



PATIENT RESOURCE

PRECOCIOUS PUBERTY

Puberty is when kids go through the changes in their body that lead to reproductive maturity. Puberty is regulated by certain parts of the brain. These specific parts of the brain send signals that tell the body to start releasing hormones (LH and FSH). These hormones signal to the ovaries to start producing estrogen and to the testicles to start producing testosterone. Higher levels of estrogen and testosterone in the body cause the physical changes that lead to the differences between men and women. These hormones start to create puberty changes in the body.

WHAT IS PRECOCIOUS PUBERTY?

- Normally, for most girls, puberty starts between the ages of 8 and 13 years. Boys usually start puberty between the ages of 9 to 14 years. Puberty is precocious if it starts before age 8 in girls or age 9 in boys.
- Precocious puberty, or early puberty, is when a child's body starts true puberty at an early age.
- There are many reasons why some children may start puberty early. Some children are simply ready to start puberty before other children are ready, which can be normal. Other times, early puberty changes can be a sign that they have a health problem that needs to be treated. For girls, this leads to breast development, for boys it leads to testicular enlargement. For both sexes, pubic hair, body odor and arm pit hair are NOT signs of true puberty.

HOW IS PRECOCIOUS PUBERTY DIAGNOSED?

The first step is to have your child seen by their doctor/pediatrician to determine if and how far they are in puberty. If needed, then your child will be referred to a pediatric endocrinologist who treats hormone conditions in children.

WATCHING AND CHECKING OVER TIME

For girls who start breast growth on both sides between ages 7 and 8, the doctor may choose to watch and check your child every 4-6 months instead of doing tests right away unless the doctor thinks there may be another medical cause.

WHAT DO PUBERTY CHANGES LOOK LIKE?



GIRLS (FEMALE SEX)

- BREASTS GET BIGGER
- VAGINAL DISCHARGE
- MENSTRUAL PERIODS START
- GROWTH OF PUBIC AND UNDERARM HAIR
- GROWTH SPURT



BOYS (MALE SEX)

- TESTICLES AND PENIS GET BIGGER
- VOICE DEEPENS
- GROWTH OF PUBIC, UNDERARM, AND FACIAL HAIR
- GROWTH SPURT

TEST AND EXAMS THAT MAY BE DONE



MEDICAL HISTORY

The doctor will ask questions about your child's growth, development, and family history.



GROWTH MEASUREMENTS

Height and weight will be measured. If past measurements are available, the doctor will use these to see how fast your child is growing, which is also called "growth velocity."



HAND AND WRIST X-RAY, WHICH IS ALSO CALLED A "BONE AGE"

This will show how mature your child's bones are. In precocious puberty, the bones often look older than your child's actual age.



BLOOD TESTS

Hormone levels, especially luteinizing hormone (or LH), can be measured.



HORMONE STIMULATION TEST

If blood test results are not clear but signs of early puberty are strong, the doctor may order a special test using gonadotropin releasing hormone (GnRH) or a similar medicine.



IMAGING TESTS

Brain MRI

An MRI of the brain and hormone gland (pituitary) may be done in some cases.

- For girls ages 6–8 and boys ages 8–9 with central precocious puberty and no brain symptoms, an MRI is not usually needed.
- An MRI is done for younger children or for children of any age who have symptoms like headaches, seizures, vision problems, or other nervous system concerns.

Ultrasound Exams

Some children may have special imaging tests:

- Girls: ultrasound of the ovaries and uterus
- Boys: ultrasound of the testes



GENETIC TESTS

Genetic tests are not routine. These tests are usually not needed. They may be discussed if precocious puberty runs in the family, and only after careful discussion with the family.

WHICH IS THE TREATMENT USED FOR CENTRAL PRECOCIOUS PUBERTY?

These medicines come in the form of a shot or an implant. Shots can be given monthly, every 3 months, or every 6 months. The shot is given in the gluteal muscle (buttocks), and the implant is placed under the skin on the upper arm. They both work by stopping the pituitary gland from releasing puberty hormones.

In children with central precocious puberty who will use a long-acting gonadotropin-releasing hormone agonist in the long term, it is currently recommended to start therapy with the long-acting gonadotropin-releasing hormone agonist preparation rather than initiating therapy with a monthly gonadotropin-releasing hormone agonist. As the choice of the treatment to be used will be part of a shared decision-making process with the families, patients and families who anticipate using monthly GnRH agonist preparations in the long term should begin with a monthly GnRH agonist preparation. GnRH agonist treatment works best when shots are given on time every dose and the person giving the injections does it correctly. The shots and implant are typically done at the doctor's office.

WILL YOUR CHILD ALWAYS RECEIVE TREATMENT AND FOR HOW LONG?

Not all children with central precocious puberty need treatment. Many children do benefit from treatment, but some children may not need it if it will not help them.

When Treatment May Not Be Needed

If puberty starts early but changes happen slowly, treatment may not add much benefit. This may be true for:

- Girls ages 7 to 8 whose puberty is slowly progressing
- Girls or boys who are already near their growth spurt, based on their bone age.

In these cases, careful monitoring may be enough.

When Treatment Is Recommended

If a child starts puberty early and progresses quickly, treatment is usually recommended. Treatment can help:

- Protect adult height
- Prevent girls from starting menstrual periods at a very young age
- Prevent boys from developing masculinizing changes

Deciding on Treatment

Treatment is always discussed with parents and families. The decision is made together with the doctor, based on the child's growth, development, and overall health.

Other Important Points

- Adding growth hormone treatment to GnRH agonist treatment is not usually recommended.
- Treatment for central precocious puberty does not usually continue past:
 - Age 10–11 in girls
 - Age 11–12 in boys
 - Or when bone age reaches about 11-12 years in girls or 12-13 years in boys

Longer Treatment in Special Cases

In some children, treatment may last longer. This is decided on an individual basis and may depend on:



How the child is growing



Emotional or social concerns



Developmental or learning delay

Possible Side Effects

Most children have few side effects from treatment. The most common side effect is a reaction where the shot is given, such as redness, swelling, or soreness. Some girls may have vaginal bleeding after starting treatment. This usually happens only once, often after the first shot. Headaches are also reported but generally subside after initiation of therapy.

HOW IS PUBERTY SUPPRESSION MONITORED DURING TREATMENT?

Blood tests to check hormone levels are not usually needed during treatment.

Instead, the doctor will regularly check your child by doing:

- Growth measurements to see how fast your child is growing
- Puberty exams, also called Tanner staging
- Bone age X-rays, usually once a year

These checks are usually done every 6 months.