

Causes of Short Stature

Physiological:

- Familial
- Constitutional

Pathological:

- Undernutrition
- Chronic systemic diseases
- Endocrine Causes
- Psychosocial dwarfism
- SGA babies
- Skeletal dysplasias
- Genetic syndromes

Assessment of child with Short Stature

- Accurate height assessment
- Assessment of body proportions
- Assessment of height velocity
- Comparison with population norms
- Comparison with child's own genetic potential
- Sexual maturity rating

Evaluation			
History	Etiology		
LBW	SGA		
Polyuria	CRF, RTA		
Chronic Diarrhoea	Malabsorption		
Neonatal hypoglycemia/Micropenis/Jaundice	GH deficiency		
Headache/Vomiting/Visual problem	ICSOL		
Lethargy/Constipation/ Weight gain	Hypothyroidism		
Dietary intake	Undernutrition		
Social History	Psychosocial dwarfism		
Delayed puberty in parents	Constitutional delay		

Examination			
Findings	Etiology		
Body disproportion	Skeletal dysplasia/Rickets		
Pallor	CRF		
Dysmorphism	Genetic syndromes		
Hypertension	CRF		
Frontal bossing, depressed nasal bridge, crowded teeth, small penis	GHD		
Goiter/coarse skin	Hypothyroidism		
Central obesity/Striae	Cushing Syndrome		

Investigations

Level One:

- Complete Hmg with ESR
- Bone Age
- Urinalysis
- Stool examination
- RFT
- LFT
- FBS

Investigations cont.....

Level Two:

- TFT
- Karyotying

Level Three:

- Celiac serology
- GH stimulation tests

Bone Age

- Usually BA< CA
- Exceptions: Familial short stature Precociuos puberty
- BA= HA: Constitutional delay Undernutrition Systemic illness
- BA< HA: GHD Hypothyroidism

Familial Short Stature

- Normal height & weight at birth
- Catch down in growth
- By 2 years, height & weight lies on target centile
- Growth velocity normal
- Bone age = chronological age
- Normal puberty
- Final height low but within target range

Constitutional Short Stature

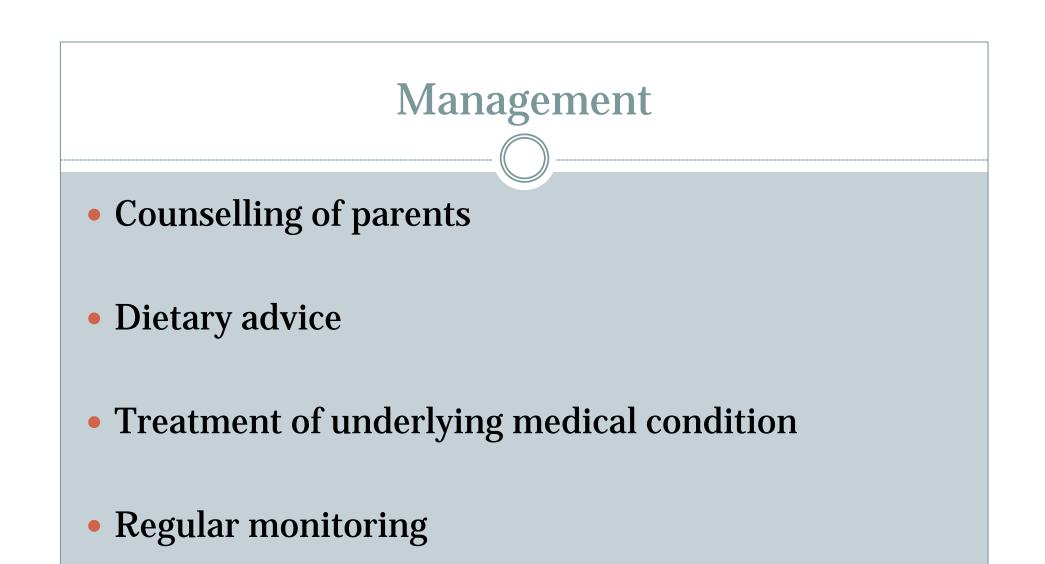
- Normal length & weight at birth
- Normal growth till 6-12 months
- Deceleration till 2-3 yrs
- Height velocity accelerates & grow parallel to 3rd percentile
- Normal height velocity
- Delayed puberty
- Final height normal
- Bone age < Chronological age
- Bone age = Height Age
- Family history of delayed puberty

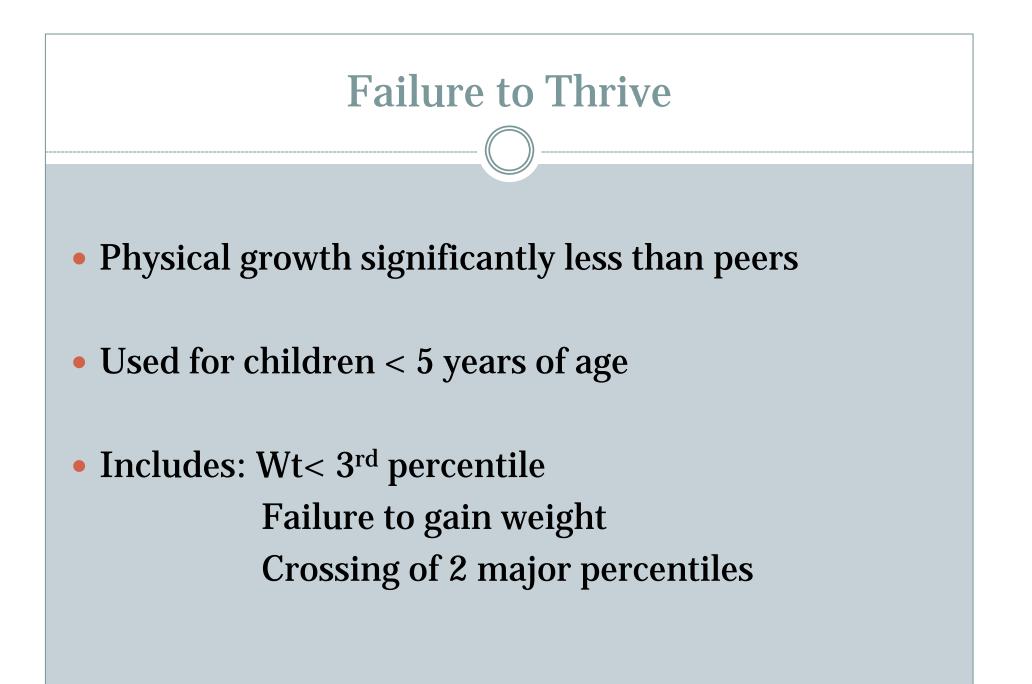
Constitutional Vs Familial

Feature	Constitutional	Familial	
Height	Short	Short	
Height velocity	Normal	Normal	
Family history	Of delayed puberty	Of short stature	
Bone age	Less than chronological age	Normal	
Puberty	Delayed	Normal	
Final height	Normal	Low but normal for target height	

Psychological Dwarfism

- Emotional deprivation dwarfism/ Maternal deprivation dwarfism/ Hyperphagic short stature
- Functional hypopituitarism
- Low IGF-1 levels & inadequate response to GH
- Good catch up growth in less stressful environment





Etiology

Organic:

- GI
- CNS
- Renal
- Cardiopulmonary
- Endocrine
- Infections
- Genetic

Etiology cont...

- Non organic:
- Poverty
- Faulty diet
- Psychosocial

