



Suggestive history and findings of short stature

- ➔ Height <3rd percentile, decreasing growth velocity after 3 years of age; height below genetic potential
- ➔ Intrauterine growth restriction without catch-up growth by age 2
- ➔ Syndromic appearance, abnormal body proportions



Common causes of short stature



Familial or intrinsic short stature



Constitutional delay of growth and puberty

- » Growth velocity <3rd percentile
- » Delayed bone age



Idiopathic short stature

- » Height < 2.25 SD below the mean
- » Unlikely to attain adult height in the normal range (less than 63 inches for boys and 59 inches for girls)



SGA without catch-up growth by 2 years

Other causes



Endocrine abnormalities

- » GHD
- » Hypothyroidism
- » Cushing's syndrome
- » GH insensitivity



Metabolic disease

- » Rickets
- » Diabetes mellitus



Syndromes

- » Turner's syndrome
- » Noonan's syndrome
- » Trisomy 21
- » Russell-Silver Syndrome
- » Prader-Willi Syndrome
- » DiGeorge Syndrome



Chronic Gastrointestinal and Pulmonary illness



Glucocorticoid treatment



Musculoskeletal issues



Psychosocial issues



When to refer to Pediatric Endocrinologist



Poor growth (<3rd percentile, decreasing growth velocity)



Suspected multiple hormone deficiencies



Items useful for consulting with Pediatric Endocrinologist



Previous growth data/growth charts



Bone age X-ray of left hand and wrist



Blood tests for

- » Total or free T4 and TSH
- » Comprehensive metabolic panel
- » Complete blood count
- » ESR or CRP
- » Chromosome analysis if female child has features of Turner's syndrome
- » IGF-1
- » IGFBP-3
- » Tissue transglutaminase IgA
- » Total serum IgA



Additional information

Estimation of mid-parental target height



Boys: Mother's height + 5 inches averaged with father's height



Girls: Father's height - 5 inches averaged with mother's height