

Dr. Katie Massoudian

- No relationships to disclose

Menopause 101

KATIE MASSOUDIAN, MD, FACOG, MSCP
WOMEN'S MIDLIFE WELLNESS
WOMEN'S HEALTH SERVICE LINE
SOUTHERN CALIFORNIA PERMANENTE MEDICAL GROUP
CLINICAL FACULTY - BERNARD TYSON SCHOOL OF MEDICINE

Menopause Myths

- PERIODS AND PMS PEACEFULLY RIDE INTO THE SUNSET
- PERI/MENOPAUSE SYMPTOMS CAN'T BE TREATED UNTIL ONE YEAR WITHOUT A PERIOD
- WOMEN SHOULD "MUSCLE" THROUGH HOT FLASHES
- IF YOU DON'T HAVE HOT FLASHES YOU HAVENT HAD MENOPAUSE

Menopause Transition

"THIS IS BOTH A WINDOW OF VULNERABILITY AND WINDOW OF OPPORTUNITY"

- Transition marks beginning of increased **risk** for CVD, DM, Osteoporosis and cognitive decline
- Valuable cue for women to invest in lifestyle changes that pay dividends in later years through nutrition, physical activity, mindfulness, and community building



The Menopause Transition – A natural process with BIG impact

1 Billion Women entering Menopause 2026



Women are Menopausal More Than One-third of Their Lives



Decreasing BMD with Increasing Osteoporosis and Fracture risk

1.Parish SJ, et al. *Menopause*. 2018;25(8):937-941

2.North American Menopause Society. Menopause 101. www.menopause.org/for-women/menopause-flashes/menopause-symptoms-and-treatments/menopause-101-a-primer-for-the-perimenopausal. Accessed March 25, 2019.

3. US Census Bureau. https://worldpopulationreview.com/countries/united-states-population/

CASE 1

45 yo female teacher

CC: "Don’t feel like myself, something is off with me"

ROS: Vertigo, weight gain, increased irritability, and heart palpitations, monthly menses which are heavier than before.

Exam: BP 131/83, HR 78, BMI 25.6

Normal physical

What are you thinking of?

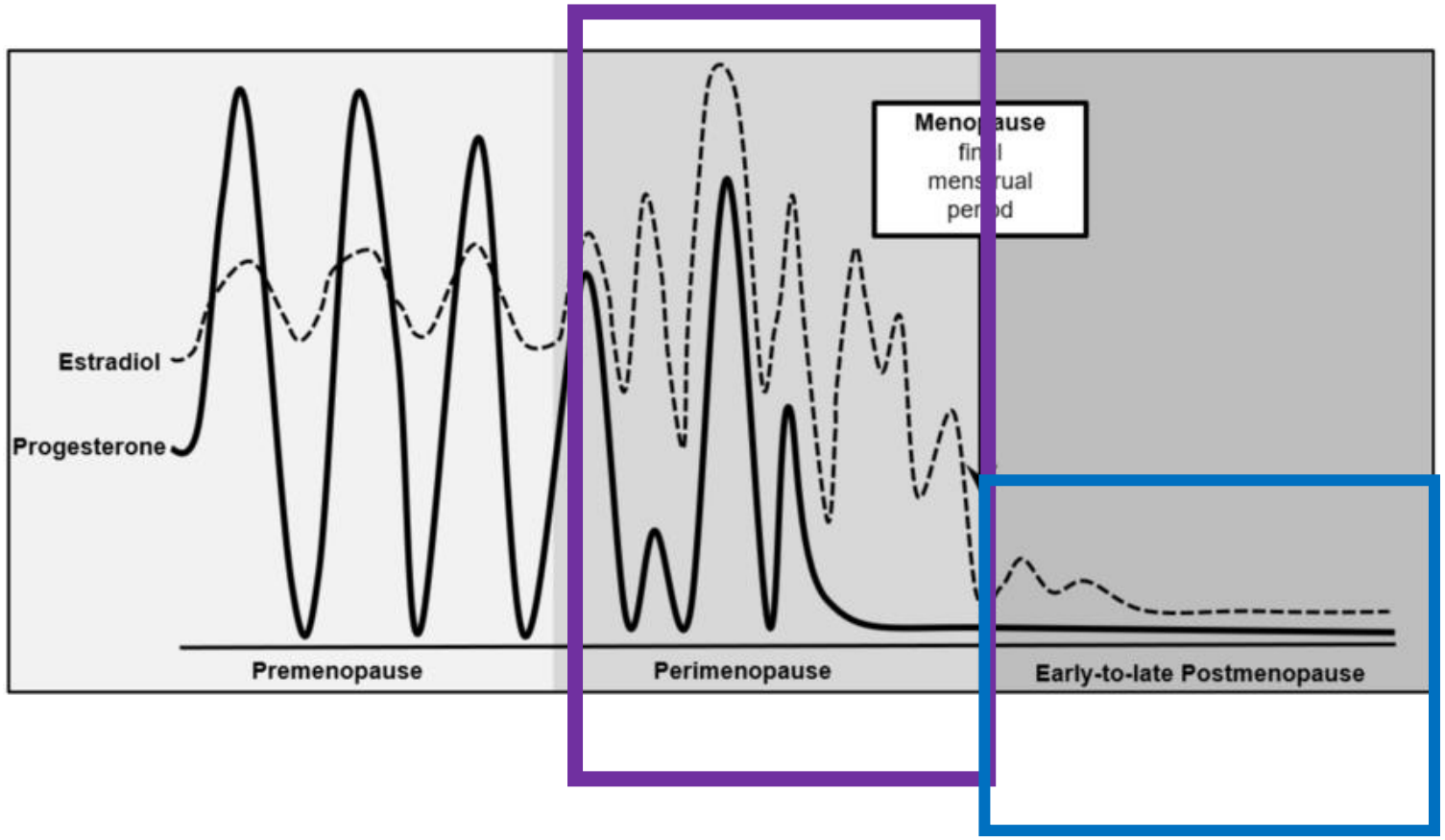
1. Thyroid disorder
2. Premature Menopause
3. Anxiety disorder
4. Perimenopause

Definitions and Statistics:

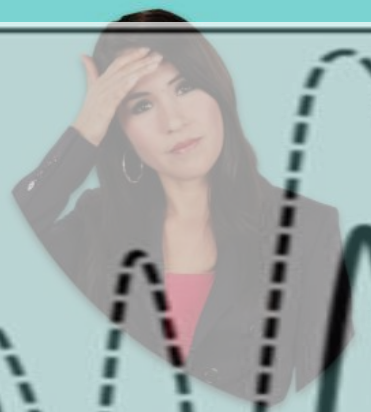
- **Perimenopause:** 3-10 years of irregular periods, erratic hormone production
- **Menopause:** 12 months of no periods due to ovarian follicular depletion
- Average onset: 51 years; transition lasts 4–10 years
- Marked decline in estradiol, progesterone; rise in FSH/LH
- Systemic consequences across nearly every body system

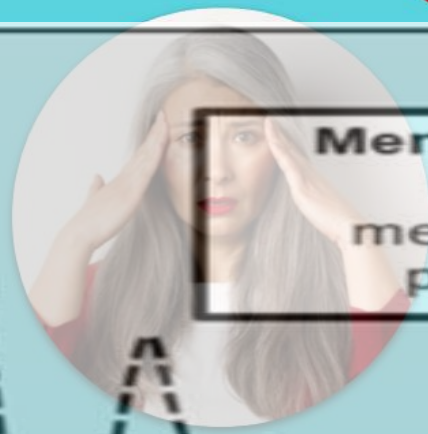
- **Early menopause**(menopause at ages 40-45) 4.1% of women

- **Premature Ovarian Insufficiency** (menopause under age 40) occurs in 1% of women



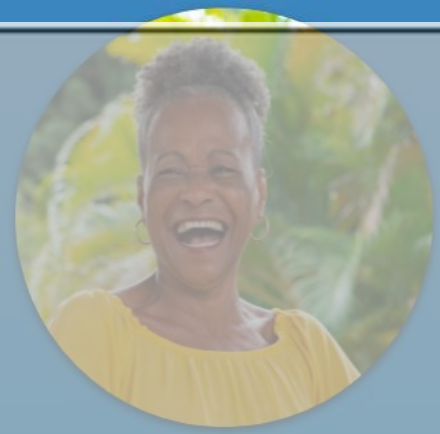
FMP





Menopause final menstrual period





Early Perimenopause

- Increased PMS
- Insomnia
- Memory problems
- Increased anxiety and depression
- Subtle changes in cycles

Late Perimenopause

- Early perimenopause symptoms AND
- Hot flushes symptoms likely
- Vaginal dryness likely
- 2 or more skipped cycles and greater than 60 days amenorrhea

Early Postmenopause

4years

- Begins at 12 months of amenorrhea
- Increased hot flushes
- Increased night sweats
- Increased vaginal dryness
- Increased sleep disturbances

Late Postmenopause

- GSM
- Incontinence
- Osteoporosis
- CVD
- Vasomotor symptoms can linger

Perimenopause

Early-to-late Postmenopause

Onset 40-50's

Until Demise

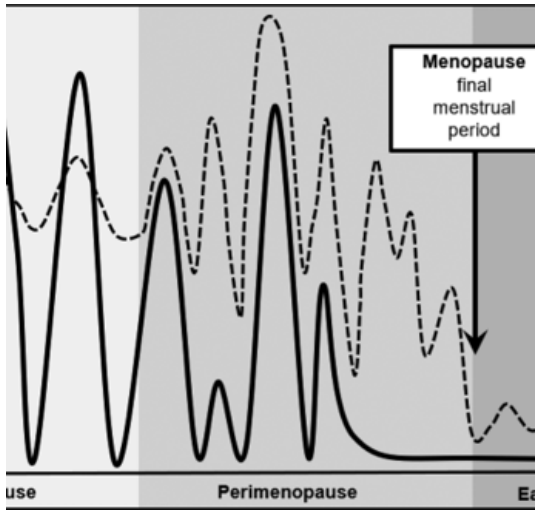
Hormonal



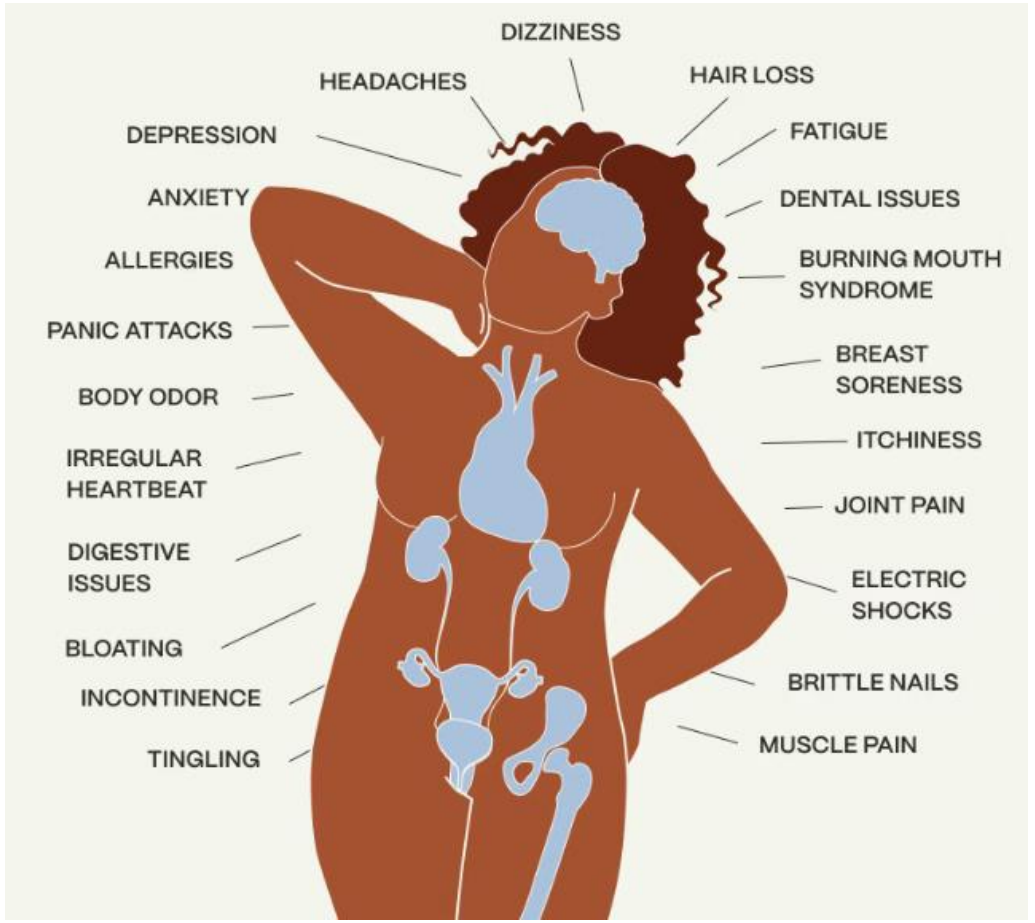
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Perimenopause – Inconsistently Chaotic

- **Hormone fluctuations** are the hallmark
- **Menstrual chaos** is common
- **Clinical Diagnosis:** Rely on recent HPI, menses, and symptom timing

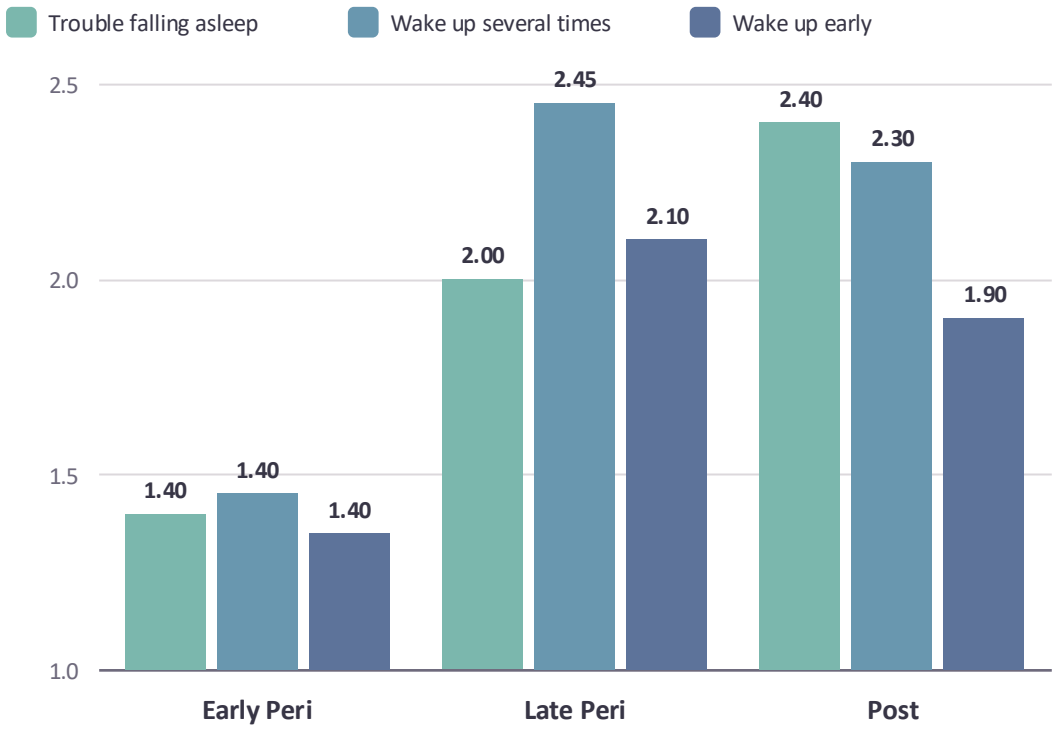


Erratic hormone swings across perimenopause



SWAN: Sleep and Memory Across the Transition

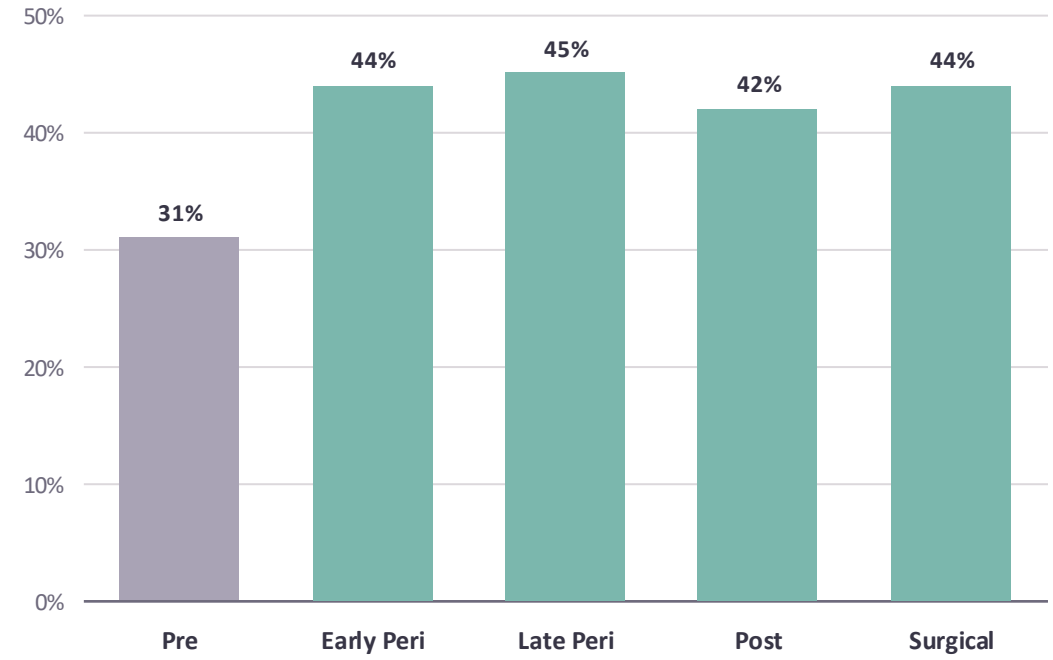
Odds of sleep problems vs. premenopause



Adjusted for age, race, site, vasomotor sx, E2, FSH; N=3045.
Kravitz et al., 2008, Sleep

Reports of forgetfulness by menopause stage

Percent reporting forgetfulness · adjusted OR 1.27–1.44



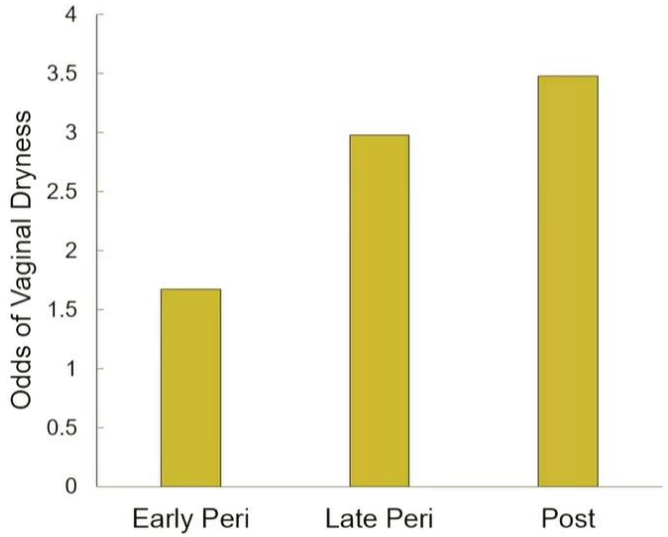
p<.05 vs. premenopause, multivariable.
Gold et al., 2000, Am J Epidemiol

SWAN: Vaginal Dryness and Not Feeling Like Oneself

VAGINAL DRYNESS

(Waitjen, 2018, *Menopause*)

43% of US midlife women ages 55-65 report vaginal discomfort
(Nappi, 2010, Maturitas)



NOT FEELING LIKE ONESELF

(Coslov et al., Menopause, 2024)

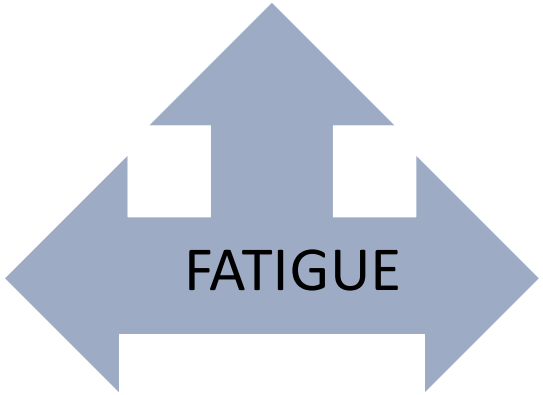
- Survey of 1263 women ages 35-55
- 63% reported "not feeling like themselves"

"I JUST DON'T FEEL LIKE MYSELF"

MOOD CHANGES
- Increased irritability/Anger
- Anxiety
- Panic attacks
- Depressed mood
- **Fatigue**
- Crying spells
- Women with history of PMS, PMDD, PPD more likely to have mood changes
- Women with history of anxiety and depression are more likely to have reactivation in perimenopause

"BRAIN FOG"
- Decreased concentration
- Difficulty word-finding
- Challenges ~~multi-tasking~~ task switching
- Easily forgetful
- Feels overwhelmed
- Mimics ADHD symptoms

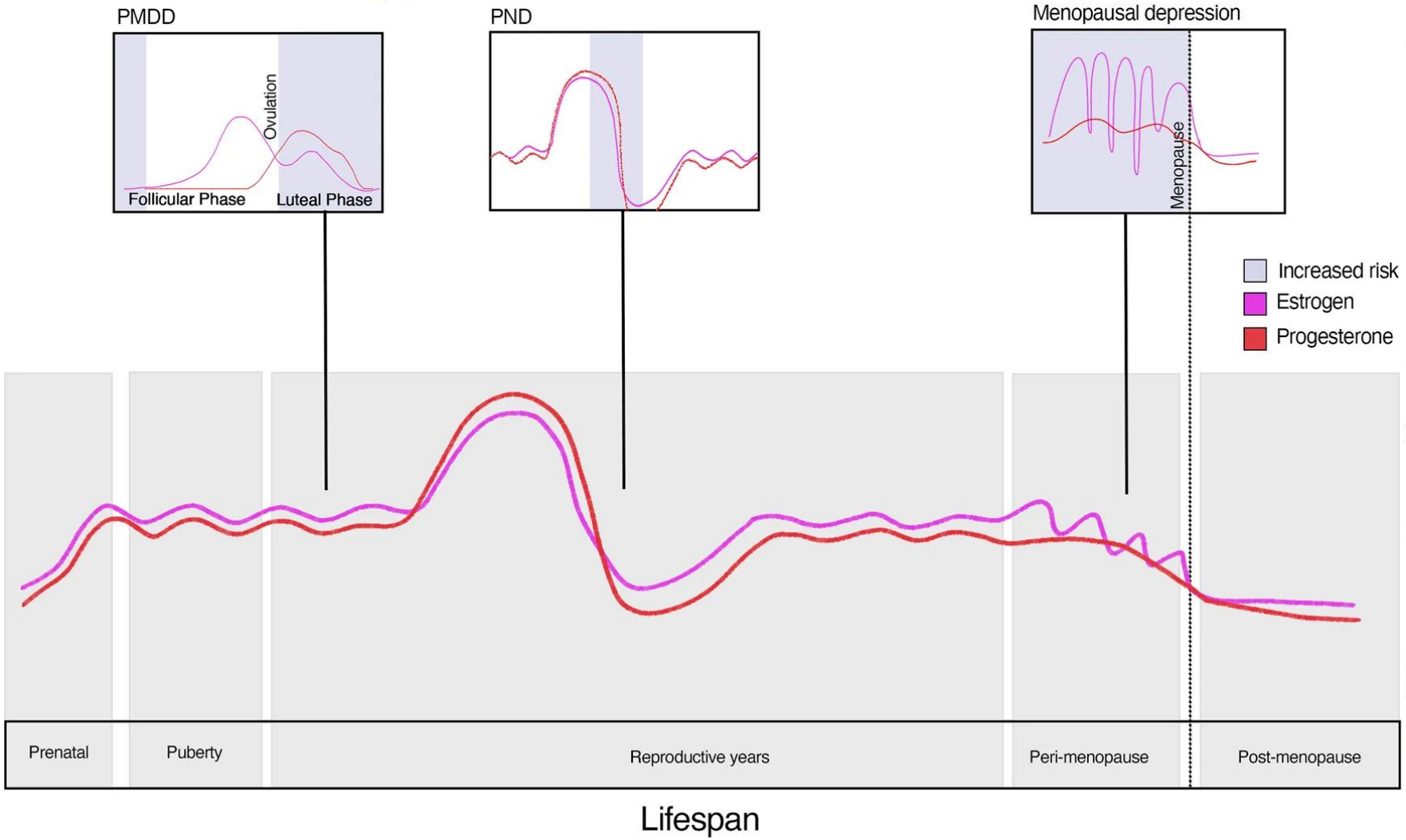
SLEEP DIFFICULTIES
- Trouble staying asleep
- Increased sleep fragmentation
- Less restful sleep
- Difficulty with sleep onset
- Decreased sleep efficiency



"BORING BASICS"

EXERCISE
SLEEP HYGIENE
HEALTHY DIET
REDUCE ALCOHOL
REDUCE CAFFIENE
CBT/MINDFULNESS
THERAPY
CORRECT IRON DEF

Perimenopausal Mood Fluctuation



Risk Factors

1. PMS/PMDD
2. Perinatal Depression
3. Existing GAD or MDD
4. VMS
5. Insomnia
6. Social Determinants of Health

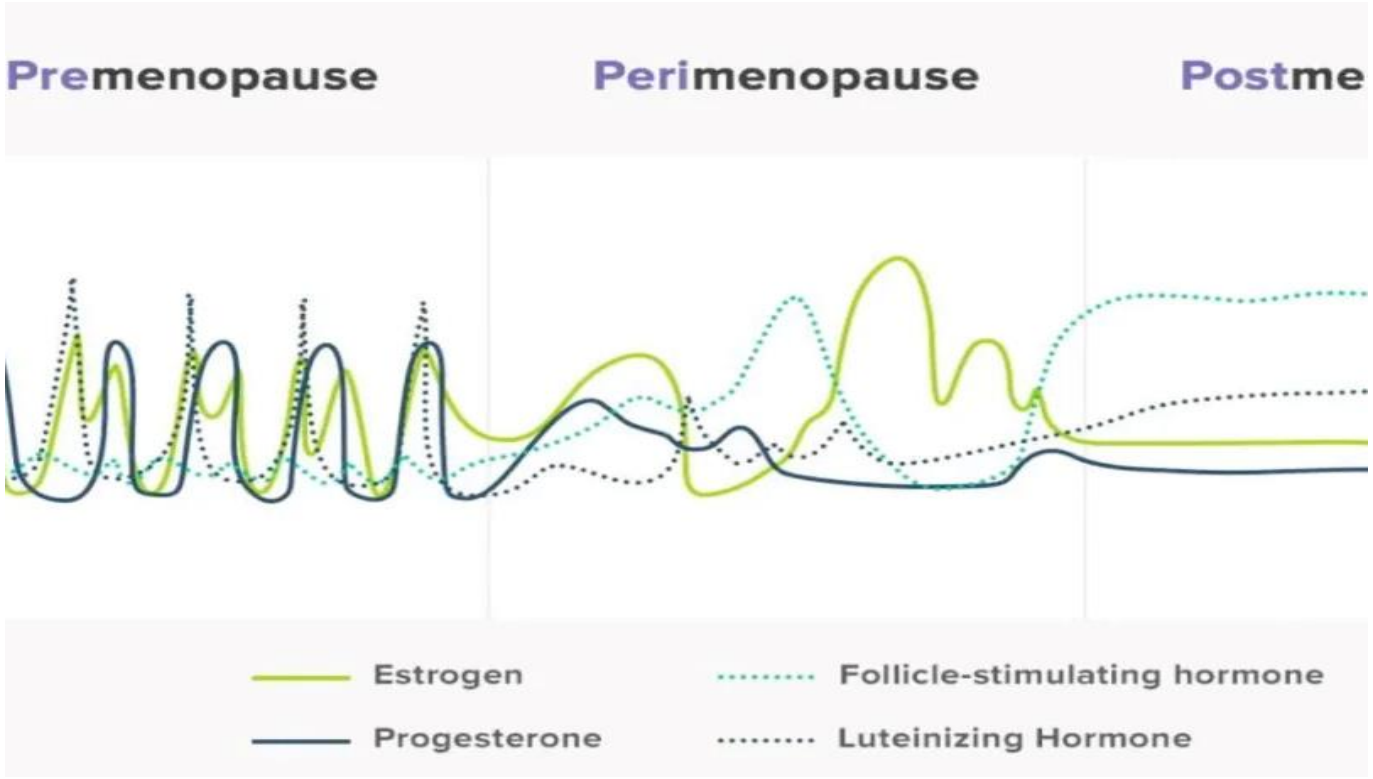
What about hormone testing?

The Menopause Society, ACOG, and the Endocrine Society **don't recommend routine hormone testing.**

Here's why:

- **Lab results are often unreliable.** Hormones fluctuate daily (and dramatically if in perimenopause). A single snapshot doesn't tell us much.
- **Normal ranges are wide.** People with identical levels can have completely different experiences.
- **There's no magic number.** We treat symptoms, not lab values. We don't know the exact level at which you'll feel your best.

When we check: No period for 3+ months to evaluate for premature ovarian insufficiency or signs or symptoms of PCOS.



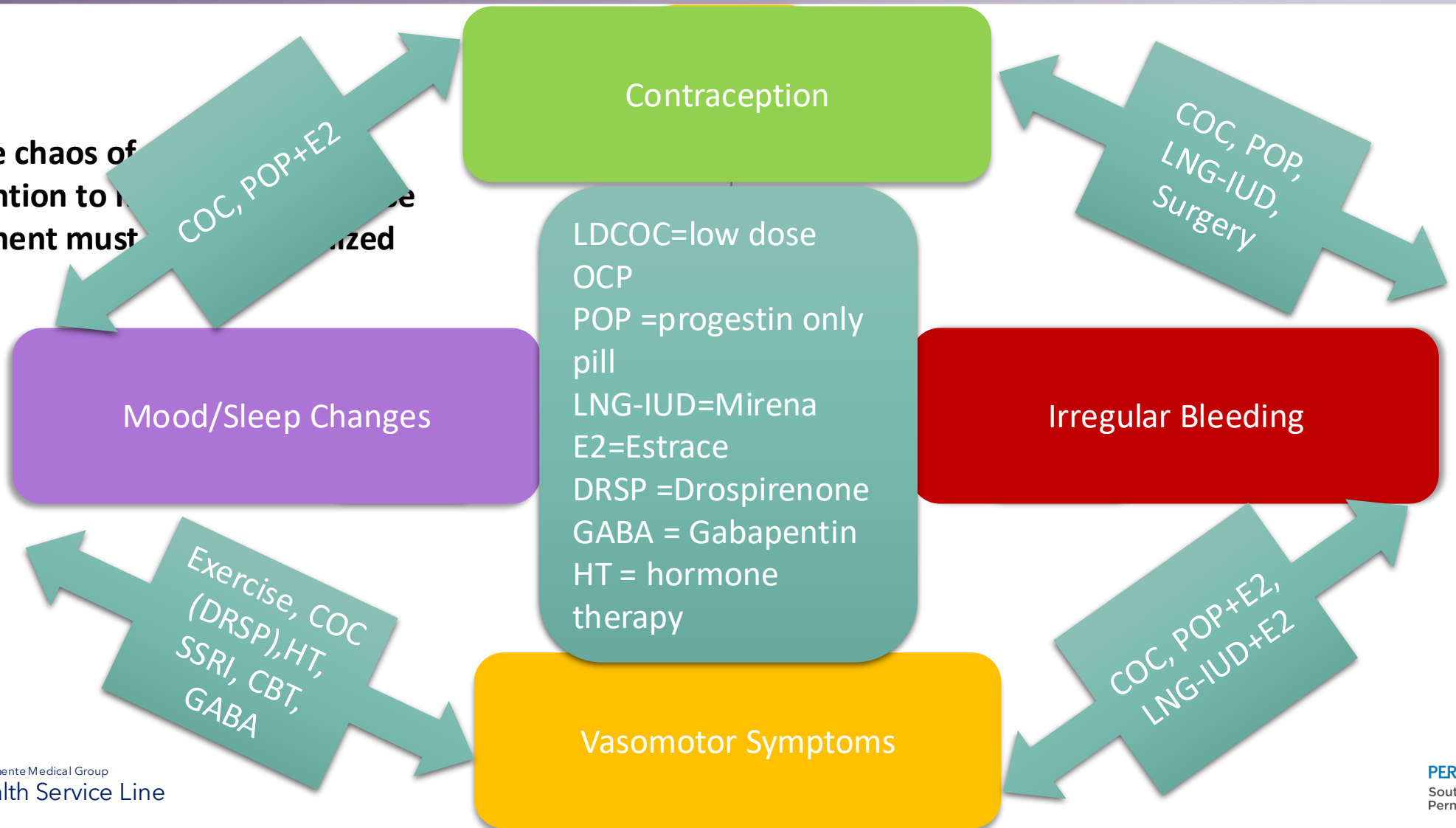
What labs could be helpful?

- ✓ TSH
- ✓ CBC
- ✓ Ferritin
- ✓ Prolactin
- ✓ HCG!

- ✓ If no periods and <40 – FSH and Estradiol
- ✓ **"There is no test for hormone fluctuations; but let's rule out iron deficiency, thyroid disorder, etc"**
- ✓ **"You can have normal levels and still have disruptive symptoms, let's focus on your symptoms"**

Managing Perimenopause: More than Symptom Control

Managing the chaos of
requires attention to
issues: treatment must



CASE 1

45 yo female teacher

CC: "Don’t feel like myself, something is off with me"

ROS: Vertigo, weight gain, increased irritability, and heart palpitations, monthly menses which are heavier than before.

Exam: BP 131/83, HR 78, BMI 25.6

Normal physical

1. **Acknowledge:** "You are in Perimenopause, your symptoms are real"
2. **Reassure:** "This phase is temporary, you will not always have these symptoms"
3. **Emphasize the "boring basics":** Exercise, Sleep Hygiene, Healthy Diet, CBT/Mindfulness
4. **Collaborate on treatment options:** prioritize symptom relief, explain this is process of "trial and tweaking"
5. **Offer Resources**: EMMI Perimenopause, Midlife Guidebook, AVS, other books and podcasts

CASE 2

55yo Black female with hot flashes occuring several times per day, also having night sweats, feels she can't get good rest. LMP 3 years ago, was hoping hot flashes would stop when periods stopped. Also complains of recent UTI and vaginal dryness.

Concerned about Family History of heart disease, was told by a friend hormones cause heart attacks.

BP 145/85, HR 78, BMI 30

Labs: Chol 230, LDL 134, HDL 56 Normal Mammogram 6 months ago

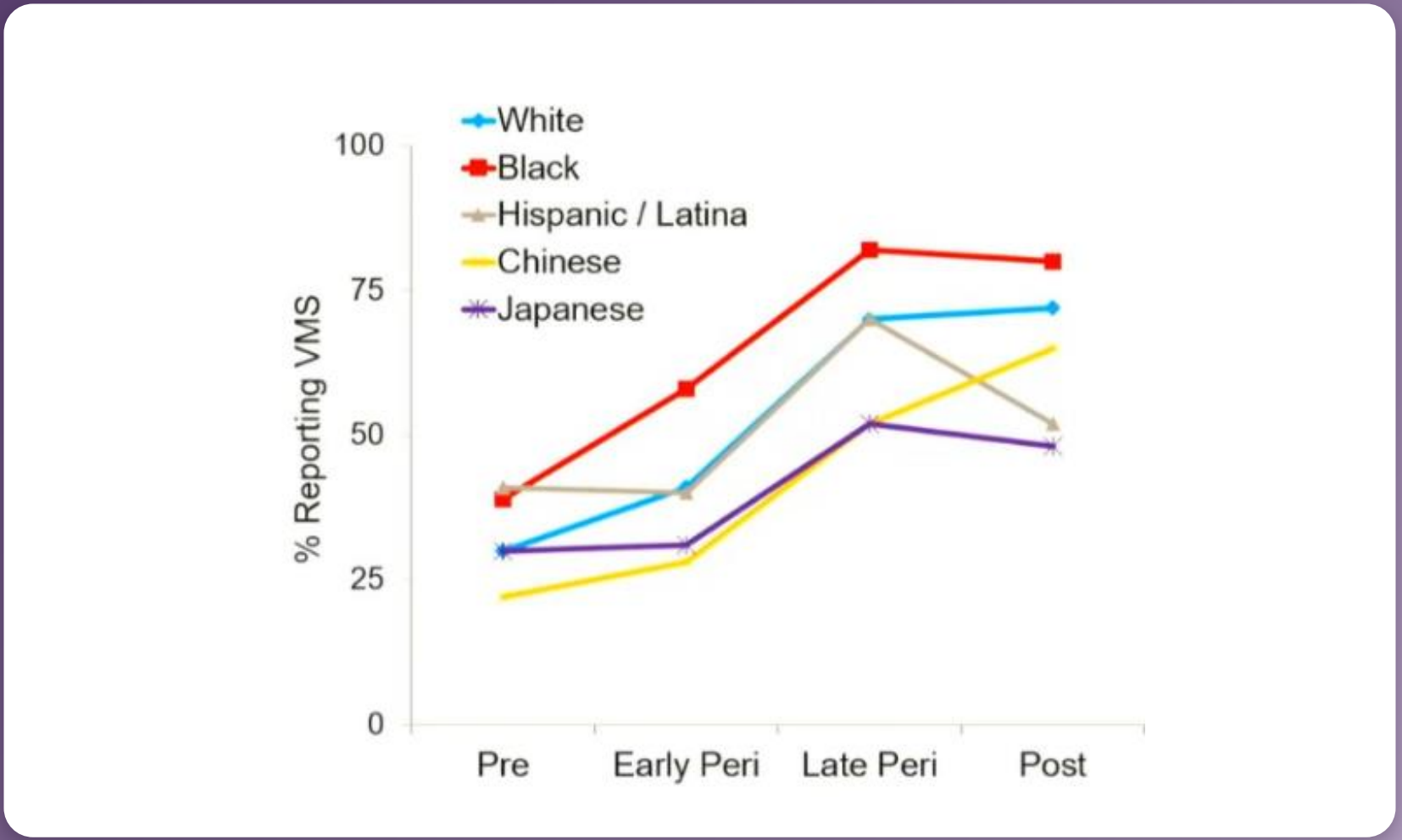
How NOT to counsel her:

1. Hot flashes are benign - take a menopause supplement
2. Hormones do cause heart attacks - don’t take them
3. If you have UTI symptoms - I'll call in an antibiotic
4. Vaginal dryness is a part of getting older – welcome to the club

SWAN: Vasomotor Symptoms Across the Menopause Transition

Hot flushes and night sweats peak in late perimenopause and persist after the final menstrual period — with marked differences by race and ethnicity.

10-33% of women will have vasomotor symptoms beyond 10 years of menopause



Gold et al., 2006, Am J Public Health.

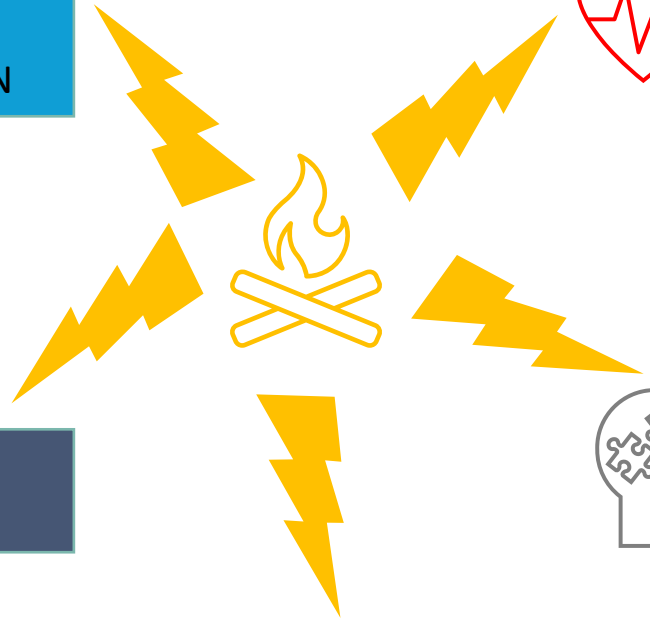
HOT FLASHES – BENIGN WAVES OF WARMTH?



HOT FLASHES ASSOCIATED WITH DECREASED MEMORY AND ADVERSE EFFECTS ON THE BRAIN



SEVERE HOT FLASHES ASSOCIATED WITH INCREASED RISK OF CARDIOVASCULAR DISEASE & DM

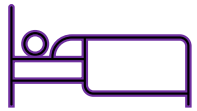




HOT FLASHES ASSOCIATED WITH INCREASED MOOD DISORDERS

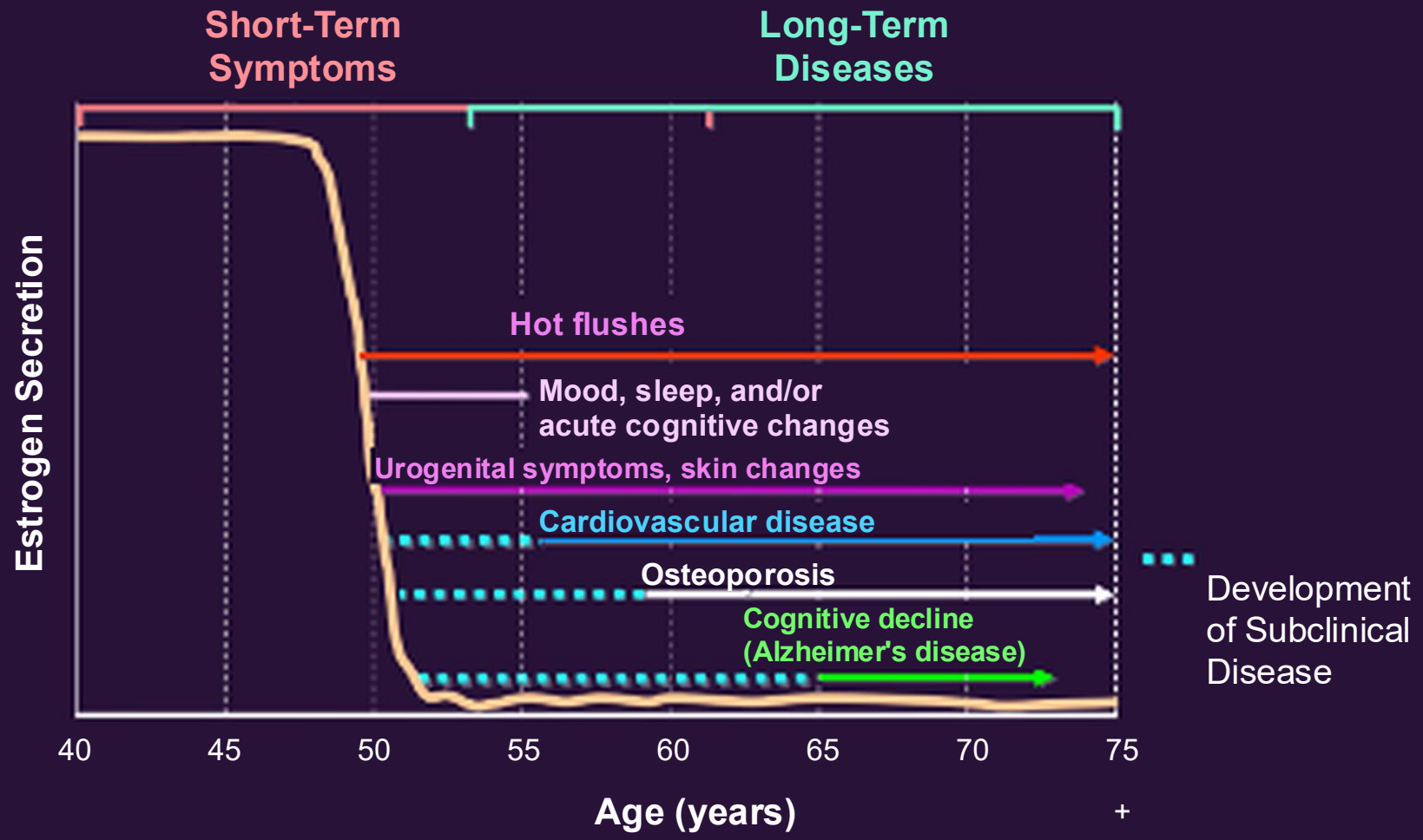


SEVERE HOT FLASHES ASSOCIATED WITH INCREASED RISK OF DEMENTIA



NIGHT SWEATS AND NOCTURNAL HOT FLASHES FRAGMENT SLEEP, LEADING TO CUMULATIVE EXHAUSTION

Estrogen Loss and Manifestations of Health Risks Over Time



Sleep Disorders in Midlife

- **Inadequate sleep**
  - Duration >9 or <7 hours
  - Poor sleep quality
- **Decreased sleep duration during the menopause transition**
- **Increased incidence of obstructive sleep apnea**
  - Severe VMS linked to OSA
- **Associated with obesity, insulin resistance, HTN and worse CVD outcomes**

Dastmalchi, et al. JACC Adv. 2025

Sleep disorder

Hormonal influences on sleep • Circadian changes with aging • Lifestyle change • Depression • Insomnia • Restless legs syndrome • Sleep apnea

Diagnosis

Objective: polysomnography, wrist actigraphy
Subjective: clinical interview, self-report questionnaires

Treatment

Non-pharmacologic: cognitive behavioral therapy, CPAP
Pharmacologic: hormone replacement therapy, psychotropic medication

Adapted from Han, et al. J Menopausal Medicine. 2015

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'EARLY' PERIMENOPAUSE



Hormones*

↔ E_2 *(relatively unchanged)*

↑ FSH *

CVD Risk Factors

↑ C-IMT and vascular remodeling

↓ Endothelial function (FMD)

NOTE: Few studies of women in *early perimenopause* have been conducted due to the inherent difficulty in categorizing women in this earlier stage. As a result, the cardiometabolic changes that occur during *early perimenopause* have yet to be fully elucidated.

'LATE' PERIMENOPAUSE



Hormones*

↓ E_2 * and AMH

↑ FSH *

Body Composition



↑ Fat mass *(abdominal fat)*

↓ Fat-free (lean) mass

Energy Intake & Expenditure



↓ 24-h, Sleep, & Physical Activity EE

Resting EE (?)

Fat oxidation

Energy Intake

Cardiovascular Risk Factors



↑ Dyslipidemia *(mostly within 1-year of FMP)*

↑ C-IMT, Aortic PWV, and vascular remodeling

↓ Endothelial function (FMD) and cardiac health

↑ Insulin resistance

↑ Sleep disturbances

POSTMENOPAUSE

Hormones*

↓ E_2 *(for 2 years after FMP, then stabilizes)* *

↑ FSH *(for 2 years after FMP, then stabilizes)* *

Body Composition

↑ Fat mass *(abdominal fat)* *(for 2 years after FMP, then stabilizes)*

↓ Fat-free (lean) mass *(for 2 years after FMP, then stabilizes)*

Energy Intake & Expenditure

↓ 24-h and Sleep EE

Physical Activity EE

Fat oxidation *(remains low into postmenopausal years)*

Cardiovascular Risk Factors

↑ Dyslipidemia *(mostly within 1-year of FMP)*

↑ Insulin resistance and glucose intolerance *(associated with abdominal fat accumulation)*

↑ Sleep disturbances

Key Considerations in Midlife



Midlife is a crucial window for implementing early prevention strategies to reduce future CVD risk



Emphasis should be placed on lifestyle modifications including a healthy diet, regular exercise, weight management, and avoiding smoking



Awareness of Female Specific risk factors and modification is important- migraine, depression, autoimmune diseases, adverse pregnancy outcomes



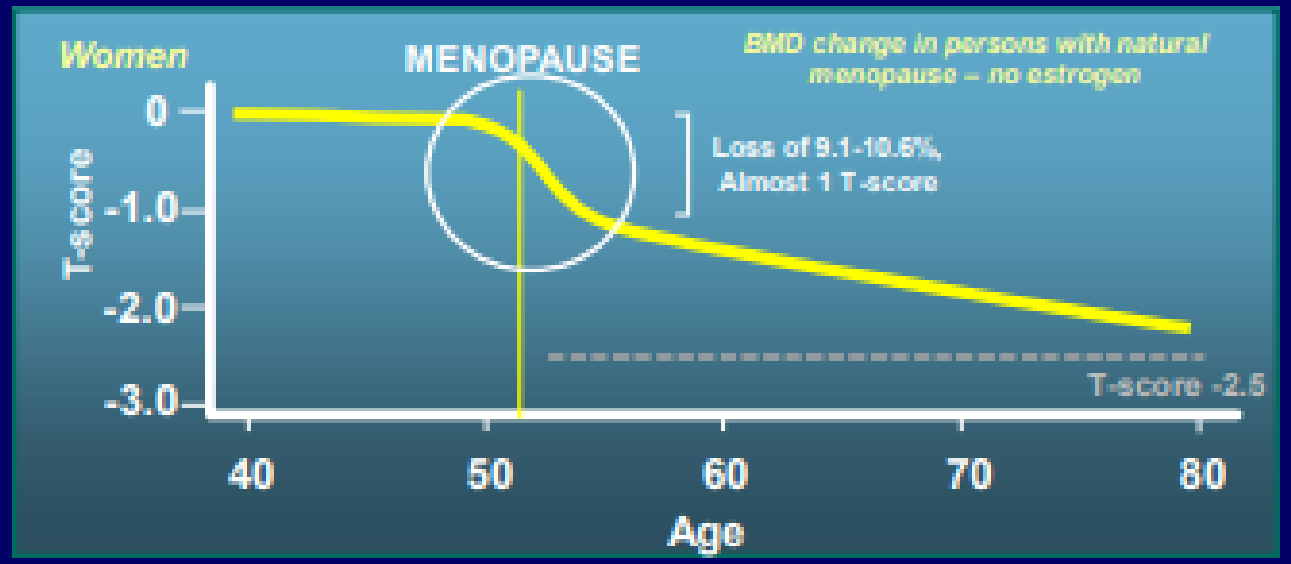
Expanding CVD risk assessments to include the impact of social determinants of health and nonbiological factors to address health disparities

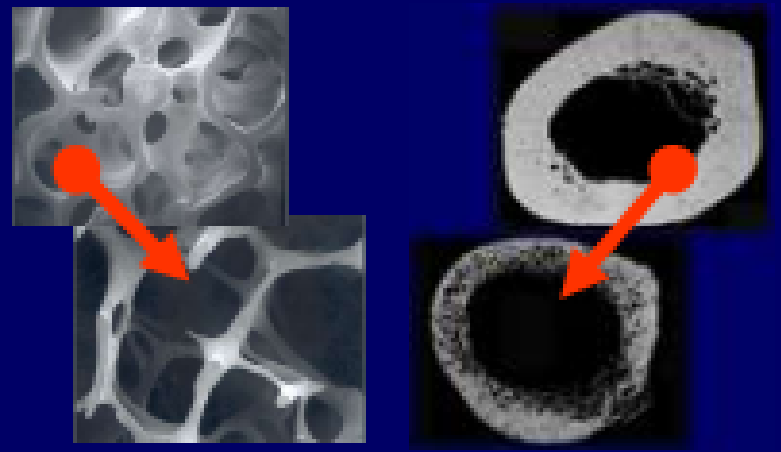
The Menopause Society

Menopausal Transition: Rapid Bone Loss

Key Points:

- Bone loss is a continuous process beginning during perimenopause. Relatively rapid loss occurs from ~2 years before until several years after the FMP
- Transmenopausal bone loss is as a key factor contributing to the subsequent development of osteoporosis





Images Courtesy of Drs. David Dempster and Roger Zebaze

Study of Women Across the Nation (SWAN)
3302 pre- or peri-menopausal women ages 42 - 52 years have been followed across the menopausal transition

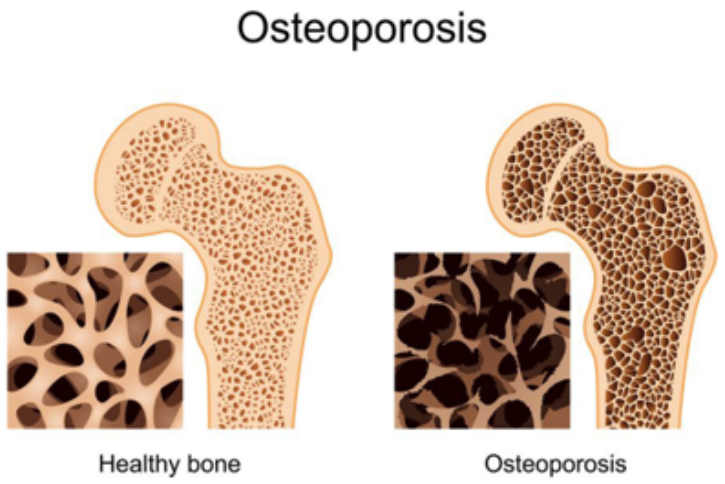
BMD measured in 2407 women at 5 study sites

Data adapted from SWAN and NHANES studies

Greendale GA et al. *J Bone Miner Res* 2012;27:111-8
Looker AC et al. *NCHS Data Brief* 2012;93:1–8

Bone Health – Preventing Osteoporosis

- Bone density decrease starts around early 40's and accelerates 2-3 year before menopause
- Lifestyle factors influencing bone: smoking, weight, diet, genetics
- Why important? A woman's risk of dying from a hip fracture ***exceeds*** that of breast cancer, uterine cancer, and ovarian cancer combined.
- Prevention is the best intervention
  - Strength training/vit D/Ca++/ TOBACCO CESSATION
  - Bisphosphonates
  - SERMS: Raloxifene, Bazodoxifene
  - Estrogens



NAMS 2022: Genitourinary Syndrome of Menopause (GSM)

- The most inevitable, prevalent and progressive change seen with menopause

Symptoms

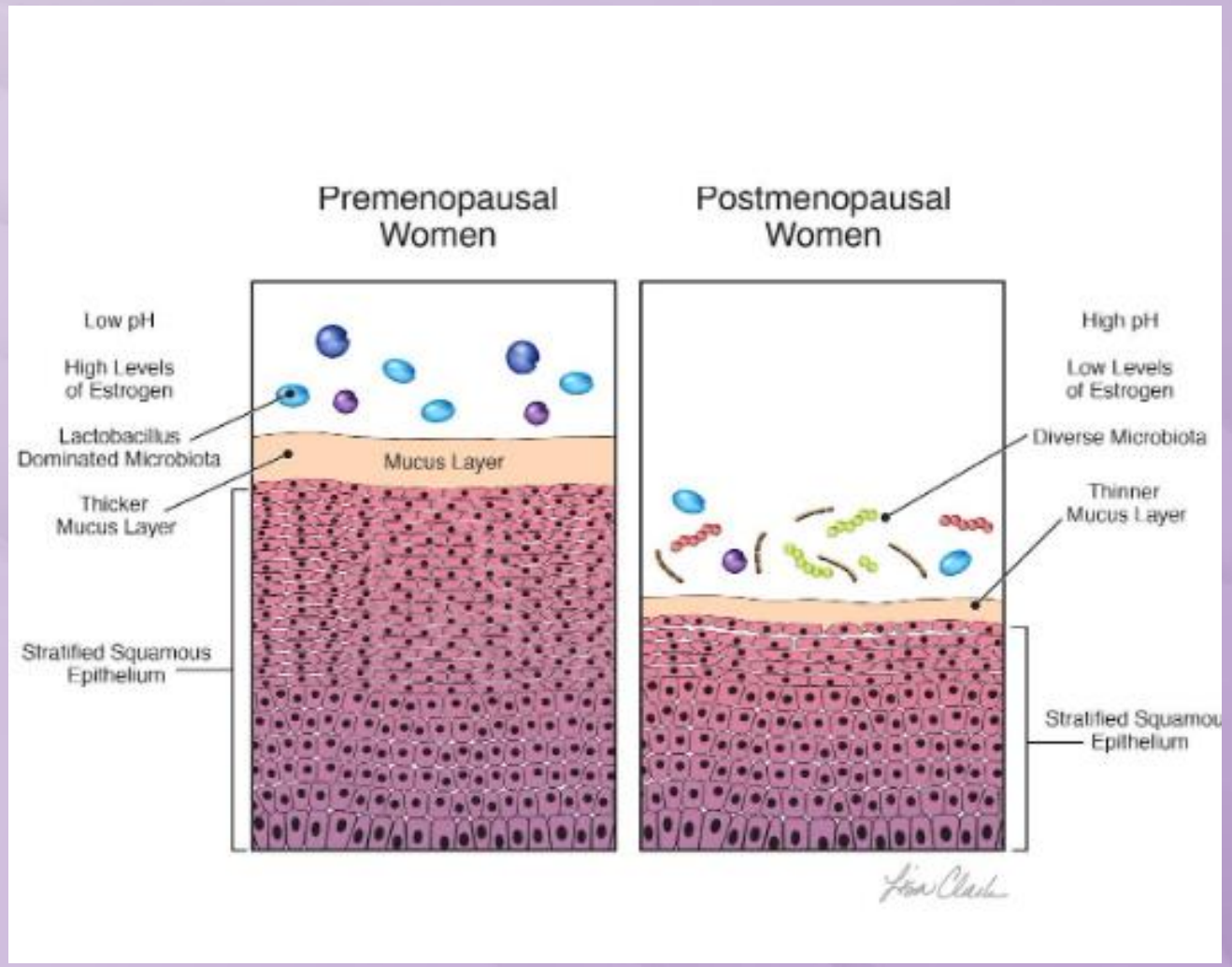
- Irritation, burning, or itching of the vulva or vagina
- Urinary frequency, urgency, dysuria

Signs

- Tissue fragility, fissures, petechiae
- Urethral eversion or prolapse

Treatment

- Low dose vaginal estrogen therapies are effective and generally safe for treatment of GSM with minimal systemic absorption
- For women with breast cancer, low-dose ET should be prescribed in consultation with oncologists
- More concern for those on aromatase inhibitors
- Progestin therapy not required for low-dose vaginal therapy but data not likely available beyond 1 year



North American Menopause Society. Menopause. 2022;29(7):767-94.

GSM: Vaginal Estrogen & Recurrent UTI & Urosepsis

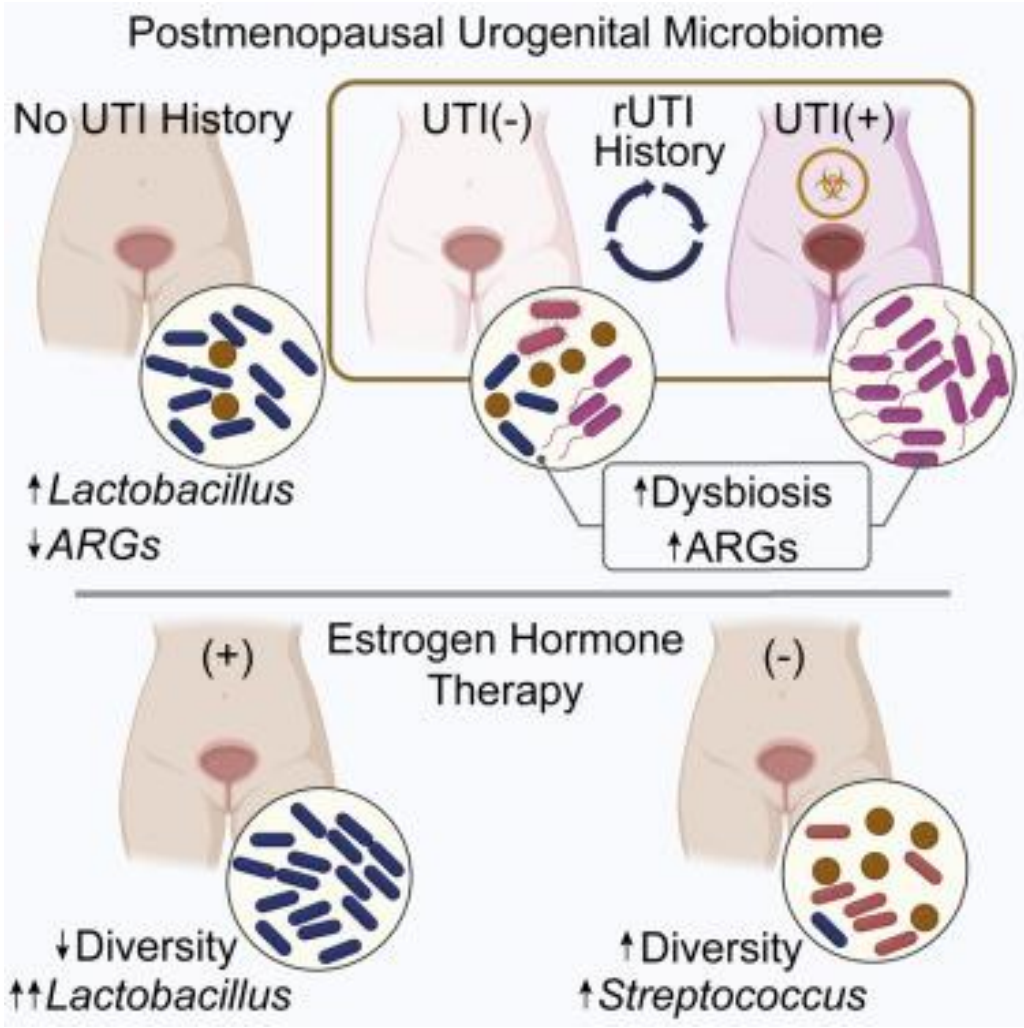
2025 Presentation at AUA (Urology) Annual Meeting:

Study Population: Data from **2,163,216 female patients** with recurrent urinary tract infections (UTIs) were analyzed using Epic EHR systems over a 3-year period.

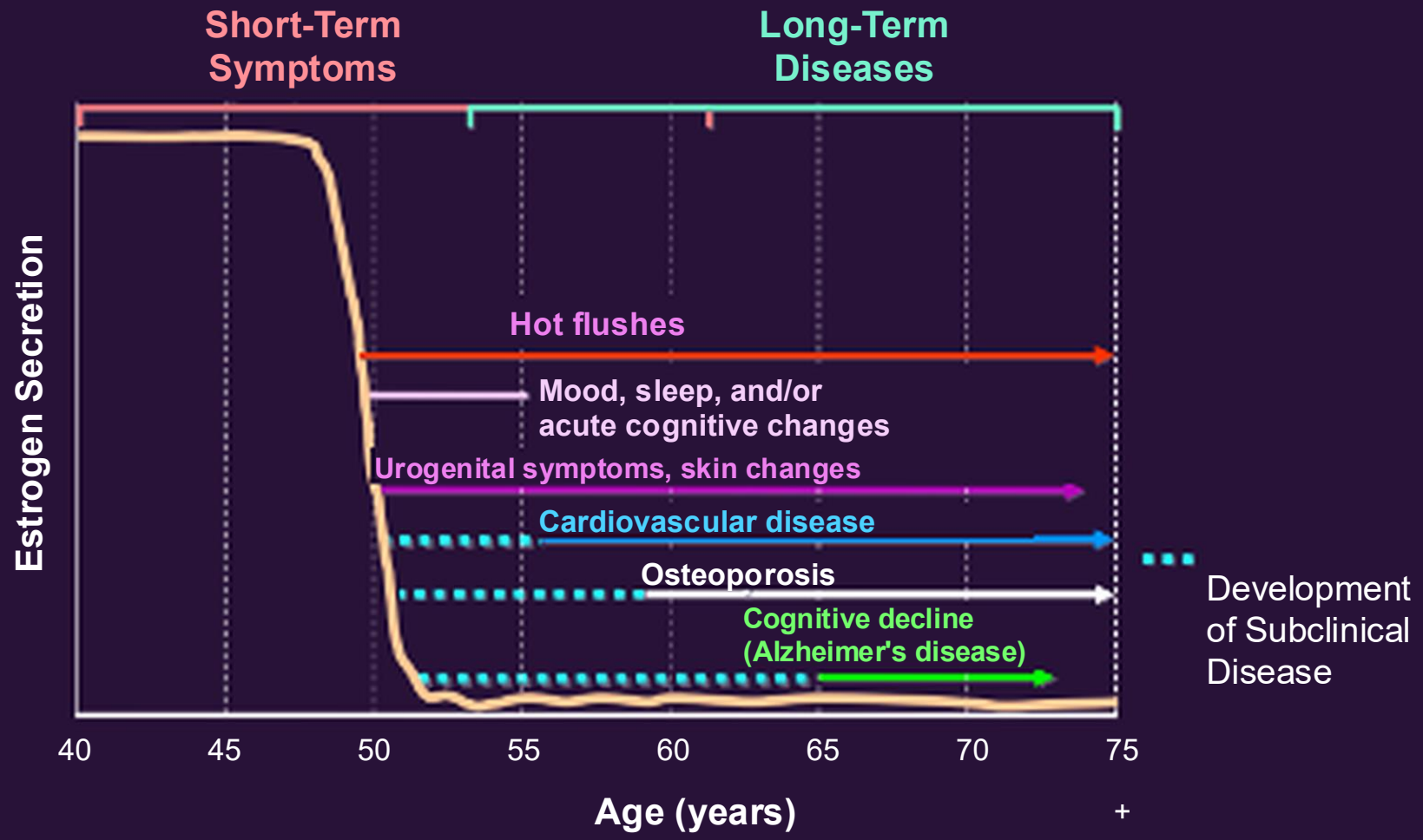
Comparison Groups: Patients using vaginal estrogen were compared to those not using it, focusing on adverse outcomes: sepsis, hospital admissions, and mortality.

Key Findings (Postmenopausal Women):

Women over 55 using vaginal estrogen had **significantly lower** rates of **sepsis (10.6% vs 19.4%), hospitalization, and death (0.42% vs 1.54%)** compared to non-users



Estrogen Loss and Manifestations of Health Risks Over Time



PERMANENTE MEDICINE®
Southern California
Permanente Medical Group

What About the WHI?

- RCT 1993-2002, ~$1B
- 27000 US women 50-79yo
- Primary endpoint – HT in Primary prevention of Heart Disease
- Mean age 63yo
- Two treatment arms
  - Oral CEE + MPA (*Prempro*) vs Placebo (uterus)
  - Oral CEE alone vs Placebo (no uterus)

- Multiple sub-analyses and reconsiderations in past 15 years

- At start of trial 40% of US women on HT; today 6-8% of eligible US women on MHT



WHI Primary Investigator, Endocrinologist Joanne Manson:

"The WHI findings have been seriously misunderstood and misinterpreted."

August 2016

New York Times editorial 2016

Manson JE, Chlebowski RT, Stefanick ML, et al. Menopausal Hormone Therapy and Health Outcomes During the Intervention and Extended Poststopping Phases of the Women's Health Initiative Randomized Trials. *JAMA.* 2013

© Southern California Permanente Medical Group

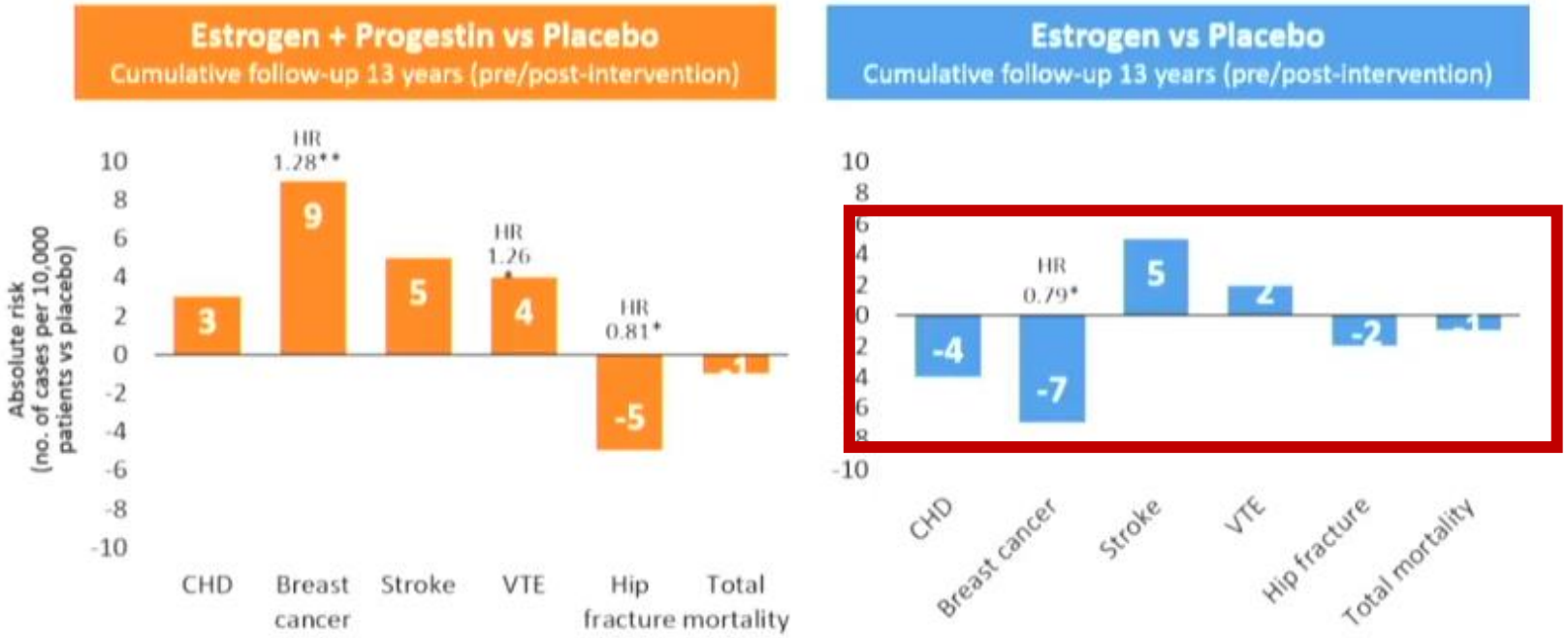
KAISER PERMANENTE®

Long-term Follow-up for EPT Trial: Post-intervention Analysis

WHI

CEE + MPA and CEE alone

CEE = conjugated equine Estrogen



DECREASED breast cancer, CHD, fracture, and all cause mortality in the estrogen only group

Hazard ratios (HR) shown represent relative risk vs placebo.
*P<0.05; **P<0.001.
CEE, conjugated equine estrogen; CHD, coronary heart disease; HR, hazard ratio; VTE, venous thromboembolism
Manson JE et al. *JAMA*. 2013;310(13):1353-8.

THE WHI IN CONTEXT

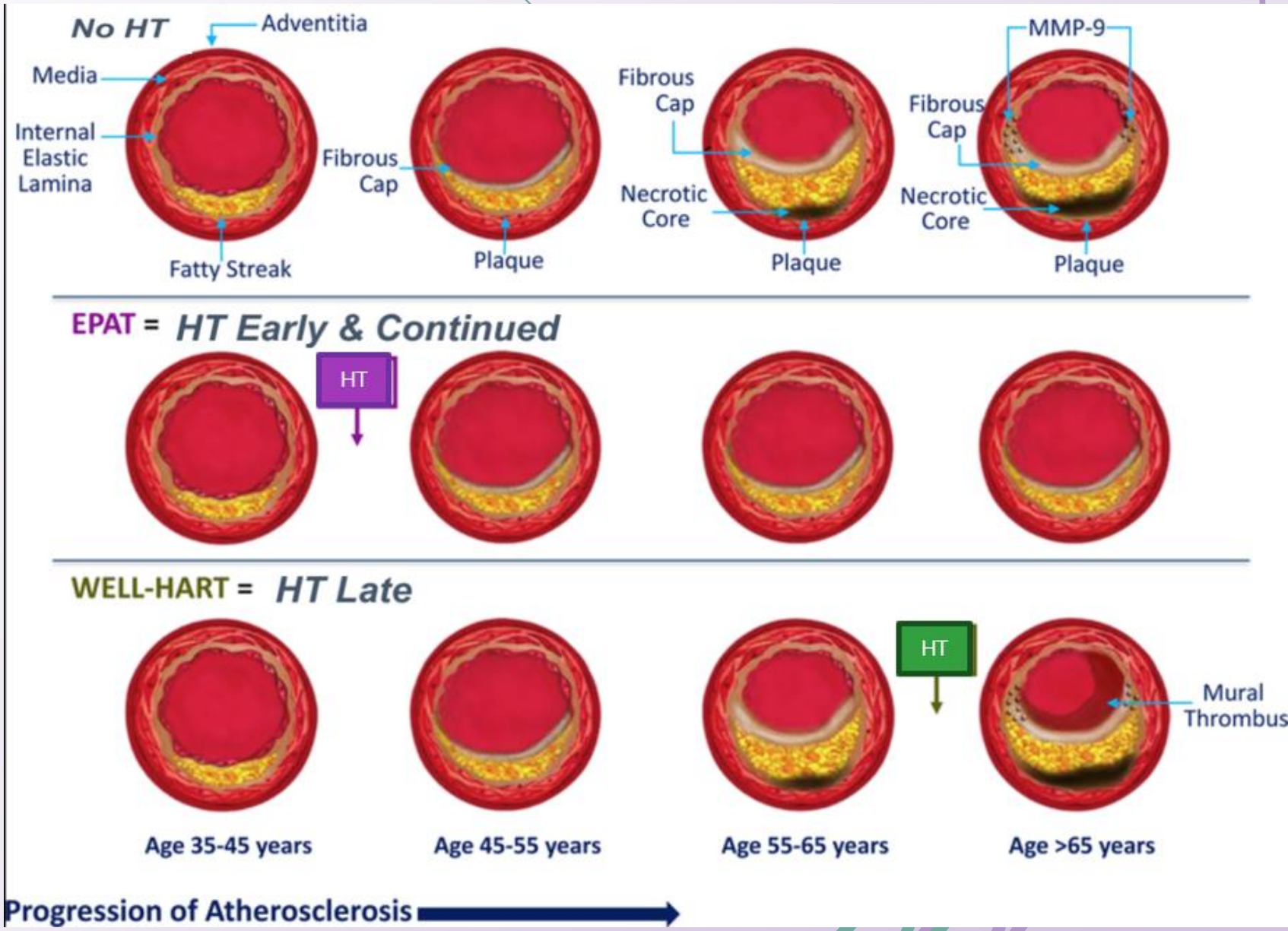
What the study actually showed – and what got lost

	WHAT PEOPLE HEARD	WHAT THE STUDY ACTUALLY SHOWED
DESIGN	*A test of MHT for symptom relief*	A primary-prevention trial for CVD
POPULATION	*Women starting MHT at menopause*	Average age 63 – 10+ yrs past average FMP
FORMULATIONS	*Applies to all hormone therapies*	Only Oral CEE "Premarin" + medroxyprogesterone "Provera"
BREAST CANCER	*"Hormones cause breast cancer"*	E+P arm: excess 8/10,000 women per year over 5 yrs. (0.4%). E-only arm: lower risk.
CVD PROTECTION	*"Hormones cause heart attacks"*	No protection in older cohort. Timing hypothesis: possible benefit if <10 yrs from Final Menstrual Period (FMP)
ALL-CAUSE MORTALITY	*Hormones increase mortality*	2020 JAMA lookback: no difference vs placebo in any group

Window Hypothesis

EPAT (Estrogen in the Prevention of Atherosclerosis Trial)

WELL-HART (Women's Estrogen-Progestin Lipid-Lowering Hormone Atherosclerosis Regression Trial)



CASE 2

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Concerned about Family History of heart disease, was told by a friend hormones cause heart attacks.

BP 145/85, HR 78, BMI 30

Labs: Chol 230, LDL 134, HDL 56 Normal Mammogram 6 months ago

How do you counsel her:

1. Recent evidence shows hot flashes should be treated
2. Hormone therapy is the most effective treatment for hot flashes, and there are non-hormonal options as well
3. You are in the optimal window to start hormone therapy for cardiovascular benefits (but let's manage your HTN and cholesterol too)
4. Topical vaginal estrogen will treat vaginal dryness and prevent UTIs – its a win-win!

Menopause: Key Points

- Menopause is a natural transition, albeit with a BIG impact
- Perimenopause can be chaotic and a management challenge
- Symptom onset often presents with “not feeling like myself”
- Hot flashes are more than just uncomfortable
- Bone loss begins in Perimenopause
- Genitourinary Syndrome of Menopause (GSM) is almost universal and undertreated
- Women’s Health Initiative (WHI) is widely misunderstood, and informative
- Menopause is a “**window of vulnerability and opportunity**”

PRESCRIPTION

1. Regular Movement
2. Prioritize sleep
3. Reduce alcohol (stop smoking)
4. Mediterranean Diet
5. Resistance training
6. Control Blood Pressure, blood sugar and cholesterol
7. Stress Reduction
8. Nurture relationships

THANK YOU!
QUESTIONS?

KATRIN.E.MASSOUDIAN@KP.ORG

STEP BY STEP GUIDANCE ON PRACTICE WIZARD

Search Clinical Content

Antelope Valley

Search Practice Wizard F

Menopause and Perimenopause

- INTRODUCTION
- SCREENING AND DIAGNOSIS
- MANAGEMENT
- DIAGNOSTIC RELIABILITY
- REFERRAL GUIDANCE
- PATIENT EDUCATION
- RELATED RESOURCES

Was this helpful?

Yes No

Contact us

SCREENING AND DIAGNOSIS

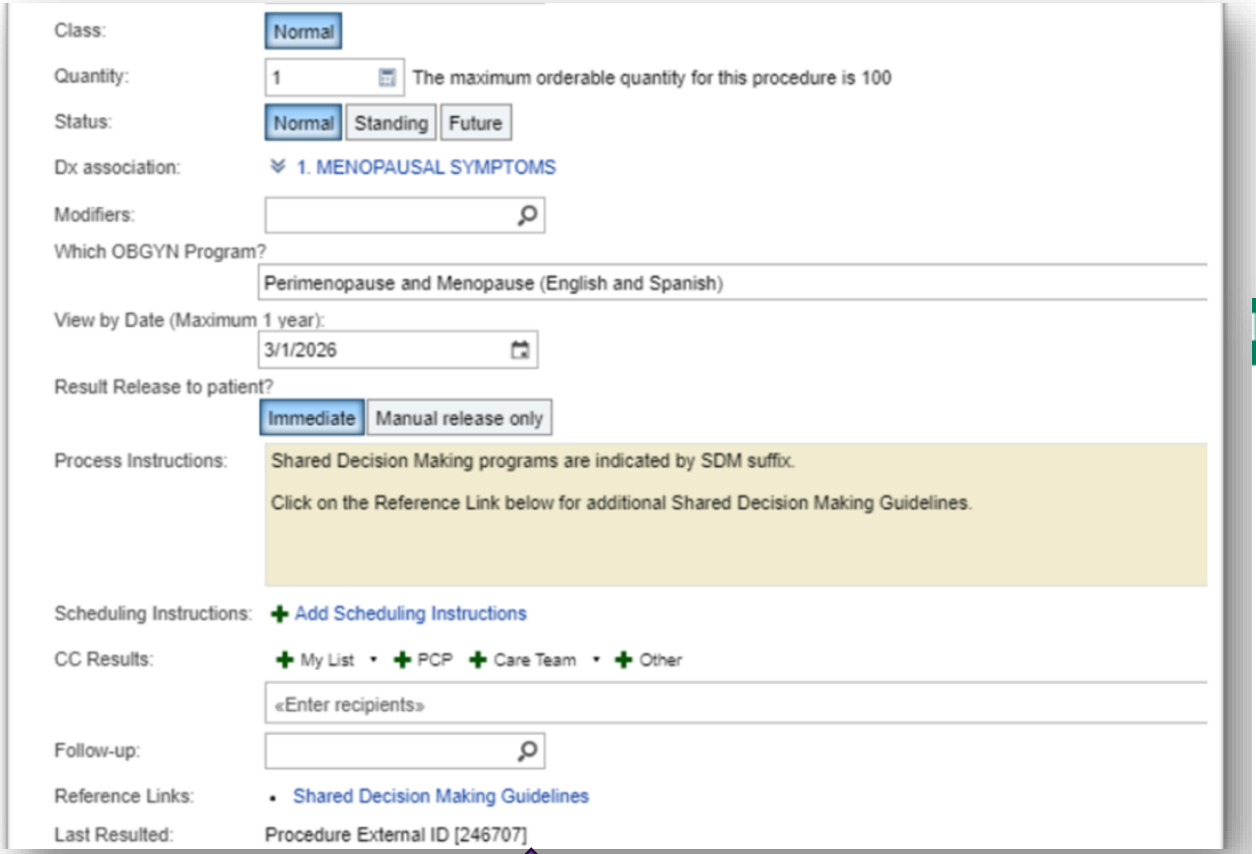
- In patients with history of regular monthly cycles, now experiencing oligomenorrhea, hormonal levels (estradiol and FSH) are **not** indicated. Increased interval or time in between cycles is classic perimenopausal transitioning. **Consider TSH level based on symptoms**.
- In patients over 40 year old with cycles closer than 21 days, menses lasting more than 8 days, or with intermenstrual bleeding, **endometrial evaluation is indicated**.
- In patients over 40 year old with oligomenorrhea/ amenorrhea due to:
  - known history of chronic ovulatory dysfunction or other medical conditions (e.g., chemotherapy, radiation therapy, anorexia – although uncommon these conditions may cause transient menopause and birth control method is recommended to avoid unplanned pregnancy).
  - history of hysterectomy or endometrial ablation.

Hormone levels including FSH [83001B] and estradiol [82670B] may be considered and repeated 8 weeks later for confirmation of menopause. A urine pregnancy test should also be done in women with a uterus. A TSH [**84443B**] level may also be helpful based on symptoms. FSH consistently over 25 IU/L and Estradiol <10-20 pg/ml indicate transition to menopause/postmenopausal stage.

- If Estradiol and FSH are in menopausal range for women under age 40, **Referral Ob-Gyn** for further evaluation of possible premature ovarian insufficiency (POI) (reference: Primary Ovarian Insufficiency in Adolescents and Young Women | ACOG).
- If a patient has a progestin containing IUD, estradiol [**82670B**] and FSH [**83001B**] levels may be considered to confirm menopause (2 elevated levels, FSH >40pg/ml, at least 8 weeks apart) with no further need for contraception.

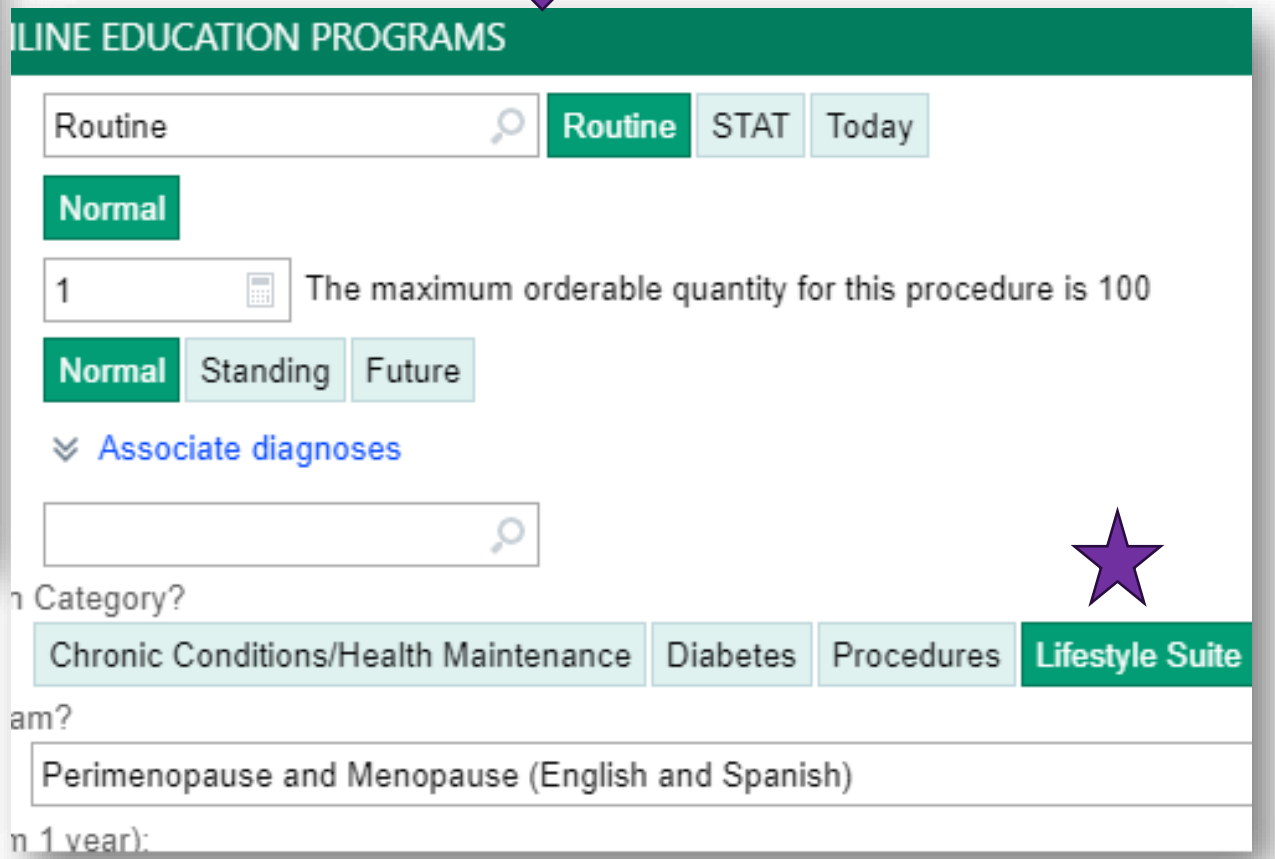
Changes in hormones during the Menopausal Transition

Hormone	PREmenopause	PERImenopause	POSTmenopause
FSH	<10 IU/L	> 10 - 25 IU/L	>25 IU/L
AMH	1 - 3 ng/ml	<1 ng/ml	0.00 ng/ml
Estradiol	40 - 400 pg/ml	10 - 100 pg/ml	<10 - 20 pg/ml



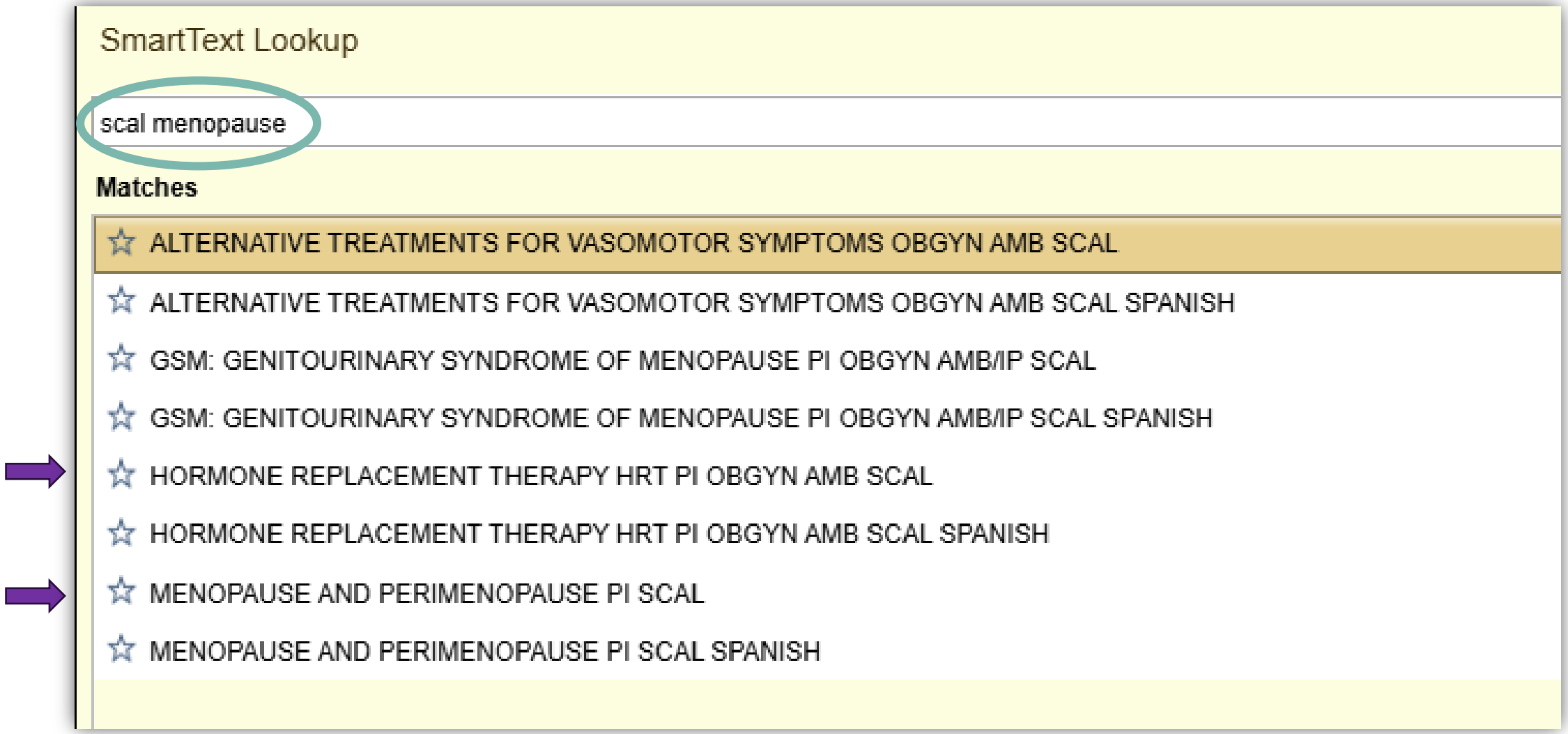
OBGYN VIEW

APC EMMI VIEW; LOOK UNDER LIFESTYLE SUITE



ON HEALTH CONNECT:
EMMI ONLINE EDUCATION FOR OBGYN AND APC

REGIONAL PATIENT AVS



Dr. Massoudian's Favorite Patient Resources

- BOOKS
  - Estrogen Interrupted – Dinsmoor-Su MD and Voedisch MD (Perimenopause)
  - Menopacolypse – Amanda Thebe (IG)
  - Menopause Manifesto – Jen Gunter MD (IG)
  - Womans Guide to Insomnia – Shelby PHD

PODCASTS

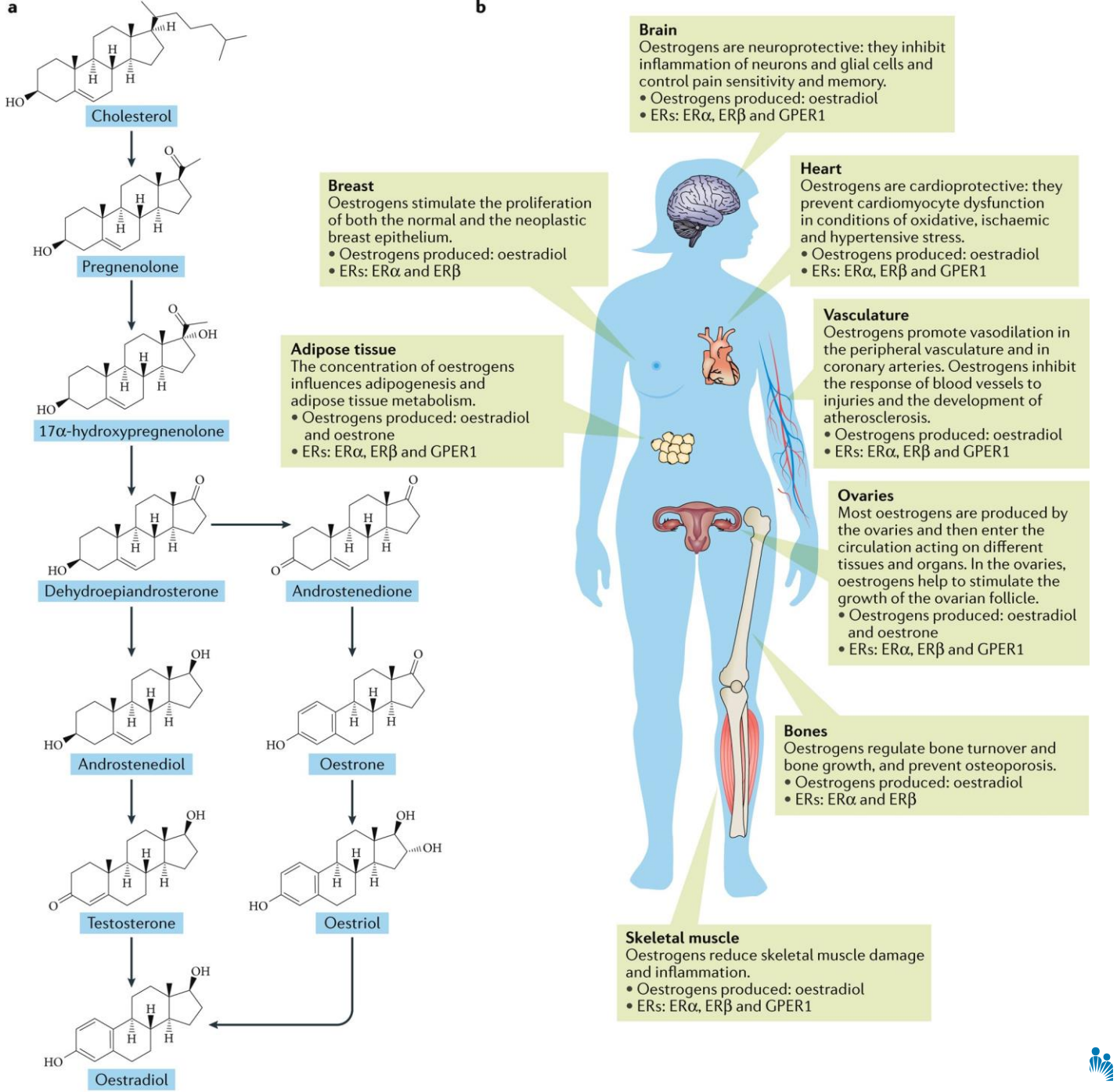
Ovary Active

Inside Information – Streicher MD

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Estrogens and Estrogen Receptors – It's complicated

Estradiol (E2) - reproductive years/ potent
Estrone (E1) - menopause/storage/weak
Estriol (E3) - pregnancy/weak
Estretol (E4) - fetal liver



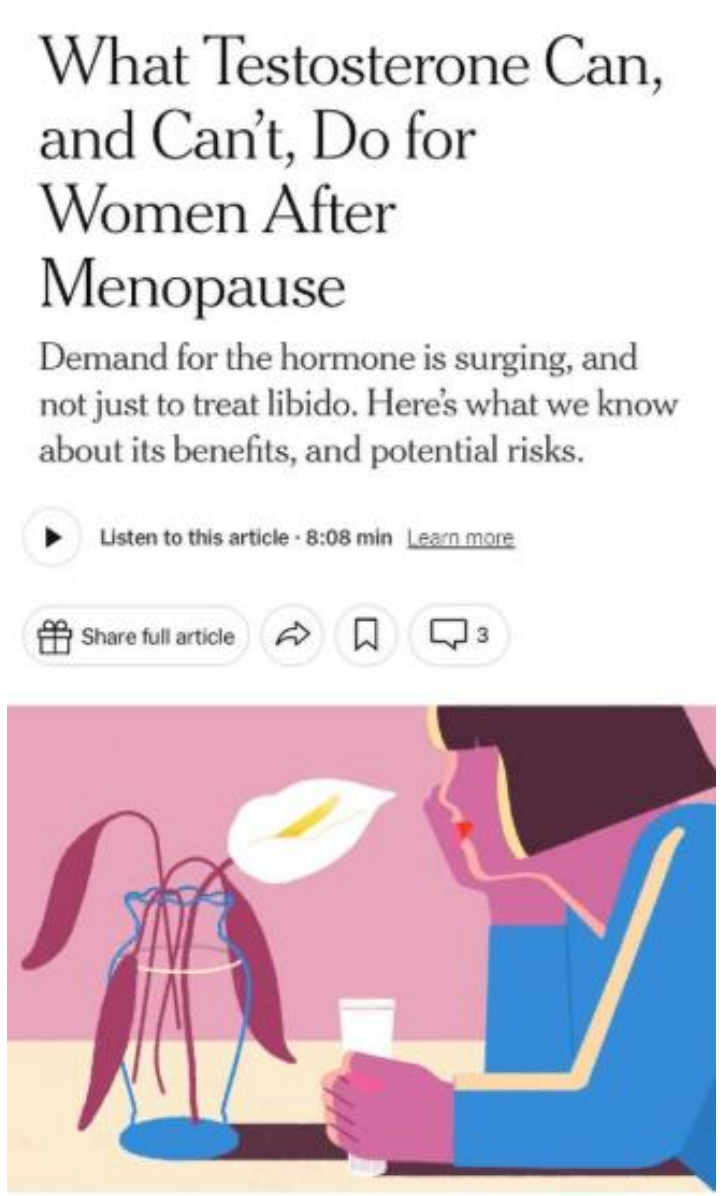
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Nature Reviews | Endocrinology

Testosterone – What are the Truths?

- T levels steadily decline starting in 20's-30's
- In social media – cure all for midlife malaise
- In EBM – effects are limited and nuanced (J Clnical endocrinology 2019)*
- Bones – conflicting results, clinical significance uncertain
- Mood- recent RCT no benefit over placebo
- Cognition – maybe small improvement in verbal/vis memory, negative effects at supraphysiologic doses
- Muscle – increase lean body mass and muscle fiber hypertrophy, dose dependent , requires high doses
- The only EBM indication for Testosterone is **HSDD**
- T = Teratogen, tread carefully in premenopausal women

- Davis, Climacteric 2019



What Testosterone Can, and Can't, Do for Women After Menopause

Demand for the hormone is surging, and not just to treat libido. Here's what we know about its benefits, and potential risks.

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Testosterone Therapy for Menopause: What the Hormone Can, and Cannot, Do - The New York Times

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