

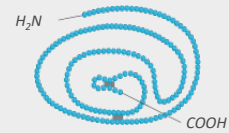
Pediatric Growth Hormone Deficiency

Growth Hormone Physiology

In childhood and adolescence, growth hormone plays an essential role in longitudinal growth, muscle and bone strength, and distribution of body fat.^{1,2}

Growth Hormone^{3,4}

- 191 amino acids
- 22 kDa



GH exerts direct effects by binding GH receptors throughout the body and exerts indirect effects by stimulating IGF-1 production, primarily in the liver.^{1,3,5-8} The molecular size of GH is important for natural tissue penetration, as molecules 40 kDa and larger have restricted access to target tissues.⁹⁻¹¹



Bone



Muscle



Heart



Liver



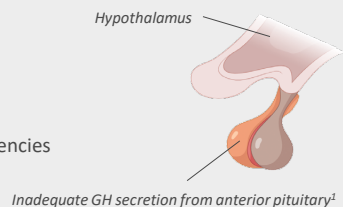
Adipose

Introduction to pGHD

pGHD is associated with short stature and delayed skeletal maturation that results from inadequate GH secretion from the anterior pituitary gland.^{1,12}

Etiology¹³

- Congenital or acquired
- Idiopathic or known
- Isolated or occurs with pituitary hormone deficiencies



Epidemiology

Incidence¹⁴

2.15 (per 100,000 children)

Prevalence¹⁵

~1 (per 4,000 –10,000 children)

Clinical Presentation of Pediatric GHD¹⁶



Neonates

- Hypoglycemia
- Conjugated hyperbilirubinemia
- Near-normal birth size



Children

- Reduction in height
- Immature appearance
- Midface hypoplasia
- Hypotonia
- High-pitched voice
- Effects on cognition
- Truncal adiposity
- Delayed dentition
- Thin, sparse hair
- Slow nail growth

Abbreviations: kDa: kilodalton; GH: Growth Hormone; IGF-1: Insulin-like Growth Factor 1; pGHD: Pediatric Growth Hormone Deficiency

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