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## Delayed puberty in boys

Delayed puberty in boys is when puberty does not begin by 14 years of age.

When puberty is delayed, these changes either don't occur or don't progress normally. Delayed puberty is more common in boys than in girls.

### Causes

In most cases, delayed puberty is simply a matter of growth changes beginning later than usual, sometimes called late bloomer. Once puberty begins, it progresses normally. This is called constitutional delayed puberty, and it runs in families. This is the most common cause of late maturity.

Delayed puberty also may occur when the testes produce too little or no male hormones. This is called hypogonadism.

This can occur when the testes are damaged or are not developing as they should.

It can also occur if there's a problem in parts of the brain involved in puberty.

Certain medical conditions or treatments can lead to hypogonadism:

- Celiac disease
- Inflammatory bowel disease (IBD)
- Underactive thyroid gland
- Diabetes mellitus
- Cystic fibrosis
- Sickle cell disease
- Liver and kidney disease
- Anorexia nervosa (uncommon in boys)
- Autoimmune diseases, such as Hashimoto thyroiditis or Addison disease
- Chemotherapy or radiation cancer treatment
- A tumor in the pituitary gland
- Klinefelter syndrome, a genetic disorder

- Absence of testes at birth (anorchia)
- Injury or trauma to the testicles due to testicular torsion

## Symptoms

Boys begin puberty between ages 9 and 14 and complete it in 3.5 to 4 years.

Puberty changes occur when the body starts making male sex hormones. The following changes normally begin to appear in boys between ages 9 to 14:

- Testicles and penis get bigger
- Hair grows on the face, chest, legs, arms, other body parts, and around the genitals
- Height and weight increase
- Voice gets deeper

When puberty is delayed:

- Testicles are smaller than 1 inch by age 14
- Penis is small and immature by age 13
- There is very little body hair or almost none by age 15
- Voice remains high-pitched
- Body stays short and thin
- Fat deposits may occur around the hips, pelvis, abdomen, and breasts

Delayed puberty may also cause stress in the child.

## Exams and Tests

Your child's health care provider will take a family history to know if delayed puberty runs in the family. The provider will perform a physical exam. Tests may include:

- Blood test to check for levels of certain growth hormones, sex hormones, and thyroid hormones
- LH response to GnRH blood test
- Chromosomal analysis or other genetic testing
- MRI of head for tumors
- Ultrasound of the pelvis or testicles

An x-ray of the left hand and wrist to evaluate bone age may be obtained at the initial visit to see if the bones are maturing. It may be repeated over time, if needed.

## Treatment

The treatment will depend on the cause of delayed puberty.

If there is a family history of late puberty, often no treatment is needed. In time, puberty will begin on its own.

If delayed puberty is due to a disease, such as underactive thyroid gland, treating it may help puberty to develop normally.

Hormone therapy may help start puberty if:

- Puberty fails to develop
- The child is very distressed because of the delay

The provider will give a shot (injection) of testosterone (male sex hormone) in the muscle every 4 weeks. Growth changes will be monitored. The provider will increase the dose slowly until puberty is reached.

## **Support Groups**

More information and support to understand more about your child's growth can be found at:

The MAGIC Foundation - [www.magicfoundation.org](http://www.magicfoundation.org) [<https://www.magicfoundation.org>]

## **Outlook (Prognosis)**

Delayed puberty that runs in the family will resolve itself.

Treatment with male sex hormones can trigger puberty. Hormones can also be given if needed to improve fertility.

## **Possible Complications**

A low level of sex hormones may cause:

- Erection problems (impotence)
- Infertility
- Low bone density and fractures later in life (osteoporosis)
- Weakness

## **When to Contact a Medical Professional**

Contact your provider if:

- Your child shows a slow growth rate
- Puberty does not begin by 14 years of age
- Puberty begins, but does not progress normally

A referral to a pediatric endocrinologist may be recommended for boys with delayed puberty.

## **Alternative Names**

Delayed sexual development - boys; Pubertal delay - boys; Hypogonadism

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