

Puberty: Normal, Early, and Late Development

Puberty is the time when your child goes through many types of changes: physical, sexual, intellectual, emotional, and social. Certain diseases can cause puberty to occur early (“precocious” puberty) or late (“delayed” puberty). In healthy children, the timing of puberty varies widely. Monitoring your child’s development is a key part of your child’s medical care during the middle childhood to early teen years.

What is normal puberty?

Puberty is the period of life during which boys and girls start undergoing the bodily changes that will make them men and women. These changes are caused by increased levels of sex hormones. They include growth of pubic and underarm hair, enlargement of the testicles in boys, and development of the breasts in girls. Children also go through many intellectual, emotional, and social changes during puberty.

Puberty generally occurs between the ages of 10 and 12—a little sooner in girls and a little later in boys. Actually, the hormone changes that eventually lead to puberty begin much earlier in childhood.

Parents are sometimes concerned that their child is going through puberty too early or too late. It’s true that there are some medical causes of precocious (too early) or delayed (too late) puberty. However, these are uncommon. Chances are your child is going through puberty at the time that’s right for him or her. Your child’s doctor will check your child’s physical development at each visit.

What does it look like?

- *Sexual development.* Your child’s sex organs will begin to grow and mature into their adult form:
 - In girls, breast buds and pubic hair can start to develop anywhere between ages 8 and 13. Menstrual periods start a little later, usually between 9 and 16 years.
 - In boys, the testicles begin to enlarge by about 10 years of age; the process may begin as early as 9 years. Pubic hair may start to develop around this time or a little later. Many boys develop slight enlargement of the breasts, but this usually goes away with time.
 - Both boys and girls become more interested in sex and relationships. Masturbation and sexual fantasies are common and normal. Boys often have their first ejaculation while asleep (“wet dream”) and may worry that it’s abnormal.

- *Physical development.* Both boys and girls begin to grow rapidly. Girls start growing faster in the early part of puberty, while boys grow faster in the later part. The peak “growth spurt” usually occurs 2 or 3 years later in boys than in girls. In addition, boys generally continue growing for 2 to 3 years after girls have stopped.
 - Growth may occur unevenly, giving your child a “gawky” appearance. Other changes may make your child feel awkward as well, such as sudden changes or “cracking” of the voice and acne (the result of hormone changes).
- *Intellectual and social changes.* Puberty has a major impact in practically every area of your child’s development, including intellectual ability, self-esteem, and relationships. It is normal for young teens to be self-conscious about their appearance and to feel that everyone else is noticing them.

What causes early or late puberty?

- Parents and children are sometimes concerned that they are going through puberty too early or too late. The timing of puberty varies widely.
- Several medical conditions can cause puberty to occur early or late. All, in one way or another, have to do with the production or effects of hormones. Most of these conditions are uncommon.
- *Early (precocious) puberty.* There are many possible causes of early puberty. Early puberty is much more common in girls than boys. In 90% of girls with precocious puberty, no specific cause is detected. Whether the cause is known or not, specific hormone-blocking drugs can be used to treat precocious puberty if it is severe enough.
 - Usually no specific cause (“idiopathic”).
 - Certain tumors of the ovaries, adrenal glands, or brain.
 - Rare syndromes or genetic diseases.
 - Certain medications.
- *Late (delayed) puberty.* Delayed puberty may occur in children with certain growth disorders. Other possible causes include:
 - Hard physical training (in girls).
 - Chronic diseases (such as cystic fibrosis or sickle cell disease).
 - Certain syndromes and genetic diseases (such as Turner’s syndrome in girls).

What are some possible complications of early or late puberty?

- Even when no specific cause is detected, treatment is available for most children with early or late puberty if needed. Complications are uncommon.
- If not detected and treated early enough, late puberty may lead to reduced final height.
- Some children experience psychological effects related to early or late puberty. Visits to a psychologist can be helpful.

How are early and late puberty treated?

- Your child's doctor will monitor his or her physical development at each medical visit. Although parents are often concerned about the timing of their child's puberty, problems that need treatment are uncommon. Your child may simply be reaching puberty a little ahead of or behind other children of the same age.
- Even if early or delayed puberty is not medically abnormal, it may be a source of embarrassment to your child. It may help your child to know that puberty and adolescence are awkward periods for nearly everyone and that he or she is just a little ahead of or behind other kids of the same age.

- If there is any reason to suspect a medical cause of early or delayed puberty, we will probably recommend a visit to an endocrinologist (a doctor specializing in the treatment of gland and hormone diseases). This specialist can perform tests and recommend treatments designed to slow (or less commonly, speed up) the process of puberty. Treatment usually consists of hormone-blocking drugs (for early puberty) or hormones (for delayed puberty).
- If a tumor or other specific cause is identified, treating that problem will likely help. However, serious medical problems are unlikely.

When should I call your office?

Call our office if:

- You and your child have questions about the normal changes of puberty.
- Worries about early or delayed puberty are making your child anxious.
- Your child seems to be developing typical changes of puberty (for example, breast buds, pubic and underarm hair) at an early age:
 - Before age 8 for girls.
 - Before age 9 for boys.
- Your child's growth and maturation seem far behind those of other children of the same age.