

MALNUTRITION

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MALNUTRITION

It is a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients.



Forms of Malnutrition

Under-nutrition

Over-nutrition

Macronutrient def.

Obesity

Micronutrient def



The main forms of Malnutrition are

Under-nutrition :

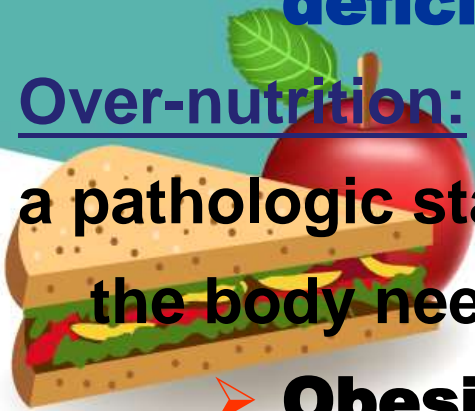
a pathological state resulting when nutrient intake does not meet the requirements. It includes:

- **Macronutrient deficiency e.g., protein-energy malnutrition(marasmus & kwashiorkor).**
- **Micronutrient deficiency as iron deficiency anemia, vitamin A deficiency, vitamin D deficiencyetc.**

Over-nutrition:

a pathologic state resulting when nutritional intake exceeds the body needs

- **Obesity**



Under-nutrition can be classified by the loss of body weight, one must consider the hydration status of the person before doing so, to calculate the percent of usual weight

$$\% \text{ of usual weight} = \text{Actual weight} \div \text{usual weight} \times 100$$

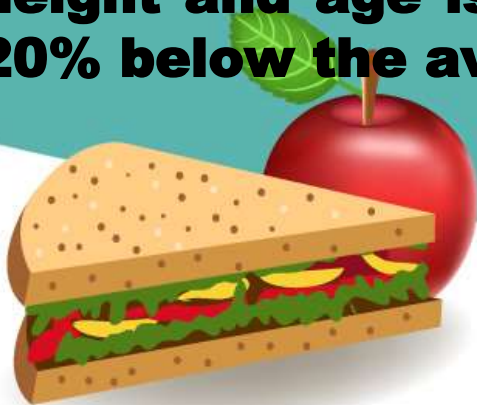
The classification of malnutrition is as follow [based on percent of usual weight].

Mild 85-90%

Moderate 75-84%

Severe <74%

A person who is more than 10% below the average weight for height and age is considered under weight , and being at least 20% below the average is cause for concern.



Causes of under nutrition: under nutrition is associated with conditions that cause general malnutrition , including the following :

1- Wasting diseases-- long term wasting disease with chronic Infection and fever that raise the BMR.

2-Poor food intake -- diminished food intake resulting from:

1- psychological factors that cause a person to refuse to eat.

2- loss of appetite

3- personal poverty & limited available food supply.



3-Malabsorption -- poor nutrient absorption resulting from :

- 1- long lasting diarrhea**
- 2- a diseased gastrointestinal tract**
- 3- excessive use of laxatives**

4- Hormonal imbalance --- hyperthyroidism or any other abnormalities may increase the caloric needs of the body.

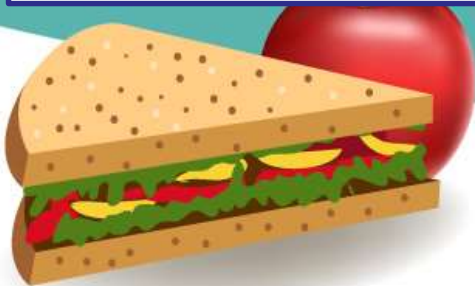
5-Energy imbalance --- this can result from greatly increased physical activity without a corresponding increase in food.



Malnutrition

Primary Malnutrition
due to community or family factors related to food production, distribution.

Secondary Malnutrition
due to individual factors affecting intake, absorption or utilization of food



Malnutrition

Immediate Causes

Inadequate Food Intake

Disease

Underlying Causes

Household Food Insecurity

Poor Social and Care Environment

Poor Access to Health Care and Unhealthy Environment

Basic Causes

Formal & Informal Infrastructure

Political Ideology

Resources



Primary malnutrition

It is due to reduced intake as in case of the following

- 1- Insufficient food production**
- 2- Unequal distribution of foods**
- 3- Lack of leisure .**

The work of women, the duration of work outside home and the transportation time all are factors that affect the likelihood of having proper meals at home. This indicates the importance of school meals and provision of canteens at work.



4- Housing and kitchen facilities

5- Lack of transportation

6-Cultural factors are:

**Food attitudes, habits, Values, behaviors,
Religion**

① Celebration food

② Age group or sex linked foods

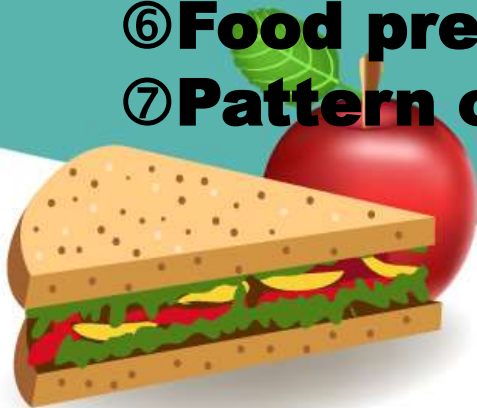
③ Disease linked foods

④ Modern foods(fast food and ready made)

⑤ Duration of breast feeding

⑥ Food preparation

⑦ Pattern of diet during pregnancy & lactation



Examples of Negative poor habits :

Unconsumption of satisfactory amounts of protective foods
due to:

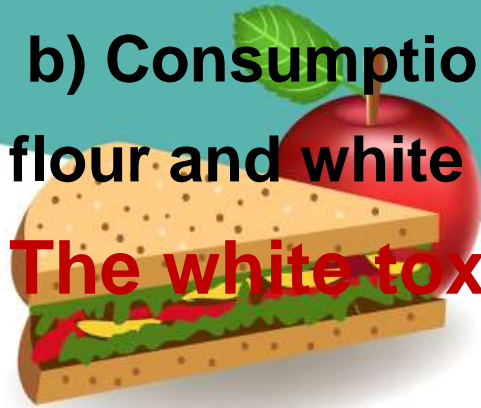
- failure to promote the habit during childhood
- local food customs
- Religious or ethnic restrictions or economic restrictions

Examples of Positive poor habits:

a) Excessive use of sweets . This replaces proteins , vitamin & and mineral source foods

b) Consumption of highly refined foods especially white flour and white sugar.

The white toxic Tirade: white Flour, Salts, sugar



Secondary Malnutrition

❑ **Deficient Intake:**

due to anorexia, in elderly and mentally ill

❑ **Increased food requirements:**

during febrile diseases and in hyperthyroidism

❑ **Malabsorption:**

in patients with diarrhea or patients with gastrectomy & in elderly patients

❑ **Mal utilization:**

Defects in metabolism as in Liver diseases .

❑ **Increased excretion:**

Chronic bleeding causes iron deficiency anemia



Prevention of Malnutrition

Primary prevention

1-Increas food production

2-Establishment of an efficient food distribution system

3-Proper environmental sanitation and raising the standard of living

4-Prevention and control of infectious diseases (vaccination)

5- Adequate services for vulnerable groups



Secondary prevention:

Early detection and treatment of malnutrition .

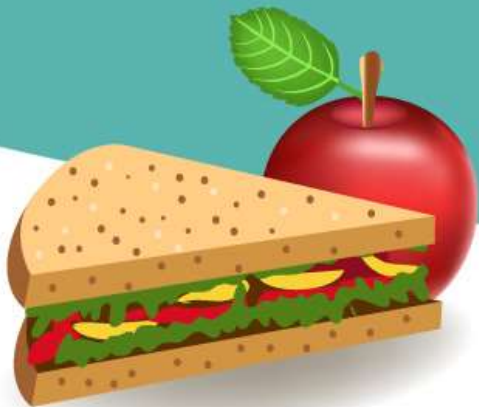
This can be done through periodic nutritional surveillance .i.e. systematic collection , dissemination and analysis of data related to malnutrition in order to plan a program for prevention & control of this

condition



Tertiary prevention

Rehabilitation services to offer health education for mothers to care and feed for the malnourished children to allow them to live normal life.



Ten Steps to Recovery in Malnourished Children

Steps 1 and 2

1. Prevent/treat HYPOGLYCEMIA

2. Prevent/treat HYPOTHERMIA

- **KEY is frequent feeding – every two hrs. night/day**
- **Skin to skin contact with parent, warm lamp, warm blanket, avoid exposure to cold.**



STEP

3

Treat/prevent dehydration

STEP

4

**Correct electrolyte
Imbalances**

- * **Excessive Na**
- * **Deficient potassium**
- * **Deficient magnesium**

**Remember: Two weeks minimum to correct
Prepare meals w/o salt
Do NOT use a diuretic to treat**

edema

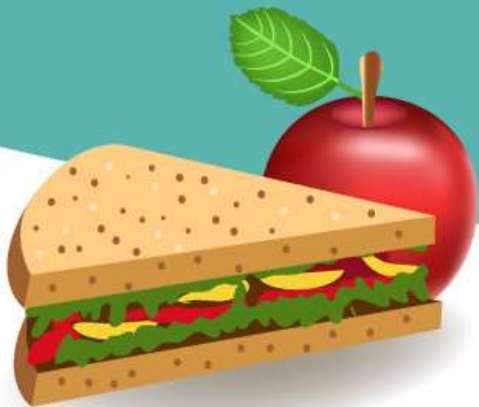


STEP **TREAT INFECTION**

5

Give to ALL severely malnourished children

- **broad-spectrum antibiotic**
- **measles vaccine to all children > 6 months.**
- **Vitamin A**
- **Mebendazole 100 mg BID x 3 days**
- **Consider HIV and TB**



STEP 6

Correct micronutrient deficiencies

**All severely malnourished children have
vitamin and mineral deficiencies.**

**Recommend: Zinc, copper and MV daily
Vitamin A and folic acid on Day 1**

**Do NOT give iron until the child has a good
appetite and starts gaining weight (usually
during the second week of treatment).**



STEP 7

Cautious Feeding

- Powdered milk, sugar and oil
- May include electrolyte/mineral solution
- Day 1 – 7
- Low in protein and iron, high in energy
- Small, frequent feeds: 130ml/kg

Step 8

Rebuild Tissues

Second week

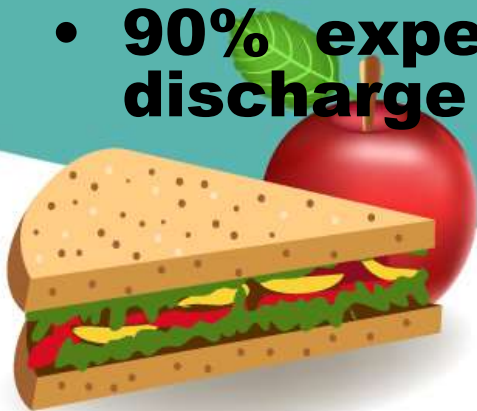
Advance to 200 ml/kg/day div q 3 to 4 hours

Advance to local foods – peanut butter,
beans, margarine – energy dense local foods



STEP 9 Stimulation, Play and Loving Care

- **Tender, loving care**
- **Structured play and physical activity as soon as the child is well enough**
- **A cheerful, stimulating environment.**
- **Encourage mother's involvement**
- **90% expected weight for height ready for discharge**



STEP 10

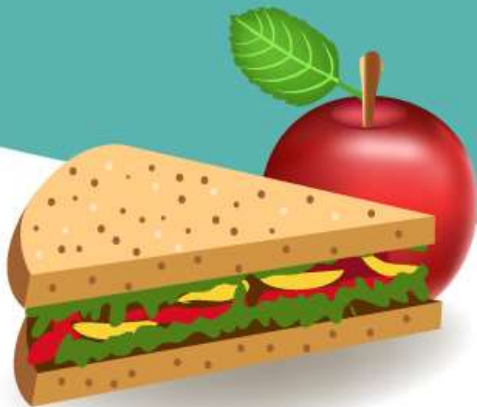
Preparation for Discharge

Nutritional education

Immunization

Home

Follow Up



Treatment of Malnutrition

PHASE	STABILISATION		REHABILITATION
	Day 1-2	Day 2-7+	Week 2-6
1. Hypoglycaemia	→		
2. Hypothermia	→		
3. Dehydration	→		
4. Electrolytes	→		
5. Infection	→		
6. Micronutrients	no iron		with iron →
7. Cautious feeding	→		
8. Rebuild tissues		→	
9. Sensory stimulation	→		
10. Prepare for follow-up		→	

