TYPES OF MALNUTRITION
What Will I Learn About...

- Two broad categories of malnutrition:
  - Protein energy malnutrition
  - Micronutrient deficiency diseases

- Types of growth failure

- The risks of being malnourished
So what is malnutrition?

.. malnutrition is a term that covers a wide range of clinical conditions in children and adults.
RISKS of being malnourished...

- Lowered resistance to disease
- Increased risk of mortality
- Learning difficulties
Anthropometric index

Combination of different measurements or combination of a measurement with other data

- Weight-for-height
- Height-for-age
- Weight-for-age
- MUAC-for-height
- MUAC-for-age
- BMI-for-age
Building blocks of anthropometric indices

1. Sex
2. Age
3. Height/Length
4. Weight
"Let me put it this way... for your weight you should be thirty-seven feet tall."
Children with PEM all suffer

**GROWTH FAILURE** either:

**WASTING** (thinness)

Occurs as a result of recent rapid weight loss or a failure to gain weight

**ACUTE MALNUTRITION**

**STUNTING** (shortness)

Occurs as a result of inadequate nutrition over a long period of time

**CHRONIC MALNUTRITION**
<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight-for-Height (WFH)</td>
<td>Reflects recent weight loss or gain</td>
<td>WASTING</td>
</tr>
<tr>
<td>Height-for-Age (HFA)</td>
<td>Reflects skeletal growth</td>
<td>STUNTING</td>
</tr>
<tr>
<td>Weight-for-Age (WFA)</td>
<td>A composite index</td>
<td>WASTING AND STUNTING</td>
</tr>
</tbody>
</table>

**ACUTE MALNUTRITION**

**CHRONIC MALNUTRITION**

**UNDERWEIGHT**
At what age is wasting most prevalent?

• Wasting occurs more commonly in infants and younger children often during the weaning period.
  - Complementary foods may be inadequate nutritionally.
  - Complementary foods and drinks are often not clean and can cause diarrhea.
Who is at risk of stunting?

- Stunting occurs over a long period of time.
- Usually less apparent until after 2 years of age.
- Action is needed during the early years to prevent stunting.
Who is stunted and who is wasted?

A: Healthy
B: Stunted
C: Wasted
D: Stunted & Wasted
The two clinical forms of PEM:

**Marasmus**
severe loss of body weight or wasting

**Kwashiorkor**
nutritional bilateral oedema.

Marasmic kwashiorkor combines symptoms of marasmus and kwashiorkor.
Clinical Signs of Marasmus

- A thin ‘old man’ face
- ‘Baggy pants’ loose skin around the buttocks
- No nutritional oedema
- Prominent ribs
- The children are usually active and may appear to be alert in their condition
Clinical Signs of Kwashiorkor

- Nutritional oedema
- Loss of appetite
- Hair changes
- Skin lesions and de-pigmentation
- Children are usually apathetic, miserable and irritable.
- Moon Face
## Anthropometrics 2

<table>
<thead>
<tr>
<th>Adults</th>
<th>‘Thinness’ (low weight for height) as a result of acute malnutrition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Body Mass Index</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Infants:</th>
<th>Associated with poor nutrition in mothers.</th>
</tr>
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<tr>
<td>• Low Birth Weight</td>
<td></td>
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</tbody>
</table>

- Low Birth Weight
  - Associated with poor nutrition in mothers.
## Micro-Nutrient Deficiencies

<table>
<thead>
<tr>
<th>Micronutrient Deficiency</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Iron deficiency anaemia</strong></td>
<td>• Clinical signs (pallor, tiredness, breathlessness and headaches)</td>
</tr>
<tr>
<td></td>
<td>• Haemoglobin</td>
</tr>
<tr>
<td><strong>Vitamin A deficiency (xerophthalmia)</strong></td>
<td>• Clinical signs (night blindness, bitot’s spots, corneal xerosis, keratomalacia).</td>
</tr>
<tr>
<td></td>
<td>• Blood tests</td>
</tr>
<tr>
<td><strong>Iodine deficiency</strong></td>
<td>• Clinical signs (goitre and cretinism).</td>
</tr>
<tr>
<td></td>
<td>• Urinary tests</td>
</tr>
</tbody>
</table>
**Micro-Nutrient Deficiencies 2**

<table>
<thead>
<tr>
<th>Deficiency</th>
<th>Clinical Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin C deficiency (scurvy)</td>
<td>Clinical signs (painful joints, minute haemorrhages around hair follicles, swollen and bleeding gums and slow healing)</td>
</tr>
<tr>
<td>Thiamin (BeriBeri)</td>
<td>8 Clinically recognisable signs of beriberi</td>
</tr>
<tr>
<td>Niacin (Pelagra)</td>
<td>Dermatitis, dementia and diarrhoea, Cassals necklace</td>
</tr>
</tbody>
</table>
How will I remember all the different types of malnutrition?

Remember there are Two main types of malnutrition
PROTEIN ENERGY MALNUTRITION (PEM)  
...a result of deficiencies in any or all nutrients (includes micronutrients, as well as macronutrients).

MICRONUTRIENT DEFICIENCY DISEASES (MDD’S)  
...occur as a result of deficiencies in specific micronutrients (vitamins or minerals).
THANK YOU!