



SHINE CONFERENCE

with Dr. Ritamarie Loscalzo (MS, DC, CCN, DACBN)

SCIENTIFIC AND HOLISTIC INVESTIGATION
OF NUTRITIONAL ENDOCRINOLOGY



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.

DAY 1



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What Brings Them to You?



Complex Health Challenges

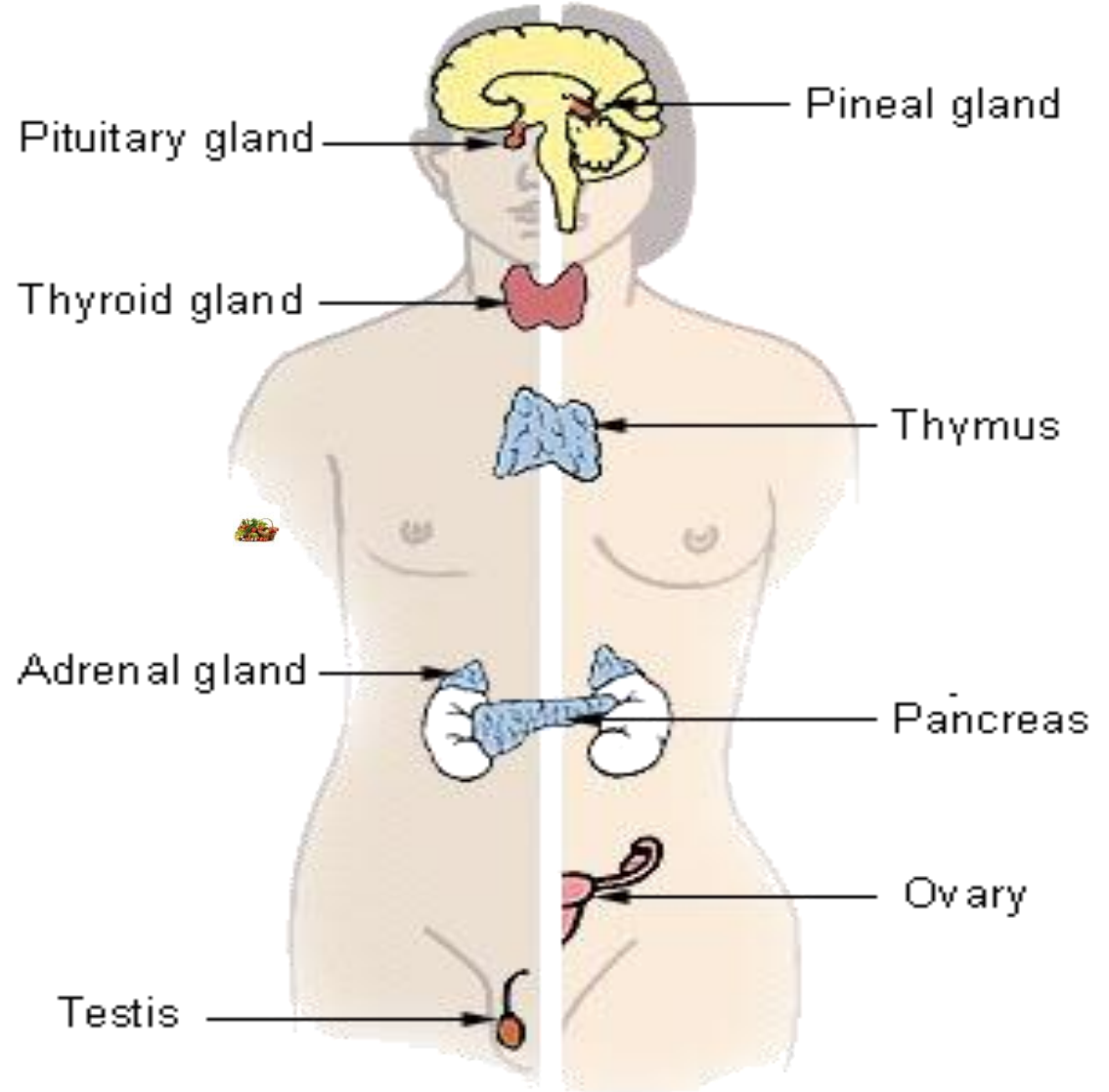


Nutritional Endocrinology to the Rescue



Major Endocrine Glands

Male Female



Functional Medicine/Nutrition



history

genetics

energy

touch

labs

thoughts



emotions

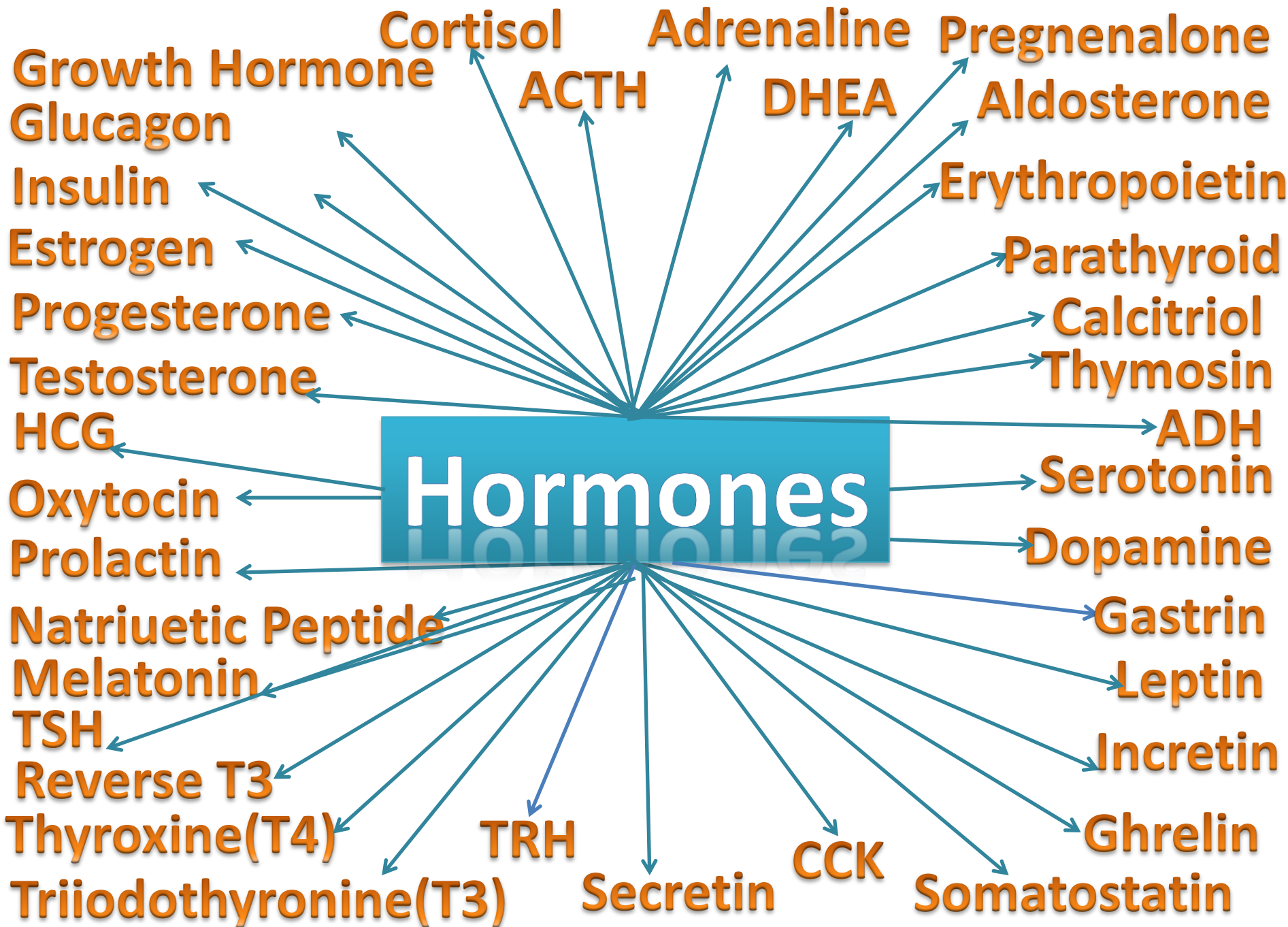
environment

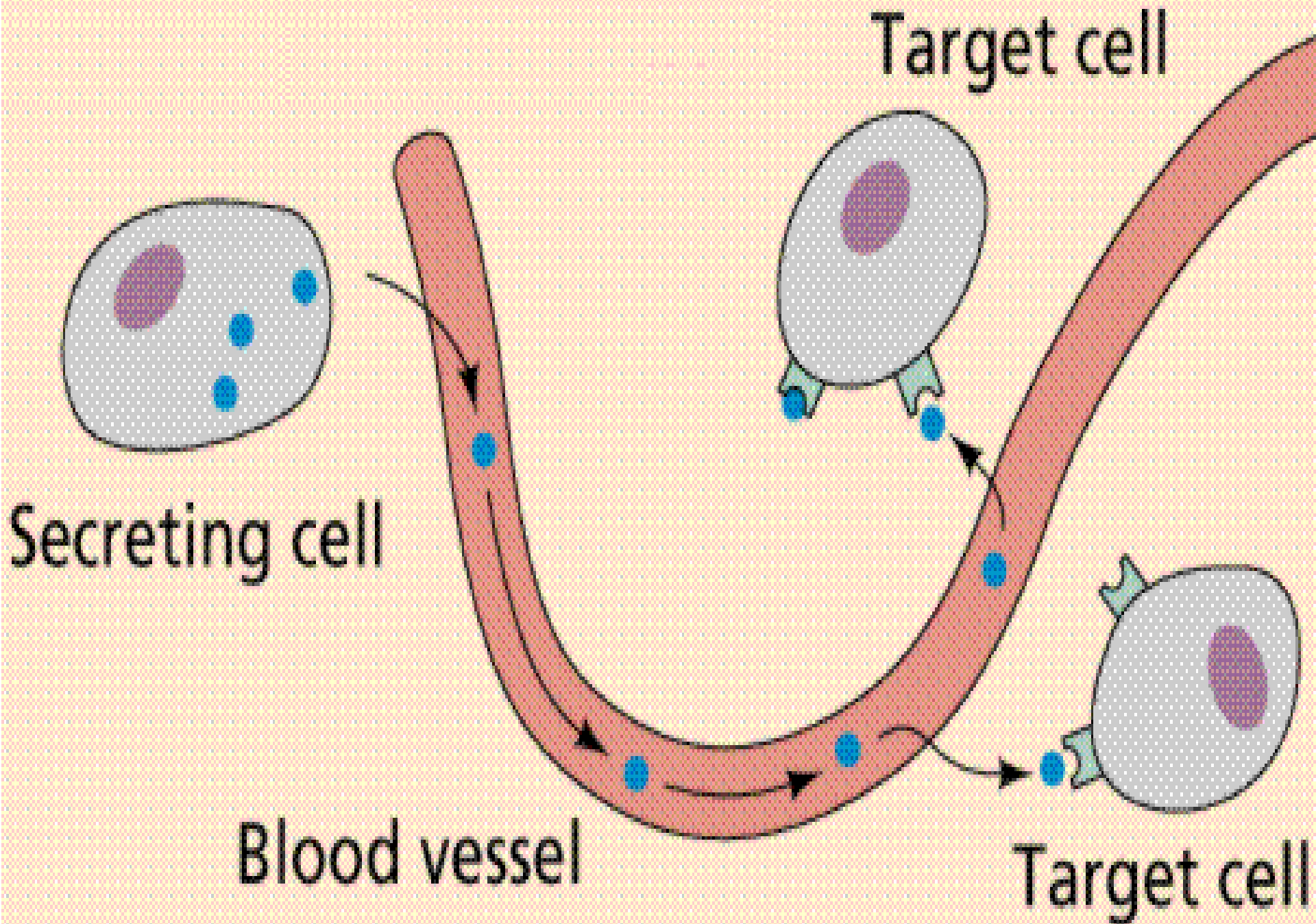
relationships

nutrition

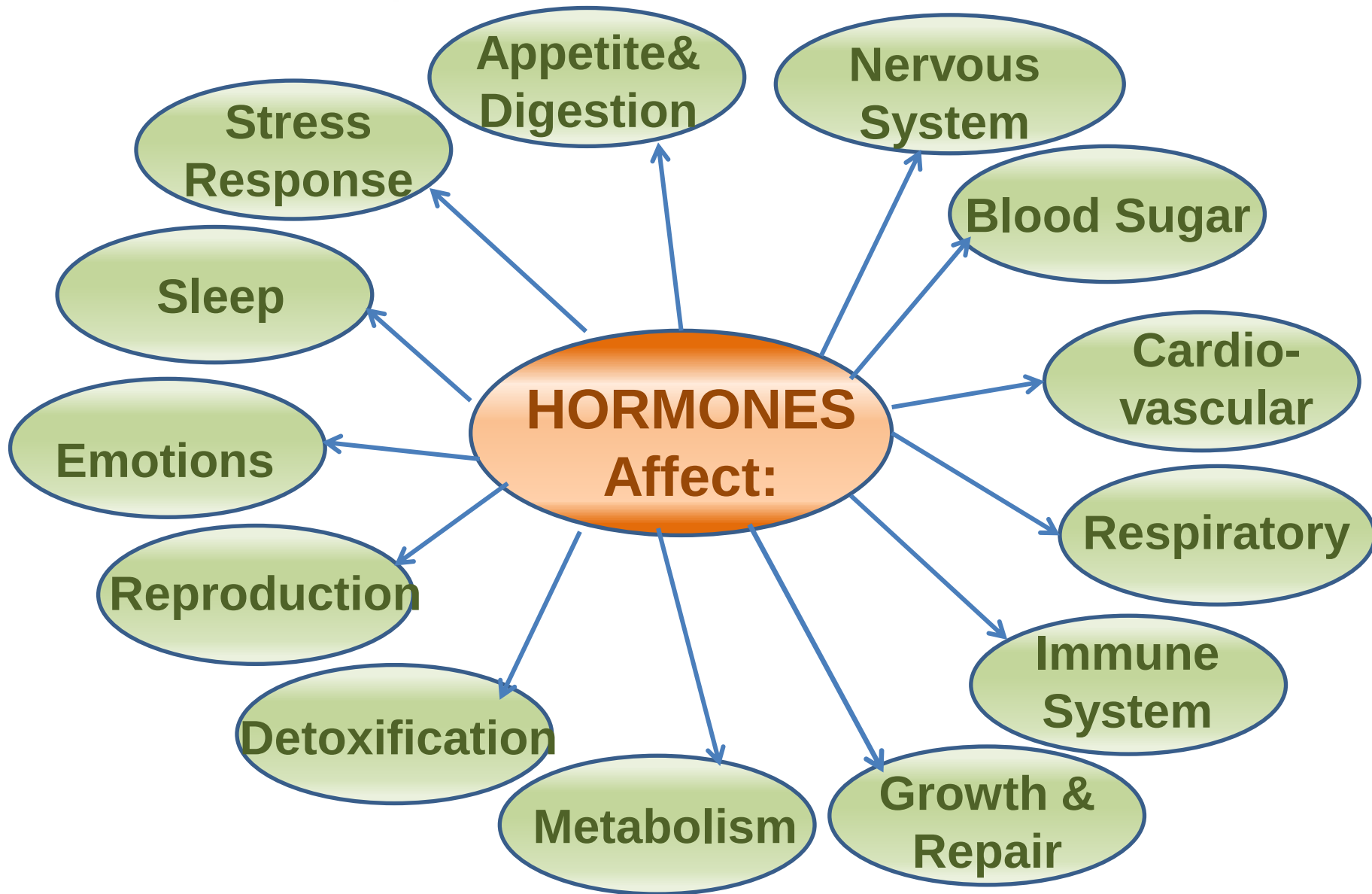


HORMONES





Entangled Relationships





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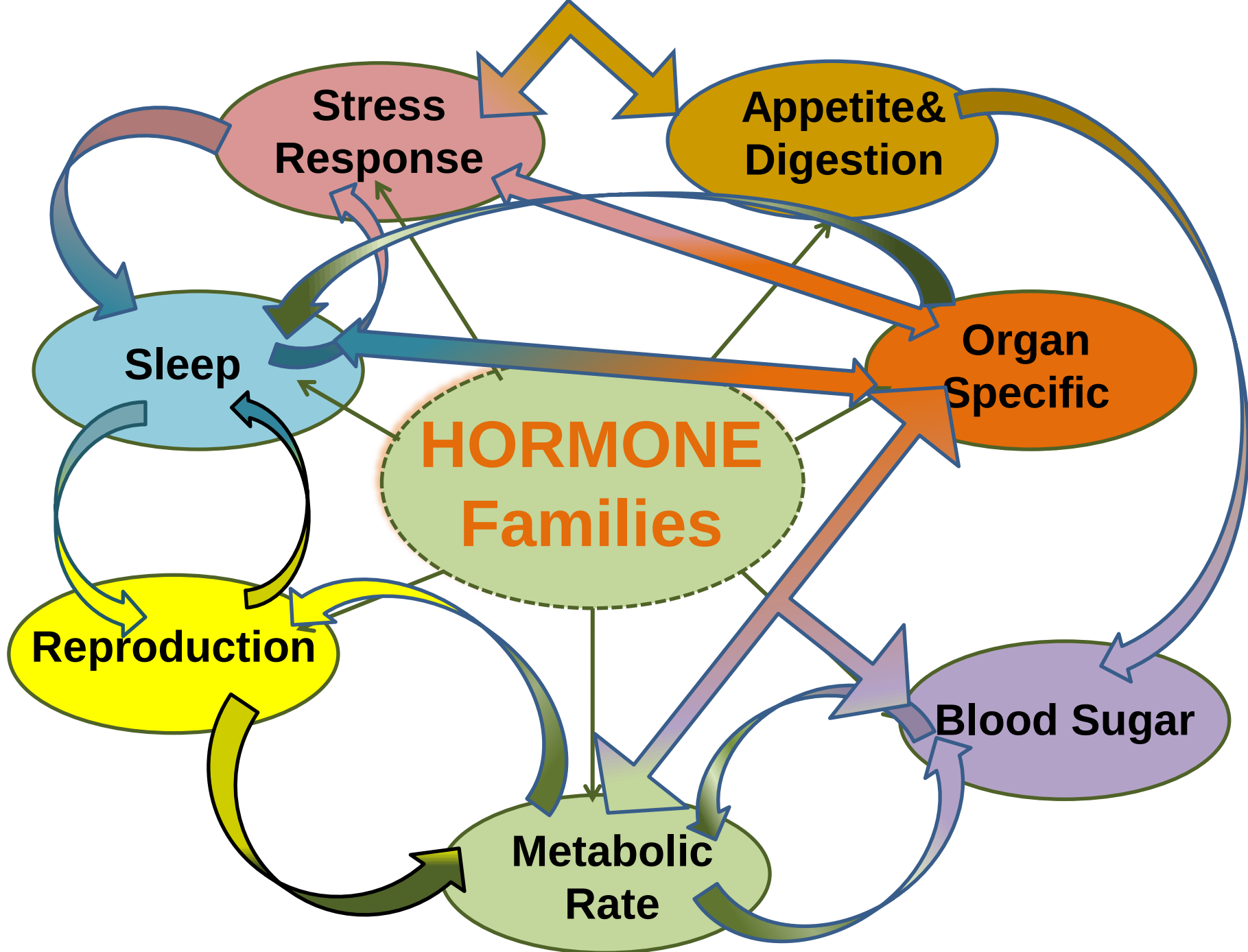
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Hormone Families

- ✓ Metabolic rate
- ✓ Blood sugar balancing
- ✓ Appetite & digestion
- ✓ Stress
- ✓ Sex and reproduction
- ✓ Sleep, thoughts, and emotions
- ✓ Organ functions





Late Breaking News on the Hormone Front

Pregnenolone Blocks Marijuana High

January 2014: Pregnenolone blocks the activity of the type-1 cannabinoid receptor (CB1) in the brain, according to senior researcher Dr. Pier Vincenzo Piazza of Neurocentre Magendie in Bordeaux, France.

Late Breaking News on the Hormone Front

Hormones in BRCA Gene Carriers 'Explain Cancer Risk'

October 2013: Study by researchers from the Department of Women's Cancer at University College London (UCL) in the UK suggests that high levels of Estradiol may be a reason women with BRCA1 and BRCA2 gene SNPs are more likely to develop breast and ovarian cancer over other cancers. Hormones in BRCA gene carriers 'explain cancer risk'

Late Breaking News on the Hormone Front

Obese Kids Have Higher Cortisol Than Non-Obese Kids

December 2013: Researchers from the Erasmus MC-Sophia Children's Hospital in the Netherlands examined levels of cortisol from hair samples taken from 20 obese children (15 girls and five boys) and 20 normal weight children (15 girls and five boys), all of whom were between the ages of 8 and 12. None of the children had any chronic diseases, though three of the obese children had metabolic syndrome.

<http://press.endocrine.org/journal/jcem>

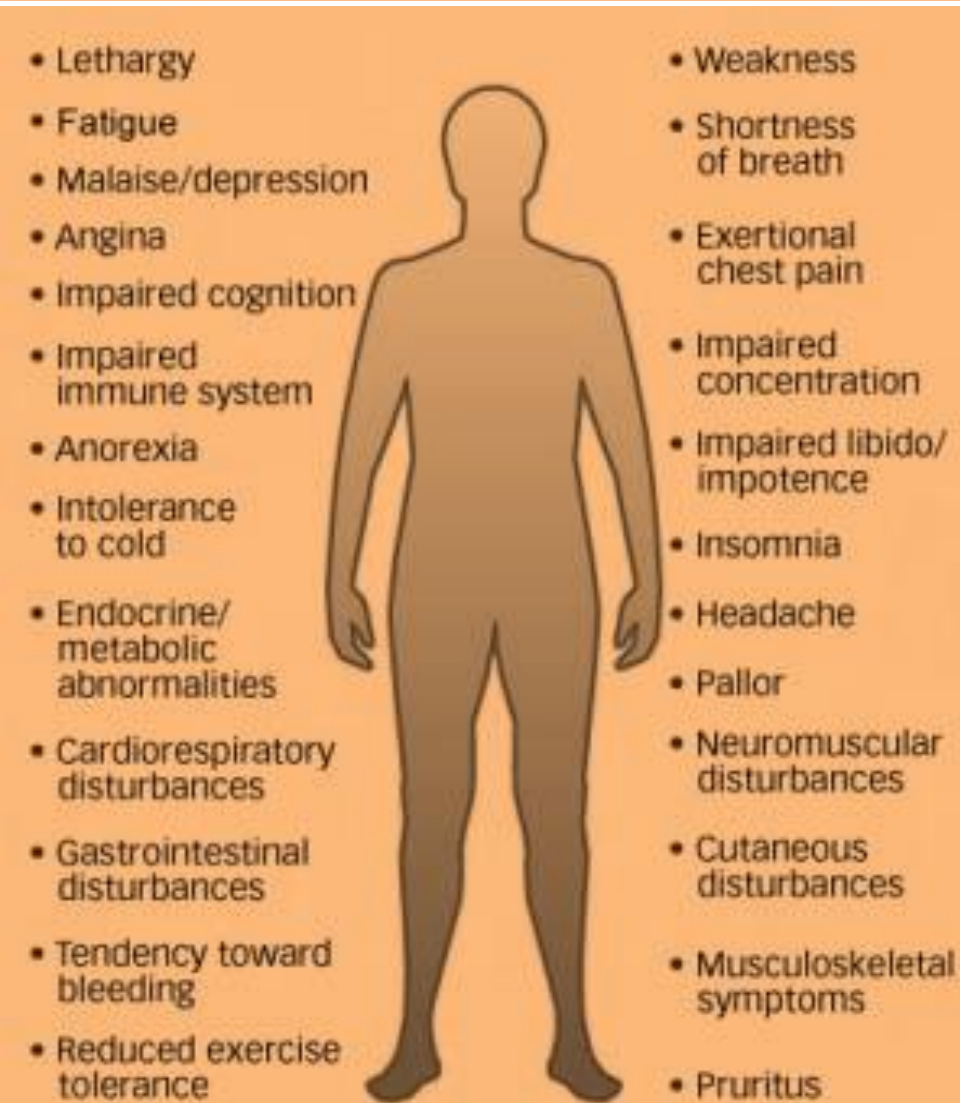
Late Breaking News on the Hormone Front

Oxytocin Stimulates the Reward Center In the Male Brain, Increasing Partner Attractiveness and Strengthening Monogamy

October 2013: Lead author that when the subjects "received oxytocin instead of the placebo, their reward system in the brain when viewing the partner was very active, and they perceived them as more attractive than the other women."

Oxytocin enhances brain reward system responses in men viewing the face of their female partner, René Hurlemann, et al., Proceedings of the National Academy of Sciences, doi: 10.1073/pnas.1314190110, published online 25 November 2013, Abstract.

Just About Any Symptom You Can Think Of Can Be Hormone Related



- ✓ Fatigue
- ✓ Weight gain / weight loss (yo-yo)
- ✓ Insomnia
- ✓ Depression, anxiety, and mood swings
- ✓ Skin lesions
- ✓ High cholesterol
- ✓ Cancer...

Assessment Tools

- ✓ Asking the Right Questions
- ✓ Symptom Surveys
- ✓ Physical Exam
- ✓ Blood Chemistry
- ✓ Functional Assessments
 - Adrenal Stress Index
 - Fatty Acids
 - Amino Acids
 - Organic Acids
 - Minerals
 - Steroid Hormone Panels



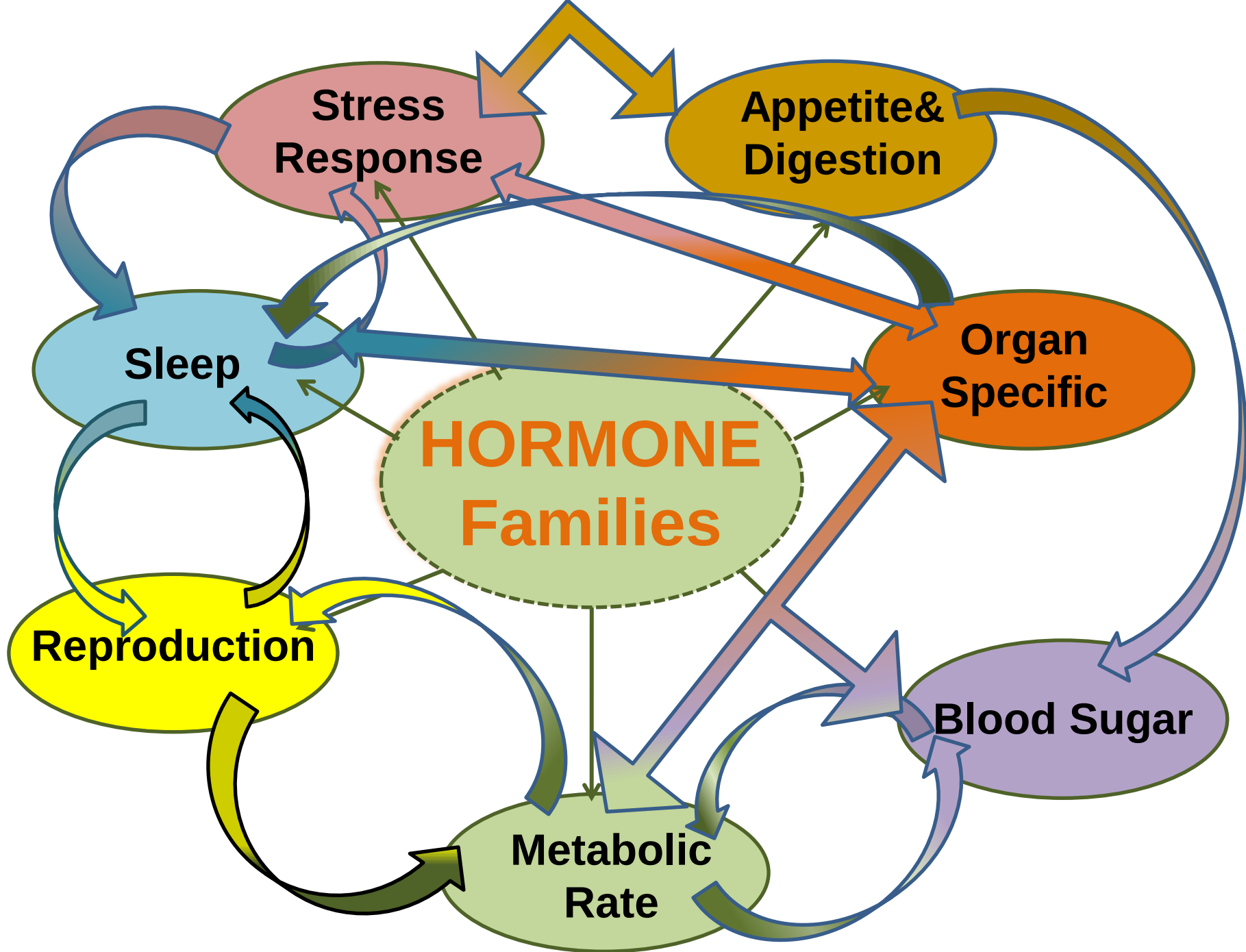


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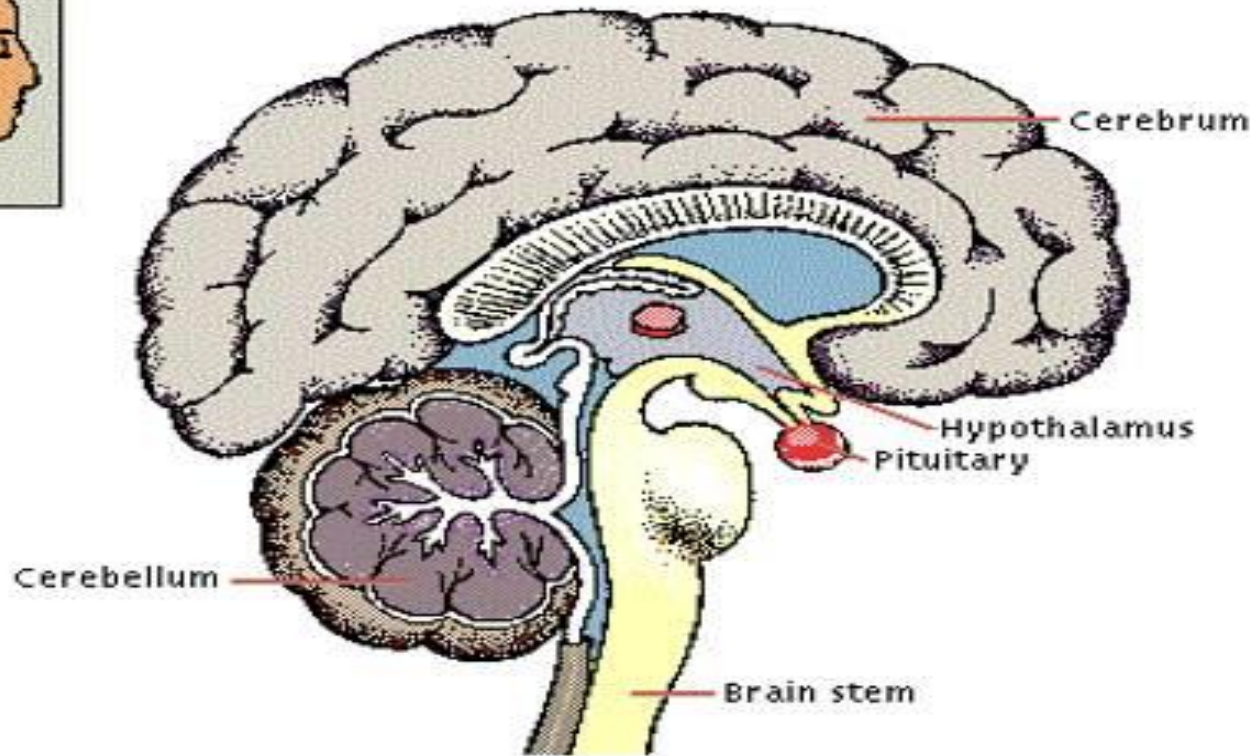
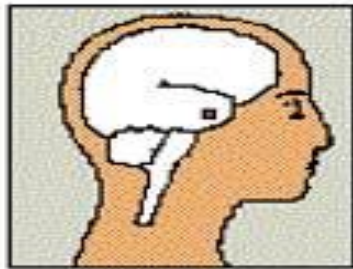
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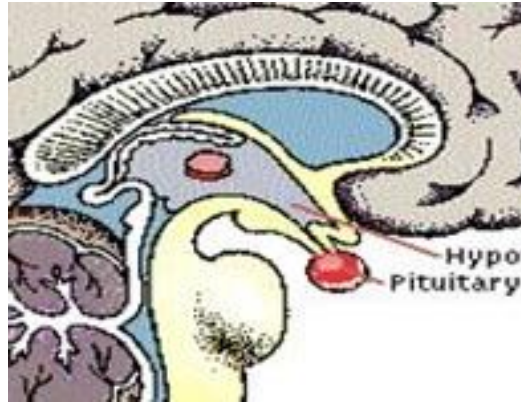


Master Hormone Control

The Pituitary & Hypothalamus



Hormones of the Hypothalamus

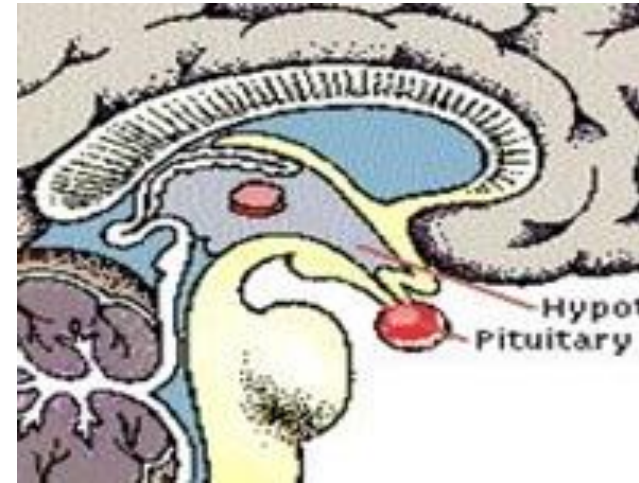


- ✓ Thyrotropin-releasing hormone (**TRH**)
- ✓ Gonadotropin-releasing hormone (**GnRH**)
- ✓ Growth hormone-releasing hormone (**GHRH**)
- ✓ Corticotropin-releasing hormone (**CRH**)
- ✓ Somatostatin: inhibits growth hormone (**GH**)

Pituitary Hormones

Anterior Lobe

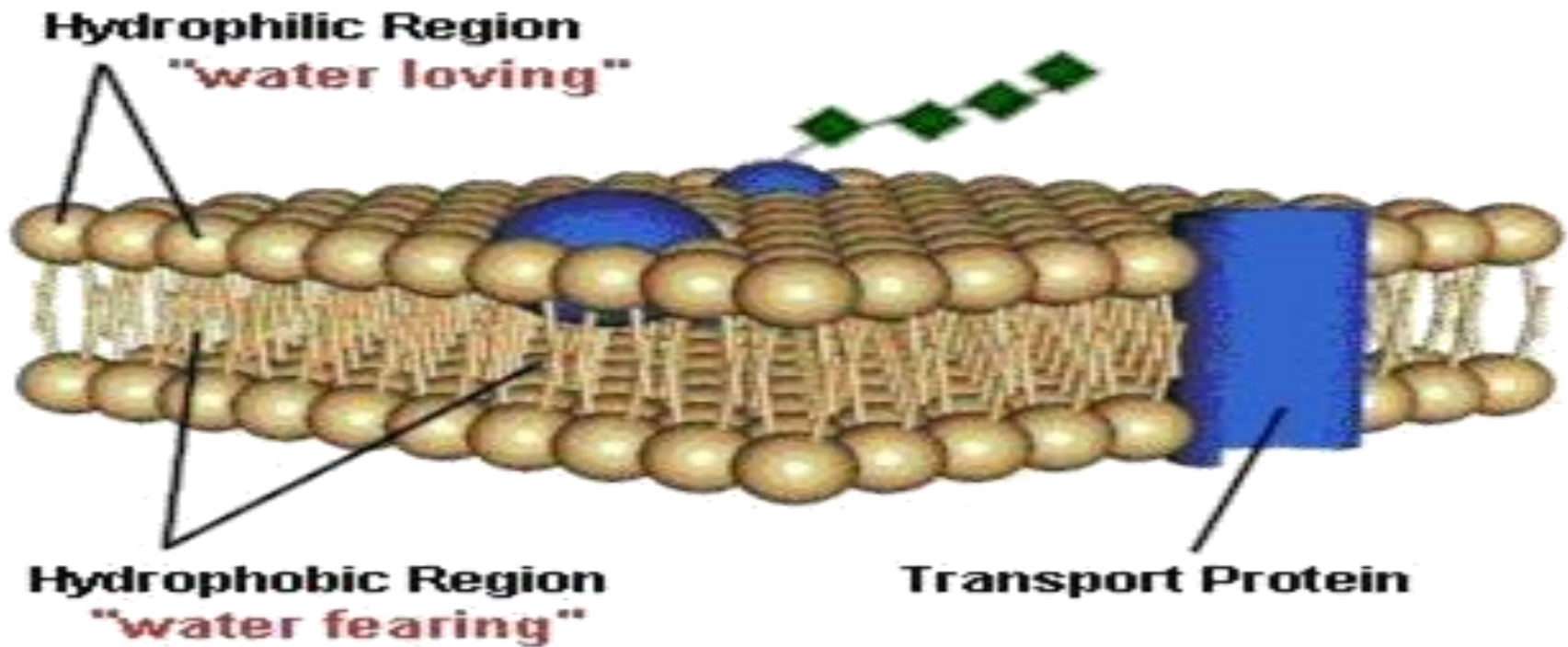
- ✓ Thyroid Stimulating Hormone (**TSH**)
- ✓ Follicle Stimulating Hormone (**FSH**)
- ✓ Luteinizing Hormone (**LH**)
- ✓ **ACTH**
- ✓ Prolactin (**PRL**)
- ✓ Growth Hormone (**GH**)
- ✓ Alpha Melanocyte-Stimulating Hormone (**α -MSH**)



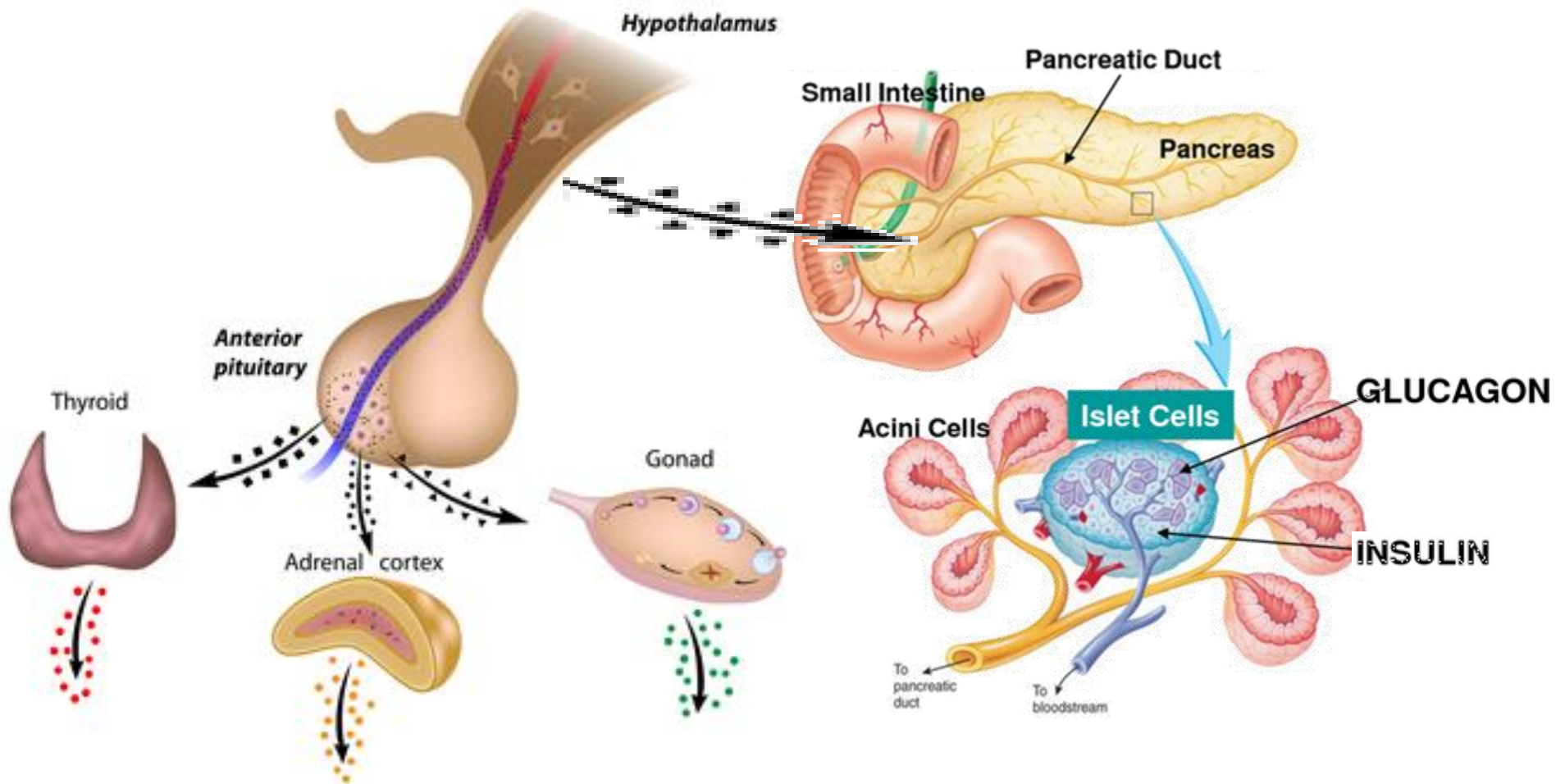
Posterior Lobe

- ✓ Vasopressin
- ✓ Oxytocin

Hormone Receptor in Cell Membrane

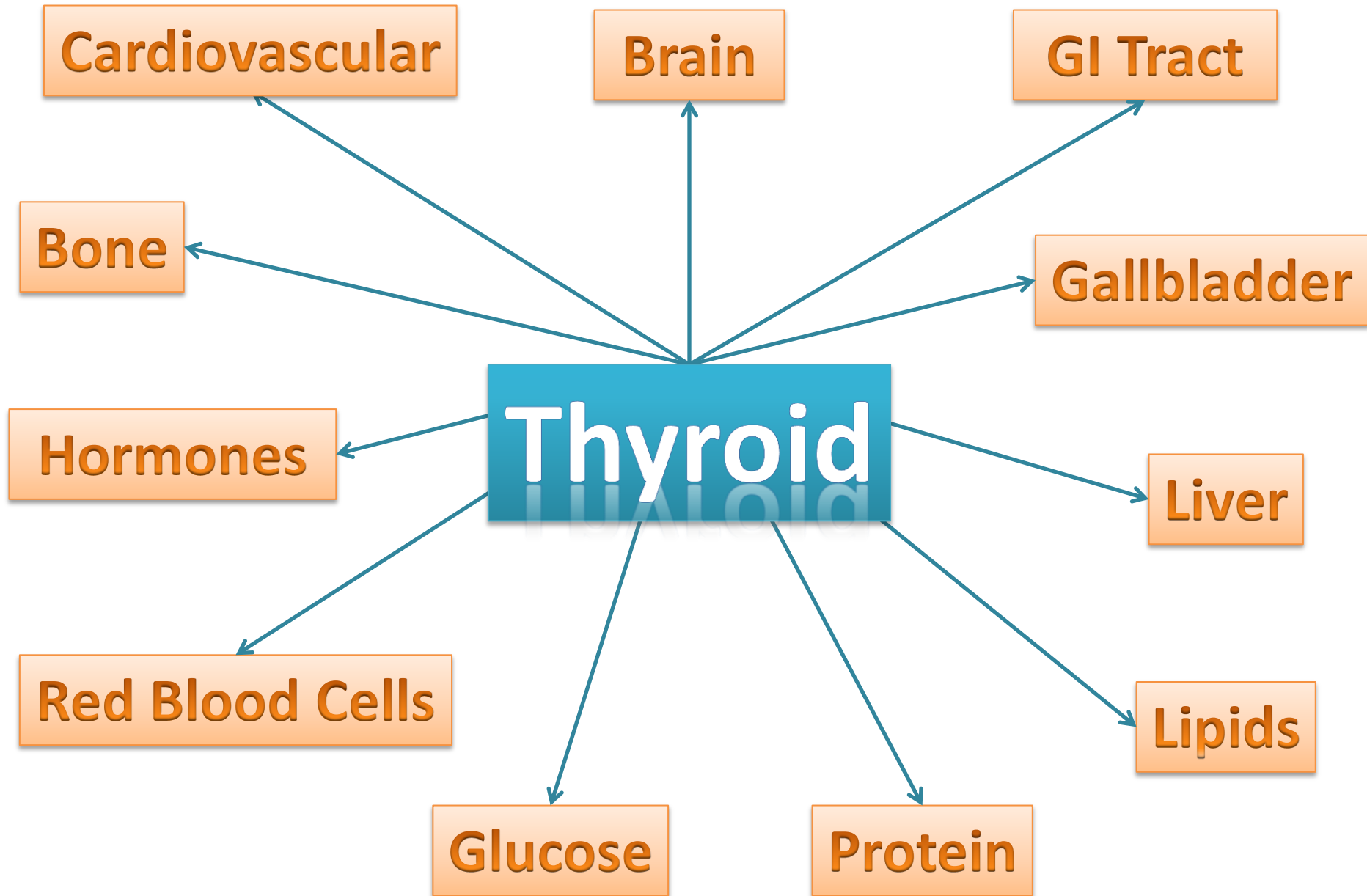


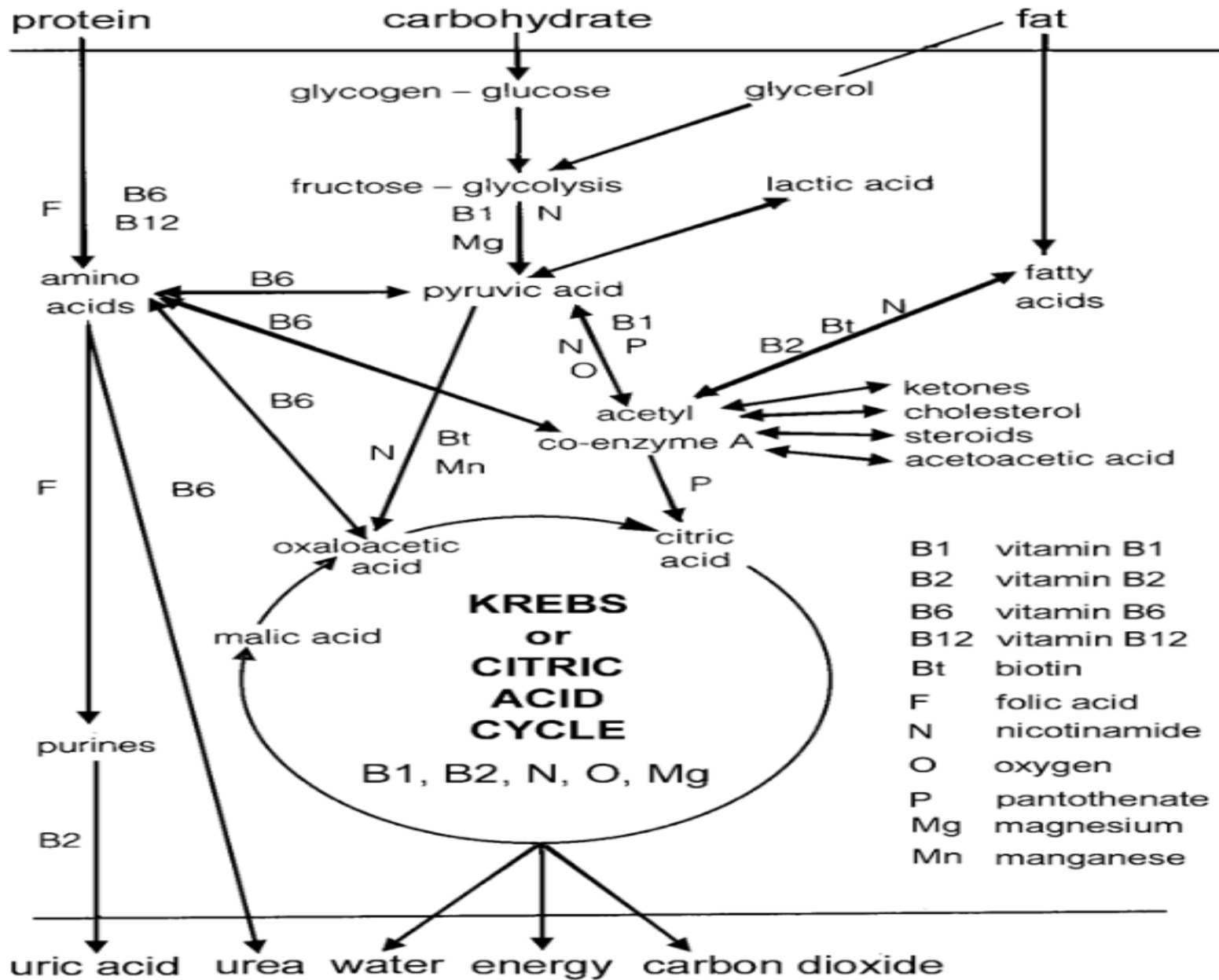
Hormones In Charge of Metabolic Rate



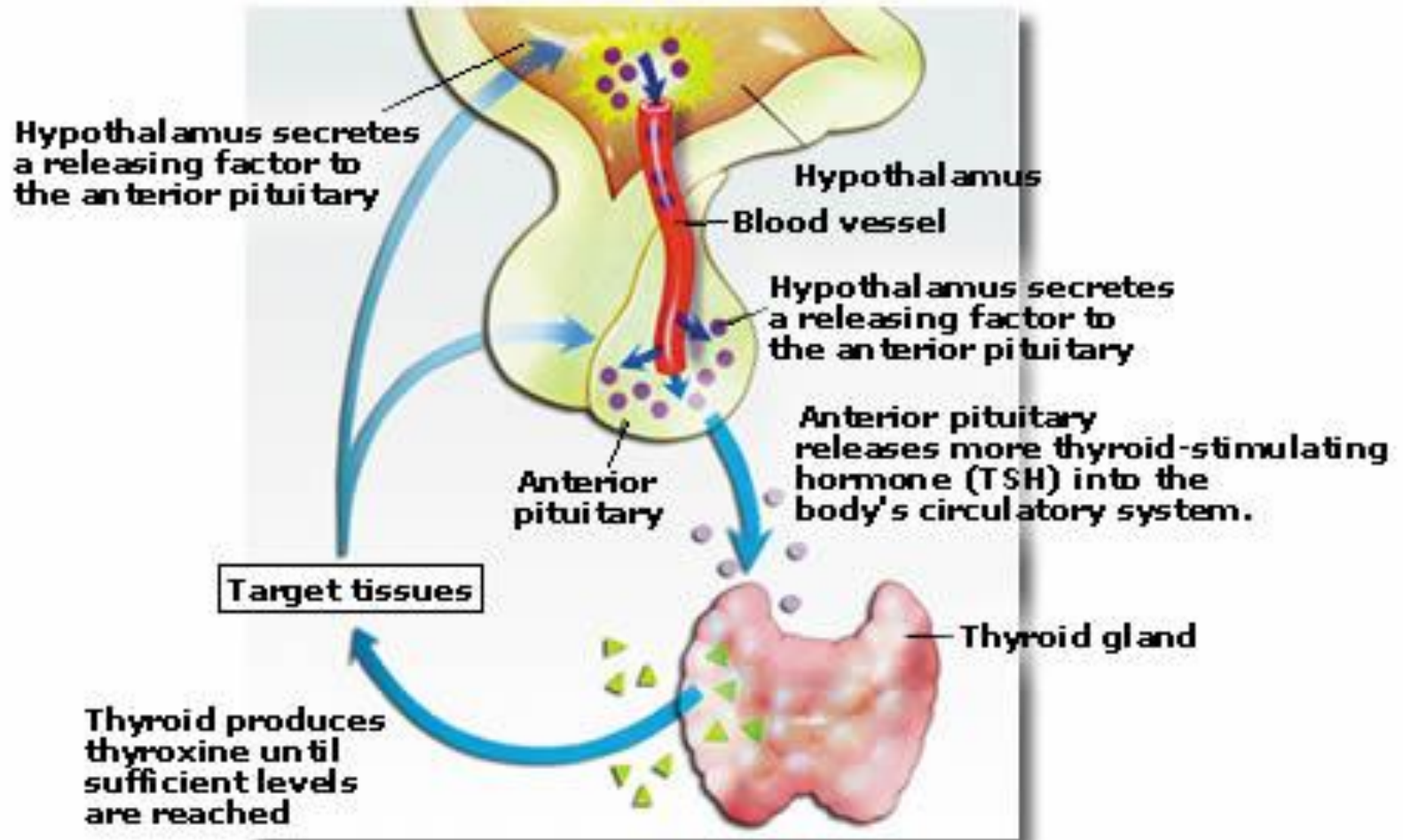
Metabolic Rate Hormone Family

Hormone	Produced by	Action
Thyroxine (T4), Free T4	Thyroid	Converts to T3 which stimulates oxygen uptake by cells
Triiodothyronine (T3), Free T3	Thyroid	Most profound effect on metabolic rate - increases
Thyroid Stimulating Hormone (TSH)	Anterior pituitary	Stimulates release of T4
Thyrotropin Releasing Factor (TRH)	Hypothalamus	Stimulates release of TSH
Reverse T3	Thyroid	Inhibits T3 and decreases metabolic rate
Insulin	Adrenal cortex	Enhances uptake of glucose into cells and subsequent ATP Production
Epinephrine (adrenalin)	Thyroid	Enhances metabolic rate and also insulin
Cortisol	Adrenal cortex	Enhances release of stored sugar and supplies additional fuel to cells





Thyroid Control



Blood Sugar Balancing Hormones

Hormone	Produced by	Action
Insulin	Fat cells	Stimulates glucose uptake into cells and reduces blood glucose
Glucagon	Stomach lining	Stimulates glucose release from glycogen and synthesis from amino acids and fats
Somatostatin	Stomach, intestine and pancreas	Suppresses glucagon and insulin, gastric hormones, GH , TS and prolactin
Growth Hormone	Anterior pituitary	Antagonizes insulin
Epinephrine (Adrenaline)	Adrenal medulla	Enhances glucose release from glycogen and fat
Cortisol	Adrenal cortex	Antagonizes insulin and stimulate gluconeogenesis and increases glucose
Thyroxine (T4)	Thyroid	Enhances release of glucose from glycogen and absorption of sugars from intestine
ACTH	Anterior Pituitary	Enhances release of cortisol and fatty acids from adipose tissue
Incretin	Small Intestine	Increases insulin even before glucose enters bloodstream

Insulin And Glucagon Imbalance

✓ Blood sugar imbalances weaken and imbalance:

- gut
- hormone levels
- lungs
- adrenal glands
- brain
- detoxification pathways

✓ This leads to

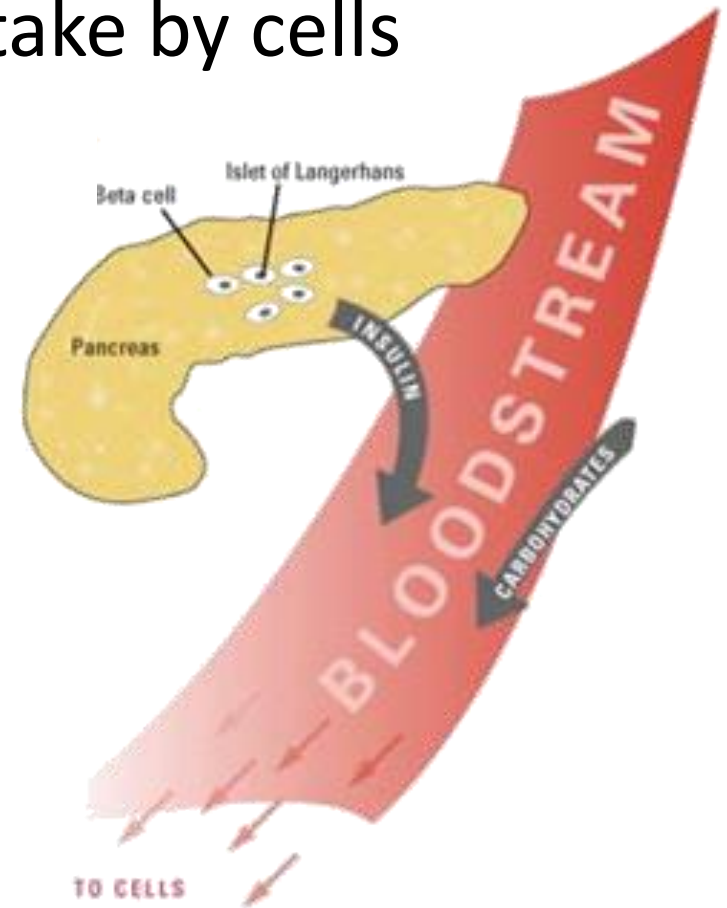
- impaired metabolism
- weakened thyroid function

✓ As long as you have blood sugar dysregulation, **whatever you do to fix your thyroid isn't going to work.**



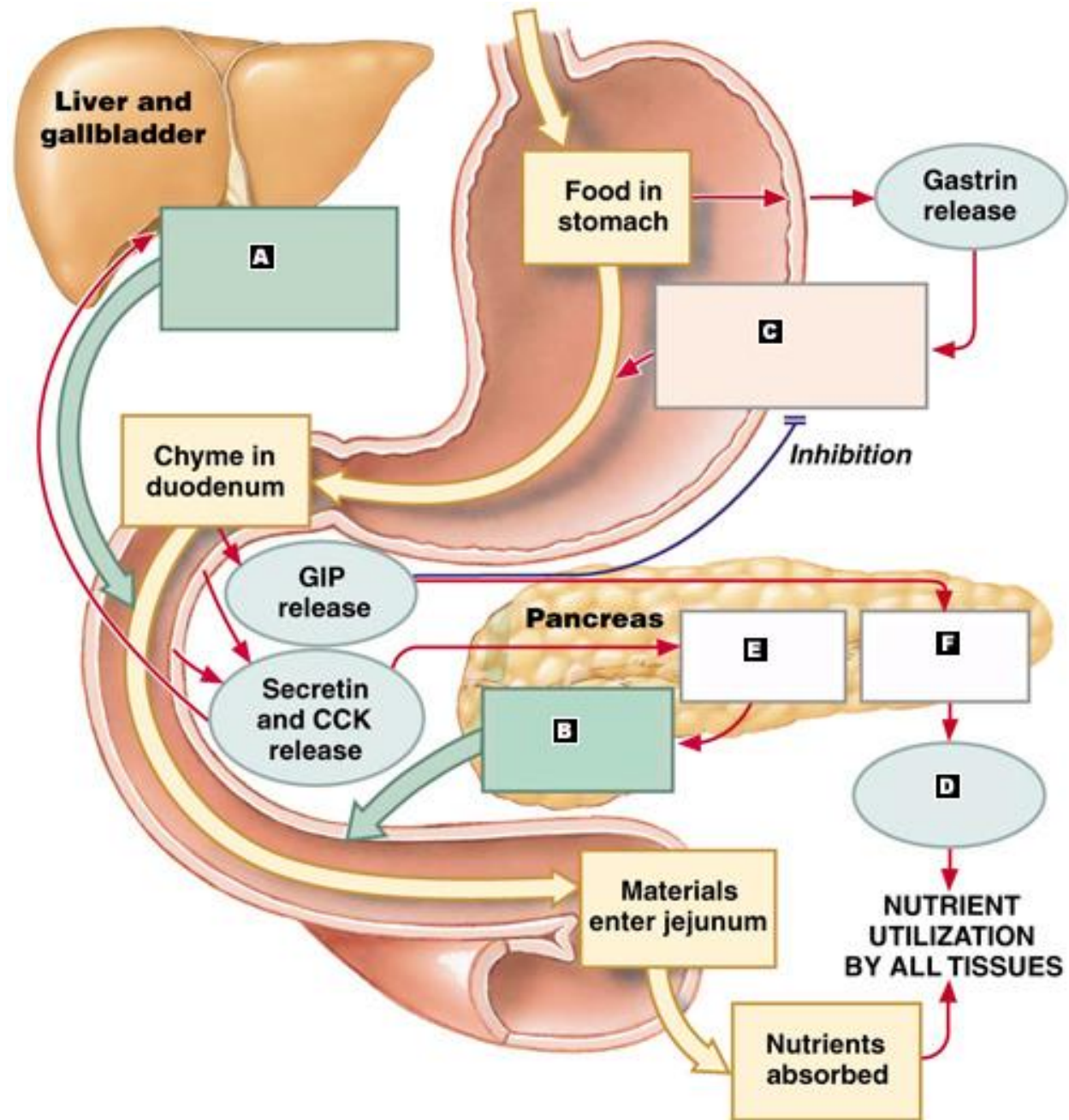
Effects of Thyroid Dysfunction on Glucose Metabolism

- ✓ Decreased rate of glucose uptake by cells
- ✓ Decreased rate of glucose absorption in the gut
- ✓ Slower response of insulin to elevated blood sugar
- ✓ Slower clearance of insulin from the blood



Appetite and Digestion Hormone Family

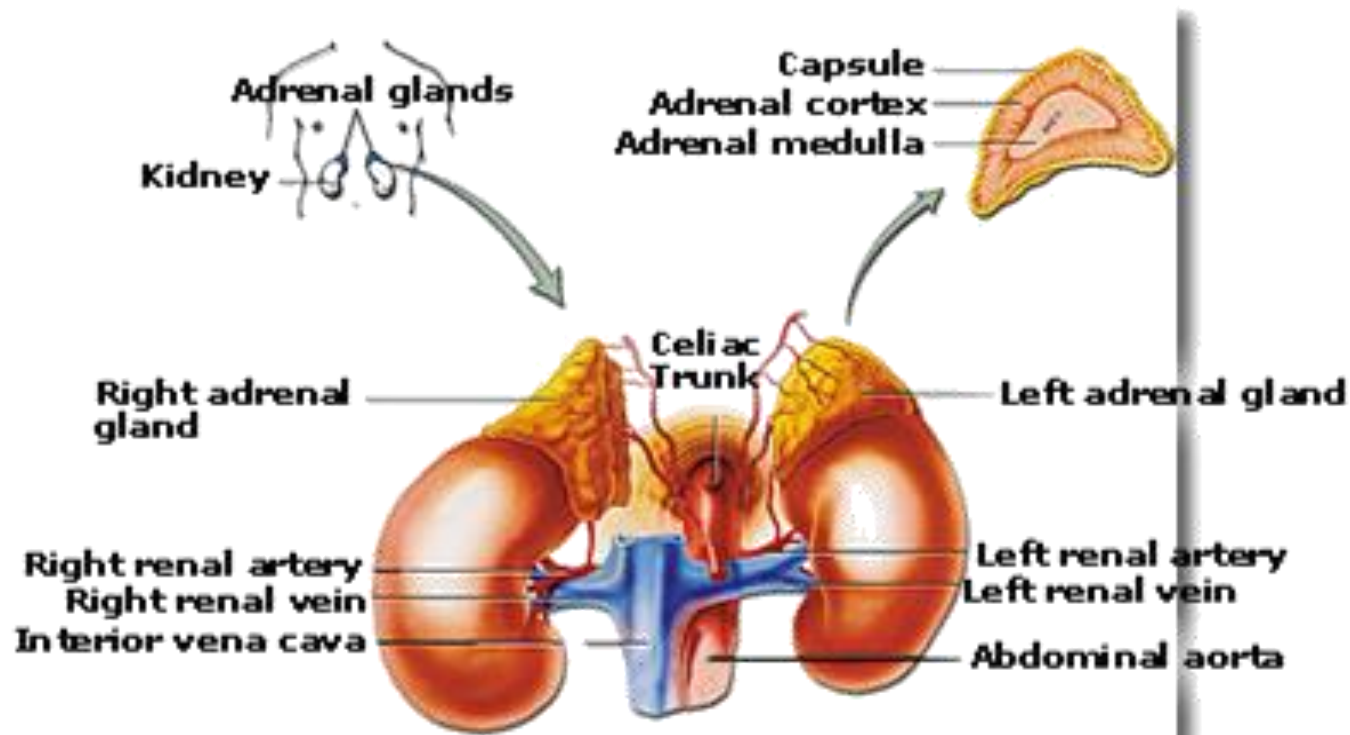
Hormone	Produced by	Action
Leptin	Fat cells	Signals satiety
Ghrelin	Stomach lining	Signals hunger
Gastrin	Stomach	Production of stomach acid
Cholecystokinin (CCK)	Small intestine	Production of pancreatic juices and emptying of gall bladder
Secretin	Duodenum	Stimulates bicarbonate production by pancreas, bile production by liver, and pepsin by stomach
Peptide YY	Mainly ileum and colon, but a little in other parts of GI Tract	Inhibits gastric motility, increases water and electrolyte absorption in colon, may suppress pancreatic secretion, increases efficiency of digestion
Incretins: GIP- gastric inhibitory peptide and GLP- glucagon-like peptide	Small Intestine	Increases insulin, inhibits glucagon, slows rate of absorption of nutrients by reducing gastric emptying
Somatostatin	Stomach, intestine, pancreas	Inhibits gastrin, CCK, Secretin, GIP and also Growth Hormone, TSH, glucagon and insulin
Dopamine	Brain and GI Mucosa	Reduces motility and protects mucosa
Serotonin	Brain and GI Mucosa	Inhibits gastric acid secretion and stimulates production and release of mucus



Stress Hormone Family

Hormone	Produced by	Action
Adrenalin (epinephrine)	Adrenal Medulla	Allows for fight/flight – increases heart rate, pulse, pressure
Cortisol	Adrenal Cortex	Stimulates glucose release from glycogen, amino acids and fats and shunts energy to extremities for fight/flight
Aldosterone	Adrenal Cortex	Aids in retention of fluid and electrolytes in kidney – conserves sodium, secretes potassium
DHEA	Adrenal Cortex	Precursor to male and female hormones, muscle growth and repair
Norepinephrine	Adrenal Medulla	Sympathetic response, sharpens focus, antagonizes insulin and stimulate gluconeogenesis
Thyroxine (T4)	Thyroid	Increases metabolic rate, decreased function with high amounts of stress
ACTH (Adrenocorticotrophic hormone)	Anterior Pituitary	Enhances release of cortisol and fatty acids from adipose tissue

Adrenal Hormone Secretions



Inner Zone (Medulla)

- Adrenaline aka Epinephrine
- NorAdrenaline aka Norepinephrine
- Androgens

Outer Zone (Cortex)

- Cortisol
- DHEA
- Aldosterone

DAY 2



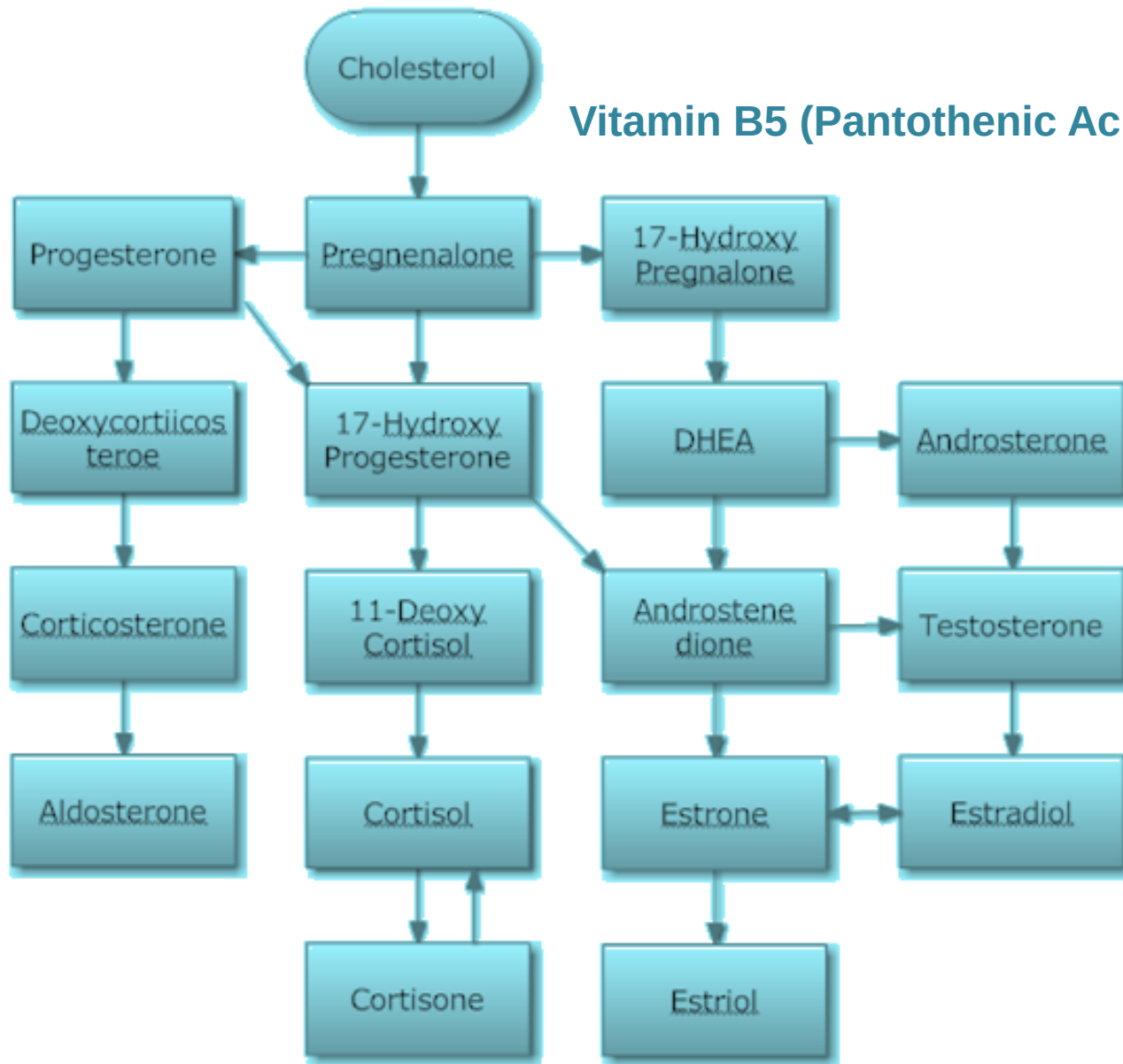
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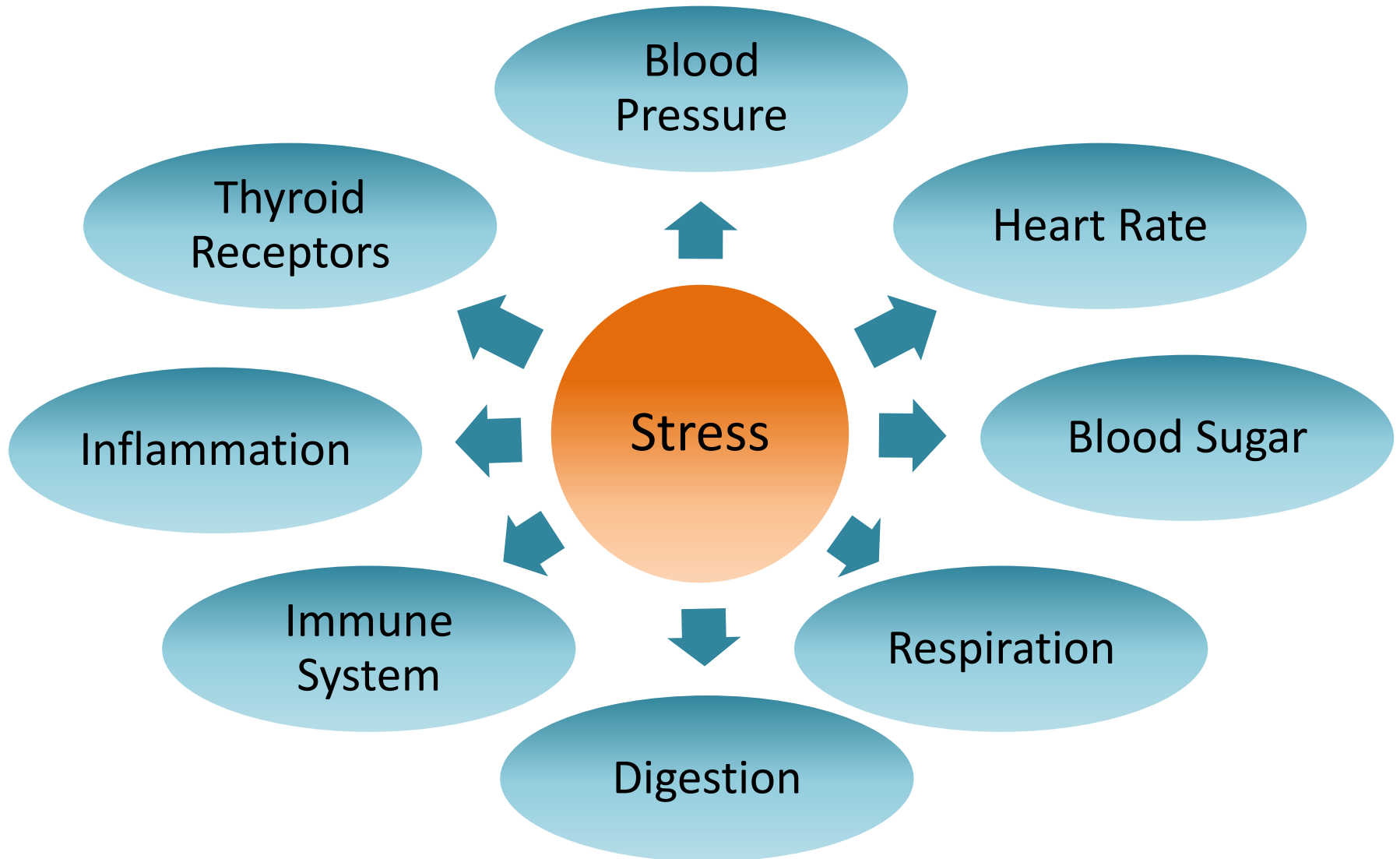
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Adrenal Hormones

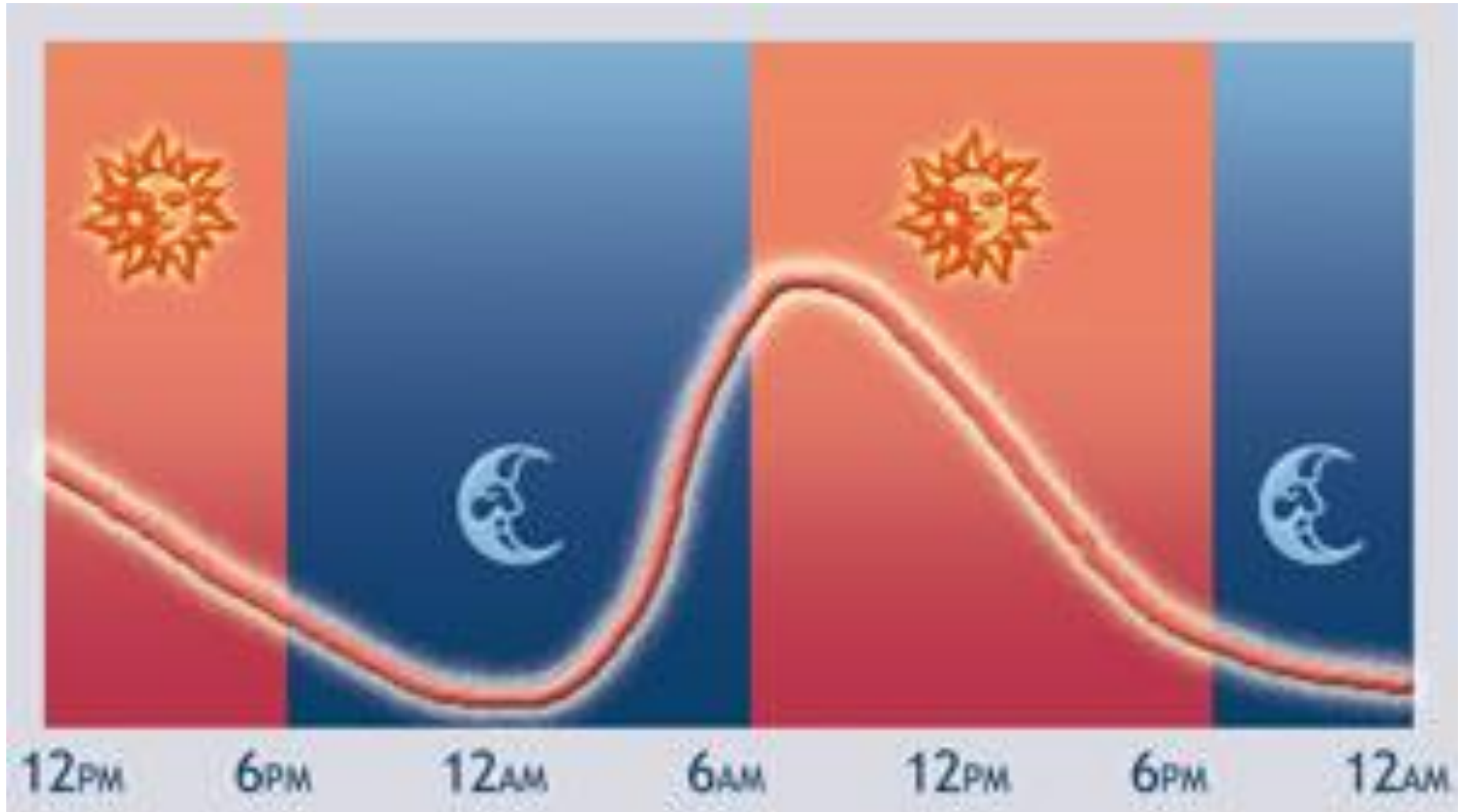
Vitamin B5 (Pantothenic Acid)



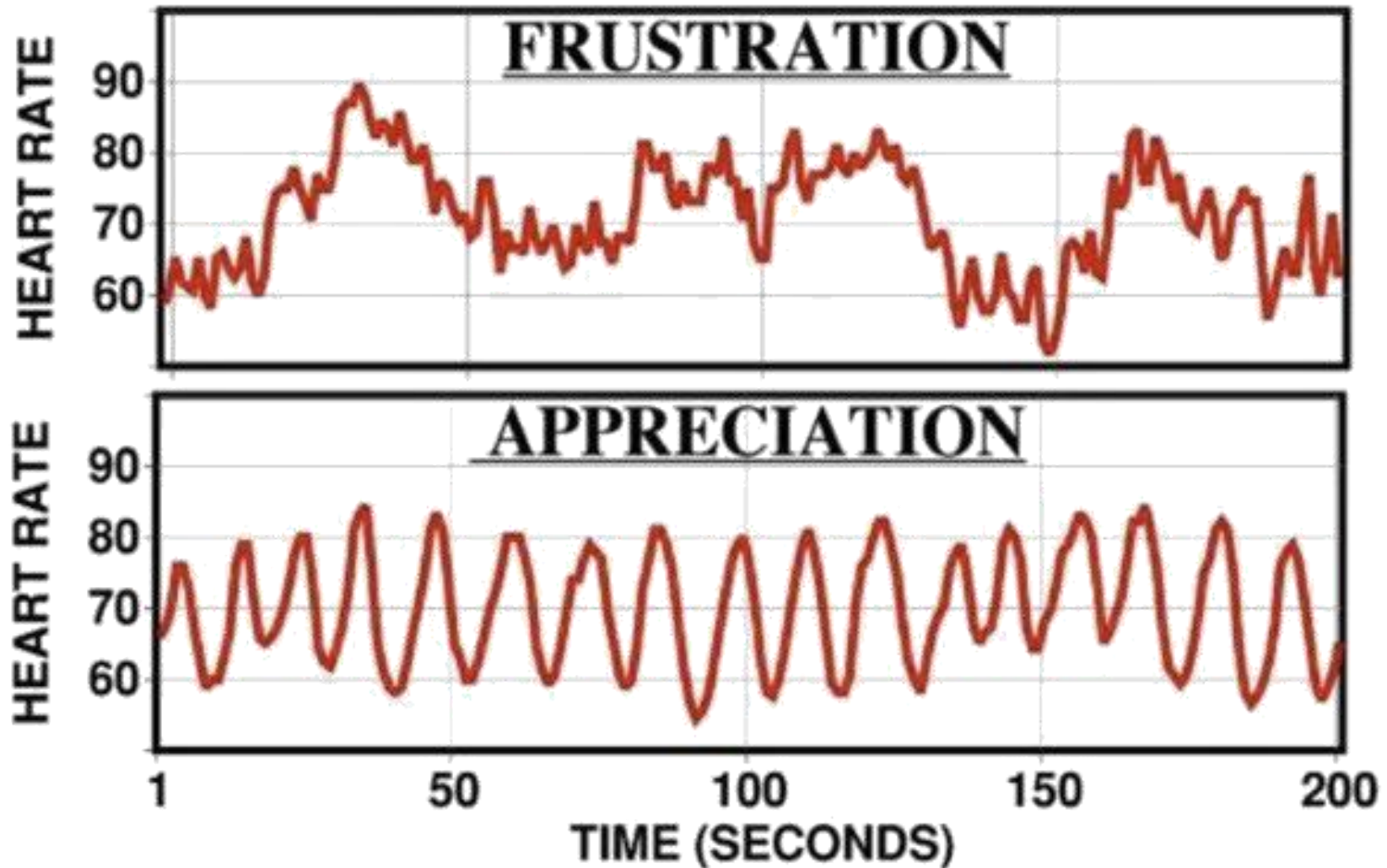
Stress (Cortisol) Affects:



Circadian Rhythm

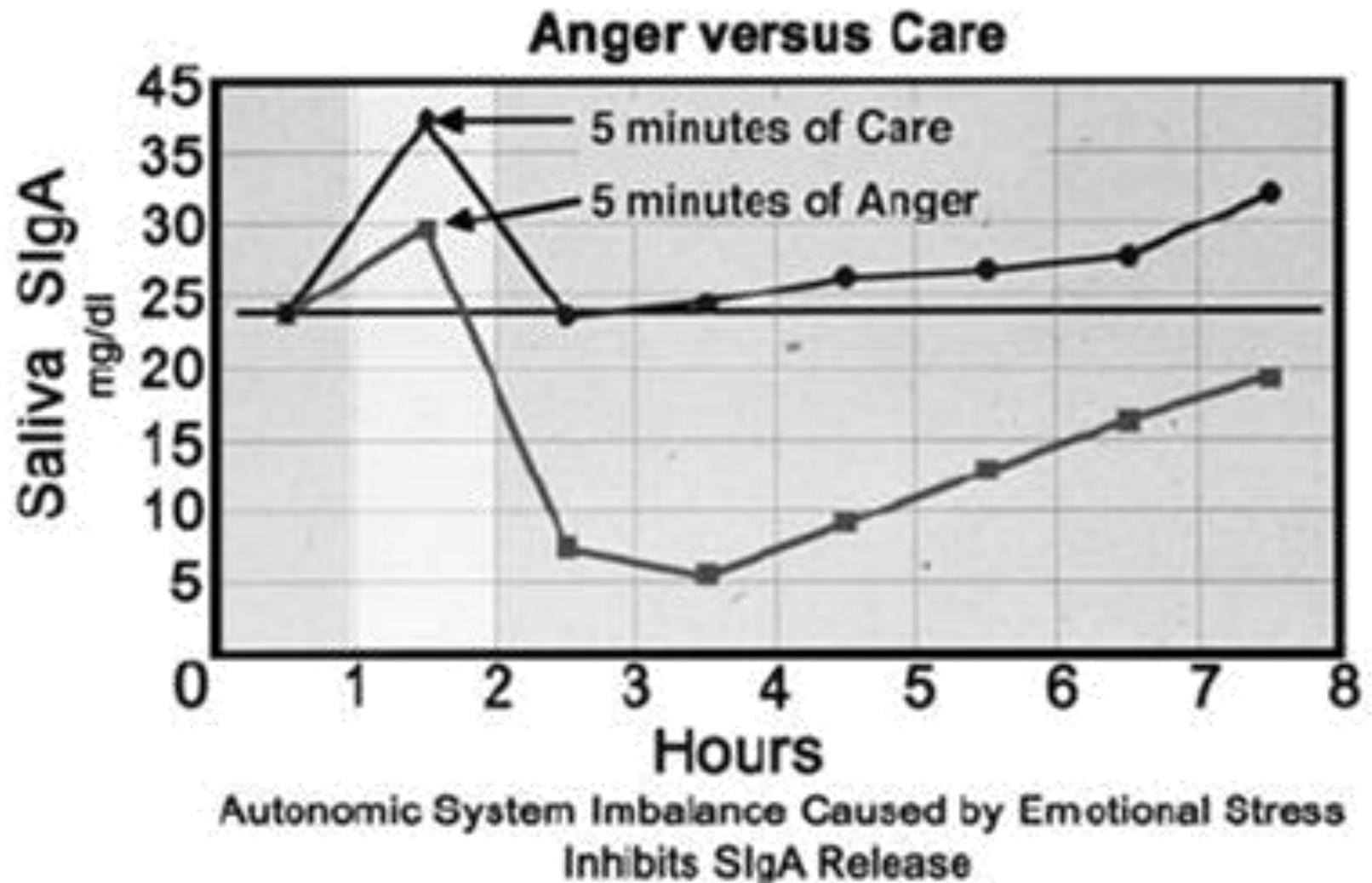


Effect of Stress on Heart Rhythm



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Figure 6. Effect of Emotion on SIgA Release



HeartMath Institute

Sleep Hormone Family

Hormone	Produced by	Action
Melatonin	Pineal	Promotes deep sleep, immune support
Growth Hormone	Posterior Pituitary	Promotes growth and repair and fat burning
Ovaries, Adrenal cortex	Ovaries, Adrenal cortex	Ovaries, Adrenal cortex
Cortisol	Adrenal Cortex	High levels at night disrupt sleep
Leptin	Fat Cells	Peaks in middle of night to promote fat burning
Progesterone	Ovaries, Adrenal cortex	Promotes sleep
Estrogen	Ovaries, Adrenal cortex	Improves quality of sleep
Testosterone	Testes, Adrenal cortex	Lack of sleep lowers it
Insulin	Pancreas	Disrupts growth hormone and sleep pattern
Glucagon	Pancreas	Keeps blood sugar steady while sleeping

Hormones and Sleep

- ✓ Insulin/Glucagon
- ✓ Cortisol/DHEA
- ✓ Growth Hormone
- ✓ Leptin/Ghrelin
- ✓ Melatonin
- ✓ Estrogen/Progesterone
- ✓ Testosterone



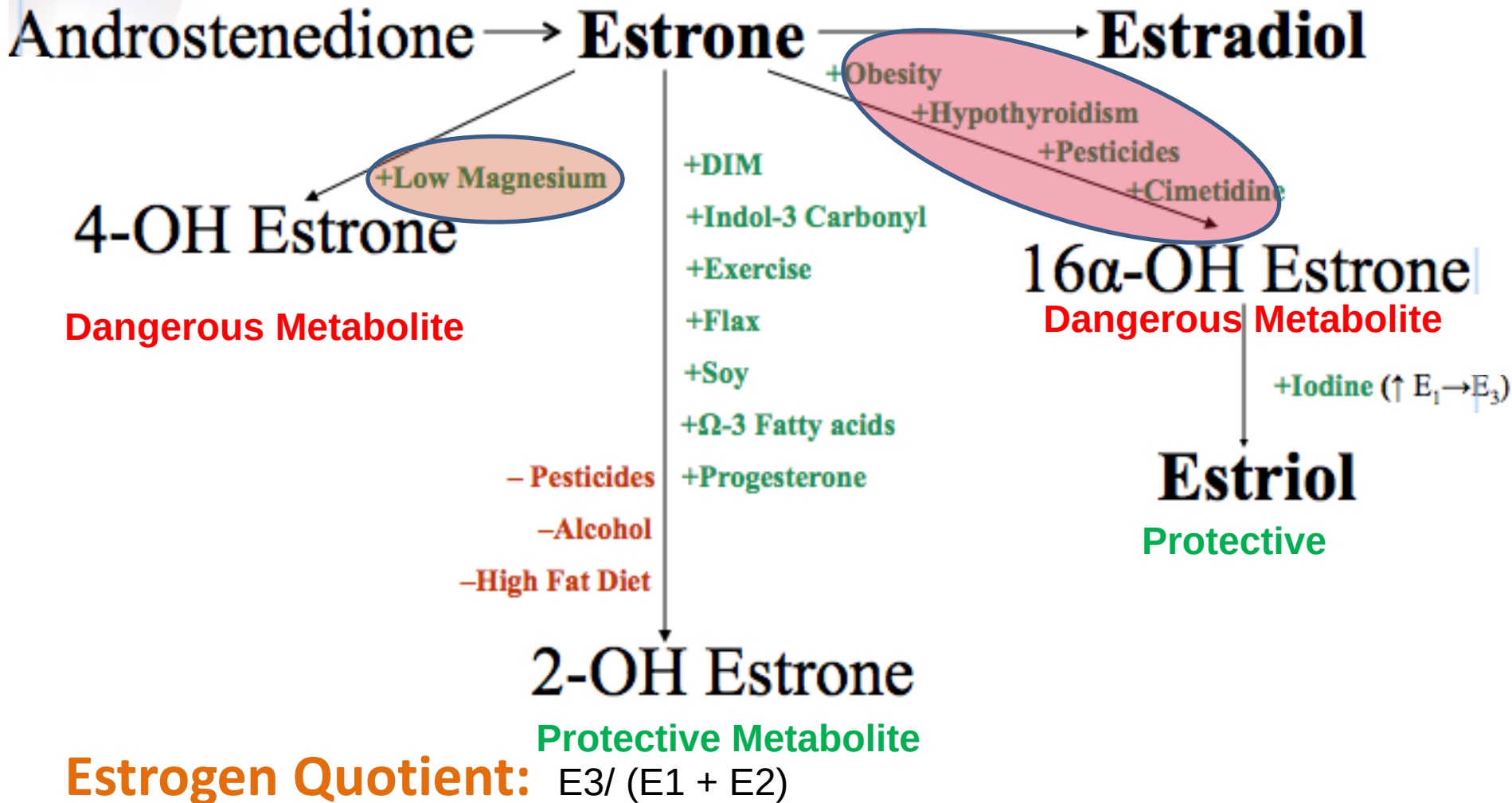
Reproductive Hormone Family

Hormone	Produced by	Action
Pregnenalone	Adrenal cortex	Precursor to all sex hormones
Progesterone	Ovaries, Adrenal cortex	Uterine proliferation, protects estrogen
Estrogen	Ovaries, Adrenal cortex	Female traits, proliferation of breasts, ovulation
Testosterone	Testes, Adrenal cortex	Male traits, sex drive
Progesterone	Ovaries, Adrenal cortex	Promotes sleep, maintains uterine lining, corpus luteum pregnancy, strengthens bones
FSH	Anterior Pituitary	Follicle maturation in females, sperm maturation in males
LH	Anterior Pituitary	Triggers ovulation in females, testosterone production in males
GnRH	Hypothalamus	Stimulates anterior pituitary production of LH and FSH
Thyroid	Thyroid	Involved in egg maturation
Cortisol	Adrenal Cortex	Chronic excess cortisol depletes sex hormone precursors
HCG	Embryo	Maintains pregnancy
Prolactin	Posterior Pituitary	Lactation
Oxytocin	Posterior Pituitary	Milk letdown, bonding

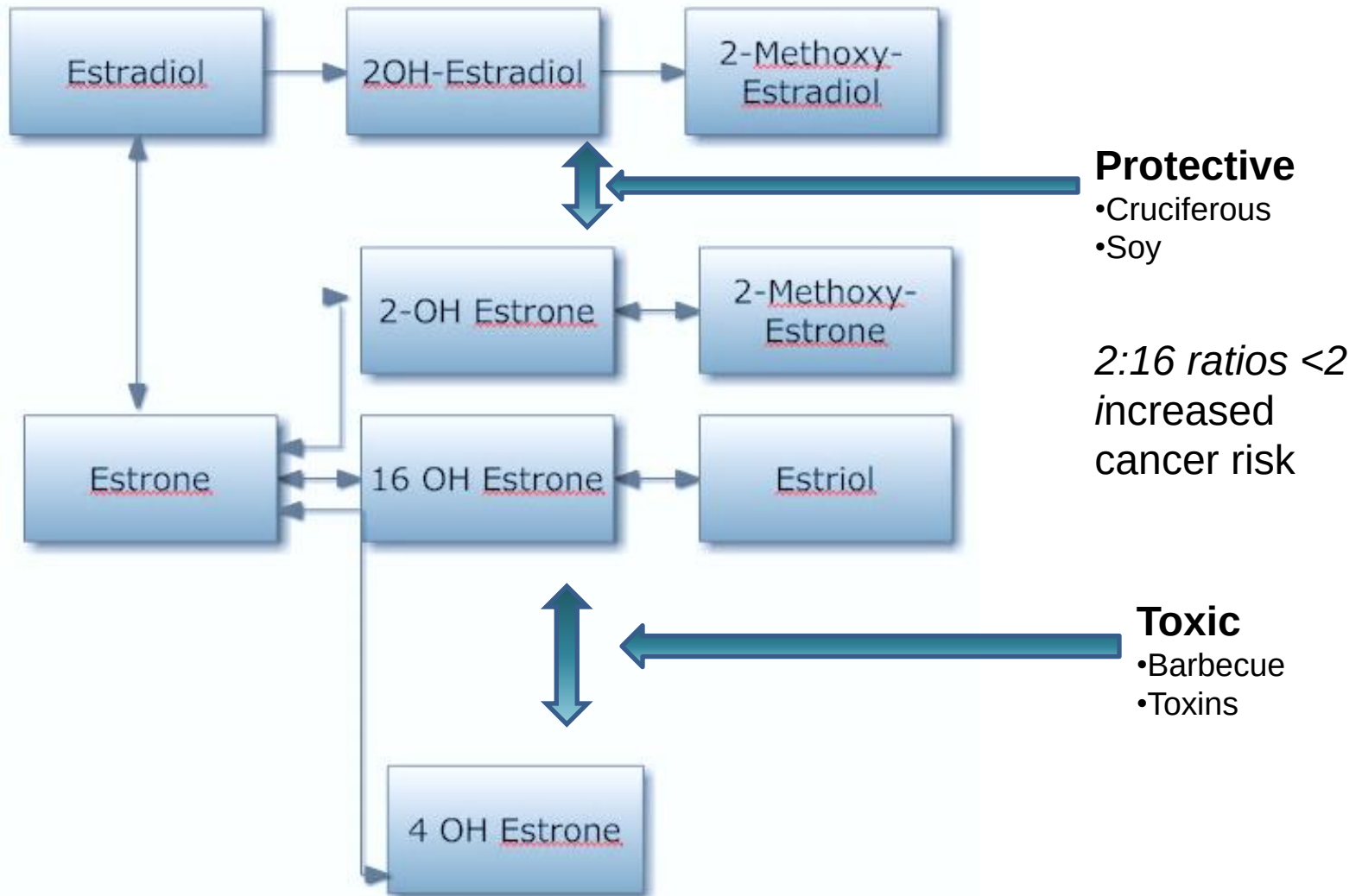
Interaction



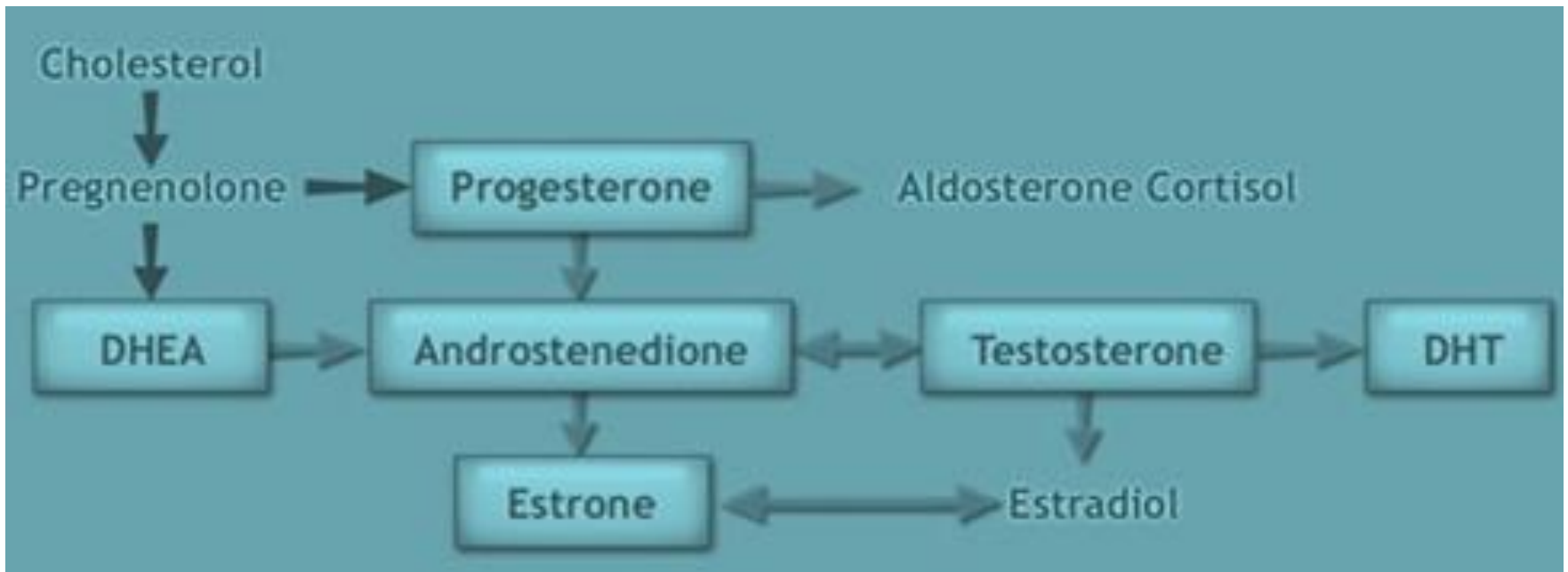
Estrogen Metabolism

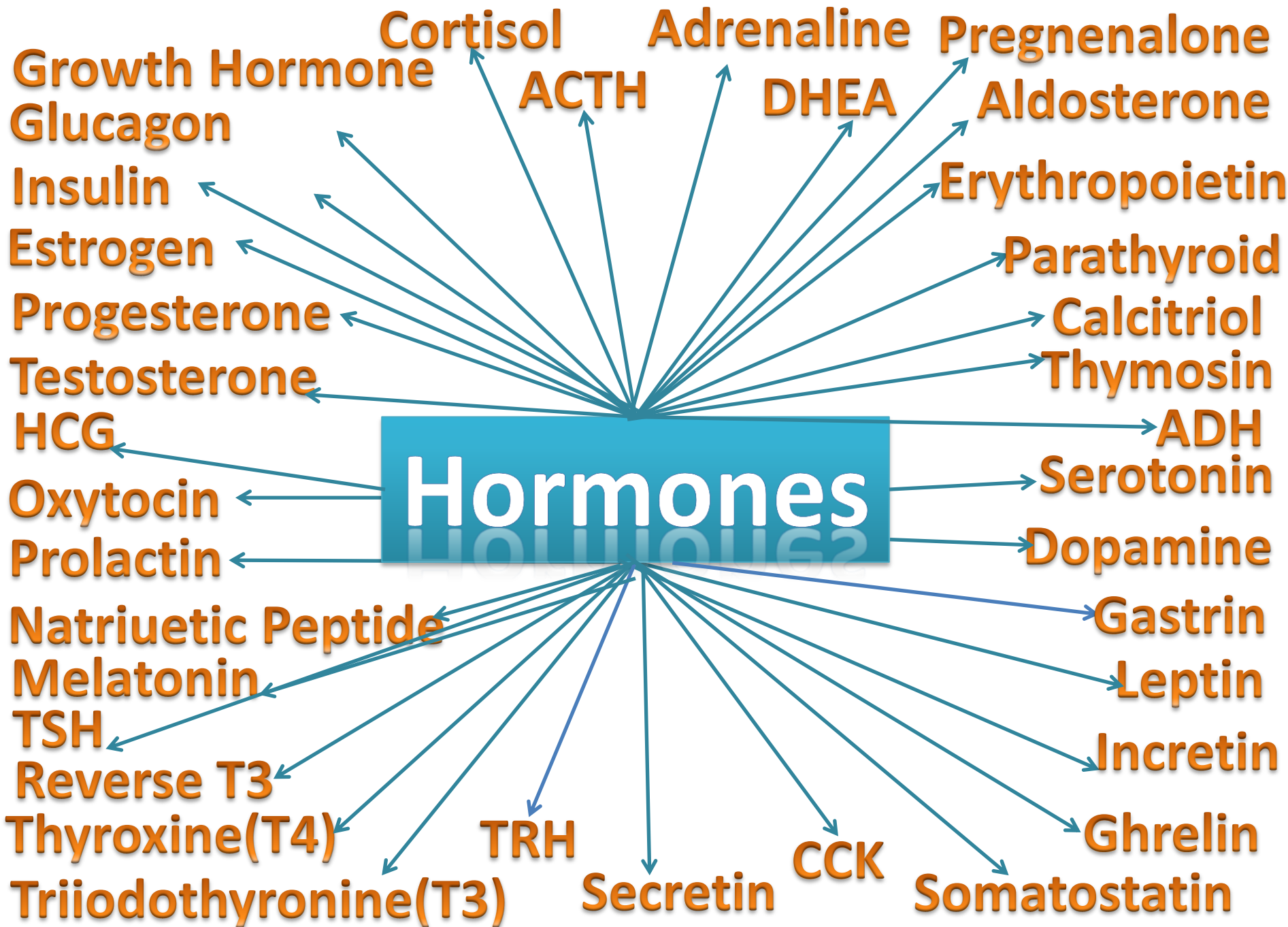


Estrogen Metabolism



Male Hormone Flowchart



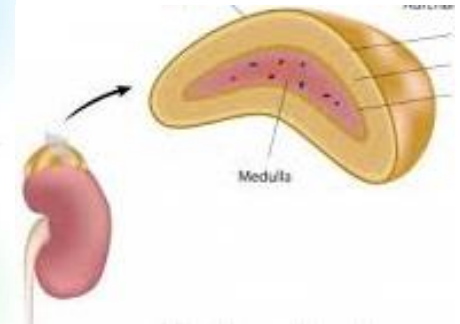
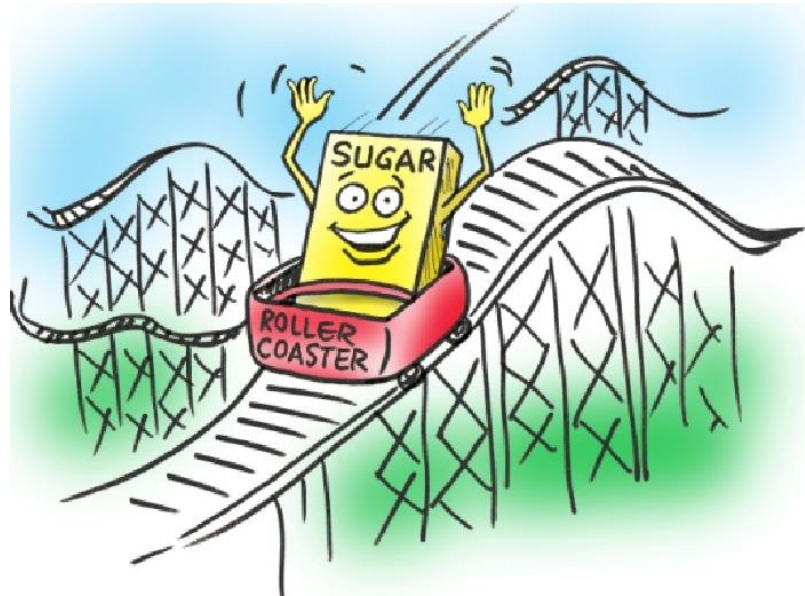
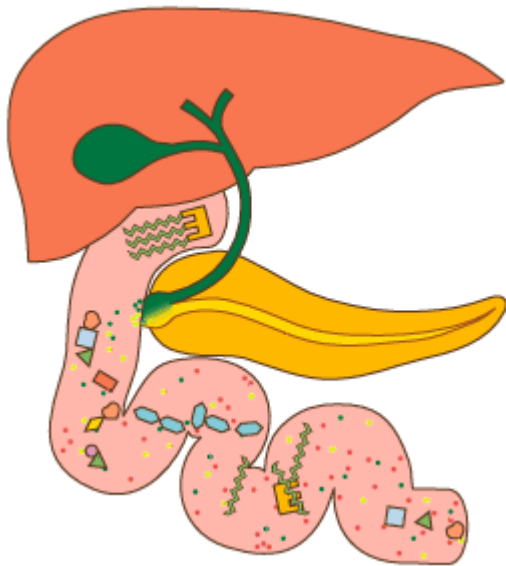
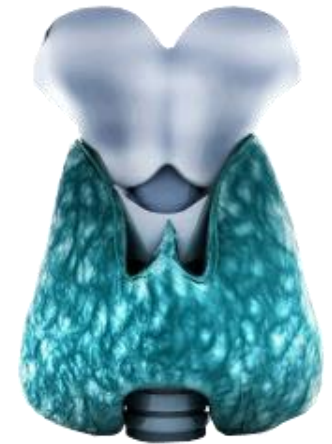


Organ Specific Hormone Family

Hormone	Produced by	Action
Erythropoietin	Kidney	Stimulates red blood cell production
Thymosin	Adrenal Cortex	Stimulates glucose release from glycogen and synthesis from amino acids and fats
Parathyroid HORMONE	Parathyroid gland	Increases blood calcium
Calcitonin	Thyroid	Reduce blood calcium
Anti Diuretic Hormone	Posterior pituitary	Retention of fluid
Natriuretic peptide	Heart	Induces release of urine
Angiotensin	Liver	Vasoconstriction, release of aldosterone
Brain natriuretic peptide	Heart	Reduces blood pressure
Thrombopoietin	Liver, kidney, striated muscle	Produces platelets

Hormone Balancing Hierarchies

1. Digestion – Secretin, CCK
2. Blood Sugar – Insulin, Glucagon
3. Stress Response – Cortisol, DHEA
4. Thyroid – T3, T4





Hormones Interact With

- ☐ Nutrients
- ☐ Foods
- ☐ Stress
- ☐ Environment
- ☐ Digestion
- ☐ Sleep
- ☐ Other Hormones

Assessments for Each of The Hormone Families

- ✓ Sleuth History Taking
- ✓ Exam Findings
- ✓ Home Testing
- ✓ Blood Testing
- ✓ Specialty Labs
- ✓ Genetic Testing



Blood Testing Spreadsheet and Report



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DAY 3



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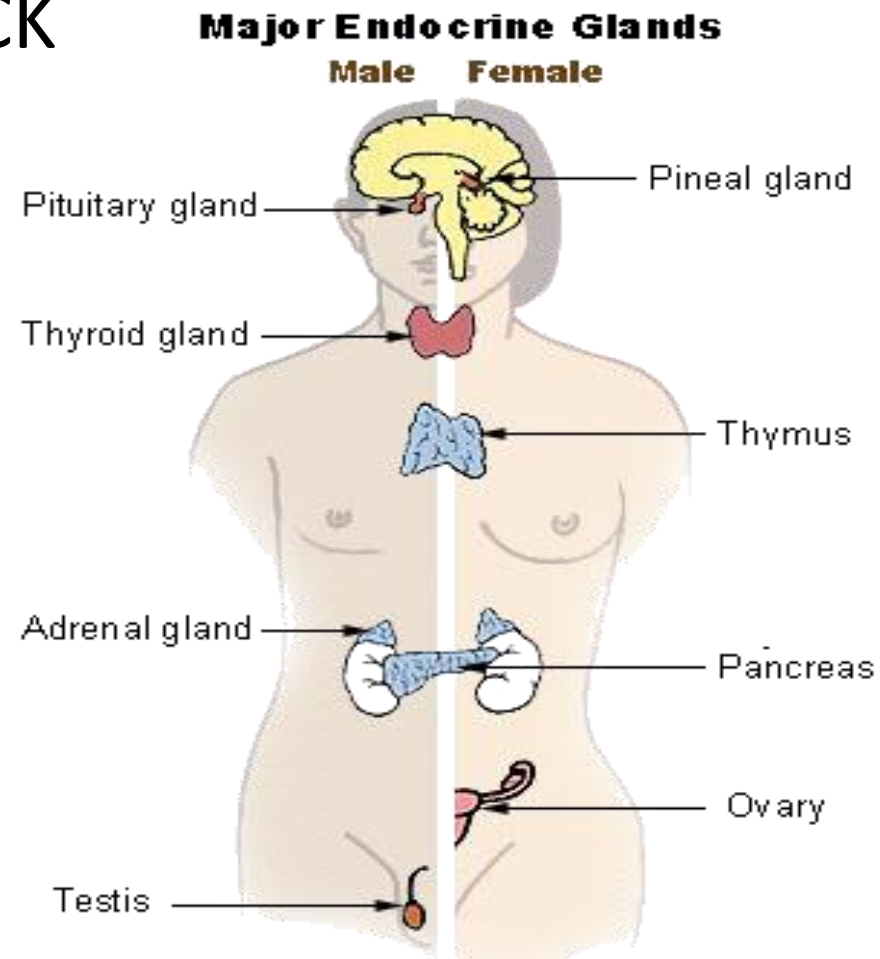
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Nutritional Endocrinology Rebalancing Protocols

Hormone Balancing Hierarchies

1. Digestion – Secretin, CCK
2. Blood Sugar – Insulin, Glucagon
3. Stress Response – Cortisol, DHEA
4. Thyroid – T3, T4
5. Sleep
6. Sex Hormones
7. Organ Specific



Kitchen Wisdom for Hormone Balancing



Foods That Disrupt Hormones

- ✓ Hydrogenated and oxidized fats
- ✓ Processed high glycemic foods: flour, sugar, grains
- ✓ Charred meat: heterocyclic amines promote ER alpha
- ✓ Chemical-laden foods
- ✓ Foods in cans and plastic
- ✓ Gluten
- ✓ Dairy
- ✓ Caffeine
- ✓ Excess alcohol



Foods That Support Hormones

- ✓ Greens
- ✓ Brassicas
- ✓ Sea vegetables
- ✓ Omega-3 fats
- ✓ Coconut oil
- ✓ Cumin
- ✓ Pomegranate
- ✓ **Lignans:** flax, sesame and pumpkin seeds, soybeans, broccoli, beans, and some berries.
- ✓ **Isoflavones:** soybeans, clover, kudzu, mung beans, alfalfa sprouts, black cohosh, chickpeas



Gluten and Hormones

- ✓ Inflammation leads to adrenal stress
- ✓ Antibodies cross react with thyroid
- ✓ Malabsorption leads to nutritional deficiencies
- ✓ Effects on estrogen and progesterone via adrenal exhaustion
- ✓ Effects on digestion and gut flora
- ✓ Effects on neurotransmitters
- ✓ Worsens at perimenopause



Fat and Hormone Balance

- ✓ High saturated fat promotes 16 OH estrogen, the dangerous metabolite
- ✓ Omega-3 fats promote 2 methoxy estrone, the protective estrogen
- ✓ Estrogens and omega-3 oils work synergistically. Estrogen aids in absorbing and maintaining omega-3 levels. *Proc Nutr Soc. 2008 Feb;67(1):19-27, Lipids. 2008 Jan;43(1):19-28. Epub 2007 Oct 3*
- ✓ Omega-3 also reduce C-reactive protein
- ✓ DHA needed for insulin sensitivity
- ✓ EPA deficiency promotes inflammation



Hormone Nourishing Meal Ideas

- ✓ **Large veggie salad** with omega-3 rich salad dressing and seed toppings
- ✓ Green blender soups
- ✓ **Wraps using green leaves** and nori sea vegetable and filled with greens, sprouts, sauerkraut and topped with an omega-3 rich dressing or spread
- ✓ Steamed vegetables
- ✓ **“Big Bowl”** – filled with steamed and/or raw veggies and a blended vegetable sauce, made from the steam water, vegetables and a fat to thicken: chia seed, avocado, tahini, nut butter, coconut or raw nuts or seeds



Photo by Annette Nolan
<http://www.itsallaboutyou.ca>



Hormone Balancing By the Clock

- ✓ Quit eating 3 hours before bedtime to optimize growth hormone and promote fat burning while you sleep.
- ✓ “Burst and Burn” before bed: About 2 hours after your last meal of the day and at least 1 hour before bed, do a 2-minute burst of high intensity exercise.
- ✓ Extend the time between your meals to 5 hours.
- ✓ Consume protein within an hour of waking.
- ✓ Avoid high-carbohydrate breakfasts – Morning carb overdoses cause a premature spike in leptin and food cravings.
- ✓ Practice breathing and appreciation before your meals.
- ✓ Commit to getting to sleep no later than 11:00 p.m.
- ✓ Plan fitness bursts 2 hours before each meal.



Gremlins That Sabotage Your Client's Health

- ✓ Overwork
- ✓ Worry
- ✓ Anger
- ✓ Carb cravings
- ✓ Social eating
- ✓ Emotional eating
- ✓ Low self-esteem
- ✓ Finances
- ✓ Judgment
- ✓ Fear
- ✓ Resentment
- ✓ Responsibilities
- ✓ Work
- ✓ Emotional eating
- ✓ Negative self-talk
- ✓ Putting everyone else first

Step-By-Step to Phenomenal Results

Values and goals – connect to what matters most

Ask the right questions to assess where they are now, *what brought them here*, and what's getting in the way

Labs and exams to determine the current state of health and identify imbalances

Orders of correction protocols need to be decided in advance

Restore balance with diet, lifestyle, and supplementation

Reassess and adjust at regular intervals to make sure you are on the right track

Prerequisites for Success as a Health and Wellness Professional

- ✓ Effective assessments – detective skills
- ✓ Coaching, communication and connecting skills
- ✓ Deep understanding about how the body works
- ✓ Sound business model
- ✓ Ability to find clients and have them find you
 - Teleseminars
 - Telesummits
 - Blogs
 - E-zine
 - Social networking
 - Partners
- ✓ Enrollment skills to engage them