

بسم الله الرحمن الرحيم

# Children Nutritional assessment

دکتر نعمتی

متخصص تغذیه

دکتر طباطبائی

دستیار تخصصی تغذیه

گروه تغذیه

دانشکده پزشکی مشهد

# ارزیابی تغذیه ای (Nutritional assessment)

1. شرح حال

2. ارزیابی فیزیکی و بالینی (Physical & Clinical examination)

3. ارزیابی تن سنجی (Anthropometry)

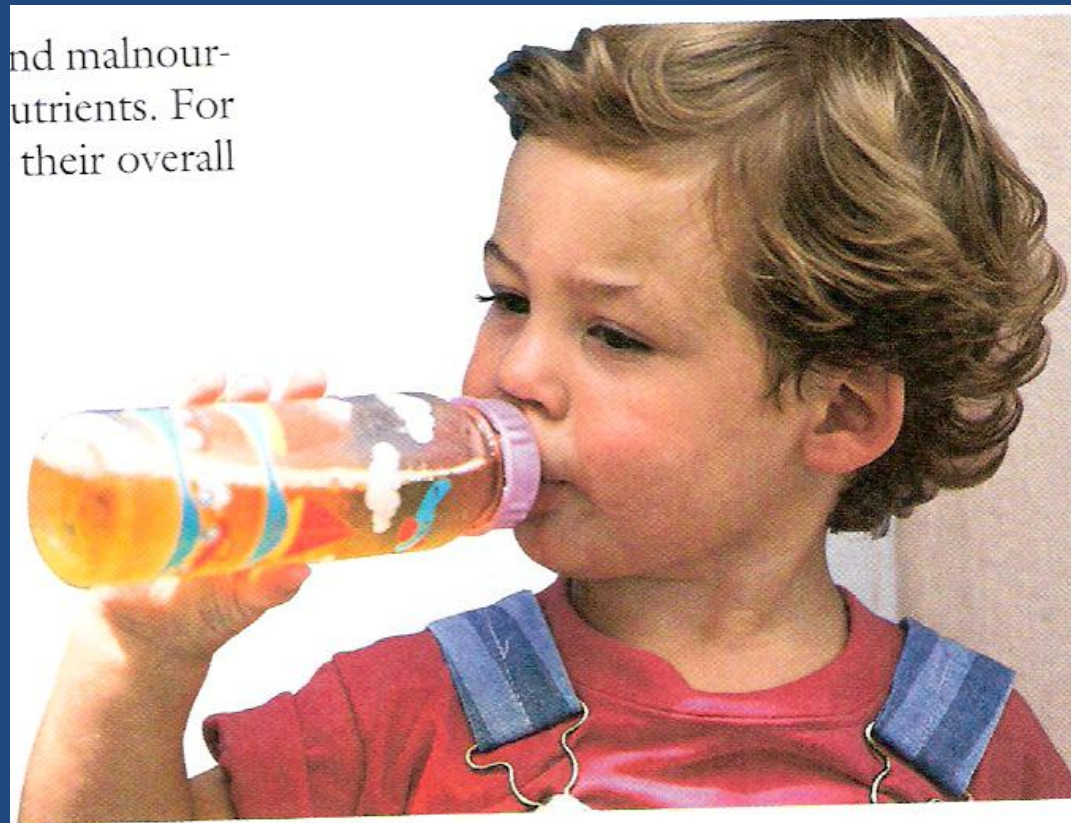
4. ترکیب بدن (Body composition)

5. ارزیابی آزمایشگاهی (Laboratory tests)

6. ارزیابی غذائی (Nutrient intake analysis)

No single parameter alone directly measures individual nutritional status or determines problems or needs

# از کجا بفهمیم کودک انرژی کافی دریافت کرده است؟



and malnour-  
nutrients. For  
their overall

High carbohydrate beverages can contribute to  
tooth decay.

n ever before.  
alth. Thus, re-

# Speed of growth (weight)

- 1<sup>st</sup> year

Tripling of weight in 12 month

- 2<sup>nd</sup> year: quadruples weight of birth weight

- Latent period of growth

Period After infancy until puberty

# Speed of growth (weight)

- Latent period of growth

Period After infancy until puberty

- Between 2-10 years

2-3 kg per year

- After 10 years

The rate increases

# Speed of growth (height)

- 1<sup>st</sup> year

Increases by 50% in 12 month

- 4th year

Double the birth height

- From 2 to puberty

6-8 cm per year

# Pattern of growth

- From 2 to puberty

1- Steady and slow

2- It can be erratic in individual children

## از کجا بفهمیم انرژی کافی دریافت شده است؟

- In a well nourished person , the total daily intake of protein, fat, and cho weighs about **450 gram**.
- In contrast, the typical daily mineral intake weighs about **20 gram** (about 4 teaspoon).
- Daily **vitamin** intake weighs less than 300 mg ( $1/15^{\text{th}}$  teaspoon)



# Parents anxiety and mealtime struggles

- Periods of slow growth and poor appetite
- No growth and growth spurt

# **Changes in body proportions after first year**

## Changes in body proportions after first year

- Head growth is minimal
- Trunk growth slows
- Limbs lengthen considerably
- **Result:** more mature body composition

# **Changes in body composition pre- school and school age children**

## Changes in body composition pre- school and school age children

- Remains relatively constant
- **Fat** gradually **decreases** reaching minimum between **4 and 6** years of old
- **Adiposity rebound:** weight gain **in preparation for** pubertal growth spurt
- **Sex differences**

# Catch-up growth

- بهبودی سریعتر از حد انتظار در کودکی که به دلیل بیماری یا سوء تغذیه توقف رشد داشته است.
- اگر این بهبودی حاصل نشود، توقف رشد باقی می ماند.

# Catch-up growth

## در یک کودک Wasted

- رشد وزنی بلا فاصله
- رشد قدی یک تا سه ماه بعد از شروع درمان به اوج خود می رسد.

(Cunningham and McLaughlin, 1999)

# Assessing growth

اهمیت ارزیابی دوره ای در چیست؟



# Assessing growth

اهمیت ارزیابی دوره ای در چیست؟

کشف زودرس مشکلات بوجود آمده و  
درمان به موقع آنها

# A complete nutritional assessment in children

Collection of following anthropometrics data:

- Length or standing height
- Weight
- BMI (weight for length)

# A complete nutritional assessment in children

## Anthropometrics data:

- All of which are plotted as percentiles on the Centers for Disease Control and Prevention (CDC) growth charts

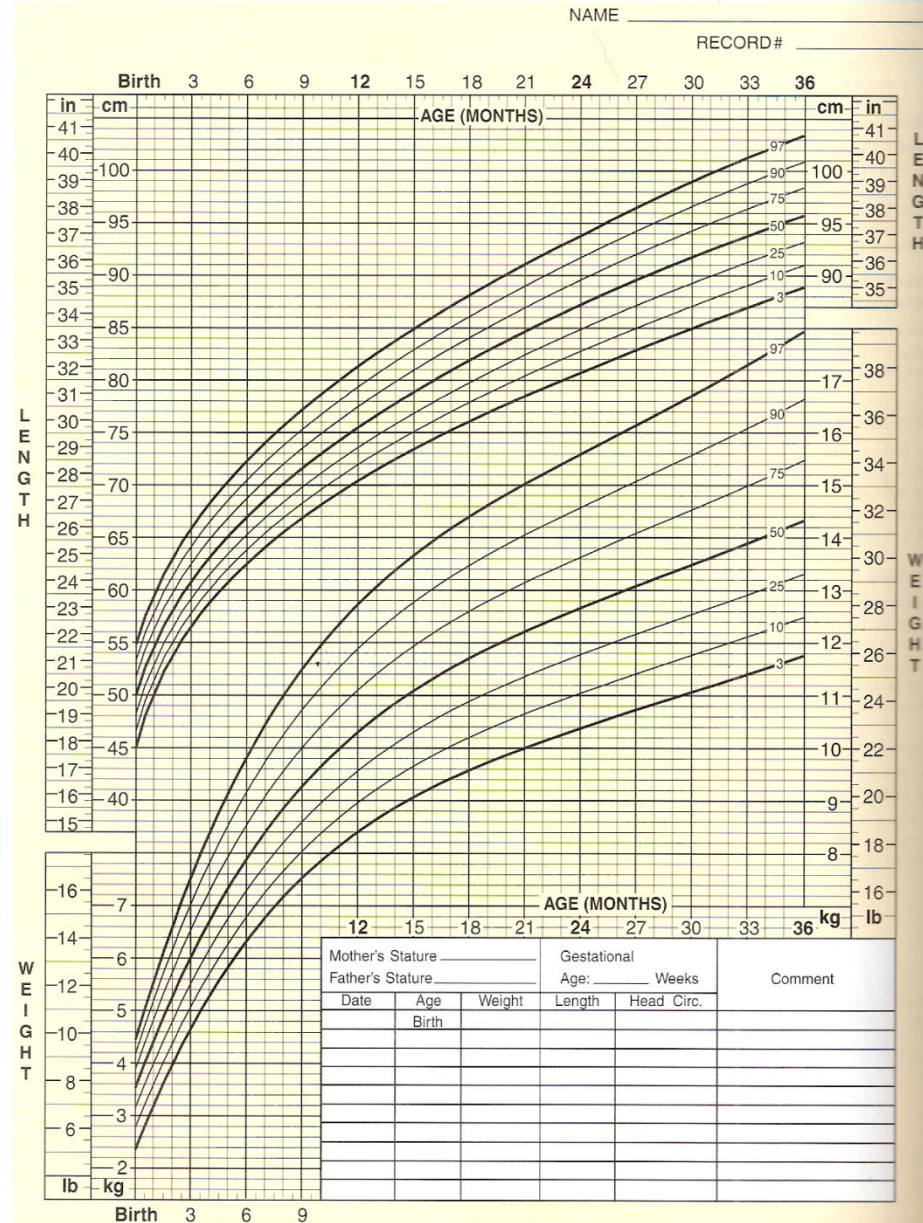
# A complete nutritional assessment in children

BMI is a critical element of growth assessment

Two methods:

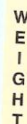
- 1- Plot weight for height
- 2- BMI

# APPENDIX 9 Birth to 36 Months: Boys Length-for-Age and Weight-for-Age Percentiles





RECORD # \_\_\_\_\_



SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000). <http://www.cdc.gov/growthcharts>

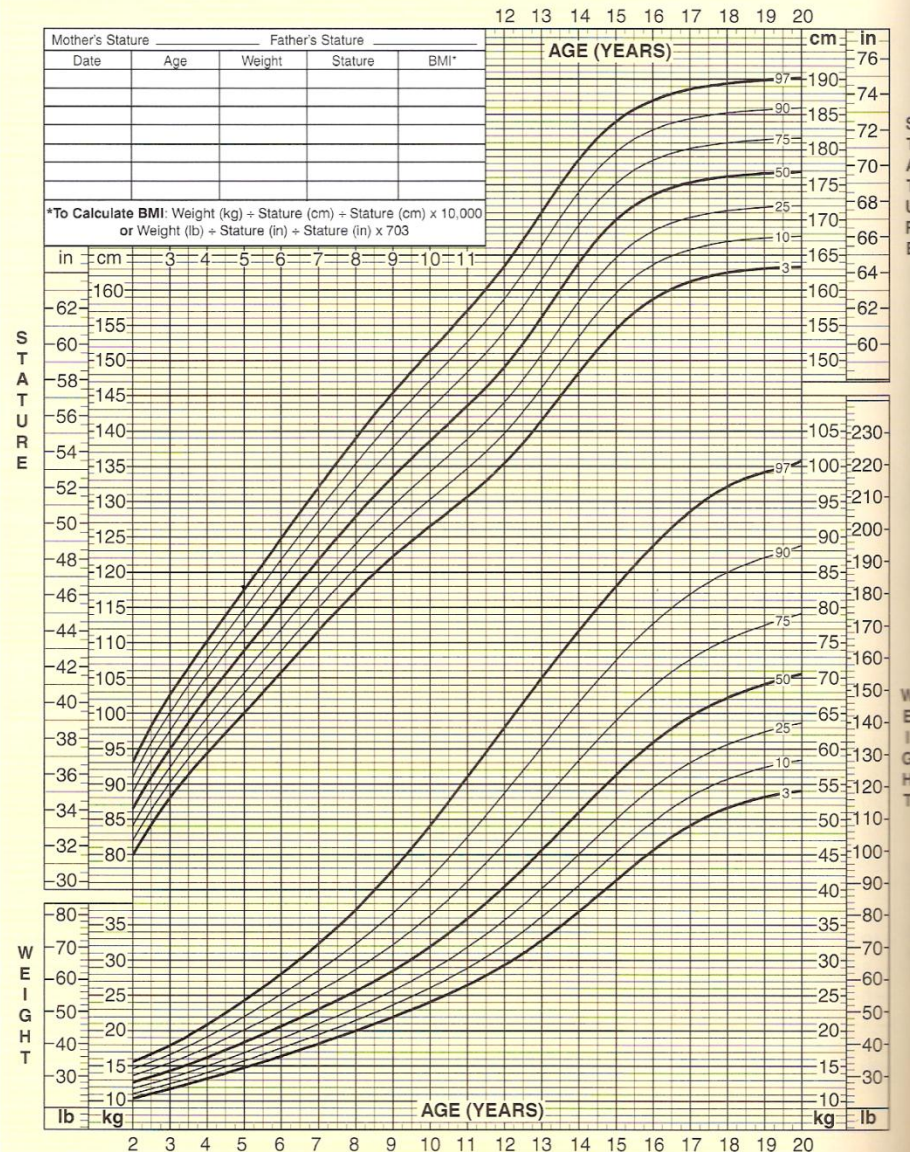




# APPENDIX 11 2 to 20 Years: Boys Stature-for-Age and Weight-for-Age Percentiles

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_



Published May 30, 2000 (modified 11/21/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



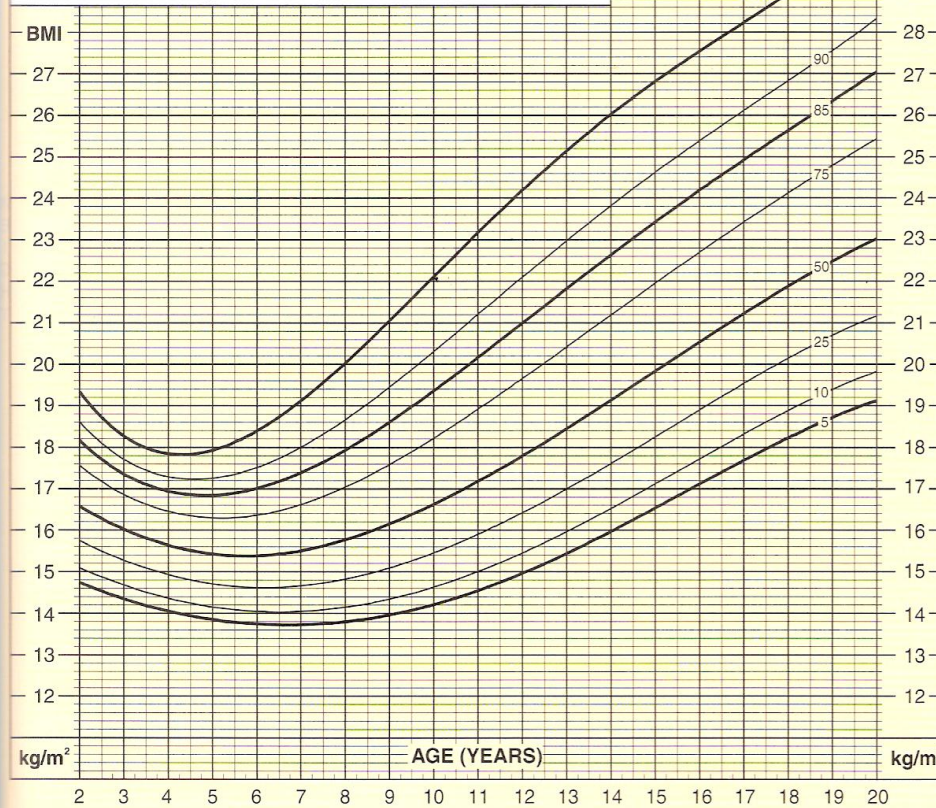
## APPENDIX 12 Body Mass Index-for-Age Percentiles: Boys, 20 Years

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_

[illegible]

**\*To Calculate BMI:** Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000  
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



Published May 30, 2000 (modified 10/16/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000). <http://www.cdc.gov/growthcharts>

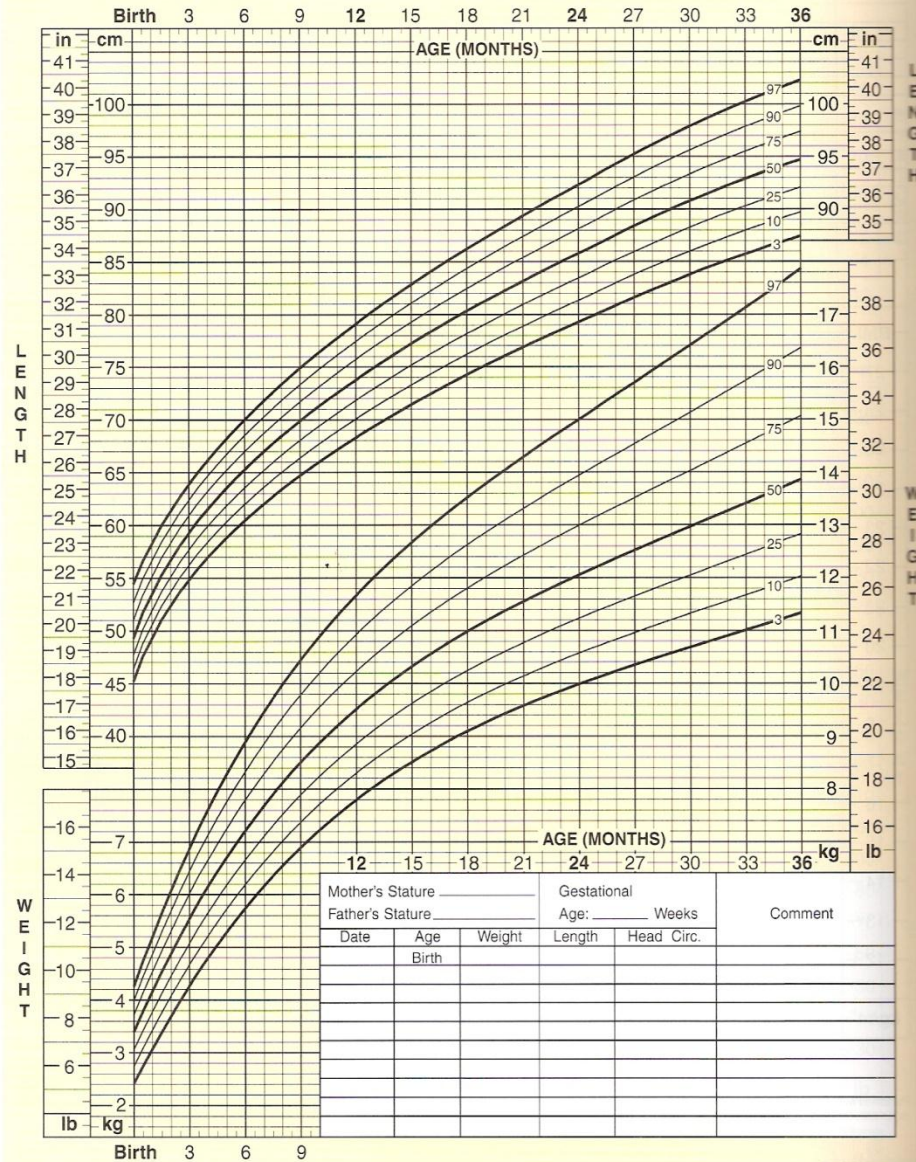


SAFER • HEALTHIER • PEOPLE



NAME \_\_\_\_\_

RECORD # \_\_\_\_\_



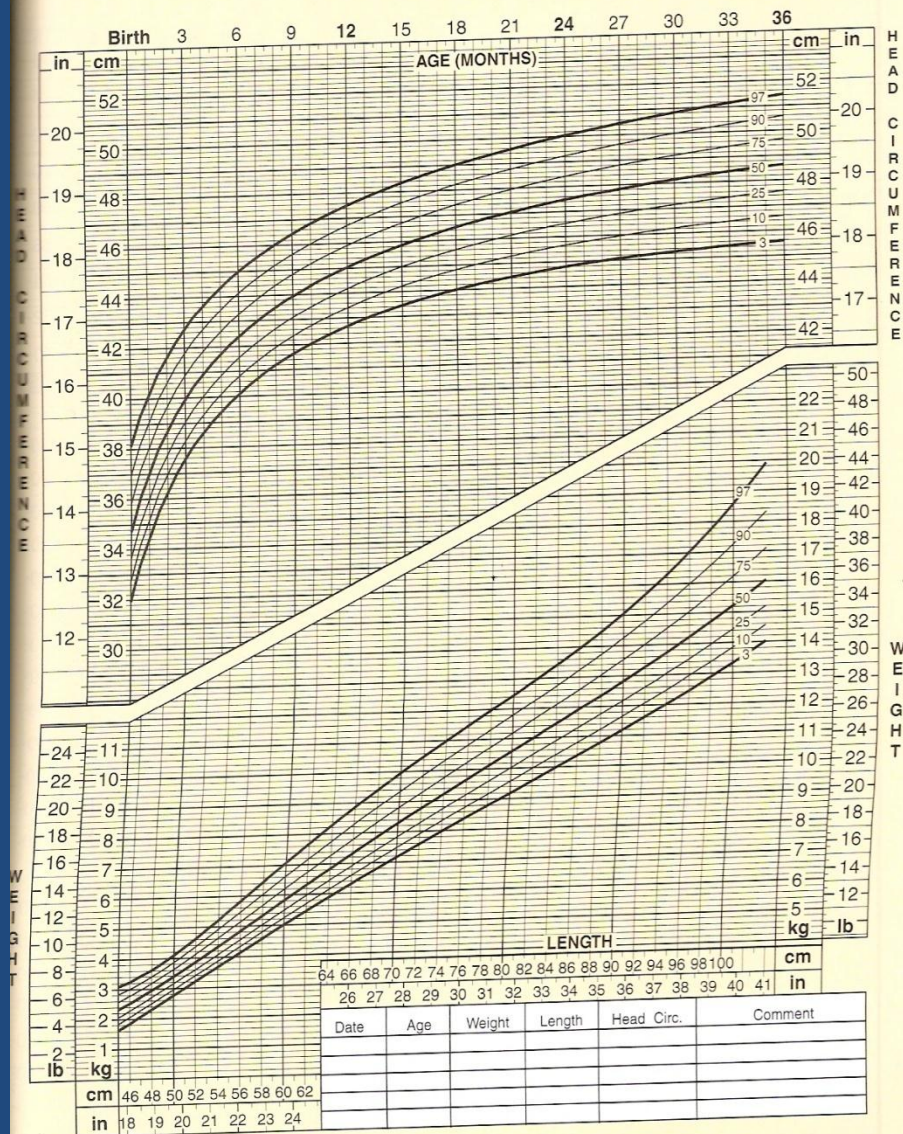
Published May 30, 2000 (modified 4/20/01).  
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



**Box 14** Birth to 36 Months: Girls Head Circumference-for-Age  
Weight-for-Length Percentiles

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_

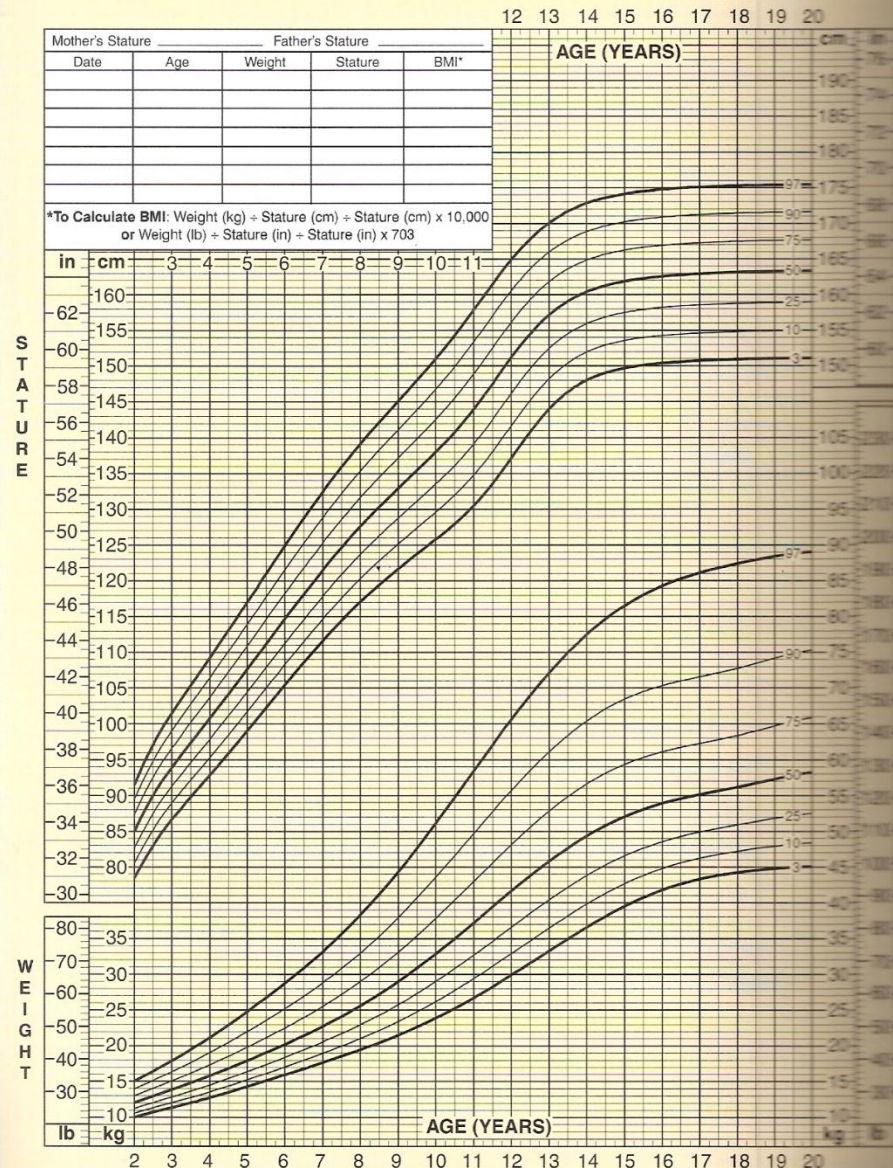




# APPENDIX 15 2 to 20 Years: Girls Stature-for-Age and Weight-for-Age Percentiles

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_

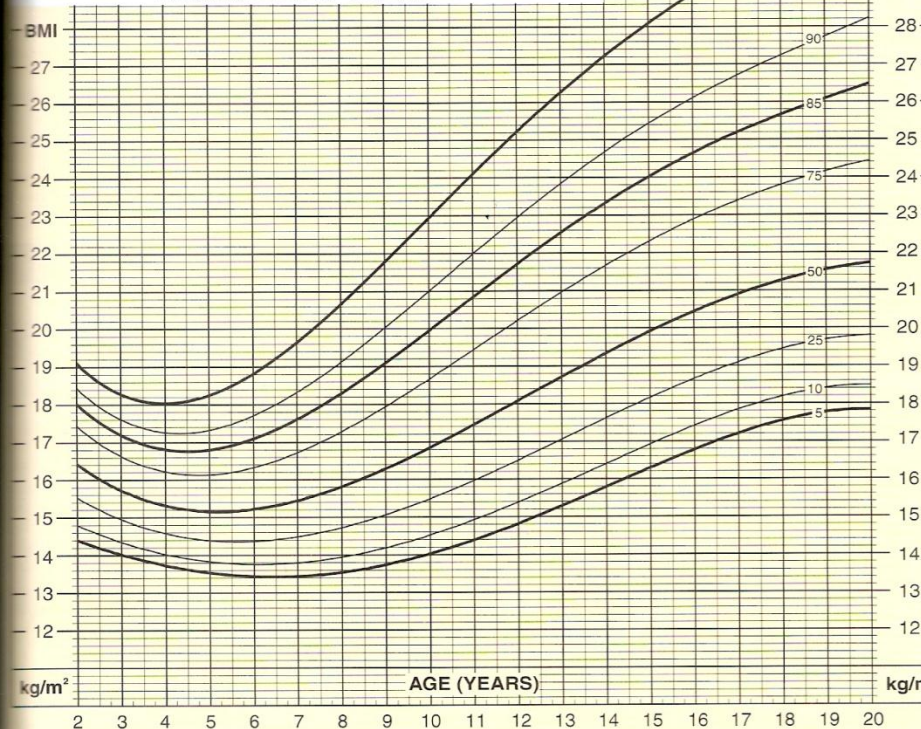


NAME \_\_\_\_\_

RECORD # \_\_\_\_\_

[illegible]

**\*To Calculate BMI:** Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000  
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



# Growth pattern

- One-time measurement of Ht and Wt do not allow for interpretation of growth status
- Measurement on regular intervals
- Growth channels: children should follow along the same channels.

# Growth pattern

- Regular monitoring
- Identifying problematic trends
- Prevent compromising long-term growth

(Story et al. 2000)

# Growth pattern

- Cross the growth channels

suggest

- development of obesity