

Chronic Menstrual Pain: Physical and Emotional

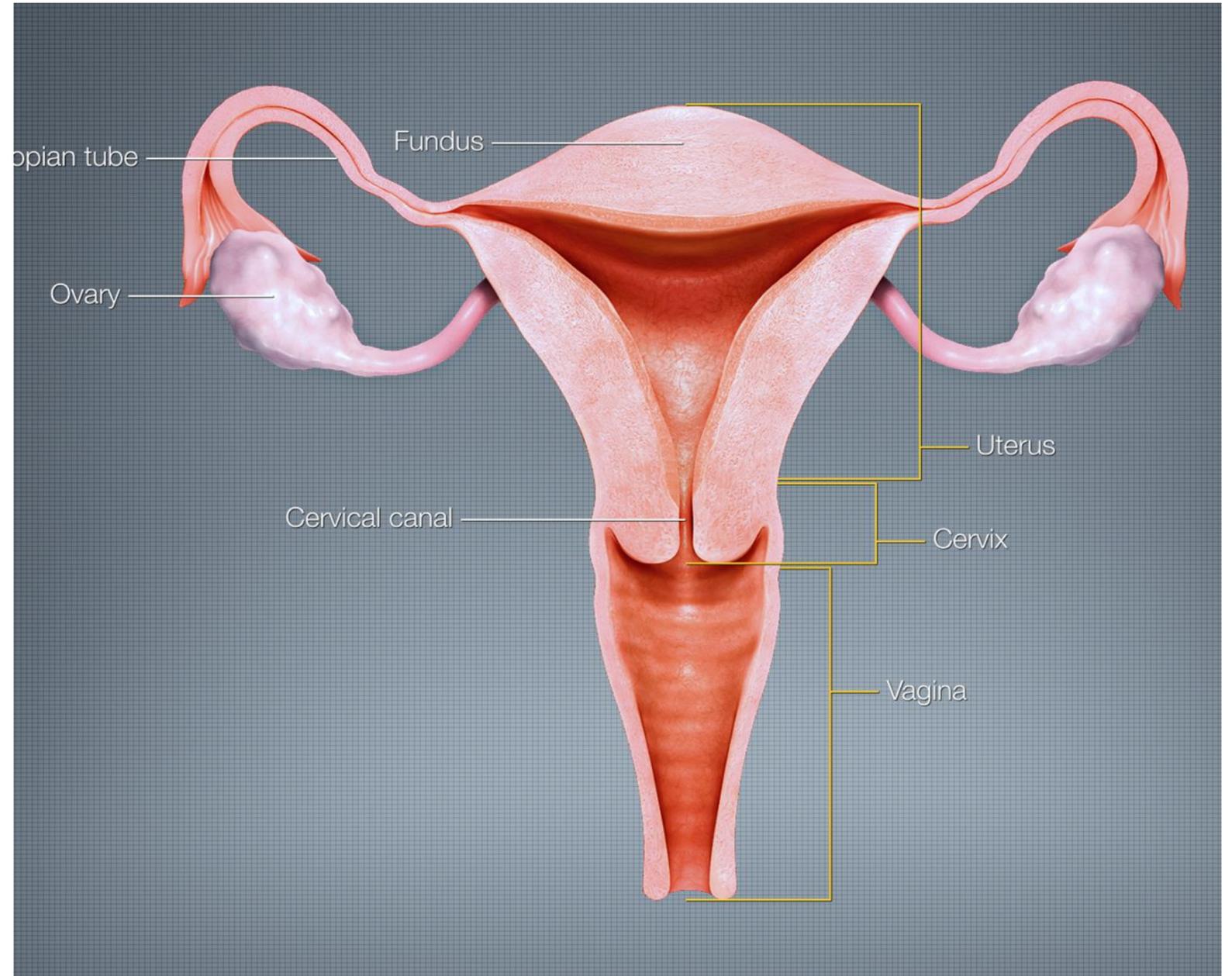
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Dysmenorrhea... Painful Periods

Primary - caused by natural chemicals called prostaglandins, made in the lining of the uterus and trigger the uterine muscle contractions of menstruation

Secondary - caused by a disorder in the reproductive system

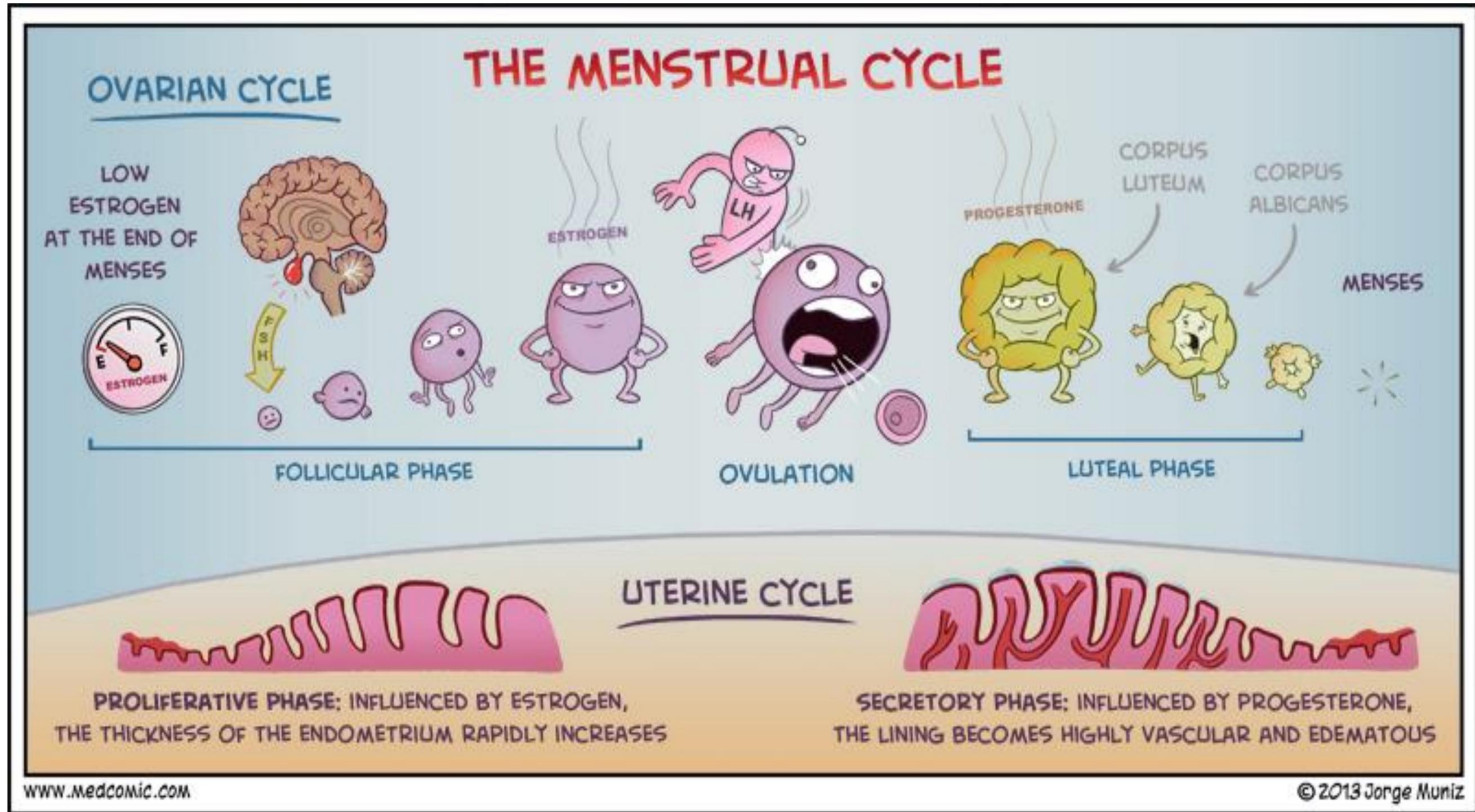


Primary Dysmenorrhea



Usually begins soon after a **person** starts having menstrual periods

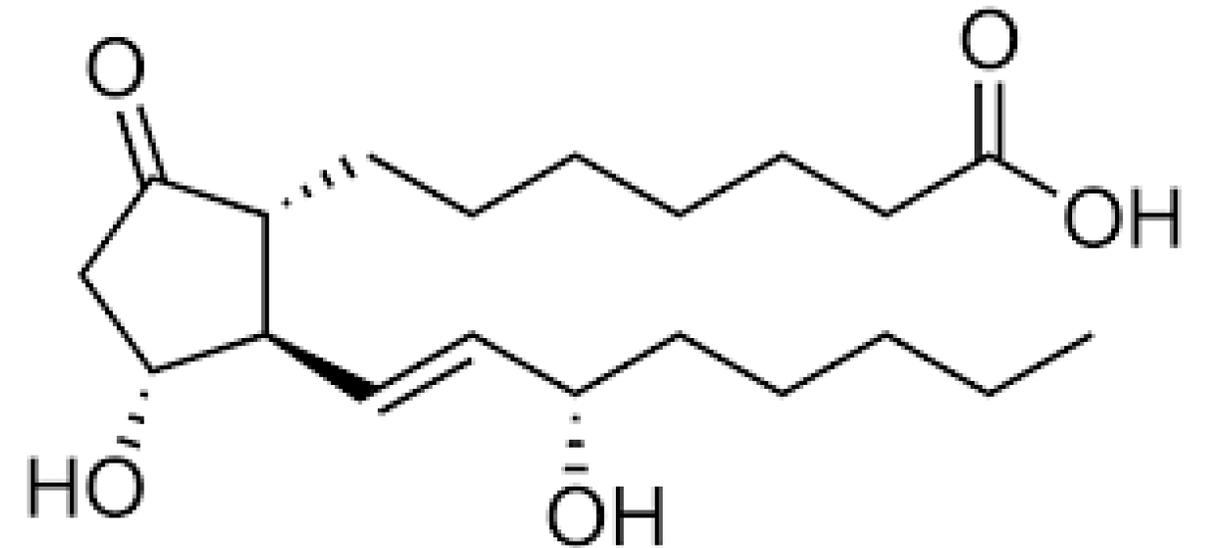
Females who start puberty early can be at increased risk



All females have increased levels of prostaglandins during the luteal phase

Women with primary dysmenorrhea have higher levels of prostaglandins

Menstrual pain is proportional to the amount of prostaglandins released



People with painful periods have higher

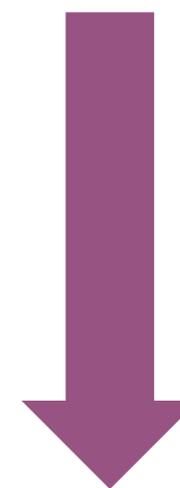
- levels of uterine activity during menstruation
- uterine tone
- active intrauterine pressure
- frequency of uterine contractions
- uncoordinated uterine contractions

Doppler ultrasonography have shown...

strong and abnormal
uterine contractions
during menstruation



reduced uterine blood flow



PAIN



insufficient oxygen
to the uterine
muscle

Disrupts quality of life

Primary Dysmenorrhea

Up to 33% of women experience severe pain lasting for 1–3 days during each monthly menstrual cycle

1% of women of reproductive age are unable to do their job due to severe dysmenorrhea for 1 to 3 days each month

14% of girls are absent from education for a day or two each month

Risk Factors for Dysmenorrhea

- Smoking
- Earlier age at menarche
- Longer and heavier menstrual flow
- Higher BMI
- Alcohol consumption
- Family history of dysmenorrhea
- Age
- Nulliparity

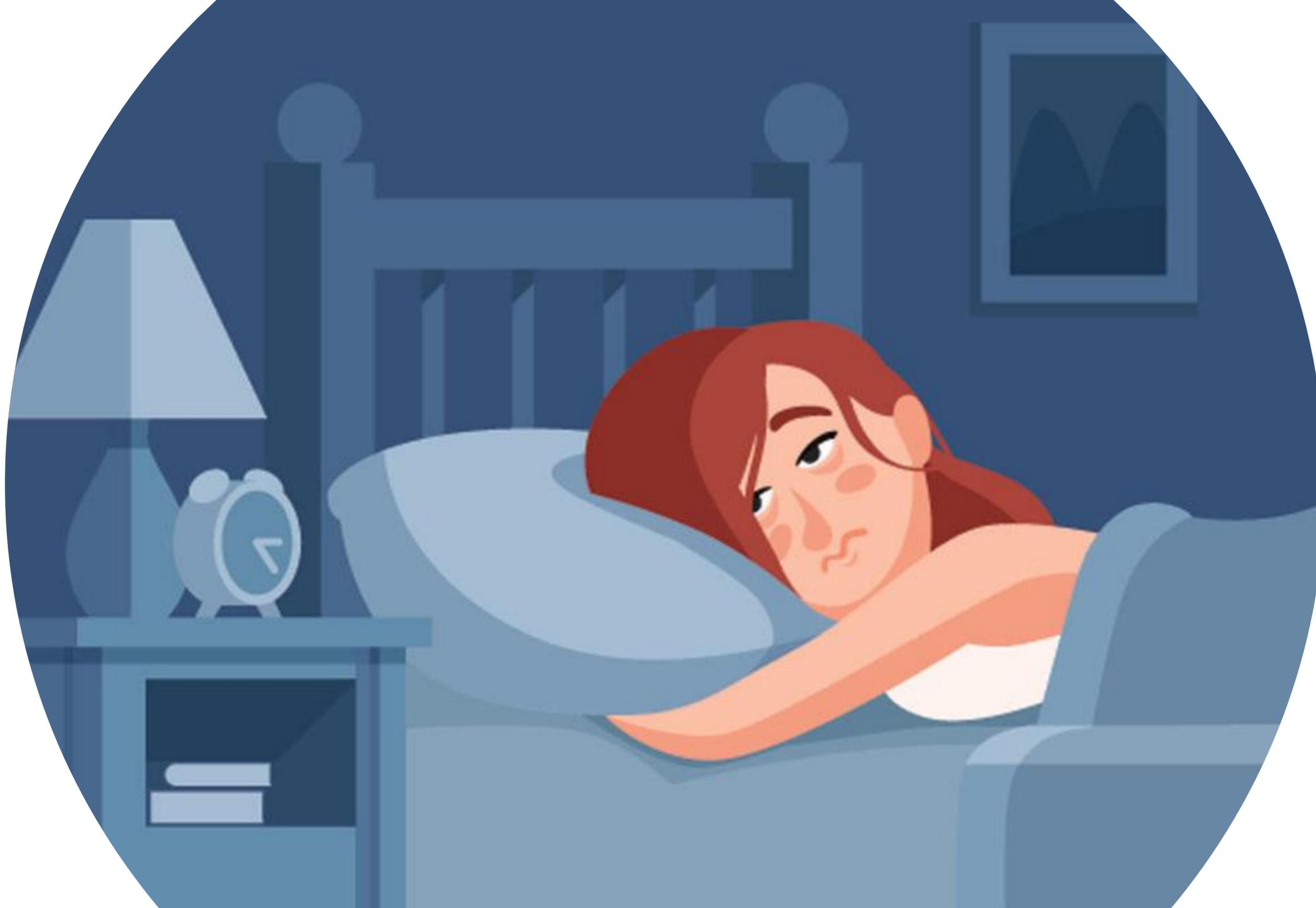
Emotional Consequences of Menstrual Pain

Low energy
Poor sleep
Depression
Anxiety
Difficulty focusing
Compensatory postures leading to more pain
Feeling a need to be near a bathroom
Embarrassment limiting ability to get support
Decreased libido



Menstrual Pain Hurts Personal Lives

- Family relationships
- Friendships
- School/work performance
- Social and recreational activities
- Restriction of physical activity



Menstrual Pain Disrupts Sleep

- More disturbed sleep during the first few days of menstruation
- 28% report sleep is disturbed by menstrual cramps or pain
- Women with dysmenorrhea frequently complain of daytime fatigue and sleepiness

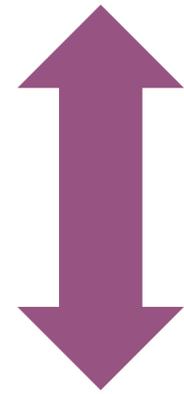
National Sleep Foundation's Women and Sleep Poll (1998)

Sleep Disturbances are Evident in Polysomnographic Recordings

- Significantly reduced sleep efficiency during menstruation
- Extended combined time spent awake, moving, and in light Stage 1 sleep
- Significantly less rapid-eye movement (REM) sleep

Bidirectional Effects

Pain causes depression and anxiety



Depression and anxiety increase the perception of pain

Chronic Pain Can Lead to Brain Amplifying Pain



- Alterations in brain regions involved in cognitive and emotional modulation of pain
- Increased likelihood of developing centralized pain -- augmentation of pain by mechanisms in the brain, enhancing response to peripheral pain sense

Neural Activity Changes in Chronic Pain

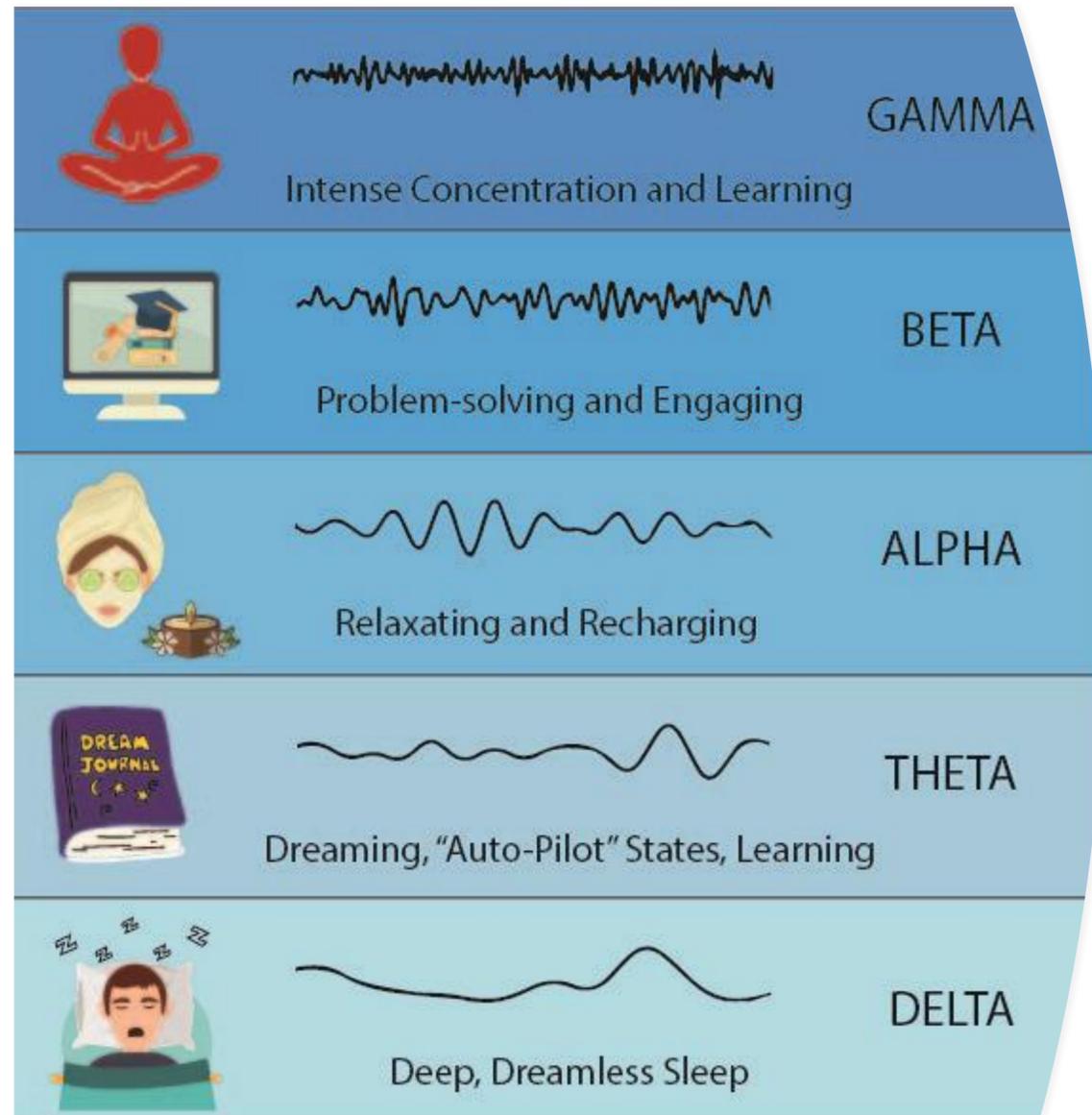


Increased activity in posterior thalamus, ventral striatum, amygdala, and prefrontal cortex



When pain is high and sustained it affects brain areas involved in emotion, cognition, and motivation

Brain Waves



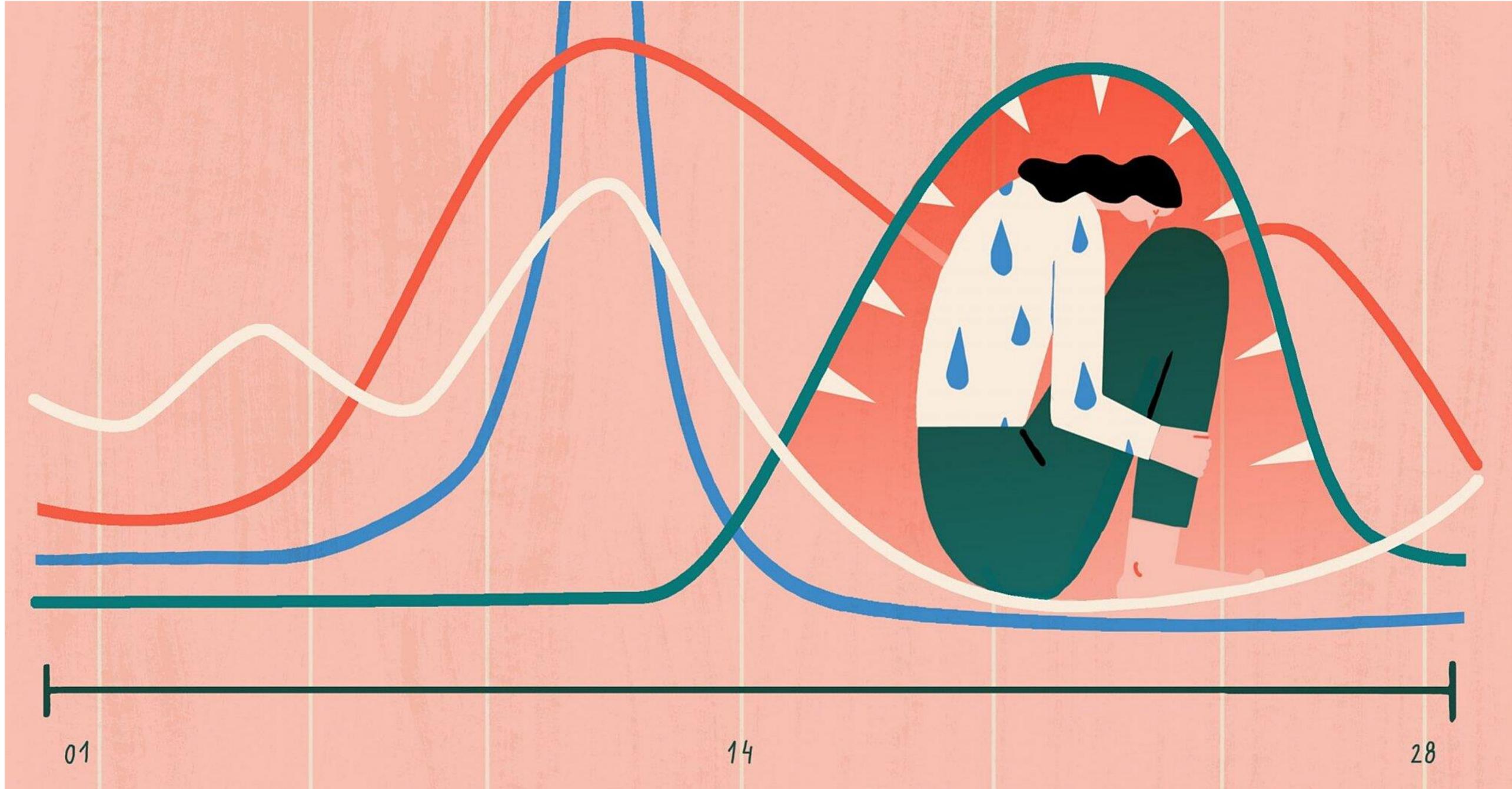
- Theta oscillations are related to memory formation/integration, synaptic plasticity, and long-range synchronization
- Increase of theta activity in primary dysmenorrhea subjects during menstruation

Emerging Findings of Altered Brain Structure in Women with Dysmenorrhea

Decreased gray matter volume in brain regions involved in pain transmission

Higher level sensory processing and larger gray matter volume in regions involved in pain modulation

These differences support a combination of impaired pain inhibition and amplified pain facilitation



Pre-Menstrual Dysphoric Disorder

Much more severe form of premenstrual syndrome (PMS)

Symptoms are so severe that women have trouble functioning at home, at work, and in relationships during this time. This is markedly different than other times during the month

Pre-Menstrual Dysphoric Disorder

5 or more of the following symptoms:

Depressed mood

Anger or irritability

Trouble concentrating

Lack of interest in activities once enjoyed

Moodiness

Increased appetite

Insomnia or the need for more sleep

Feeling overwhelmed or out of control

Other physical symptoms, the most common being belly bloating, breast tenderness, and headache

Symptoms disturb your ability to function in social, work, or other situations

Treatment Approaches for PMDD

Birth control pills

Selective serotonin reuptake inhibitors (SSRI)

Decreasing sugar, salt, caffeine, and alcohol

Regular exercise

Stress management

Vitamin supplements

Anti-inflammatory medicines

References

Pakpour et al. Depression, anxiety, stress, and dysmenorrhea: a protocol for a systematic review. *Systematic Reviews* (2020) 9:65.

Baliki et al. Chronic Pain and the Emotional Brain: Specific Brain Activity Associated with Spontaneous Fluctuations of Intensity of Chronic Back Pain. *J. Neurosci.*, Nov 2006; 26(47):12165–12173.

Crofford L. Chronic Pain: Where the Body Meets the Brain. *Trans of Am Clinical and Clim Ass.* VOL. 126, 2015.

Lee et al. Encoding of Menstrual Pain Experience with Theta Oscillations in Women with Primary Dysmenorrhea. *Nature.* 7:15977.

Lacovides et al. What we Know About Primary Dysmenorrhea Today: A Critical Review. *Human Reproduction Update*, Vol.21, No.6, 2015:762–778.

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Making #PeriodsOptional



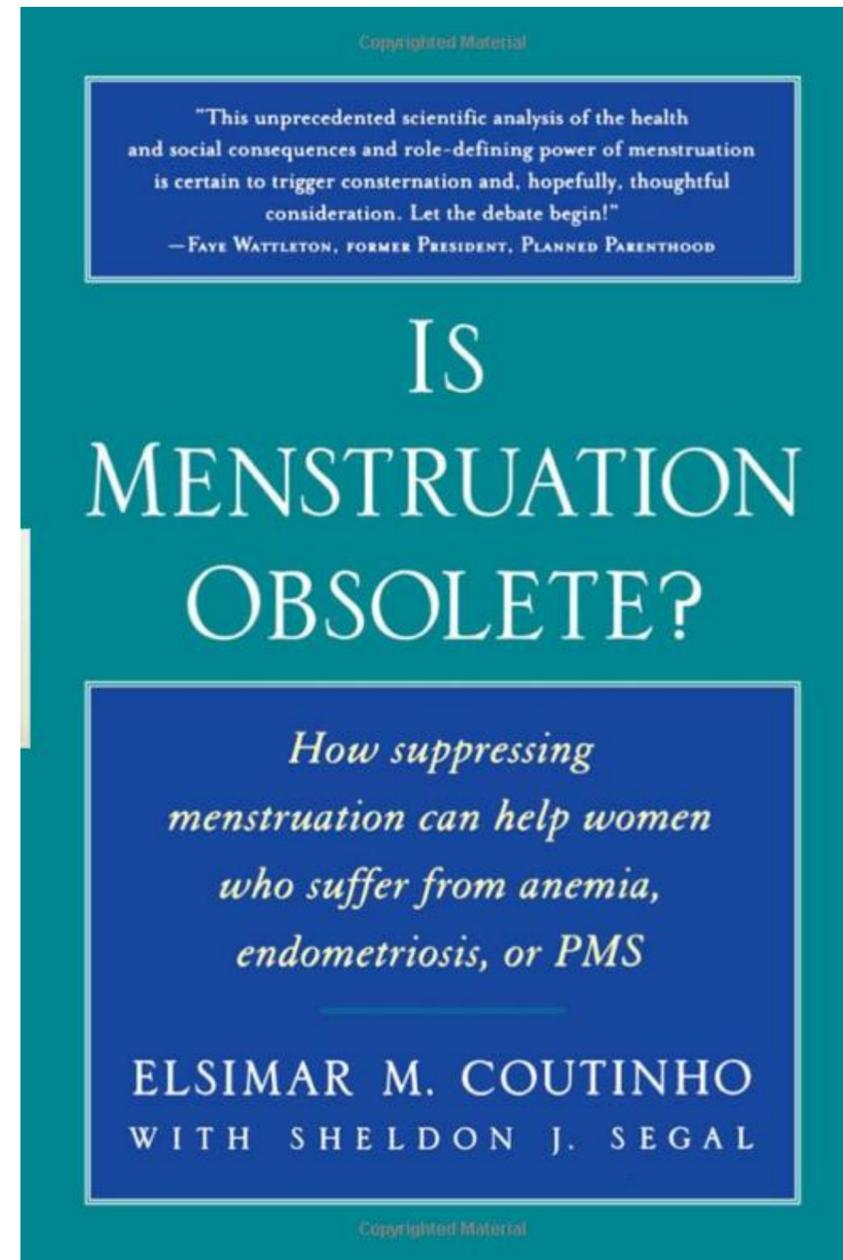
Sophia Yen MD, MPH
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What is the number 1 cause of missed school/work in a woman <25 years old?

Menstruation

Is Menstruation Obsolete?



Elsimar M. Coutinho, MD, 1999

OCPs – Monthly Menses for the Church

Malcolm Gladwell, “John Rock's Error”, March 10, 2000, Annals of Medicine (also in the New Yorker)

OCPs have a monthly withdrawal b/c Dr. John Rock was trying to please Catholic Church by making the Rhythm method perfect

Normal Human Biology = fewer menses

Dr. Beverly Strassmann ,
Dogon tribe of Mali, Africa
Menstruation hut (for 736
nights)



“Natural” vs. Delayed & decreased Child-bearing

Dogon

- Menarche: 16
- 7 periods/yr
- 8-9 children
- 12 months breastfeeding
- 100 periods in life
- “pregnant or breastfeeding”

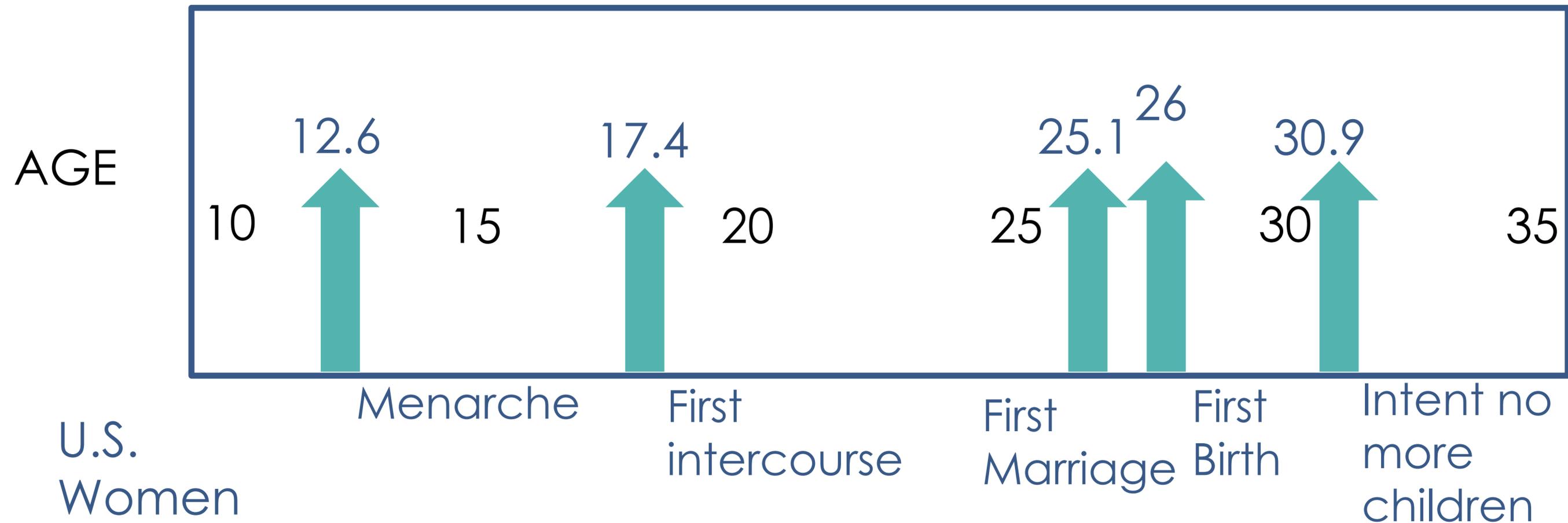
USA

- Menarche: 12
- 13 periods/yr
- 2 children
- 0-3-6 mo breastfeeding
- 350-400 periods in life
- “incessant menstruation”

Purpose of Menstruation

- Thus, “Incessant menstruation” is historically new
- Don’t really need a period (building up of endometrium) unless wanting to get pregnant

Sexual Development



Guttmacher Institute, 2005

CONDITIONS IN WHICH THERAPEUTIC AMENORRHEA MAY BE INDICATED

- Medical Conditions with Catamenial Exacerbations
 - Asthma
 - Arthritis
 - Depression
- Diabetes Control
 - Neurologic Diseases:
 - Seizure Disorders
 - Menstrual or other migraine headaches

CONDITIONS IN WHICH THERAPEUTIC AMENORRHEA MAY BE INDICATED

- Infectious diseases, Blood-borne
 - HIV/AIDS
 - Hepatitis B,C
- Developmental Disabilities
 - Moderate to Severe Developmental Delay
 - CP with physical limitations for hygiene
- Other
 - Mobilized military personnel

Improved by fewer bleeds

- Menses related
 - dysmenorrhea, menorrhagia, PMS
- Anemia, Bleeding disorders
- Less ovarian, endometrial, colorectal cancer

Financial/educational

Dysmenorrhea is the single greatest cause of lost days of work and school in women < 25 y/o

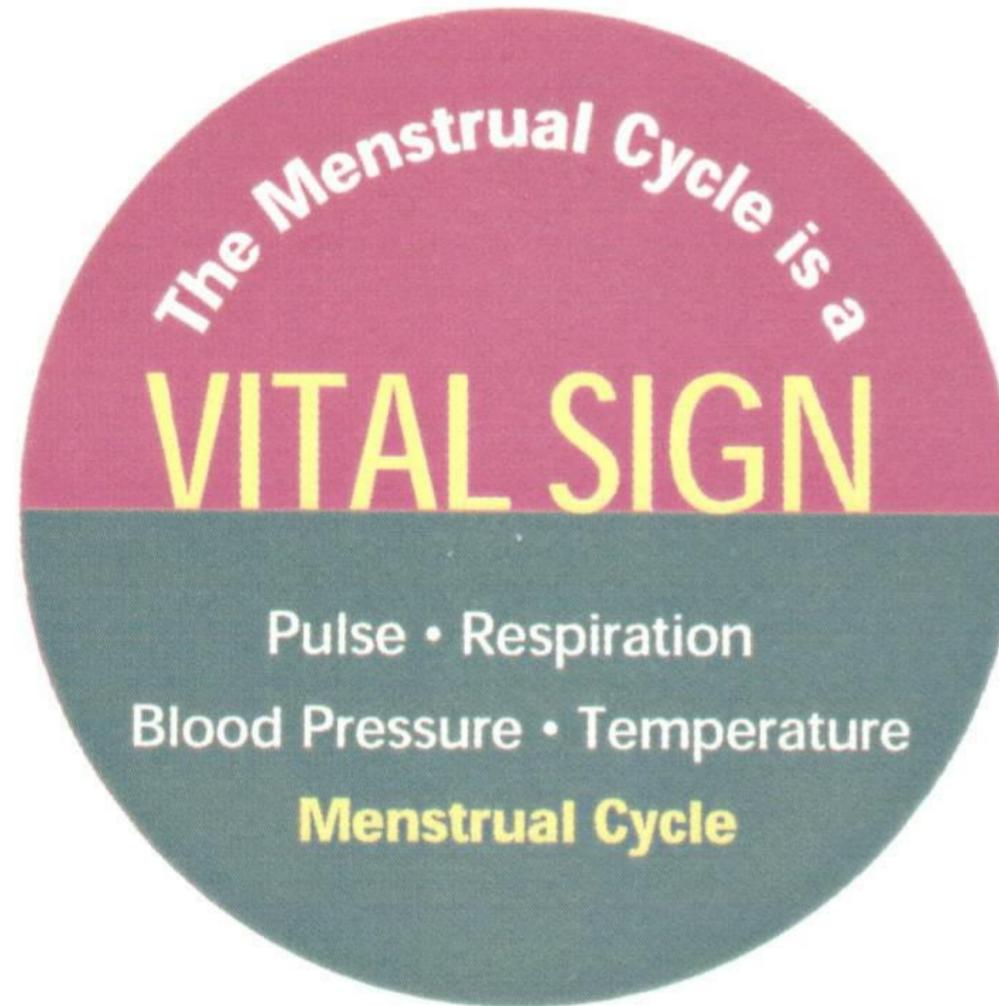
10-45% of adolescent young women miss school b/c of dysmenorrhea

Menstruation = Fe Loss

- Academic competitiveness
- Anecdotal
 - Worried about menses, leaking, onset
 - Cramps
 - E.g. Chinese Olympic swimmer

Other reasons for menstrual suppression

- Quality Of Life
- Environmental – use less product



Difficult Concept:

During hormonal therapy:

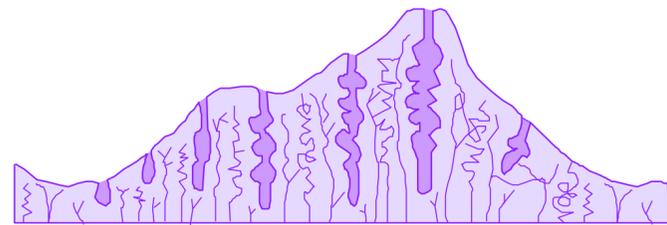
- NOT HAVING A PERIOD is OK

In the absence of hormonal therapy:

- NOT HAVING A PERIOD is a PROBLEM

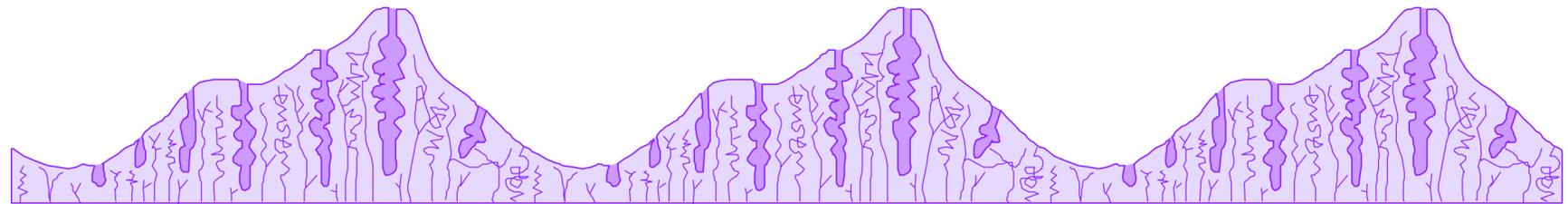
Endometrial Thickness – Physiologic Cycle vs. on Oral Contraception

Physiologic cycle



Day 0 Day 28

Physiologic cycle over 3 months



Day 0 Day 84

21/7 day OC regimen



Day 0 Day 28

84/7-day OC regimen



Day 0 Day 84



Additional Resources Mentioned

See my TEDxBerkeley talk on the bottom of this page
<https://www.pandiahealth.com/periods-optional> on the science and safety of #SkippingPeriods with medication.

For prescribers or to share with your prescriber

<https://www.pandiahealth.com/how-to-manage-birth-control-pill-side-effects/>

<https://docs.google.com/spreadsheets/d/1MiK1jRkdktzhWQBMK9DGrGPGmUoEQPzxfFSsMh1jy8/edit#gid=0>

Videos that answer common questions about the pill, patch, ring

https://www.youtube.com/channel/UCQ_dgWnuAPvQZo-PSwsk4IA

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