National University Hospital

NUHS National University Health System | National University Centre for Women & Children

Growth Hormone Therapy

What is growth hormone?

Growth hormone (GH) is a natural protein made by the pituitary gland in the brain that helps children grow taller.

Who needs growth hormone therapy?

Your child's doctor may recommend GH therapy for:

1. Growth hormone deficiency
2. Turner's syndrome / *SHOX* mutations
3. Chronic renal failure
4. Prader Willi syndrome
5. Noonan syndrome
6. Small for gestation age
7. Idiopathic short stature*

*Growth hormone (GH) was approved by the US FDA for use in treatment of Idiopathic Short Stature in 2003. However, research suggests that there are only modest height gains with both short- and long-term GH therapy.

How long does growth hormone therapy last?

GH therapy usually continues until bones strop growing, typically at bone age 14 for girls and 16 for boys.

What are the common side effects of growth hormone therapy?

- **Fluid retention**
  May cause headaches, vomiting, high blood pressure, or swollen feet. These symptoms generally resolve when GH therapy is stopped.

- **Risk of diabetes**
  Growth hormone can result in insulin resistance thus increasing the risk of developing type 2 diabetes. This is usually reversible when therapy is stopped.

- **Risk of scoliosis**
  May worsen existing spine issues. Close monitoring of the scoliosis is important, and GH will be stopped if there is worsening of the spinal curvature.

- **Hip problems such as Slipped Upper Femoral Epiphysis (SCFE) or Avascular Necrosis (AVN), presenting with hip pain.**
  Fast growth from growth hormone can cause hip issues. Your child may experience knee or hip pain and walk with a limp.

- **Increase in size of naevi (moles)**

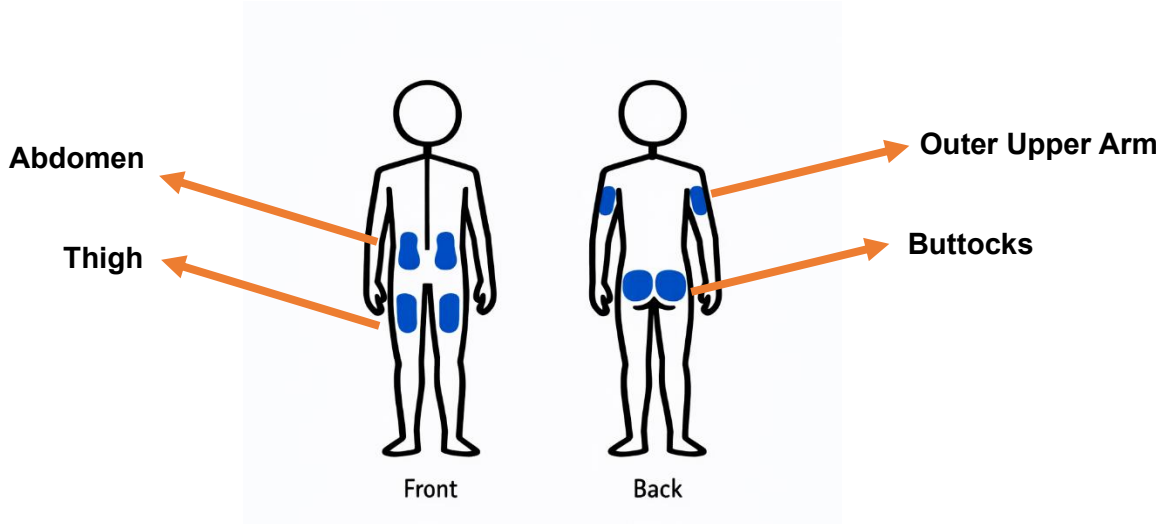
- **Risk of obstructive sleep apnoea**
  Particularly in children with Prader-Willi syndrome. A sleep study will be performed before initiation of growth hormone therapy.

- **Risk of cancer**
  Adults with growth hormone secreting tumours are at higher risk of breast and colon cancer, though there is no association with leukaemia. However, most studies have not conclusively established that GH therapy in children is associated with an increased risk of cancer in the future.

The chances of your child developing any permanent side effects from GH therapy are generally low. Consider the risks and benefits of GH therapy before deciding to start your child on GH therapy. Regular check-ups during therapy are important to monitor and address any problems.

Growth Hormone Administration
Patients and their caregivers will attend a teaching clinic with the Paediatric Endocrine Nurse before starting growth hormone therapy. During this session, you will learn how to prepare, administer, and store growth hormone safely. The nurse will also answer any questions and address any concerns about the treatment.

How and when is growth hormone given?
Growth hormone is a protein, so it must be given by injection under the skin every night before bedtime. Common injection sites include the abdomen, buttocks, or thighs.



Care of the growth hormone
Store growth hormone vials in the refrigerator at 2-8°C. Do not shake, swirl, or drop the vial.

How to dispose the needle?
The needle should be put in a sharp disposal container, a metal tin or a plastic bottle. When the container is ¾ full, seal it securely into a plastic bag and dispose into normal rubbish chute.

Growth hormone devices

	Easypod	Aluetta	SciTropin	Norditropin ProFlex
	 			
Device	Automated	Non-disposable pen	Non-disposable pen	Disposable pen
Needles	Hidden	Visible	Visible	Visible
Features	Electronic display	Dial back feature	Dial back feature	Dial back feature
	Automatic dosing	Manual dialing of dose	Manual dialing of dose	Manual dialing of dose
	Comfort settings adjustable			
	Skin sensor administration			

Video references for the use of growth hormone devices:

Easypod 3

English version



Chinese version



Aluetta



Nordiflex



Scitropin

English version



Chinese version



Malay version



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