

Indian Academy of Pediatrics (IAP)



GUIDELINES FOR PARENTS

Prevention and Care of Malnutrition in Children



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10 FAQs on PREVENTION AND CARE OF MALNUTRITION IN CHILDREN

1. What is malnutrition?
2. Why do children become malnourished?
3. What are different types of malnutrition?
4. I feel my child is undernourished. How I can get it confirmed?
5. I regularly take weight of my child. How I can know whether my child is becoming undernourished?
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10. My first child was born low birthweight and later became severely undernourished. What measures I should take to ensure that my next child is not born with low birthweight?

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Prevention and Care of Malnutrition in Children

Q1

What is malnutrition?

Malnutrition is a general term that is originated from term “mal” meaning abnormal and “nutrition” meaning eating healthy and balanced diet. This term thus includes both undernutrition and overnutrition. Undernutrition occurs when the diet lacks in one or more nutrients leading to an abnormally low nutritional status. Overnutrition occurs due to excess of one or more nutrients (imbalance of essential nutrients) resulting nutritional status more than normal. However, in common usage, malnutrition is often used to indicate undernutrition which will be the focus of this chapter. Overnutrition and obesity will be discussed in another separate chapter.

Q2

Why do children become malnourished?

Children become malnourished when their nutritional requirements are not met. This may happen due to lack of proper nutrition, caused by not having enough to eat, not eating enough of the right things, or being unable to use the food that one does eat.

- If feeding practices are inappropriate, e.g., not breastfeeding, faulty feeding techniques such as feeling of insufficient breastmilk and starting with diluted animal/formula feed, bottle feeds, delayed introduction or thin complementary feeds (**Fig. 1**).
- Natural disasters or calamities (earthquake, drought, and flood) leading to orphan children, food scarcity, and illness in the households (**Fig. 2**).
- Prolonged illnesses or repeated episodes of illnesses leading to imbalance of nutrients or absorption of nutrients in the body (**Fig. 3**).
- Large family size, poverty, and limited income leading to food scarcity at household level (**Fig. 4**).
- Conditions such as unsafe drinking water, poor hygiene and sanitation, and recurrent infections can be a leading cause of malnutrition (**Fig. 5**).



Fig. 2: Natural disasters or calamities (earthquake, drought, and flood) leading to orphan children.



Prolonged/ recurrent illnesses

Fig. 3: Prolonged illnesses or repeated episodes of illnesses leading to imbalance of nutrients.



Large family size (Lack of family planning, poverty)

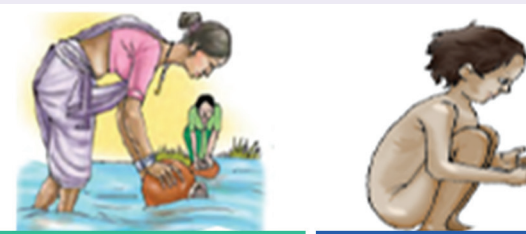
Fig. 4: Large family size, poverty, and limited income leading to food scarcity.



Sub-optimal feeding

Too Thin

Fig. 1: Suboptimal feeding or thin complementary feeds.



Unsafe drinking water

Illness

Fig. 5: Unsafe drinking water, open defecation, poor sanitation leading to illnesses, malnutrition.

Q3

What are different types of malnutrition?

Malnutrition is a general umbrella term which includes under-nutrition, overnutrition, and micronutrient deficiencies. However, the term is often interchangeably used to indicate undernutrition (**Fig. 6**).

Undernutrition is further divided into three categories:

1. *Underweight*: A child is underweight, if his/her weight is abnormally less for age and gender.
2. *Stunting*: Stunting is said to be there when a child has abnormally low height for his age and gender. Stunting is an indicator of chronic (prolonged) undernutrition resulting from long-term nutrient deprivation. Stunting may result in delayed mental development, poor school performance, and reduced intellectual capacity.
3. *Wasting*: Wasting is said to be there when a child has abnormally low weight for height for the gender irrespective of the age. It represents a recent failure to receive adequate nutrition or recent episodes of diarrhea and other acute illnesses. It indicates current or acute malnutrition resulting from failure to gain weight or actual weight loss. Common symptoms of wasting in a child are: loose folds of skin, thin limbs, and prominently visible bones (especially ribs).

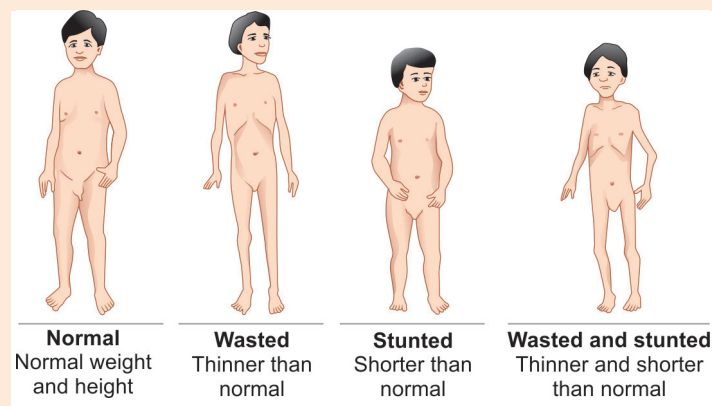


Fig. 6: Different types of malnutrition.

Q4

I feel my child is undernourished. How I can get it confirmed?

Undernutrition can be confirmed by taking certain body measurements. These measurements are weight, length/height, mid-upper arm circumference (MUAC) to see whether the child is growing well/normally (**Figs. 7A to D**). Parents are expected to request healthcare workers for these measurements.

In addition, micronutrient (vitamin or minerals) deficiencies are also identified by the doctor/healthworker by examining clinical signs by looking at eyes, palms (pallor), hair (brittle/brown), legs (rickets) to check whether the child have any hidden micronutrient deficiency of iron, vitamins, or other minerals.



Figs. 7A to D: Confirmation by taking certain body measurements.

Q5

I regularly take weight of my child. How I can know whether my child is becoming undernourished?

Childhood is a period of rapid growth, and weight gain is the most important sign which shows that the child is growing and developing well. The doctor/healthworker plots the weight on growth chart/mother and child protection (MCP) card which gives you an idea whether the child is growing well or not. If the growth line goes up, the child is doing well, while static or declining growth line indicates that the child is not growing well or becoming malnourished (**Fig. 8**).

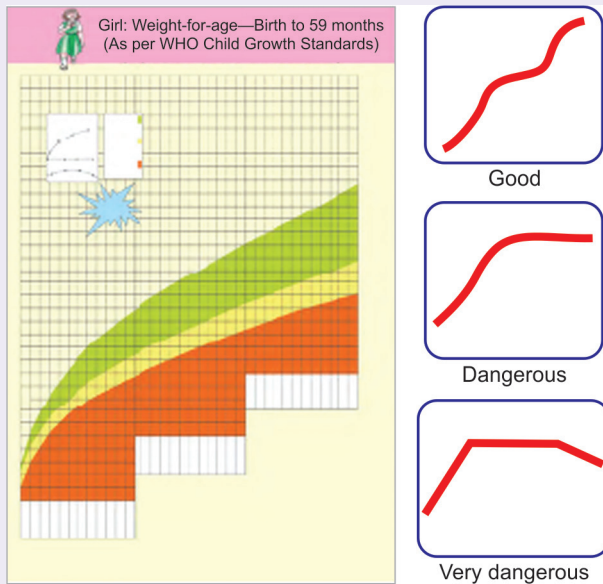


Fig. 8: Growth chart to confirm whether the child is becoming undernourished.

Q6

My child is 2 years old. I give him one glass of packed juice and one packet of chips daily. Should I continue it to prevent undernutrition?

For optimum growth, a child needs a balanced diet which meets his/her requirements of energy, protein, and other important major and minor nutrients. Packaged juice and chips and other packed food items are costly, high in sugars and fats, and very poor in proteins, vitamins, minerals, and other important nutrients. Such junk foods are also likely to cause dental caries and are bad for the child's heart in long term. And also, once the child develops taste of these commercialized food items, she will resist and refuse to take home-made items. So try to feed foods cooked at home. Instead of the fruit juices, you must encourage him/her to eat whole fruits and give variety of food items so that the child gets appropriate nutrition.

Q7

How can I prevent undernutrition in my child?

Prevention of undernutrition starts even before the childbirth. A good family planning to avoid early pregnancy and regular antenatal care after conception will ensure a healthy mother, and, hence, a healthy baby. Good nutrition during pregnancy and lactation will help mother to nurture baby better. Undernutrition can be prevented, if a child gets optimal nutrition, i.e., exclusive breastfeeding for first 6 months (180 days) and after completion of 6 months, age appropriate complementary feeds (semisolid foods) along with continued breastfeeding till 2 years of age and beyond. Delayed introduction of complementary feeds and giving thin, diluted, and liquid diet are major causes of undernutrition in infancy and childhood. Remember the following characteristics of optimal complementary feeding:

- *Timely*: Start after completion of 6 months (180 days)
- *Adequate*: The food needs to be adequate in proteins, calories; thick semisolid in consistency; and should include a starch source (cereals), protein source (pulses/animal or milk products) and fat; and should be made from a variety of food items to maintain diversity and meet the requirements of micronutrients and vitamins (**Fig. 9**).
- *Safe*: Hygienically prepared, stored, and fed
- *Properly fed*: Active, responsive feeding while talking or interacting with the child with a long-term aim to promote self-feeding.

Additionally, the child should get age-appropriate immunization which will protect him from common illnesses. Prompt treatment and continued feeding during illness will help child to recover faster from common illness. Above all you should also ensure good hygiene and sanitation to protect your child from infection (**Fig. 10**).



Fig. 9: Combination of food groups.

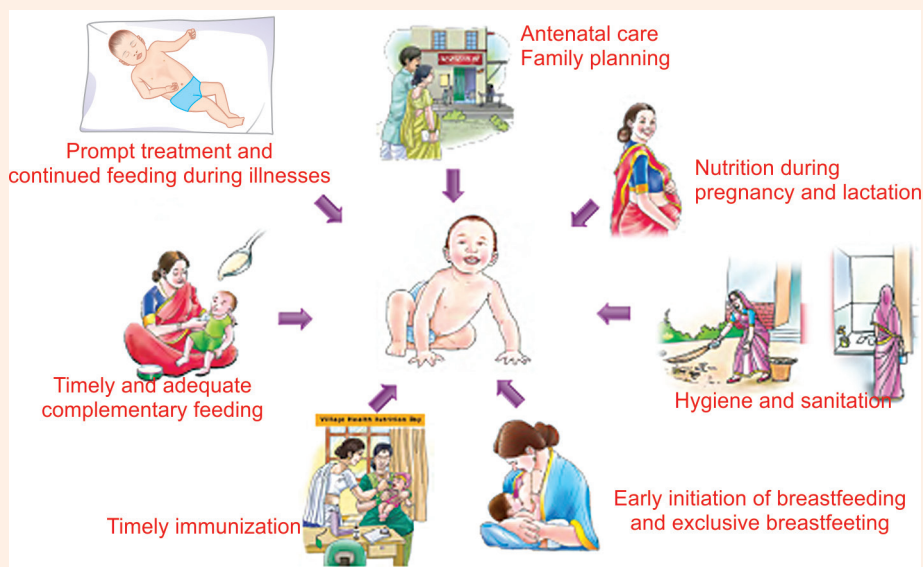


Fig. 10: Strategies to prevent malnutrition.

Q8

I feel that my child is undernourished. Should I give some protein powder to make him healthy?

Only protein powder will not take care of child's health and nutrition. It may be dangerous because in malnourished children kidney will not be able to take care of high amount of protein, and also may cause digestive distress, increased bowel movements, nausea, thirst, bloating, cramps, reduced appetite, tiredness (fatigue), etc.

These children need a balanced diet. Young children have a small stomach size, which can accommodate limited quantity at a time so each meal must be made energy dense. You should consult your doctor or healthcare worker who can guide you about foods according to the severity of malnutrition. Meanwhile few tips are given below which can be helpful in enhancing the quality of your foods and ways by which nutrient losses can be prevented.

You can add variety to food and enhance the quality of food, e.g.

- If cereals are cooked in milk, this enhances the total calories and quality of protein.
- Meals may be made energy dense by preparing porridge in milk; adding butter/ghee/oil, adding sugar or jaggery (**Fig. 11**). They also make food items tasty. Also, helps the absorption of vitamins.
- Foods can also be enriched by adding powder of sprouted dried and roasted grains.
- Another way of enhancing density and improving protein quality is by fermenting the food items (e.g., idli, dhokla).

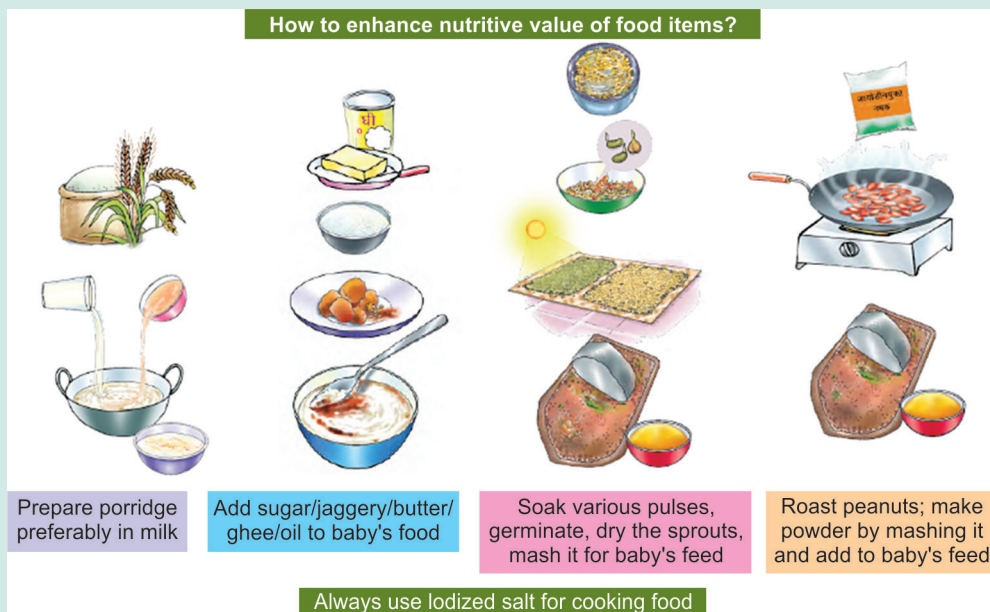


Fig. 11: Enhancement of nutritive value of food items.

In addition, while cooking you should also ensure that nutrient loss is prevented or minimized by using the following techniques:

- Wash vegetables and fruits before cutting them to avoid wastage of water-soluble vitamins.
- Pressure cook or cover the food while cooking to avoid fuel wastage, retain nutrients in it (**Fig. 12**).
- Soak grains to improve the quality of protein in pulses and cereals and also reduce the time of preparation.
- Food can also be enriched by cooking on medium heat.
- Roasting of grains before grinding and adding sprouted flour.
- Essential and complete proteins can be attained from meal, if combinations of food groups are used during preparation.
- Daily inclusion of animal-source food in the diet is particularly important. High-quality food is especially important to ensure that children gain both adequate weight and height.



Fig. 12: Prevention of nutrient loss.

Q9A

My child is looking weak. Should I get him infused IV fluids to make him healthy?

Malnourished/weak children have different changes in their bodies and organs. The heart, liver, etc. work slowly. If such a child is infused with IV fluids, it may overload the body organs and will be dangerous. So, IV fluids must not be given to these children on a routine basis. Consult your physician or take him to hospital for examination and treatment.

Q9B

What facilities are available for treating severely malnourished children?

For early identification and treatment of malnourished children, the government has taken measures and started centers called as Nutrition Rehabilitation Centers (NRCs) in several states where these children get appropriate treatment. At these centers, the services and care provided for the in-patient management includes:

- 24-hour care and monitoring of the child.
- Treatment of medical complications.
- Therapeutic feeding.
- Providing sensory stimulation and emotional care.
- Counseling on appropriate feeding, care, and hygiene.

In addition, many states have also started community-based management of children for malnourished children without medical complications and good appetite, where services are provided through “Anganwadi” centers.

Q10

My first child was born low birthweight and later became severely undernourished. What measures I should take to ensure that my next child is not born with low birthweight?

- It is very important that you consult obstetrician, whenever you are planning your next pregnancy. For good health of mother and baby, you should ensure the birth-gap of at least 3 years between your two pregnancies.
- Ensure regular antenatal check-ups for growth and development of the baby in the womb.
- All foods are safe during pregnancy. During pregnancy and lactation, a woman needs extra food (approximately 300 Kcal) everyday to meet the needs of the baby and her own well-being. So, you should take one additional meal (family food items) during that time. The food should be healthy, and should not be junk food (low on nutrition, but high on calories). You should take good quality proteins such as soyabean, daals, eggs, milk, etc. Have variety of foods including seasonal fruits and vegetables also use iodized salt to meals.
- In addition, every woman needs rest during this period, at least 10 hours daily (especially 2 hours during afternoon). She should avoid fatigue. This is more important especially during the last 3 months of pregnancy.