

NGN NCLEX 2026 • REPRODUCTIVE HEALTH • WOMEN'S HEALTH

Menstrual Cycle & *Fertility Window*

The 28-day choreography of the hypothalamic–pituitary–ovarian (HPO) axis — how hormones build, release, and shed the endometrium each cycle, when conception is possible, and what nurses must teach, monitor, and recognize as abnormal.

NCJMM-ALIGNED

HIGH-YIELD

PATIENT EDUCATION

ENDOCRINE + REPRO

Source disclosure: This topic was not present in the uploaded personal notes. Content compiled from standard NGN NCLEX 2026 references (Saunders Comprehensive Review, ATI Maternal Newborn, Lippincott Maternity & Women's Health Nursing) and current clinical guidelines (ACOG, CDC reproductive health).

01

Definition & Overview

WHAT IT IS • WHY IT MATTERS

The **menstrual cycle** is the recurring sequence of hormonal and structural changes that prepare the female body for possible pregnancy. It is governed by the **hypothalamic–pituitary–ovarian (HPO) axis** and runs as two synchronized cycles — the **ovarian cycle** (follicle development → ovulation → corpus luteum) and the **uterine cycle** (menses → proliferation → secretion).

LENGTH

Cycle Duration

Average **28 days** · Normal range **21–35 days**. Menses lasts **3–7 days**. Average blood loss **30–80 mL** per cycle.

TRIGGER

Day 1 = First Day of Bleeding

Cycle counting **always** begins on the first day of menstrual flow — not when bleeding stops. This is the anchor for every calculation.

WINDOW

Fertility Window

Approximately **6 days** per cycle: the 5 days *before* ovulation plus the day of ovulation. Peak fertility = 2 days before through day of ovulation.

02 Pathophysiology — The HPO Axis

The hypothalamus, anterior pituitary, and ovaries form a feedback loop. Pulsatile **GnRH** drives **FSH** and **LH**, which act on the ovaries to produce **estrogen** and **progesterone**.



Hypothalamus secretes **GnRH** (gonadotropin-releasing hormone) in pulses.



Anterior pituitary releases **FSH** (early) and **LH** (mid-cycle surge).



FSH → stimulates ovarian follicles to mature and produce **estrogen**.



LH SURGE (~Day 13–14) → triggers **OVULATION**: mature ovum released from dominant follicle.



Ruptured follicle becomes **corpus luteum** → secretes **progesterone** (and some estrogen) to prepare endometrium.



No fertilization → corpus luteum degenerates → estrogen/progesterone drop → endometrium sheds → **menstruation**. Cycle restarts.



If fertilized → trophoblast secretes **hCG** → maintains corpus luteum → progesterone preserves endometrium → pregnancy continues.

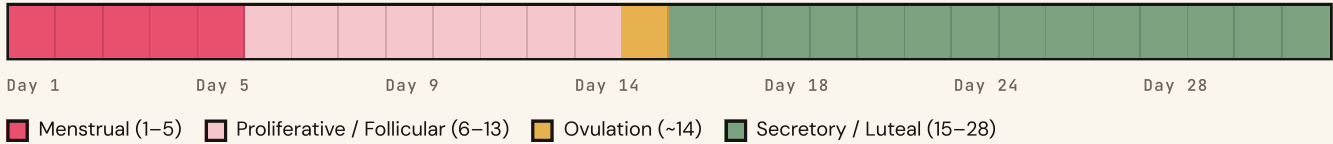
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Phases of the Cycle

OVARIAN + UTERINE TIMELINE

28-DAY CYCLE RIBBON

Day 1 → Day 28



Day 1–5

Menstrual

Estrogen ↓ ·
Progesterone ↓

Endometrium sheds (functional layer). FSH begins to rise as hormone levels drop. New cohort of follicles recruited.

Day 6–13

Follicular / Proliferative

FSH ↑ → Estrogen ↑↑

Dominant follicle matures (Graafian). Estrogen rebuilds endometrium. Cervical mucus becomes clear, stretchy, slippery — like raw egg white (spinnbarkeit).

Day ~14

Ovulation

LH SURGE → ovum released

Ovum travels into fallopian tube — viable **12–24 hr**. BBT rises 0.4–0.8°F. Some experience *Mittelschmerz* (one-sided pelvic pain) or light spotting.

Day 15–28

Luteal / Secretory

Progesterone ↑↑ (from corpus luteum)

Endometrium thickens and becomes glandular. If no pregnancy by day ~26, corpus luteum degenerates, hormones fall, menses begins again.

KEY RULE

Ovulation occurs ~14 days BEFORE the next period — not 14 days after the last one. The luteal phase is the fixed length (~14 days); the follicular phase varies. A patient with a 35-day cycle ovulates around **day 21**, not day 14.

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Signs & Symptoms — Normal vs Abnormal

NORMAL OVULATION CUES

- **Cervical mucus** — clear, stretchy, slippery (spinnbarkeit, like egg white)
- **BBT rise** 0.4–0.8°F (0.2–0.5°C) after ovulation, sustained ~2 weeks
- **Cervix** — soft, high, open (SHOW: Soft, High, Open, Wet)
- **Mittelschmerz** — unilateral lower abdominal twinge
- **Mid-cycle spotting** — light, brief
- Mild breast tenderness, increased libido
- Positive ovulation predictor kit (LH surge detected in urine)

PREMENSTRUAL (LUTEAL)

- Bloating, breast fullness/tenderness
- Mood changes, irritability, fatigue
- Mild headache, food cravings
- Sleep disturbance
- **PMS** = symptoms resolve with onset of menses
- **PMDD** = severe mood/functional impairment — refer for evaluation

RED FLAGS — REPORT

- **RF Amenorrhea** — no menses by age 15 (primary) or absent ≥3 cycles after established (secondary)
- **RF Menorrhagia** — heavy/prolonged flow (>7 days or soaking pad/tampon hourly)
- **RF Metrorrhagia** — bleeding between periods
- **RF Dysmenorrhea** — severe/incapacitating cramping (rule out endometriosis)
- **RF Postcoital bleeding** — investigate cervical pathology
- **RF Postmenopausal bleeding** — any bleeding after menopause → workup (rule out endometrial cancer)
- **RF Cycles < 21 or > 35 days** consistently
- **RF Severe pelvic pain, fever, foul discharge** — possible PID

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The Fertility Window & Conception Timing

THE 6-DAY WINDOW

CELL LIFESPANS

- **Ovum:** viable **12–24 hours** after ovulation
- **Sperm:** viable **3–5 days** (up to 7) in fertile cervical mucus
- **Result:** intercourse 5 days *before* through 1 day *after* ovulation can lead to pregnancy

PEAK FERTILITY

- **Highest probability:** 2 days before through day of ovulation
- **Fertilization site:** ampulla of the fallopian tube
- **Implantation:** **6–10 days** post-ovulation in endometrium
- **hCG detectable:** serum ~8 days, urine ~12–14 days post-ovulation

ESTIMATING OVULATION

Calendar Method

Subtract **14** from cycle length to estimate ovulation day. 28-day → Day 14. 30-day → Day 16. 35-day → Day 21.

BBT Method

Take temperature each morning *before* getting out of bed. Sustained rise = ovulation has already occurred. Best for confirming, not predicting.

Cervical Mucus (Billings)

Fertile mucus is clear, slippery, stretchy. "Peak day" = last day of egg-white mucus = closest to ovulation.

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Priority Nursing Interventions

ABCS • SAFETY • EDUCATION

ASSESS

- **Menstrual history:** LMP, cycle length, flow, duration, dysmenorrhea, pad/tampon count
- **Sexual & reproductive history:** contraception, partners, prior pregnancies (G/P), STI history
- **Symptom diary:** mood, pain, bleeding patterns across at least 2 cycles
- BMI, thyroid status, signs of PCOS (hirsutism, acne, irregular cycles)
- Medications (hormonal contraceptives, antipsychotics, antiepileptics — all affect cycles)

MONITOR

- Hgb/Hct if heavy bleeding — anemia risk
- HCG (qualitative/quantitative) when pregnancy possible
- FSH, LH, estradiol, progesterone if infertility workup
- TSH, prolactin — common causes of menstrual irregularity
- Pelvic ultrasound findings as ordered

ACT (PRIORITY)

- **Heavy bleeding + hypotension/tachycardia:** establish IV access, fluid resuscitate, notify HCP — this is the airway/circulation priority
- **Pregnancy possible + abdominal pain + amenorrhea:** rule out **ectopic pregnancy** — life-threatening, prepare for emergent eval
- **Severe pelvic pain + fever + discharge:** isolate as PID, obtain cultures, anticipate antibiotics
- Pain management for dysmenorrhea — NSAIDs first-line, heat, rest
- Iron supplementation if anemia from heavy menses

TEACH

- How to track cycles accurately (apps, calendars, BBT)
- When to seek care (red flags above)
- Contraceptive options & how each works with the cycle
- Preconception counseling — folic acid 400 mcg/day, lifestyle
- STI prevention regardless of pregnancy intent

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Pharmacology — Hormones & Cycle-Related Medications

HIGH-YIELD DRUG CLASS
TABLE

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Combined Oral Contraceptives (estrogen + progestin)	Suppress FSH/LH → prevent ovulation; thicken cervical mucus; thin endometrium	Nausea, breast tenderness, breakthrough bleeding, mood changes, ↑VTE risk	Take same time daily. STOP & report ACHES: A bdominal pain, C hest pain, H eadache, E ye changes, S evere leg pain. Contraindicated in smokers >35, hx of VTE, breast CA.
Progestin-only pill ("mini-pill")	Thickens cervical mucus, thins endometrium; inconsistent ovulation suppression	Irregular bleeding/spotting	Must be taken at the exact same time daily (3-hour window). Safe in breastfeeding.
Depot medroxyprogesterone (DMPA) IM	Long-acting progestin suppresses ovulation × 3 months	Weight gain, irregular bleeding, decreased BMD with long use	Every 11–13 weeks. Calcium + vitamin D supplementation; weight-bearing exercise.
Levonorgestrel emergency contraception (Plan B)	Delays/inhibits ovulation if taken before LH surge	Nausea, irregular bleeding, headache	Most effective within 72 hours; not an abortifacient. Available OTC.
NSAIDs (ibuprofen, naproxen)	Inhibit prostaglandins → reduce uterine contractions & pain	GI upset, bleeding risk, renal effects	First-line for dysmenorrhea. Take with food. Start at first sign of cramping.
Clomiphene citrate	SERM — blocks estrogen feedback → ↑ FSH/LH → induces ovulation	Hot flashes, multiple gestation, ovarian hyperstimulation, visual disturbances	Used for infertility/anovulation (e.g., PCOS). Monitor for OHSS. Report visual changes.
GnRH agonists (leuprolide)	Initial flare then suppression of FSH/LH → "medical menopause"	Hot flashes, vaginal dryness, mood changes, ↓BMD	Used for endometriosis, fibroids. Limit duration; add-back therapy may be used.
Iron supplements (ferrous sulfate)	Replenish iron stores depleted by chronic heavy menses	Constipation, dark stools, GI upset	Take with vitamin C (OJ) for absorption; not with dairy/antacids; use straw if liquid (stains teeth).

o8 NCLEX Test Traps ⚠️

WRONG VS RIGHT THINKING

✗ THE TRAP

"Ovulation always occurs on day 14."

✓ THE TRUTH

Ovulation occurs ~14 days **before the next period**. In a 35-day cycle, ovulation is on day 21. The luteal phase is fixed; the follicular phase varies.

✗ THE TRAP

"BBT rises right before ovulation, so use it to predict the fertile day."

✓ THE TRUTH

BBT rises **after** ovulation (progesterone effect). It confirms ovulation has already happened — it does *not* predict it. For prediction, use cervical mucus or LH kits.

✗ THE TRAP

"Sperm only live a few hours, so the fertile day is just the day of ovulation."

✓ THE TRUTH

Sperm survive **3–5 days** in fertile cervical mucus. The fertile window extends ~5 days before ovulation. Intercourse days before ovulation can absolutely cause pregnancy.

✗ THE TRAP

"Missed dose of OCP — just take it tomorrow."

✓ THE TRUTH

For combined OCP missed <24 hr: take it ASAP, even with the next dose. Missed ≥2 pills: take last missed pill ASAP, use **backup contraception × 7 days**, consider emergency contraception if intercourse occurred.

✗ THE TRAP

"Any bleeding after menopause is just spotting — wait and see."

✓ THE TRUTH

Any postmenopausal bleeding requires evaluation. It is endometrial cancer until proven otherwise. Priority = refer for endometrial biopsy / pelvic ultrasound.

✗ THE TRAP

"Patient has irregular cycles and acne — just normal teen stuff."

✓ THE TRUTH

Triad of **oligomenorrhea + hirsutism/acne + obesity** → think **PCOS**. Workup: LH:FSH ratio, free testosterone, fasting glucose, lipid panel, pelvic US.

✗ THE TRAP

"Severe one-sided pain mid-cycle = always Mittelschmerz."

✓ THE TRUTH

Severe unilateral pain + amenorrhea + positive pregnancy test = **ectopic pregnancy** until ruled out. Priority = pregnancy test, then ultrasound. Mittelschmerz is mild and self-limiting.

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Patient & Family Education

CYCLE TRACKING

- Day 1 = first day of **flow**, not spotting
- Record cycle length, flow heaviness, pain, mood, and intercourse
- Apps are fine; written calendar works equally well
- Track at least 3 cycles before drawing conclusions

TRYING TO CONCEIVE

- Intercourse every 1–2 days during fertile window
- Start **folic acid 400 mcg/day** 3 months *before* conception
- Avoid alcohol, tobacco, illicit drugs; review all medications with HCP
- Aim for healthy BMI; manage chronic conditions (DM, thyroid, HTN)
- Seek infertility evaluation: after 12 months trying if <35, after 6 months if ≥35

AVOIDING PREGNANCY

- No method based on the cycle alone is highly effective — abstain or use barrier during fertile window
- Most effective: LARCs (IUD, implant), then sterilization
- Condoms are the only method that also prevents STIs
- Emergency contraception is available — most effective within 72 hours

WHEN TO CALL THE HCP

- Bleeding soaks a pad/tampon every hour for 2+ hours
- Periods consistently <21 or >35 days apart
- No period for 3+ months (not pregnant)
- Severe pain not relieved by NSAIDs
- Bleeding between periods or after intercourse
- Any bleeding after menopause
- Signs of infection: fever, foul discharge, pelvic pain

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Memory Boosters & Mnemonics

PATTERN RECOGNITION

FSH

Follicle Stimulating Hormone → grows the Follicle in the Follicular phase.

LH

Luteinizing Hormone → triggers ovulation & forms the corpus Luteum. "Launches" the egg.

SHOW

Ovulating cervix: Soft · High · Open · Wet.

14 <

Ovulation = 14 days **before** next period.
Count *backward*, not forward.

ACHES

OCP danger signs: **A**bdominal pain · **C**hest pain · **H**eadache · **E**ye changes · **S**evere leg pain.

E·P

Estrogen Establishes (builds endometrium). **P**rogestosterone Protects (maintains it).

QUICK ASSOCIATIONS

- **Spinnbarkeit** = stretchy egg-white mucus = fertile
- **Mittelschmerz** = "middle pain" = ovulation pain
- **BBT rise** = progesterone is now in charge = post-ovulation
- **hCG** = "hi, corpus luteum, keep Going" — preserves pregnancy
- **Ovum 1 day, sperm 5 days** → fertile window ≈ 6 days
- **Luteal phase fixed at 14** → cycle length varies in the follicular phase

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NCJMM Clinical Judgment Scenario

SIX-STEP THINKING

Case: A 24-year-old client presents to the women's health clinic stating, "I haven't had a period in 8 weeks and I've been having some cramping and light spotting today." She has regular 28-day cycles, is sexually active with a male partner, and uses condoms inconsistently. Vital signs: BP 102/64, HR 104, RR 18, Temp 98.6°F. She reports right lower quadrant pain that started this morning, rated 6/10. LMP was 8 weeks ago by report.

STEP 1 • RECOGNIZE CUES

- **Relevant cues:** 8 weeks amenorrhea + sexual activity with inconsistent condom use + RLQ pain + light spotting + HR 104 (mild tachycardia) + BP 102/64 (borderline low)
- **Concerning pattern:** Possible pregnancy + unilateral lower abdominal pain + early hemodynamic changes

STEP 2 • ANALYZE CUES

- Amenorrhea in a sexually active female of reproductive age = **pregnancy until proven otherwise**
- Unilateral pain + spotting + possible pregnancy = consider **ectopic pregnancy** — life-threatening if ruptured
- Tachycardia + relative hypotension may indicate **early hypovolemia** (internal bleeding)
- Differential also includes: threatened/spontaneous abortion, ovarian cyst rupture, appendicitis, PID

STEP 3 • PRIORITIZE HYPOTHESES

- **#1 Ectopic pregnancy** (highest acuity — risk of rupture, hemorrhage, shock)
- **#2 Threatened or spontaneous abortion**
- **#3 Ruptured ovarian cyst**
- **#4 Appendicitis / PID** (less likely with this presentation)

STEP 4 • GENERATE SOLUTIONS

- Obtain quantitative serum β -hCG **immediately**
- Establish large-bore IV access; type and screen
- Continuous monitoring of VS, level of consciousness, pain
- Anticipate transvaginal ultrasound
- NPO status (possible surgery)
- Notify the HCP and prepare for emergent intervention if rupture suspected

STEP 5 • TAKE ACTION

- **Priority action:** IV access + STAT serum β -hCG + notify provider
- Reassess BP, HR, pain q15 minutes
- Position for comfort; avoid analgesics that mask hemodynamic decline until provider evaluation
- Emotional support — patient is processing both unexpected pregnancy and acute health risk

STEP 6 • EVALUATE OUTCOMES

- **Expected:** Hemodynamic stability maintained, diagnosis confirmed by US + β -hCG, definitive treatment initiated (methotrexate vs surgical) before rupture
- **Worsening:** Rising HR, falling BP, syncope, shoulder pain (referred from diaphragmatic irritation) → suggests rupture → emergency surgery
- **Discharge teaching** if methotrexate used: avoid folic acid & NSAIDs, follow β -hCG to zero, avoid pregnancy ×3 months, return precautions

NGN NCLEX 2026 Visual Study Library

MENSTRUAL CYCLE & FERTILITY WINDOW • REPRODUCTIVE HEALTH

SOURCES: SAUNDERS • ATI • LIPPINCOTT • ACOG • CDC