



INE | INSTITUTE OF
NUTRITIONAL
ENDOCRINOLOGY

Practitioner's Adrenal Fatigue Training (PAFT) Part 1

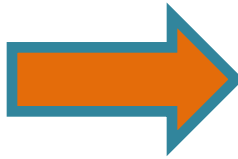
Dr. Ritamarie Loscalzo



Medical Disclaimer: The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, drritamarie.com, and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.



Determine Your Exhaustion Index



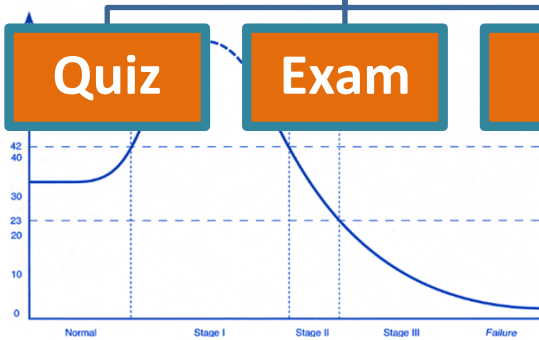
Identify Your Stressors

One or all of these

Quiz

Exam

Lab



One or all of these

Mental and Emotional

Hidden Infections

Diet and Lifestyle

Environment



Get Energized

Transform Stress

Sleep

Fun

Relationships



Optimize Diet

Energizing Elixirs

Timing of Meals

Nutrient Dense Meals

Eliminate Diet Stressors

Supplemental Nutrients

Universal

Stage 1

Stage 2

Stage 3

Herbs

Universal

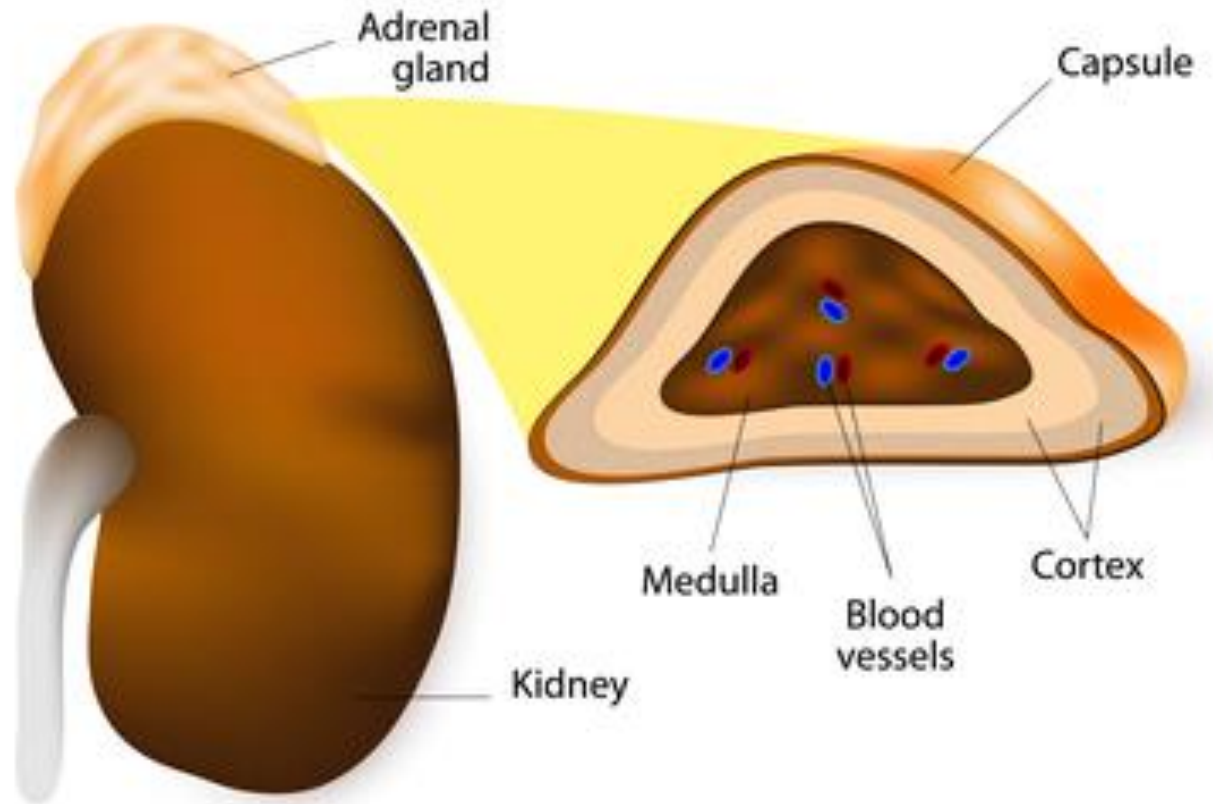
Stage 1

Stage 2

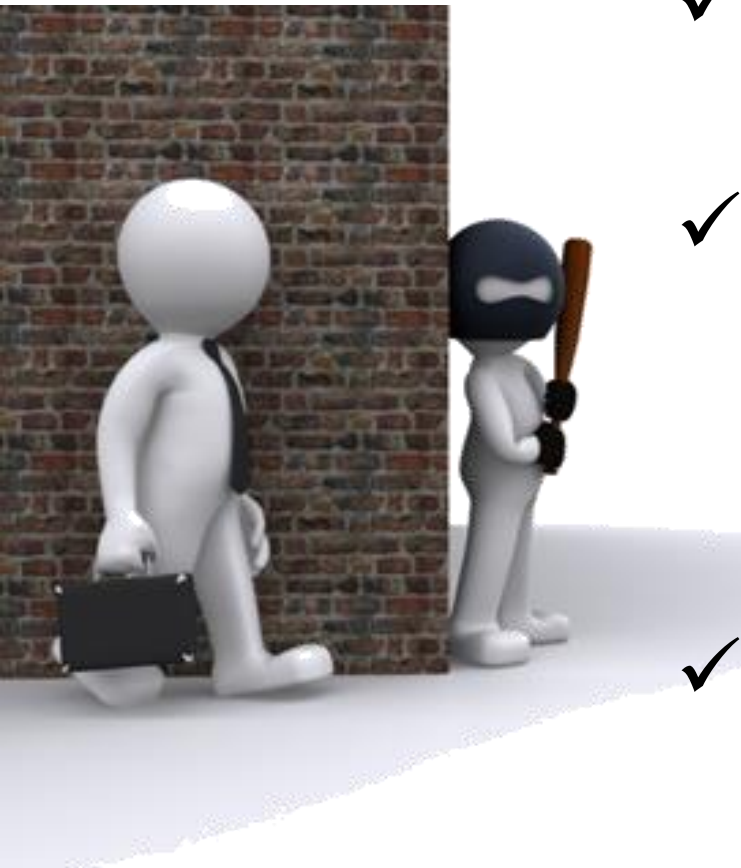
Stage 3



Adrenal Glands

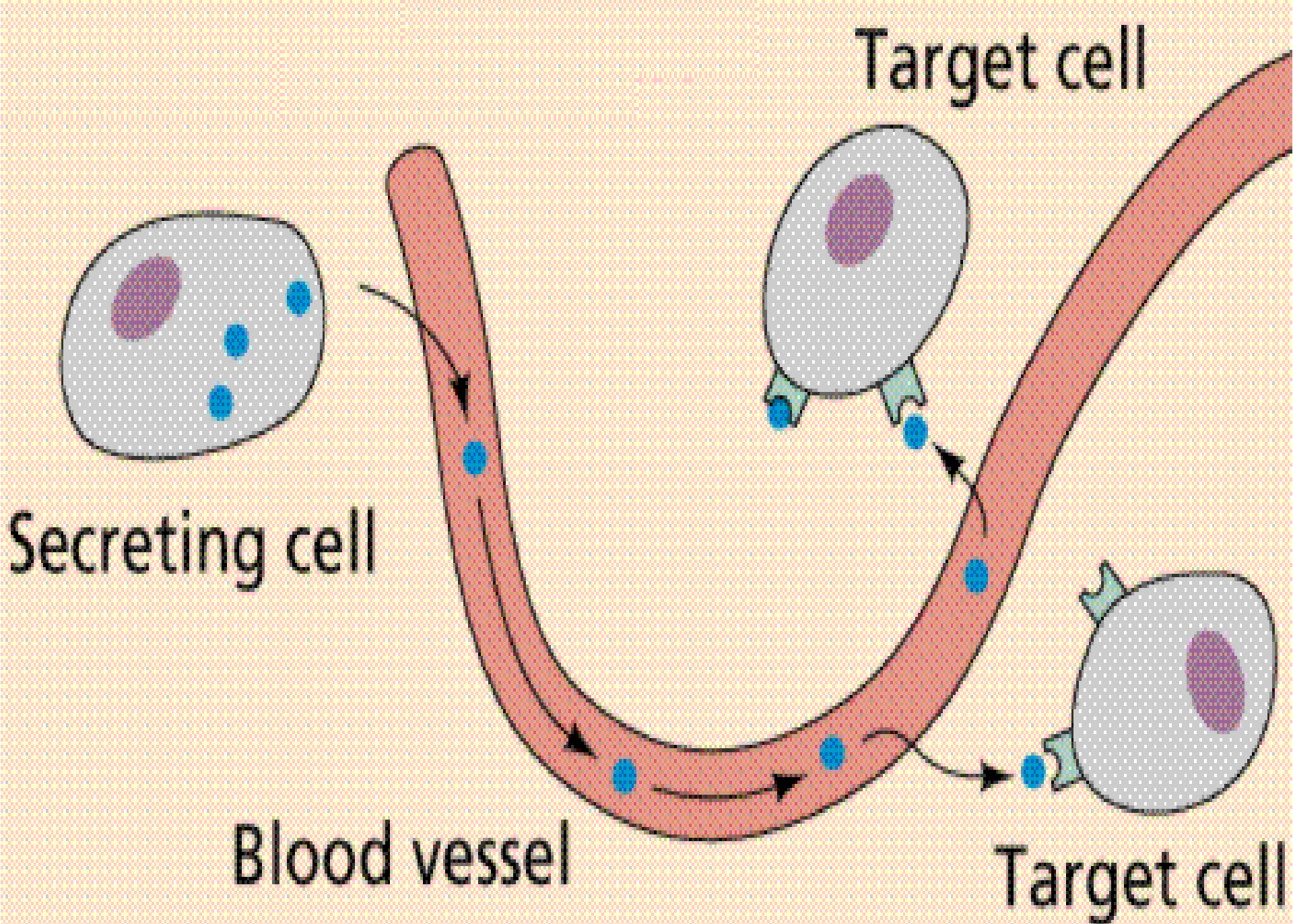


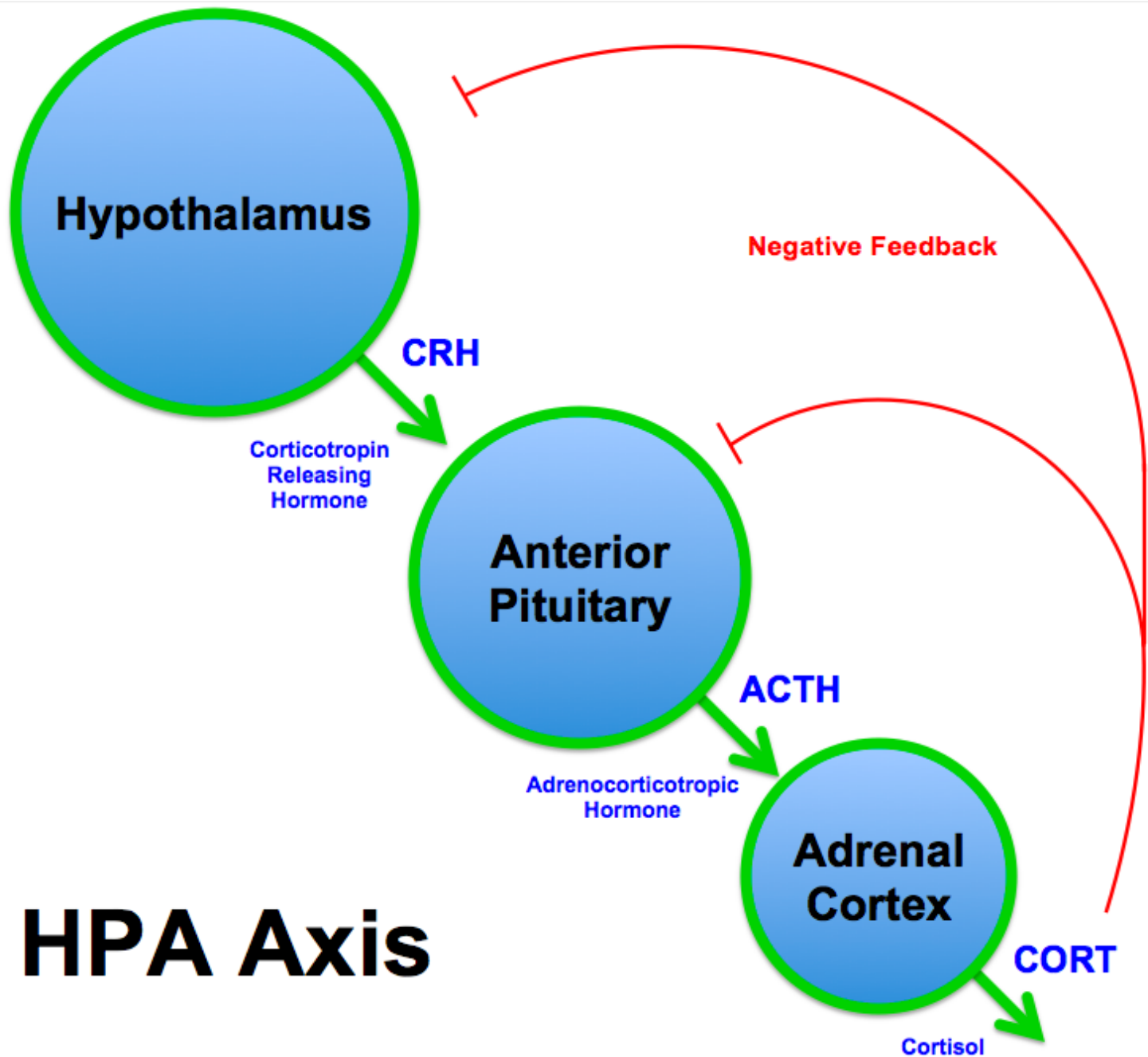
Function of Adrenal Glands



- ✓ Keep you safe in the face of danger
- ✓ Mobilize resources so you can
 - Escape from danger
 - Fight off predators
 - Survive
- ✓ Produce hormones to keep you safe





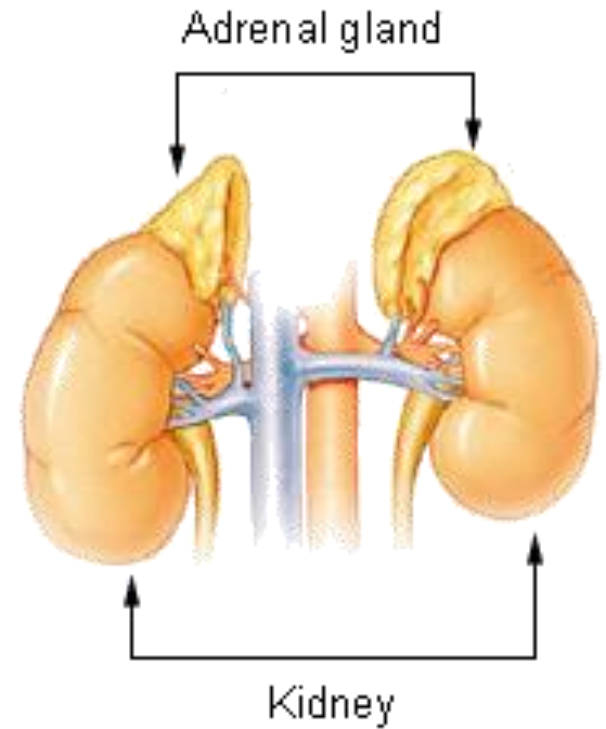


HPA Axis

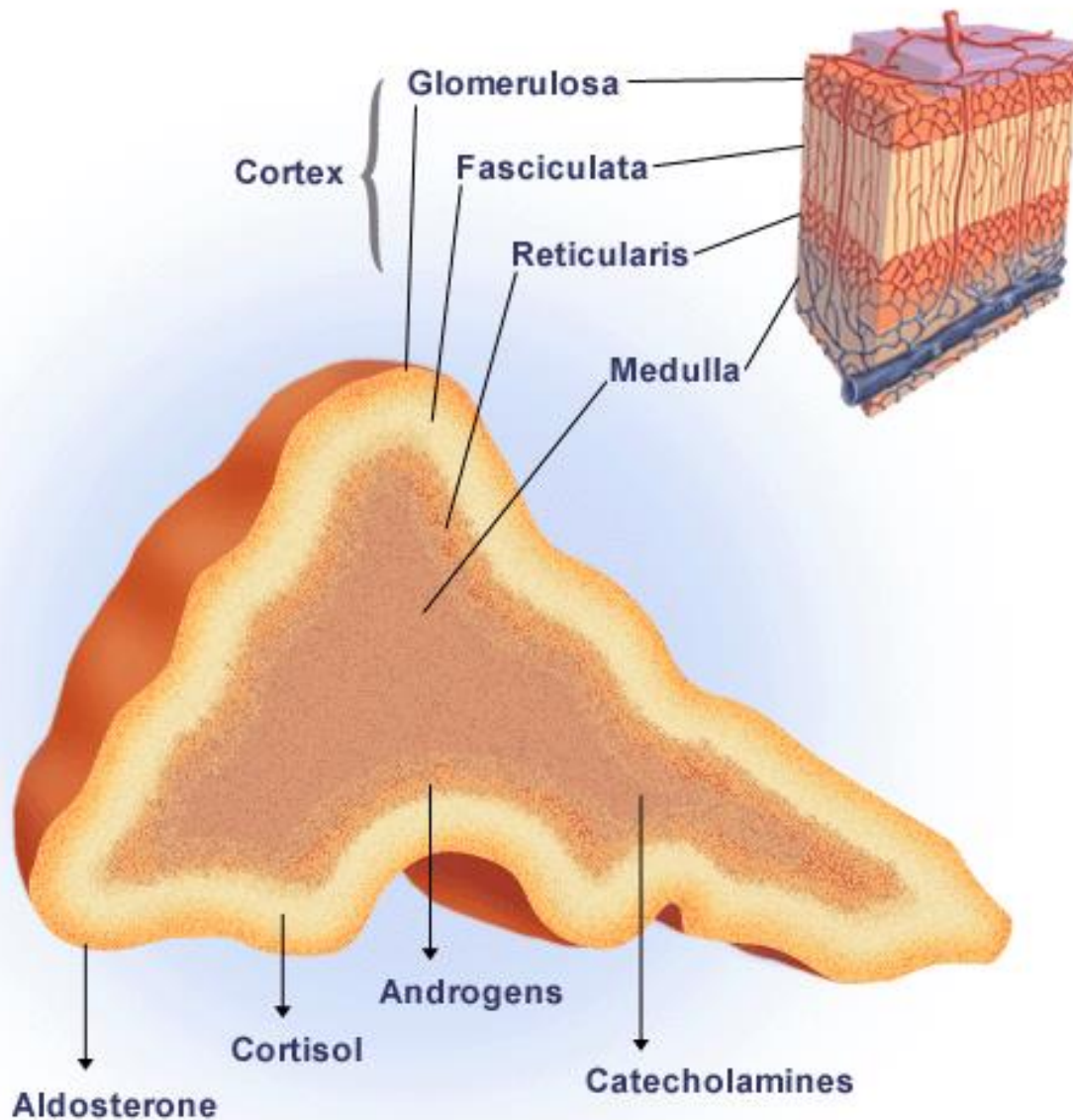


Adrenal Gland Anatomy and Function

- ✓ Two small glands, each weighing 3 to 5 grams
- ✓ Located above the kidneys
- ✓ One of the highest rates of blood flow per gram of tissue
- ✓ Highest concentration of vitamin C per gram of any tissue in the body
- ✓ The hormones released in a cycle with the highest value in the morning and the lowest value at night – Circadian Rhythm



Adrenal Hormone Secretions



Outer Zone (Cortex)

- Cortisol
- DHEA
- Aldosterone

Inner Zone (Medulla)

- ✓ Catecholamines
 - Adrenaline aka Epinephrine
 - Noradrenaline aka Norepinephrine
- ✓ Androgens

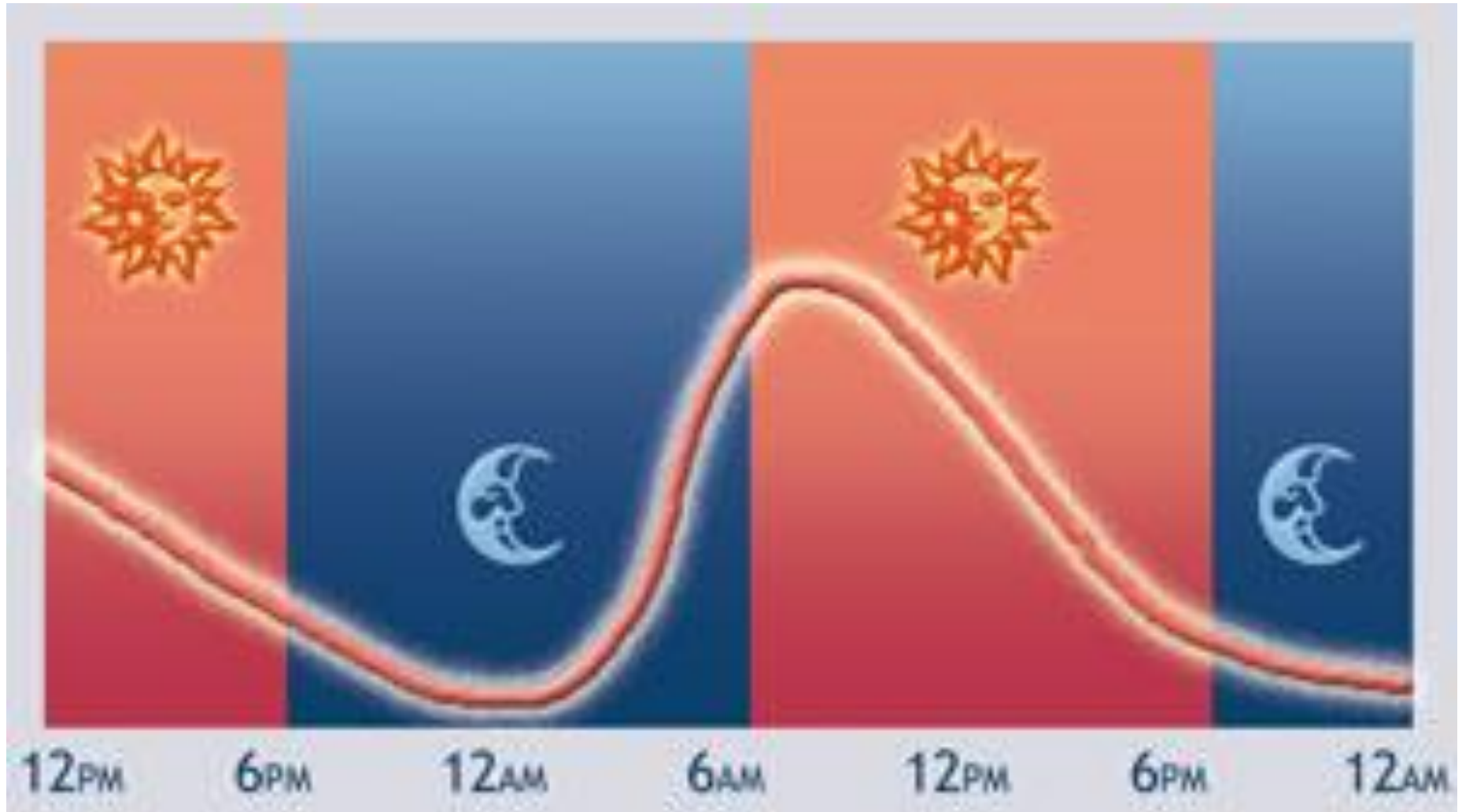


What Can (and Often Does) Go Wrong?

- ✓ Over production of cortisol
- ✓ Causes imbalance of other hormones
 - DHEA
 - Progesterone
 - Estrogen
 - Testosterone
 - Thyroid
 - Oxytocin
- ✓ Adrenal fatigue and exhaustion
- ✓ Immune system issues



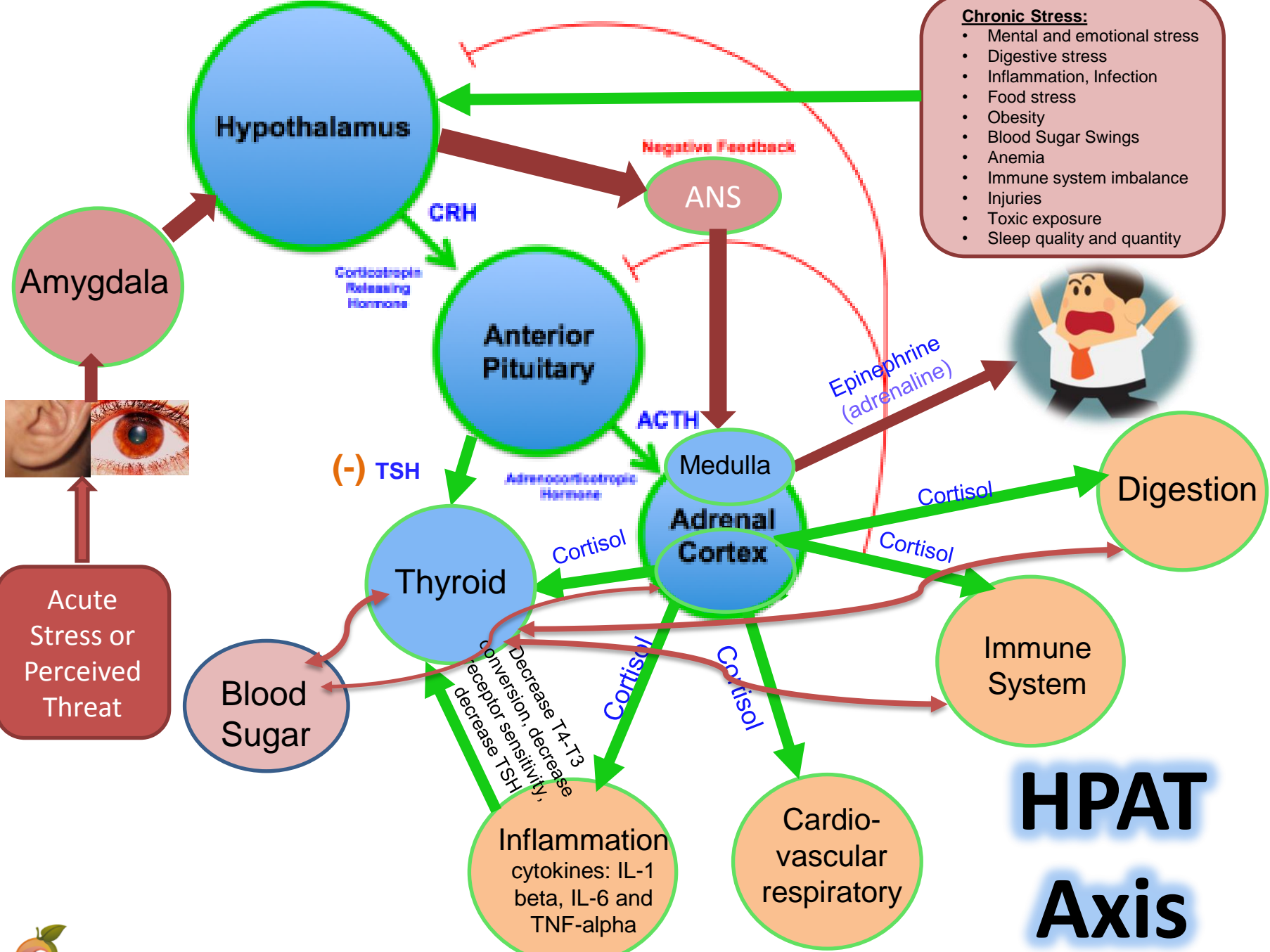
Circadian Rhythm



Stress

- ✓ A force that tends to strain or deform.
- ✓ A physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation.
- ✓ Hans Selye (1907-1982) first addressed it as a health challenge.





CHRONIC STRESS

- ✓ Costs trillions of dollars a year
- ✓ Largely ignored by mainstream medicine

**Common Culprit Behind
Virtually All Symptoms And
Conditions**



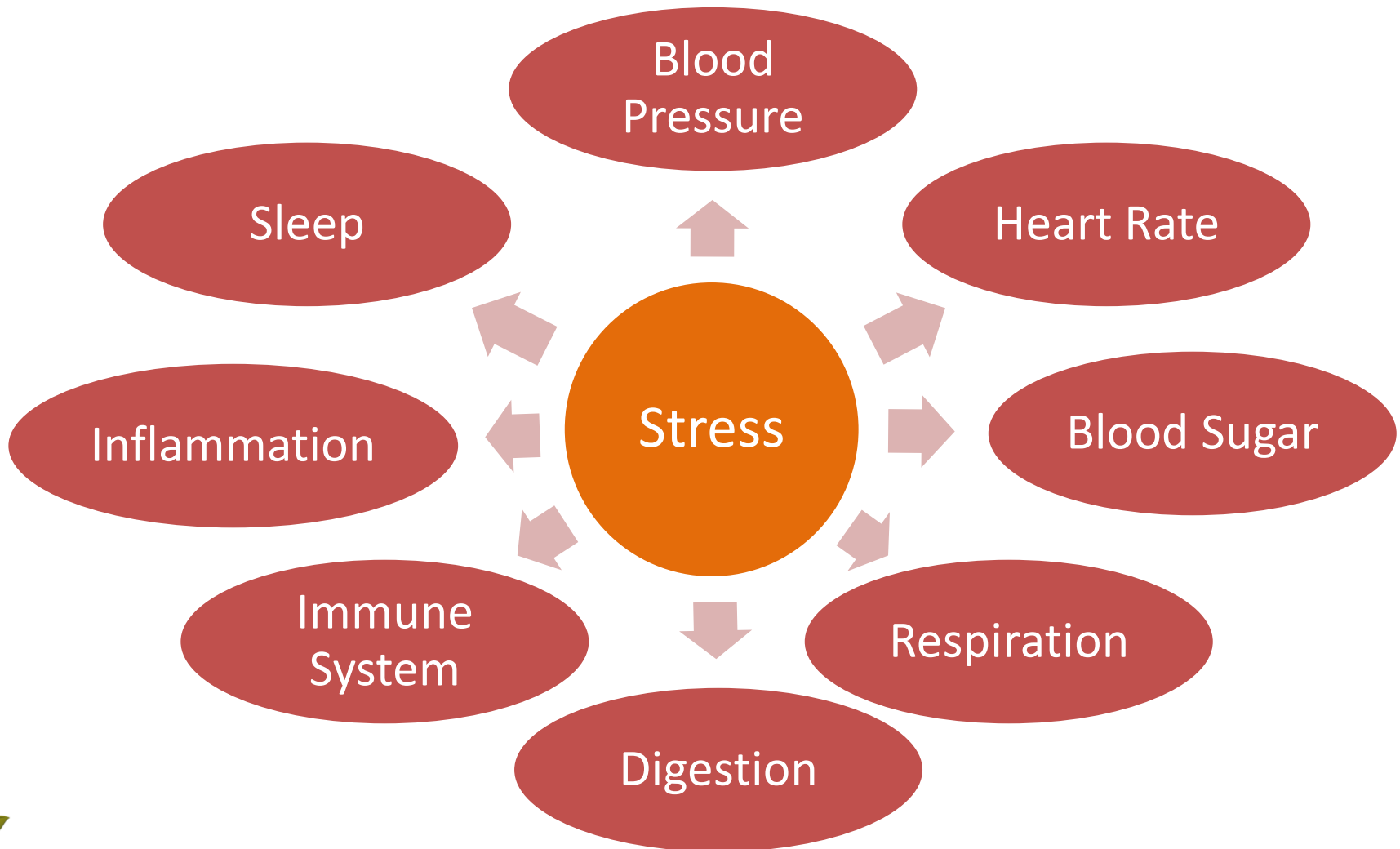
STRESS



- ✓ Excess cortisol **damages thyroid receptors** and causes thyroid resistance.
- ✓ Insufficient cortisol **lowers thyroid receptor sensitivity.**
- ✓ Excess cortisol **decreases T4 to T3 conversion** (impairs 5'deiodinase enzyme).
- ✓ Excess cortisol **increases blood sugar and insulin**, which decreases thyroid function.
- ✓ Cortisol and corticotrophin-releasing hormone **inhibit TSH.**
- ✓ Impairs **thyroxine-binding globulin.**
- ✓ Impacts immune system.
- ✓ **Creates inflammation:** cytokines: IL-1 beta, IL-6, and TNF-alpha which impair conversion, receptors and TSH activity



Dangers Associated with Unmanaged Adrenal Issues



Adrenal Burnout and Sex Drive

Cortisol

Pregnenolone

DHEA

Testosterone

Estrogen

Progesterone

Sex hormone



Male/Female Hormones/Stress Interaction

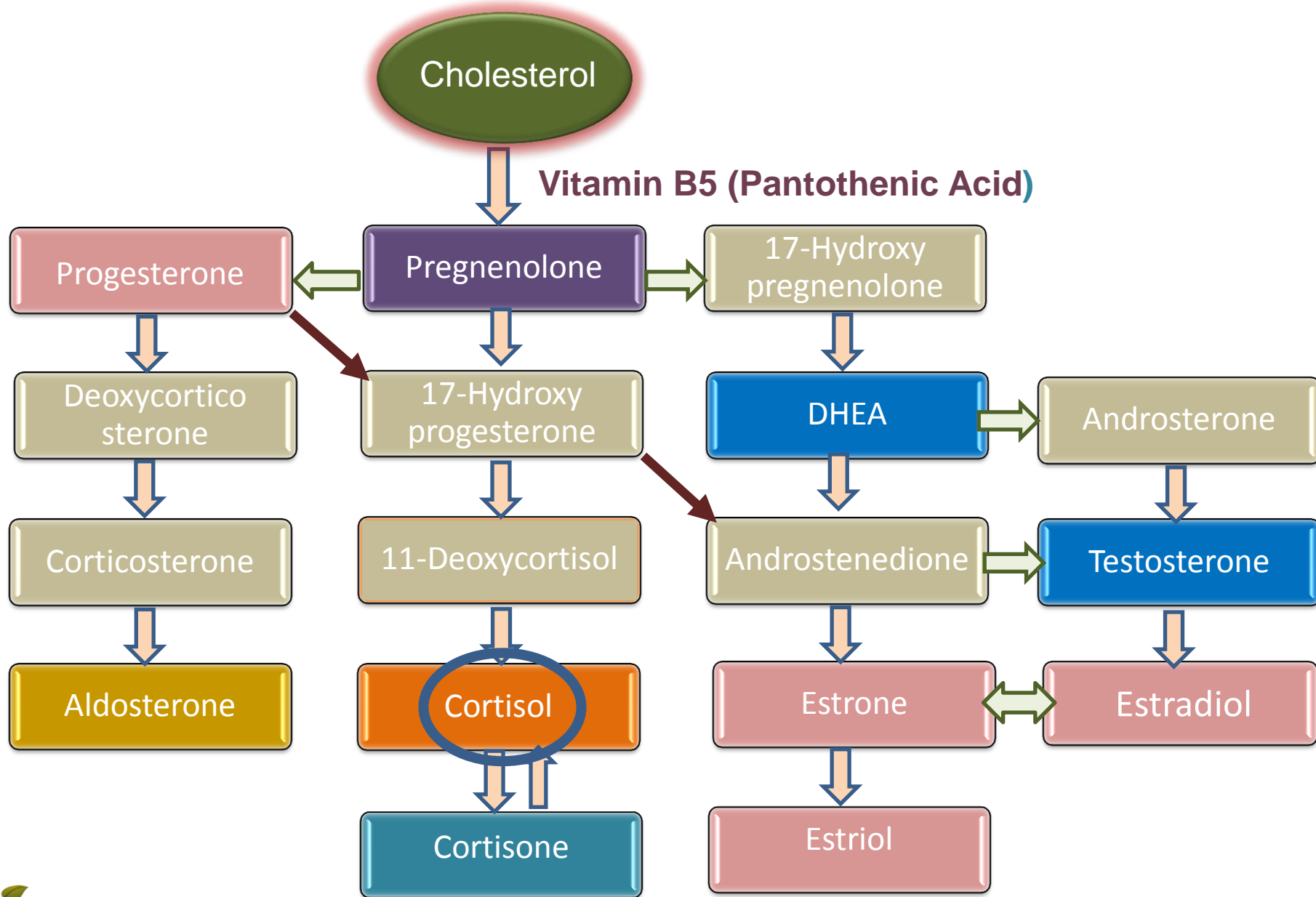
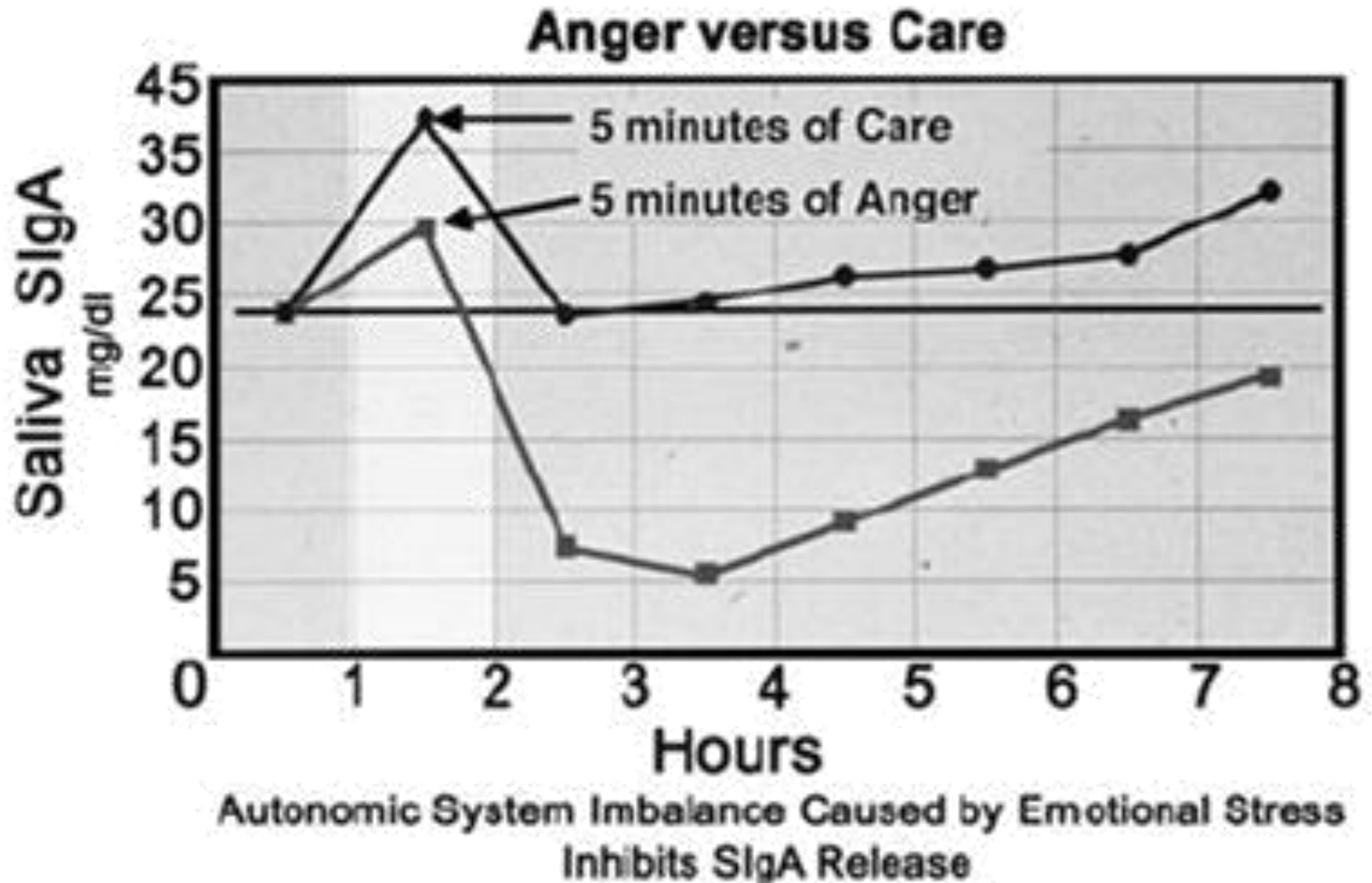


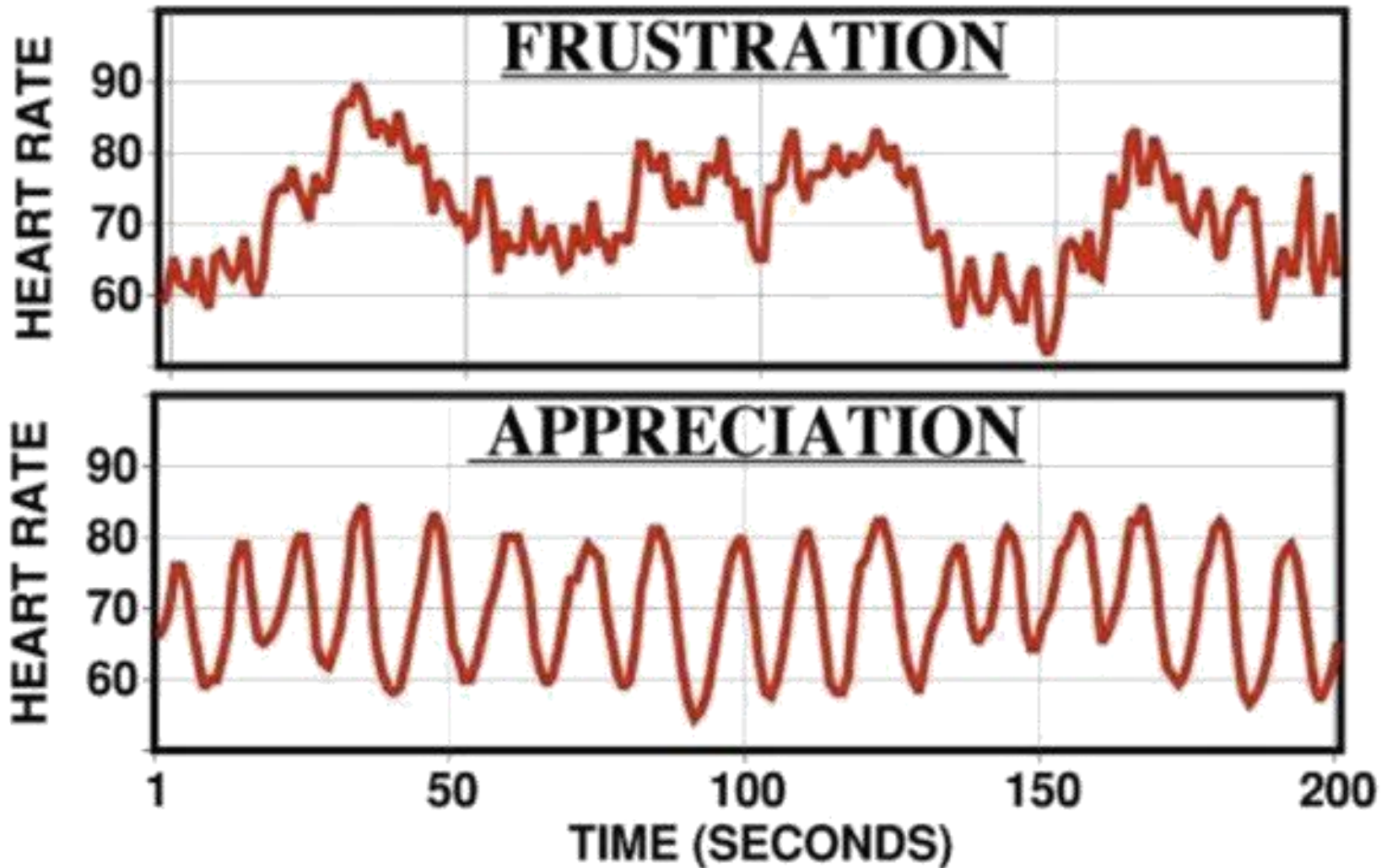
Figure 6. Effect of Emotion on SIgA Release



HeartMath Institute



Effect of Stress on Heart Rhythm



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Emotional Landscape

Adrenaline

**High Energy
Negative Emotions**

**High Energy
Positive Emotions**

**Low Energy
Negative Emotions**

**Low Energy
Positive Emotions**

Acetylcholine

Cortisol

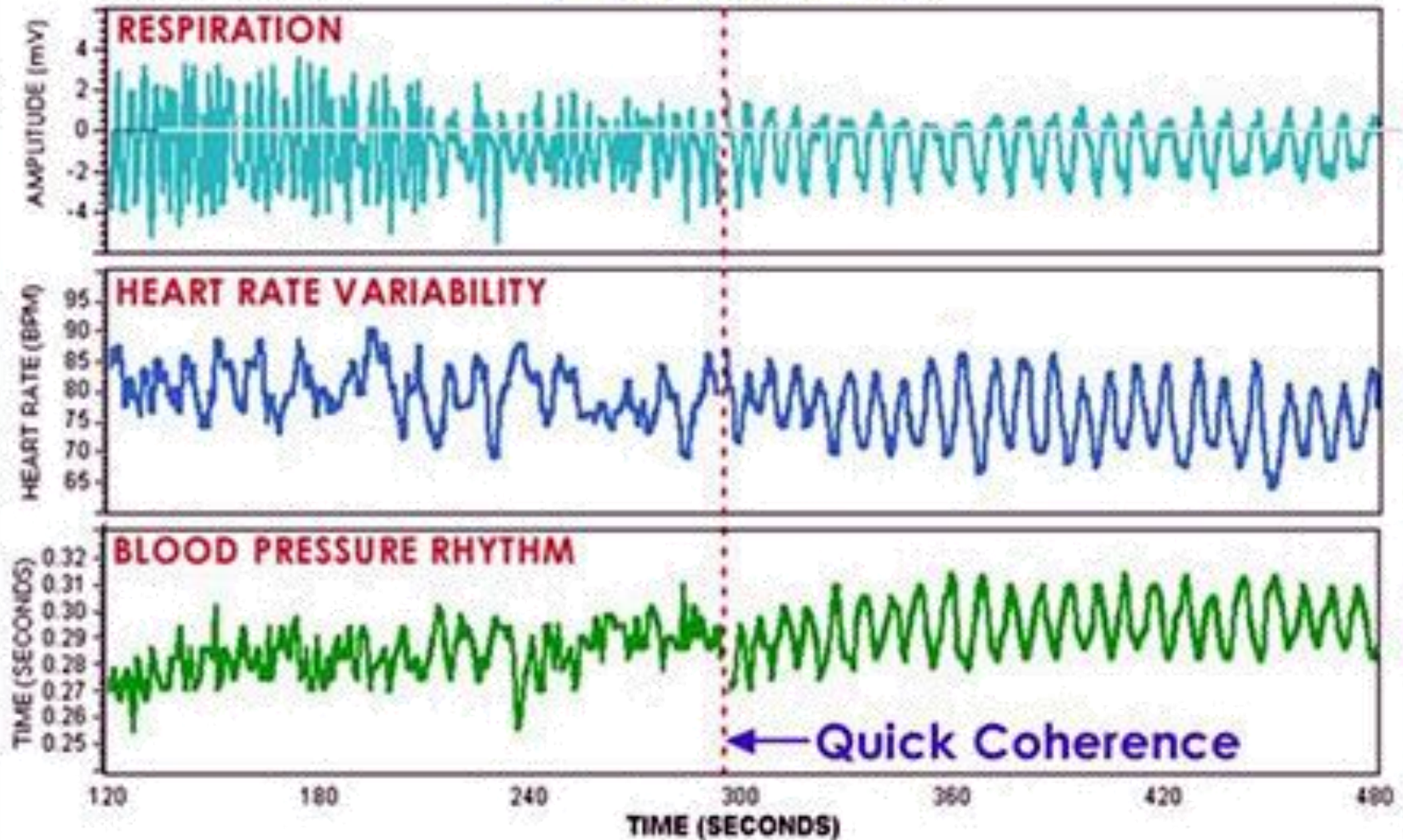
DHEA



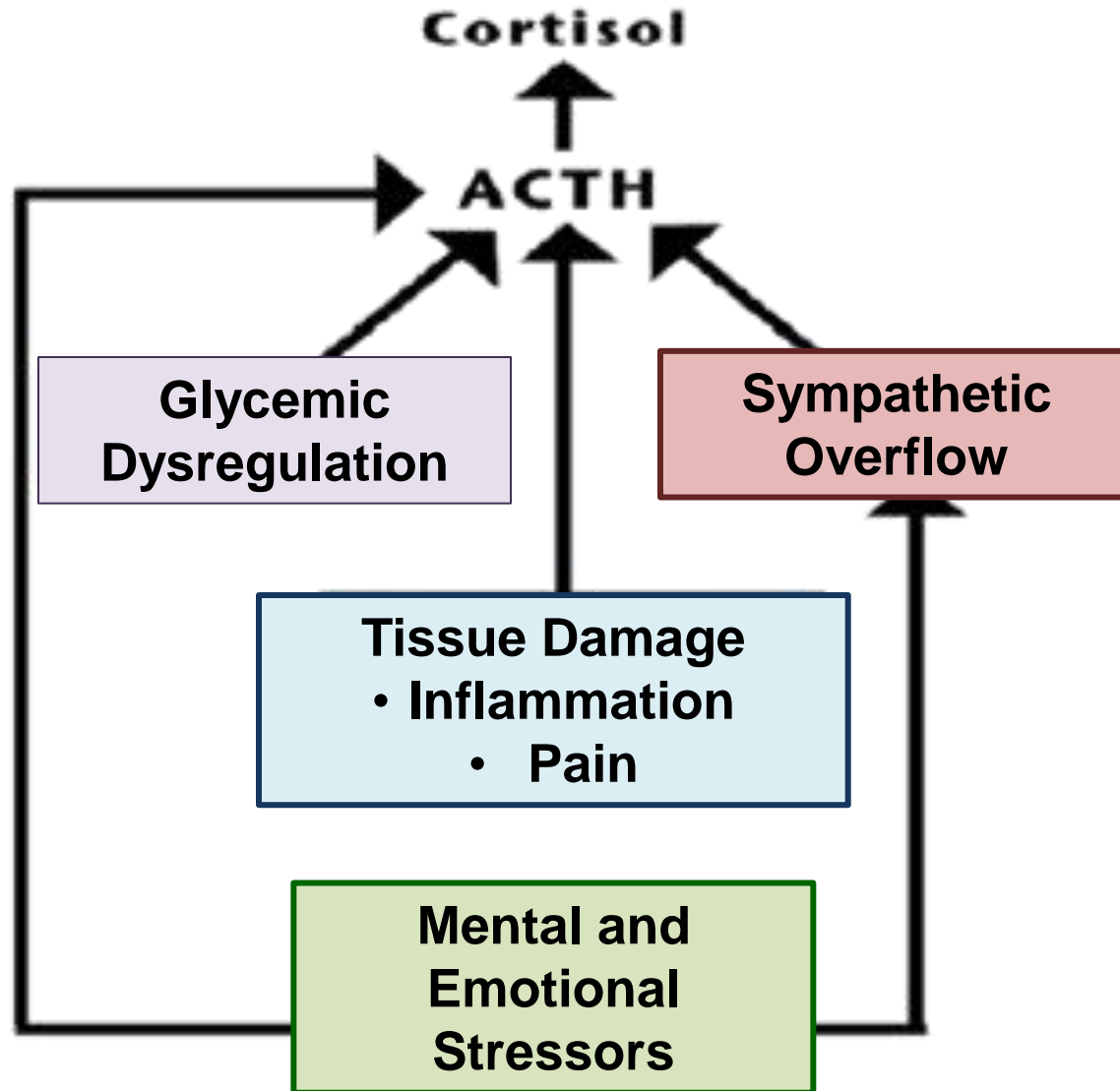


Ahhhhh...Happy Adrenals

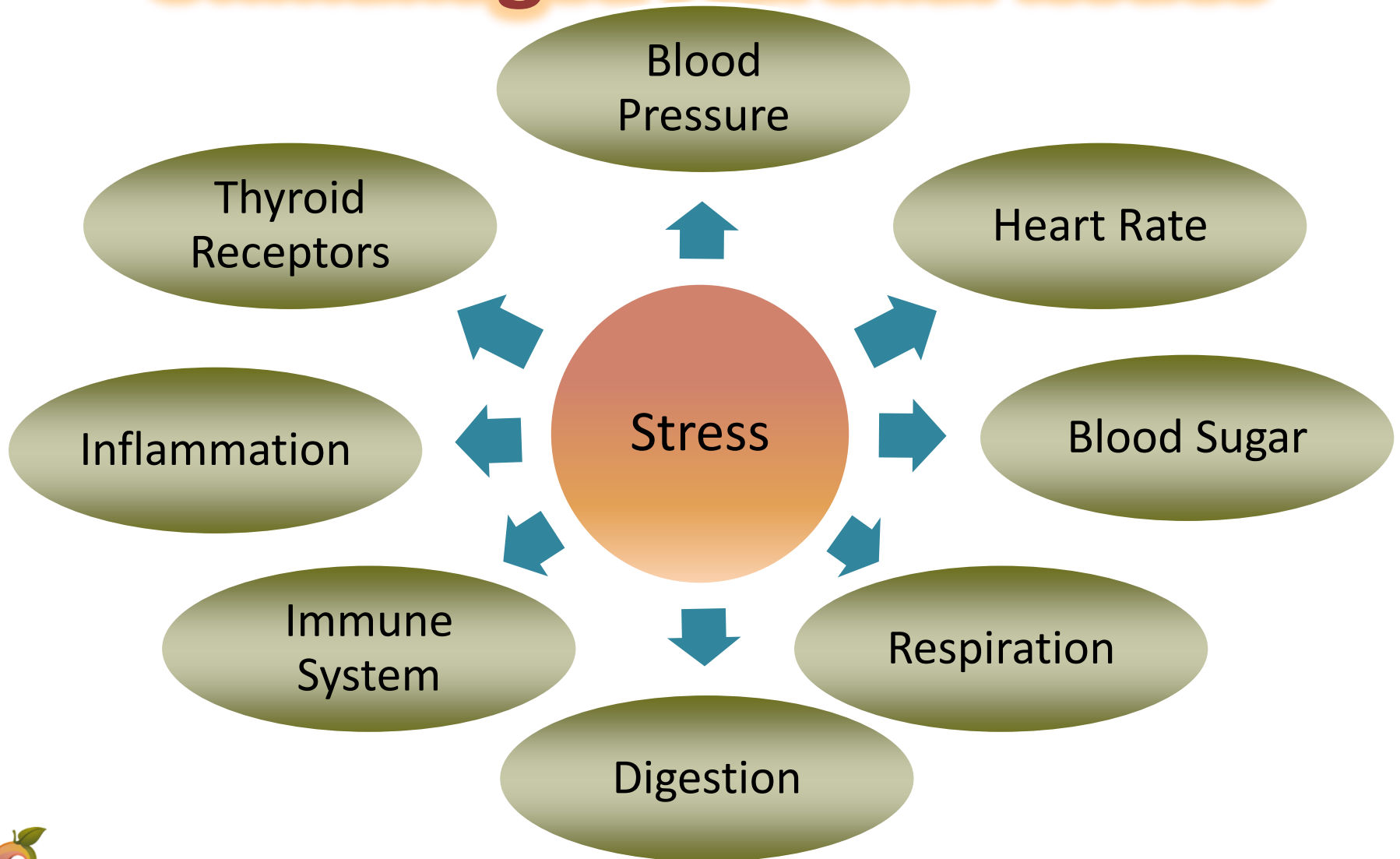
The Coherent State



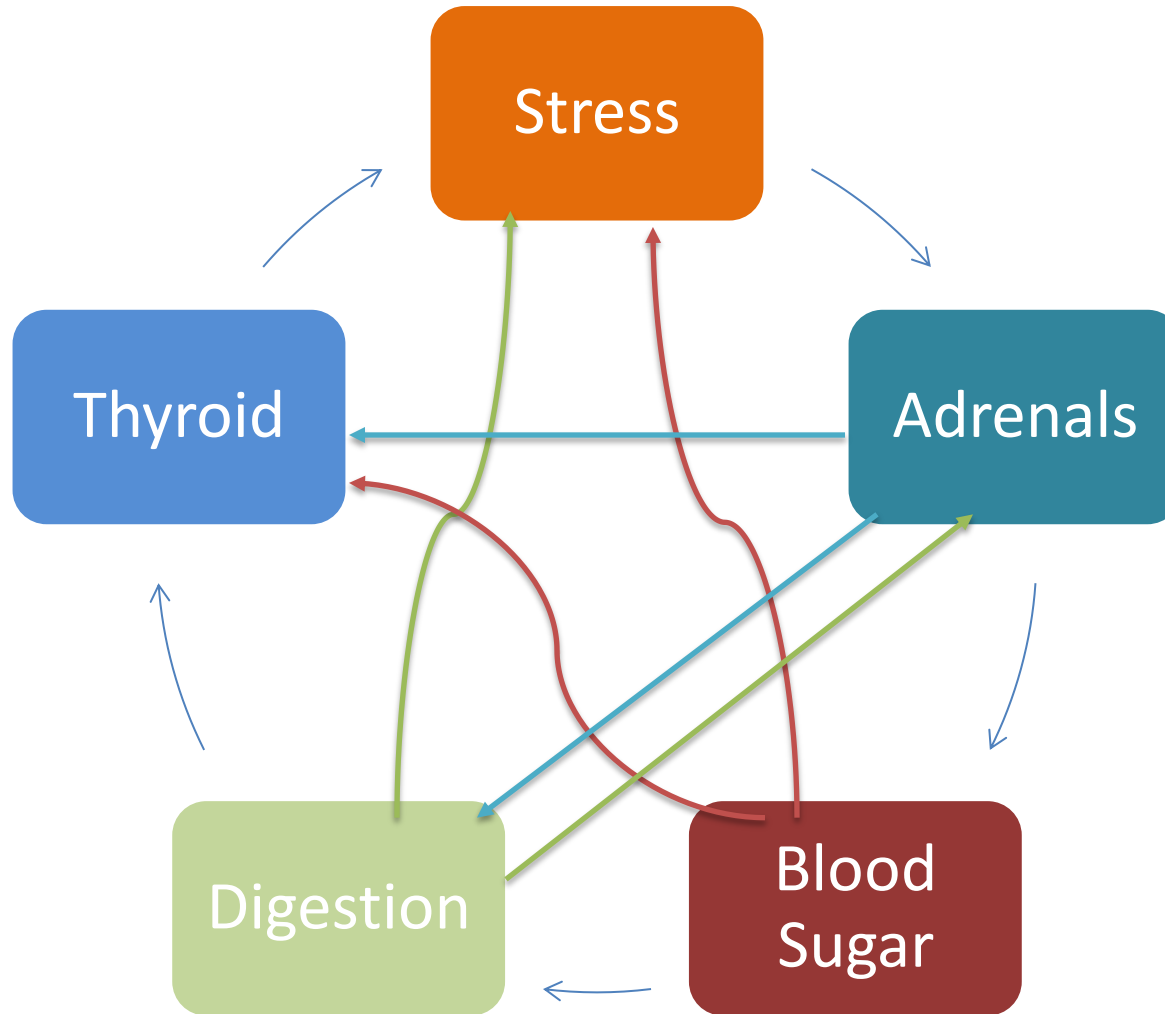
Inducers of Cortisol Release



Dangers Associated with Unmanaged Adrenal Issues



The Vicious Cycle



Breaking the Vicious Cycle

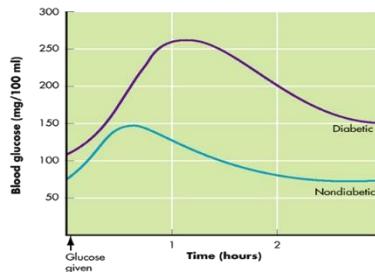
Manage Stress

Repair and Recharge Adrenal

Balance Blood Sugar

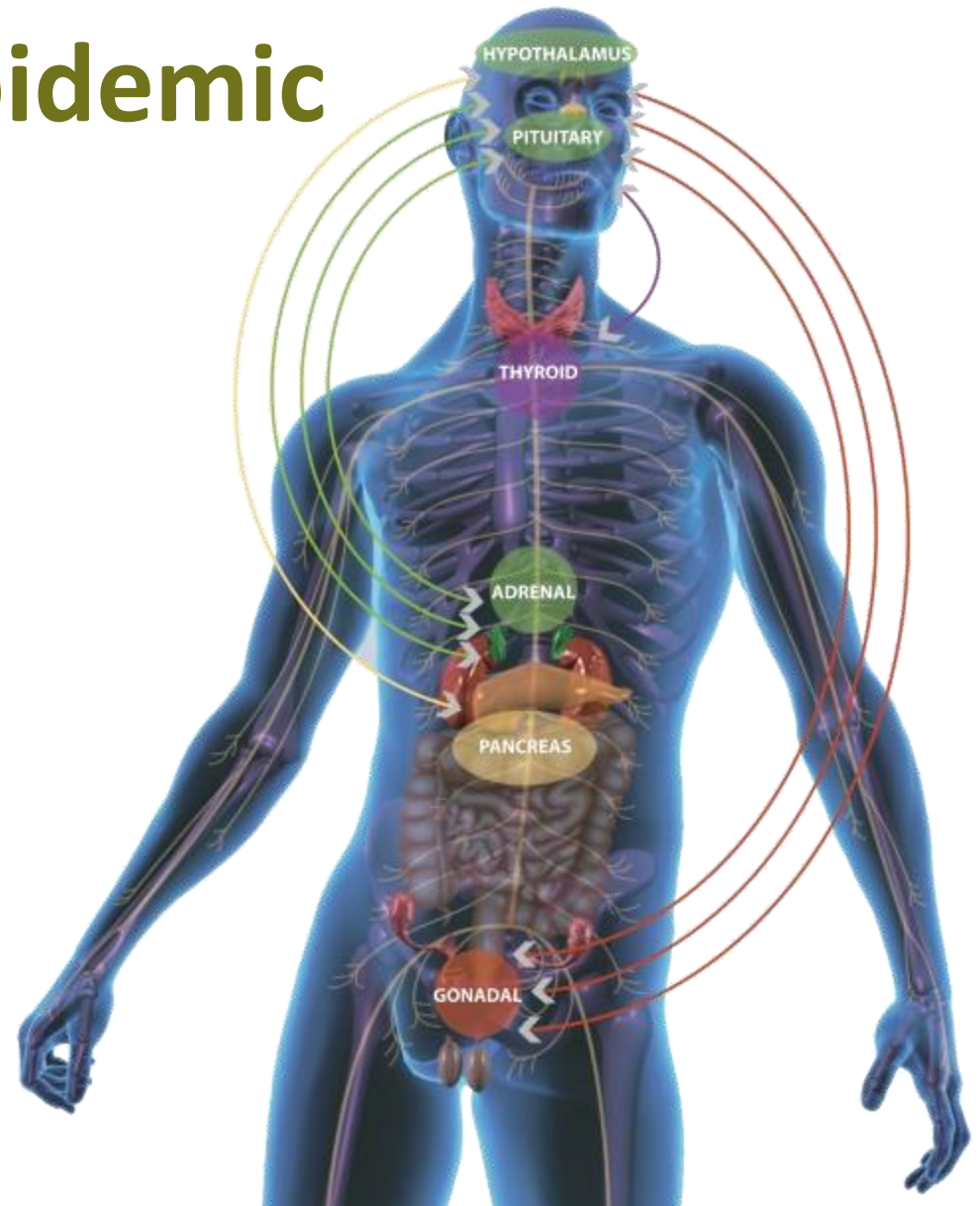
Heal and Optimize Digestion

Protect and Heal Thyroid



HPAT Axis Imbalance – The Modern Epidemic

- ✓ **H**ypothalamus
- ✓ **P**ituitary
- ✓ **A**drenal
- ✓ **T**hyroid





Adrenal Impact on Thyroid

- ✓ Inflammatory cytokines IL-1 beta, IL-6, and TNF-alpha released during the stress response
- ✓ IL-1 beta, IL-6, and TNF-alpha down-regulate the HPA axis and reduce levels of thyroid stimulating hormone (TSH)
- ✓ A single injection of tumor necrosis factor alpha (TNF-alpha) reduced serum TSH, T3, free T4, free T3 and hypothalamic TRH for 5 days.
- ✓ **TNF-alpha** was also found to **decrease the conversion of T4 to T3**, reduce thyroid hormone uptake, and decrease the sensitivity of the thyroid to TSH.

Thyroid. 2007 Oct;17(10):1005-11. Chemokine orchestration of autoimmune thyroiditis. Kimura H¹, Caturegli P.

<http://www.ncbi.nlm.nih.gov/pubmed/1906893>

<http://chriskresser.com/5-ways-that-stress-causes-hypothyroid-symptoms>





More Adrenal Impact on Thyroid

- ✓ Th1 and Th2, IL-6, TNF-alpha, IFN-gamma and IL-1 beta suppress the conversion of T4 to T3.
- ✓ As IL-6 rises, T3 falls.
- ✓ Inflammatory cytokines in the healthy resulted in a rapid reduction of serum T3 and TSH levels, increase in reverse T3, and minimal change in T4
- ✓ Adrenal stress weakens immune barriers and promotes poor immune system regulation, which can lead to autoimmune thyroiditis
- ✓ Inflammatory cytokines suppress thyroid receptor site sensitivity.
- ✓ Prolonged cortisol elevations decrease liver clearance of excess estrogens leading to increased thyroid binding globulin (TBG)

Thyroid. 2007 Oct;17(10):1005-11. *Chemokine orchestration of autoimmune thyroiditis.* Kimura H¹, Caturegli P.

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Adrenal Assessment

- ✓ Symptoms (Surveys or Interview)
- ✓ Physical Signs (Exam)
- ✓ Routine Blood Testing (Indirect)
- ✓ Direct Blood Testing of Adrenal Hormones
- ✓ Saliva Testing
- ✓ Part of 24-Hour Urine Comprehensive Steroid Panel



Score Cards Review

- ✓ Have client fill in *Adrenal Assessment Scorecard*
- ✓ Ask questions
- ✓ Get a score before you start to rebuild adrenals
- ✓ Repeat the test afterwards



Symptoms of Over-Active Adrenals

- ✓ Cannot fall asleep
- ✓ Under high amounts of stress
- ✓ Weight gain when under stress
- ✓ Wake up tired even after 6 or more hours of sleep
- ✓ Excessive perspiration, or perspiration with little or no activity
- ✓ Tired and wired



Symptoms of Low Adrenals

- ✓ Low energy
- ✓ Frequent illness
- ✓ Poor recovery from exercise
- ✓ Dark circles under eyes
- ✓ Tendency to pallor, especially around mouth
- ✓ Ligament and tendon laxity



- ✓ Cold intolerance
- ✓ Craves salt
- ✓ Low blood pressure, especially upon arising
- ✓ Thin, dry, dull hair that tends to fall out
- ✓ Sparse hair on forearms or lower legs
- ✓ Light sensitivity
- ✓ Dry skin



Adrenal Fatigue – Stage 1

Tired and Wired

- ✓ Sympathetic Dominant State
 - DHEA low
 - Cortisol high
- ✓ Draining Your Reserves
- ✓ Negative Effects of Cortisol
- ✓ Slump in Mid-Afternoon
- ✓ Wired at Bedtime



Adrenal Fatigue – Stage 2

Reserves Becoming Depleted

- ✓ Sympathetic Dominant State
 - DHEA low
 - Cortisol normal, with possible low dips
- ✓ Low Reserves
- ✓ Immune System Compromised

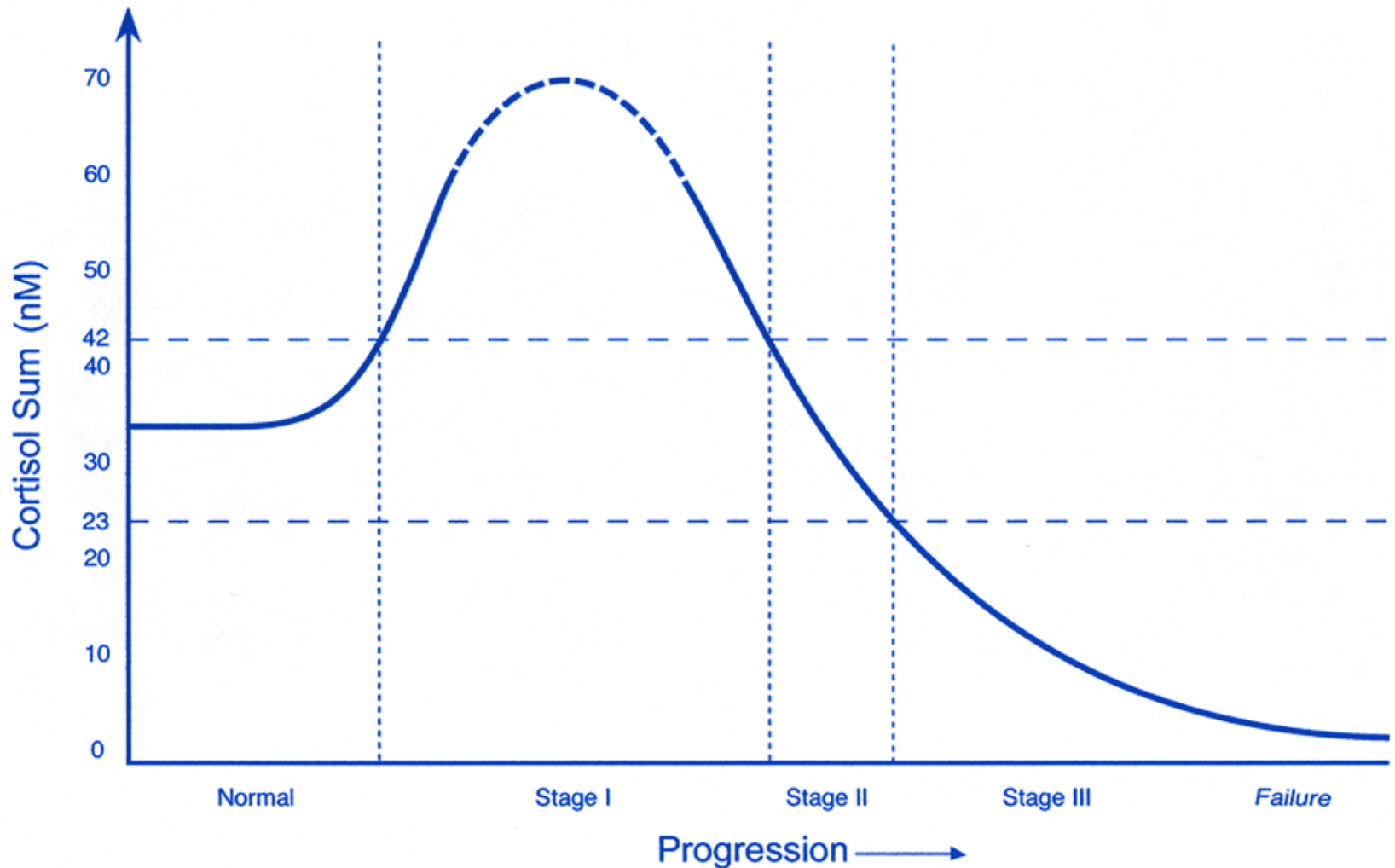


Adrenal Fatigue – Stage 3 Exhaustion

- ✓ Sympathetic Dominant State
 - DHEA low
 - Cortisol low
- ✓ Suffering From Negative Effects of Chronic Elevated Cortisol
- ✓ Low Libido
- ✓ Sex Hormone Imbalances
- ✓ Accelerated Aging
- ✓ Poor Memory



Progression of Stages in Adrenal Exhaustion – per BioHealth



Exam Signs of Adrenal Problems

- ✓ **Blood pressure goes down** upon standing
- ✓ Pupils can't stay **constricted** with bright light
- ✓ **Rib margin tenderness**
- ✓ Brown or black **discoloration below eyelids**
- ✓ **Dark gray or reddish** back of tongue
- ✓ Ulcerations or **canker sores**
- ✓ **Bad breath**
- ✓ Rough, red, **flaky cuticles**
- ✓ **Tongue signs**



Routine Blood Screen: Adrenal Analysis

Low Adrenal

- ✓ Potassium +
- ✓ Sodium -
- ✓ Glucose -



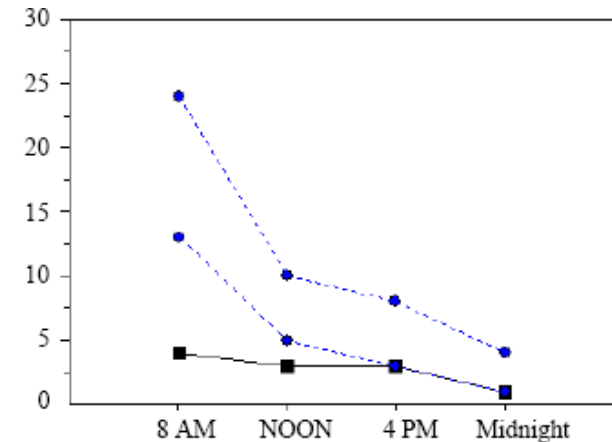
Hyper Adrenal

- ✓ Potassium -
- ✓ Sodium +
- ✓ Glucose +
- ✓ Triglycerides +



Adrenal Saliva Testing vs Urine and Blood

- ✓ Non-invasive
- ✓ Convenient: The specimen can be collected at home or at work
- ✓ Precision:



- Captures **hour by hour cycling** of adrenal hormones
- Measures the **biologically active fraction** – blood reflects the protein bound
- Samples are **stable for several weeks**



Adrenal vs. Thyroid

Major Symptom Differentiations

Sign or Symptom	Hypothyroid Tendency	Hypoadrenal Tendency
Body temperature	Low and consistent	Low and fluctuates
Energy pattern	Generally sluggish	"Wired and tired"
Body type	Difficulty losing fat	Difficulty gaining muscle
Blood pressure	Normal to high	Low to normal
Total cholesterol	High	Low
Facial color	Reddish	Pale
Sweating	Scanty or none	Profuse
Bowels	Sluggish / constipated	Irritable or hyper functioning



Adrenal Home Testing

- ✓ Konisburg Adrenal Fatigue
- ✓ Oxidata
- ✓ Vitamin C Flush
- ✓ Zinc Taste Test
- ✓ Salivary pH Challenge

