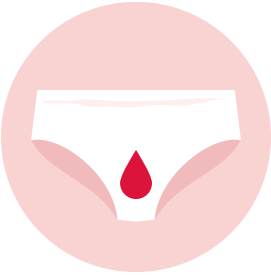
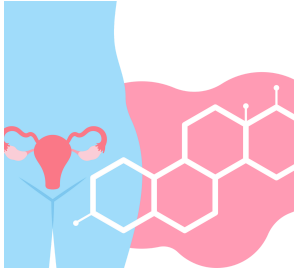
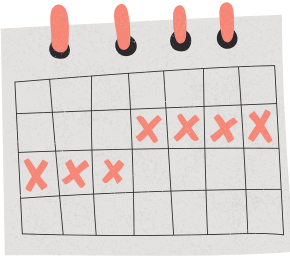



BODY LITERACY

THE MENSTRUAL CYCLE AND FUNCTION

✦ HERATHLETE
NUTRITION &
PERFORMANCE

The Phases at a Glance

Menstruation Day 1-8	Follicular 10-16 Days in Length	Ovulation ~ Day 14	Luteal 14 Days in Length
			

Menstrual Function

The menstrual cycle prepares the body for pregnancy by regulating the release of eggs (ovulation) and thickening the uterine lining to support potential implantation. If no pregnancy occurs, the lining sheds during menstruation.

The menstrual cycle is a health marker, supporting various physiological processes well beyond just fertility.

Menstrual cycle length varies widely among individuals, typically ranging from 21 to 35 days, with 28 days being the average. This variability depends on factors such as age, genetics, and overall health, and slight fluctuations from cycle to cycle are also common.

During each phase of the menstrual cycle, hormonal changes occur:

Follicular: Estrogen (specifically estradiol-2) reaches its lowest levels in the cycle, prompting the pituitary gland to release follicle-stimulating hormone (FSH), which stimulates the development of follicles for the next ovulation.

This rise in estrogen, which follows the growth of the follicles, triggers the release of gonadotropin-releasing hormone, prompting the pituitary gland to secrete luteinizing hormone (LH), whose primary function is to trigger ovulation.

Ovulation: During this phase, LH and FSH stimulate the release of an egg into the fallopian tube. Meanwhile there is a brief increase in testosterone.

Luteal: LH and FSH begin to decrease while, inversely, progesterone and estrogen increase to prepare for possible fertilization. If fertilization is unsuccessful, both progesterone and estrogen drop. The sudden hormonal shift before menstruation can result in premenstrual (PMS) symptoms.

Physical	Psychological Behavioral
<ul style="list-style-type: none">● Breast tenderness or swelling● Headaches● Joint and/or muscle pain● Bloating● Weight gain● Cramping● Digestive discomfort	<ul style="list-style-type: none">● Depressed mood (hopelessness, self-deprecating)● Anxiousness, stress ● Irritability, anger, sadness, tearfulness ● Difficulty concentrating, lethargy, overwhelmed ● Fatigue, hypersomnia or insomnia

Nutrition Implications & Hormones

Follicular

Estrogen can suppress appetite, and its increase during the second half of the follicular phase may contribute to reduced appetite levels.

Luteal

Progesterone can stimulate appetite, and the hormonal shift between progesterone and estrogen during the luteal phase often leads to increased appetite. This phase may also be associated with bloating and weight gain due to hormonal effects on fluid and sodium retention. Additionally, some individuals may crave carbohydrate-rich foods during this time, as the release of serotonin influences these cravings.

Nutrients & PMS

Calcium	Omega-3's	Vitamin B6
<p>Calcium levels are believed to fluctuate throughout the menstrual cycle due to the effects of estrogen and parathyroid hormones on serum calcium, which may contribute to hypocalcemia-related PMS symptoms.</p> <p>Arab A, Rafie N, Askari G, Taghiabadi M. Beneficial Role of Calcium in Premenstrual Syndrome: A Systematic Review of Current Literature. <i>Int J Prev Med.</i> 2020 Sep 22;11:156. doi: 10.4103/ijpvm.IJPVM_243_19. PMID: 33312465; PMCID: PMC7716601.</p>	<p>Omega-3 fatty acids are thought to alleviate pain and depressive symptoms associated with PMS, based on their beneficial effects in managing other conditions.</p> <p>Mohammadi MM, Dehghan Nayeri N, Mashhadi M, Varaei S. Effect of omega-3 fatty acids on premenstrual syndrome: A systematic review and meta-analysis. <i>J Obstet Gynaecol Res.</i> 2022 Jun;48(6):1293-1305. doi: 10.1111/jog.15217. Epub 2022 Mar 9. PMID: 35266254.</p>	<p>Vitamin B6 is involved in the synthesis of serotonin and dopamine in the body, and supplementation has been proposed as a potential treatment for PMS symptoms.</p> <p>Ebrahimi E, Khayati Motlagh S, Nemati S, Tavakoli Z. Effects of magnesium and vitamin b6 on the severity of premenstrual syndrome symptoms. <i>J Caring Sci.</i> 2012 Nov 22;1(4):183-9. doi: 10.5681/jcs.2012.026. PMID: 25276694; PMCID: PMC4161081.</p>

Menstrual Dysfunction

Amenorrhea

Primary amenorrhea is the lack of period by age 15.

Secondary is when the period occurs but has stopped for longer than three months.

Oligomenorrhea (uh-li-guh-meh-nr-ee-uh) is when there are 35 days or more between periods (normal is 21-35).

Oligomenorrhea

Anovulatory

Anovulatory (uh-naa-vie-luh-taw-ree) is the lack of ovulation.

Hypothalamic amenorrhoea accounts for around 30% of secondary amenorrhea cases. Significant weight loss, intense exercise, and stress are primary causes of HA.

Hypothalamic Amenorrhoea

Potential Menstrual Cycle Disruptions

- Increase or decrease in menstrual cycle length

- Reduced bleeding during period
- Period stops completely *[Some females may mistake a "withdrawal bleed" for their period, when in fact it is not a true menstrual period but a response to hormonal birth control].*
- No ovulation



Nutritional Considerations

**Diet is a modulating factor.
Current recommendation is to
follow a healthy food model
which tends to contain a
diverse, nutrient-dense diet.**

Avoid low energy availability.

Optimize iron intake in daily diet

Currently no evidence to suggest changing diet
depending on menstrual phase



Menstrual Cycle Tracking

It can be very useful to track changes in one's menstrual cycle, such as variations in length or bleeding, to help be more aware of symptoms related to their cycle. This can foster a deeper understanding of how the menstrual cycle affects other factors like sleep, activity, energy, performance, recovery, and mood.

Keep track of...

Days of Bleeding	Bleeding Amount	Symptoms	Response to Exercise
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Contact

For further information, please reach out to us at herathlete@gmail.com