

Adrenocorticotrophic Hormone (ACTH)

ACTH acts on the adrenal glands (one on top of each kidney) to produce cortisol. Cortisol is a hormone that helps control blood sugar and blood pressure. It helps our bodies cope with stress and illness.

ACTH deficiency can be life-threatening, but is easily treated with proper medical care.

Newborn babies with ACTH deficiency often have problems with low blood sugar. Children who develop ACTH deficiency may:

- feel tired
- be depressed
- have nausea and vomiting
- have no appetite
- recover slowly from illness

ACTH deficiency is diagnosed by a blood test. It is rarely the only pituitary hormone missing. If other pituitary hormones are missing, the doctor will almost always do tests for ACTH deficiency.

The ACTH deficiency can be treated by replacing the missing cortisol with a pill or liquid 2 to 3 times per day for the rest of your child's life. The dose is increased when your child is ill or having surgery with a general anesthetic. It may have to be given by injection if your child is vomiting or has diarrhea.

Prolactin

Prolactin is another hormone released by the anterior pituitary. It stimulates the breasts to make breastmilk after childbirth. Prolactin deficiency is rare. It is usually seen only when there is severe damage to the anterior pituitary. There is no treatment for prolactin deficiency.

Hormones of the posterior pituitary

Antidiuretic Hormone (ADH)

ADH acts upon the kidneys to prevent too much water loss in the urine. ADH deficiency is called diabetes insipidus (DI). While a child can be born with DI, often happens because of surgery on or near the pituitary. DI resulting from surgery may get better after several weeks, but it is often permanent.

Infants with DI may:

- have a lot of wet diapers (pee a lot)
- have trouble gaining weight
- have a fever for no obvious reason
- be irritable
- may drink more

Children with DI may:

- pee (pass water) a lot
- be very thirsty and drink a lot
- start wetting the bed at night

Infants and young children with DI just can't drink enough to satisfy their thirst. This puts them at more risk for dehydration. Children with DI must always be allowed to drink enough water to satisfy their thirst.

Children with DI can replace the missing ADH with a synthetic form called desmopressin (DDAVP®). DDAVP® can be given as a spray, pill, or an injection. Speak with your endocrinologist about the best method for your child.

Oxytocin

Oxytocin is the other hormone released by the posterior pituitary. Oxytocin is released around the time of childbirth. It causes the uterus to contract, which helps prevent too much bleeding after childbirth. Women are routinely given synthetic oxytocin in hospitals after giving birth.

health information

Hypopituitarism in Children

What is hypopituitarism?

Hypopituitarism is when one or more of the pituitary hormones are missing or the amount is decreased. The pituitary gland is found at the base of the brain. It is sometimes called the **master gland** because its hormones control the function of many other glands in the body. It is made up of the anterior pituitary and the posterior pituitary.

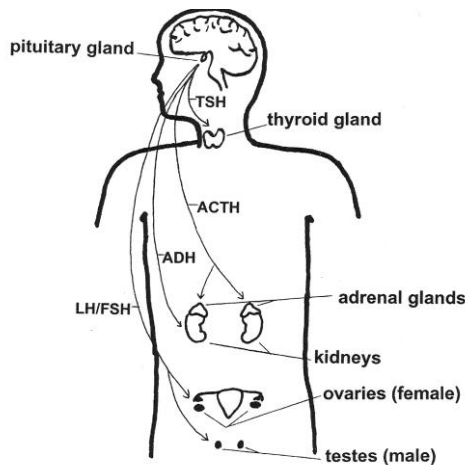
What causes hypopituitarism?

Hypopituitarism can be **congenital**, meaning your child was born with it, or **acquired**, which means it developed after birth. Congenital hypopituitarism usually happens because of missing or malformed structures in the middle of the brain.

Causes of acquired hypopituitarism include:

- a tumour
- brain surgery
- infection
- certain diseases
- head injury
- iron overload
- radiation treatment

Sometimes hypopituitarism is idiopathic, meaning the cause is not known. Panhypopituitarism is when two or more hormones from the anterior or posterior pituitary are missing.



Hormones of the anterior pituitary

Growth Hormone (GH)

GH is the most common pituitary hormone deficiency in children. It may be the only pituitary hormone affected. The reason is not always known. Infants with GH deficiency at birth often have low blood sugar. Children who develop GH deficiency later usually do not grow well and may appear younger than other children their age.

GH helps the body grow. It also:

- converts fat to muscle
- helps control blood sugar
- maintains muscle strength
- maintains heart health
- promotes bone health
- control of cholesterol

The endocrine doctor can diagnose GH deficiency by:

- taking a history and doing a check-up
- doing x-rays to check how mature the bones are
- measuring your child's height and weight at least two times over time
- doing an MRI or CT of the brain to look at the pituitary gland
- doing a blood test called a GH Stimulation test

GH deficiency is treated with an injection of synthetic (man-made) GH, usually 6 to 7 days per week. Children taking GH as prescribed can expect to grow as they would have without having hypopituitarism.

Luteinizing Hormone (LH)/Follicle Stimulating Hormone (FSH)

LH and FSH act on the ovaries in girls to produce estrogen, progesterone, and eggs. In boys they act on the testes to produce testosterone and sperm. Newborn boys with **congenital** absence of LH and FSH may have a very small penis and undescended testes. This can be an important

clue that the doctor might need to check the baby's pituitary function.

When children have LH and FSH deficiency, they may not start puberty. If puberty has started, it may stop. A blood test can be done to find out if the LH and FSH levels are normal.

If these hormones aren't there, they do not need to be replaced until the child is ready to start puberty.

Adolescent girls who are missing LH and FSH can take estrogen and progesterone as a pill once a day. Adolescent boys who are missing LH and FSH can take testosterone by injection once every 2 to 4 weeks.

Thyroid Stimulating Hormone (TSH)

TSH acts on the thyroid gland to produce thyroid hormone. TSH deficiency results in a shortage of thyroid hormone (hypothyroidism). Thyroid hormone controls metabolism, growth, and brain development. Newborn babies with TSH deficiency may have prolonged jaundice at birth. TSH deficiency can be diagnosed by a blood test.

Children with TSH deficiency may:

- not grow well
- feel cold
- be tired and sleep more
- have dry skin and coarse hair
- gain weight, even though they aren't eating much
- be constipated

People with TSH deficiency need to replace the missing thyroid hormone with a pill, taken every day for life.