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PSYCHIATRIC CENTER



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PRESENTING TO

Hormones and Mental Health

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Objectives

- Recognize cyclical hormone changes in women and their effect on mental health
- Identify other hormone imbalances and related health conditions
- Develop treatment strategies for mental illnesses linked to hormonal imbalances



Hormones

Hormones are **chemical substances that act like messenger molecules in the body**. After being made in one part of the body, they travel to other parts of the body where they help control how cells and organs do their work.

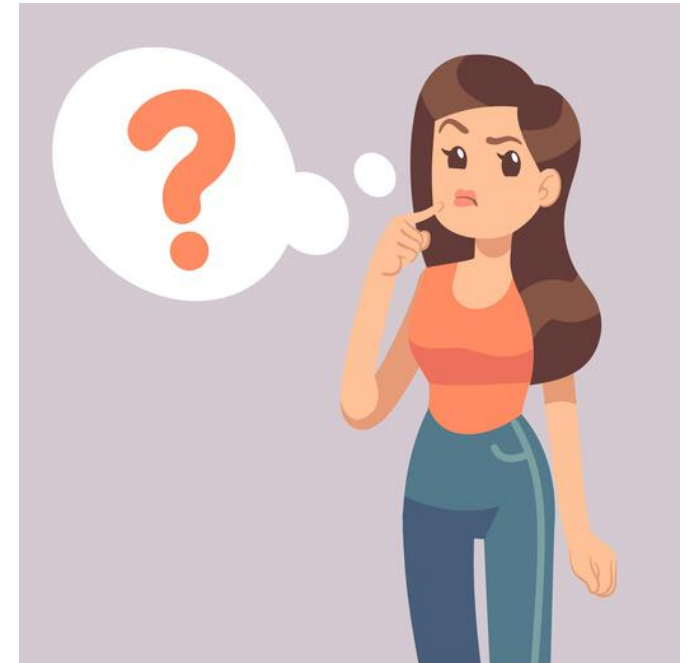
Estrogen, Progesterone, Testosterone, Thyroid hormones, Cortisol, and Melatonin



Treating women in reproductive years

- Two main hormones at play
 - Estrogen
 - Progesterone

- Why is it important to understand the role of these hormones and the cyclical changes during the reproductive cycle?





Estrogen's effect on mood

Estrogen is a serotonergic agonist

- Increases serotonergic postsynaptic response
- Increases amount of serotonergic receptors
- Enhances serotonergic transport and uptake
- Facilitates synthesis of serotonin
- Increase energy
- Increased libido
- Regular menstrual cycles
- Improved cognitive symptoms



Estrogen cont.

- Factors: pregnancy, breastfeeding, puberty, menopause, age, obesity, eating disorders, medications, diabetes, ovarian insufficiency, pituitary insufficiency, and many more
- Too much Estradiol: decreased libido, osteoporosis, depression
- Too little of estrogen also has a large impact on mental health (will review with menopause)

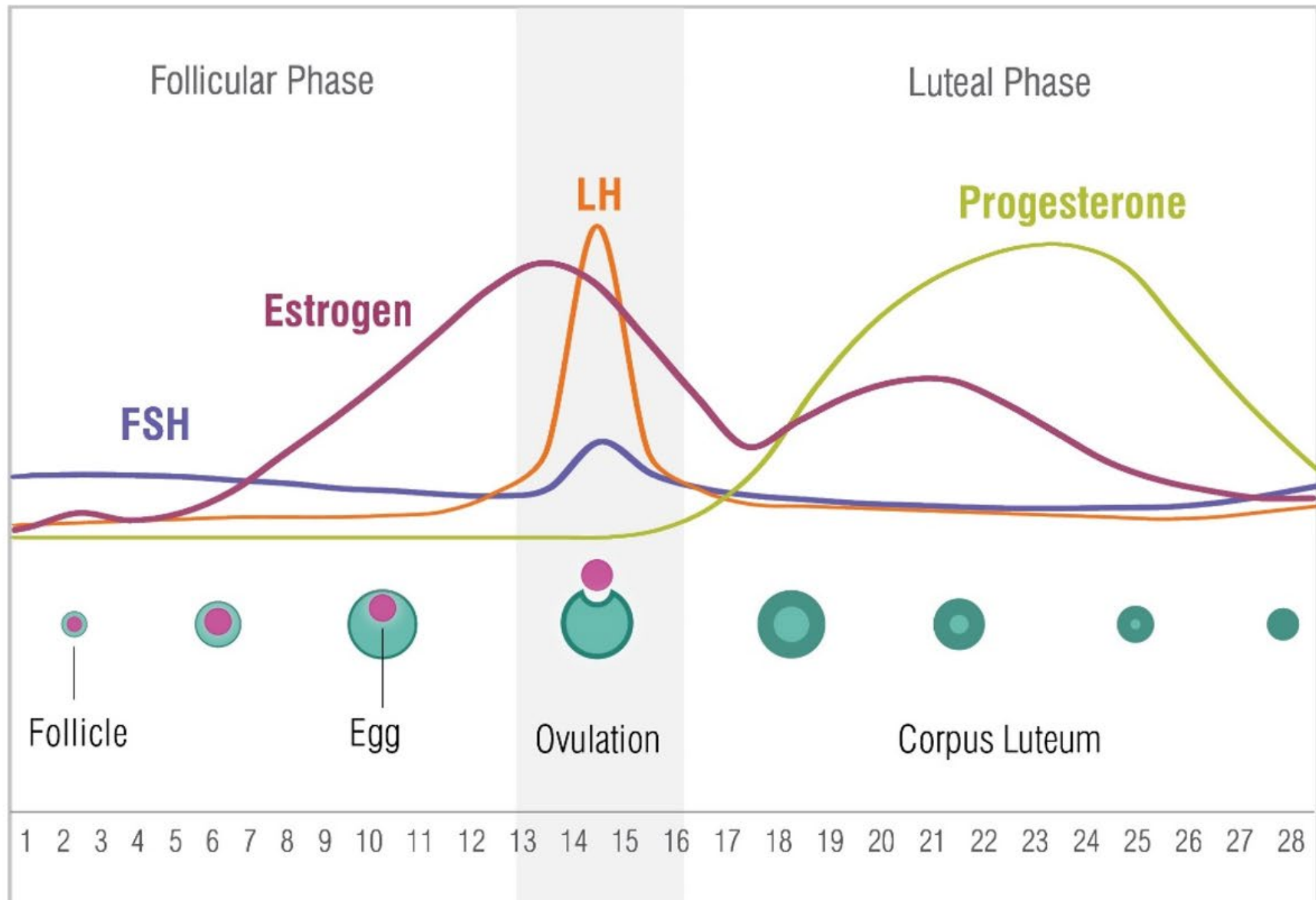


Progesterone's effect on mood

- For most women, progesterone is good for mood because it converts to a neurosteroid called *allopregnanolone* which calms GABA receptors in the brain. This is why progesterone capsules are sedating and why times of high progesterone (luteal phase and pregnancy) cause sleepiness.
 - **The progestin drugs of hormonal birth control do not convert to allopregnanolone, therefore are not soothing to mood.
- On the opposite spectrum: progesterone helps the body make cortisol. If cortisol is already higher than normal, this can increase the feeling of stress/irritability
- For women with PMDD, allopregnanolone does not calm GABA receptors but instead can produce anxiety and other intense mood symptoms.
- Women with PMDD have the same level of allopregnanolone; just have a different *response to it* because of a problem with GABA receptors.

Negative physical symptoms occur in some women

Hormonal changes
in one cycle



Journey of the egg

Follicle

Egg

Ovulation

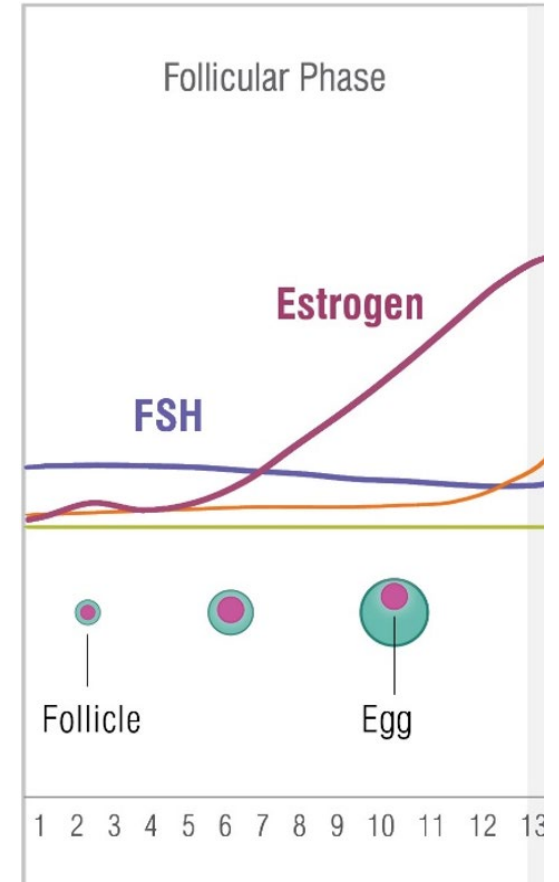
Corpus Luteum

Day of cycle



Follicular phase

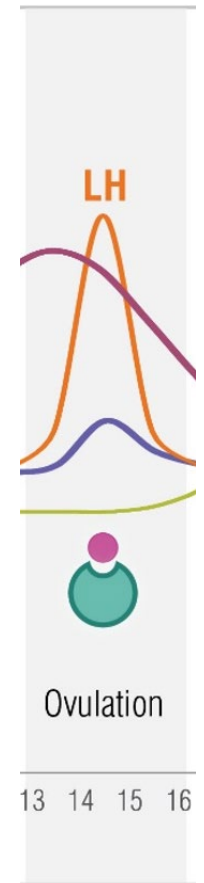
- Follicle developing
- Estrogen increasing steadily
- Time of relatively stable moods. Higher energy, clearer skin, start of increased libido
- Sharper cognitive skills. Higher brain activity in the amygdala and orbitofrontal cortex





Ovulation

- Luteinizing hormone (LH) peaks
- Release of mature egg
- Estrogen remains relatively high
- High energy, High libido

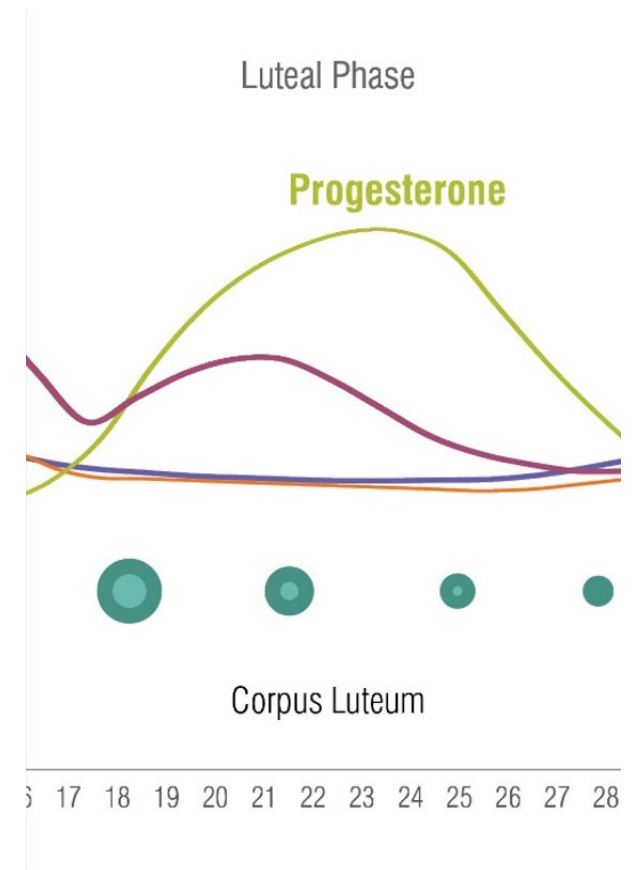


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Luteal Phase

- Progesterone peaks after ovulation
- Typically when PMS and PMDD are present (will review these later)
- Some experience fluid retention, headaches, fatigue and irritability.



PMS (Pre-menstrual syndrome)

- An imbalance of estrogen and progesterone can affect your levels of serotonin and bring on strong premenstrual-syndrome symptoms like anxiety, depression, irritability and mood swings.
 - “PMS is a common side effect of poor-quality or low level progesterone”
 - Physical and emotional symptoms
 - Occurring between end of ovulation and beginning of menstrual period (Luteal phase)
 - Estimated that 75% of menstruating women experience some form of PMS (emotional or physical)
 - Aches, acne, anxiety, bloating, bouts of crying, appetite changes, GI changes, depressed moods, fatigue, irritability, anger, lack of concentration, sleep difficulties





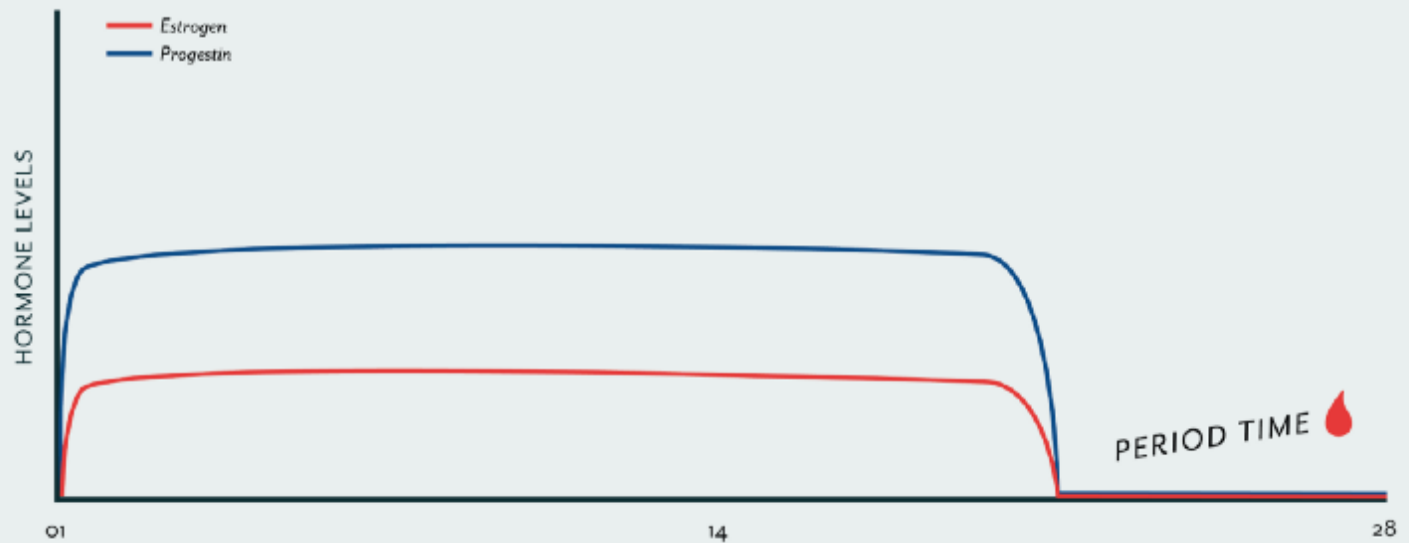
PMDD (premenstrual dysphoric disorder)

- Premenstrual Dysphoric Disorder
 - Severe form of PMS
 - Hormone levels are relatively normal, but individual hypersensitive to the rise and fall of estrogen and progesterone
 - Affecting 3-8%
 - Severe depression, anxiety, and irritability, severe mood swings, frequent crying episodes, loss of interest in activities and people



Treatment

- Treating PMS: exercise, proper nutrition, sleep, appropriately manage stress, OTC medications for symptom control
- Treating PMDD: Lifestyle (same as above), supplements (B6), SSRIs
 - fluoxetine (Prozac), sertraline (Zoloft), citalopram (Celexa), and paroxetine (Paxil). Studies showed that SSRIs reduced the symptoms of PMDD significantly compared with placebo; between 60 and 75 percent of women with PMDD improve with an SSRI.
 - It may not be necessary to take the medication every day. Taking the SSRI only during the second half of the menstrual cycle may be sufficient.
- Birth Control (**No ovulation = no cyclical mood symptoms**)
 - Consider extended cycle pills



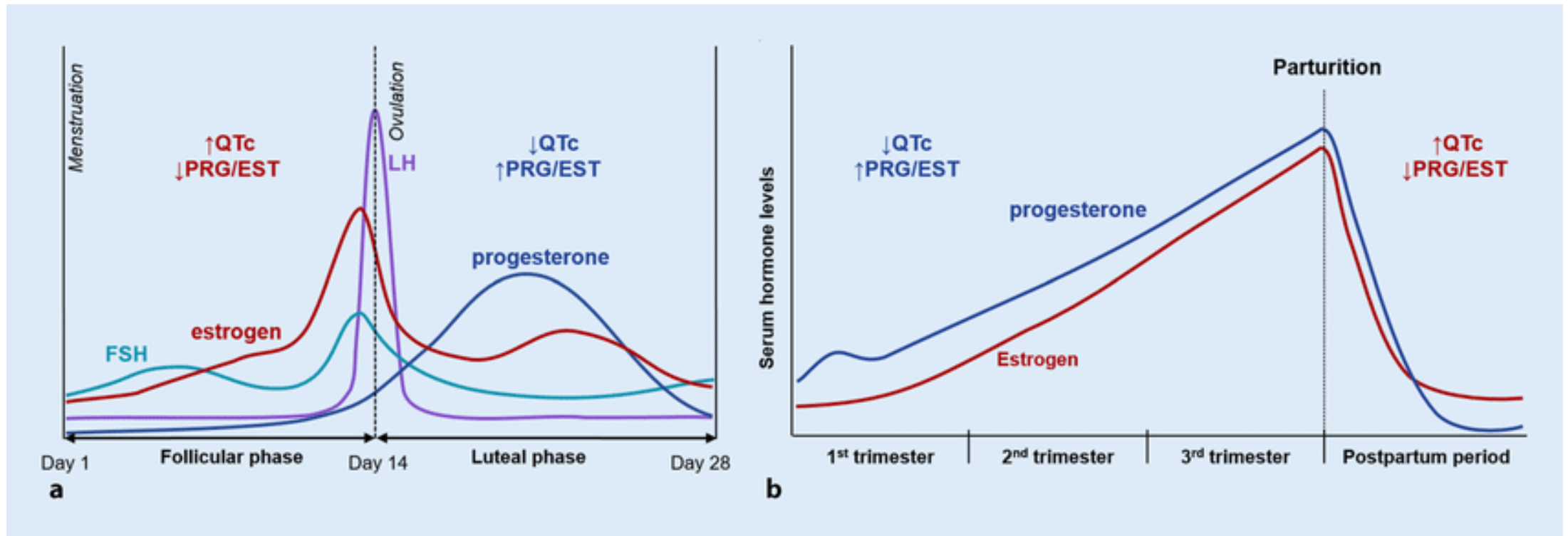
*Hormone levels for people using one type of combination pill**

Differentiating between PSM/PMDD and depression/anxiety/mood disorders

- Women with underlying depression often feel better during or after menses, but their symptoms do **not** resolve completely.
- On the other hand, women with PMS or PMDD have a complete resolution of symptoms when their menses begin.
- Some women who think they have PMS or PMDD actually have depression or an anxiety disorder that may just be worsened by changes or hormones throughout their cycles



Hormones during Pregnancy and Postpartum

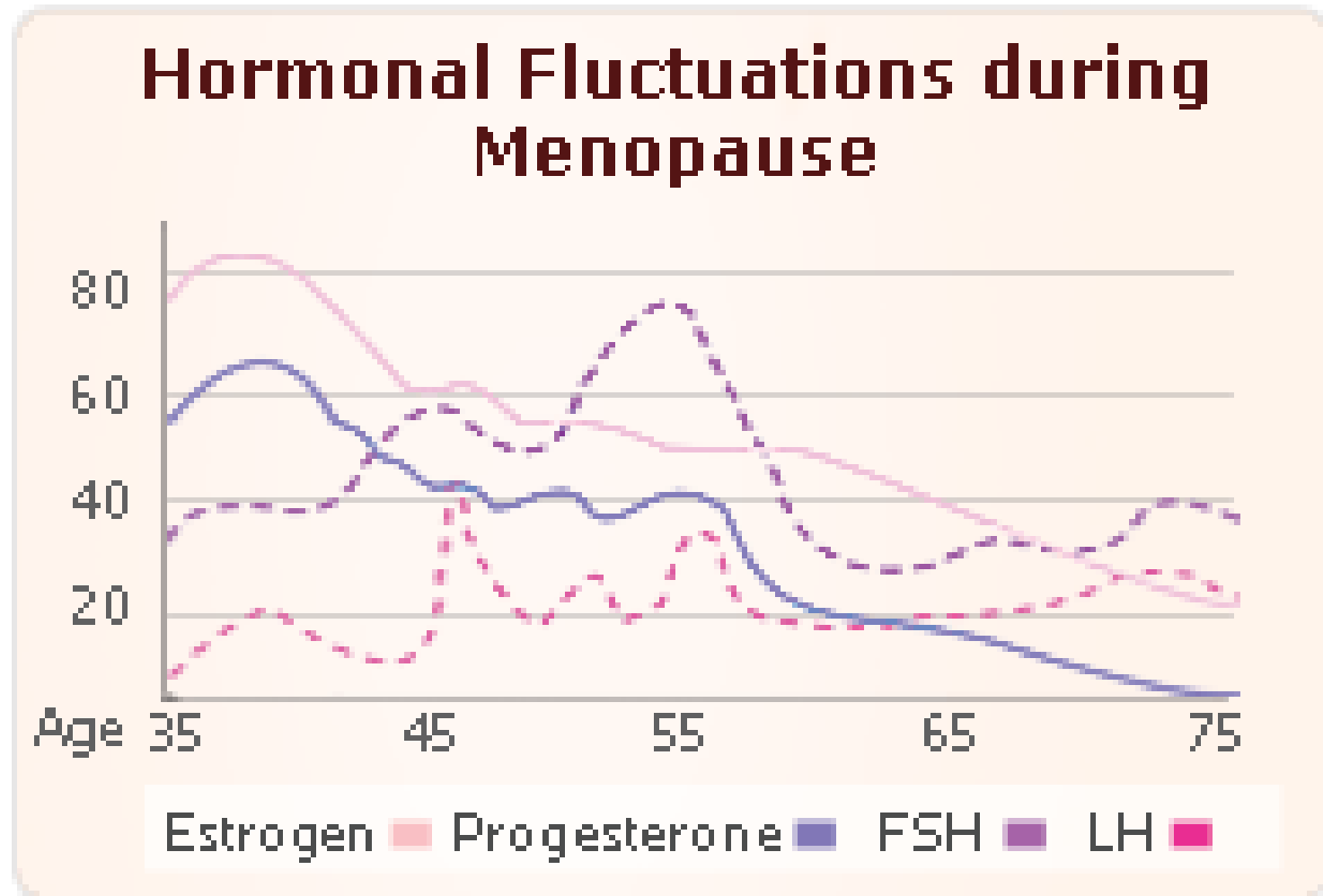




Hormones and Postpartum Depression and Anxiety

- Fast decline in estrogen and progesterone
- Oxytocin (happy-feel good chemical) surges right after birth to help with uterine contractions to control bleeding.
 - It still is present during post partum period to help with breastfeeding and bonding, but compared to previous levels it does drop significantly which is associated with the “baby blues”
- Takes approx. 3-6 months for hormones to reset to “pre pregnancy” levels
- Treatment includes: psychotherapy and medications (SSRIs)

Menopause



Hormones during menopause

- Most common reason for low estrogen in women
- Worsening of sleep, mood, libido, and many other physical symptoms
- Occurrence of mild cognitive changes
- Common for women to experience sadness and irritability

- Treatment: estrogen supplementation, lifestyle changes, other medications to treat associated symptoms
- Hormone replacement alone is not always effective for severe mood symptoms. Antidepressants and psychotherapy.



Low Testosterone (affecting both men and women)

- Causes of low Testosterone
 - Medical conditions; an imbalance in hormones from weight gain, weight loss (anorexia), alcohol, injury/infection, caused by certain medications; or part of the body's natural aging process
- Symptoms of Low Testosterone
 - Depression, anxiety, unstable moods, fatigue, lack of concentration/focus
- Diagnoses
 - Labwork
- Treatment
 - When benefits outweigh the risks, Testosterone replacement therapy
 - Lifestyle changes: diet, exercise, stress reduction, sleep quality

Thyroid

- The thyroid helps to regulate many body functions by constantly releasing a steady amount of thyroid hormones into the bloodstream
 - Regulate body's metabolic rate controlling heart, muscle, and digestive function
 - Brain development and bone maintenance





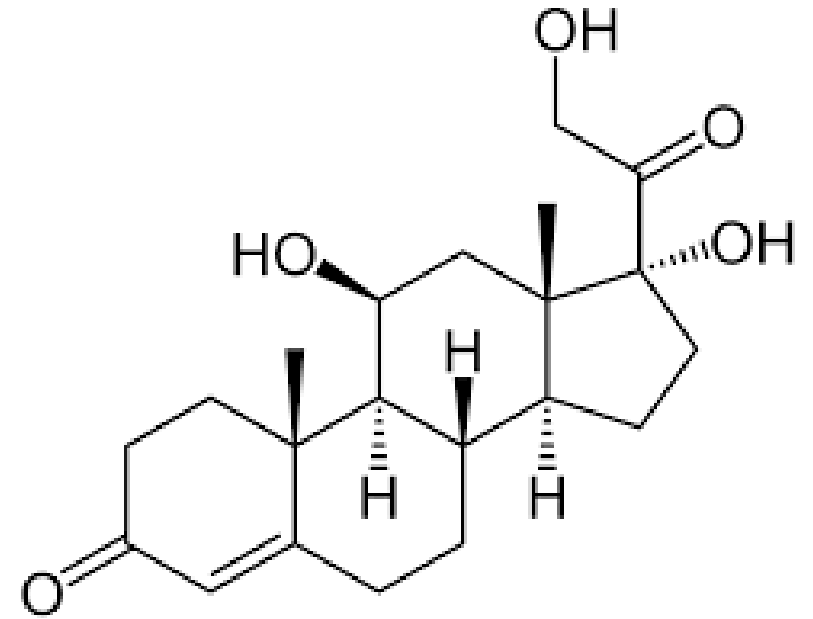
Thyroid cont.

- Thyroid disease can affect your mood — primarily causing either anxiety or depression. Generally, the more severe the thyroid disease, the more severe the mood changes.
- Hyperthyroidism
 - Unusual nervousness, restlessness, anxiety, irritability, sleep difficulties
- Hypothyroidism
 - Mild to severe fatigue, depression, sleep difficulties, lack of mental alertness,
- Other evidence that thyroid disease may be present
 - Weight gain or loss, Increased sensitivity to hot or cold temperatures, bowel movement changes, menstrual irregularities
- Diagnosed through lab work
 - Appropriate treatment — medication that blocks your body's ability to produce new thyroid hormone or replaces missing thyroid hormone



Cortisol

- Body's main stress hormone
 - Increase the body's metabolism of glucose
 - Control blood pressure
 - Reduce inflammation
- In relation to mental health
 - Controls your sleep/wake cycle (helps regulate circadian rhythm)
 - Lowest during the night, and highest a few hours after awakening
 - Boosts energy so you can handle stress and also helps to restores balance afterward





Elevated cortisol

- Caused by pituitary/adrenal dysfunction (Cushing's disease), medication side effects, chronic stress, high estrogen, pregnancy
 - Mental health concerns: increased risk of **cognitive impairment, irritability, anxiety, and depression.**
- Other health concerns: CV risk, DM, osteoporosis, lower life expectancy
- Naturally lower your cortisol by quality sleep, regular exercise, meditation, proper nutrition, limiting stressors.
- Fish oil and ashwagandha have shown benefit in studies at lowering cortisol levels
- Treatment of Cushing's includes hormone suppressing medications and/or radiation or surgery if tumors involved



Low Cortisol

- Most commonly caused by adrenal insufficiency (Addison's disease), can also be caused by medications (chronic steroid use)
 - Has been associated with irritability, depression, chronic fatigue and poor concentration
 - Treatment includes replacing cortisol

Melatonin

- Melatonin is a hormone primarily released by the pineal gland at night, and has long been associated with control of the sleep–wake cycle
- There are some studies suggesting Mood spectrum disorders, including bipolar disorder (BD), major depressive disorder (MDD), and seasonal affective disorder (SAD), have been observed to be accompanied by circadian dysregulation as well as dysregulation in melatonin secretion.
 - Varying results on these studies, but the precursor to melatonin is serotonin.
- Supplement melatonin, encourage healthy sleep hygiene to regulate sleep, and treat the coexisting mental illness.



In summary

- Hormones have an impact on our mental health, and may be exacerbating factors/ cause barriers when treating patients.
- Being educated on the role of hormones in our patients may help us to look at alternative treatment options, or shed light on hormone imbalances so patient's can make lifestyle changes, or be referred to the appropriate specialty if needed.





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