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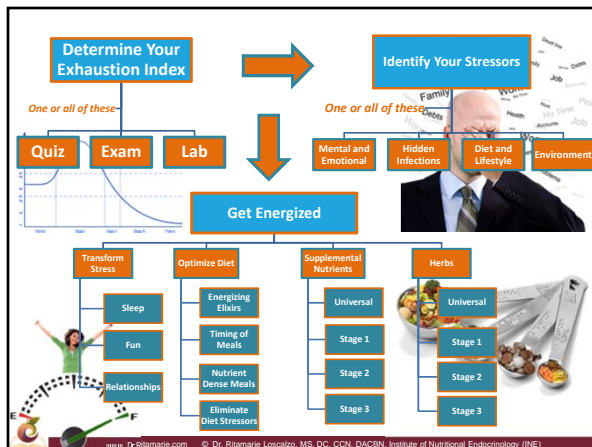
Practitioner's Adrenal Fatigue Training (PAFT) Part 1

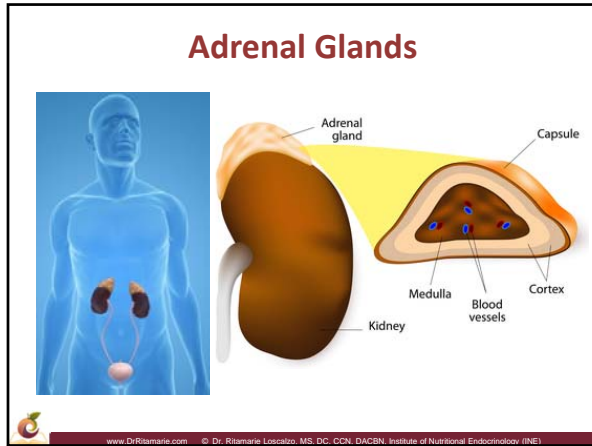
Dr. Ritamarie Loscalzo

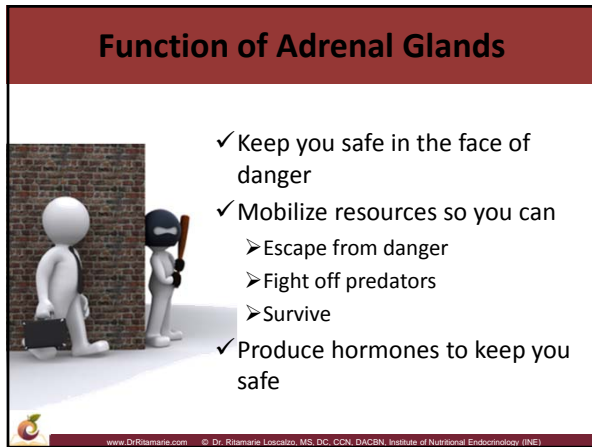
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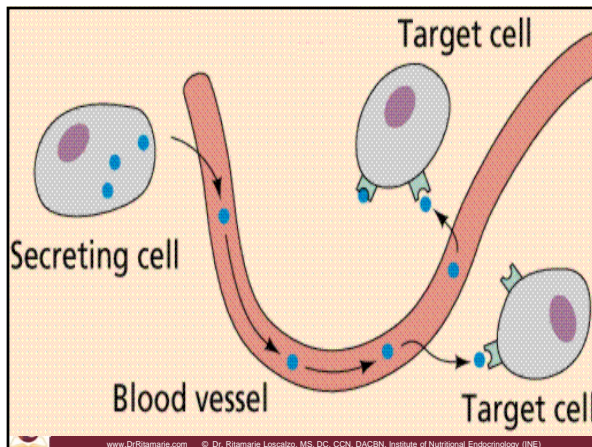
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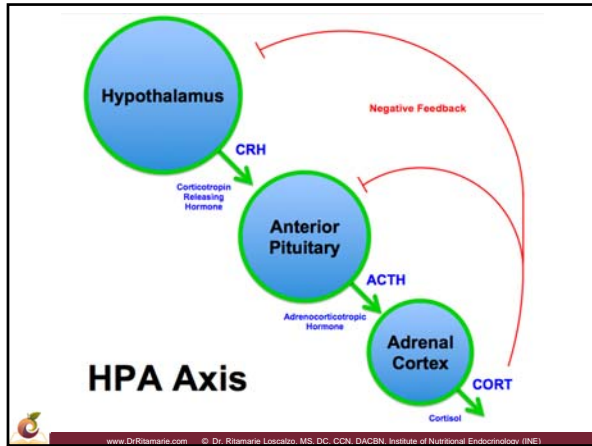








INE: (PAFT) Practitioner's Adrenal Fatigue Training - Part 1



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

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Adrenal Hormone Secretions

Outer Zone (Cortex)

- Cortisol
- DHEA
- Aldosterone


Inner Zone (Medulla)

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

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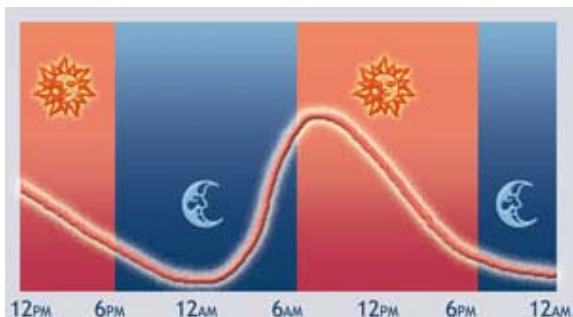
What Can (and Often Does) Go Wrong?

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



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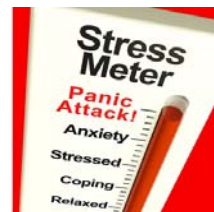
Circadian Rhythm



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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.



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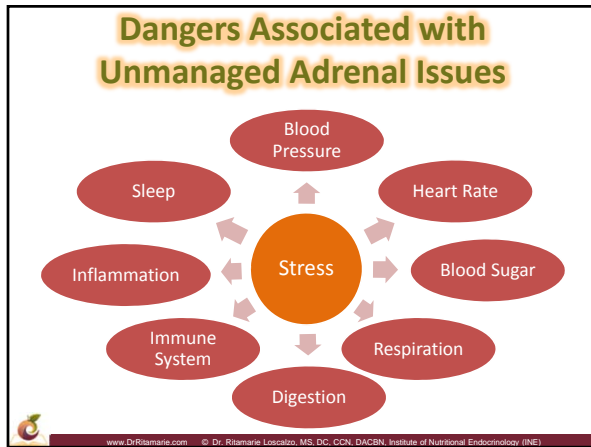
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STRESS



- ✓ 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

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Adrenal Burnout and Sex Drive



Cortisol

Pregnenolone

DHEA

Testosterone

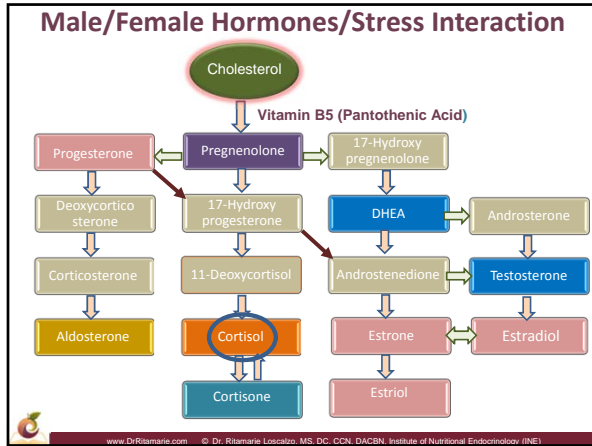
Sex hormone

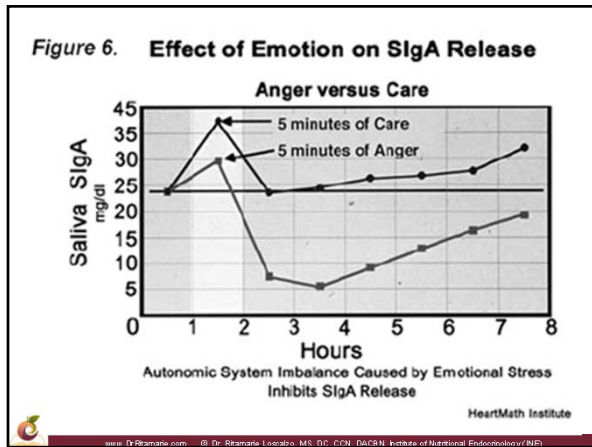
Estrogen

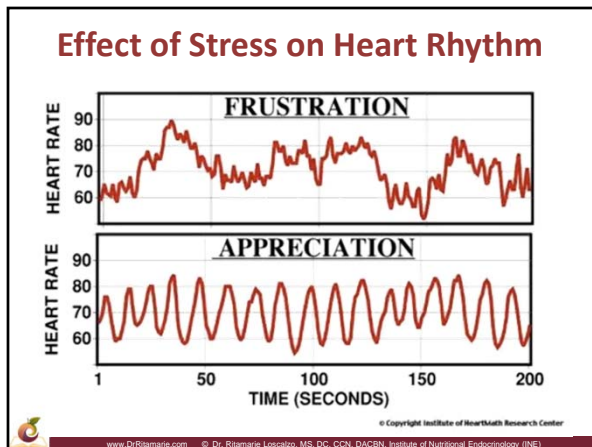
Progesterone

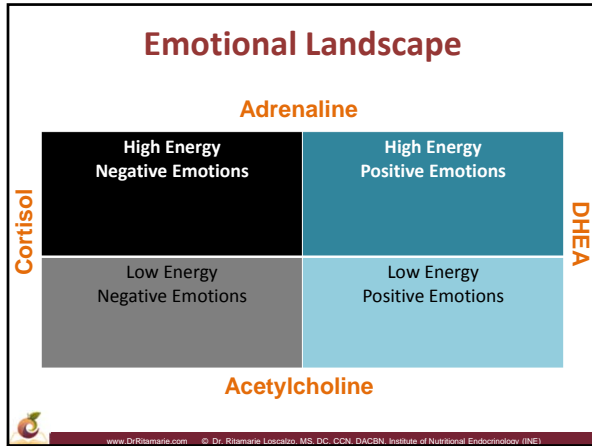
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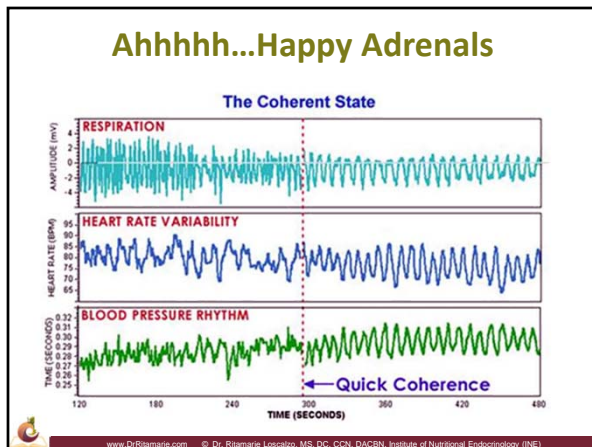


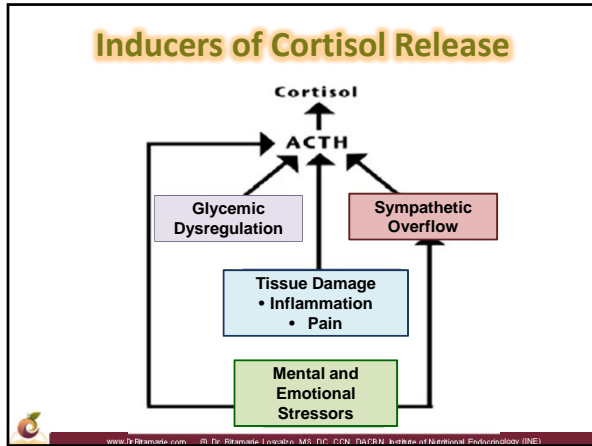


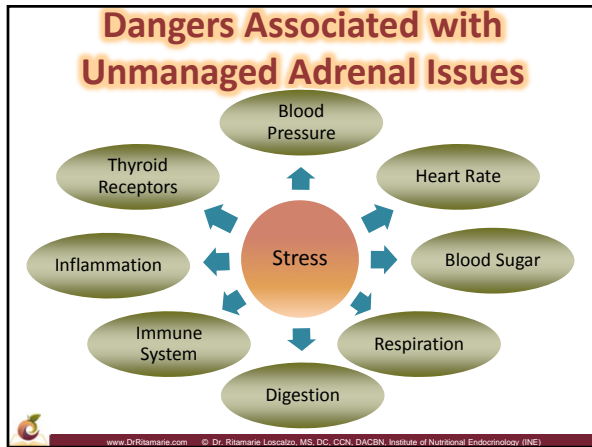


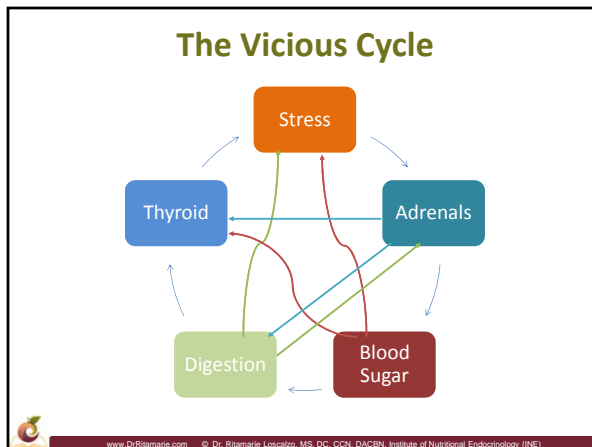












Breaking the Vicious Cycle

Manage Stress	Repair and Recharge Adrenal	Balance Blood Sugar	Heal and Optimize Digestion	Protect and Heal Thyroid
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HPAT Axis Imbalance – The Modern Epidemic

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


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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>

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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 H, Coturell P. <http://www.ncbi.nlm.nih.gov/pubmed/17936423> <http://chriskresser.com/5-ways-that-stress-causes-hypothyroid-symptoms>

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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



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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



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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



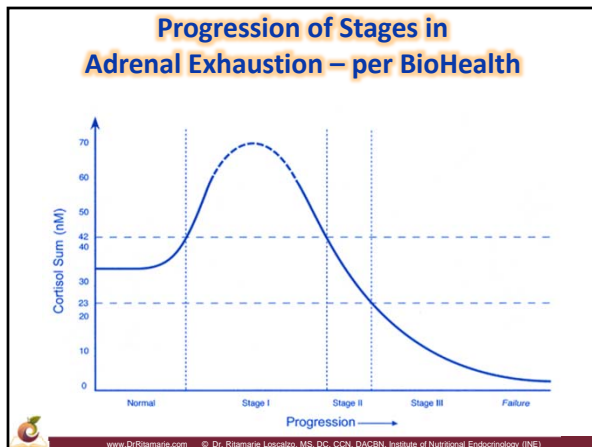
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Adrenal Fatigue – Stage 3 Exhaustion

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



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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



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Routine Blood Screen: Adrenal Analysis

Low Adrenal

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



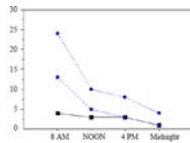
Hyper Adrenal

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

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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



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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

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Adrenal Home Testing

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



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