

Puberty changes explained teens



What puberty is and why it starts

Puberty begins when the brain increases pulsatile release of gonadotropin-releasing hormone, often called GnRH. GnRH signals the pituitary gland to release luteinizing hormone and follicle-stimulating hormone, abbreviated LH and FSH. These hormones stimulate the ovaries or testes to produce sex steroids, mainly estrogen and progesterone from ovaries and testosterone from testes, although all bodies make some of each hormone.

These hormonal signals cause the visible and internal changes of puberty: growth acceleration, maturation of the reproductive organs, changes in fat and muscle distribution, development of body hair, and eventually fertility. The adrenal glands also increase production of androgens, which contribute to pubic and underarm hair, body odor, and acne.

Timing varies. Many females begin between about 8 and 13 years, and many males begin between about 9 and 14 years. Some changes may start earlier in the brain and hormone system before they are obvious on the outside. Genetics, nutrition, chronic illness, stress, sleep, body composition, and overall health can all influence timing. Being earlier or later than friends does not automatically mean anything is wrong, but it can feel emotionally difficult.

Common changes for teens with ovaries

For many teens with ovaries, one of the earliest visible signs is breast budding, a small tender lump under one or both nipples. The areola, the darker area around the nipple, may enlarge. Breasts often grow unevenly at first; asymmetry is common during development and may persist mildly into adulthood. Tenderness, itching, or aching can occur as tissue grows.

Pubic hair usually appears after breast budding, although the order can vary. Hair may start soft and sparse, then become darker, coarser, and more widespread. Underarm hair and increased sweating often follow. Hips may broaden, body fat distribution may shift toward the hips, thighs, and breasts, and a growth spurt often occurs relatively early in puberty.

Menstruation typically begins after several other puberty changes have already started. Early periods are often irregular because ovulation may not occur every cycle at first. Flow can be light or heavier, and cramps can occur when the uterus contracts. A teen should have access to accurate information about pads, tampons, menstrual cups if appropriate, hygiene, pain relief options, and when bleeding patterns need medical review. Severe pain, fainting, soaking products very rapidly, or periods that interfere with school or daily life deserve professional assessment rather than being dismissed as simply normal.

Common changes for teens with testes

For many teens with testes, the first physical sign is enlargement of the testicles and scrotum. The penis grows later, first in length and then in width for many people. The scrotal skin may become darker or more textured. Pubic hair develops gradually, followed by underarm and facial hair for many teens, though facial hair timing varies widely.

Testosterone supports increases in muscle mass, shoulder broadening, and changes in body composition. A growth spurt often occurs later than it does for many teens with ovaries, which can make some boys feel temporarily shorter than classmates before they catch up. Voice deepening happens as the larynx grows and vocal cords lengthen; during this transition the voice may crack or shift unpredictably. This is a normal mechanical effect of changing vocal structures,

not a sign of doing anything wrong.

Erections may happen more often and sometimes without sexual thoughts. Nocturnal emissions, sometimes called wet dreams, can occur when semen is released during sleep. These are normal physiologic events. Testicular self-awareness is also important: knowing what one's own body usually feels like can help a teen notice new pain, swelling, or a lump. Sudden testicular pain is urgent and should be evaluated promptly because some causes need immediate care.

Growth spurts, skin, sweat, and body shape

Puberty growth is not perfectly smooth. Teens may grow quickly for several months, then slow down. Hands, feet, arms, and legs may seem to grow before the trunk catches up, which can make coordination feel temporarily awkward. Appetite may increase because the body needs energy, protein, calcium, iron, vitamin D, and other nutrients for growth, blood volume expansion, bone mineralization, and tissue development.

Sweat glands become more active, and sweat composition changes. Bacteria on the skin break down sweat components, producing body odor. Regular washing, clean clothing, and deodorant or antiperspirant if desired can help. This is hygiene, not a moral issue; odor is a biological change, and every teen deserves practical support without shame.

Acne is common because androgens increase sebum production in hair follicles. Follicles can become blocked, inflamed, and colonized by skin bacteria. Gentle cleansing and non-comedogenic skin products may help, but harsh scrubbing can worsen irritation. Persistent, painful, cystic, or scarring acne should be discussed with a healthcare professional because effective treatments exist and early care can reduce scarring.

Body shape changes can affect self-esteem. Some teens gain fat before a height spurt; others look leaner as they grow taller. Comparing bodies is rarely useful because puberty timing can differ by years. If concerns about weight, eating, exercise, or body image become intense, secretive, or distressing, it is important to involve a trusted adult and clinician.

Brain, emotions, identity, and relationships

Puberty is not only physical. The adolescent brain is developing rapidly, especially systems involved in reward, emotion, sleep timing, impulse control, and long-term planning. This can make feelings seem bigger and more changeable. A teen may want more independence while still needing reassurance, structure, and protection.

It is common to feel self-conscious about body changes, privacy, clothing, smell, menstruation, erections, acne, or being earlier or later than peers. Mood swings can reflect hormone shifts, sleep changes, social stress, academic pressure, and brain development. However, persistent sadness, panic, hopelessness, self-harm thoughts, major behavior changes, or loss of interest in usual activities are not something to handle alone. They deserve prompt support from a trusted adult and mental health or medical professional.

Puberty also brings new questions about attraction, gender, boundaries, consent, and personal values. Teens may need medically accurate information, not fear-based messages. Supportive adults can help by using correct body-part names, answering questions calmly, respecting privacy, and making it clear that safety and consent matter in every relationship. Confidential healthcare visits can be especially helpful, because teens may ask questions they are embarrassed to raise at home.

Tanner stages and why they are not a race

Clinicians often describe pubertal development using Tanner stages, a scale from stage 1, meaning prepubertal, to stage 5, meaning adult physical maturity. Tanner staging may consider breast development, genital development, and pubic hair pattern. It is a clinical tool, not a competition or a rating of attractiveness, maturity, or worth.

The stages help healthcare professionals assess whether puberty is progressing in an expected sequence and pace. For example, a clinician may consider whether breast development began unusually early, whether testicular enlargement has not begun by the expected age range, or whether growth velocity has slowed unexpectedly. They may also consider family history, chronic conditions, medications, nutrition, and symptoms such as headaches, vision changes,

abdominal pain, or extreme fatigue.

Teens should not try to assign themselves a Tanner stage from internet images. Bodies vary, and self-comparison can create unnecessary anxiety. If a teen is worried about timing, height, genital development, breast development, menstruation, body hair, or any other change, a pediatrician, adolescent medicine clinician, family doctor, or endocrinologist can provide a respectful assessment.

Taking care of a changing body

Basic care during puberty is simple but powerful. Sleep is essential because growth hormone secretion, learning, emotional regulation, and immune function are linked to healthy sleep patterns. Many teens naturally feel sleepy later at night, but school schedules may require planning: consistent wake times, reduced late-night screens, and a calming bedtime routine can help.

Nutrition should support growth rather than focus on restriction or appearance. Regular meals and snacks with carbohydrates, protein, fats, fruits, vegetables, and calcium-rich foods help fuel the body. Menstruating teens may need attention to iron intake, especially with heavy periods. Active teens may need more energy than they realize.

Hygiene needs may change. Showering after sweating, changing underwear daily, washing menstrual products correctly if reusable, using clean razors if shaving, and avoiding shared razors can reduce irritation and infection risk. For genital hygiene, gentle external washing is usually enough; internal vaginal washing or douching can disrupt the normal microbiome. Any persistent itching, unusual discharge, sores, strong pain, or urinary symptoms should be checked.

Most importantly, teens should know they can ask questions. Puberty is normal, but that does not mean every concern must be ignored. A supportive adult and a healthcare professional can help separate normal variation from issues needing care.