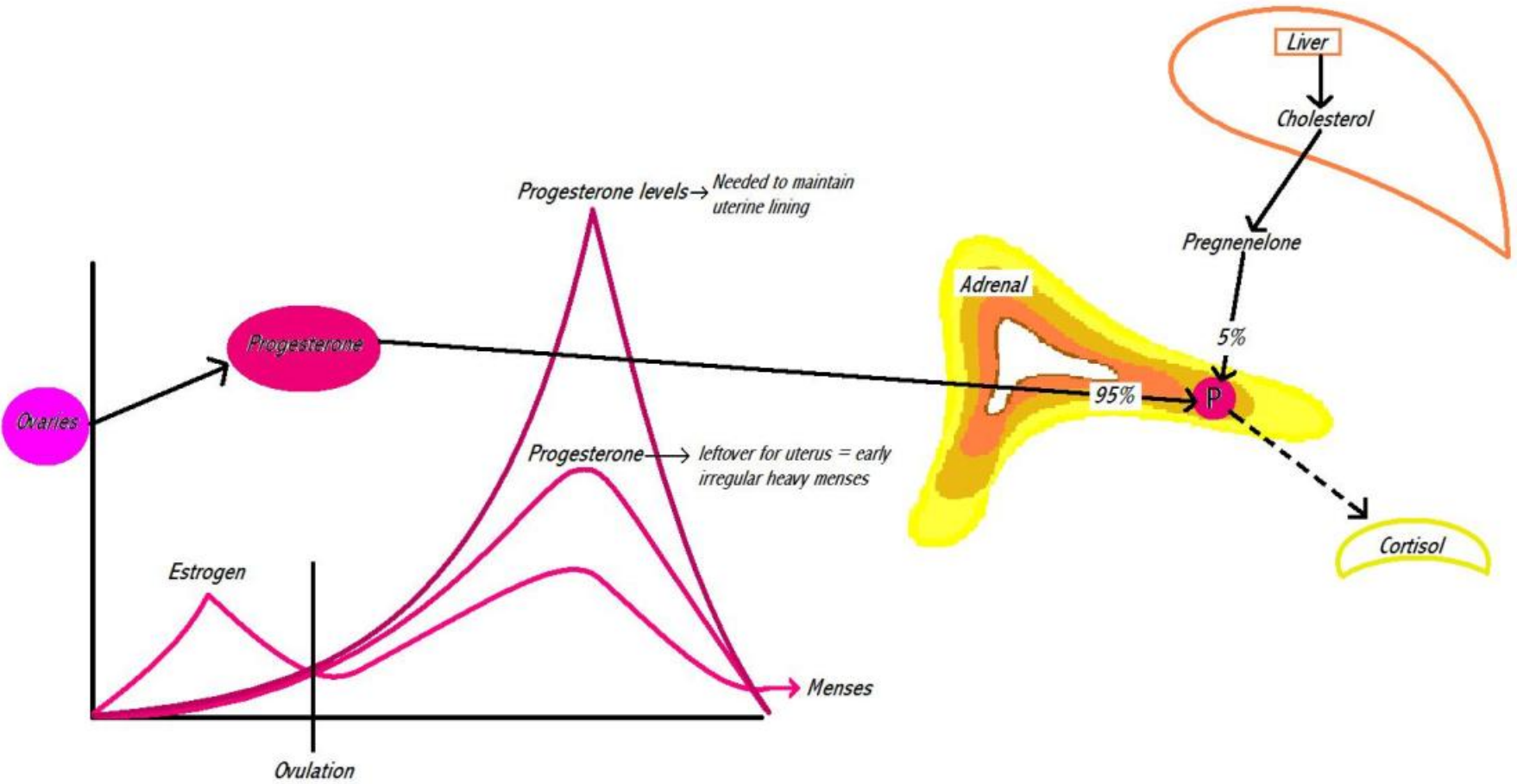


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Stress affects Everything

- Adrenals use resources from liver and ovaries to make corticosteroids
- Resources for POMC will be driven towards CRH to stimulate ACTH at the expense of TRH, GRF, MSH, endorphins
- Stress taxes the adrenals, then the pancreas, then the thyroid, while disrupting circadian rhythm and depleting endorphins

How Stress Affects Menstrual Cycle

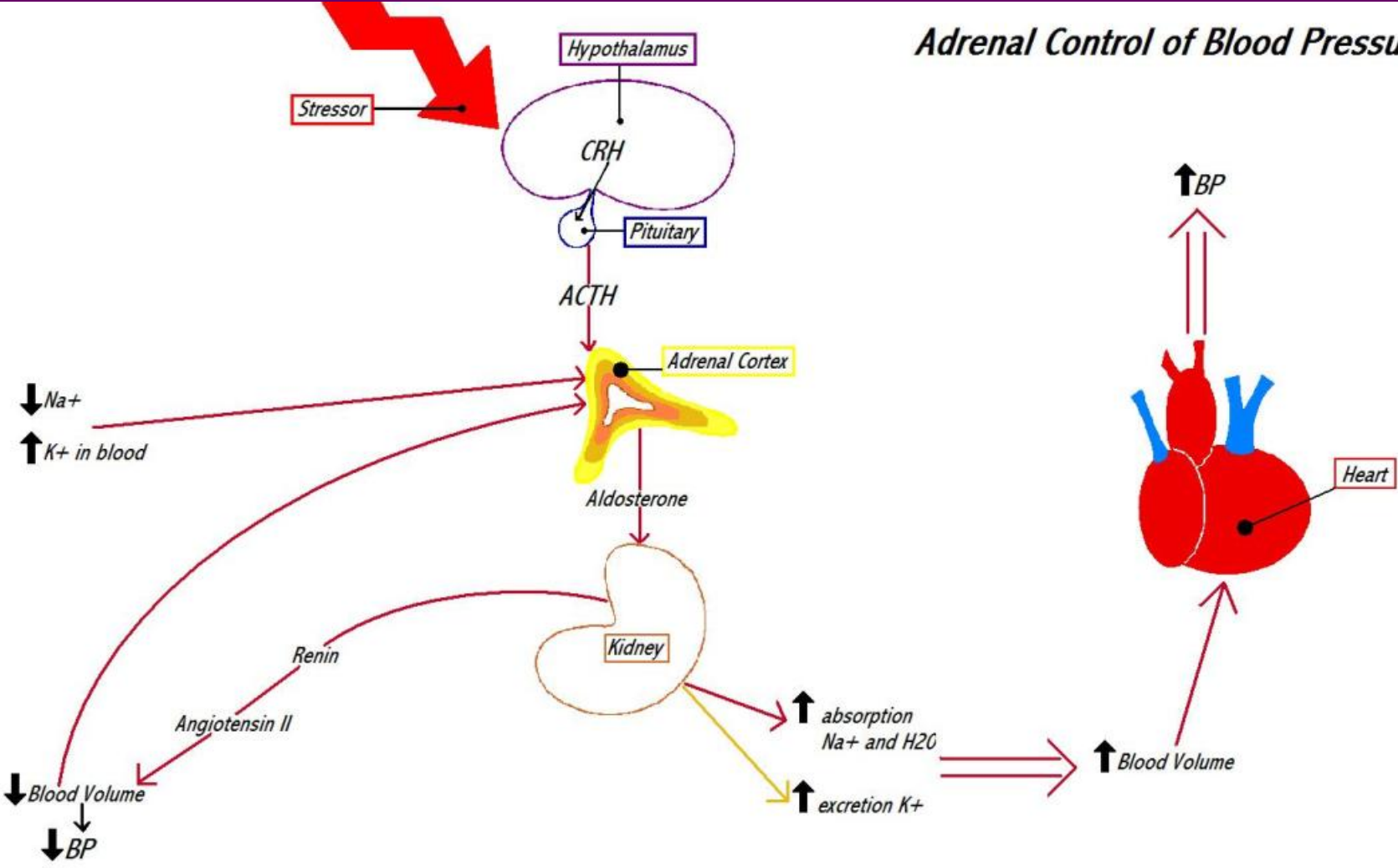


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Adrenal control of Blood Pressure

- Stress induces HPA axis to stimulate hormonal release of mineral corticoid= Aldosterone
- Aldosterone targets kidney tubules to increase sodium and water absorption and increase potassium excretion= increasing blood volume and BP
- If blood volume or BP too high kidneys produce renin to stimulate angiotensin cascade and lower blood volume by diuretic effect of increased water and sodium excretion
- Decreased serum sodium and increased potassium also stimulates humoral release of aldosterone
- When blood volume and blood pressure is high, heart produces atrial natriuretic peptide (ANP) to inhibit adrenal aldosterone production

Adrenal Control of Blood Pressure

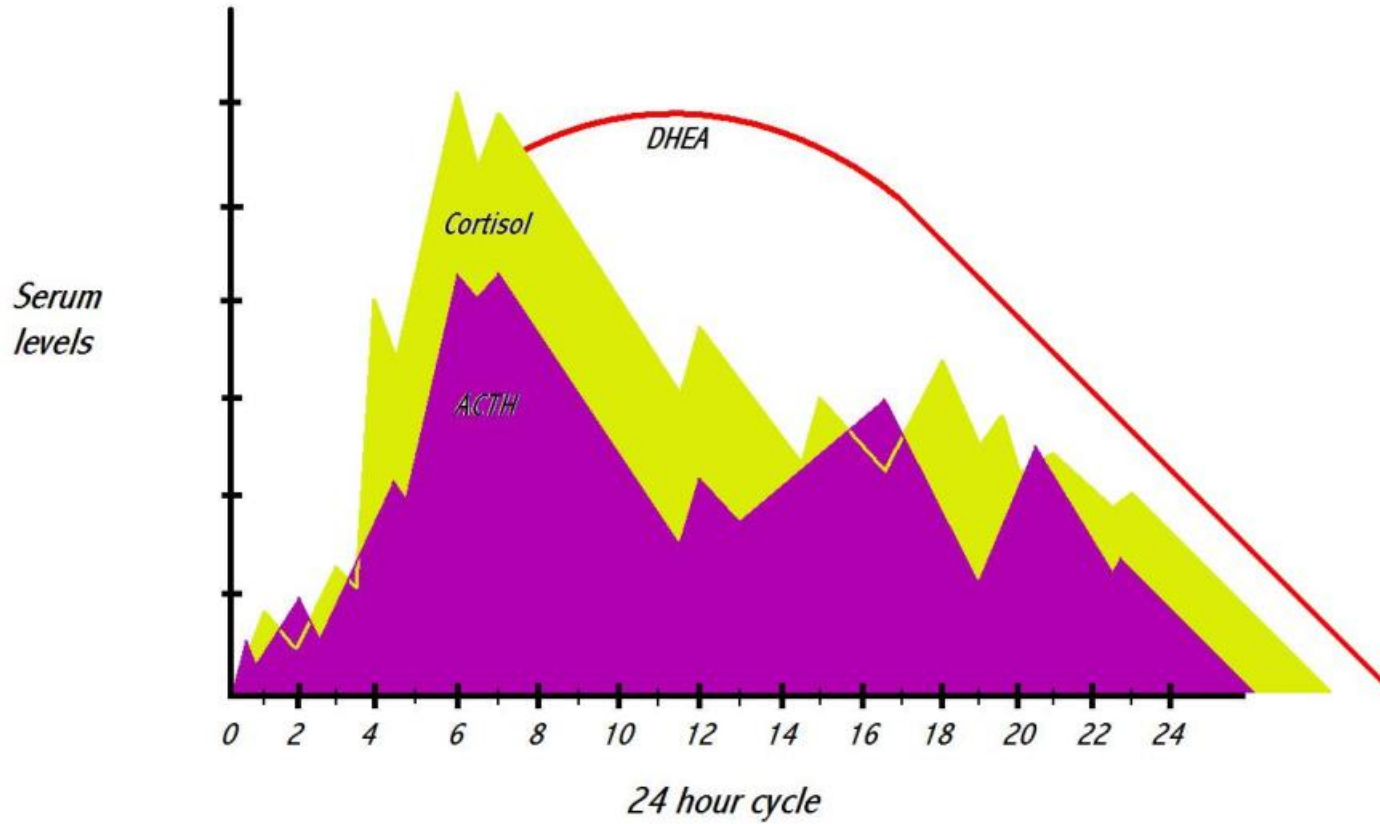


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Cortisol Circadian Rhythm

- Normalizes at 2-3 months of age
- Highest during day, lowest at night
- Normal fall in afternoon (siesta)
- Bursts throughout day:
 - At dawn
 - Post-prandial
 - Exercise
 - Stress reaction

Adrenal Circadianrhythm



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Abnormal Circadian Rhythm

- Cortisol suppresses melatonin: insomnia
- High cortisol + high DHEA: acute stress response
- High cortisol + low DHEA: chronic stress response
- If low daytime cortisol: adrenal fatigue

DHEA: dehydroepiandrosterone

- Zona reticulum produces DHEA
- 19 carbon steroid: adrenal androgen
- 3 β hydroxysteroid dehydrogenase converts DHEA into testosterone and then into estrogen
- Converts into 17 carbon ketosteroid in first hepatic bypass: active hormone (7-keto DHEA)
- Converts into androstendione causes secondary sex characteristics
- Adrenarche begins age 6-7 through 13-15 precedes linear growth spurt by 2 years, as well as rise of sex steroids

DHEA Diurnal Rhythm

- DHEA production thought to be stimulated by ACTH, but actually follows cortisol production
- DHEA unconjugated half-life <30 min
- Conjugated in liver to DHEA-S to last 24 hours
- DHEA: essential to fat/protein metabolism, promotes tissue rejuvenation, skin, bone, muscle-skeletal and smooth muscle

Adrenal Fatigue

- Most common complaint is unusual fatigue
- Usually follows a major stressor- energy up while dealing with event, crashes afterwards
- Early deficiency: fatigue begins about 3pm and cannot recover without caffeine and sugar
- Chronic deficiency: pt wakes up with fatigue

Symptoms of Adrenal Fatigue

- Low energy, mental fatigue
- Poor resistance to stress
- Emotional lability
- Dizziness with position change
- Headaches
- Allergies
- Cold intolerance
- Food cravings: sugar and fat if low cortisol, salt if aldosterone also low

Signs of Adrenal Fatigue

- Loss of scalp hair
- Increased body hair in early stress then loss of pubic hair = chronic DHEA deficiency
- Midline weight = long term stress induces insulin resistance
- Striae from rapid high corticosteroid production before decline
- Hyperpigmentation/ vitiligo
- Poor muscle tone
- Auricular calcification

Testing Adrenals

- BP test
 - have pt lie down for five minutes, take supine BP, then immediately stand pt up
 - BP should rise 20 points diastolic and systolic
 - Insufficient rise of BP = adrenal stress
 - No rise = adrenal deficiency
 - BP lowers = adrenal fatigue

Adrenal Lab Studies

- Blood
 - Cortisol: most useful to diagnose Cushing's or Addison's, check early am, rises with the stress
 - ACTH: in ratio to cortisol
 - DHEA-S: more accurate, but reflects hepatic function so if low, confirm with am unconjugated DHEA
- Saliva: tissue levels can determine circadian adrenal function

Treatment of Adrenal Fatigue

- Sleep in dark to normalize circadian rhythms, daytime naps if needed
- Eat well balanced diet, do not skip breakfast, avoid sugar and use caffeine sparingly
- Adaptogens
- Glandulars
- Nutraceuticals

Adrenal Adaptogens

- Ashwaganda- vitalizer, calms CNS, reduces mental and physical fatigue (300-600mg/day)
- Astragalus- supports immune function, not for acute infection, use long term, improves cardiac circulation (300-600mg/d)
- Eleuthero- balances corticosteroid production (200-400mg/d)

More Adaptogenic Herbs

- Ginseng- moderates cortisol production via ACTH regulation thus enhancing DHEA, raising energy and libido, improves immunity (300-600mg/d)
- Licorice- supports adrenals, aldosterone effect, increases conversion of testosterone to estrogen (200-400mg/d)
- Rhodiola- maintains healthy adrenal catecholamine activity, cardioprotective, supports healthy glucose metabolism (100-200mg/d)

Glandulars

- Glands of animals usually bovine or lamb taken in powder, capsule or elixir form
- Studies show that supplemental glandular uptake by the target gland until gland rejuvenated
- After 6 months liver treats supplement as toxin
- Supports and balances adrenal function
 - Whole adrenal- 300-600mg/d
 - Adrenal cortex- 160-320mg/d

Nutraceuticals to support Adrenals

- Vit B5- panthothenic acid: needed for proper function of adrenal glands, helps convert fat, prot, carb into energy
- Vit B6- as activated P5P (pyridixal 5' phosphate): supports carb, prot, fat metabolism, facilitates release of glycogen, balances aldosterone
- Vit C- antioxidant, needed for proper adrenal function
- Phosphatidyl serine: regulates HPA axis

Integrative Nutritional Support

- Genesis Gold® supports entire endocrine system (adaptogens and micronutrient cofactors to support adrenal function as well as balance HPA axis)
- Sacred Seven® amino acid blend supports proper hypothalamic function, use for three months if HPA axis compromised or more than one endocrine gland deficiency

Bio-identical Hormones

- Cortisol transdermal 1-3mg bid-tid not after dusk, 6 d/wk 2-3 month therapy and wean off slowly
- DHEA SL 12.5-50mg am, 6d/wk for 8 weeks, then wean by one more day off per week every 4-8 weeks until off
- Progesterone transdermal 50-100 mg bid in luteal phase, 25mg qhs if symptomatic in follicular phase, break 3d/month w/menses. If menopausal: 50-100mg qhs-bid, off 3 days/month

Case Study: 57y/o female artist "crashed"

- c/o low energy, anxiety, weepiness, nausea, muscle spasms, weakness, blurry vision
- G3 P2 SAB1, smoker 1ppd x 30 years, + Hep C, sees rheumatologist for FM who recently Rx dyazide for HBP, on synthroid 100mcg x 20 yrs, cryoglobulinemia, BHRT: E2 1mg TD, P4 50mg TD, no supps
- HPI: lost 18# in 1 yr due to stress, had to move in with daughter in LA, out of work for months, down with flu x 2wks, never recovered & began physical labor - night shifts x 10wks, since then has crashed

Physical Exam

- 66", 152#, 146/84, 82
- Orthostatic BP lying 130/80, standing 120/74
- Mesomorphic build w/ loss of muscle tone, loss of dermal collagen

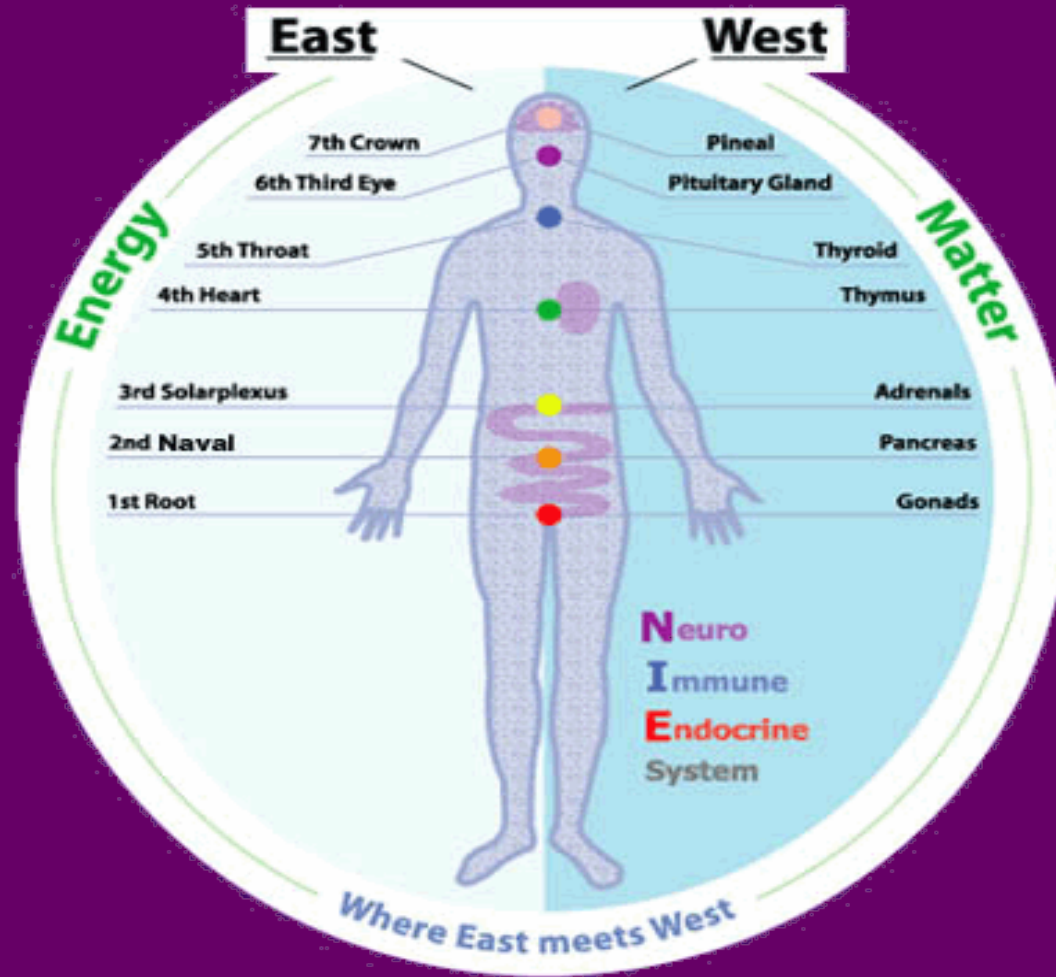
Assessment

- Adrenal fatigue
- Hypothyroid
- Hypothalamic imbalance
- Menopausal
- Mild HTN

Treatment Plan

- Blood: chem, cbc, endocrine panel
- Get back on Genesis Gold 9gm qam to provide foundational support for endocrine system
- ADR 2 caps bid (adaptogenic/glandular)
- Then 1 wk later start Adrenal Cortex drops 1 dropperful am, ½ dropperful 3-5pm, not after dark!
- Switch from dyazide to Norvasc 5mg
- Start vision board for “dream job”

Intuitive Integrative Medicine



Psycho-spiritual approach

Adrenals reflect 3rd Chakra

Balance of Power

- Emotion and Will balance in Third Chakra
- Symptom of modern life
 - Reality of Stress is a matter of perception
- Issue of Evolving Human Consciousness
 - Choosing Love over Fear

1 wk F/U

- Labs: nl LFT
 - DHEA-S 41 ug/ml
 - TSH 2.25, fT4 1.55 fT3 3.0
 - Vit D3 24.8
 - FSH 70, LH 37
- 1 wk on Norvasc BP 126/78

Recommendations

- DHEA SL 50mg 6d/wk
- Vit D3 liquid 5000iu w/ fat
- Inc BHRT dose: E2 2.5mg & P4 100mg qd, contin x 3mo
- Counseled regarding "powerlessness"
- Let go of old story! Invite New!

Third Chakra Spiritual Healing

- Help patient make conscious effort to **Choose Love over Fear**
- Live in moment rather than...
living in past (regret)
or living in future (worry)
- **Be Open to Receive Joy**

PC appt: 2 months later

- BP running 120-130/78-88
- Inc hormones helped weepiness
- Energy good, sleeping more deeply
- Had to put old dog down, sad but knew death precedes birth (extensive counseling over the yrs w/pt)
- Reconnected with old artist friend and now working with him at her dream job
- Really happy, self esteem raised, couldn't do it w/o adrenal support!
- Still not at full physical strength

Recommendations

- Add Proenhance AA 3gm qhs to inc HGH and muscle strength
- Recommend to take breaks during the day to prevent crash
- Stay on adrenal support, DHEA, GG
- Plan to wean down adrenal cortex in three months
- Recheck blood in 3 months

Nutraceutical Resources

- Hormone and Hypothalamic Support:
Genesis Gold® and Sacred Seven®
<http://genesisgold.com/wholesale-396.html>
or call 805-640-3340
- Supplement Companies I use:
 - Prolabs (Adrenal Cortex, Proenhance)
<http://www.progressivelabs.com/>
 - Pure Encapsulations (ADR)
<http://www.pureencapsulations.com/>

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*Creating Joyous Transformations –
Body, Mind, & Soul*



Genesis Health Products, Inc

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