

# (Mal)Nutrition Primer

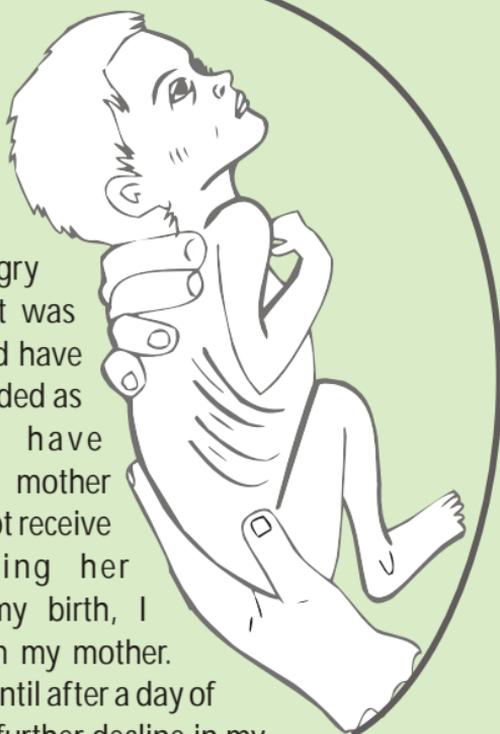
Around the world  
'Development' market is abuzz,  
And back home  
Filled with water, lots and lots  
Large pipkin ready to cook  
With the handful of Daal,  
To feed Chhutkoo & Munni  
To feed their starving stomach..  
And it goes day-in day-out,  
Mother does it all around  
My magic is getting torn apart  
Whither goes your Call to Action  
Measure up your MDG  
With my magic,  
my call.....



Vikas Samvad

# My Story

I am Sunita. My mother worked throughout her pregnancy carrying me in her womb. With no food in plate she went starved leaving me hungry too. At birth my weight was only 2.2 kg which should have been 2.5 kgs to get recorded as normal. This must have happened because my mother and consequently I did not receive adequate food during her pregnancy. Following my birth, I needed breast feed from my mother. However, I did not get it until after a day of my birth resulting in the further decline in my weight.



My Mum had to resume her wage work a week after I was born. She had no option either. Whenever she would hold me to her breast for three to four times in a span of 10 hours, I would feel full of life and rejuvenated. Somehow, I kept growing, albeit in age!

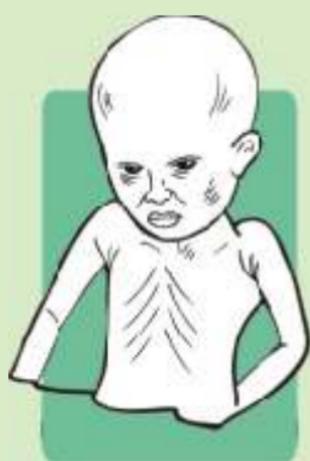
My dietary needs had substantially gone up by the time I was six months old. I needed to have complementary food in addition to my mother's breast milk. I felt that 'anything' would do! Whether mashed daal-rice, Khichadi, bananas, boiled and mashed vegetables, milk, I craved for something to satiate my hunger. But alas, I did not get anything other than my mother's breast milk. Deep within, I started feeling weakened.

Getting safe and clean drinking water in my village was also very difficult. I started falling ill repeatedly. Every successive illness would leave me much weakened. I could apparently see worries on the faces of my parents. I would often hear them grumble, 'today also we did not get any work, and what would we feed Sunita'. They would also say with anguish that they did not get paid for the work they had done long back.

Soaked in rain, the fire wood had got wet. Kerosene oil was also not available at the ration shop. Therefore, no food could be cooked in the house for the last two days. How much could we borrow from the market?

I went to the Anganwadi one day. The aunt (Anganwadi Worker) weighed me in a swing (Salter scale). Then she measured my length/height. When she entered my weight in the register and marked me with a red sign, she felt sad. After all, I was too weak!

My battle to stay alive had had got off with a disadvantage!

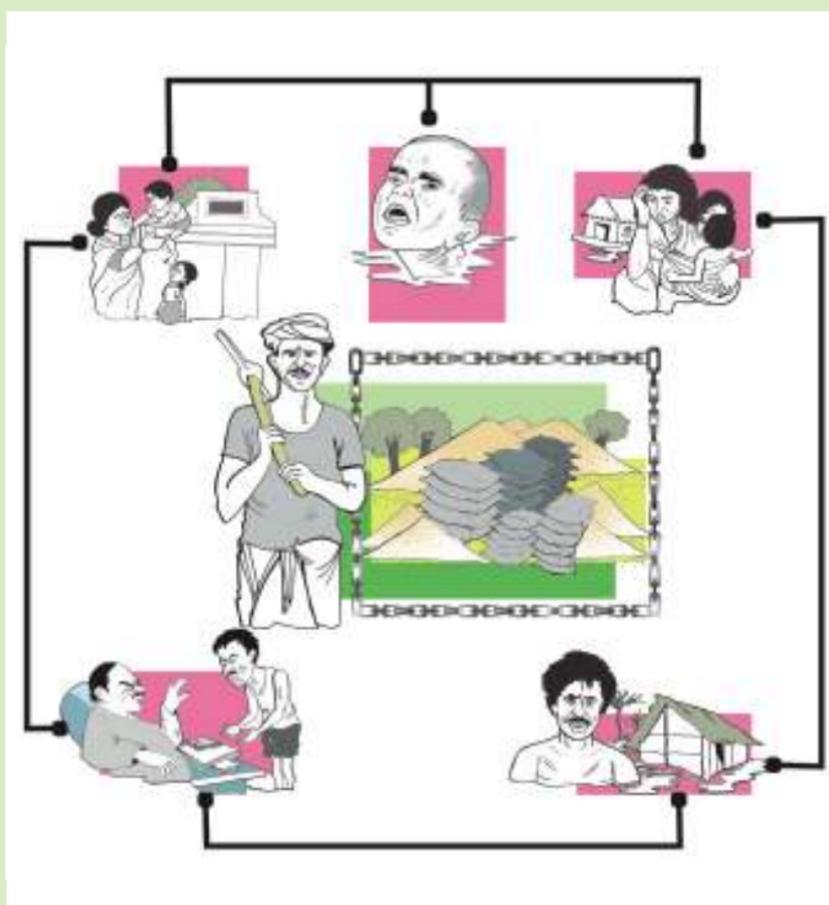


## What is Malnutrition?

◀ Hunger and illness  
are the seeds of Malnutrition ▶

We need food to keep our body and mind healthy and active. Unfortunately while talking about food, we only consider wheat and rice which however, do not provide adequate nutrition.

The lack of healthy, nutritious food for prolonged period, thence, causes weakness in the children, weakens their immune system and further leads to malnutrition.



- ▶▶ Children become the first victims of malnutrition.
- ▶▶ Every child can be taken out of the web of malnutrition, provided we really want it.
- ▶▶ Come and join the initiative of Community Based Management of Malnutrition.

# How does Malnutrition occur?

Malnutrition occurs —

- ▶ If the newborn is not exclusively breast fed for the initial 6 months; and/or is given any feed other than mother's breast milk during this vital period.
- ▶ If from the six month onwards and well up to two years and even beyond, the child is not fed soft mashed complementary food whilst being continued with the breast feed.
- ▶ If from the age of two years onwards, the child does not get stomach full balanced diet.
- ▶ If the child suffers from repeated episodes of diarrhea or has other illnesses.
- ▶ If the child is kept only on grain based diet.
- ▶ If in addition to food grains, the child's diet does not include foods like pulses, edible oil, jaggery, vegetables, milk or milk products, eggs and fruits.
- ▶ If the pregnant woman does not get full and varied diet, the child becomes malnourished whilst being in the stage of fetus.

Neglecting these may invite malnutrition !



We must ensure —

- ▶ Adequate food for every family.
- ▶ No discriminations and misbehaviours towards women.
- ▶ Growth monitoring of each and every child in Anganwadi Centres.
- ▶ Proper immunization and nutritious and healthy food to every child.

# Types of Malnutrition?

## Understanding malnutrition terms

▶▶ Stunting : It refers to low height-for-age (H/A) score. When child fails to gain the height given for age, stunting is observed. It is often associated with long-term factors such as insufficient protein-energy intake, and frequent illness. It is therefore an indicator of past growth failure and chronic malnutrition.

▶▶ Wasting : It refers to low weight-for- height (W/H) score. It is observed when child fails to gain sufficient weight given for height. Wasting is referred to as "acute malnutrition" because of its episodes of short duration in contrast to stunting.

▶▶ Underweight : It refers to extremely low "weight-for-age" (W/A) score. By "underweight" it means a situation where a child weighs less than expected, given for age. It reflects current and acute as well as chronic malnutrition. W/A is commonly used for monitoring growth and to assess changes in the magnitude of malnutrition over time.

### ▶▶ Check MUAC Measurements

- MUAC less than 11.5cm, RED COLOUR, indicates Severe Acute Malnutrition (SAM). The child should be immediately referred for treatment.
- MUAC of between 11.5cm and 12.5cm, YELLOW COLOUR, indicates that the child is at risk for acute malnutrition
- MUAC greater than 12.5cm (125mm), GREEN COLOUR indicates healthy status

## Adverse Impacts of Malnutrition

- Loss of energy.
- Compromised immune system making more susceptible to infectious diseases.
- Frequent episode of illness.
- Limit total bone growth.
- Fatigue and lethargy etc.



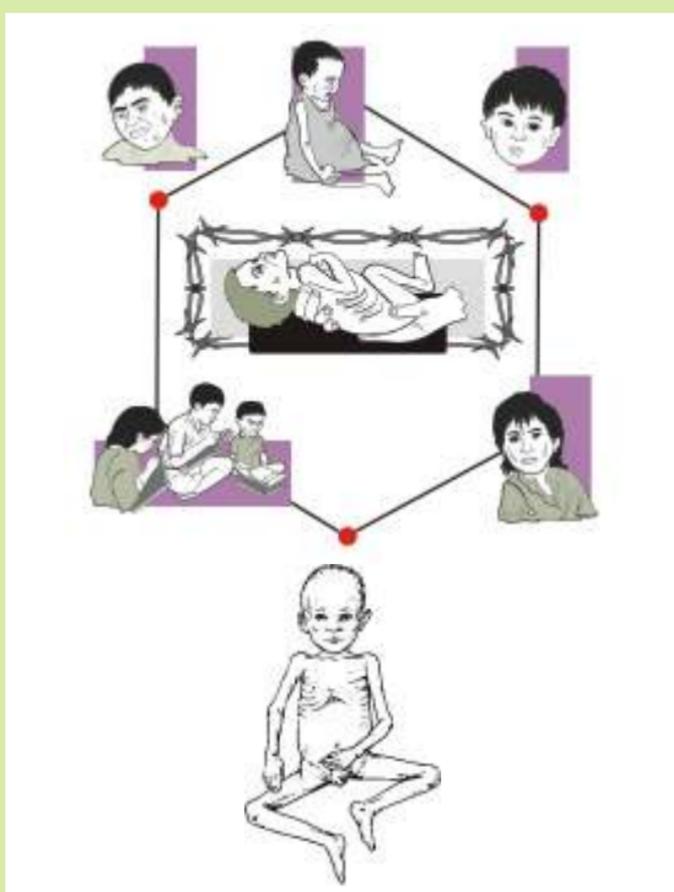
We can help children preserve their energy and prevent its loss. We can ensure that children remain healthy and do not fall sick.

We can save our children's lives,  
It's in our hands!

# How to identify Malnutrition?

Malnutrition can be said to have set in if the answers to the following questions are in the affirmative —

- ▶▶ Is the child's body weight stagnant over time?
- ▶▶ Does the child suffer from repeated episodes of illnesses?
- ▶▶ Has child's body weight declined over the previous time?



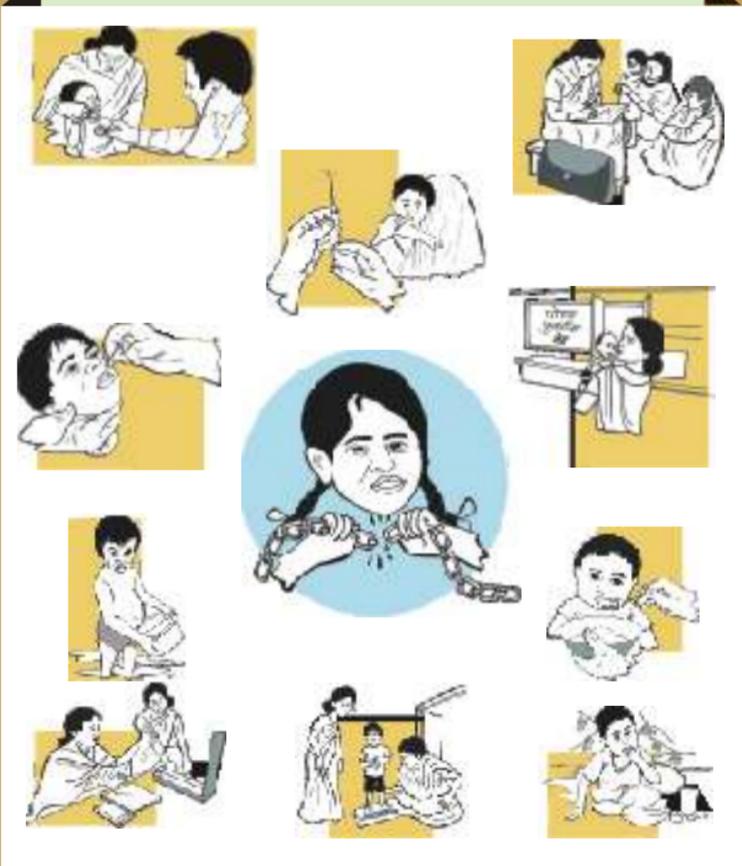
## Symptoms of Malnutrition

- Weight loss & stunted growth.
- Water retention (edema).
- Tight skin.
- Dry, unhealthy hair; hair de-pigmentation and hair loss.
- Abdominal swelling.
- Fatigue & dizziness.
- Weak immune system.
- White tongue.
- A 'skeletal' look.
- Skin color loss and dull yellow skin;
- Pale finger's nails etc.

# Treatment and Prevention of Malnutrition

To prevent malnutrition following points need to be taken care of —

- ▶ Providing health services and adequate nutrition to adolescent girls and pregnant women.
- ▶ Newborn must be immediately breast-fed and should be exclusively breast-fed for first six months.
- ▶ Complimentary feeding should be started after six months in form of mashed pulses, vegetables, fruits or khichdi along with breast feeding.



- ▶ Ensuring regular Growth Monitoring of a child right after the birth.
- ▶ Ensuring clean and safe drinking water and hygiene practice.
- ▶ Community should ensure its role in taking care of malnourished children.
- ▶ SAM children should be taken to NRC if found with aforesaid symptoms.
- ▶ Visiting AWCs on regular note and offering help to AWWs.
- ▶ People should demand employment from proper channels.

It might be other child who is malnourished today, but, if proper steps are not taken now, your child will be in the count too !

# Forming understanding towards Growth Monitoring and Growth Promotion

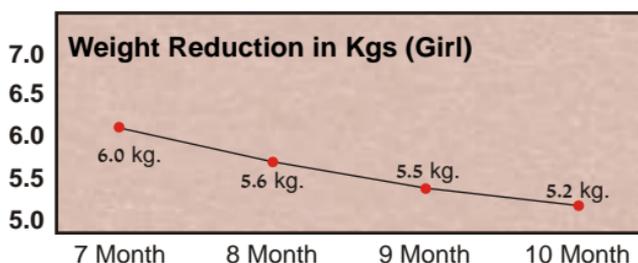
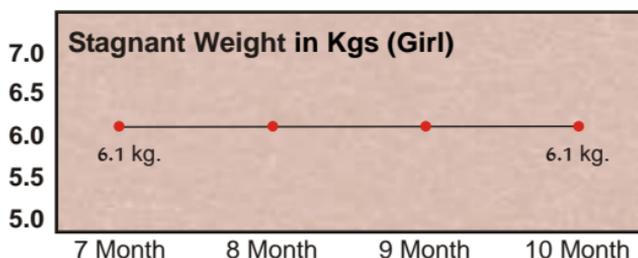
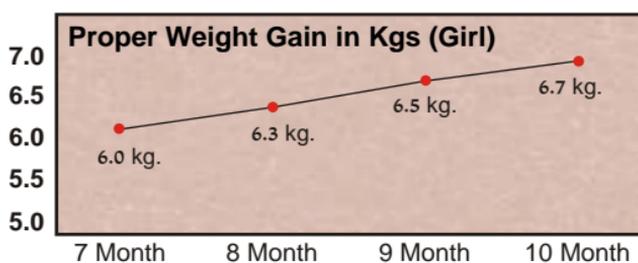
The essential components of Growth Monitoring are :

- Regular Weighing of the child periodically (caretakers or by AWWs at AWCs).
- Usually done by recording the weight for the age of the child on the Growth Chart as growth curve.
- Determining the adequacy of weight gain—observing the growth curve as upward, flat or downward and interpreting child's growth as good or bad.

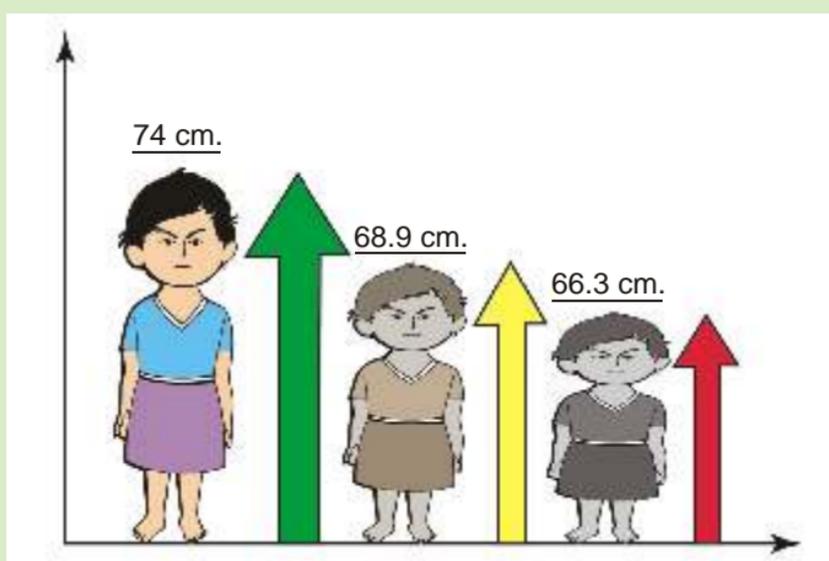
## Entering into Growth Monitoring and Promotion (GMP) :

Growth Monitoring Promotion is actions on the results observed during Growth Monitoring. The essential components of GMP are :

- Discussing the child's growth and follow-up action needed : The growth pattern and curve should be discussed with the mother or other care takers to determine the causes of problems or the reasons for success over the past month.
- Tailoring the counseling to fit the individual case i.e. providing the counseling as per the status of growth of child.
- Referral to available services: the child should be referred to NRC or community health centers as per the demand.
- Targeted messages on food practices, health and hygiene, mother and child care, etc. should be delivered.
- Health follow-ups and defining the next steps and when to return to check the outcomes and keeping a tab on everything.



# Regular Weighing of Child

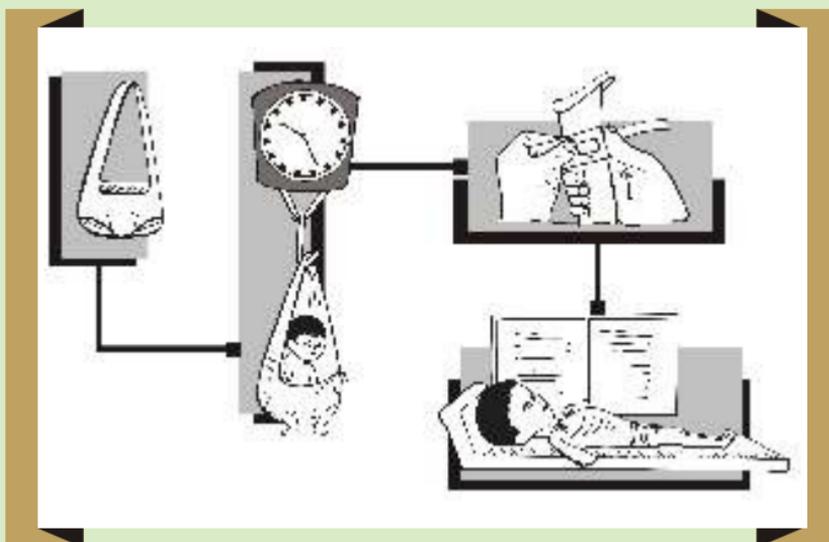


- ▶ Children are weighed in Anganwadi Centre every month. It helps us to know whether the child's growth is proper or not.
- ▶ And, in case if growth faltering is observed appropriate treatment can be taken at early stages to safeguard the child against malnutrition.

**Weighing scale not only measures but can even monitor a child's growth !**

## Interpretation of Growth Faltering

- ▶ Weighing helps us to appraise whether the child's body weight has increased or not in comparison to the previous months.
- ▶ If the growth curve is showing an upward trend, then it means that growth is taking place.
- ▶ In case the weight remains stagnant over a period of three months and does not show increase, it means that the child is on the verge of becoming malnourished.
- ▶ If the child's body weight shows a decline, it means that the situation is becoming precarious.

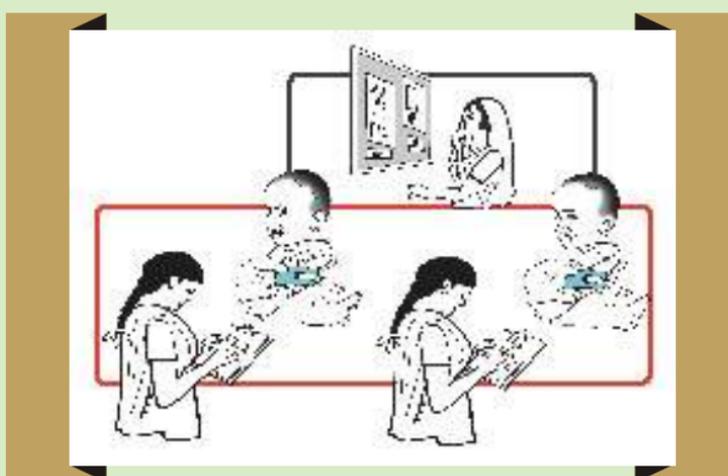


# What to do when the child is Acutely Malnourished!

Acute Malnutrition may create a permanent problem, like disability, in children and can be fatal also. We must save and protect the children from being acutely malnourished.

## Who are the children with Acute Malnutrition?

- ▶ Those children who have low Weight (W)-for-Height (H) or Length (L) are said to be suffering from Acute Malnutrition. If  $W/H-L < -3SD$ , the child has Severe Acute Malnutrition (SAM). If  $W/H-L$  is between  $< -3$  and  $-2 SD$ , the child has Moderate Acute Malnutrition (MAM). The table at the end of this booklet prescribes the required weight for height.
- ▶ Mid Upper Arm Circumference (MUAC) is an alternative measure of child thinness. Age independent, it is used for assessing acute malnutrition amongst children from 6 months up to 60 months. It indicates muscle mass and fat reserves.
- ▶ Procedure for measurement with MUAC tape includes the following :
  - Locate tip of child's shoulder.
  - Bend child's elbow to make right angle.
  - Place tape at tip of shoulder at zero.
  - Pull tape straight down to the tip of elbow.
  - Read number to the nearest 0.1 cm.
  - Divide number by 2 to get mid-point.
  - Mark the mid-point with a pen.
  - Straighten child's arm and wrap tape around the arm at mid-point.
  - Ensure proper tension of the tape-not too tight or too loose.
  - At correct position, with correct tension read measurement to the nearest 0.1 cm.
  - Record measurement immediately.



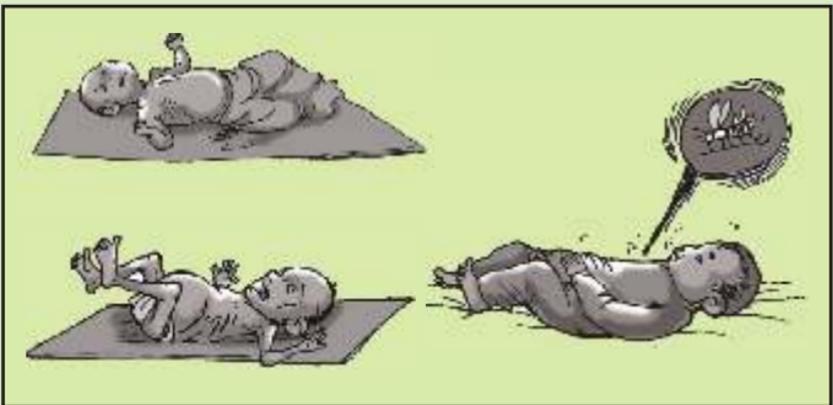
- ▶ If the MUAC measure is  $< 11.5$  cm, the child is suffering from Severe Acute Malnutrition. If the MUAC measure is between 11.5 cm and 12.5 cm, the child has Moderate Acute Malnutrition.
- ▶ The child with SAM having illness like fever, cough or diarrhoea or pneumonia or has oedema or is refusing to eat needs to be taken to Nutrition Rehabilitation Centre (NRC) or the hospital for urgent medical attention.
- ▶ The child with MAM needs special care within the community by giving appropriate special diet.

# Malnutrition and Illnesses

Malnutrition and illness are directly linked and can be understood in two ways —

When malnutrition sets in, children's immune system to fight the disease gets impaired. They get repeated episodes of illnesses. This weakens the children further. Consequently, even if they receive medical treatment, it takes a longer time for them to recover.

Good nutrition, other hand, builds a security cover, both inside and outside the children. This cover wards off the illnesses and even if the child happens to contract an infection/illness, the internal immune system does not allow it to spread further. Thus, here we speak of a vicious circle of malnutrition-illness-malnutrition. The vicious circle can trap the child to such an extent of severity that it may also become fatal.



According to the World Health Organisation (WHO), 1.20 crore 'under 5 children' die every year. Of these, 60 lakh children become victims of diarrhoea, respiratory infection, pneumonia, malaria and measles.

Though prevalence of malnutrition is widespread in our country, it is not accounted as a causative factor for child deaths. The WHO reports that probability of child's death increases when s/he suffers from malnutrition which is compounded by diarrhoea. Malnourished children suffering from acute respiratory infection and pneumonia have two-three times higher chance of dying than those who are not malnourished.

Malnutrition can be the cause of illnesses and illnesses can even lead to death. Medical treatment alone is not sufficient. The right way is to build a protective cover of nutrition. Whenever children fall sick, it is crucial to check on attributive association of illnesses with malnutrition.

# Malnutrition and Agriculture

The food market has had extensive diversification. However, for some reasons, agricultural production has witnessed a shrinkage in variety of produce. Now, there is need to bring in diversity in agricultural produce as well. It is important that we accord a serious attention to the rationale and need for widened base of agricultural produce.



Just being stomach-full with wheat-rice can also lead to the occurrence of malnutrition. We have to bring a host of nutritious foods including coarse grains like ragi, kodo-kutki, jowar, bajra and makka (maize) right from the agricultural fields to the food serving plate.

As we aspire that our country should become self-reliant in respect of food grains, fruits, vegetables and pulses; in the same vein, our villages should have the capability to fully meet their entire range of food needs. Just as the import of food grains is painful for the country, so it is for the villages as well.

# Malnutrition and Food Culture

Yes, that's right! Food, particularly the nutritious food, is a matter of our culture. It spans from production to dietary intake practices. *Pania* made from maize, *dal-batee* (a preparation made from pulses and wheat flour), *dosa-idlee* (a typical and famous South Indian dish made from fermented rice), *chapatis* (bread) made from Jowar and Bajra (coarse food grains), dishes from *biryani* to those made from gram flour like *gatte* are all associated with our culture, food patterns and traditions. We must keep up our traditions.



Some communities are vegetarians whilst some are non-vegetarians. All communities should have freedom of choice for foods of their liking. Whichever food is culturally acceptable to them, they should have economic and political access to it.

Edible oil, nutritious food grains, eggs, local beet roots, pulses and edible forest produce can help eliminate malnutrition. The moot question is whether we are ready to free the children from malnutrition.

If yes, we must accept that food is directly associated with community's right to natural resources. As these associations become strengthened, malnutrition will get repelled farther away. repelled farther away.

# Malnutrition and Governance

The availability of food has to be necessarily ensured. It is also essential that the food should be nutritious and necessarily offer variety. Nutritionists affirm that our food plate must contain food dishes in different colors, like, white rice, yellow dal, green spinach and red tomatoes! Accordingly, this has to do with agriculture and seeds.

Food comes from the agricultural fields, rivers-lakes, and from the sea and forests. It means that it is necessary for us to save all of them-fields, lakes, rivers, sea and the forests.

Food availability can be there if there is production. However, in order to be able to buy dal, rice, edible oil, vegetables, eggs and spices etc., we would require livelihood and means of gainful employment which can give us sufficient income to be able to meet our needs.

Gram Sabha and Panchayat have to take their decisions with regard to the development of households in the catchment village(s). Their decisions and initiatives, taken in the best interests of the community, would go a long way in freeing the children from the menace of malnutrition.

The children must get prompt and complete treatment in the event of an illness, lest it should become the cause for malnutrition.

Now, if one adds up the number of factors and government departments which must join up for forming an integrated thrust to combat malnutrition, it becomes clear that spectrum of development has an array of sectors which have a bearing on Public Health Nutrition!



# Malnutrition, Sanitation and Safe Drinking Water

Flies contaminate our food, even if we seek to wave them away. One would and should shiver with the thought of places where the flies would have sat on before coming in contact with our food and transmitting contaminants to it.

Fly brings filth which we may not be able to notice with our naked eyes. And, we become prone to contracting infections and illnesses! Let's therefore, remember that the journey of filth begins with open defecation and that we are responsible for it. Let's also not forget that this journey of open excreta culminates unto us too via these carriers, the flies!

Likewise, the excreta which flows in to the river or lake or wells, it reverts back to us with the water bodies getting polluted! This raises the question of clean and safe drinking water.

Hence, role of local civic bodies becomes pronounced in preventing malnutrition.



Our hands come in contact with a host of things and places. It implies that our hands are most prone to get dirty. Therefore, it is very important to wash our hands with soap to ensure that we ward off infections in all forms.

Sanitation is not just a matter of personal hygiene. It is a matter of policy too and that it is here that the government departments responsible for the concerned sectors look at the issue of malnutrition and healthy wellbeing from a synergistic and coordinated perspective.

# Food Groups

Does it sound strange? Are there dynasties or families of foods too? Yes, we can call them as families or tribes or sects of food. Or we could even term them as *gotras*, *jatthas* or dynasties!

The following 7 food groups form a complete family of food. In scientific language, we refer to it as complete nutrition. Each group is a unit of the foods family :

- ▶▶ Group One : Food grains; wheat, rice, ragi, bajra and others.
- ▶▶ Group Two : Pulses and legumes; dal, rajma, gram, beans and others.
- ▶▶ Group Three : Milk and meat; milk, curd, fish, meat, and others.
- ▶▶ Group Four : of fruits; papaya, guava, banana, water melon, and others.
- ▶▶ Group Five : of green leafy vegetables; spinach, mustard, methi (fenugreek leaves), any leafy vegetables.
- ▶▶ Group Six : other vegetables; lady finger, tomato, munga (*Sesbania grand flora*), 'sem phali' (broad beans), cauliflower, and others.
- ▶▶ Group Seven: Fats and sugar; edible oil, ghee, sugar, and jaggery.



If during a day, a food item from each of these 7 groups is part of the child's palate, it becomes a complete food. If no, the food remains incomplete and so do the human relationships!

# Food Rainbow

When rainbow appears in the sky, the multicolored spectrum of light looks beautiful. It evokes a very pleasant feeling. The question is whether there is a rainbow of foods also.

Yes, it is! When the rainbow of food gets broken, food groups of different colors get missed out and malnutrition sets in. Well-nourishing food means composite food consisting of different colored food items. Each color group meets different nutritional needs.

- ▶ Red and saffron : Tomatoes, carrots, red lentil (masoor dal), red leaves (chaulai bhajee), meat and others.
- ▶ Yellow and orange : Pumpkin, papaya, muskmelon, gram dal and yellow pigeon peas (toor dal), turmeric, mustard, soybean and others.
- ▶ Dark brown : Jaggery, green berry, Madhuca longifolia (mahua), sappotta (chekku), black cumin (jeera) and others.
- ▶ White : Milk, fresh cheese, curd, rice, banana, egg, sugar, salt, garlic, jackfruit, coconut and others.
- ▶ Green : Spinach, fenugreek leaves (methi), bitter melon, lady finger, bottle gourd, cabbage, goose berry, chareta, chakoda and others.
- ▶ Black : Black gram, black urad, brown mustard seed, black grapes, black kidney beans (rajma) and others.
- ▶ Violet : Brinjal, jambu fruit (Jamun) and others.



When all of these colors together get included in our food, malnutrition gets wiped off. We need to decorate our food with such a rainbow color scheme of food constituents.

# Management of Malnutrition within the Community

Malnutrition causes morbidity, illness and disability. It is the single direct and largest cause of child deaths. By itself, malnutrition is not a disease but causes many diseases. Government and the society are accountable towards the wellbeing of the children and that they must perform their efficacious roles towards realizing the same.



The following steps when effectively pursued within the community would greatly help mitigate the perturbing situation of persistent malnutrition —

- ▶ Step One : Ensure availability of complete food to every woman and every girl, with due respect for them.
- ▶ Step Two : Proper care of the pregnant women and their regular health checkups must be ensured.
- ▶ Step Three : Ensure that immediately after the birth, the newborn is definitely breastfed in all circumstances.
- ▶ Step Four : Special priority care should be provided for children up to the age of 2 years.
- ▶ Step Five : The community must demonstrate a sense that the Anganwadi Centre belongs to it so that children feel at home while being away from their home.
- ▶ Step Six : Regular growth monitoring of children must be done, i.e., weighing, height measurement and measuring Mid Upper Arm Circumference; in accordance with age-specific schedules.
- ▶ Step Seven : It would be add to community mobilisation by observing the regular events of immunisation and growth monitoring in a celebration mode.
- ▶ Step Eight : The community must lead in the elimination of discrimination in all its forms, i.e., gender, caste and religion.
- ▶ Step Nine : Struggle for securing safe clean drinking water and sanitation for the community should receive priority attention.
- ▶ Step Ten : Make a plan for health surveillance and monitoring of the deliverance of health services.
- ▶ Step Eleven : Gram Panchayat should monitor health and nutrition programmes through its standing committee on health and nutrition.
- ▶ Step Twelve : Nutrition, as an agenda, must be included in the deliberations of Gram Sabha's meetings.
- ▶ Step Thirteen : Production of food grains, vegetables, fruits and milk products must receive careful attention in community's reflections and initiatives.
- ▶ Step Fourteen : An organised struggle should be maintained to ensure equity in securing livelihood and payment of timely and full wages for all.
- ▶ Step Fifteen : The community must keep an eye on the system of governance, raise questions and ask for maintaining transparency in all development programming and implementation.

# Age-Weight-Length/Height Tables

According to the World Health Organisation, it is critical to monitor the three indicators of child growth and the associations amongst them for children from 0 to 5 years age. These three indicators are :

1. What is weight by age? If the child weighs lesser than the stipulated weight, then that child will be said to be 'underweight' or 'severely underweight', as the case may be.
2. What is weight by height or length? If the child weighs lesser by age as compared to the stipulated weight, the child will be said to be 'wasted' or be in a state of 'severely acute malnutrition', as the case may be.
3. What is the height/length by age? If the child measures lesser in height/length as compared to the stipulated one, the child will be said to be retarded in growth or being 'stunted'. It goes to show that the impact of malnutrition has been deeply adverse and has become chronic because of which child's height is not increasing.

After this page, all those tables have been provided which can be referred to identify the normal status, or nascent stage or moderate or severe stages of malnutrition. Alongside, we also get to know as to what are the three different situations of underweight or severe malnutrition and retarded growth or being stunted. You can keep a tab on development of children and monitor their growth in your areas by referring to these tables.

Weight-by-age table is the same which is generally used in the Anganwadi Centres. Weight by height/length table is generally used in hospitals and Nutrition Rehabilitation Centres.

## Weight-by-Age Table (Girls)

(In accordance with the new standards of World Health Organisation)

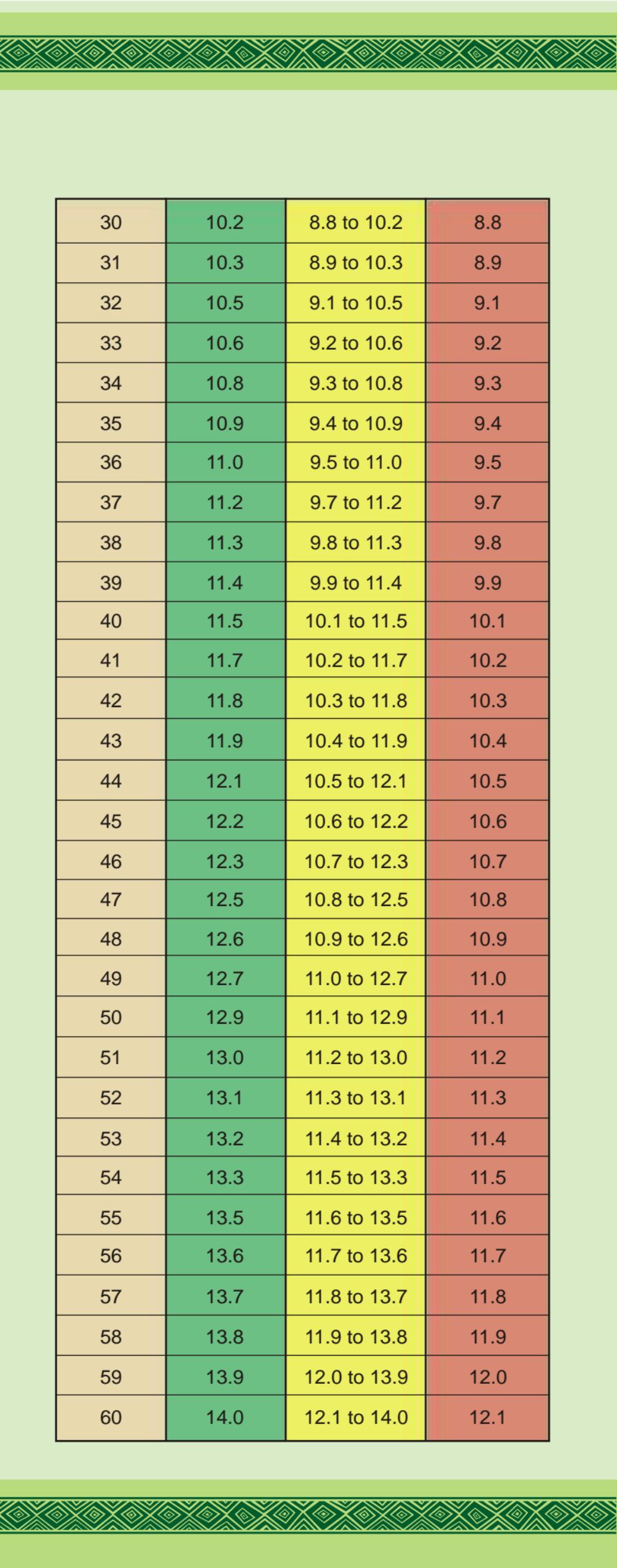
Age Months	Normal Weight Equal to or more than kg	Moderately Low Weight from - to kg	Severely Low Weight Lesser than (kg)
At birth	2.5	2.0 to 2.4	2.0
1	3.2	2.7 to 3.2	2.7
2	4.0	3.4 to 4.0	3.4
3	4.5	4.0 to 4.5	4.0
4	5.0	4.4 to 5.0	4.4
5	5.4	4.8 to 5.4	4.8
6	5.7	5.0 to 5.7	5.0
7	6.0	5.3 to 6.0	5.3
8	6.3	5.6 to 6.3	5.6
9	6.5	5.8 to 6.5	5.8
10	6.7	5.9 to 6.7	5.9
11	6.9	6.1 to 6.9	6.1
12	7.0	6.3 to 7.0	6.3
13	7.2	6.4 to 7.2	6.4
14	7.4	6.6 to 7.4	6.6
15	7.6	6.8 to 7.6	6.8
16	7.7	7.0 to 7.7	7.0
17	7.9	7.1 to 7.9	7.1
18	8.1	7.3 to 8.1	7.3
19	8.2	7.5 to 8.2	7.5
20	8.4	7.6 to 8.4	7.6
21	8.6	7.7 to 8.6	7.7
22	8.8	7.9 to 8.8	7.9
23	8.9	8.0 to 8.9	8.0
24	9.0	8.1 to 9.0	8.1
25	9.2	8.3 to 9.2	8.3
26	9.4	8.4 to 9.4	8.4
27	9.6	8.5 to 9.6	8.5
28	9.7	8.7 to 9.7	8.7
29	9.9	8.8 to 9.9	8.8

30	10.0	9.0 to 10.0	9.0
31	10.2	9.1 to 10.2	9.1
32	10.3	9.2 to 10.3	9.2
33	10.4	9.3 to 10.4	9.3
34	10.6	9.4 to 10.6	9.4
35	10.7	9.5 to 10.7	9.5
36	10.8	9.6 to 10.8	9.6
37	11.0	9.8 to 11.0	9.8
38	11.2	9.9 to 11.2	9.9
39	11.3	10.0 to 11.3	10.0
40	11.5	10.1 to 11.5	10.1
41	11.6	10.2 to 11.6	10.2
42	11.7	10.3 to 11.7	10.3
43	11.9	10.4 to 11.9	10.4
44	12.0	10.5 to 12.0	10.5
45	12.1	10.6 to 12.1	10.6
46	12.3	10.7 to 12.3	10.7
47	12.4	10.8 to 12.4	10.8
48	12.5	10.9 to 12.5	10.9
49	12.6	11.0 to 12.6	11.0
50	12.8	11.1 to 12.8	11.1
51	12.9	11.2 to 12.9	11.2
52	13.0	11.3 to 13.0	11.3
53	13.1	11.4 to 13.1	11.4
54	13.2	11.5 to 13.2	11.5
55	13.3	11.6 to 13.3	11.6
56	13.4	11.7 to 13.4	11.7
57	13.4	11.8 to 13.4	11.8
58	13.5	11.9 to 13.5	11.9
59	13.6	12.0 to 13.6	12.0
60	13.7	12.1 to 13.7	12.1

## Weight-by-Age Table (Boys)

(In accordance with the new standards of World Health Organisation)

Age Months	Normal Weight Equal to or more than kg	Moderately Low Weight from - to kg	Severely Low Weight Lesser than (kg)
At birth	2.5	2.0 to 2.4	2.0
1	3.0	2.6 to 3.0	2.6
2	3.8	3.3 to 3.8	3.3
3	4.4	3.8 to 4.4	3.8
4	4.9	4.3 to 4.9	4.3
5	5.3	4.6 to 5.3	4.6
6	5.6	4.9 to 5.6	4.9
7	6.0	5.2 to 6.0	5.2
8	6.2	5.5 to 6.2	5.5
9	6.5	5.7 to 6.5	5.7
10	6.7	5.9 to 6.7	5.9
11	6.9	6.1 to 6.9	6.1
12	7.2	6.3 to 7.2	6.3
13	7.3	6.5 to 7.3	6.5
14	7.5	6.6 to 7.5	6.6
15	7.6	6.8 to 7.6	6.8
16	7.9	6.9 to 7.9	6.9
17	8.1	7.1 to 8.1	7.1
18	8.3	7.2 to 8.3	7.2
19	8.4	7.4 to 8.4	7.4
20	8.6	7.5 to 8.6	7.5
21	8.8	7.6 to 8.8	7.6
22	9.0	7.7 to 9.0	7.7
23	9.1	7.9 to 9.1	7.9
24	9.3	8.0 to 9.3	8.0
25	9.5	8.2 to 9.5	8.2
26	9.6	8.3 to 9.6	8.3
27	9.8	8.4 to 9.8	8.4
28	9.9	8.5 to 9.9	8.5
29	10.0	8.7 to 10.0	8.7



30	10.2	8.8 to 10.2	8.8
31	10.3	8.9 to 10.3	8.9
32	10.5	9.1 to 10.5	9.1
33	10.6	9.2 to 10.6	9.2
34	10.8	9.3 to 10.8	9.3
35	10.9	9.4 to 10.9	9.4
36	11.0	9.5 to 11.0	9.5
37	11.2	9.7 to 11.2	9.7
38	11.3	9.8 to 11.3	9.8
39	11.4	9.9 to 11.4	9.9
40	11.5	10.1 to 11.5	10.1
41	11.7	10.2 to 11.7	10.2
42	11.8	10.3 to 11.8	10.3
43	11.9	10.4 to 11.9	10.4
44	12.1	10.5 to 12.1	10.5
45	12.2	10.6 to 12.2	10.6
46	12.3	10.7 to 12.3	10.7
47	12.5	10.8 to 12.5	10.8
48	12.6	10.9 to 12.6	10.9
49	12.7	11.0 to 12.7	11.0
50	12.9	11.1 to 12.9	11.1
51	13.0	11.2 to 13.0	11.2
52	13.1	11.3 to 13.1	11.3
53	13.2	11.4 to 13.2	11.4
54	13.3	11.5 to 13.3	11.5
55	13.5	11.6 to 13.5	11.6
56	13.6	11.7 to 13.6	11.7
57	13.7	11.8 to 13.7	11.8
58	13.8	11.9 to 13.8	11.9
59	13.9	12.0 to 13.9	12.0
60	14.0	12.1 to 14.0	12.1

## Reference Chart: Weight by Height (less than 87 cm)

### Boy's Weight (Kg)

Height (cm)	Median*	(-) 1 Standard Deviation*	(-) 2 Standard Deviation*	(-) 3 Standard Deviation*	(-) 4 Standard Deviation*
45	2.4	2.2	2.0	1.9	1.7
46	2.6	2.4	2.2	2.0	1.8
47	2.8	2.5	2.3	2.1	2.0
48	2.9	2.7	2.5	2.3	2.1
49	3.1	2.9	2.6	2.4	2.2
50	3.3	3.0	2.8	2.6	2.4
51	3.5	3.2	3.0	2.7	2.5
52	3.8	3.5	3.2	2.9	2.7
53	4.0	3.7	3.4	3.1	2.9
54	4.3	3.9	3.6	3.3	3.1
55	4.5	4.2	3.8	3.6	3.3
56	4.8	4.4	4.1	3.8	3.5
57	5.1	4.7	4.3	4.0	3.7
58	5.4	5.0	4.6	4.3	3.9
59	5.7	5.3	4.8	4.5	4.1
60	6.0	5.5	5.1	4.7	4.3
61	6.3	5.8	5.3	4.9	4.5
62	6.5	6.0	5.6	5.1	4.7
63	6.8	6.2	5.8	5.3	4.9
64	7.0	6.5	6.0	5.5	5.1
65	7.3	6.7	6.2	5.7	5.3
66	7.5	6.9	6.4	5.9	5.5
67	7.7	7.1	6.6	6.1	5.6
68	8.0	7.3	6.8	6.3	5.8
69	8.2	7.6	7.0	6.5	6.0
70	8.4	7.8	7.2	6.6	6.1
71	8.6	8.0	7.4	6.8	6.3
72	8.9	8.2	7.6	7.0	6.4
73	9.1	8.4	7.7	7.2	6.6
74	9.3	8.6	7.9	7.3	6.7
75	9.5	8.8	8.1	7.5	6.9
76	9.7	8.9	8.3	7.6	7.0
77	9.9	9.1	8.4	7.8	7.2
78	10.1	9.3	8.6	7.9	7.3
79	10.3	9.5	8.7	8.1	7.4
80	10.4	9.6	8.9	8.2	7.6
81	10.6	9.8	9.1	8.4	7.7
82	10.8	10.0	9.2	8.5	7.9
83	11.0	10.2	9.4	8.7	8.0
84	11.3	10.4	9.6	8.9	8.2
85	11.5	10.6	9.8	9.1	8.4
86	11.7	10.8	10.0	9.3	8.6

\*Median data and \*Standard Deviation data in Kg.

## Reference Chart: Weight by Height (less than 87 cm)

### Girl's Weight (Kg)

Height (cm)	Median*	(-) 1 Standard Deviation*	(-) 2 Standard Deviation*	(-) 3 Standard Deviation*	(-) 4 Standard Deviation*
45	2.5	2.3	2.1	1.9	1.7
46	2.6	2.4	2.2	2.0	1.9
47	2.8	2.6	2.4	2.2	2.0
48	3.0	2.7	2.5	2.3	2.1
49	3.2	2.9	2.6	2.4	2.2
50	3.4	3.1	2.8	2.6	2.4
51	3.6	3.3	3.0	2.8	2.5
52	3.8	3.5	3.2	2.9	2.7
53	4.0	3.7	3.4	3.1	2.8
54	4.3	3.9	3.6	3.3	3.0
55	4.5	4.2	3.8	3.5	3.2
56	4.8	4.4	4.0	3.7	3.4
57	5.1	4.6	4.3	3.9	3.6
58	5.4	4.9	4.5	4.1	3.8
59	5.6	5.1	4.7	4.3	3.9
60	5.9	5.4	4.9	4.5	4.1
61	6.1	5.6	5.1	4.7	4.3
62	6.4	5.8	5.3	4.9	4.5
63	6.6	6.0	5.5	5.1	4.7
64	6.9	6.3	5.7	5.3	4.8
65	7.1	6.5	5.9	5.5	5.0
66	7.3	6.7	6.1	5.6	5.1
67	7.5	6.9	6.3	5.8	5.3
68	7.7	7.1	6.5	6.0	5.5
69	8.0	7.3	6.7	6.1	5.6
70	8.2	7.5	6.9	6.3	5.8
71	8.4	7.7	7.0	6.5	5.9
72	8.6	7.8	7.2	6.6	6.0
73	8.8	8.0	7.4	6.8	6.2
74	9.0	8.2	7.5	6.9	6.3
75	9.1	8.4	7.7	7.1	6.5
76	9.3	8.5	7.8	7.2	6.6
77	9.5	8.7	8.0	7.4	6.7
78	9.7	8.9	8.2	7.5	6.9
79	9.9	9.1	8.3	7.7	7.0
80	10.1	9.2	8.5	7.8	7.1
81	10.3	9.4	8.7	8.0	7.3
82	10.5	9.6	8.8	8.1	7.5
83	10.7	9.8	9.0	8.3	7.6
84	11.0	10.1	9.2	8.5	7.8
85	11.2	10.3	9.4	8.7	8.0
86	11.5	10.5	9.7	8.9	8.1

\*Median data and \*Standard Deviation data in Kg.

## Reference Chart: Weight by Height (more than 87 cm)

### Boy's Weight (Kg)

Height (cm)	Median*	(-) 1 Standard Deviation*	(-) 2 Standard Deviation*	(-) 3 Standard Deviation*	(-) 4 Standard Deviation*
87	12.2	11.2	10.4	9.6	8.9
88	12.4	11.5	10.6	9.8	9.1
89	12.6	11.7	10.8	10.0	9.3
90	12.9	11.9	11.0	10.2	9.4
91	13.1	12.1	11.2	10.4	9.6
92	13.4	12.3	11.4	10.6	9.8
93	13.6	12.6	11.6	10.8	9.9
94	13.8	12.8	11.8	11.0	10.1
95	14.1	13.0	12.0	11.1	10.3
96	14.3	13.2	12.2	11.3	10.4
97	14.6	13.4	12.4	11.5	10.6
98	14.8	13.7	12.6	11.7	10.8
99	15.1	13.9	12.9	11.9	11.0
100	15.4	14.2	13.1	12.1	11.2
101	15.6	14.4	13.3	12.3	11.3
102	15.9	14.7	13.6	12.5	11.5
103	16.2	14.9	13.8	12.8	11.7
104	16.5	15.2	14.0	13.0	11.9
105	16.8	15.5	14.3	13.2	12.1
106	17.2	15.8	14.5	13.4	12.3
107	17.5	16.1	14.8	13.7	12.5
108	17.8	16.4	15.1	13.9	12.7
109	18.2	16.7	15.3	14.1	12.9
110	18.5	17.0	15.6	14.4	13.2
111	18.9	17.3	15.9	14.6	13.4
112	19.2	17.6	16.2	14.9	13.6
113	19.6	18.0	16.5	15.2	13.8
114	20.0	18.3	16.8	15.4	14.1
115	20.4	18.6	17.1	15.7	14.3
116	20.8	19.0	17.4	16.0	14.6
117	21.2	19.3	17.7	16.2	14.8
118	21.6	19.7	18.0	16.5	15.0
119	22.0	20.0	18.3	16.8	15.3
120	22.4	20.4	18.6	17.1	15.5

\*Median data and \*Standard Deviation data in Kg.

## Reference Chart: Weight by Height (more than 87 cm)

### Girl's Weight (Kg)

Height (cm)	Median*	(-) 1 Standard Deviation*	(-) 2 Standard Deviation*	(-) 3 Standard Deviation*	(-) 4 Standard Deviation*
87	11.9	10.9	10.0	9.2	8.4
88	12.1	11.1	10.2	9.4	8.6
89	12.4	11.4	10.4	9.6	8.8
90	12.6	11.6	10.6	9.8	9.0
91	12.9	11.8	10.9	10.0	9.1
92	13.1	12.0	11.1	10.2	9.3
93	13.4	12.3	11.3	10.4	9.5
94	13.6	12.5	11.5	10.6	9.7
95	13.9	12.7	11.7	10.8	9.8
96	14.1	12.9	11.9	10.9	10.0
97	14.4	13.2	12.1	11.1	10.2
98	14.7	13.4	12.3	11.3	10.4
99	14.9	13.7	12.5	11.5	10.5
100	15.2	13.9	12.8	11.7	10.7
101	15.5	14.2	13.0	12.0	10.9
102	15.8	14.5	13.3	12.2	11.1
103	16.1	14.7	13.5	12.4	11.3
104	16.4	15.0	13.8	12.6	11.5
105	16.8	15.3	14.0	12.9	11.8
106	17.1	15.6	14.3	13.1	12.0
107	17.5	15.9	14.6	13.4	12.2
108	17.8	16.3	14.9	13.7	12.4
109	18.2	16.6	15.2	13.9	12.7
110	18.6	17.0	15.5	14.2	12.9
111	19.0	17.3	15.8	14.5	13.2
112	19.4	17.7	16.2	14.8	13.5
113	19.8	18.0	16.5	15.1	13.7
114	20.2	18.4	16.8	15.4	14.0
115	20.7	18.8	17.2	15.7	14.3
116	21.1	19.2	17.5	16.0	14.5
117	21.5	19.6	17.8	16.3	14.8
118	22.0	19.9	18.2	16.6	15.1
119	22.4	20.3	18.5	16.9	15.4
120	22.8	20.7	18.9	17.3	15.6

\*Median data and \*Standard Deviation data in Kg.

Reference Chart : Height by Age  
0 to 2 years (Boys)



World Health Organisation

Year : Month	Month	(-) 3 Standard Deviation*	(-) 2 Standard Deviation*	(-) 1 Standard Deviation*	Median*
0: 0	0	44.2	46.1	48.0	49.9
0: 1	1	48.9	50.8	52.8	54.7
0: 2	2	52.4	54.4	56.4	58.4
0: 3	3	55.3	57.3	59.4	61.4
0: 4	4	57.6	59.7	61.8	63.9
0: 5	5	59.6	61.7	63.8	65.9
0: 6	6	61.2	63.3	65.5	67.6
0: 7	7	62.7	64.8	67.0	69.2
0: 8	8	64.0	66.2	68.4	70.6
0: 9	9	65.2	67.5	69.7	72.0
0:10	10	66.4	68.7	71.0	73.3
0:11	11	67.6	69.9	72.2	74.5
1: 0	12	68.6	71.0	73.4	75.7
1: 1	13	69.6	72.1	74.5	76.9
1: 2	14	70.6	73.1	75.6	78.0
1: 3	15	71.6	74.1	76.6	79.1
1: 4	16	72.5	75.0	77.6	80.2
1: 5	17	73.3	76.0	78.6	81.2
1: 6	18	74.2	76.9	79.6	82.3
1: 7	19	75.0	77.7	80.5	83.2
1: 8	20	75.8	78.6	81.4	84.2
1: 9	21	76.5	79.4	82.3	85.1
1:10	22	77.2	80.2	83.1	86.0
1:11	23	78.0	81.0	83.9	86.9
2: 0	24	78.7	81.7	84.8	87.8

\*Median data and \*Standard Deviation data in cm.

Reference Chart : Height by Age  
2 to 5 years (Boys)



World Health Organisation

Year : Month	Month	(-) 3 Standard Deviation*	(-) 2 Standard Deviation*	(-) 1 Standard Deviation*	Median*
2: 0	24	78.0	81.0	84.1	87.1
2: 1	25	78.6	81.7	84.9	88.0
2: 2	26	79.3	82.5	85.6	88.8
2: 3	27	79.9	83.1	86.4	89.6
2: 4	28	80.5	83.8	87.1	90.4
2: 5	29	81.1	84.5	87.8	91.2
2: 6	30	81.7	85.1	88.5	91.9
2: 7	31	82.3	85.7	89.2	92.7
2: 8	32	82.8	86.4	89.9	93.4
2: 9	33	83.4	86.9	90.5	94.1
2:10	34	83.9	87.5	91.1	94.8
2:11	35	84.4	88.1	91.8	95.4
3: 0	36	85.0	88.7	92.4	96.1
3: 1	37	85.5	89.2	93.0	96.7
3: 2	38	86.0	89.8	93.6	97.4
3: 3	39	86.5	90.3	94.2	98.0
3: 4	40	87.0	90.9	94.7	98.6
3: 5	41	87.5	91.4	95.3	99.2
3: 6	42	88.0	91.9	95.9	99.9
3: 7	43	88.4	92.4	96.4	100.4
3: 8	44	88.9	93.0	97.0	101.0
3: 9	45	89.4	93.5	97.5	101.6
3:10	46	89.8	94.0	98.1	102.2
3:11	47	90.3	94.4	98.6	102.8
4: 0	48	90.7	94.9	99.1	103.3
4: 1	49	91.2	95.4	99.7	103.9
4: 2	50	91.6	95.9	100.2	104.4
4: 3	51	92.1	96.4	100.7	105.0
4: 4	52	92.5	96.9	101.2	105.6
4: 5	53	93.0	97.4	101.7	106.1
4: 6	54	93.4	97.8	102.3	106.7
4: 7	55	93.9	98.3	102.8	107.2
4: 8	56	94.3	98.8	103.3	107.8
4: 9	57	94.7	99.3	103.8	108.3
4:10	58	95.2	99.7	104.3	108.9
4:11	59	95.6	100.2	104.8	109.4
5: 0	60	96.1	100.7	105.3	110.0

\*Median data and \*Standard Deviation data in cm.

Reference Chart : Height by Age  
0 to 2 years (Girls)



World Health Organisation

Year : Month	Month	(-) 3 Standard Deviation*	(-) 2 Standard Deviation*	(-) 1 Standard Deviation*	Median*
0: 0	0	43.6	45.4	47.3	49.1
0: 1	1	47.8	49.8	51.7	53.7
0: 2	2	51.0	53.0	55.0	57.1
0: 3	3	53.5	55.6	57.7	59.8
0: 4	4	55.6	57.8	59.9	62.1
0: 5	5	57.4	59.6	61.8	64.0
0: 6	6	58.9	61.2	63.5	65.7
0: 7	7	60.3	62.7	65.0	67.3
0: 8	8	61.7	64.0	66.4	68.7
0: 9	9	62.9	65.3	67.7	70.1
0:10	10	64.1	66.5	69.0	71.5
0:11	11	65.2	67.7	70.3	72.8
1: 0	12	66.3	68.9	71.4	74.0
1: 1	13	67.3	70.0	72.6	75.2
1: 2	14	68.3	71.0	73.7	76.4
1: 3	15	69.3	72.0	74.8	77.5
1: 4	16	70.2	73.0	75.8	78.6
1: 5	17	71.1	74.0	76.8	79.7
1: 6	18	72.0	74.9	77.8	80.7
1: 7	19	72.8	75.8	78.8	81.7
1: 8	20	73.7	76.7	79.7	82.7
1: 9	21	74.5	77.5	80.6	83.7
1:10	22	75.2	78.4	81.5	84.6
1:11	23	76.0	79.2	82.3	85.5
2: 0	24	76.7	80.0	83.2	86.4

\*Median data and \*Standard Deviation data in cm.

Reference Chart : Height by Age  
2 to 5 years (Girls)



World Health  
Organisation

Year : Month	Month	(-) 3 Standard Deviation*	(-) 2 Standard Deviation*	(-) 1 Standard Deviation*	Median*
2: 0	24	76.0	79.3	82.5	85.7
2: 1	25	76.8	80.0	83.3	86.6
2: 2	26	77.5	80.8	84.1	87.4
2: 3	27	78.1	81.5	84.9	88.3
2: 4	28	78.8	82.2	85.7	89.1
2: 5	29	79.5	82.9	86.4	89.9
2: 6	30	80.1	83.6	87.1	90.7
2: 7	31	80.7	84.3	87.9	91.4
2: 8	32	81.3	84.9	88.6	92.2
2: 9	33	81.9	85.6	89.3	92.9
2:10	34	82.5	86.2	89.9	93.6
2:11	35	83.1	86.8	90.6	94.4
3: 0	36	83.6	87.4	91.2	95.1
3: 1	37	84.2	88.0	91.9	95.7
3: 2	38	84.7	88.6	92.5	96.4
3: 3	39	85.3	89.2	93.1	97.1
3: 4	40	85.8	89.8	93.8	97.7
3: 5	41	86.3	90.4	94.4	98.4
3: 6	42	86.8	90.9	95.0	99.0
3: 7	43	87.4	91.5	95.6	99.7
3: 8	44	87.9	92.0	96.2	100.3
3: 9	45	88.4	92.5	96.7	100.9
3:10	46	88.9	93.1	97.3	101.5
3:11	47	89.3	93.6	97.9	102.1
4: 0	48	89.8	94.1	98.4	102.7
4: 1	49	90.3	94.6	99.0	103.3
4: 2	50	90.7	95.1	99.5	103.9
4: 3	51	91.2	95.6	100.1	104.5
4: 4	52	91.7	96.1	100.6	105.0
4: 5	53	92.1	96.6	101.1	105.6
4: 6	54	92.6	97.1	101.6	106.2
4: 7	55	93.0	97.6	102.2	106.7
4: 8	56	93.4	98.1	102.7	107.3
4: 9	57	93.9	98.5	103.2	107.8
4:10	58	94.3	99.0	103.7	108.4
4:11	59	94.7	99.5	104.2	108.9
5: 0	60	95.2	99.9	104.7	109.4

\*Median data and \*Standard Deviation data in cm.

Hunger does not die,  
It only sleeps for a while  
Or goes in a lull,  
With a pat by a 'Chapati'.  
There is no way to let go free from it,  
We are the permanent colonies of hunger,  
Whatever these settlements receive,  
it gets consumed within us.  
'Chapati' or the intestines  
where these get reared  
And the empire of hunger goes on expanding.

The school of thought of management of malnutrition in the community rests on the premise that we take the rights-based perspective across the spectrum of monitoring children's growth, our own behaviors and practices, availability of essential services, health, employment-livelihood and an accountable governance.

Right to nutrition is not just an issue related with distribution of food. It is also an issue associated with concerns on system of production, distribution and storage from the perspective of equality.

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