

# MAGIC NZ

Supporting Children with Growth Disorders  
and their Families



[www.magicnz.org.nz](http://www.magicnz.org.nz)

## *Precocious Puberty*

### **Normal Puberty**

Puberty is the time when children begin to develop physically and emotionally into young men and women. There is a wide range of ages at which individuals normally start puberty.

Girls usually develop breasts and then pubic hair between the ages of 8 and 13 years. Menstrual periods typically start at 12 to 13 years of age. Girls will often experience moodiness and become more irritable during puberty.

Boys normally develop testicular enlargement and then pubic hair between the ages of 9 and 14 years. Underarm and facial hair, as well as deepening of the voice, typically occur between the ages of 13 and 16 years.

### **Precocious Puberty**

Precocious puberty means having signs of puberty (e.g., pubic hair or breast development) at an earlier age than usual - before age 8 in girls and age 9 in boys. The signs of the condition include:

- the development of breasts, pubic or underarm hair or the onset of menstruation in girls
- the appearance of pubic, underarm or facial hair, a deepening of the voice, or enlargement of the penis or testicles in boys
- rapid growth, "mature" body odour or the onset of acne may also occur in both girls and boys.

### **Causes of Precocious Puberty**

The onset of puberty is normally triggered by the pituitary gland (a pea-sized gland near the base of the brain). In some instances, the pituitary gland signals the ovaries and testicles to make female and male hormones at an earlier than usual time. In other cases, signs of puberty occur prematurely because of abnormalities in the ovaries, testicles or adrenal glands. In by far the majority of cases of precocious puberty, the cause is unknown.

Occasionally, a structural problem in the brain (such as a tumour), head trauma or problem in the ovaries triggers the onset of puberty ahead of schedule, but this usually isn't the case. The condition can also accompany untreated hypothyroidism (a condition in which the thyroid is underactive – refer to The MAGIC Foundation brochures on hypothyroidism).

In boys, the condition is less common. About 5% of boys with precocious puberty have inherited the condition from their father or maternal grandfather (through the mother who will not be affected by the disorder). Less than 1% of girls affected by precocious puberty have inherited the condition.

### **Diagnosis and Testing**

Tests are usually necessary to confirm a diagnosis of precocious puberty and to determine whether the cause is in the brain or in another area of the body.

The physical changes boys and girls go through during puberty are usually evident to a doctor during an examination. Your child's doctor is very likely to order blood tests to detect elevated levels of sex hormones and an x-ray of the wrist and hand to show whether the bones are maturing too rapidly.

Imaging and scanning tests such as CT scans and MRIs (magnetic resonance imaging) can help rule out specific causes of precocious puberty, such as a tumour in the pituitary gland, hypothalamus, brain, ovary or testicle.

## **Treatment**

If your child's doctor determines that treatment is necessary, your child may receive a medication (analog or modified form of GnRH). The goals of treatment with this drug are to temporarily stop puberty and to decrease the rate of bone maturation.

After the first couple of months of treatment, your child's rapid growth should slow and his or her pubertal stage will remain the same or possibly regress. Many children are too young to deal with the psychological aspects of early puberty. By stopping further advances, your child may feel more like his or her friends.

GnRH analogs are usually given by injection at intervals of every 3 or 4 weeks. Your local physician or a visiting nurse will most likely give the injection.

Your child will receive medication until it is appropriate for puberty to resume. Research to date indicates that when the treatment is stopped puberty should resume and advance normally.

## **Possible Treatment Side Effects**

During the first 6 weeks of treatment your child may experience some side-effects. Girls may have mood changes, acne, an increase in breast size and menses. Boys may have an increase in pubic hair and testicular development as well as acne. These effects are only temporary and should be controlled by the seventh week of treatment. Other side effects your child may experience include redness and slight pain at the site of the injection. Rarely, a sterile abscess may occur. Use of a filter needle to reconstitute the depot form of the analog will help prevent this.

### **Follow-up Clinic Visits**

It is important for your child to be seen regularly. This will allow the doctor to adjust the GnRH analog dose to ensure that your child is receiving the appropriate amount. Your child's height will be measured in order to determine his or her growth rate. If treatment is successful, your child's growth rate should decrease. A physical exam will be done at each visit to evaluate development. A bone age X-ray will be done at least once a year. Hormone levels occasionally need to be checked.

## **Why is Precocious Puberty a Problem?**

One of the problems with starting puberty at an earlier age is that children also enter a period of rapid growth and weight gain during puberty. When puberty ends, growth stops. Because their skeletons mature and bone growth stops at an earlier age than normal, children with precocious puberty usually don't achieve their full adult height potential. They initially appear to be tall when compared with their peers, but they will stop growing too soon and end up at a shorter height than normal. If untreated, boys typically grow no taller than 1.6 metres (5 feet 4 inches) and girls rarely reach 1.5 metres (5 feet).

Going through puberty early can also be difficult for a child emotionally and socially. For example, girls with precocious puberty may be confused or embarrassed about physical changes such as breast enlargement that may occur well before any of their peers.

## **Helping Your Child**

How you cope with your child's condition can determine how successfully your child will cope. The goal is to prevent your child from developing a poor self-image or low self-esteem or dwelling on sexual development. In order to create a supportive environment, try to focus on your wonderful child as an individual and offer compliments for achievements in school or sports, or praise her/him for participation in other activities.

Due to early puberty, your child may be taller than other children of his/her age. It is important to treat children according to their actual age rather than their size, or apparent age, since children tend to develop self-esteem and behave according to how they are treated. Teachers, relatives and friends should not expect your child to behave more maturely or "better" than other children his/her age just because he/she looks older.

Watch for signs that teasing or other difficulties associated with precocious puberty. This may affect your child's emotional development. Poor grades, problems at school or loss of interest in daily activities may be a sign that you should discuss the situation with a counsellor or doctor.

## QUESTIONS MANY PARENTS HAVE:

### 1) How should I explain this disorder to my child?

Your child may have questions regarding early puberty and its treatment. It is helpful to give your child a simple, truthful explanation about what's happening. Explain that these changes are **normal** but that his/her body has started developing them a little too early. Keep your child informed about their treatment and what can be expected along the way.

### 2) What should we tell friends and relatives?

It is not necessary to tell anyone about your child's problem; however, if they ask about the problem and you wish to discuss this with them, explain that your child is perfectly normal but has started puberty at an earlier than normal age. If your child is receiving injections, you can explain that they are given to temporarily stop puberty, which assists these children in achieving an acceptable adult height.

### 3) What will my child's final adult height be?

Final adult height depends on multiple factors. Parental heights play a significant role in the height of a child. The relationship between bone age and chronological age is also important since excessive skeletal maturation for age provides less time for growth. If puberty was detected at an early stage, your child will have a better chance of reaching his/her expected height. However, if puberty was detected at a later stage, his/her bone age will be more advanced, which will limit the time remaining for growth. Final adult height will be affected, though growth hormone therapy may be used in some cases to alleviate this.

## ADVOCATE FOR YOUR CHILD AND NETWORK

Most importantly, be an advocate for your child. Don't be afraid to ask questions or get a 2nd opinion. Treatment is available to help your child and the appropriate medical care will greatly improve your child's outcome. If you have questions, MAGIC NZ can help by putting you in touch with other families affected by precocious puberty. For further information, please contact your doctor or MAGIC NZ.

For more information visit [www.magicnz.org.nz](http://www.magicnz.org.nz), email [jan@magicnz.org.nz](mailto:jan@magicnz.org.nz)  
or write to MAGIC NZ, PO Box 1493, Wellington.

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