



Dr. Bbosa Science

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Food and nutrition

Foods

Food is a solid or liquid that is taken through eating or drinking to provide necessary nutrients to the body.

Nutrition is the process by which living things take up food in order to grow and stay healthy

Functions of food

- (i) To repair worn out tissue
- (ii) Provide energy required to do work like talking and walking.
- (iii) Protect the body against infections and diseases
- (iv) To build the body.

Classification of foods and nutrients in food

They are classified according to the role they play when eaten

- (a) Carbohydrates or energy giving food.

These provide energy when eaten.

Examples of foods that contain carbohydrates include, rice, maize, wheat, cassava tubers.

- (b) Fats and oils

Fats are solids at room temperature while oils are liquids

Functions of fats and oils in the body

- Provide energy

- They are deposited beneath the skin to insulate the body against heat loss.
- They act as energy store
- They protect delicate organs against shock.

Sources of fats and oils

Animal fat

Sun flower

Sim sim

Ground nuts

Castor oil.

(c) Proteins are body building food

Functions of proteins

- (i) Repair worn out tissues
- (ii) For growth

Sources of proteins

Animals: Fish, meat, chicken, pork

Plant sources: beans, peas, cashew nuts, soya bean

Deficiency of proteins causes kwashiorkor in children

Signs of and symptoms of kwashiorkor

Vitamins or protective food.

They are required in small amounts but protect the body against diseases. Lack of a particular vitamin in the diet may lead to deficient diseases

The table below shows types of vitamins, their sources, importance and name of deficient disease cause in their absence.

Vitamin	Source	Importance	Deficient disease
Vitamin A	Carrots, fruits, greens pumpkins	Good for skin and eyesight	Night blindness
Vitamin B	Cereals, liver, kidney and vegetables	Proper working of the brain,	Various diseases
Vitamin C	Fruits and vegetables	Healthy gum and skin	Scurvy
Vitamin D	Milk, sunlight	Strong bone and teeth formation	Rickets
Vitamin K	Vegetables	Clotting	Poor clotting

Mineral salts

Minerals are required in very small amounts but very important

The table below shows common mineral, their sources and uses

Mineral	Source	Importance	Deficient disease
iron	liver	Manufacture of red blood cells	anemia
Calcium	Meat, milk	Formation of bone	
Phosphorus	Meat, eggs, beans	Formation of strong bones	

Fibres/ roughages

They are thread-like foods that prevent constipation or difficult in defecating.

Water

Role of water in in the diet include

- Soften food foe easy swallowing
- Prevents constipation
- Sweating cools the body
- Helps in digestion

Balanced diet

This is a diet consisting of the proper quantities and proportions of foods needed to maintain health or growth.

A balanced diet must have proteins, carbohydrates, mineral salts, water and vitamins in their right proportions

Examples of balanced diet include

- (i) Breast milk
- (ii) Meat (proteins), posho (carbohydrates) and fruit juice (vitamins and water)
- (iii) Fish (proteins), millet (carbohydrates) and greens (vitamins)
- (iv) Beans (proteins), cassava (carbohydrates) and fruits-like apples (vitamins)

Deficiency diseases

They are diseases caused by lack of certain nutrients in the diet.

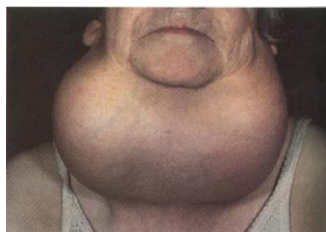
The table below shows the name of deficient disease, name of lacking nutrient, and common symptoms

Deficient disease	Lacking nutrient	Common symptoms
Marasmus or near starvation	Lacking enough food	<ul style="list-style-type: none"> - Bones visible from skin - Child is very weak - Child cries a lot
Kwashiorkor	Proteins	<ul style="list-style-type: none"> - Brown hair - Swollen belly - Loose skin - Mouth sore
Anemia	Iron	<ul style="list-style-type: none"> - Pale whitish skin - One become weak and tire very fast
Rickets	Calcium	<ul style="list-style-type: none"> - Bow legs in children
Goiter	Iodine	<ul style="list-style-type: none"> - Swollen neck

Pictures of deficient diseases



Marasmus



Goiter



Rickets



Kwashiorkor

Food preservation

This is the treatment of food to enable long shelf life

Reasons for preserving food

- To prolong time in which it is useful
- For storage
- To avoid wastage
- For easy transportation

Method of preservation include

(a) Traditional methods

(i) Salting

This is often used to preserve fish and meat

Salt dehydrates and also kills germs

(ii) Smoking

Smoking is used to preserve fish and meat

Smoke and heat kill germs. Heat dehydrates fish and meat

(iii) Sun drying

Sun drying is used to preserve fish such as silver fish

It dehydrates.

Modern methods

(i) Freezing

Freezing is use to preserve meat, fish, chicken, fruits

Freezing paralyzes microorganism

(ii) Canning

Foods like fruits, beans, meat and biscuits are preserved in metal cans.

(iii) Pasteurization

Special groups

General all people must feed balanced diet for proper functioning of the body. However, balanced diet must be emphasized in the following groups of people

- (i) Babies and children,
- (ii) Pregnant mothers,
- (iii) Elderly,
- (iv) The sick such as with HIV and
- (v) Breast feeding mother

Food poisoning

This is the illness caused by eating contaminated food. This illness attacks the stomach but can spread to other parts of the body.

Causes of food poisoning

- food contaminated with poisons such as pesticides, detergents
- food contaminated with pathogens/disease causing organisms

Symptoms of food poisoning

- nausea and vomiting
- fever
- stomach pain
- dizziness
- headache
- death

How to prevent food from becoming poisonous

- proper storage of food
- eat fresh food
- do not eat expired food

Revision questions

1. Name one source of vitamin B
.....
2. Why is iron important element in our diet?
.....
3. Why is milk the best food for a baby less than one year old?
.....
.....
4. Why should left-over food be properly covered?
.....
5. Why must fruits and vegetables be included in our diet?
.....
6. Why does a pregnant mother need food rich in protein?
.....
7. What causes anemia?
.....
8. Common salt give flavor to our food. State on more use of salt in our diet.
.....
9. Why is milk the best food for a baby less than one year old?
.....
10. Which food from the list (maize, cassava, beans) would you recommend for Bbosa's child suffering from Kwashiorkor to eat?
.....
11. Give a reason for your answer in question 10.
.....
12. State some one major reason why breast milk is considered the best food for a baby?
.....
13. State one reason why water is important in our diet.
.....
14. What is the importance of mineral salt in a child's diet
.....
15. What advice would you give to a mother whose child is suffering from kwashiorkor?
.....
16. Peter's friend is suffering from scurvy. Suggest reasons why peters friend is suffering from that disease.
.....
17. Give any four method commonly used to preserve meat.
.....
18. What food nutrient are leguminous crops rich in?
.....

19. Use the list of food stuffs given below and answer the following questions.

BEANS, RICE, CABBAGE, MILK, ORANGES.

(a) Give two food stuffs that are a source of proteins.

.....

(b) How are cabbages useful in one`s diet?

.....

(c) Why would you regard a list of the foods given above a balanced diet?

.....

20. What disease is likely to attack children whose diet lacks proteins?

.....

21. Give any one reason why a child`s diet should more proteins than that of an adult.

.....

22. How is the absence of iodine harmful to our health?

.....

23. Name any cereal which is used as food.

.....

24. (a) Give one two reasons for preserving meat

.....

(b) Give any traditional way of preserving fish in Uganda

.....

(c) Give one modern way of preserving meat.

.....

25. The table below shows food stuffs prepared in different families

Study it and answer questions that follow

Family A	Family B	Family C	Family D
Matooke Yams Meat beans	Cassava Beans Posho yams	Potatoes Posho Cassava yams	Millets Fish Goat milk Mangoes

(a) Which family will be able to have vitamin C?

.....

(b) Which family has proteins but lacks fats?

.....

(c) What food nutrients are lacking in family A?

.....

(d) Which family has almost a balanced diet?

.....

26. (a) Give any one reason why people include proteins in the diet.

.....
 (b) What is the importance of fruit in a diet?

.....
 (c) State any two ways of protecting children against malnutrition.

27. Give any one cause of cause of malnutrition in adults.

.....
 28. State one natural cause of a family failing to have enough food.

.....
 29. Why is breast feeding very important to a mother?

.....
 30. State one way in which hens are important in prevention of deficiency diseases in man.

.....
 31. Apart from pasteurizing, give any one way milk can be prevented from going bad.

.....
 32. 18. Apart from carbohydrates, name one other class of food that gives the body energy.

.....
 33. The table below, shows source of food, the food nutrients in it and the related deficiency disease. Complete it correctly.

Source of food	Food nutrient	Deficiency disease
Fruit	Vitamin C
Beans	Kwashiorkor
.....	vitamin	Night blindness
Iodized salt	Iodine

34. Which deficiency disease is caused by lack of vitamin d in children `s diet?

.....

35. (a) Name any one organism that makes fresh meat go bad.

.....

(b) State any three ways of preventing fresh meat from going bad

.....

36. Which mineral helps in formation of red blood cells in the human body?
.....
37. What name is given to a meal containing all food values in their right amount?
.....
38. (a) Give any **two** conditions in which women are vulnerable
.....
(b) State any **two** ways in which family members can care for vulnerable women.
.....
39. Apart from eating a balanced diet, give any one other way of controlling common diseases at home
.....
40. Give any one mineral deficiency disease in humans
.....

Suggested answer

1. Name one source of vitamin B

Liver, fish, fresh green vegetables, eggs, etc.

2. Why is iron important element in our diet?

It is used in the formation of red blood cells or hemoglobin

3. Why is milk the best food for a baby less than one year old?

It provides a balanced diet

Contains antibodies against diseases

4. Why should left-over food be properly covered?

To prevent contamination carried by houseflies

5. Why must fruits and vegetables be included in our diet?

To provide vitamins and roughages

6. Why does a pregnant mother need food rich in protein?

To enable the baby in the womb, grow well

7. What causes anemia?

Lack of enough iron in blood

8. Common salt give flavor to our food. State on more use of salt in our diet.

Preserve diet

For water balance in the body

9. Why is milk the best food for a baby less than one year old?

It provides a balanced diet

Contains antibodies against diseases

10. Which food from the list (maize, cassava, beans) would you recommend for Bbosa's child suffering from Kwashiorkor to eat?

beans

11. Give a reason for your answer in question 10.

Source of proteins

12. State some one major reason why breast milk is considered the best food for a baby?

Contains all food nutrients needed by the child

13. State one reason why water is important in our diet.

Soften food

Regulate body temperature

To replace water lost in sweating and urination

14. What is the importance of mineral salt in a child's diet

Strengthen bones and tooth

Production of red blood cells

15. What advice would you give to a mother whose child is suffering from kwashiorkor?

Feed the child on foods rich in proteins

16. Peter's friend is suffering from scurvy. Suggest reasons why peters friend is suffering from that disease.

He lack vitamin C.

17. Give any four method commonly used to preserve meat.

Refrigeration

Smoking

Tinning

Salting

Cooking

18. What food nutrient are leguminous crops rich in?

Proteins

19. Use the list of food stuffs given below and answer the following questions.

BEANS, RICE, CABBAGE, MILK, ORANGES.

(a) Give two food stuffs that are a source of proteins.

(i) Beans (ii) Milk

(b) How are cabbages useful in one`s diet?

Add roughages to prevent constipation

(c) Why would you regard a list of the foods given above a balanced diet?

It contains all the necessary food nutrients

20. What disease is likely to attack children whose diet lacks proteins?

Suffers from kwashiorkor

21. 2. Give any one reason why a child`s diet should more proteins than that of an adult.

To enable them grow well

To prevent development of kwashiorkor

22. 9. How is the absence of iodine harmful to our health?

It leads to goiter

23. 26. Name any cereal which is used as food.

Maize, rice, sorghum, wheat oats, barley

24. 48 (a) Give one two reasons for preserving meat

Keep it for future use

To prevent contamination with germ

To prevent development of bad smell

(b) Give any traditional way of preserving fish in Uganda

Smoking

Salting

(c) Give one modern way of preserving meat.

Refrigeration

Tinning

25. The table below shows food stuffs prepared in different families

Study it and answer questions that follow

Family A	Family B	Family C	Family D
Matooke Yams Meat beans	Cassava Beans Posho yams	Potatoes Posho Cassava yams	Millets Fish Goat milk Mangoes

(a) Which family will be able to have vitamin C? **D**

(b) Which family has proteins but lacks fats? **B**

(c) What food nutrients are lacking in family A?

Vitamin C

(d) Which family has almost a balanced diet?

D

26. (a) Give any one reason why people include proteins in the diet.

To grow well

To repair worn out tissue

(b) What is the importance of fruit in a diet?

Provide vitamins including vitamin C

(c) State any two ways of protecting children against malnutrition.

Provide balance diet

Give food in time

27. Give any one cause of cause of malnutrition in adults.

Poverty-some people cannot afford food or land to cultivate it

Drought-which causes of death

Pests and disease

Floods lead to foot shortage food.

28. State one natural cause of a family failing to have enough food.

Drought, flood, fire, volcanic eruption, land slide

29. Why is breast feeding very important to a mother?

It is a natural birth control method

It creates a love bond between a mother and a baby

Breast milk has no cost hence relieves the mother stress to buy milk

30. State one way in which hens are important in prevention of deficiency diseases in man.

- **source of proteins**
- **provide eggs**
- **Provide meat**

31. Apart from pasteurizing, give any one way milk can be prevented from going bad.

- **Boiling**
- **Refrigeration**
- **tinning**

32. 18. Apart from carbohydrates, name one other class of food that gives the body energy.

- **Fats, oil, lipids**

33. The table below, shows source of food, the food nutrients in it and the related deficiency disease. Complete it correctly.

Source of food	Food nutrient	Deficiency disease
Fruit	Vitamin C	<u>Scurvy</u>
Beans	<u>proteins</u>	Kwashiorkor
<u>Fish liver, Eggs, carrots</u>	vitamin	Night blindness
Iodized salt	Iodine	Goiter



Goiter

34. Which deficiency disease is caused by lack of vitamin d in children `s diet?

Rickets



35. (a) Name any one organism that makes fresh meat go bad.

(i) **Bacteria**

(ii) **Fungi**

(iii) **mold**

(b) State any three ways of preventing fresh meat from going bad

(i) **boiling**

(ii) **frying**

(iii) **refrigeration**

(iv) **salting**

(v) **smoking**

36. Which mineral helps in formation of red blood cells in the human body?

Iron

37. What name is given to a meal containing all food values in their right amount?

Balanced diet

38. (a) Give any **two** conditions in which women are vulnerable

(i) **When sick**

(ii) **When pregnant**

(b) State any **two** ways in which family members can care for vulnerable women.

(i) **provide balance diet**

(ii) **help with domestic work**

(iii) **Counsel and guidance**

39. Apart from eating a balanced diet, give any one other way of controlling common diseases at home

Sanitation and hygiene

Eating balance diet

Regular physical exercise

40. Give any one mineral deficiency disease in humans

Anemia –iron

Rickets - calcium