PART XI | ADOLESCENT MEDICINE

Menstrual Health and Dysmenorrhea

Chapter 159

8 one-best-answer study questions with original source tables

Nelson Textbook of Pediatrics, 22nd edition, Volume 1

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A 14-year-old had menarche 18 months ago and has now had no menstrual bleeding for 3 consecutive months. Which action is supported by the normal-menses table?

A. Wait until 5 years after menarche before evaluating
B. Evaluate only if a single period lasts more than 14 days
C. Classify a 90-day gap as a normal 21- to 45-day cycle
D. Evaluate the prolonged interval rather than attributing it automatically to early adolescence
E. Reassure that any 3-month gap is within the normal range

ORIGINAL SOURCE TABLE | Table 159.1 | PDF p. 1223 | printed p. 1210

Table 159.1 Characteristics of Normal Menses*

Cycle length**	21-35 days 21-45 days during first 3 yr after menarche
Duration of menses	7 or fewer days
Blood flow	6 or fewer soaked menstrual products per day Infrequent overflow of menstrual cups

*Adolescents with two or more cycles outside this range or who skip their period for 3 consecutive months warrant evaluation.
**A cycle begins with the first day of one period and extends to the first day of the next.

A 16-year-old competitive runner with normal body mass index develops secondary amenorrhea after increasing training and restricting energy intake. Which mechanism in the table best fits?

A. An acute pelvic infection as the required cause
B. Functional hypothalamic suppression from low energy availability
C. A congenital vaginal outflow obstruction
D. An inherited red-cell membrane disorder
E. An isolated platelet-function defect

ORIGINAL SOURCE TABLE | Table 159.2 | PDF p. 1224 | printed p. 1211

Table 159.2 Causes of Primary or Secondary Amenorrhea

Pregnancy (regardless of history can cause primary or secondary amenorrhea)
Functional hypothalamic states (stress, weight loss, undernutrition, high levels of exercise, energy deficit even at normal weight)
Relative energy deficiency in sport (RED-S) (inadequate energy intake causing impaired physiologic function, including amenorrhea, bradycardia, and low bone density)
Eating disorders
Premature ovarian insufficiency (autoimmune, idiopathic, galactosemia, or secondary to radiation or chemotherapy)
Hypothalamic and/or pituitary damage (e.g., irradiation, tumor, traumatic brain injury, surgery, hemochromatosis, midline central nervous system defects such as septooptic dysplasia, autoimmune pituitary hypophysitis)
Thyroid disease (hyper- or hypo-; hypothyroidism more likely to be associated with increased bleeding)
Prolactinoma
Systemic disease (e.g., inflammatory bowel disease, cyanotic congenital heart disease, sickle cell disease, cystic fibrosis, celiac disease)
Hyperandrogenism (polycystic ovary syndrome, nonclassic congenital adrenal hyperplasia, adrenal tumor or dysfunction)
Drugs and medications (e.g., illicit drugs, atypical antipsychotics, hormones)
Turner syndrome (including mosaicism)

A 15-year-old has never menstruated despite breast development and has recurrent monthly pelvic pain with an obstructed vaginal outlet on examination. Which table-listed cause of primary amenorrhea is most likely?

A. Functional hypothalamic amenorrhea
B. Pregnancy
C. Premature ovarian insufficiency
D. Prolactinoma
E. Imperforate hymen

ORIGINAL SOURCE TABLE | Table 159.3 | PDF p. 1224 | printed p. 1211

Table 159.3 Additional Causes of Primary Amenorrhea

Physiologic/constitutional delay
Anatomic abnormalities
Müllerian agenesis
Imperforate hymen
Transverse vaginal septum
Genetic disorders
46,XY disorders of sexual development (e.g., androgen insensitivity syndrome, 5α-reductase deficiency, 17α-hydroxylase deficiency)
Mixed gonadal dysgenesis (associated with various chromosome patterns)
Turner syndrome (resulting from 45,X or a variety of mosaic or other abnormal karyotypes)
Genetic hypogonadotropic hypogonadism (e.g., X-linked Kallmann syndrome)

A 13-year-old has prolonged heavy but regular bleeding since menarche and recurrent epistaxis. Which etiologic group in the table deserves targeted evaluation?

A. Cervicitis as the most likely cause of substantial bleeding since menarche
B. An obstructive Müllerian anomaly without other findings
C. A hematologic bleeding disorder such as von Willebrand disease
D. Anovulation as the only possible cause
E. A vaginal foreign body as the typical cause of heavy regular bleeding

ORIGINAL SOURCE TABLE | Table 159.4 | PDF p. 1226 | printed p. 1213

Table 159.4 Causes of Vaginal Bleeding in Adolescence

CAUSES OF VAGINAL BLEEDING	EXAMPLES	FEATURES
Immature hypothalamic-pituitary-ovarian axis (AUB-O)	Patient within 2yr of menarche	Patient responds to hormonal treatment.
Weight changes, disordered eating, or excessive exercise	Anorexia nervosa, bulimia, weight gain or loss of more than 10 pounds from any etiology	Weight loss more frequently results in lighter, less frequent menses.
Endocrinologic causes	Thyroid disease, polycystic ovary syndrome (PCOS)	Bleeding typically increases with hypothyroidism and decreases with PCOS and hyperthyroidism.
Pregnancy complication	Threatened abortion, postpartum or postabortal endometritis	History of sexual activity and/or pregnancy
Infection	Cervicitis, condyloma, pelvic inflammatory disease	Bleeding is usually not heavy and may occur durir or after sexual intercourse.
Trauma	Sexual assault, straddle injuries	History will be evident in patients of menstruating age unless there is cognitive disability.
Vaginal foreign body	Toilet paper, broken condoms, tampons	Associated with odor and vaginal discharge, but usually not heavy bleeding.
Hematologic causes (AUB-C)	Type 1, 2, 3 von Willebrand disease, platelet function disorders, thrombocytopenia (idiopathic thrombocytopenic purpura, drug induced), symptomatic hemophilia carrier, clotting factor deficiency, leukemia, aplastic anemia	Bleeding is heavy and/or long and frequently regular, may present at menarche, and may be accompanied by a suggestive personal or family history (hysterectomy, uterine ablation, cautery for epistax or physical exam (ecchymoses, petechiae).
Medications	Estrogens and progestins in combined hormonal contraception Androgens Drugs that affect prolactin (estrogens, phenothiazines, tricyclic antidepressants, metoclopramide) Anticoagulants (heparin, warfarin, aspirin, NSAIDs) SSRIs	Affect the hypothalamic-pituitary-ovarian axis, endometrial lining, platelets, or coagulation pathway.
Anatomic	Partial obstruction of vagina or uterus causing asynchronous bleeding; cervical or endometrial polyps or myomas; hemangioma; uterine vascular malformation; genital/reproductive tract cancer	Most of these entities are extremely rare, especia reproductive tract cancers.
Systemic disease	Celiac disease, rheumatoid arthritis, Ehlers-Danlos syndrome and other connective tissue disorders	Accompanied by other condition-specific signs.

An adolescent presents with abnormal uterine bleeding and reports no sexual activity. Which initial test remains listed in the table regardless of the history?

A. Urine pregnancy test
B. Pelvic MRI for every patient
C. Diagnostic laparoscopy for every patient
D. Bone marrow biopsy before a blood count
E. A routine serum cortisol level

ORIGINAL SOURCE TABLE | Table 159.5 | PDF p. 1227 | printed p. 1214

Table 159.5 Laboratory Tests to Evaluate Patients with Abnormal Uterine Bleeding

Complete blood count with platelets
Ferritin
Urine pregnancy test (regardless of history)
Thyroid function studies
Total and free testosterone*
Liver and kidney function studies
Nucleic acid amplification test (NAAT) or equivalent testing for *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis*
Prothrombin time and partial thromboplastin time
von Willebrand factor antigen, vWF activity (such as ristocetin cofactor), and factor VIII† activity
Pelvic ultrasound (if palpable mass or bleeding persists despite treatment)

*In patients with signs or symptoms suggestive of polycystic ovary syndrome, such as acne, hirsutism, obesity, acanthosis nigricans, and a history of infrequent menses.

†Any abnormalities should be referred to a hematologist. False-negative von Willebrand tests and false-positive platelet function studies have been observed in the

A 16-year-old has worsening menstrual pain despite adequate NSAID and hormonal therapy, with pain sometimes occurring outside menses. Which diagnosis in the differential table becomes more concerning?

A. Physiologic first-day cramps without progression
B. An isolated normal ovulatory cycle
C. Premenstrual symptoms without pelvic pain
D. Endometriosis
E. Uncomplicated primary dysmenorrhea only

ORIGINAL SOURCE TABLE | Table 159.6 | PDF p. 1228 | printed p. 1215

Table 159.6 Differential Diagnosis of Dysmenorrhea in Adolescents*

	PRESENTATION	DIAGNOSIS
Primary	Crampy pelvic pain may be accompanied by aching/heaviness in lower back and upper thighs, nausea, emesis, diarrhea, headache, mastalgia, fatigue, and dizziness; symptoms begin at or shortly before menstrual flow onset and last 1-3 days.	Normal physical exam; internal exam only for sexually activ adolescents. Ultrasound can be reserved for patients witl atypical presentations (e.g., onset at menarche) or pain despite NSAIDs and hormonal therapy.
Endometriosis and adenomyosis†	**Increasingly severe dysmenorrhea despite adequate therapy**; pain exacerbated during menses or noncyclical pain.	Increased risk in patients with obstructive anomalies and possibly bleeding disorders; however, most adolescents with endometriosis have normal anatomy and bleeding indices; visual diagnosis is made during surgery and confirmed by tissue sample.
Müllerian anomalies with partial outflow obstruction	**Pain begins at or shortly after menarche** and occurs with bleeding; presence of **known renal tract anomaly** (often coexists with müllerian anomaly).	Pelvic ultrasound will demonstrate uterine anomalies (e.g., rudimentary uterine horn); MRI may be required to identi some lesions (e.g., obstructed hemivagina).
Pelvic inflammatory disease	Abrupt onset of dysmenorrhea more severe than baseline in a sexually active adolescent; presentation can range from mild discomfort to acute abdomen.	Clinical diagnosis made by finding **lower abdominal tenderness plus cervical motion tenderness, uterine or adnexal tenderness** on bimanual pelvic examination (see Chapter 146); supporting features include dysuria, dyspareunia, **vaginal discharge**, fever, and increased whit blood cell count.
Pregnancy complication	Coincident pain and bleeding may be misdiagnosed as dysmenorrhea.	Urine test positive for human chorionic gonadotropin.

*__Bold__ entries indicate "red flags" for diagnosis.
†Adenomyosis is the presence of endometrial tissue within the uterine myometrium.

A teenager with primary dysmenorrhea asks about taking a combined hormonal method continuously instead of a standard cyclic schedule. Which tradeoff does the treatment table describe?

A. No difference in bleeding pattern or pain relief can occur
B. Potentially better pain relief with more unscheduled intermenstrual bleeding
C. Guaranteed complete pain relief without any bleeding
D. Mandatory discontinuation of all NSAIDs forever
E. Inevitable permanent loss of fertility

ORIGINAL SOURCE TABLE | Table 159.7 | PDF p. 1228 | printed p. 1215

Table 159.7 Treatment for Dysmenorrhea

	MEDICATION	REGIMEN	COMMENTS
NSAIDs (for up to 5 days)	Ibuprofen 200 mg	2 tablets PO q4-6h	Over-the-counter
	Naproxen sodium 275 mg	550 mg loading dose, then 275 mg PO q6h	Patients may prefer the equivalent 550 mg PO q12h dosing regimen.
	Celecoxib (cyclooxygenase [COX]-2 inhibitor)*	400 mg loading dose, then 200 mg PO q12h prn pain	Can be used for patients with bleeding disorders.
Hormonal contraception	Combined hormonal contraceptive	Continuous hormone regimens vs standard 21 hormone days followed by 7 placebo days may offer better relief but may increase the risk of unscheduled intermenstrual bleeding.	Treatment can be based on patient preference.
	Progestin-only methods	DMPA 150 mg IM or 104 mg SC q3mo; levonorgestrel intrauterine device for up to 8 yr; etonogestrel implant	DMPA has potential side effects of weight gain, interference with expected bone density increase during adolescence, and higher discontinuation rates than LARC methods.
Gonadotropin-releasing hormone agonist	Depot leuprolide	11.25 mg IM q3mo	Consider for presumed endometriosis unresponsive to hormonal methods; add back hormones advised to prevent bone loss.

*This medication may cause serious cardiovascular and gastrointestinal events. Use with caution in patients with impaired renal or liver dysfunction, heart failure, or a history of GI bleeding or ulcer. Full prescribing information can be found at https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/020998s050lbl.pdf

DMPA, Depot medroxyprogesterone acetate; LARC, long-acting reversible contraceptive; NSAIDs, nonsteroidal antiinflammatory drugs.

A 17-year-old has at least five recurrent symptoms including marked irritability and depressed mood in the week before menses. They improve after bleeding begins, are minimal the following week, and impair school functioning. Which diagnosis best fits the table?

A. Persistent depressive disorder without a cycle-related pattern
B. Generalized anxiety disorder alone
C. Primary dysmenorrhea
D. An uncomplicated normal mood fluctuation
E. Premenstrual dysphoric disorder

ORIGINAL SOURCE TABLE | Table 159.8 | PDF p. 1229 | printed p. 1216

Table 159.8 Criteria for Premenstrual Dysphoric Disorder

A. In the majority of menstrual cycles, at least five symptoms must be present in the final week before the onset of menses, start to *improve* with a few days after the onset of menses, and become *minimal* or absent in the week post menses.
B. One (or more) of the following symptoms must be present:
   1. Marked affective lability (e.g., mood swings; feeling suddenly sad or tearful, or increased sensitivity to rejection).
   2. Marked irritability or anger or increased interpersonal conflicts.
   3. Marked depressed mood, feelings of hopelessness, or self-deprecating thoughts.
   4. Marked anxiety, tension, and/or feelings of being keyed up or on edge.
C. One (or more) of the following symptoms must additionally be present, to reach a total of five symptoms when combined with symptoms from criterion B.
   1. Decreased interest in usual activities (e.g., work, school, friends, and hobbies).
   2. Subjective difficulty in concentration.
   3. Lethargy, easy fatigability, or marked lack of energy.
   4. Marked change in appetite, overeating, or specific food cravings.
   5. Hypersomnia or insomnia.
   6. A sense of being overwhelmed or out of control.
   7. Physical symptoms such as breast tenderness or swelling, joint or muscle pain, a sensation of "bloating," or weight gain.

Note: The symptoms in criteria A-C must have been met for most menstrual cycles that occurred in the preceding year.

D. The symptoms are associated with clinically significant distress or interference with work, school, usual social activities, or relationships with others (e.g., avoidance of social activities; decreased productivity and efficiency at work, school, or home).
E. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as major depressive disorder, panic disorder, persistent depressive disorder (dysthymia), or a personality disorder (although it may co-occur with any of these disorders).
F. Criterion A should be confirmed by prospective daily ratings during at least two symptomatic cycles. (*Note:* The diagnosis may be made provisionally prior to this confirmation.)
G. The symptoms are not attributable to the physiologic effects of a substance (e.g., a drug of abuse, a medication, other treatment) or another medical condition (e.g., hyperthyroidism).

From the *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed., pp. 171–172.

Answer key and teaching notes

01. D | Table 159.1 | PDF p. 1223, printed p. 1210

Why: The table notes that an adolescent who skips menstruation for 3 consecutive months warrants evaluation, even early after menarche.
Closest distractor: Early cycle variability does not make a 3-month gap automatically normal.

02. B | Table 159.2 | PDF p. 1224, printed p. 1211

Why: The table includes functional hypothalamic states and relative energy deficiency in sport, even at normal weight.
Closest distractor: An outflow anomaly is an additional cause of primary amenorrhea and does not explain loss of established cycles after an energy deficit.

03. E | Table 159.3 | PDF p. 1224, printed p. 1211

Why: Imperforate hymen is listed among anatomic causes of primary amenorrhea and fits cyclic pain with outflow obstruction.
Closest distractor: Functional hypothalamic amenorrhea does not cause an obstructed outlet.

04. C | Table 159.4 | PDF p. 1226, printed p. 1213

Why: The hematologic row includes von Willebrand disease and notes heavy, long, often regular bleeding beginning at menarche with personal or family bleeding clues.
Closest distractor: Anovulation may cause abnormal bleeding but does not account as directly for epistaxis and a lifelong mucosal bleeding pattern.

05. A | Table 159.5 | PDF p. 1227, printed p. 1214

Why: The laboratory table explicitly includes a urine pregnancy test regardless of reported history.
Closest distractor: Pelvic imaging is reserved for a palpable mass or persistent bleeding despite treatment in this table.

06. D | Table 159.6 | PDF p. 1228, printed p. 1215

Why: The table links worsening pain despite adequate therapy and noncyclic pain with endometriosis.
Closest distractor: Primary dysmenorrhea is less convincing when pain persists and progresses despite appropriate treatment.

07. B | Table 159.7 | PDF p. 1228, printed p. 1215

Why: The table states that continuous combined hormonal regimens may provide better relief but may increase unscheduled bleeding.
Closest distractor: It does not promise complete relief or the absence of bleeding.

08. E | Table 159.8 | PDF p. 1229, printed p. 1216

Why: The criteria require a cyclic late-luteal symptom pattern, at least five symptoms including an affective symptom, and meaningful impairment.
Closest distractor: A persistent depressive disorder does not account for reliable resolution in the postmenstrual week.

Table selection log

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04. Table 159.4 | PDF p. 1226 | printed p. 1213 | Completed

05. Table 159.5 | PDF p. 1227 | printed p. 1214 | Completed

06. Table 159.6 | PDF p. 1228 | printed p. 1215 | Completed

07. Table 159.7 | PDF p. 1228 | printed p. 1215 | Completed

08. Table 159.8 | PDF p. 1229 | printed p. 1216 | Completed

All eight tables in Chapter 159 are included in source-page appearance order.

Last completed: Table 159.8, PDF p. 1229. Next unit starts with Table 160.1, PDF p. 1231.

Review note: ACOG issued updated endometriosis diagnostic guidance in 2026; the original Nelson tables are reproduced unchanged. Check current guidance for patient-care decisions: https://www.acog.org/clinical/clinical-guidance/clinical-practice-guideline/articles/2026/03/diagnosis-of-endometriosis