

Understanding Delayed Puberty in Boys

Boys will typically go through puberty as they grow and develop into young adults. Sometimes boys go through puberty later than we expect. This handout will tell you about delayed puberty in boys, how we evaluate and treat delayed puberty and the long-term effects of delayed puberty.

WHAT IS DELAYED PUBERTY?

Delayed puberty is when your son does not show the first signs of puberty by the time he is 14 years old.

WHAT IS NORMAL PUBERTY?

Normal puberty is when children's bodies start to grow and develop into young adult bodies. Boys usually start to go through puberty between the ages of 9-14 years. When your son starts to go through puberty, his gonads (testes) and adrenal glands (glands that sit on top of the kidneys) release hormones. These hormones cause the first signs of puberty, which are an increase in the size of the testes and length of the penis, body odor, underarm hair, pubic hair and acne (pimples). Over time, boys will develop later signs of puberty, such as increased muscle mass, stronger bones, a deeper voice and a growth spurt.

There are 2 types of puberty that make up the entire pubertal process. These are:

- **Adrenal puberty**

This is when the adrenal glands make hormones that cause the first signs of puberty including body odor, underarm hair, pubic hair and acne (pimples).

- **Gonadal puberty**

This is when the pituitary gland (a small gland in the brain that controls other glands in the body) makes hormones (FSH and LH), which tell the testes to increase in size and make testosterone.

WHAT CAUSES DELAYED PUBERTY?

There are 2 types of delayed puberty, which are:

- **Primary hypogonadism**

This is when the testes do not respond to the hormones (FSH and LH) made by the pituitary gland.

- **Secondary hypogonadism**

This is when the pituitary gland does not produce the hormones FSH and LH. This type of delayed puberty might happen very late, but is otherwise normal. It also tends to run in families.

HOW DO WE EVALUATE DELAYED PUBERTY?

Our evaluation of your son's delayed puberty begins with a discussion about your son's signs of puberty and a physical exam. If your son has signs of delayed puberty, we will have him get an X-ray of his left hand and wrist called a **bone age**. A bone age tells us how much his bones have matured. It can also help us figure out much he has left to grow.

Your son might have an early morning blood test to help us measure his hormone levels. Hormones, like testosterone, are at their highest levels first thing in the morning. Additional blood testing done at the same time might include FSH, LH, cortisol, ACTH, thyroid hormone studies, growth factors and a prolactin level. We also do genetic evaluations if they are needed. Depending on the results of the laboratory testing further radiology testing may include a head MRI.

HOW DO WE TREAT DELAYED PUBERTY?

Delayed puberty does not always have to be treated. We treat if your son is bothered by his lack of pubertal signs. We treat delayed puberty by giving your son injections (shots) of testosterone just under the skin once a month. If he doesn't start showing first signs of puberty after having injections for 6-12 months, then we will consider increasing the dose over time.

WHAT IS THE OUTLOOK FOR MY SON'S DELAYED PUBERTY?

Your son will typically do well if he has delayed puberty, but eventually starts showing signs of puberty on his own. Treatment with short-term testosterone injections will not affect his ability to enter puberty on his own. He will reach a normal adult height, have normal bone strength and show all of the physical signs of puberty. His chances of being fertile enough to have children in the future are also normal.

If your son has to have long-term testosterone injections, it might affect his chances of being fertile enough to have children in the future. If this happens, we can give special medications that might help when he reaches an appropriate age to have children.

HOW CAN I HELP MY SON WHO HAS DELAYED PUBERTY?

You can reassure your son that these changes are not different from other children – they are just happening later. Your son might be self-conscious about these later changes. This is an important time to listen and respond to questions and concerns he might have. You should continue to treat your son appropriately for his age and continue to help him with self-esteem.

Rev. 1/2015

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