

A GUIDE TO GROWTH HORMONE DEFICIENCY



WHAT IS GROWTH HORMONE DEFICIENCY?

Growth hormone deficiency is a condition that occurs if your pituitary gland doesn't produce enough growth hormone. Growth hormone is a hormone that promotes growth in children and helps maintain typical body structure in adults. It also plays a role in metabolism.

The pea-sized pituitary gland sits at the base of the brain and is responsible for releasing hormones that control many different body processes. If the pituitary gland is damaged, some or all of these hormones, including growth hormone, can be deficient.

Damage to the pituitary gland can occur due to the following:

- Pituitary tumours
- Tumours of the hypothalamus (a part of the brain that helps control the release of hormones from the pituitary gland)
- Damage to the pituitary or hypothalamus after surgery or radiotherapy
- Brain injury
- A bleed in the brain
- Infections in the brain or nervous system.

Growth hormone deficiency can be diagnosed in childhood or start in adulthood.

In children, it can be due to:

- Unable to produce or respond to growth hormone from birth
- Abnormal development of the pituitary gland
- Structural brain or skull defects that are present since birth.

Treatment options include growth hormone medication to restore normal levels.

HOW COMMON IS GROWTH HORMONE DEFICIENCY?

Growth hormone deficiency affects around two to three per 10,000 people.

WHAT ARE THE SIGNS AND SYMPTOMS?

Growth hormone deficiency affects adults and children differently.

Growth Hormone Deficiency in Adults:

- Increased body fat
- Increased risk of heart disease
- Reduced muscle mass and strength
- Reduced bone mineralisation
- Low energy/lethargy
- Decreased sweating
- Anxiety and depression
- Poor concentration and memory
- Sleep problems
- Thin, dry skin

Growth Hormone Deficiency in Children:

The main sign is slow height growth (around 3.5cm) each year after the child's third birthday. This results in short stature (when a child is below the fifth percentile compared to other children of the same age and sex).

Children may also have:

- A young-looking face for their age
- Impaired hair growth
- Delayed puberty
- Headaches.

Children can develop hypopituitarism later in life.

DIAGNOSIS

Growth hormone deficiency is usually diagnosed with a combination of the following investigations listed below. A paediatric or adult endocrinologist will need to be involved in making the diagnosis:

- **Physical exam** – to measure height, weight, arm and leg lengths
- **Blood tests** – to measure levels of other hormones related to growth hormone levels as well as other pituitary hormones
- **Stimulation testing** – these specialised tests take a few hours to perform but are necessary to establish a diagnosis for purposes of obtaining growth hormone replacement therapy on PBS. Most commonly these include one of the following tests: Glucagon Stimulation Test or Insulin Tolerance Test. Both tests are designed to stress the pituitary and cause an increase in growth hormone levels (in normal individuals).
- **Scans** – a magnetic resonance imaging (MRI) or computerised tomography (CT) scan can help find any underlying disorder by revealing abnormalities of the hypothalamus or the pituitary glands.

TREATMENT

Treatment aims to:

- Replace growth hormone
- Reduce physical symptoms
- Improve the person's quality of life
- Improve the person's metabolic health.

Treatment for growth hormone deficiency involves either a daily or weekly injection of synthetic growth hormone. You typically inject the hormone into the layer of fat under the skin on the stomach.

Your specific dose will depend on your unique health needs, age, sex and other medications. Your endocrinologist is the best person to talk to about this.

In Australia, there are strict rules about who is eligible for ongoing access to growth hormone therapy through the Pharmaceutical Benefits Scheme (PBS). This medication is for children with growth hormone deficiency and adults with severe growth hormone deficiency.

Usually, your specialist needs to submit a written application demonstrating you need this medication. You may also need specific tests to prove your eligibility.

You may also need other hormone replacement medications if you have other hormone deficiencies. Your doctor can guide you on this.

ONGOING MANAGEMENT

Your doctor will then monitor your hormone levels and adjust your dose when needed to keep the levels in a normal range and avoid side effects. Side effects are uncommon when growth hormone is replaced within a normal range. Excessive growth hormone replacement can lead to:

- Swelling
- Joint or muscle pain
- Increased blood pressure
- Carpal tunnel syndrome (numb, weak or painful hands or wrists)

Often, these side effects will reduce when you reduce your dose. Your doctor will see you every six to 12 months to monitor your symptoms and hormone levels.

COMMON QUESTIONS

How long do I need to take growth hormone therapy?

Everyone is different. Some children may only need to take medication until they reach their full height potential. Some adults may need to take it for life if they feel they are getting benefits from it. Your doctor is the best person to talk to about this.

How quickly will my symptoms improve?

Usually, you can notice improvements a few weeks to months after starting medication. It can take a year to see the full benefits.

Are there any other forms of growth hormone therapy besides injections?

Other forms, such as tablet forms, are not currently available.

Is growth hormone deficiency inherited?

We still don't know. Research to find a genetic cause is ongoing.

MORE INFORMATION

The Australian Pituitary Foundation provides social support for patients and carers, and has published a range of patient resources on pituitary conditions and treatments.

For more information, please visit our website: www.pituitary.asn.au

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REFERENCES

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Acknowledgement – We are grateful to the members of the Australian Pituitary Foundation for reviewing this information.

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