

TRAINING OF DOCTORS
ON
**NUTRITIONAL CARE DURING
DIARRHOEA**



NATIONAL DIARRHOEAL DISEASES CONTROL & O.R.T.
PROGRAMMES

GOVERNMENT OF INDIA

DIRECTORATE GENERAL OF HEALTH SERVICES,
MINISTRY OF HEALTH AND FAMILY WELFARE,
NEW DELHI

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Govt. of India

NUTRITIONAL CARE DURING DIARRHOEA

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NUTRITIONAL CARE DURING DIARRHOEA

LEARNING OBJECTIVES

After studying this module, taking part in the discussions, and doing the exercises, a trainee should be able to:

- Advise mothers about feeding during and after diarrhoea.
- Explain to mother the interrelationship between nutrition and infection including diarrhoea.

1. BASIC FACTS ABOUT FOOD AND NUTRITION

NUTRITION is a process by which the **FOOD** that we eat is utilised for nourishing the body.

FOOD is a composite mixture of various substances that we normally eat and drink. We eat foods not only because we are hungry but also for **NUTRITION**.

CONSTITUENTS OF FOOD

Foods have six important dietary constituents which are **PROTEINS, FATS, CARBOHYDRATES, VITAMINS, MINERALS** and **WATER** in varying proportions.

HUMAN BODY is also built up from these six constituents.

FUNCTIONS of foods are:

- **FOODS GIVE US ENERGY** needed for all types of day-to-day activity. Even if we do not have any activities e.g. during sleep we need energy for the vital organs like heart, brain etc. to work. Energy-giving foods in an average Indian diet are usually derived from **CARBOHYDRATES** like cereals (rice, wheat, corn, millets) sugar, roots & tubers. **FATS** and **OILS** even in small quantity provide us with greater amount of energy.
- **FOODS HELP BODY GROW AND REPAIR** the daily wear & tear. Body-building foods are rich in **PROTEIN**. Animal proteins are superior to vegetable proteins. But they are

costlier and many people cannot afford them. They may be prestigious but NOT ESSENTIAL. However, they are desirable and one who can afford them, should include them in diet. These are milk, eggs, fish and meat. The vegetable sources of protein like peas, beans, pulses, nuts, cereals do not contain all the essential aminoacids (end products of protein after digestion). Animal proteins are called 'biologically complete' because they contain all the essential aminoacids needed by the body.

Mutual supplementation of proteins can be achieved by mixing two or more vegetables source of protein like cereals and pulses. The deficiency of aminoacids present in one vegetable is supplemented by the other. The resulting mixture becomes almost 'biologically complete' and nearer to the quality of animal proteins. This is much cheaper and can be afforded by us.

FOODS INDIRECTLY PROTECT US FROM INFECTION. Protective foods are mainly those which are rich in **PROTEINS, VITAMINS.**

REMEMBER THIS

- **FOODS GIVE US ENERGY, HELP OUR BODY TO GROW IN SIZE AND ARE ESSENTIAL FOR REPAIR OF DAILY WEAR AND TEAR**
- **ANIMAL FOODS ARE NOT ESSENTIAL BUT DESIRABLE**
- **MIXTURES OF VEGETABLE FOODS ARE AS GOOD AS ANIMAL FOOD**
- **FOOD PROTECTS US FROM INFECTION.**

2. FEEDING CARE OF INFANTS AND YOUNG CHILDREN

We should pay special care to feed infants and young children. The reasons for this are :

- they grow very rapidly
- they are very active and need a lot of energy
- they need to be protected from 'germs' because they are very vulnerable to them
- they have no or few teeth, so they cannot chew and eat solid foods
- they have a small stomach and cannot eat large quantity of food at a time. Addition of fats, oils and sugar make food energy rich and at the sametime reduce the bulk of food.

Therefore, we should give them either liquid food or soft, semisolid easily digestible foods in small but frequent feeds.

BREAST FEEDING : Breast milk is BEST FOOD for infants because:

- it is rich in protein containing protective substances called 'antibodies' from mother.
- it is easily digestible and nutritious.
- it does not involve any cost.
- it is sterile (free from germ).

Therefore, breast feeding should be continued as long as possible, even upto 2 years of age. It is the most ideal food for babies upto the age of about 6 months, if sufficient amount of breast milk is available.

BREAST FEEDING IS THE BEST FEEDING FOR INFANTS

ARTIFICIAL FEEDING : This means substituting mother's milk by other types of milk feeds. These can be cow's milk or powder milk (tinned milk). The need for introducing artificial feeding arise when mother does not have sufficient breast milk or is very sick. But sometimes mothers prefer to give artificial feeding even if they have sufficient breast milk because of their ignorance. It may also so happen that mother has a wrong notion that she does not have sufficient breast milk to satisfy her baby. Less spacing between two child-births may also hamper breast feeding of the first child.

Artificial feeding is either given to the child with the help of bottles or spoons. It always carries the RISK OF INTRODUCING GERMS through contaminated milk or bottle. BOTTLE FEEDING CARRIES THE HIGHEST RISK because bottles are difficult to keep clean and germs grow easily in the artificial milk formulae.

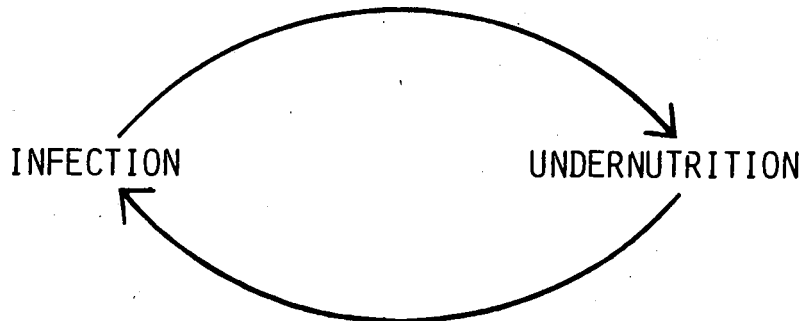
ALWAYS AVOID BOTTLE FEEDING

If artificial feeding cannot be avoided, prepare it clean, hygienically and after carefully washing hands with soap and water. Give the child freshly prepared feeds only.

WEANING : It is a gradual process of introducing **SUITABLE FOODS** rich in **PROTEIN** and other **NUTRIENTS** regularly to infants' diet who was otherwise breastfed. As a baby grows older, mother's milk alone is not sufficient to cope with the rapid growth (usually 4-6 months onwards). Hence, breast milk should be supplemented (NOT REPLACED) by soft, well-cooked cereals, proteins, vegetables, fruit juice etc. When the baby is 4-6 months old, breast milk alone is not sufficient - start solid foods. The weaning period is very important in child's development because it carries the RISK of both

- INFECTION
- UNDERNUTRITION

**MORE SEVERE, PROLONGED &
REPEATED INFECTIONS LEAD TO
WORSE EFFECT ON CHILD'S NUTRI-
TION**



**CHILD'S POOR NUTRITIONAL STATUS
LEADS TO REPEATED INFECTIONS
WHICH MAY BE MORE SEVERE &
PROLONGED**

If weaning foods are not introduced in **PROPER TIME**, **INADEQUATELY NUTRITIOUS** or **UNHYGIENICALLY PREPARED**, the child may have **RECURRENT** or **PERSISTENT INFECTION**, caused by germs and **GROWTH FAILURE**. These may ultimately lead to what is called **MARASMUS** (Skin & Bone child), **KWASHIORKOR** or even fatal infectious diseases e.g. diarrhoea leading to **DEATH**.

REMEMBER THIS

- **INFANTS AND YOUNG CHILDREN NEED SPECIAL FEEDING CARE .**
- **BREAST FEEDING IS SAFEST AND MOST NUTRITIOUS FOR BABIES**
- **CONTINUE BREAST FEEDING AS LONG AS POSSIBLE**
- **NEVER BOTTLE-FEED THE BABY**
- **START SUPPLEMENTARY FEEDING IN PROPER TIME AND SELECT NUTRITIOUS FOODS. PREPARE IT HYGIENICALLY**



EXERCISE - A

1. **What are the current infant feeding practices in your area?**
2. **How long do the mothers breast-feed their babies?**
3. **What artificial feeds are given to the babies if not breastfed?**
4. **How the artificial feeds are given?**

3. NUTRITIONAL CARE DURING DIARRHOEA

So far, you have learnt few basic facts about food and nutrition, utility of taking a balanced diet and the need to take special feeding care for infants and young children.

We will now consider the interrelationship between feeding practices and diarrhoea.

DIARRHOEA IS CAUSED BY GERMS

Most mothers and even some doctors and paramedical staffs have a deep-rooted misconception about the causation of diarrhoea. But modern laboratory techniques have enabled us to know that diarrhoea is caused by 'Germs'.

GERMS ENTER THROUGH FOOD OR WATER

In most of our villages, there is no latrine facilities and people pass stool here and there. Germs causing diarrhoea come from stools of someone who is either suffering from diarrhoea or carries the germs without himself suffering from the disease (carriers). These germs enter the body of another person through food or water. Germs can also spread through flies or because of dirty fingers which contaminate food or water. It is not 'food indigestion' but 'germs which contaminate our food or water that cause diarrhoea'.

WE CAN AVOID CONTACT WITH THESE GERMS IF WE

- don't pass stool indiscriminately and build latrines, use it and keep it clean
- wash our hands properly after defaecation, before food preparation, handling or distribution
- take freshly prepared food and keep the excess food always covered so that flies do not have any access. If preserved food is to be taken later, it should be reheated before consumption
- keep stored drinking water covered preferably in a narrow-necked pots so that dirty hands cannot be dipped inside.

FEEDING PRACTICES AND DIARRHOEA

Diarrhoeal morbidity and growth pattern of infants and young children largely depend on feeding practices during infancy and childhood.

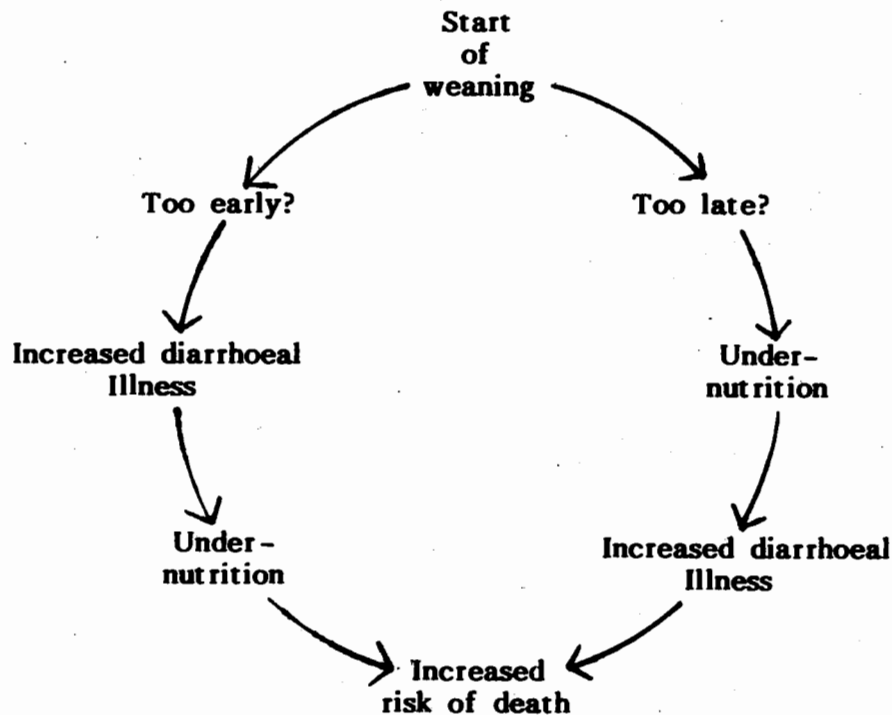
Breast feeding : Bottle fed babies suffer from more diarrhoeal attacks and more severe diseases compared to breast fed ones. This is particularly true for developing countries like ours where contamination of bottles is difficult to avoid.

THE INCIDENCE OF DIARRHOEA IS LOW IN BREAST FED INFANTS because : (a) Breast fed babies get less chance of contact with 'germs', (b) Breast milk itself has protective effect against germs.

BREAST FEEDING PREVENTS DIARRHOEA IN INFANTS

WEANING AND DIARRHOEA

For the development of diarrhoea and malnutrition weaning period should be considered as the most risky period during infancy and childhood. If a substitute for breast milk, e.g. cow's milk or tinned milk is introduced in very early life or even soon after birth, the risk of introduction of diarrhoea 'germs' also starts along with it. This risk remains high throughout the period of weaning. The time when weaning is started is an important contributory factor for the development of diarrhoea and nutritional deficiency. Too early or too late weaning both determines risk of diarrhoeal diseases and undernutrition.



DIARRHOEAL DISEASE AND UNDERNUTRITION

Earlier, it was believed that undernutrition is due to inadequate food consumption alone. But the role of diarrhoea and other infections in causing undernutrition is now well recognised.

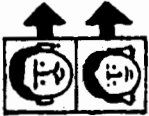
So proper feeding practice during diarrhoea is of crucial importance. But ensuring adequate nutrition is difficult as a child during diarrhoea suffers from loss of appetite and mother generally withdraws or restricts food due to false belief whereas the actual requirement of child becomes more than normal during illness. Keeping all these in mind a child during diarrhoeal illness should be given:

- i) soft, easily digestible food which will be almost totally absorbed even if diarrhoea is present.
- ii) small frequent meals instead of a single large dish.
- iii) energy-dense food like - oil, ghee or sugar which in small quantity provide more energy and reduce the bulk of food.

<p>PROPER DIET MUST BE ENSURED IN ALL INFECTIOUS DISEASES INCLUDING DIARRHOEA</p>

Mothers must be convinced through her own experience that food does not worsen the diarrhoea of her child.

To know that a child has not really lost weight during illness a growth chart may be used and child's weight plotted. A growth chart is shown on the next page with serial recording of weight of two children.

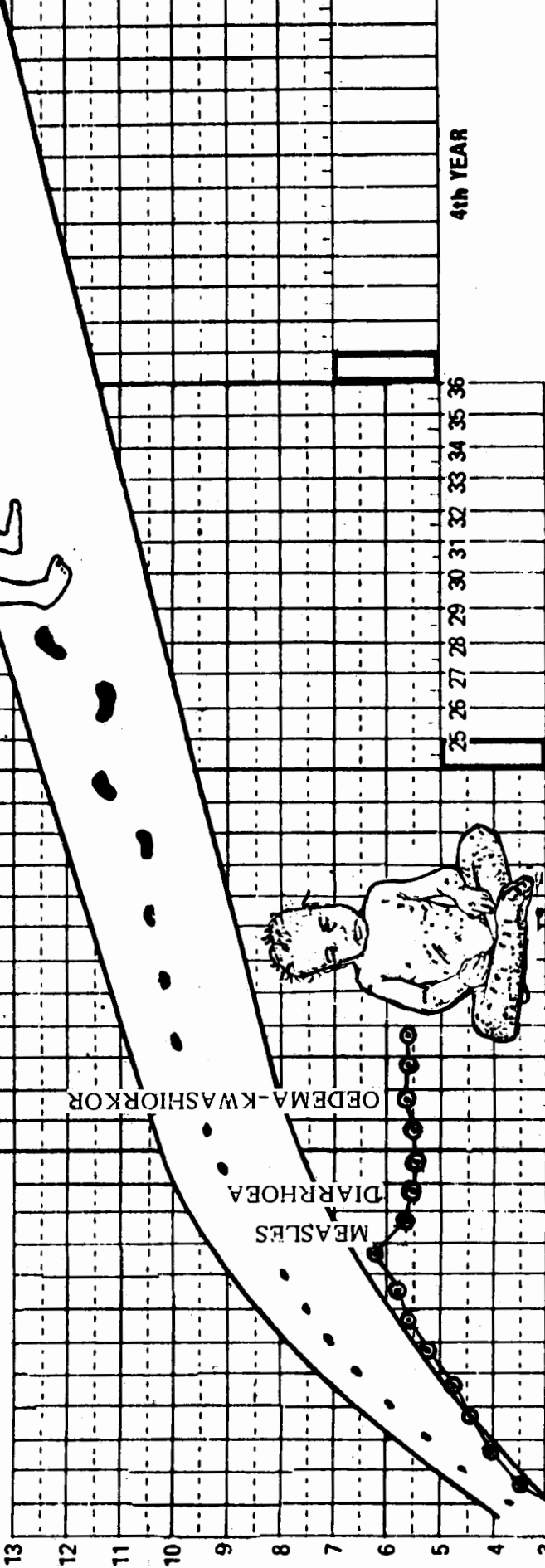


REASONS FOR SPECIAL CARE

18 17

20 19

ROAD TO HEALTH



WEIGHT KILOGRAMS

AGE IN MONTHS

2nd YEAR

3rd YEAR

4th YEAR

1	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY
2												
3												
4												
5												
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13	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY
14												
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25	26	27	28	29	30	31	32	33	34	35	36

OEDEMA-KWASHIOKKOR
DIARRHOEA
MEASLES



EXERCISE - B

Arati is 7 months old. Her mother has brought her to you for treatment of diarrhoea. You ask Arati's mother and come to know that she was breast feeding Arati before diarrhoea started but has stopped now. Arati has not been given any supplementary feeding so far, except that she has her first rice-eating ceremony about a month back. However, her mother started to give her some occasional artificial feeds of cow's milk using bottles. Arati had 5 watery stools during last 24 hours. She has neither received any breast milk or cow's milk since then. However, she was given home-available fluids (sarbat) after each stool as advised by the local health worker. The health worker also advised her to watch for signs of dehydration. You examine her and find no sign of dehydration. Play the role of a doctor to give necessary advice to Arati's mother whose role will be played by another trainee.

REMEMBER THIS

- **DIARRHOEA IS CAUSED BY GERMS WHICH ENTERS THE BODY THROUGH FOOD OR WATER. WE CAN AVOID CONTACT WITH THESE GERMS.**
- **BREAST-FEEDING IS THE BEST WAY TO PREVENT DIARRHOEA IN INFANTS.**
- **START WEANING IN PROPER TIME. TOO EARLY OR TOO LATE WEANING MAY CAUSE DIARRHOEA AND UNDERNUTRITION LEADING TO INCREASED RISK OF DEATH.**
- **GIVE THE CHILD PROPER, EASILY DIGESTIBLE AND ENERGY-DENSE FOOD IN ALL INFECTIOUS DISEASES INCLUDING DIARRHOEA & CONTINUE AFTER DIARRHOEA AS WELL**
- **MOTHERS MUST GET THE MESSAGE - PROPER FEEDING PRACTICES OF INFANTS AND YOUNG CHILDREN ARE NECESSARY TO AVOID DIARRHOEA AND UNDERNUTRITION.**

[Adopted partly from Monograph entitled "Guidelines for training community health workers in nutrition" 2nd Ed. World Health Organization, Geneva.]