Case presentation

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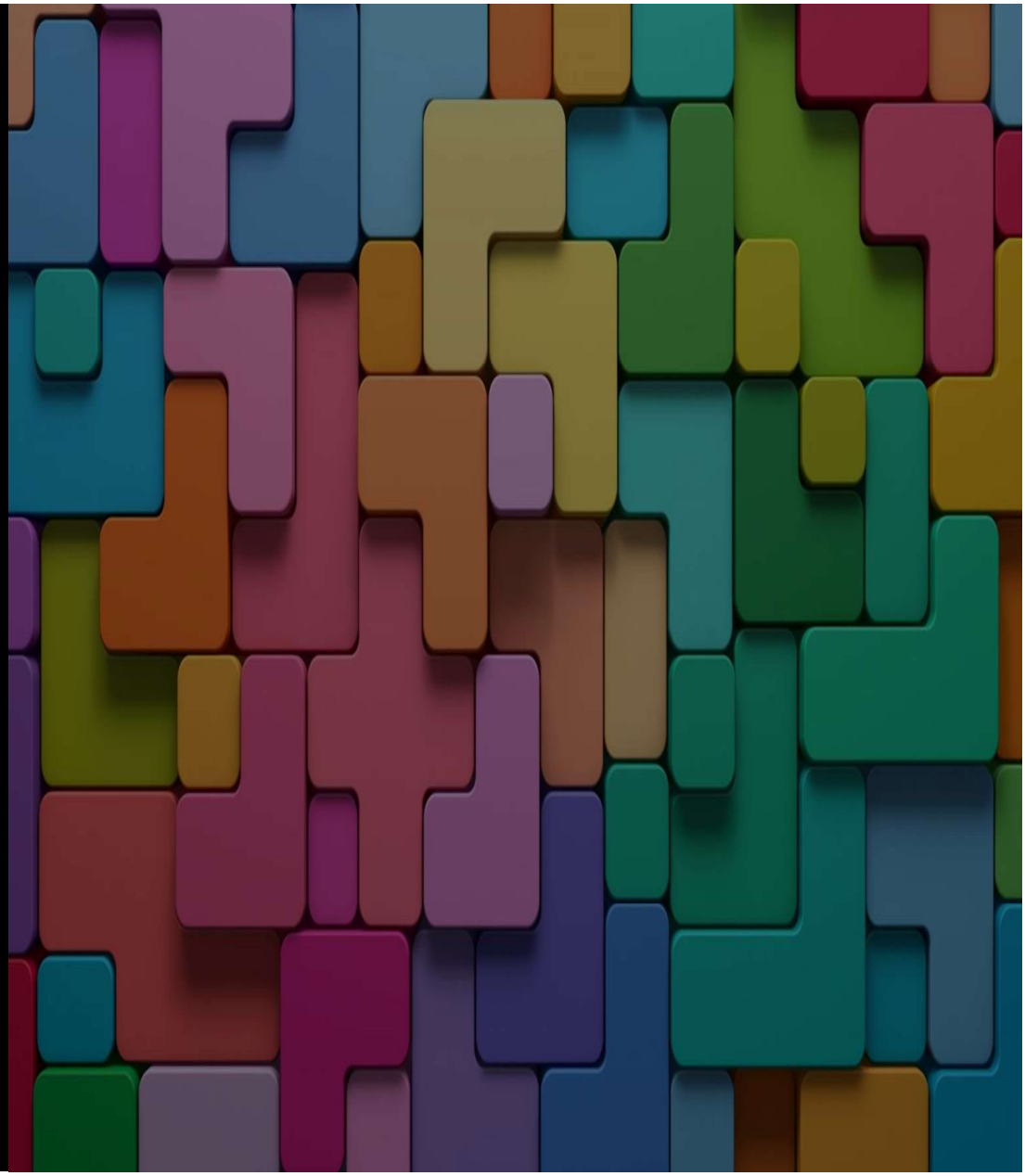
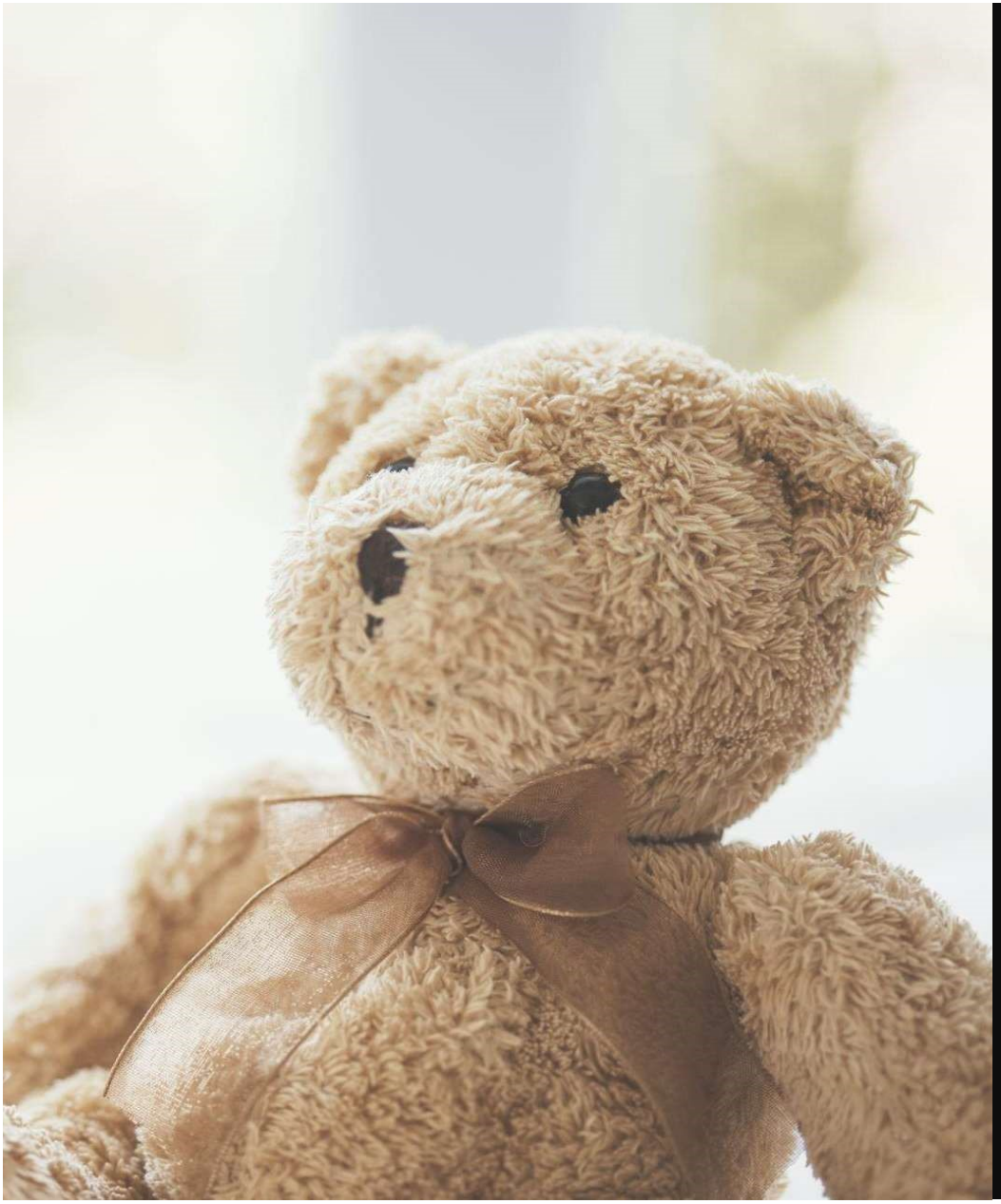




Objective

Case Overview
What to do?
Ways of thinking …
knowing the principle

Case Overview Miss One

Miss One

10 ½ year old Indian Girl

<u>Problems</u>

Concern about height and puberty

Emotional distress secondary to above

Background History

Constitutional growth delay

Known delay bone age

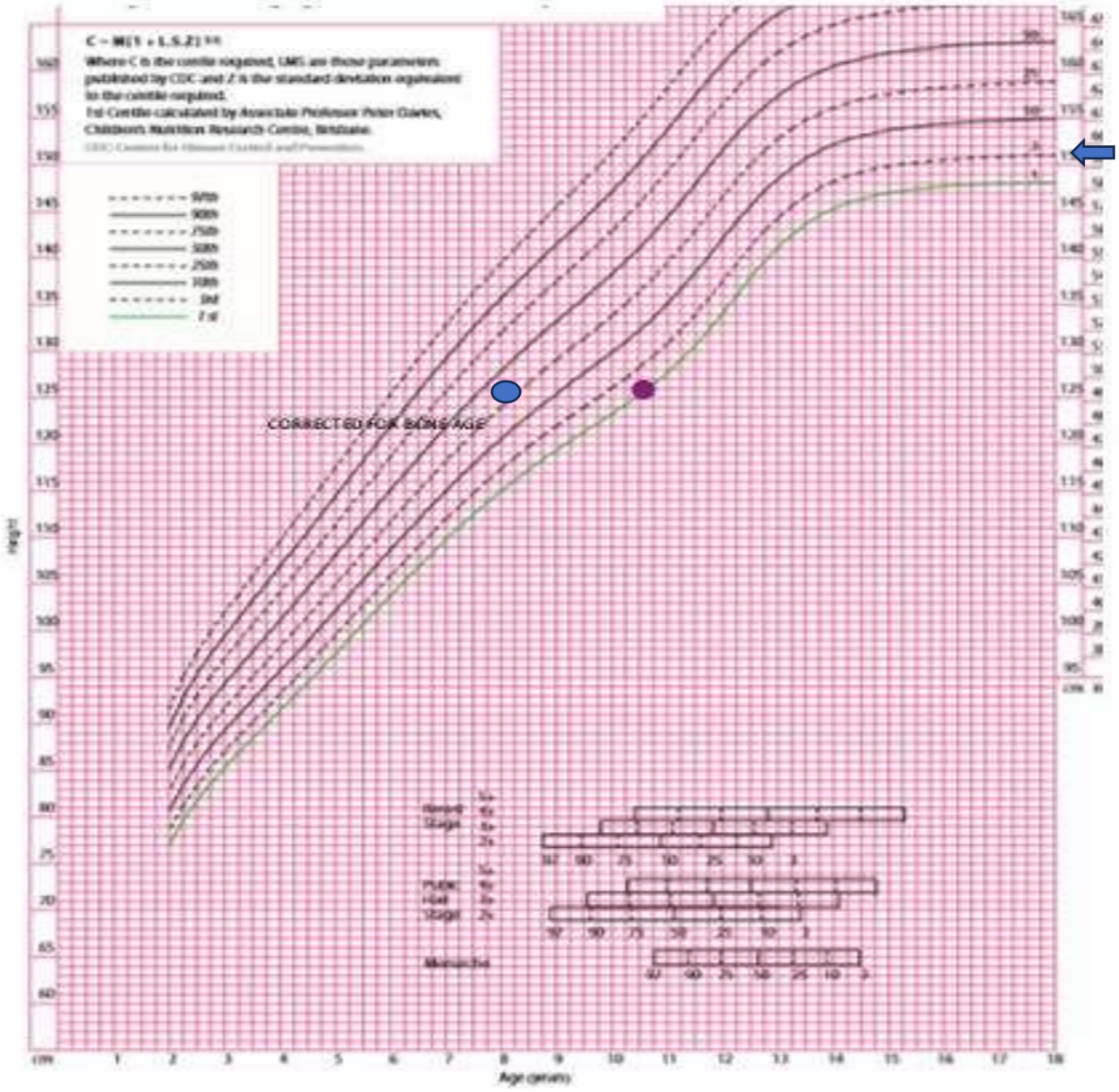
- wrist X-ray bone age was 7 years 10 months but her chronological age was 10 years 3 months(29 months delay).

History

- Shortest in her class.
- Because of her physical stature, she is always upset and there has been times that she refused to go to school because of this.
- Health wise generally well
- Eat and drink well , bowel motions normal with no tummy pain
- Not on any medication

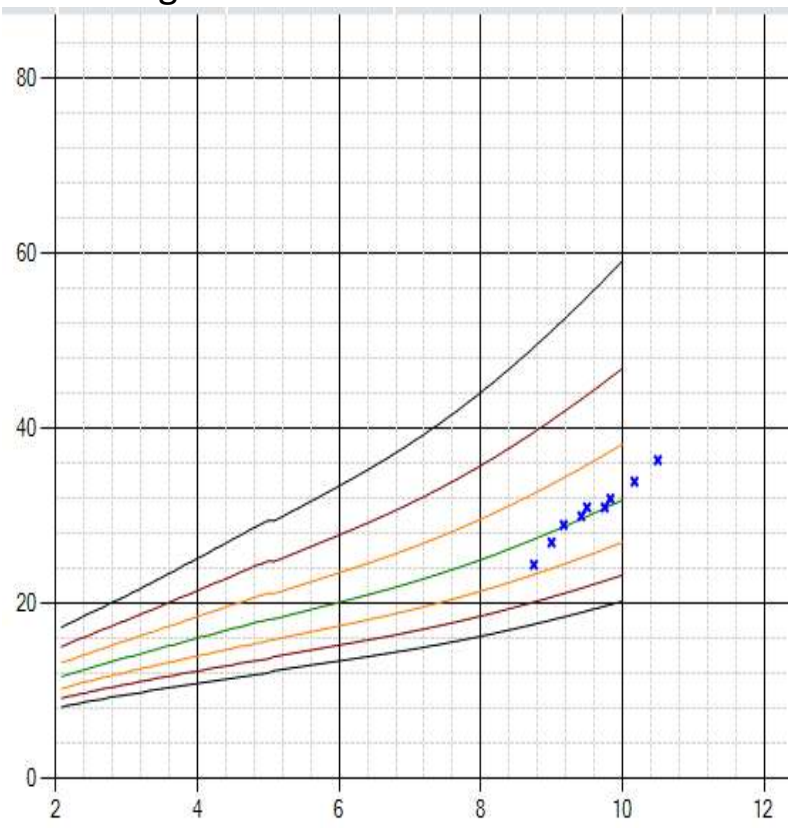
History

- Her father is 164 centimetres and her mother is 148.5 centimetres.
- Calculated mid parental height was 150 (3rd centile).
- Her height today was 125.2 centimetres (1st centile, Z score -2.54, but 25th centile based on corrected bone age) and her weight was 36.4 kilograms (50-75th centile).
- Height velocity 1.6cm/year.
- Self reported - Tanner 1 for breast and pubic hair



MPH

Weight



Examination

She looks well with no dysmorphic feature

Cardiorespiratory normal

Abdomen was soft non-tender with no obvious organomegaly.

Normal body proportion

No signs of puberty

QUESTION:

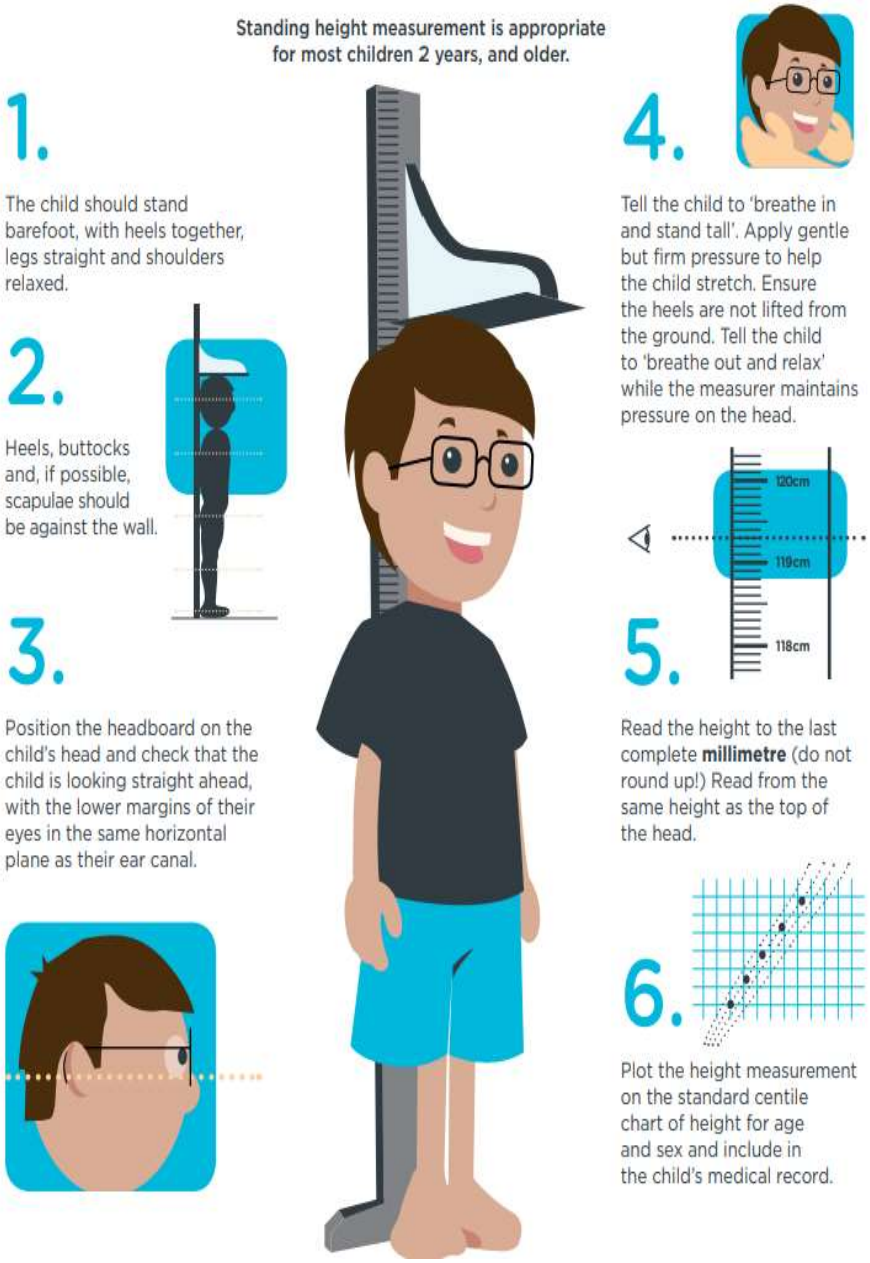
- What are your thought ?

Height

Emotional distress

- What is your plan ?
- Any investigation ?
- Treatment ?

Ways of thinking…



Principle for Height

Height - Distance from the bottom of the foot to the top of the head when standing erect

Genetics is the biggest determinant (about 80%)

Calculate mid parental height (MPH)

For girls: (maternal height + paternal height in cm – 13)/2

For boys: (maternal height + paternal height + 13)/2

The 3rd and 97th centile for the child are 10 cm to either side of the MPH.

pmc.ncbi.nlm.nih.gov/articles/PMC4892290/
www.racgp.org.au/getattachment/34d30099-0b3d-4d02-97be-40dd921ad7ea/200509simm.pdf

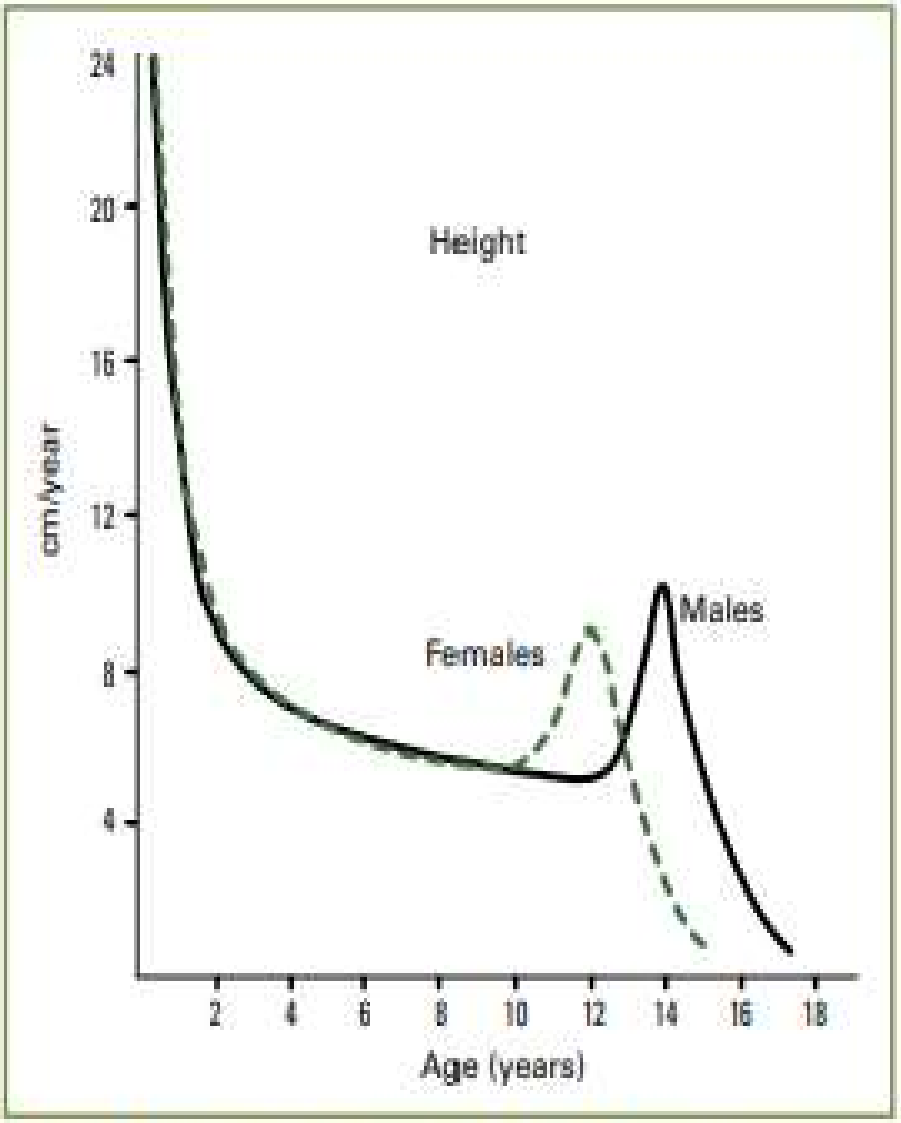


Figure 1. Growth velocity over childhood and adolescence (male and female)

Principle for Height

Measured at a six-month interval

Calculate growth velocity (different age)

- Birth to 1 years -25 cm year
- 1 to 2 years - 12.5 cm per year
- 2 to 3 years - 8 cm per year
- 3 years to puberty - 5 to 6 cm per year
- Puberty - up to 15 cm per year

Height velocity centile

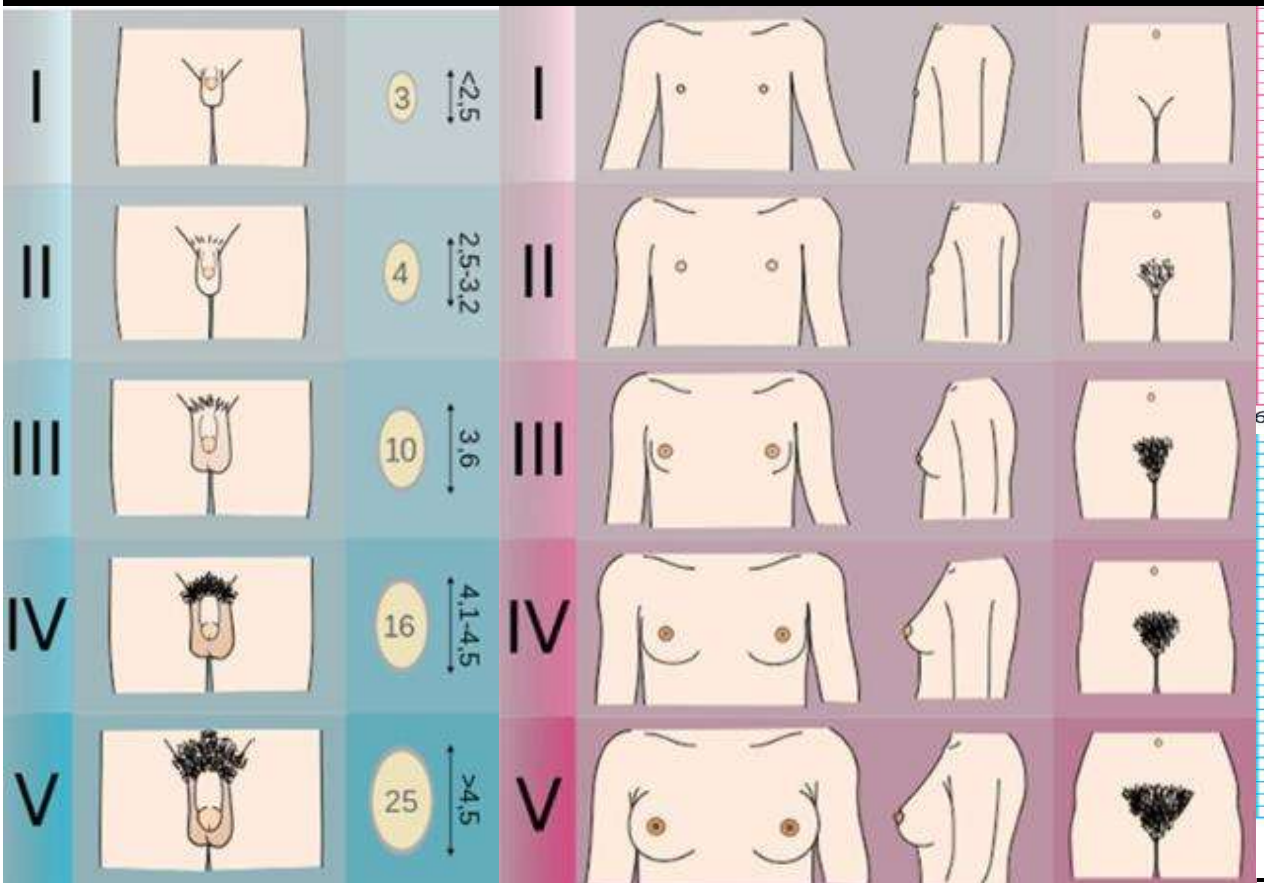
https://fpnotebook.com/Endo/Exam/LnrGrwthVlcty.htm
https://www.racgp.org.au/getattachment/34d30099-0b3d-4d02-97be-40dd921ad7ea/200509simm.pdf

Principle for Height

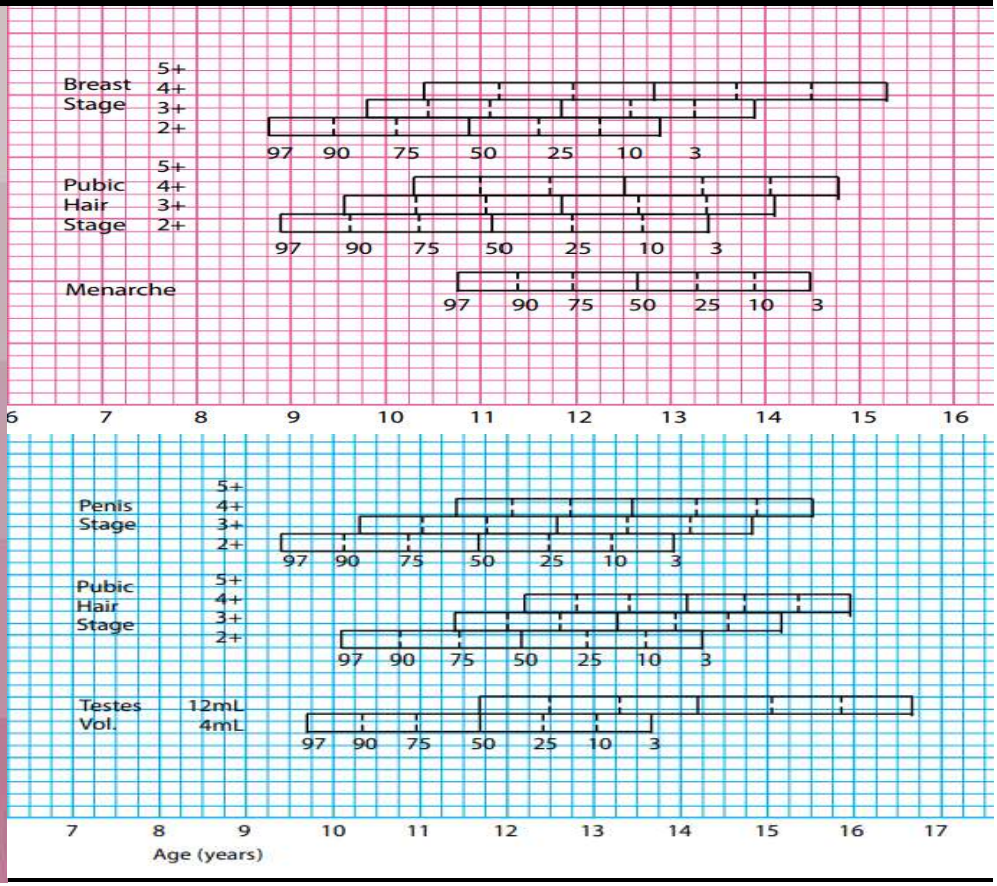
https://www.ncbi.nlm.nih.gov/books/NBK470280/#:~:text=Male%20External%20Genitalia%20Scale%20*%20Stage%201:,20%20ml%20(or%20%3E%204.5%20cm%20long)
https://apeg.org.au/clinical-resources-links/growth-growth-charts/

Determine pubertal stage by examination - Self reporting not accurate

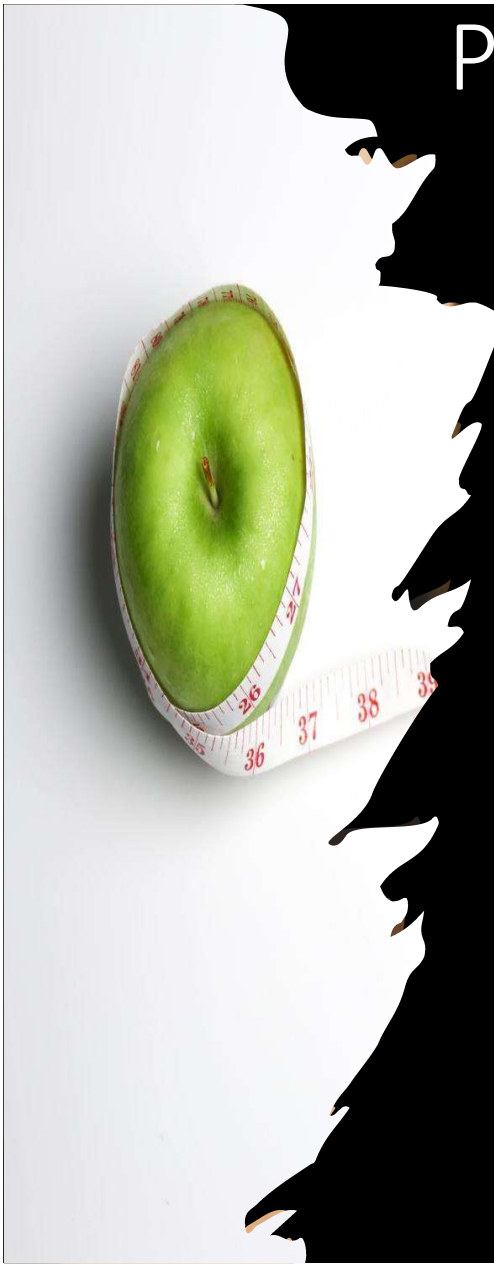
Age not (early/late), Girl



Boys



Principle for Weight



- After birth will lose weight (< 10% of birth weight) and regain after 10 days of life
- The first few months of life expect 30 grams per day
- Double birthweight at four months
- Triple birthweight at first year
- Quadruple end of 2nd year
- At 7 years old - Seven times from birth weight
- Between 2 to 9 years of age (2 kg per year)
- Index of nutrient
- Will improve if underlying issues are addressed

Ask the question…

Is there a problem?

Reassure… Observe/monitor…

Short stature ? …less than 3rd centile or Z score < -2.

Reach genetic potential ?

Appropriate height velocity ?

Puberty ? … not late or early

Does it matter ?

Others: suggest pathological cause?

- Child <1st centile
- Abnormally short for family heights
- History/exam suggests chronic illness (especially weight loss more than height loss)
- Abnormal growth velocity (<25th centile)
- Body proportions abnormal
- Dysmorphic features or midline defects

- Don’t forget development/Head growth

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https://pmc.ncbi.nlm.nih.gov/articles/PMC4892290/figure/nuv105-F5/