CONDITION

Absent menstrual periods - primary

Learn what primary amenorrhea means, when absent first periods should be evaluated, possible causes, tests, treatments, and symptoms that need urgent care.

WHAT IT IS
Absence of a first menstrual period by the expected stage of puberty

BODY SYSTEM
Reproductive system

MAIN SYMPTOMS
Absent first period, little or no breast development, monthly pelvic pain, sparse body hair

WHAT CAUSES IT
Hormonal, anatomical, genetic, nutritional, or illness-related factors

HOW IT IS DIAGNOSED
Clinical history, hormone tests, pelvic ultrasound

MAIN TREATMENT
Cause-specific treatment, hormone therapy, or procedures

CAN IT BE CURED?
Sometimes - depends on the underlying cause

IS IT AN EMERGENCY?
Sometimes - severe or rapidly worsening pelvic pain

LONG-TERM OUTLOOK
Varies by cause, with possible bone and fertility effects

Overview

Primary amenorrhea means that a person has not had their first menstrual period by the expected stage of puberty. It differs from secondary amenorrhea, in which periods stop after they have begun.

A medical evaluation is generally appropriate if:

These are guides for evaluation, not proof that something is wrong. Puberty may occur later in some families, but absent periods can also result from hormone conditions, differences in reproductive anatomy, chronic illness, inadequate nutrition, intensive exercise, or genetic conditions.

Menstruation depends on several systems working together. The hypothalamus and pituitary

gland signal the ovaries, which produce estrogen. The uterus develops a lining that can be shed through the cervix and vagina. A difference anywhere in this pathway may prevent periods from starting.

Evaluation matters because some causes affect bone strength, growth, fertility, or long-term health. The goal is to understand hormone and pubertal development, identify conditions needing treatment, and support physical and emotional well-being.

- Periods have not started by age 15.
- More than three years have passed since breast development began.
- Breast development has not started by age 13.
- Puberty began but has stopped progressing.
- Monthly pelvic pain occurs without bleeding.

Symptoms

The main feature is not having had a first period by the expected age or stage of puberty. Other possible symptoms include:

Some people have no other symptoms. Breast development usually indicates estrogen exposure, while pubic hair suggests that the body responds to androgen hormones. These patterns help guide evaluation but cannot establish the cause by themselves.

Pregnancy is possible before a first period because ovulation may occur before the first menstrual bleeding. A pregnancy test may therefore be needed when pregnancy is biologically possible.

- Little or no breast development
- Sparse or absent pubic or underarm hair
- Normal breast development without menstrual bleeding
- Monthly lower abdominal or pelvic pain
- Acne or increased facial or body hair
- Significant weight loss, restrictive eating, or intense exercise
- Headaches, vision changes, or milky nipple discharge
- Hot flashes, vaginal dryness, or sleep changes
- Short stature or delayed growth

- Difficulty with the sense of smell
- Unusual fatigue, temperature sensitivity, or major weight changes

Causes and risk factors

Primary amenorrhea has several possible causes, and more than one factor may contribute.

Later-than-average puberty may be a normal family pattern called constitutional delay. The person may be healthy and continue growing while puberty progresses more slowly.

Hypothalamic amenorrhea occurs when the hypothalamus reduces signals controlling the ovaries. It may be associated with inadequate calorie intake, an eating disorder, substantial weight loss, intensive training, stress, or chronic illness. A person does not have to appear underweight for low energy availability to affect menstruation.

Pituitary conditions can disrupt reproductive hormones. High prolactin may suppress ovarian function and can sometimes be caused by medicines. Less commonly, a pituitary growth or another condition affecting the brain's hormone-control centers is responsible.

Ovarian conditions may prevent expected estrogen production. Gonadal dysgenesis means the ovaries did not develop or function typically. Turner syndrome, involving all or part of one X chromosome, is one possible cause. Primary ovarian insufficiency occurs when ovarian function decreases earlier than expected.

Differences in reproductive anatomy may affect the uterus, cervix, or vagina. An imperforate hymen or transverse vaginal septum can block menstrual blood. Müllerian agenesis is a congenital condition in which the uterus and upper vagina do not fully develop.

Differences in sex development may affect chromosomes, hormones, hormone response, or reproductive anatomy. Complete androgen insensitivity syndrome is one example. Care should be private, respectful, and guided by clinicians with appropriate expertise.

Other causes include thyroid disease, adrenal conditions, excess androgen production, poorly controlled diabetes, inflammatory bowel disease, and celiac disease.

Risk factors include a family history of late puberty, chronic illness, restrictive eating, major weight changes, intensive athletic training, chromosome or reproductive-development conditions, and chemotherapy or radiation that can affect the ovaries. A risk factor does not establish the diagnosis.

Diagnosis

Evaluation may begin with a primary care clinician, pediatrician, adolescent-medicine specialist, gynecologist, or endocrinologist.

The clinician will ask about growth, breast development, pubic hair, pelvic pain, nutrition, exercise, stress, illness, medicines, supplements, and family puberty patterns. They may also ask about headaches, vision changes, nipple discharge, acne, hair growth, surgery, or cancer treatment.

Questions about sexual activity and pregnancy risk are routine. Adolescents should usually have an opportunity to speak privately with the clinician, subject to local confidentiality and safety rules.

A physical examination may assess height, weight trends, blood pressure, thyroid findings, skin, hair, and pubertal development. An internal pelvic examination is not always needed. If one is recommended, the clinician should explain why and obtain permission.

Initial tests may include:

A pelvic ultrasound can identify the uterus and ovaries or an obstruction and is often performed over the abdomen. Depending on the findings, further testing may include chromosome analysis, additional hormone tests, or magnetic resonance imaging of the brain and pituitary gland. Genetic counseling may be offered if an inherited or chromosome condition is possible.

If estrogen has been low for a prolonged period, bone health may also be assessed. Testing should be tailored to the individual.

- A pregnancy test when pregnancy is possible
- Follicle-stimulating hormone and luteinizing hormone
- Estradiol
- Prolactin
- Thyroid-stimulating hormone
- Testosterone or related tests when excess androgen is suspected

Treatment and management

Treatment depends on the cause. Producing monthly bleeding is not always the primary goal.

For later-than-average puberty, observation may be appropriate when the evaluation is reassuring. Follow-up confirms that growth and pubertal development continue.

When low energy availability contributes, treatment focuses on balancing nutrition and energy

use. Care may involve a clinician, registered dietitian, and mental health professional. Exercise may need adjustment. The aim is overall health rather than reaching a specific weight.

Hormone therapy may be considered when the body produces too little estrogen. It can support puberty, bones, and vaginal and uterine tissues when a uterus is present. The type, timing, and route depend on age, development, cause, and personal goals. Treatment should be prescribed and monitored by a clinician rather than started only to cause bleeding.

Thyroid disease, elevated prolactin, and other endocrine conditions require cause-specific treatment. Do not stop a medicine that may be contributing without medical guidance.

An anatomic blockage may require a procedure to allow menstrual blood to leave the body. Surgery should be performed by a specialist familiar with adolescent reproductive anatomy. Congenital differences involving the uterus or vagina may have nonsurgical or surgical options based on symptoms and preferences.

Chromosome conditions or differences in sex development may require coordinated care from endocrinology, gynecology, genetics, cardiology, urology, or psychology. Shared decision-making should respect privacy, identity, and future reproductive goals.

Fertility varies by cause. Some people can become pregnant without assistance, while others may require fertility treatment or may not be able to carry a pregnancy. Counseling can be offered when the person is ready.

Complications

Complications depend on the underlying condition and its duration.

Low estrogen during adolescence and early adulthood can reduce bone development and increase the risk of low bone density and fractures. Adequate nutrition and treatment of the cause help protect bone health.

If estrogen is present but ovulation does not occur regularly, the uterine lining may thicken without being shed, increasing the risk of abnormal changes over time. This applies only when a uterus and responsive lining are present.

An untreated outflow obstruction can cause trapped blood, worsening pelvic pain, urinary symptoms, or infection. Some genetic or endocrine conditions affect other organs. Turner syndrome, for example, can be associated with heart, blood pressure, thyroid, hearing, and kidney concerns requiring specific follow-up.

Absent periods or unexpected findings about anatomy and puberty can also affect mood, body image, relationships, and identity. A qualified mental health professional or peer support

organization may help.

Follow up

Follow-up may include monitoring growth, puberty, menstrual bleeding, nutrition, hormone levels, treatment effects, and bone health. Record pelvic pain, spotting, headaches, nipple discharge, and other changing symptoms. Bring an updated list of medicines and supplements to appointments.

Arrange a routine appointment if periods have not started by age 15, more than three years have passed since breast development began, breast development has not started by age 13, or puberty appears to have stopped.

Contact a clinician promptly for new headaches, vision changes, milky nipple discharge, hot flashes, rapidly increasing facial hair, a deepening voice, or worsening pelvic symptoms.

Seek urgent or emergency care for:

These symptoms do not indicate one specific diagnosis but require timely assessment.

- Severe or rapidly worsening abdominal or pelvic pain
- Pelvic pain with repeated vomiting, fainting, or marked weakness
- Inability to urinate with lower abdominal swelling or pain
- A sudden severe headache, major vision loss, confusion, or loss of consciousness
- Severe symptoms during a possible pregnancy, especially pain, bleeding, dizziness, or fainting

Sources

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