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
Ovarian Cycle

Low Estrogen at the end of menses

Follicular Phase

Ovulation

Luteal Phase

Menstrual Cycle

Proliferative Phase: Influenced by estrogen, the thickness of the endometrium rapidly increases

Secretory Phase: Influenced by progesterone, the lining becomes highly vascular and edematous
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
- insufficient oxygen to the uterine muscle
- PAIN
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.
Mood swings

- Anger
- Sadness
- Anxiety
- PMDD
- Headache
- Fatigue
- Hopelessness
- Insomnia
- Overwhelm
- Muscle aches
- Weight gain
- Lack of energy
- Lack of concentration
- Change in appetite
- Food craving
- Panic attack
- Distress
- Depressed mood
- Agoraphobia
- Fatigue
- Hopelessness
- Self-critical thoughts
- Increased irritability
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


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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

AGE

10 12.6 Menarche
15 17.4 First intercourse
20 25.1 26 First Marriage First Birth
25 30.9 Intent no more children
30 35

U.S. Women

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
The Menstrual Cycle is a *VITAL SIGN*

Pulse • Respiration
Blood Pressure • Temperature
Menstrual Cycle
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

21/7 day OC regimen

Day 0                  Day 28

Physiologic cycle over 3 months

Day 0                    Day 84

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](https://www.pandiahealth.com/periods-optional) on the science and safety of #SkippingPeriods with medication.

For prescribers or to share with your prescriber
[https://docs.google.com/spreadsheets/d/1MiK1jRkdktzhWQBMK9DGrGPGmUoEQPzxfFSsSmh1jy8/edit#gid=0](https://docs.google.com/spreadsheets/d/1MiK1jRkdktzhWQBMK9DGrGPGmUoEQPzxfFSsSmh1jy8/edit#gid=0)

Videos that answer common questions about the pill, patch, ring
[https://www.youtube.com/channel/UCQ_dgWnuAPvQZo-PSwsk4IA](https://www.youtube.com/channel/UCQ_dgWnuAPvQZo-PSwsk4IA)
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