

# CONCERNS AND NEEDS IN DIVERSE CONTEXTS

## A. NUTRITION, HEALTH AND HYGIENE

10

### LEARNING OBJECTIVES

After completing this section the learner is able to—

- discuss the importance of health and its dimensions.
- understand the interrelationship of nutrition and health.
- identify the consequences of undernutrition and overnutrition.
- select appropriate and healthy food choices.
- identify the interrelationship between nutrition and disease.
- explain the importance of hygiene and sanitation for preventing food- borne diseases.

### 10A.1 INTRODUCTION

Every person wants to live a good quality life and have a sense of well-being. As far back as 1948, the Universal Declaration of Human Rights stated: “Everyone has the right to a standard of living adequate for the health and well-being of oneself and one’s family including food”. Yet, many of the environmental conditions and our own lifestyles affect our health, sometimes having harmful effects. At the outset let us define “health”. The world’s premier organisation concerned with health, the World Health Organisation (WHO) defines health as “a state of complete mental, physical and social well-being and not merely the absence of disease”. Disease means impairment of body health, alteration/disruption/derangement in function of some part or organ of the body, interrupting normal functions and deviating from a state of complete well-being. Health is a fundamental human right. All persons, irrespective of age, gender, caste, creed/religion, place of stay (urban, rural, tribal) and nationality, throughout their lives,

## CONCERNS AND NEEDS IN DIVERSE CONTEXTS

should have the opportunity to achieve and maintain the highest attainable state of health.

It is the aim of every health professional (persons who deal with various aspects of health) to promote good health; in other words, to promote maintenance of well-being or wellness, quality of life.

## 10A.2 HEALTH AND ITS DIMENSIONS

You must have noticed that the definition of health includes various dimensions—social, mental and physical. Let us briefly deal with all three dimensions before we discuss physical health in greater detail.

**Social health:** It refers to health of individuals and of a society. When we are concerned with society, it refers to a society in which there is equal opportunity and access for all citizens to the goods and services essential for good health. When we refer to individuals, we refer to each person's well-being – how well the individual gets along with other people and with social institutions. This includes our social skills and the ability to function as a member of the society. When we are faced with problems and stress, social support helps us to cope with them and solve the problems facing us. Social support measures contribute to positive adjustment in children and adults, and encourages personal growth. Emphasis on social health is gaining importance as scientific studies have shown that persons who are socially well adjusted, tend to live longer and recover faster from disease. A few social determinants of health are:

- Employment status
- Safety in workplaces
- Access to health services
- Cultural/religious beliefs, taboos and value systems
- Socio-economic and environmental conditions

**Mental health:** This refers to emotional and psychological well-being. An individual who experiences a sense of well-being can utilise his/her cognitive and emotional capabilities, function well in society and meet the ordinary demands of daily life. The box below lists the indicators of mental health.

A person who has positive mental health—

- feels that he/she is capable and competent.
- can handle normal levels of stress he/she faces in daily life.
- has satisfying relationships.
- can lead an independent life.
- if faced with any mental or emotional stress or events, he/she can cope with them and recover from them.
- does not fear things.
- does not feel defeated or depressed for unusually long periods of time when small difficulties/problems are encountered.

**Physical health:** This aspect of health encompasses physical fitness and functioning of the body. A physically healthy person is able to undertake normal activities, does not feel unusually fatigued and has adequate resistance to infection and disease.

### 10A.3 HEALTH CARE

Every individual is responsible for his/her own health, but it is also a major public concern. Thus the government assumes considerable responsibility and provides health services at various levels to the citizens of the country. This is because good health is the foundation for good quality of life and standard of living for the individual and the family, and is the key for ensuring social, economic and human development of a community and a nation.

Health care consists of all the various services provided to individuals or communities by agents of health services or professions for the purpose of promoting, maintaining, monitoring or restoring health. Thus health care includes preventive, promotive and therapeutic care. Health care services are delivered at three levels – primary care, secondary care and tertiary care levels. An example will make this clearer. A primary health centre in a village offers primary care whereas a district hospital would provide secondary care. A hospital like All India Institute of Medical Sciences (AIIMS) in Delhi provides tertiary care and accepts patients referred by hospitals offering secondary care.

### 10A.4 INDICATORS OF HEALTH

Health is multidimensional, with each dimension being influenced by several factors. Therefore, several indicators are employed to assess health. These include indicators of mortality, morbidity (illness/disease), disability rates, nutritional status, health care delivery, utilisation, environment, health policy, quality of life, etc.

### 10A.5 NUTRITION AND HEALTH

Nutrition and health are intimately interlinked. In the global campaign of 'Health for All', promotion of nutrition is one of the primary elements. Nutrition is concerned with maintenance of body organs and tissues in structure and function. It is also concerned with growth and development of the body. Good nutrition enables the person to enjoy good health, resist infection, have adequate energy levels and perform daily tasks without feeling fatigued. In case of children and adolescents, nutrition is vital for their growth, mental development and achieving their potential. For adults,

## CONCERNS AND NEEDS IN DIVERSE CONTEXTS

adequate nutrition is crucial to lead a socially and economically productive and healthy life. In turn, the health status of an individual determines the nutrient requirements of a person and food intake. During illness, nutrient requirements increase, and breakdown of nutrients are higher. Therefore, illness and disease adversely affect nutritional status. Hence, nutrition is a 'fundamental pillar' of human life, health and development.

## 10A.6 NUTRIENTS

There are more than 50 nutrients in food. Nutrients are broadly classified into macronutrients (required in relatively larger amounts) and micronutrients (required in small quantities) based on the amounts required by the human body. Macronutrients are generally fat, protein, carbohydrate and fibre. Micronutrients include the minerals such as iron, zinc, selenium and the various fat-soluble and water-soluble vitamins, each of which performs important functions. Some of them function as co-factors and co-enzymes in the various metabolic reactions that occur in the body. Nutrients can also influence gene expression and transcription. Different organs and systems play a critical role in the digestion, absorption, metabolism, storage and excretion of nutrients and their end products of metabolism. In essence, each and every cell in all parts of the body requires nutrients. Nutrient requirements in the normal healthy state vary according to age, sex and the physiological state, i.e., during periods of growth such as infancy, childhood, adolescence, and pregnancy and lactation in women. Level of physical activity also determines requirements for energy and nutrients involved in energy metabolism, e.g., vitamins like thiamine and riboflavin.

Knowledge about nutrients, their metabolism and sources as well as functions are vital. One should consume a balanced diet which includes foods that will provide all the necessary nutrients in required amounts.



BALANCED MEAL

The science of nutrition is concerned with access to, availability and utilisation of food and nutrients for life, growth, development and well-being. Nutritionists (professionals who work in this field) are concerned with myriad aspects. These range from biological and metabolic aspects to what happens in

disease states and how the body is nourished (clinical nutrition). Nutrition as a discipline studies the nutritional needs of populations and their nutritional problems, including health problems caused by lack of nutrients (public health nutrition) and prevention of diseases such as heart disease, diabetes, cancer, hypertension.

We all know that when one is ill, one may not feel like eating. What and how much is eaten by a person not only depends on taste but availability of food (food security) which in turn is influenced by purchasing power (economic factors), environment (water and irrigation), and policies at the national and international levels. Culture, religion, social status, beliefs and taboos also influence our food choices, food intake, and nutritional status.

**How do good health and nutrition help?** Look around you. You will notice that people in good health are generally in a happier frame of mind and are more productive than others. Healthy parents are able to take adequate care of their children, and healthy children are generally happy and do well in school. Thus, when one is healthy, one is more constructive for oneself and can take active part in activities at the community level. It is therefore obvious that one cannot achieve good health and be productive, sociable and a contributory member of society if one is starving and undernourished.

Table 1: Optimum nutritional status is important because it—	
▪ maintains body weight	▪ provides resistance to infection
▪ maintains muscle mass	▪ helps to cope with physical and mental stress
▪ decreases risk of disability	▪ improves productivity

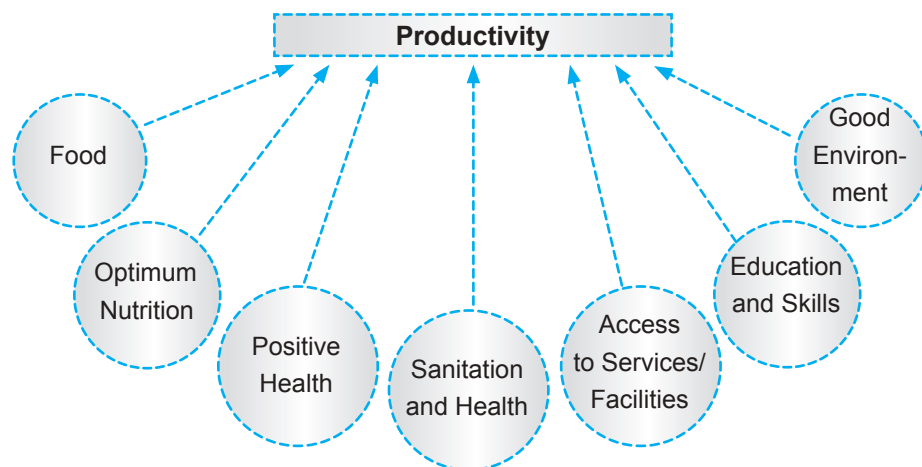
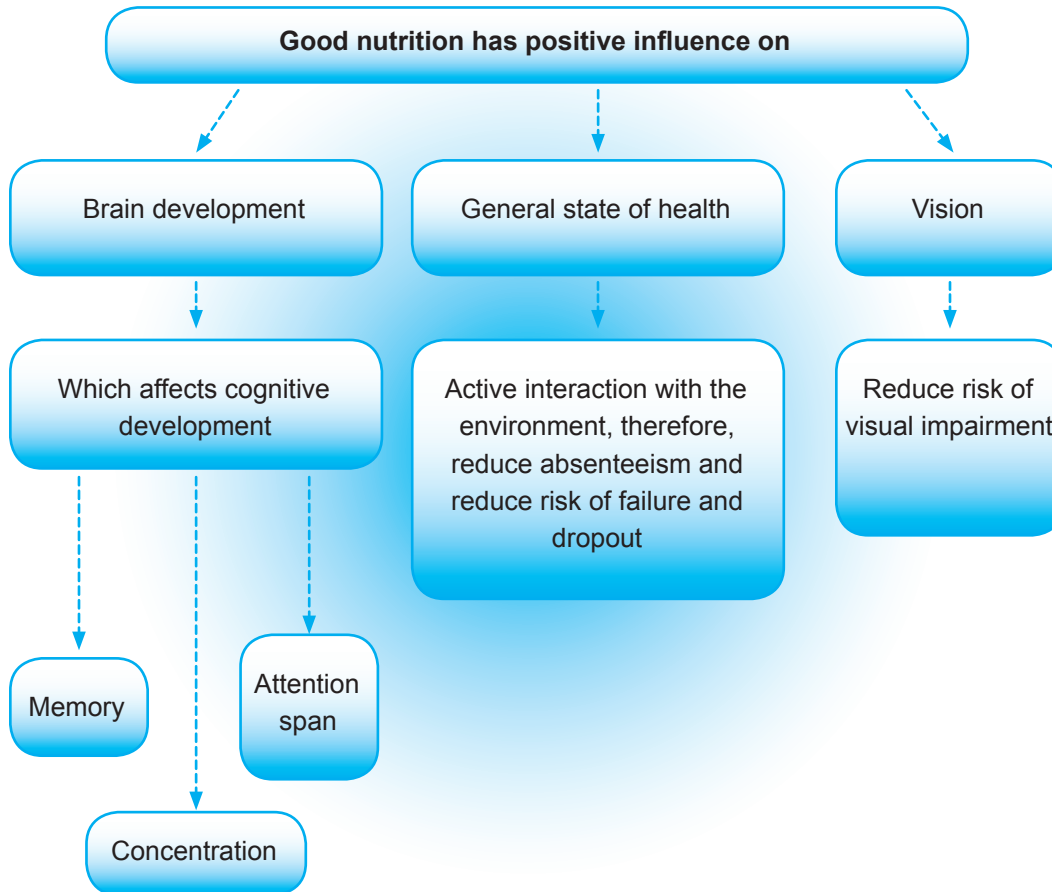


FIGURE 1: HEALTH AND NUTRITIONAL INPUTS REQUIRED FOR PRODUCTIVITY

## CONCERNS AND NEEDS IN DIVERSE CONTEXTS

Figure 2 summarises the benefits of good nutritional status for children's education.



145

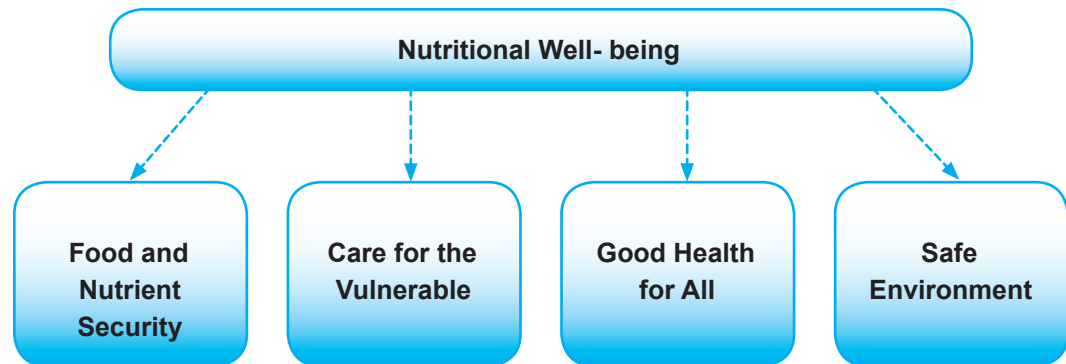
FIGURE 2: BENEFITS OF GOOD NUTRITIONAL STATUS FOR CHILDREN'S EDUCATION

**What is malnutrition?** Malnutrition is a deviation from the normal state of nutrition. When the intake of nutrients is less than the amount that is required by the body, or in excess of the requirements, malnutrition results. Malnutrition can take the form of overnutrition or undernutrition. Excess intake of nutrients results in overnutrition; inadequate intake results in undernutrition. Wrong food choices and combinations can be a very significant cause of malnutrition in adolescents.

## 10A.7 FACTORS AFFECTING NUTRITIONAL WELL-BEING

The World Health Organisation has listed four main factors (as shown in the diagram) that are important for nutritional well-being.





**Food and nutrient security** means that each and every person (regardless of age) has access to and can obtain adequate food and nutrients throughout the year, as per his/her requirements to enable him/her to lead a healthy life.

**Care for those who are vulnerable** means that each individual needs loving care and attention reflected by caring behaviour. In the case of babies it means whether the baby receives the correct type and amount of food as well as care and attention. In case of expectant mothers, it refers to whether they get all the care and support they need from the family, the community and in case of working mothers, from employers. Similarly, persons who are ill and suffer from any disease require care and support in various ways including food, nourishment, medication, etc.

**Health for all** includes prevention of disease and curing disease when it occurs. Special attention needs to be paid to infectious diseases since they can deplete the body of nutrients and lead to poor health and poor nutritional status. Every citizen should get a minimum amount of health care. Health is a basic human right. Some of the diseases that take their toll in India, especially among young children are diarrhoea, respiratory infections, measles, malaria, tuberculosis among others.

**Safe environment** focusses on all aspects of environment including physical, biological and chemical substances which may influence health. This includes safe, potable drinking water, hygienic food, and prevention of environmental pollution and degradation.

## 10A.8 NUTRITIONAL PROBLEMS AND THEIR CONSEQUENCES

In India, there exist several nutritional problems in the population. Undernutrition is a major problem which is reflected in the high numbers of pregnant women who are undernourished and have small babies with low birth weight as well as young children (below 3 years of age) who are

## CONCERNS AND NEEDS IN DIVERSE CONTEXTS

underweight and stunted. One-third of the babies born in India are low birth weight, i.e., less than 2500 gms. Similarly, considerable percentage of women too are underweight. There are other nutrition-related deficiencies such as iron deficiency anaemia, vitamin A deficiency and consequent blindness and iodine deficiency. Undernutrition has several negative effects on the individual.

**Undernutrition** not only reduces body weight but has devastating effects on children's cognitive development, immunity and can also result in disability, e.g., blindness due to vitamin A deficiency. Iodine deficiency is a threat to health and development, specially for young children and pregnant women since it results in goitre, still birth, and miscarriage in women, and deaf-mutism, mental retardation and cretinism in children.

Iron deficiency also has negative impact on health and well-being. In infants and young children, its deficiency impairs psychomotor and cognitive development, and thus adversely affects scholastic performance. It also decreases physical activity. Iron deficiency during pregnancy affects the growth of the foetus and increases risk of morbidity and mortality for the mother.

Conversely, overnutrition is also not good. Intake in excess of requirements leads to several health problems. In case of some nutrients it may lead to toxicity, and the person may become overweight and even obese. Obesity in turn increases the risk of several diseases such as diabetes, heart disease and hypertension. In India, we face problems at both ends of the spectrum, i.e., undernutrition (nutritional deficiencies) and overnutrition (diet-related chronic, non-communicable diseases). This has been termed "double burden of malnutrition". In our country, the third National and Family Health Survey shows that 28.9 per cent men and 22.2 per cent women from urban areas are overweight or obese, the percentage being much lower among rural men (8.6 per cent) and women (7.3 per cent).

**Nutrition and infection:** Providing enough food to fulfil nutritional requirements is not adequate. The influence of environment is also important. Nutritional status does not depend only on sufficient supply of food and nutrients but also on the person's health status, to a great extent. Nutrition and infection are intimately interlinked. Poor nutritional status decreases resistance and immunity, and thus increases risk of infection. On the other hand, during infection, the body loses considerable amount of its nutrient reserves (through vomiting and diarrhoea), while the nutrient requirements are actually increased. If nutrient intake is insufficient compared to the requirement due to loss of appetite or inability to eat (if there is nausea and/or vomiting), infections will affect the nutritional status adversely. Thus the risk of another infection increases, and all persons, especially children, the elderly and those undernourished are at the risk of contracting more infections/diseases.



In developing countries, food-borne illnesses such as diarrhoea and dysentery are major problems since they can lead to dehydration and death. Many of the infectious and communicable diseases are due to poor environmental sanitation, poor household, personal and food hygiene. The key therefore is to look into how these diseases can be prevented.

## 10A.9 HYGIENE AND SANITATION

Prevention and control of disease has to address both intrinsic and extrinsic factors which are linked with various diseases. The box below lists these factors.

Intrinsic/host factors	Extrinsic/environmental factors
Age, sex, ethnicity, race	Physical environment – air, water, soil, housing, climate, geography, heat, light, noise, radiation
Biological factors such as heredity, blood groups, enzymes, levels of various substances in blood, e.g., cholesterol Functioning of various organs and systems	Biological environment includes the human being, all other living beings such as animals, rodents, insects, plants, viruses, micro organisms Some of these act as disease-producing agents, some as reservoirs of infection, intermediate hosts and vectors of disease
Social and economic characteristics, e.g., occupation, marital status, housing	Psychosocial factors-emotional well-being, cultural values, customs, habits, beliefs, attitudes, religion, lifestyle, health services, etc
Lifestyle factors, e.g., nutrition, diet, physical activity, living habits, use of addictive substances such as drugs, alcohol, etc.	

Among these factors sanitation and hygiene, nutrition and immunisation are key inputs. When we speak of hygiene we are concerned with essentially two aspects: personal and environmental. Health depends to a great extent on the social environment as well as on lifestyle and behaviour, including food intake. It is also closely related to hygiene. Poor hygiene leads to several infections and infestations such as worm infestations.

**Environmental hygiene** comprises external matter, both organic and inorganic, at the domestic hygiene (home) and community levels. This includes **physical** factors such as water, air, housing, radiation, etc., as well as **biologic** factors such as plants, bacteria, viruses, insects, rodents and animals.

CONCERNS AND NEEDS IN DIVERSE CONTEXTS

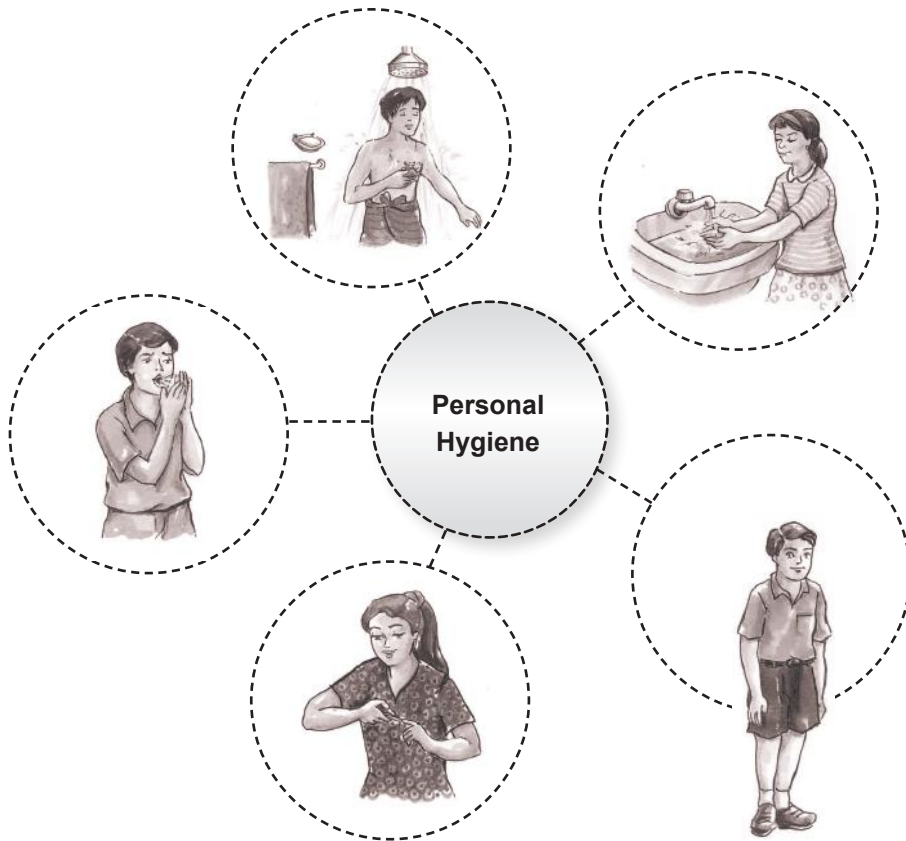


FIGURE 3: PERSONAL ASPECTS OF HYGIENE

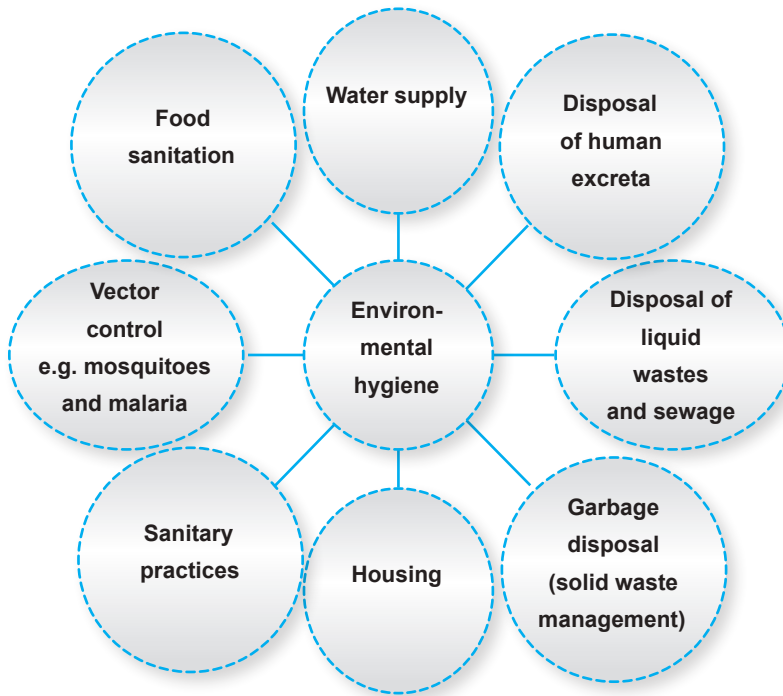


FIGURE 4: ENVIRONMENTAL ASPECTS OF HYGIENE

Environmental health needs attention so as to create and maintain ecological conditions that will promote health and prevent disease. Among these, safe drinking water and sanitation, especially faeces disposal, are of great importance. Similarly air and water pollution are of concern. Water quality is important as contaminated water is the cause for many diseases such as diarrhoea, worm infestations, skin and eye infections, guinea worm, etc.

**Food Hygiene:** Food-borne illnesses occur when we consume food that contains disease-causing (pathogenic) micro-organisms. Several factors are needed for a food-borne illness to occur.

- Either the organism or the toxin must be present in the food eaten.
- The number of pathogenic micro-organisms must be in sufficient numbers.
- The contaminated food must have been consumed in sufficient quantity.

The illnesses that are caused include diarrhoea, dysentery, amoebiasis, infective hepatitis, typhoid, listeriosis, botulism, cholera, gastroenteritis. Most of these are traced back to poor personal and food handling practices as outlined below.

- Use of food items that are spoiled/infected/unsafe, include water, spices, seasonings, mixes.
- Improper storage leading to multiplication of disease causing micro-organisms.
- Not practising insect and vermin control.
- Use of contaminated equipment, utensils and plates, spoons, glasses
- Inadequate cooking.
- Storage of foods at temperatures favourable to growth of microorganisms ( 4 to 600C).
- Improper cooling.
- Improper/inadequate heating/reheating of cooked foods/left overs.
- Cross contamination.
- Leaving food uncovered.
- Use of contaminated substances for garnishing.
- Poor hygiene and sanitation of persons handling food, such as unclean clothes, not washing of hands, dirt and grime under the nails.

Effective practices related to nutrition, health and hygiene are essential to be productive in the work that one does, within home or outside the home. The next chapter discusses the relationship between work, worker and workplace.

### Key Terms

Health care, Nutrients, Malnutrition, Hygiene and sanitation, Food hygiene.

CONCERNS AND NEEDS IN DIVERSE CONTEXTS

■ **EXERCISES**

---

1. **Look up the following websites and discuss them in the class**
  - UNICEF's report on State of the World's Children  
<http://www.unicef.org/sowc08/>
  - Human Development Index  
<http://hdr.undp.org/en/statistics/>
  - WHO's World Health Report  
<http://www.who.int/whr/en/>
2. Identify at least 5-6 key indicators that you think are important for health and see how India ranks among the various countries in the world.  
Or  
**Alternative for rural students:** Interview two mothers of young children in your village. Ask each mother how many episodes of diarrhoea have occurred in the case of her child in the last one year. Give your comments on the reasons given by the mothers.
3. There are so many dimensions of health. List the various occupations or professions which are involved in providing services for health and nutrition – including prevention of health problems, promotion of good health and therapeutic services.

151

■ **REVIEW QUESTIONS**

---

1. "Nutrition affects productivity, income and quality of life". Write your opinion about this statement.
2. How is nutrition linked to mental and visual disability and quality of life?
3. Divide the class into groups. Each group should visit a food service establishment, e.g., canteen/cafeteria, restaurant, street food vendor. Identify the poor hygiene practices related to (a) food hygiene (b) personal hygiene.
4. Have a class discussion on how hygiene can be improved and food can be rendered safer.  
Or  
Divide yourselves into three groups. One group will study the 'Food' aspect, the second will study 'People' and the third will assess 'Unit, facilities and equipment'. After listing the various aspects/parts/activities that increase risk of illness, the groups can be asked to give a presentation followed by a discussion on remedial measures.

**Note for Teachers**

Teachers may guide students to organise an exhibition on Health, Nutrition and Hygiene for the school children, parents and members of community.

**Note for students**

In the vicinity of (a) your school (b) your home, observe and rate as very good, good, fair, poor and very poor at least three factors that are related to environmental hygiene.

## ■ PRACTICAL 10

**A. Nutrition, Health and Hygiene**

Compare the energy, protein, calcium and iron content of 150 g. edible portion of foods using the food composition tables provided—

**(a) Cereals**

Name of Cereal	Energy content (Kcal. per 150 g)	Protein content (g. per 150 g.)	Calcium content (mg per 150 g.)	Iron content (mg per 150 g.)
1. Bajra				
2. Rice (raw, milled)				
3. Maize (dry)				
4. Wheat (whole)				

**(b) Pulses**

Name of Pulse/ legume	Energy content (Kcal. per 150 g)	Protein content (g. per 150 g.)	Calcium content (mg per 150 g.)	Iron content (mg per 150 g.)
1. Bengal gram dal				
2. Black gram dal				
3. Lentil				
4. Soyabean				

**(c) Vegetables**

Name of Vegetable	Energy content (Kcal. per 150 g)	Protein content (g. per 150 g.)	Calcium content (mg per 150 g.)	Iron content (mg per 150 g.)
1. Spinach				
2. Brinjal				
3. Cauliflower				
4. Carrot				

## CONCERNS AND NEEDS IN DIVERSE CONTEXTS

**(d) Fruits**

Name of Fruit	Energy content (Kcal. per 150 g)	Protein content (g. per 150 g.)	Calcium content (mg per 150 g.)	Iron content (mg per 150 g.)
1. Mango (ripe)				
2. Orange				
3. Guava (country)				
4. Papaya (ripe)				

**B. Identify the rich sources of carbohydrate, protein, fat, vitamin A, iron and calcium in your family's diet. Can you suggest improvements? Use the following formats to record your answer.**

Sources of carbohydrate	Sources of protein	Sources of fat	Sources of vitamin A	Sources of iron	Sources of calcium

Diet practices which need improvement	Suggestions

**Note for Teachers**

Teachers can encourage students to calculate the nutritive value of foods in their own region (which may not be listed in the table provided). A useful reference published by Indian Council of Medical Research (ICMR) is as follows.



**FOOD COMPOSITION TABLES**  
(Nutritive Value per 100 g edible portion)

**Cereals**

Name	Energy (Kcal.)	Protein (g.)	Calcium (mg.)	Iron (mg)
<i>Bajra</i>	361	11.6	42	8.0
Rice (raw, milled)	345	6.8	10	0.7
Maize (dry)	342	11.1	10	2.3
Wheat (whole)	346	11.8	41	5.3

**Pulses**

Name	Energy (Kcal.)	Protein (g.)	Calcium (mg.)	Iron (mg)
Bengal gram <i>dal</i>	360	17.1	56	5.3
Black gram <i>dal</i>	347	24.0	154	3.8
Lentils	343	25.1	69	7.58
Soyabean	432	43.2	240	10.4

**Vegetables**

Name	Energy (Kcal.)	Protein (g.)	Calcium (mg.)	Iron (mg)
Spinach	26	2.0	73	17.4
Brinjal	24	1.4	18	0.38
Cauliflower	30	2.6	33	1.23
Carrot	48	0.9	80	1.03

**Fruits**

Name	Energy (Kcal.)	Protein (g.)	Calcium (mg.)	Iron (mg)
Mango (ripe)	74	0.6	14	1.3
Orange	48	0.7	26	0.32
Guava (country)	51	0.9	10	0.27
Papaya (ripe)	32	0.6	17	0.5

(Source : Nutritive Value of Indian Foods (1985), by C. Gopalan, B.V. Rama Sastri and S.C. Balasubramanian, Revised and Updated (1989), by B.S. Narasinga Rao, Y.G. Deosthale and K.C.Pant (Reprinted 2007) )