

## Nutritional Assessment Methods

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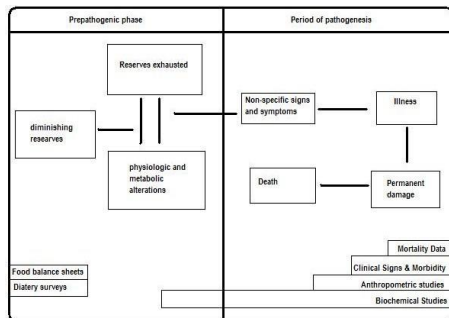
### Factors associated with nutritional status

- Quantity and quality of food intake
- Absorption in the alimentary tract
- Calorie balance



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### Natural history of nutritional diseases



Park K. Textbook of Preventive and Social Medicine. Twenty First ed.: Banarsidas Bhanot Publishers; 2011

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### ABCDEF of nutritional assessment methods

- A - Anthropometry**
- B - Biochemistry**
- C - Clinical assessment**
- D - Dietary**
- E - Environment**
- F - Functional assessment**

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### Anthropometric measurements

- Weight
- Length/Height
- Head circumference
- Mid-upper arm circumference (MUAC)
- Skin fold thickness
- Waist circumference
- Hip circumference

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### Instruments used in anthropometric measurements

- **Weight scale**
  - Infant weighing scale / Beam scale
  - Hanging scale/ spring scale
  - Bathroom scale
  - Stationary scale
- **Height measurement devices**
  - Infantometer
  - Stadiometer
- **Non-stretchable measuring tape**
- **Skin fold calliper**

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## Weighing scales



Infant weighing scale



Hanging scale



Bathroom weighing scale



Stationary weighing scale

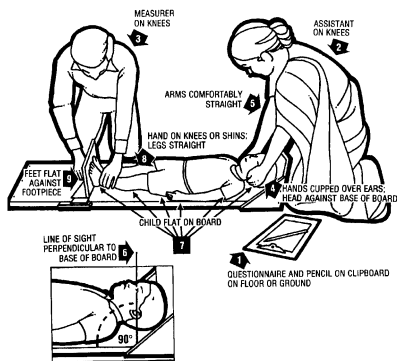
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## Task

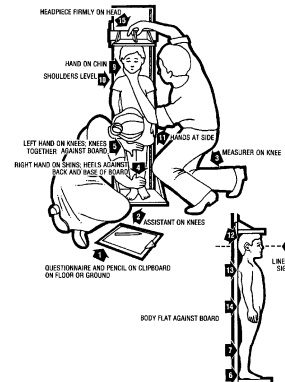
- Discuss the advantages and disadvantages of each of the weighing scales used in the National Growth Monitoring and Promotion Program (NGMPP).

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## Measurement of length



## Measurement of height



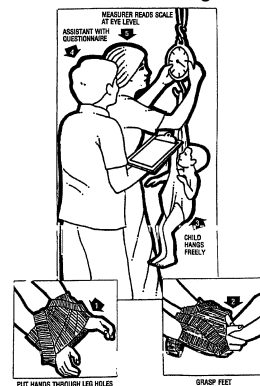
## Measuring height

- Hang height measuring tape on wall.
- Get child to stand against wall with both feet on ground and the head, scapulae, and heel touching the wall.
- Bring down the moveable section on to the skull and take the reading appropriately.



U.L. Gaillard (2010)

## Measurement of weight



### Anthropometric indices

- Weight for age
- Height for age
- Weight for height
- BMI
- Waist- hip ratio

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### Interpretation of graph – weight for age

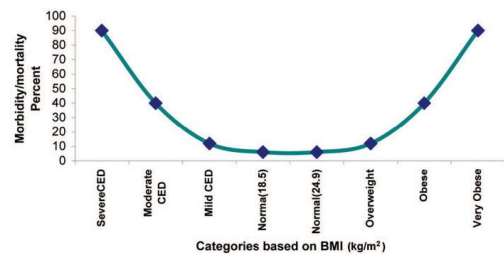
purple	Over weight (>+2SD)
green	Normal weight (median +2SD to - 1SD)
Light green	Risk of falling to underweight (-1SD to - 2SD)
orange	Underweight (-2SD to - 3SD)
red	Severe underweight (< - 3SD)

### Task

Describe the advantages of using graphs to monitor growth.

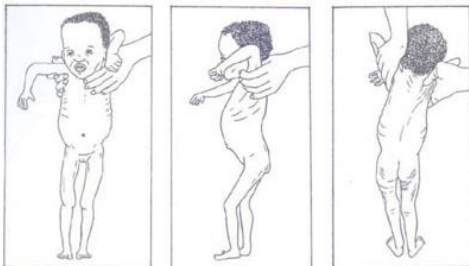
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### Risk of morbidity and mortality by BMI category



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### A wasted child



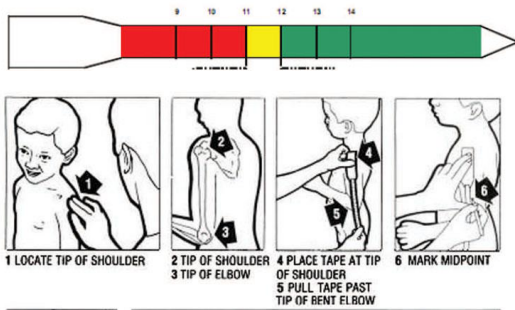
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### Mid-upper arm circumference

- What are the advantages of taking mid upper arm circumference when compared to weight or height measurements?

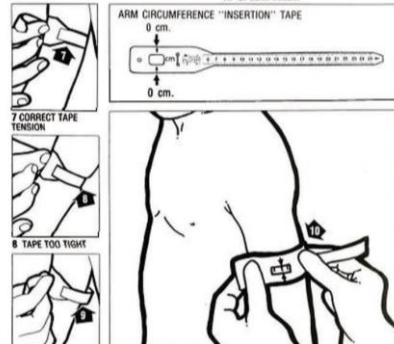
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### Mid-upper arm circumference



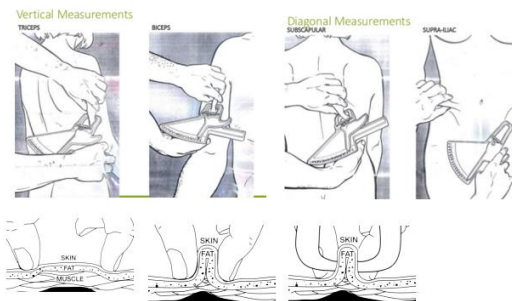
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### Mid-upper arm circumference



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### Skin fold thickness



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### Biochemistry

- Haemoglobin level/ Transferrin/ Ferritin
- Urinary excretion of iodine
- Serum vitamin levels
- Serum albumin

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### Clinical assessment

#### Task

- Enumerate the clinical assessments that are useful nutritional assessment (From head to toe).
- List the advantages of clinical assessment when compared to other nutritional assessment methods?
- List the drawbacks of clinical assessment when compared to other nutritional assessment methods?

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### Dietary assessment

- Inventory method
- Weighment method
  - Weighment of raw food
  - Weighment of cooked food
- Expenditure pattern method
- Diet history
- Oral questionnaire (24 hour dietary recall)
- Chemical analysis method
- Dietary score

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### Environmental aspects

- Availability of kitchen
- Availability of vegetables, fruits, high protein food items, etc.
- Socio-economic factors

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### Functional assessment

- Cognitive ability
- Disease response
- Reproductive competence
- Physical activity
- Work performance
- Social and behavioural performance

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### What are the uses of nutritional assessment?

- To assess the nutritional status at the individual level or community level
- As part of clinical assessment of a patient presenting with nutritional disease as the primary reason for visit.
- As part of a comprehensive care of a patient whose primary reason for visit is not directly related to nutrition.
- To determine the risk factors for nutritional issues at a community level.
- To determine the effectiveness of nutrition related interventions.

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**The End**

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