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D.E.C.E.-2

Child Health And Nutrition

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By: Maimun Nisha, (Home Science) Ph.D.



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Mob.: 8510009872, 8510009878 E-mail: info@neerajbooks.com

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**Sample Preview
of the
Solved
Sample Question
Papers**

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QUESTION PAPER

June – 2023

(Solved)

CHILD HEALTH AND NUTRITION

D.E.C.E.-2

Time: 3 Hours]

[Maximum Marks: 100

Note: Attempt any five questions. All questions carry equal marks.

Q. 1. (a) Explain the interaction between malnutrition and infection, giving examples.

Ans. Ans. Ref.: See Chapter-1, Page No. 7, 'Interaction between Malnutrition and Infection'.

Also Add: Inter-relationship between malnutrition and infection in the phenomenon of synergism, that means malnutrition affect the health of the child and so does infection. When these two occur both at a time in child, or damage caused to person's health, that each disease caused together.

Malnutrition persume one more prone to infection and may subnormal body temperature. There may be a tendency towards low blood pressure and oedema. They are also more prone to contracting diseases like dysentery, chicken pox, respiratory infections, etc.

The food which is contaminated by intoxicants and infectious agents is capable of causing illness. The degree of illness caused is dependent upon the state of health of the individual, the amount of contaminated food consumed and the strength or potency of the toxic materials present. Disease transmitted through food can be classified as follows:

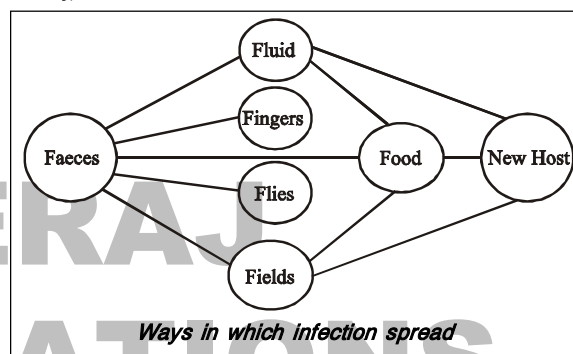
- (a) Food borne intoxications
- (b) Food borne infections

Food and water form major media for the entry of disease organisms or agents into an individual, commonly known as the host. If the host is weak the agent will cause disease symptoms in the individual. Improper disposal of waste products is responsible for the spread of disease and infection.

Infections are associated with low standards of personal and public hygiene. Infections of disease can be controlled and eradicated through education and improving of living standard. Some of the infection will be discussed below:

- (a) Typhoid
- (b) Paratyphoid
- (c) Cholera
- (d) Diphtheria

- (e) Tuberculosis
- (f) Jaundice



Protein-calorie Malnutrition (PCM) is one of the most important public health problems in many developing countries including India, South-East Asia and Africa. It is a widespread deficiency disease among children of low socio-economic groups. Protein-calories malnutrition is characteristic of children under five years whenever the diet is poor in protein and calories, though no age is immune. The effect of protein deficiency in adults may show itself in the form of loss of weight, reduced of fat, anaemia, prone to infection, frequent loose stool, general lethargy, inability to hard work, delay of wounds and oedema. The acute form of protein-calorie malnutrition is often precipitated due to inability on the part of the mother to supply proper nutrients to the foetus and later inability on her part to lactate. The degree of severity of protein-calorie malnutrition is related to the extent of growth failure.

The inter-relationship and the synergistic effect of malnutrition and infection often lead to a high rate of illness and death among the children in our country.

(b) State any three functions of each:

(i) Proteins

Ans. Ref.: See Chapter-5, Page No. 37, Q. No. 6.

(ii) Carbohydrates

Ans. Ref.: See Chapter-4, Page No. 30, Q. No. 7.

Q. 2. (a) Describe the *three* food groups, giving examples.

Ans. Ref.: See Chapter-8, Page No. 66, 'Uses of Food Groups' and Q. No. 3.

(b) What is meant by 'Balanced Diet'? Explain how the concept of food groups can be used to prepare a balanced diet, giving an example.

Ans. Ref.: See Chapter-8, Page No. 60, 'What is Balanced Diet' and Page No. 93, 'Menu Showing Food Groups'.

Q. 3. (a) State the nutrients, deficiency of which leads to the following diseases:

(i) Marasmus

Ans. Protein deficiency

(ii) Anaemia

Ans. Iron deficiency

(iii) Xerophthalmia

Ans. Vitamin-A deficiency

(iv) Rickets

Ans. Vitamin-D deficiency

(v) Beri-beri

Ans. Thiamin deficiency

(b) Describe the clinical features of any *three* of the above mentioned diseases.

Ans. Ref.: See Chapter-15, Page No. 101, Q. No. 3, Page No. 103, Q. No. 9 and Chapter-16, Page No. 105, Q. No. 2.

(a) List *five* nutrients the requirement of which increases during pregnancy.

Ans. Ref.: See Chapter-9, Page No. 71, Q. No. 2.

Q. 4. (b) List *two* food sources each of the above nutrients.

Ans. Sources of Iron: Horse gram, spinach and mustard leaves

Sources of Calcium: Ragi, Cow's milk

Sources of Proteins: Eggs, Soybeans, moong daal

Sources of Folic acid: Broccoli, Chickpeas

Sources of Vitamin B₁₂: Milk products, fish.

(c) Suggest *one* nutritious snack that you can give to the pregnant lady in the interval between lunch and dinner. What are the nutrients provided by the different ingredients in the snack?

Ans. A nutritious snack for a lactating mother between lunch and dinner could be a quinoa salad with chickpeas, mixed vegetables. Quinoa and mixed vegetables contain proteins, fiber and iron and magnesium. Besides proteins and fibers, chickpeas also contain iron and folate.

Q. 5. (a) List the causes and prevention of:

(i) Any One infection of the alimentary system.

Ans. Ref.: See Chapter-22, Page No. 127, Q. No. 2.

(ii) Any *one* infection of the respiratory system.

Ans. Ref.: See Chapter-23, Page No. 133, Q. No. 3.

(b) List the first aid to be provided in case of:

(i) Bites

Ans. Ref.: See Chapter-30, Page No. 152, 'Bites' (Q. No. 6).

(ii) Drowning

Ans. Ref.: See Chapter-30, Page No. 152, 'Drowning (Q. No. 7)'

Q. 6. (a) Explain how the growth chart helps to monitor the child's growth.

Ans. Ref.: See Chapter-20, Page No. 121, Q. No. 11.

(b) State the largest group and services provided under:

(i) Any *one* health programme

Ans. Ref.: See Chapter-19, Page No. 116, Q. No. 2.

(ii) Any *one* nutrition programme

Ans. Ref.: See Chapter-18, Page No. 112, Q. No. 2.

Q. 7. (a) Explain what are basic mix and multimix giving examples.

Ans. Dietary treatment consists of provision of an acceptable, digestible liquid diet containing good quality protein, sufficient calories, and vitamins and electrolytes. This is meant to repair the metabolic damage and to replenish the body with stores required for return to normal growth. Cow's milk is considered most ideal. This milk protein is easily assimilated and maximum nitrogen absorption takes place. A seriously ill child who cannot tolerate whole milk should be provided with skimmed milk or preparations of casein and mashed bananas. Gradually when the condition improves, whole milk can be resorted to along with vegetable protein multi-mixes. Vegetables protein multi-mixes are usually made up of staple cereals, a legume, and green leafy vegetables. They are low cost foods made up of locally available ingredients. Multi-mixes such as corn soya milk. Incaparaina, pronutro, AK-1000, and supramine are available in some countries. In India, Bal-Amul, Bal-Ahar, Pronto, Protinex, Protinules and Threptin biscuits are available.

(b) Suggest a nutritious balanced lunch menu for a preschool child, stating the dishes you will give and their amounts.

(c) State the nutrients provided by each dish in the menu.

Ans. Ref.: See Chapter-13, Page No. 93-94, Q. No. 3. ■ ■

Sample Preview of The Chapter

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Child Health and Nutrition

The Concept of Nutrition



INTRODUCTION

Food can be defined as anything solid or liquid which when swallowed, digested and assimilated in the body keeps it well. Like air and water, food is also basic to our existence. In fact food is the primary concern of man in his physical environment throughout all recorded history. Food or lack of it has greatly influenced the destinies of man. One must eat to live and what one eats affects to a high degree one's ability to keep healthy, to work, to be happy and to live well.

Nutrition is the science of foods, the nutrients and other substances therein, their action, interaction and balance in relationship to health and disease. It can be defined as the process by which the organism ingests, digests, absorbs, transports and utilizes nutrients and disposes of their end-products. Nutrition can also be defined as "*food at work in the body*". Nutrition must perforce be concerned with the social, economic, cultural and psychological implication of food and eating.

Nutrients are the constituents in food that must be supplied to the body in suitable amounts. These are proteins, carbohydrates, fats, minerals, vitamins and water.

Nutritional status is the condition (state) of health of an individual as influenced by the utilization of nutrients in his body. This can be found out only by a careful medical and dietary history, a thorough physical examination and appropriate laboratory investigations.

CHECK YOUR PROGRESS

Q. 1. What do you understand by nutritional care ?

Ans. Nutritional care is the application of the science and act of human nutrition in helping people to select and obtain food for the Primary purpose of nourishing their bodies in health or in disease throughout the lives.

Good nutrition : Good, adequate and optimum are the terms applied to that quality of nutrition in which the essential nutrients in correct amounts and balance are utilized to promote the highest level of physical and mental health throughout one's life.

Food can be obtained from the animal as well as the plant kingdom; from organic as well as inorganic sources. Food is classified according to its nutrient composition and also according to the functions it serves in the body.

Q. 2. Define food and explain its function.

Ans. Foods and its Functions: There are so many questions which arise in everybody’s mind that why we need food? What is the main value and function of food? The term food is derived from a Greek word.

Life cannot sustain without adequate food. Man needs adequate food for growth, development and to lead an active and healthy life. Plants can manufacture the foods they need from simple chemicals derived from the soil, water and carbondioxide of the air. Higher organism on the other hand do not posses this capacity to manufacture food from simple chemical and hence they depend on plants or other animals for obtaining the food they need. Procuring enough food for its survival is the main aim of the life’s struggle in all the higher organisms.

Food can be defined anything solid and liquid which when swallowed, digested and assimilated in the body keeps it well. Food is the basic element to live and survive. It is must needed for body as well as for mind. Foods have some values, contribution and essential for individual as well as society. Food is a unit of nutrients and non-nutrients; it is a mixture of micro-nutrients. Nutrients are the constituents in food that must be supplied to the body in suitable amounts. These are proteins, carbohydrates, fats, minerals, vitamins, water and roughages.

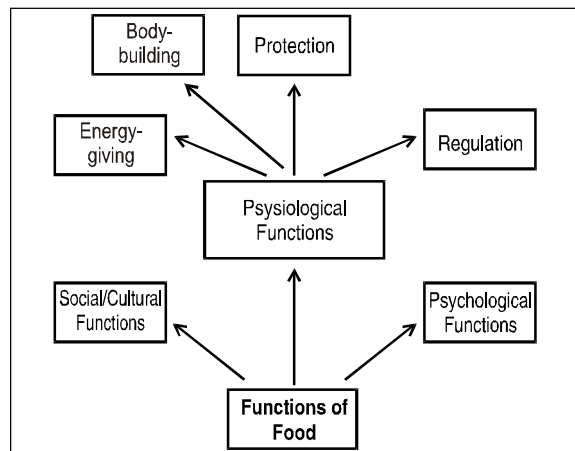
Q. 3. What are the functions of food?

Ans. Functions of Food: Animal satisfies basic food requirement mainly through natural selection, man however, has access to a wide range of foods to choose to make up his diet. Since all foods are not of all same quality from a nutritional point of view. Man’s ability to meet his nutritional needs and maintain good health depends upon the type and quantity of foodstuffs he is able to include in his diet to satisfy his hunger.

Food can be obtained from the animal as well as the plant kingdom; from organic as well as in organic sources. Food is classified according to its nutrients composition and also according to the functions it serves in the body. Food contains several nutrients. There are more than forty required nutrients, which are absorbed by food we consume. Each nutrient is classified and functional value to play role. Nutritions has functional classification:

- Body-building foods→Protein, Mineral.
- Energy-giving foods→Carbohydrates, Fats.
- Protective foods→Vitamins, Minerals.
- Regulatory foods→Water, Roughage.

Classification of Food



1. Physiological Functions:

Food provides materials for tissue building, growth and body repair mainly through proteins and minerals. Different parts of the human body like the muscles, bones and organs are built up and maintained by the proteins supplied by the food. Minerals like iron, calcium and phosphorus affect the formation of the blood and skeletal tissues (bones). A lack of anyone of the various types of building nutrients leads to weakening of the body structure.

Food provides energy to the body through nutrients like carbohydrates and fats (lipids). The human body is never at rest. Energy is required constantly for the voluntary and involuntary activities of the body. Even while sleeping the heart beats, digestion, respiration and absorption go on and the body temperature remains constant.

Protective foods are essential for safeguarding the body against diseases. Vitamins play a vital role in regulating body process like growth, eyesight, health of the skin, formation of proper teeth and good digestion. They also protect the general health of the individual. Minerals control some of the physiological processes of the body. The absence of iodine, for example, can lead to a disease of the thyroid gland called goitre.

Regulatory foods are needed for the normal working of the body. Water is required in large amount to regulate body process such as digestion, excretion, maintenance of the body temperature and the electrolyte balance. Roughage helps normal bowel movements.

2. Social Functions:

This function is also called socio-cultural function of food.

Food habits which have existed among a given racial group for centuries may be the reason for their reluctance to accept any suggested changes. The social structure, economy, religion, beliefs and attitudes affect the meal patterns of a family. Today many changes in food patterns are being accepted because of the influence of other cultures. *Dosa, idli, chaat* and other regional food from different lands are relished by many people. An aim has led to the enriching of their diets while not doing away with the older traditions.

Food plays an important role during social meetings, both formal and informal. At such gatherings food serves as an instrument for developing social relationship. While the menu plays an important role, the nutritive value of the food is not often given much importance. Families meet at various meal times. Such everyday occasions provide opportunities for the development of sound family relationships and good food habits. Due attention must be paid to the nutritive value of the meals eaten by the family.

Food is often used to express one's feelings. The giving of food is a token of friendship. The serving of special and favourite dishes is an expression of attention and recognition, while the withholding of desired food may be a means of punishment.

The food consumed by an individual should be wholesome and should fulfil the physiological, psychological and social needs of a human being.

Food items such as fruits, sweets, dates, coconuts are offered in temples as *parsad*. Food thus becomes a vital part of society.

3. Psychological Functions: Food satisfies certain emotional needs of the human being. Food which is nutritionally adequate may not always give a sense of genuine satisfaction to the consumer. People travelling to new lands have to adjust themselves to the unfamiliar food customs.

It is a well-known fact that eating provides an outlet for the stresses and strains of life. A difficult examination in school may try to compensate by eating more, to satisfy his needs.

Food is also a sign of security. A baby feels secure in the arms of its mother, when drinks milk. Food is used as a weapon when an insecure child refuses to eat and causes its mother concern. Children who are ill and lonely may make demand for food upon those caring for them, just to give attention.

A child enjoying food with the peer groups, friends and classmates when sharing the lunch together at school, which gives mental satisfaction to the child. Food provides psychological security. When a mother prepares a favourite dish for her child, the dish satisfy

the need and provide dietary satisfaction and develop emotional bonds towards the relationship.

Q. 4. What do you mean by Nutrition?

Ans. Meaning of Nutrition: Nutrition is the science of foods, the nutrients and other substances therein; their action, interaction and balance in relationship to health and disease. It can be defined as the process by which the organism ingests, digests, absorbs, transports and utilizes nutrients and disposes of their end-products. Nutrition can also be defined as "*Food at work in the body.*" Nutrition must perforce be concerned with the social, economic, cultural and psychological implications of food and eating.

Nutrition is the science that deals with digestion, absorption and metabolism of food, *i.e.* the utilization of food in the body. It may be defined as "*the science that interprets the relationship of food to the functioning of living organism.*" It includes the uptake of food, liberation of energy, elimination of wastes and all the processes of synthesis essential for maintenance, growth and reproduction. These fundamental activities are characteristics of all living organisms from the simplest to the most complex plants and animals.

Nutrition is relatively a new science. Its first recognition as an independent field of study came in 1926, when Mary Swatz Rose was appointed as the Professor of Nutrition at Columbia University. Earlier, major work done in nutrition was reported under medical sciences and some under Chemistry, Botany and Zoology and other areas of study. However, even today, we cannot deny the interrelationship or interdependence of this field of study with various others, such as Medicine, Agriculture, Food and Science Technology, Sociology, Psychology, Economics, Anthropology, Demography, Chemistry, Biochemistry, Biological Sciences and so on.

Food, which provides our body all the nutrients such as carbohydrates, fats, vitamins, minerals and water does influence our health status. However, it is not absolutely correct to say that improper food alone results in ill-health as number of other factors may also play an important causative role. Nevertheless, if the individual is well fed, it helps him to achieve a state of health, which enables him to play a responsible role in the society.

Good health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity.

When the diet is able to meet all the nutritional needs of an individual and it also provides an extra

allowances or minor stresses and strains, the individual is said to be in a state of optimum nutrition. It is the highest nutritional level, which can be attained. Krehl (1956) suggested that optimum nutrition might be described as that which provides all dietary nutrients in respect of kind and amount, and in proper state of combination or balance, so that the organism may always meet the varied exogenous and endogenous stresses in life, whether in health or disease, with a minimal demand on strain on the body's natural homeostasis mechanisms. Optimum nutrition is also known as adequate nutrition or good nutrition.

Q. 5. What are the action, interaction and balance of food?

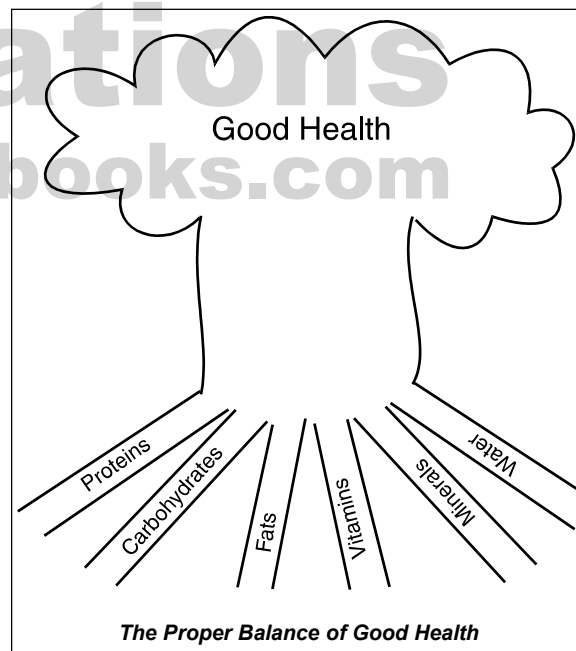
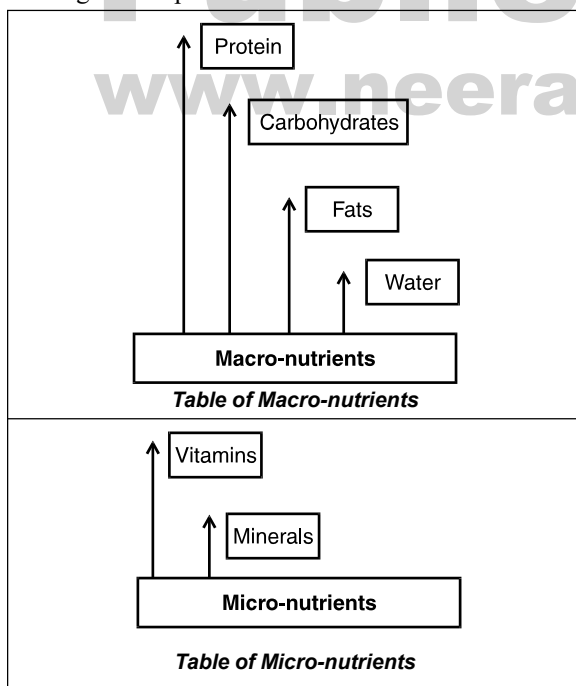
Ans. Nutrients: Action, Interaction and Balance: Nutrients are the constituents in food that must be supplied to the body in suitable amounts. These are protein, carbohydrates, fats, minerals, vitamins and water. The requirement of nutrients, in larger form body are known as *Macronutrients*. But in the other cases body require the other nutrients like vitamins and minerals, in smaller form called as *Micronutrients*. But these are simultaneously required for body and play a significant role for growth and development.

Carbohydrates, fats, proteins and water are the examples of macronutrients. Vitamins and minerals are the bright examples of micronutrients.

For example, the calcium (mineral) required for strong bones and teeth, but calcium and phosphorus (mineral) must be required in improper proportion for normal growth of bones and teeth. It means the normal periodical growth of bones and teeth, normal functions, proportional structure and for maintenance requires an interaction between two nutrients, that is calcium and phosphorus. These are known as *interaction of nutrients*.

Regulatory foods are needed for the normal working of the body. Water is required in large amount to regulate body temperature, digestion, and excretion and also maintain electrolyte balance. That means this is action of water. This is known *action of nutrients*.

The clear concept about *balance of nutrients* followed by mineral, the main example of calcium and phosphorus. All the nutrients are required by body in a proper proportion. Minerals like iron, calcium and phosphorus affect the formation of the blood and skeletal tissues. A lack of any one of the nutrients leads to weakening of the body structure. If an unbalance between calcium and phosphorus affect the growth and development of bones and teeth, the term balance means the nutrients needed but the body should be proportionate in right amount and very vital elements of health.



Handling of Food and Nutrients by the Body

A good nutrition that provides all essential nutrients in correct balance, which are further utilized