

# THE NUTS AND BOLTS OF HORMONE RESTORATION

Gail Sadler, MSN-ARNP-BC,RN-C,CCM

# 6 Spokes on the Chariot Wheel

It symbolizes the stages of a HUMAN'S day.

- Waking up
- Nutrition
- Hygiene
- Physical appearance
- Employment-work or home
- Support emotional and physical



# Topics

- Hormone Loss with Age
- The Problem with Reference Ranges
- Cortisol and Thyroid Deficiencies
- Testosterone for Men and Women
- Estradiol and Progesterone for Menopause
- Progesterone
- Pharmaceutical Hormone Substitution
- Compounding Pharmacies
- What can you do?

# What are Bio-Identical Hormones?

- Used around the World for over 60 years

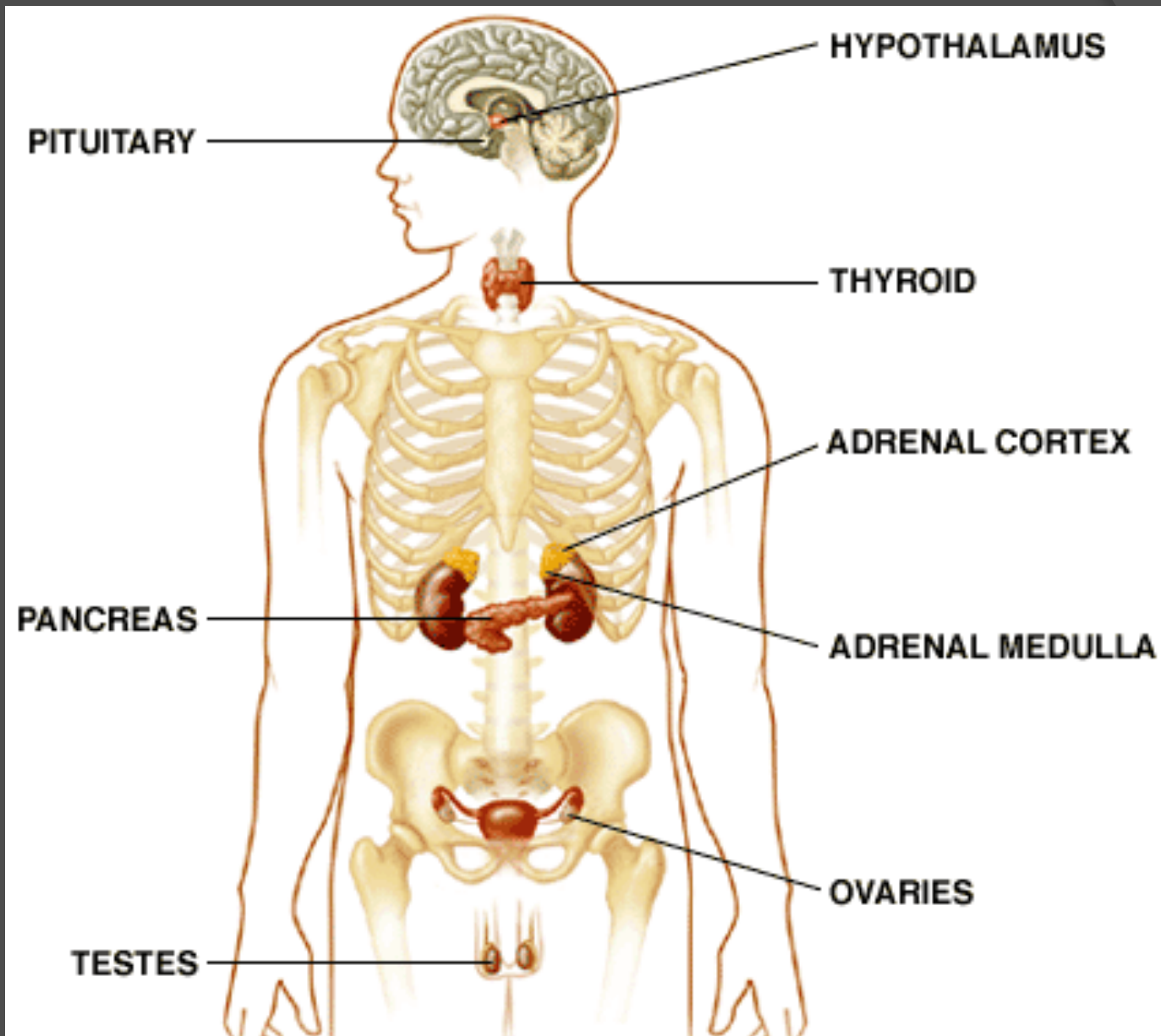
Once referred to as “natural” ( bad term)

Bio-equivalent – human equivalent

Concept of Mimicking nature by using substances molecularly identical to ovarian hormones

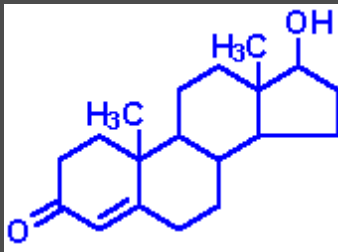
# Hormones

- The most powerful molecules in biology
- Parts of our integrated neuro-endocrine-immune system
- Travel via blood to all cells
- Control cells' proliferation, differentiation, protein synthesis, metabolic rate, etc.
- Optimal levels and effects are essential for health and quality of life

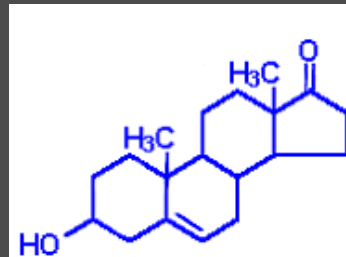


# Human Steroid Hormones

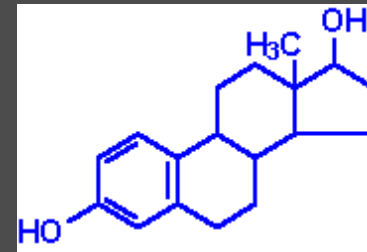
Testosterone



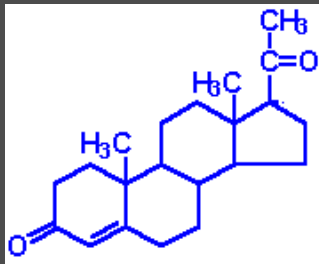
DHEA



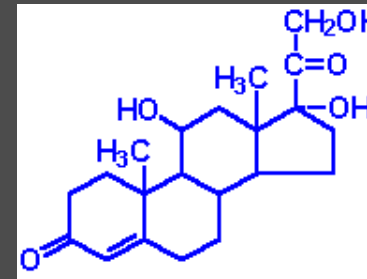
Estradiol



Progesterone



Cortisol



Drug companies have patented ~5 to 200 variations of each molecule.

# Hormone Restoration is a Good Medical Practice

- ◎ If a hormone is low, restore optimal levels!
  - Type 1 Diabetes: bioidentical insulin
  - Hypothyroidism: bioidentical T4 (Synthroid, Levoxyl)
  - Growth hormone deficiency: bioidentical GH
  - Adrenal insufficiency: cortisol (hydrocortisone)
  - Non-bioidenticals: Menopause, autoimmune , allergy
- ◎ The Controversies:
  - How do we diagnose deficiency?
  - How do we decide which dose is right?
  - What do we do about deficiencies due to aging?

# Reference Range Endocrinology

- ⦿ —Normal ranges are not optimal ranges!
  - Include 95% of tested persons of same decade in age
  - Subjects not screened for ideal health
  - Only some are diagnostic ranges (glucose, cholesterol)

# What are Bio-Identical Hormones

- FIT like a hand and glove- like puzzle pieces
- Compounded: made from soy or yam
- Or: made “synthetically” from soy ( climara patch, Vivelle Dot)
- Do not have confusion with the words “natural or synthetic” look for Bio-Identical

# Includes Bio-Identical Patented Estrogens-with 17 beta-estradiol

- Climara, Viville Dot, Menostar, Estraderm
- Estrogen, Divigel, Estring, Femring
- Estrace (oral and vaginal)
- Alora, Fempatch (made synthetically)
- Not: Activella, orthoprefest, combipatch, norerhindrone)
- REED-KANE D, INT J PHARM COMP 2001,5 (5), 332-341

# Bio-identical Patented Progesterone are included

- ◉ Prometrium
- ◉ Crinone vaginal gel
  
- ◉ **NOTE: THE ABOVE BIO-IDENTICALS  
ARE BOTH BACKED BY DATA –  
APPROVED BY THE FDA. THIS IS  
DATA ON BI.**

# WHERE DO YOU START ?

- INITIAL Consult :
- Symptom Chart –rate energy, sleep, pain, mood scale 1-10
- TESTING : hormone, nutrition, dexa,
- Physical Exam
- Written plan of action- don't go over board

# RESTORATION IS THE AIM

- ⦿ Goal 3-6 months
- ⦿ Progesterone
- ⦿ Thyroid support
- ⦿ DHEA-Melatonin
- ⦿ Estrogen/Testosterone
- ⦿ Stress management for Cortisol control

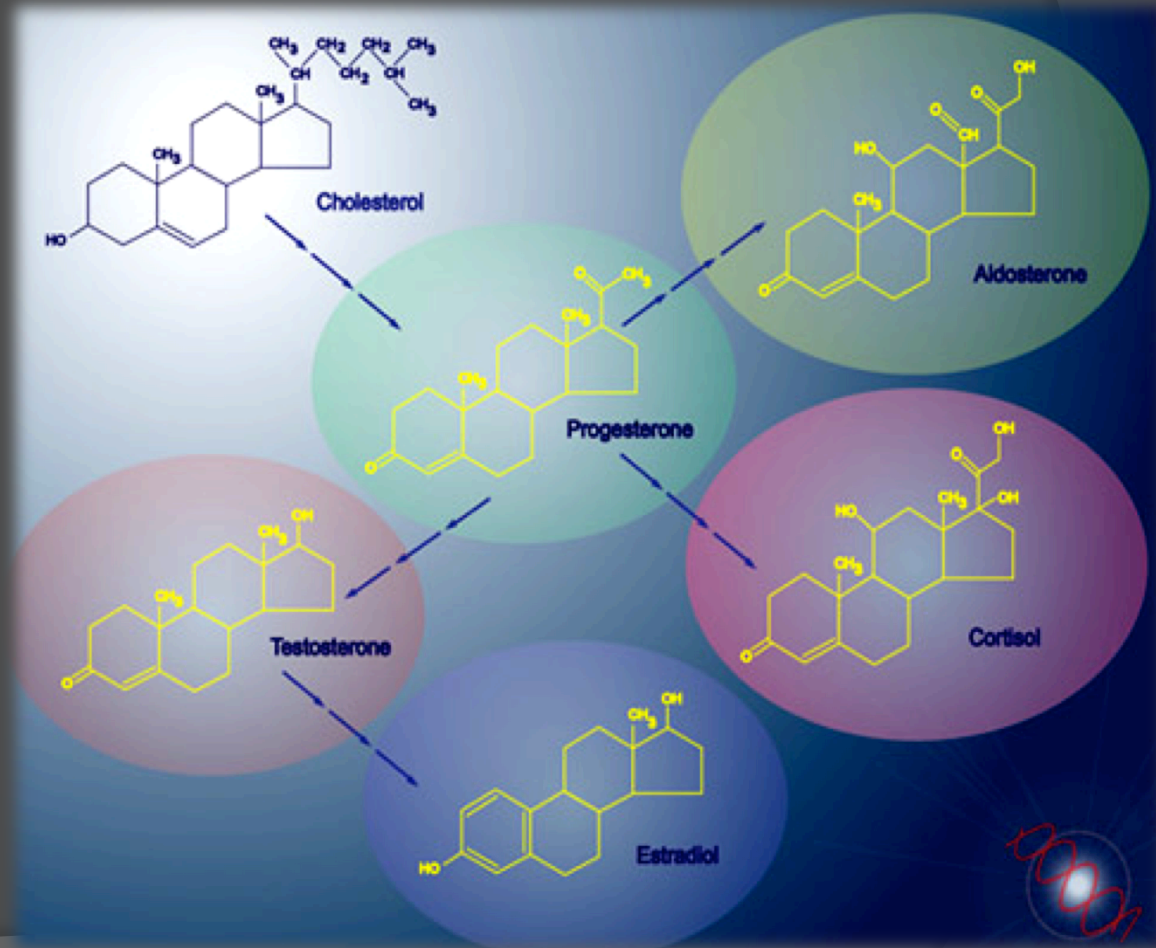
# PROGESTERONE DEFICIENCY

- ⦿ Anxiety / Irritability
- ⦿ PMS
- ⦿ Heavy menstrual bleeding
- ⦿ Insomnia
- ⦿ Food craving

# Progesterone

- ⦿ Lighter sleep
- ⦿ Anxiety
- ⦿ Panic attack

It's the number one cause of a hysterectomy for a woman in the early forties.



# ESTROGEN DEFICIENCY

- ⦿ Hot flashes
- ⦿ Vaginal dryness
- ⦿ Urinary incontinence
- ⦿ Bone loss
- ⦿ Brain fog

# TESTOSTERONE DEFICIENCY

- ① LOSS OF LIBIDO
- ① MUSCLE LOSS / WEAKNESS
- ① FATIGUE
- ① DEPRESSION

# THYROID DEFICIENCY AND OR SYMPTOMS

- ⦿ Fatigue
- ⦿ Memory-mental clarity
- ⦿ Depression
- ⦿ Motivation
- ⦿ Weight gain
- ⦿ Muscle pain
- ⦿ Swelling
- ⦿ Loss of outer eyebrow
- ⦿ Coldness
- ⦿ Constipation
- ⦿ Palpitations

# HORMONE TESTING

- DO NOT DO ANY LAB TEST YOU ARE NOT PREPARED TO TAKE ACTION UPON.
- Purpose : The bigger picture is hormone function requires more than numbers
- The hormone
- The nutrients to activate the hormone
- A functional receptor cell which decline with age

# Nutrients

- Are necessary for activation of any of your hormones.



Many patients ask:

“Cant I just get all of my nutrients from eating food and eating well?”  
- Well, the answer has changed over time. The apple of today has about 1/4<sup>th</sup> of the nutrients apples had 10 years ago. Our soils are weak.

# Nutrients and Receptor cells

Avoid foods overloaded with:

- ⦿ trans fats
- ⦿ saturated fats
- ⦿ hormone infused
- ⦿ containing antibiotics and pesticide residues
- ⦿ artificial flavorings and colorings
- ⦿ preservatives
- ⦿ pure sugar
- ⦿ refined flour

# Vitamins

Two main vitamins to take:

- The multivitamin pill that's is the strongest and purest form you can get
- The purest form of Omega-3 that you can find, 1000mg 2 x day

**Remember:**

8 different colors a day in your vegetable intake

# Serum labs Female

- Time: 7- 9 am fasting prefer day 21 if not indicated then can calculate out
- Progesterone, E1-E2
- Testosterone
- Thyroid panel, T4,T3,Ft4,Ft4,TPO
- Insulin, HGB A1c
- Cortisol, Dhea-S, Vit D 25 OH,
- Urine NTX, Ferritin

# Not Just “Sex Hormones”

Estradiol, progesterone, testosterone and DHEA are required for the function, growth, and maintenance, of all tissues in both sexes!

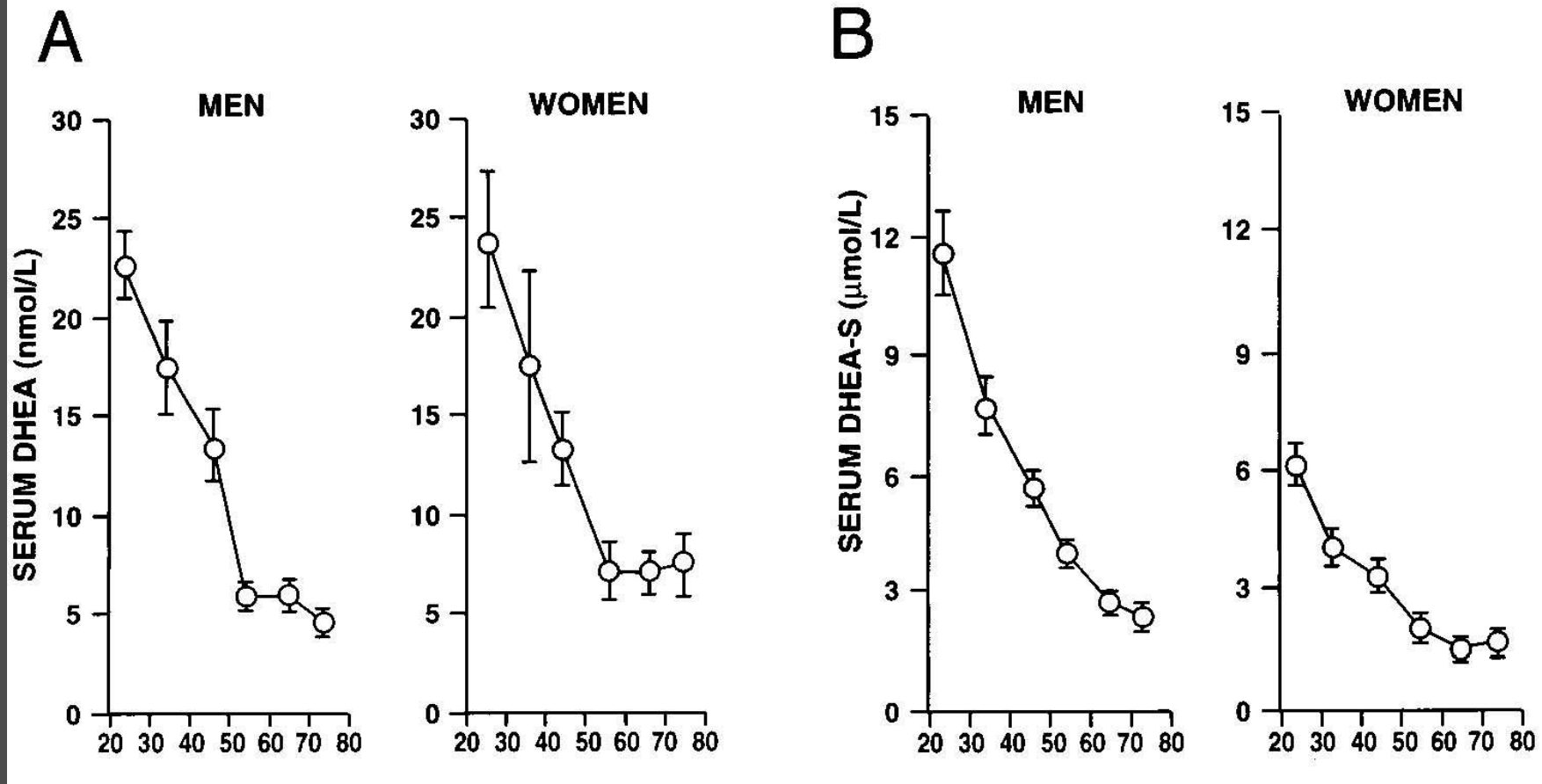
- ⦿ Maintain brain function and health—neurosteroids affect mood, cognition, memory, pain, etc.
- ⦿ Maintain the immune system—progesterone and testosterone are mild immunosuppressant's
- ⦿ Maintain connective tissue : skin, hair, bone, muscle
- ⦿ Improve insulin sensitivity: prevent diabetes, fatty liver
- ⦿ Reduce blood pressure—improve endothelial function
- ⦿ Prevent atherosclerosis (plaques in arteries)

# Serum Labs – Male

- ⦿ Time: 7-9 am fasting
- ⦿ E 2,PSA,LH-FSH
- ⦿ Testosterone( free and total)
- ⦿ Thyroid panel, T4,T3,Ft4,Ft3,TPOs
- ⦿ Insulin.HGBA1C,
- ⦿ Cortisol , Dhea s Urine NTX
- ⦿ PSA,Ferritin, DHT

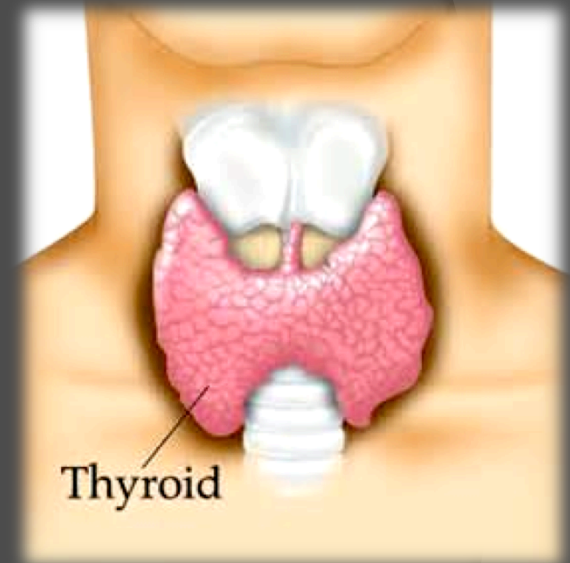
# What about losses due to Aging?

DHEA  $\leftrightarrow$  DHEA S



# Restorative Endocrinology

- **Endocrine glands and hypothalamic-pituitary control systems deteriorate with age.**
- **Our bodies cease to regulate our hormones for optimal health.**
- **These partial hormone deficiencies are harmful.**



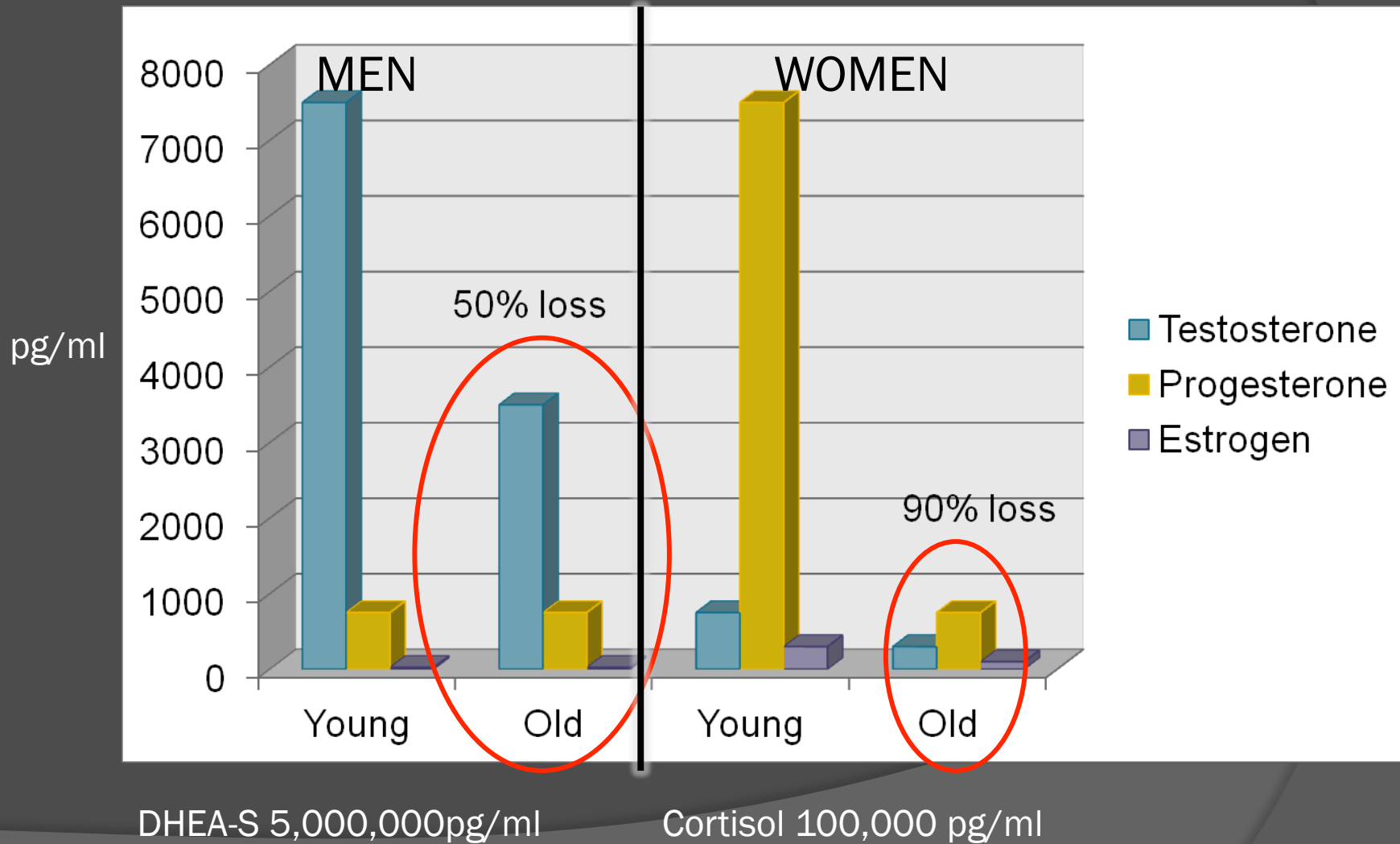
The restoration of youthful/optimal nutrient and hormone levels is:

- **Essential to preventative medicine**
- **Essential to the treatment of all disease**
- **Essential to our quality of Life!**

# Thyroid and Cortisol Deficiencies

- Thyroid sets throttle, cortisol delivers the fuel.
- Thyroid determines metabolic rate in every tissue.
- Lack of either leads to hypo-metabolism.
- Health and quality of life require **optimal levels of both!**
- Conventional tests and ranges are **insensitive.**
- **Irrational fear of thyroid and cortisol supplementation**
- **Under diagnosed, undertreated— Number of prescribe pharmaceuticals instead(SSRIs, amphetamines, anti-seizure drugs, anti-psychotics, sedatives, etc.)**

# Steroid Loss in Men >> Women



# Cortisol

- ⦿ Foundation of the hormonal system—all other major hormones counteract cortisol
- ⦿ Our body's natural—steroid || —anti-inflammatory
- ⦿ We need more cortisol with stress, inflammation, and disease.
- ⦿ Too much->Diabetes, HTN, belly fat, osteoporosis
- ⦿ Too little ->fatigue, depression, aches & pains, anxiety, hypoglycemia, insomnia, inflammation
- ⦿ Modulates the immune system—prevents and controls allergies and autoimmune diseases

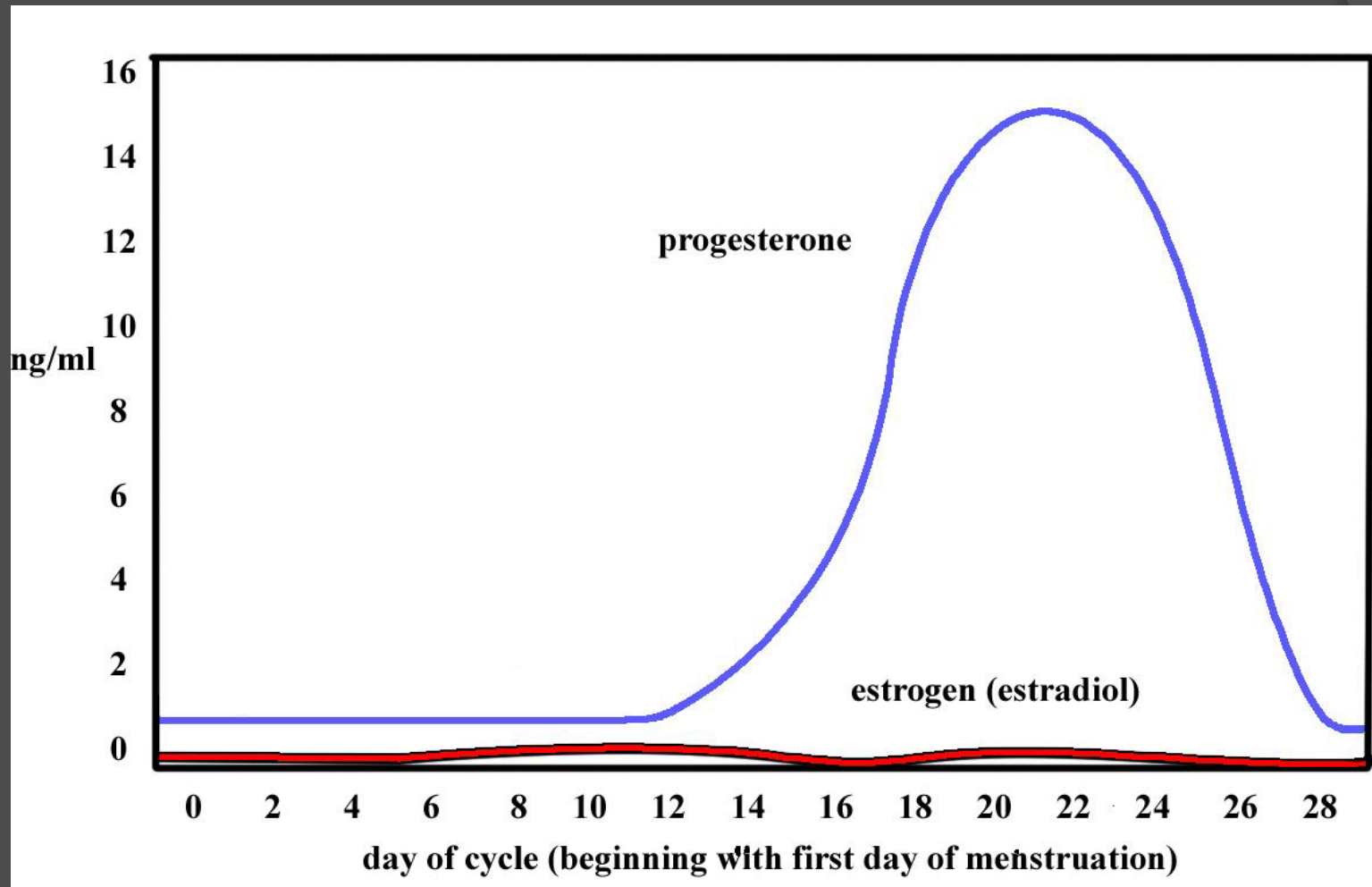
# A Cortisol Female Problem

- ⦿ Women make  $\frac{1}{2}$  as much cortisol as men and release less cortisol under stress.
- ⦿ Explains much greater incidence of chronic fatigue, pain, depression, and autoimmune diseases in women
- ⦿ Rheumatic diseases lower cortisol levels, and relative adrenal insufficiency.
- ⦿ Anti-depressants increase cortisol levels and effects.

# PROGESTERONE ACTIONS

- ◉ Major player in bone building
- ◉ Decreases proliferation of breast and uterine cells
- ◉ Major player in mood binds to GABA

# Normal Progesterone Dominance



Menstrual Cycle

# PROGESTERONE – INDICATION FOR USE

- ⦿ Patients with symptoms proceed with restoration
- ⦿ Less than 5ng/ml or less than 21ng/ml on day 21 of cycle

# PROGESTERONE DOSEAGE

- Oral more effective
- Slow release for insomnia
- Immediate release for normal replacement
- Range 6.25mg up to 300mg compounded
- Increase dose every 2 days until symptoms resolved ,take at night

# TRANSDERMAL PROGESTERONE

- Creams are absorbed slower(3hours) have lasting effects compared to oral. Creams are fat tissue bio-accumulated.
- 20-50mg qhs creams
- 100mg oral equal 60 mg cream

# PROGESTERONE IN MEN

- ⦿ Progesterone can decrease conversion of testosterone to DHT
- ⦿ Inhibiting 5-alpha reductase

# DHT-Male Hormone

Male sex hormone, an androgen.  $5\alpha$ -reductase, (inhibited by progesterone)

- DHT is in the adrenal glands, hair follicles, testes and prostate. Male and female adults can lose hair as a consequence of changes in the metabolism of androgen in the body - men more commonly than women. DHT plays a major role in [hair loss](#).

# Progesterone In Men

- ⦿ Decrease anxiety and DHT lowering
- ⦿ Mood stabilization
- ⦿ Good adjunct to testosterone replacement

# ESTROGENS- (ESTRONE E-1)

- ⦿ E 1- STORAGE FORM
- ⦿ PRODUCED BY ADRENAL AND FAT
- ⦿ DOMINANT ESTROGEN POST MENAPAUSE AND ANDROPAUSE
- ⦿ EXCESS STROKES, HEART, BREAST AND PROSTATE CANCER

# ESTROGENS (Estradiol E2)

- ◉ Wax and wanes in the 40s dropping out in the 50s
- ◉ Strongest estrogen most powerful effects on brain, heart and bone
- ◉ Loss of collagen, BP elevation , depression, bone loss

# Estradiol Restoration

- ⦿ Protects against heart disease, dementia and osteoporosis.
- ⦿ Improves insulin sensitivity—prevents diabetes
- ⦿ Eliminates hot flashes, restores sleep
- ⦿ Restores cognitive function and mood
- ⦿ Maintains thickness, fullness of skin and hair
- ⦿ Maintains genital/pelvic health-helps with vaginal lubrication, incontinence, bladder infections
- ⦿ Protects against colon cancer and macular degeneration

# Estradiol vs. Cardiovascular Disease

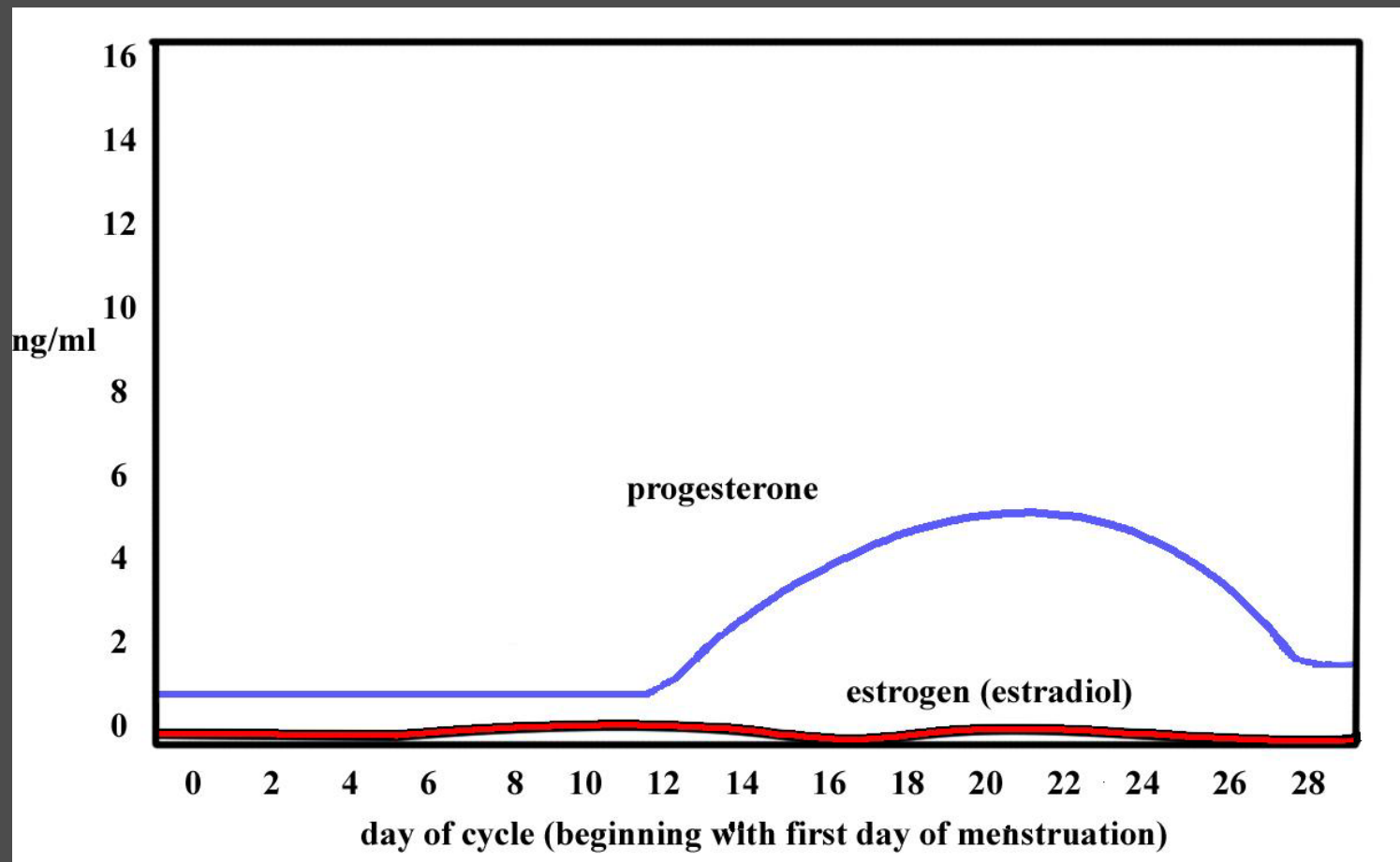
- ⦿ Prevents the oxidation of LDL
- ⦿ Improves lipid profile
- ⦿ Reduces lipoprotein (a)
- ⦿ Reduces blood pressure
- ⦿ Improves endothelial function
- ⦿ Reduces plaque formation
- ⦿ Improves insulin sensitivity

# ESTROGENS (ESTRIOL E3)

- E3 highest in pregnancy
- One of the weakest hormones
- Strongest effects on skin, vaginal and bladder
- E2 can convert to E3

# Perimenopause

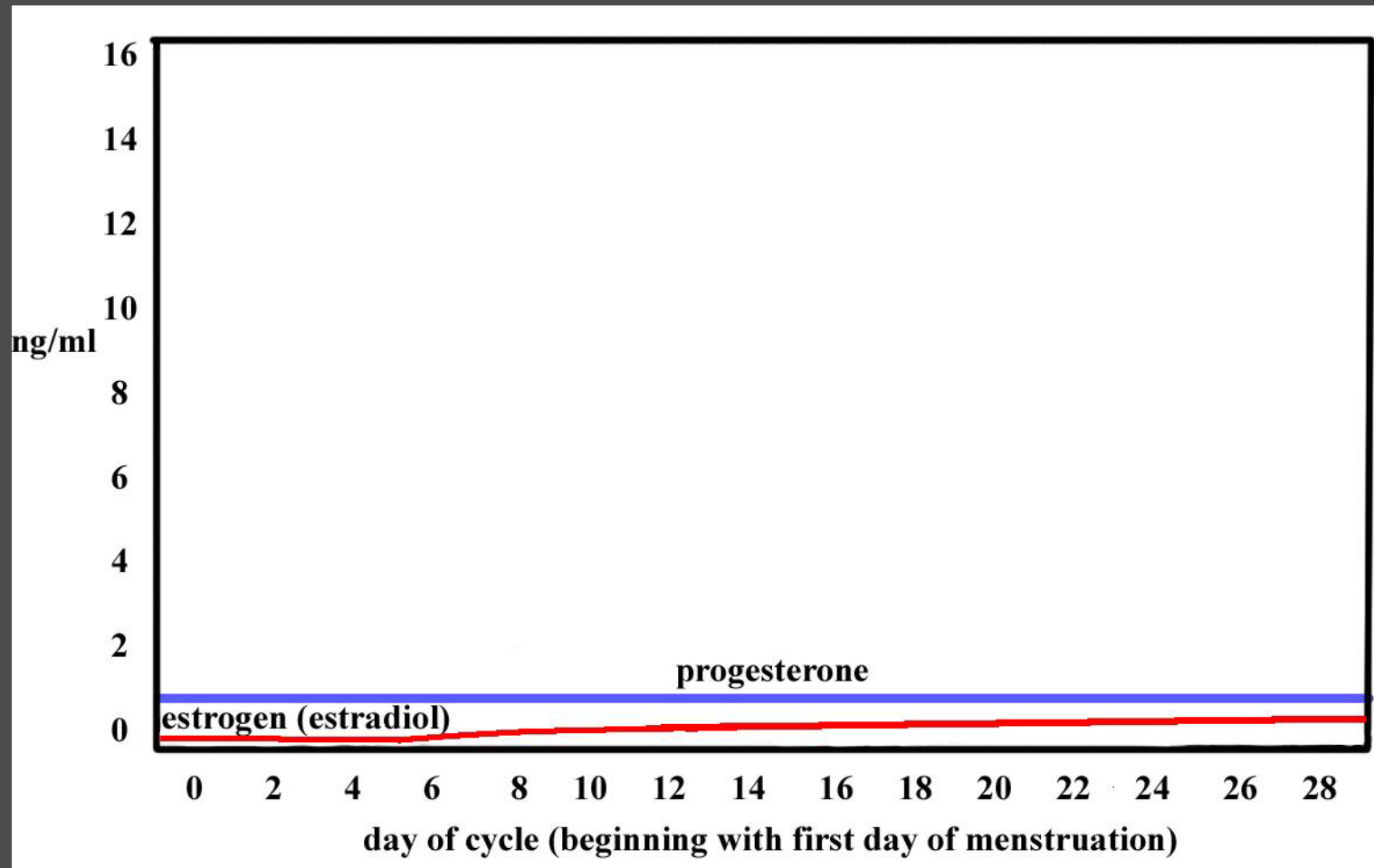
Luteal Insufficiency=Estrogen Dominance



Menstrual Cycle

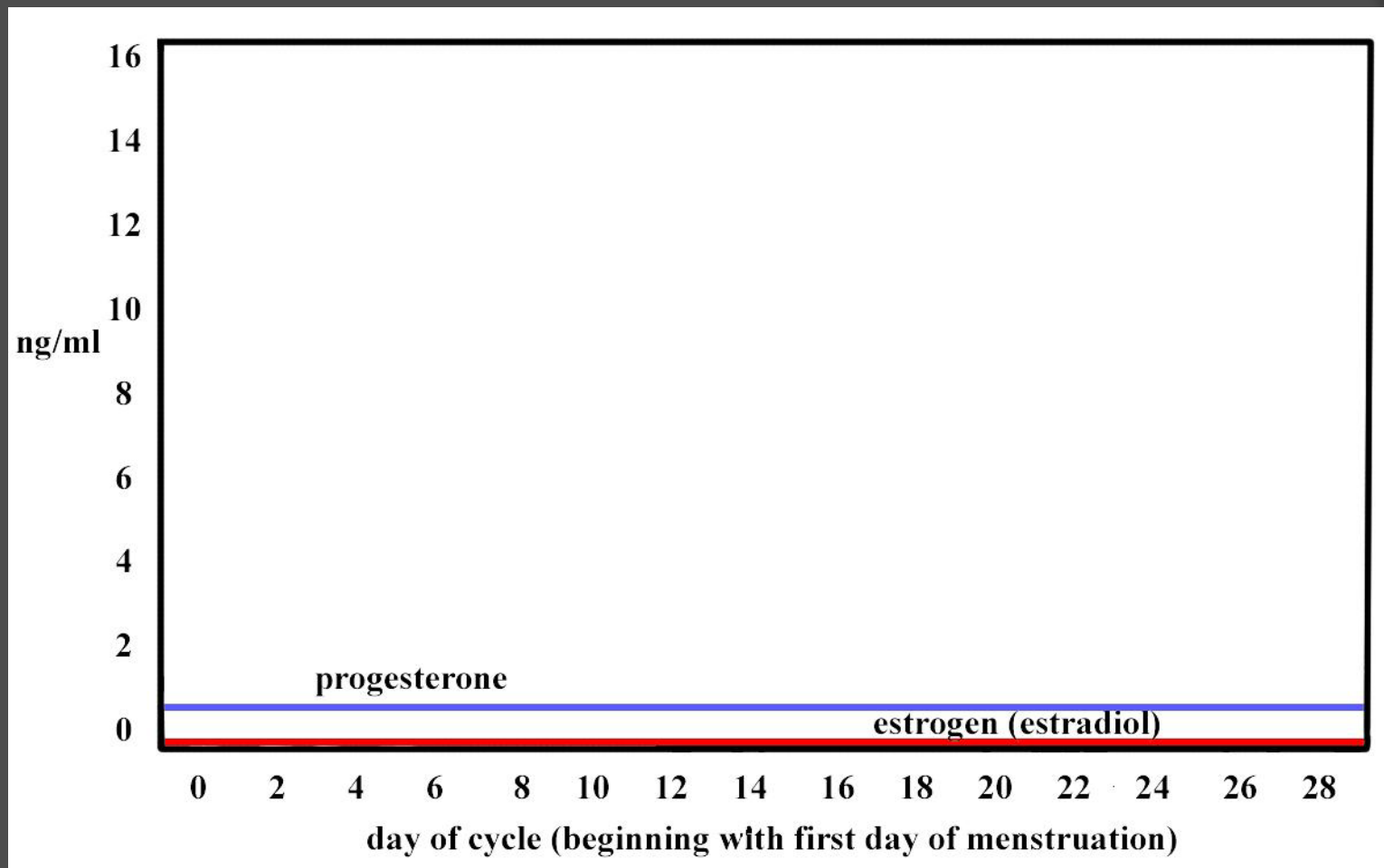
# Perimenopause

Anovulation=Estrogen Dominance



Menstrual Cycle

# Menopause



Estradiol and Progesterone Defficiency

# Women NEED Testosterone

- ① Improves energy, mood, and mental function
- ① Improves sexual desire and sensation
- ① Increases muscle and tissue strength
- ① With estradiol, increases bone density
- ① Opposes estradiol-induced breast stimulation and reduces risk of breast cancer

# Men NEED Testosterone

- Improve energy, mood, mental function, and sex health

# Female Hormone Replacement

- ⦿ Go slow Go low
- ⦿ Patches
- ⦿ Creams
- ⦿ Troches
- ⦿ Vaginal creams
- ⦿ Yam cream
- ⦿ Vitamins

# Dosages

- ⦿ Estrogens never by themselves
- ⦿ Cream conversions – keep estrogen below 2.0mg
- ⦿ Can split creams am and pm
- ⦿ Can mix with progesterone

# Testosterone Female

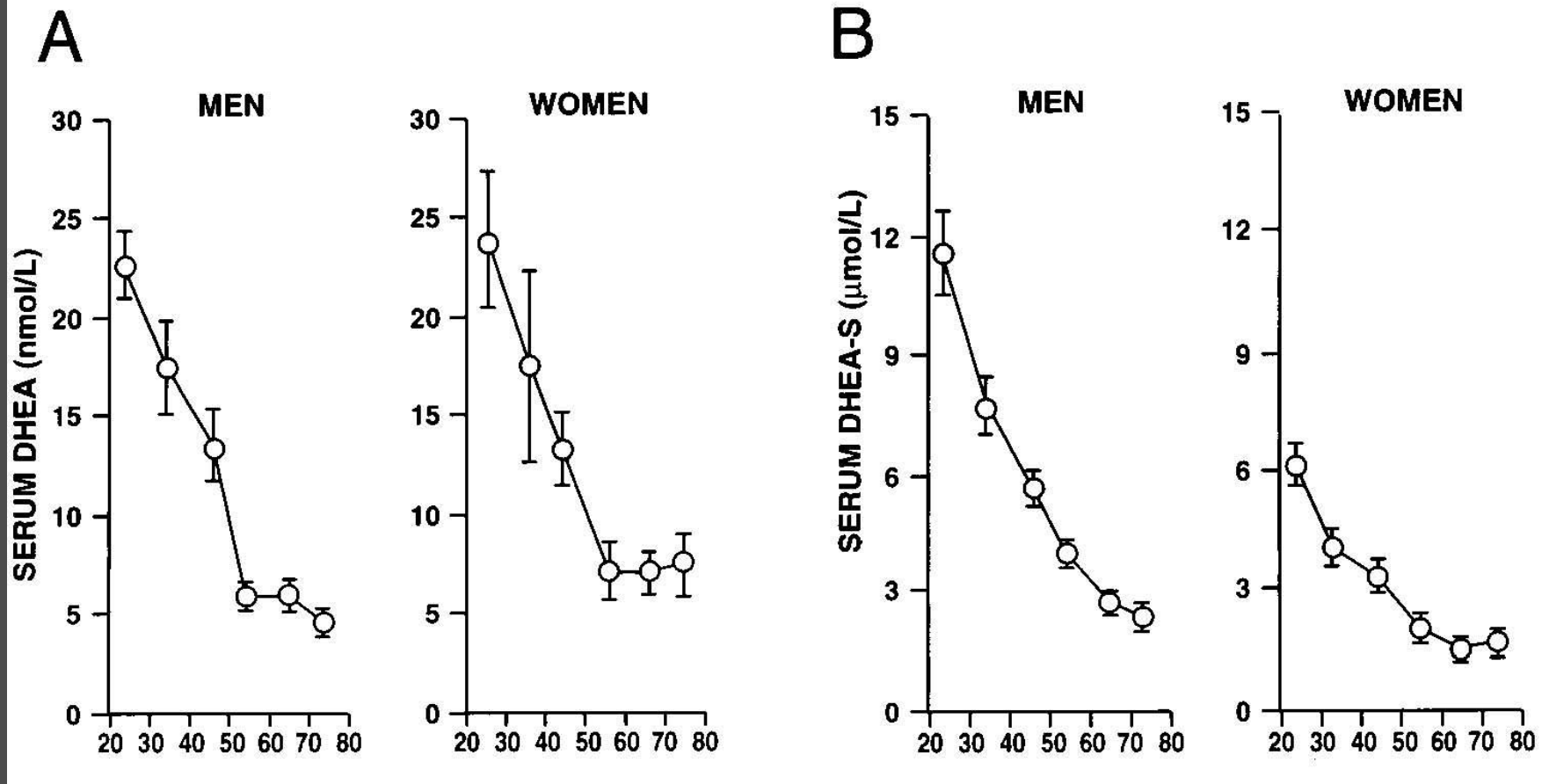
- Cream by it self – side effects
- Apply to labia in evening or pelvic hair line
- Dose 0.5 mg per 0.2ml compounded cream

# Testosterone Male Replacement

- Testosterone creams compounded up to 150mg daily
- Testosterone Cap. 200mg/ml 150mg IM weekly same day
- Testosterone Troches 20-50 mg daily
- Gels in bottles
- Roll under arms

# What about losses due to Aging?

DHEA  $\leftrightarrow$  DHEA S



# DHEA-Replacement

- ⦿ DHEA 5- 10 mg in 0.2 ml of creams
- ⦿ Mix in Progesterone and estrogens

# FOLLOW UP AND LABS

- ⦿ LABS IN 2 WEEKS
- ⦿ MALES IN 4 WEEKS WITH ESTROGENS
- ⦿ FOLLOW UP EXAM 3-4 WEEKS
- ⦿ SYMPTOM FLOW SHEET
- ⦿ FLORIDA LAW EVERY 3 MONTHS ON TESTESTERONE FOLLOW UP

# QUESTIONS

- [WCFAMILYPRACTICE@GMAIL.COM](mailto:WCFAMILYPRACTICE@GMAIL.COM)

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- ◎ <sup>^</sup> [Mehta](#) PH, Jones AC, Josephs RA (June 2008). "[The social endocrinology of dominance: basal testosterone predicts cortisol changes and behavior following victory and defeat](#)". *J Pers Soc Psychol* **94** (6): 1078–93. [doi:](#) [10.1037/0022-3514.94.6.1078](https://doi.org/10.1037/0022-3514.94.6.1078). [PMID 18505319](#).

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