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3

FOOD GROUPS

All of us eat different types of food everyday. There may be rice, dal, vegetables, milk, curd and fruit. We already know that all of these food items provide us nutrients, required by our body for energy, body building, repair of tissues and protection from diseases. Can you list the various nutrients in our food? Yes, you are aware that these are proteins, carbohydrates, fats, vitamins and minerals.

In the previous lesson we have learnt that some food items are rich in protein while others may be rich in carbohydrates, fats, vitamins or minerals. For example rice is a good source of carbohydrates while dal is a good source of protein.

So, it is necessary to select different food items so that our body gets all the nutrients it requires to remain healthy. You must be wondering what a healthy meal is. How can we make the right selection of food in our meals? In this lesson, you will learn that selection of right food which makes a balanced meal, results in good health.

OBJECTIVES

After studying this lesson, you will be able to :

- classify food items into different food groups;

- state the major nutrients and group the food items with similar nutrients for food exchange;

- understand the food pyramid for choosing balanced meals;

- recognize the importance of meal planning and associated factors, and

- plan balanced meals for the family to suit every member's needs.

3.1 FOOD GROUPS

You have already learnt about the nutrients, their functions and food sources. Now you must be wondering what are food groups. Based on the functions that are

performed by various types of food items available, they can be broadly divided into three groups as presented in table 3.1.

Table 3.1

	Function	Nutrient	Food
1.	energy giving food	carbohydrates and fats	cereals, fats, sugar
2.	body building food	proteins	pulses, milk, meat, chicken
3.	regulatory and protective foods	vitamins and minerals	fruits and vegetables

There are several types of food items and each type can not be studied individually. Therefore, they have been categorized into different food groups. This grouping has been done on the basis of the nutrient content of each food. Let's learn about various food groups

3.1.1 The five food group system

Table 3.2 Food Groups

Food Groups	Food	Major nutrients present
cereals, grains and their products	rice, wheat, *ragi*, *bajra* maize, *jowar* barley, rice flakes, wheat flour etc.	carbohydrates, proteins, vitamin B, iron, fibre
pulses and legumes	bengal gram, black gram, green gram, red gram lentil (whole as well as *dals*), cowpea, peas, *rajmah*, soyabean, soya nuggets, etc.	carbohydrates, protein, vitamin B, iron, fibre
milk, egg and meat products	milk, curd, *paneer*, cheese, *chhachh*, *lassi*, buttermilk, skimmed milk. meat – chicken, liver, fish, egg, meat.	proteins, fat, vitamin B, calcium, vitamin A protein, fat, vitamin A

Notes

fruits and vegetables	fruits viz. mango, guava, orange papaya, banana, sweet lime, water, apple and vegetables viz. correct, pumpkin tomoto etc. green leafy vegetables like amaranth, spinach, coriander leaves mustard leaves and fenugreek leaves and fruits like amla and pomegranate.	vitamin A, vitamin C, fibre
	other vegetables: brinjal, lady finger, capsicum, beans, onion, drum stick, cauliflower potato etc.	vitamin A, calcium, iron, fibre carbohydrates and fibre
fats and sugar	fats: butter, *ghee,* hydrogenated oil, ground nut, mustard, coconut oil sugars sugar, jaggery honey	carbohydrates , fats carbohydrates

All cereals like rice, wheat, *ragi, bajra*, maize etc. give the same nutrients that is carbohydrates, proteins, vitamin B, iron and fibre, whereas all pulses contain protein, carbohydrates and vitamins. Similarly fruits and vegetables give vitamins and minerals while milk, egg and meat products are comparable in terms of their nutrient content. Therefore, if we substitute one food for the other in the same group, we will get almost the same nutrients. So it will be beneficial if we learn more about each food group.

3.2 CHARACTERISTICS OF FOOD GROUPS

3.2.1 Cereals

Cereals like rice, wheat and maize form the main component of our diet. As they are consumed in large quantities, they become the main source of energy in our diet. Whole cereals and grains contain considerable amount of fibre which, though not a nutrient, has a great importance in maintaining a healthy digestive system.

Fig.3.1 Cereals

In addition to this, fibre plays a crucial role in preventing several lifestyle diseases. You will learn about them later. We should eat cereals in the unrefined form to get sufficient amount of fibre. Cereals are also rich in vitamin B complex. This gets lost when cereals are refined, e.g. *maida* and polished rice. So our diet should have whole wheat flour instead of *maida* and home pounded or parboiled rice instead of polished rice. *Daliya* and brown rice should also be included in our meals.

You also know that most of us always eat cereals along with pulses, curd, milk, meat and vegetables. For example, *dal*-rice, *khichri, sambar, idli, dosa, dal-bati* and *biryani*. Can you guess why? Yes, because when cereals are combined with pulses or vegetables, the nutritive quality of our meal improves.

3.2.2. Pulses and legumes

Pulses and legumes like *arhar, urad, rajmah* and bengal gram, green gram *dal* are the major source of protein in Indian diets especially for vegetarians. They have a appreciable amount of vitamin B, calcium and iron.
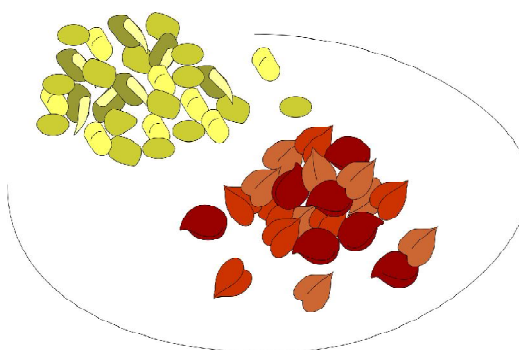
You have already learnt that protein quality of pulses can be improved by combining them with cereals.

Fig. 3.2 Pulses and Legumes

Vegetarians should be careful in including both pulses and cereals in every meal to obtain optimum quality of protein.

Soya nuggets can be added for variety in the food.

Notes

3.2.3 Milk, egg and meat products

All of us know that milk is considered to be the best and complete food for small children. Do you know why? Yes, because it is a rich source of protein, fat, vitamin A and calcium. Curd and *paneer* also contain all the nutrients but skimmed milk contains very little fat.
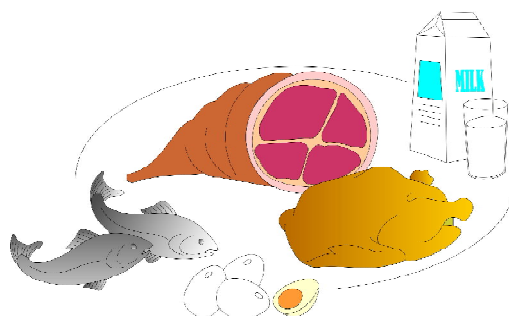

Fig. 3.3 Milk, egg and meat products

You must have seen that while making *paneer*, we drain away the water and hence water soluble nutrients are also drained off. Therefore, cheese and *paneer* have mainly protein as a nutrient. Remember this water can be used in cooking *dal* and kneading dough for *chapati*.

Eggs are a rich source of almost all nutrients except vitamin C. Eggs contain proteins of excellent quality therefore they are specifically recommended for growing children, pregnant women and lactating mothers.

Meat products include meat, chicken and fish. They are a rich source of high quality protein, vitamin A and vitamin B. As you know that a large percentage of population in India is vegetarian, it is advisable that they consume a combination of cereals, pulses and milk products. This combination is comparable with animal foods in terms of protein quality. Many of our traditional food combinations such as *khichri*, *dal*-rice, *dal-roti, idli-sambar, dosa-sambar* along with curd and butter milk are excellent examples of high protein quality meals. We must continue to value these traditional food combinations and avoid junk food.

 INTEXT QUESTIONS 3.1

1. Match the food groups in column A with foods in column B:

	Group A		Group B
1.	cereals	(i)	*rajmah* and soyabean
2.	pulses	(ii)	papaya and guava
3.	milk products	(iii)	*ragi* and *bajra*
4.	fruits	(iv)	brinjal and carrot
5.	vegetables	(v)	*paneer* and curd
		(vi)	ghee and butter

2. State whether the following statements are true or false. Give reasons for the same.

    (i) Cereals are the main source of energy in our body. True/False

        because _____ .

    (ii) We should eat cereals in refined form. True/False

        because _____ .

    (iii) Milk is considered the best food for small children. True/False

        because _____ .

    (iv) We should not consume a combination of cereals and pulses. True/False

        because _____ .

    (v) Pulses are specially recommended for vegetarian people. True/False

        because _____ .

3.2.4 Fruits and Vegetables

Fruits: Citrus fruits such as oranges and lemons are rich in vitamin C. Amla and guava are cheap and good sources of this vitamin. Yellow fruits like mango, papaya contain carotene which is converted into vitamin A in the body. We all know that vitamin A is very important for our eyes. Banana is a good source of iron, calcium and carbohydrates. Pomegranate is rich in iron. All fruits contain plenty of fibre, which helps in bowel movement. Dried fruits like raisins, figs, walnuts and almonds are rich in fats, iron, calcium and fibre. Locally available fruits should be preferred by us as they are fresh and economical.

Green leafy vegetables: Green leafy vegetables such as spinach, fenugreek, soya, *amaranth (cholai)* and mint are rich in carotene, calcium, iron and vitamin C. These are abundantly available in rural areas. We can easily grow them in our kitchen garden. It is very important to include them in our daily meal.

Others Vegetables: Potato, sweet potato, turnip, raddish and carrots are some examples of roots and tubers. These vegetables are a good source of carbohydrates. We all know that potato is considered to be the master of all vegetables. It is added in most of the vegetables. Do you know that potato also contains vitamin C along with carbohydrates?
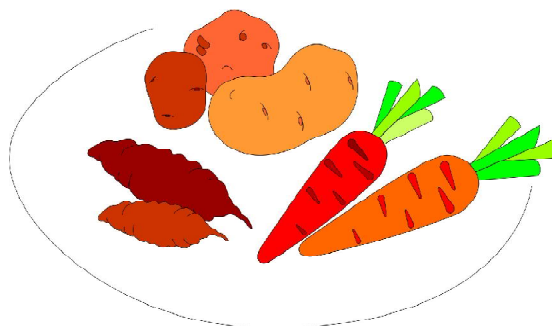

Fig. 3.4 Roots and Tubers

Now let us discuss carrots. Carrots are rich in carotene and provide colour and taste to a meal. You must have eaten sweet and tasty *"Gajar Ka Halwa"*, which is a very popular sweet dish made of carrots. Other vegetables like ladys finger, beans, brinjal, gourds, tomato, cauliflower and capsicum provide variety, taste, colour along with fibre to the daily meals. Some vegetables also contain an appreciable amount of vitamin C and minerals such as iron, calcium, zinc, sodium and potassium.

3.2.5 Fats and sugar

Butter, ghee, oils like mustard oil, groundnut oil, coconut oil and soya oil are the common types of fats consumed in India. Fats are a concentrated source of energy. Some amount of fat is needed in daily diet because they supply essential fatty acids. Besides this, some vitamins like A, D, E and K are fat soluble and important for our body.

Sugar, jaggery and honey are sweetening agents and provide carbohydrates to the body. Do you know that jaggery is better than sugar? Jaggery contains iron which is important for formation of Red Blood Cells (RBC) in our body. We should try to avoid excessive consumption of sugar or jaggery in our daily diet. Why? Extra sugar eaten by us gets converted into fat and gets accumulated in the body and makes us obese.

INTEXT QUESTIONS 3.2

Help Jenita, Jaspreet and Victor choose their breakfast from the two meal choices given below. Select the more nutritious meal out of the two and give reasons for the same.

Name	Meal Option I	Meal Option II	Reasons
Jenita	boiled egg and toasted bread	toasted bread with jam	
Jaspreet	stuffed potato *paratha* and butter and whole milk curd	fenugreek, paratha, butter, milk	
Victor	mixed vegetable daliya, curd	puri and potato *sabji,*	

3.3 FOOD EXCHANGE

Now, after learning in detail about each food group, we can conclude that similar food items have been placed together in one food group. Therefore, if we substitute one food for the other in the same group, we will be able to get almost the same nutrients. For example, Guddi takes one glass of milk and *roti* in breakfast, Arul eats

poha and one *katori* of curd whereas Sugna eats one fresh cheese (paneer) sandwich. Comment on their food selection. Yes, all of them take milk or its product along with cereals and get approximately the same nutrients. So we can say that substitution of one food item with the other within a group in such a way that the nutrients provided by them are approximately the same is called **Food Exchange.**

3.4 PYRAMID OF FOOD GROUPS

In order to assist in selecting food items from a food group a food pyramid has been developed.

Pyramid of food groups clearly indicates that we should consume food from each of the five food groups to ensure good health. This also tells us to include food items which are at the top of the food pyramid such as fats and sugar in less quantity as compared to cereals and pulses which are at the bottom of the pyramid. Use of food pyramid not only ensures good health but

Fig.3.5 Food Pyramid

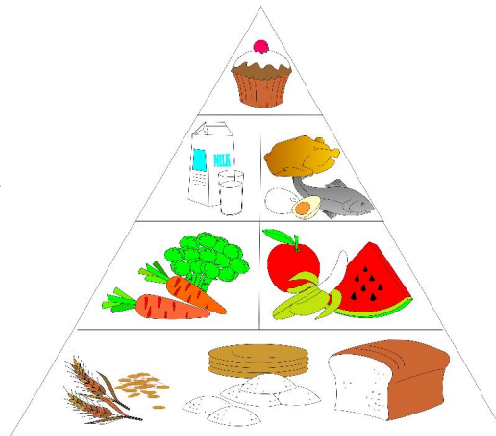also helps in planning a balanced diet and facilitates selection of alternate foods.

3.5   BALANCED DIET

Now that you are familiar with the food groups, let us learn about a balanced diet. In a meal, if we include food items from all the five food groups then our body will be able to get all the nutrients collectively, such a meal is called a **Balanced Diet**. A balanced diet is one which contains all the nutrients in adequate quantity to meet the body's requirements and some amount of nutrients are stored in the body to withstand short period of low intake.

Assess your family meals using the food pyramid to find out whether your meals are balanced or not. Do you realize how much effort your parents make to serve balanced meals to the family? For every meal they plan, purchase, prepare and cook, they try to include most of the food groups.
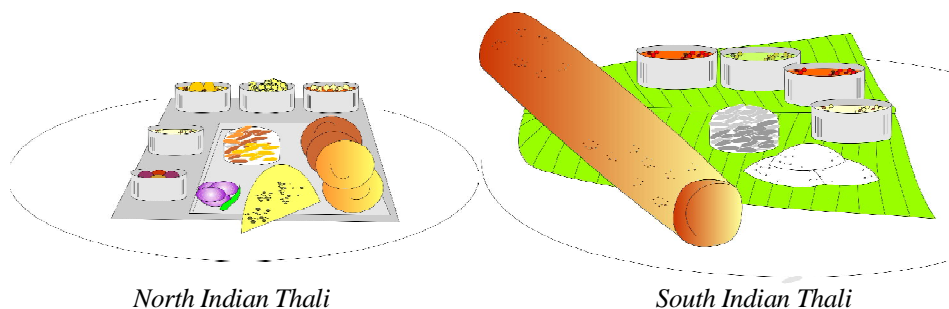

North Indian Thali   *South Indian Thali*

Fig. 3.6

Notes

If you see the contents of each thali in fig 3.6, you will observe that a traditional Indian meal includes food items from most of the food groups. This is the result of collective wisdom of our society and we should adhere to it.

3.6   IMPORTANCE OF MEAL PLANNING

Most of us usually take three meals a day. these are breakfast, lunch and dinner. In between the meals we also eat snacks. Our body gets the required nutrients from these meals of the day. Therefore it is very important that these three meals should include food items from all the five food groups. Thus we can say that **meal planning** is a process of making a plan about what we should eat each day in every meal.

3.6.1 Meal planning requires:

Food management skills such as-

- skills to ensure variety in food by using nutritious, locally available, fresh, seasonable and affordable food;

- knowledge to fulfil the nutritional needs and requirement of all the family members;

- ability to use under utilized foods such as leaves of root vegetables like carrot, radish, turnip and beetroot;

- ability to creatively use left over food items in the kitchen;

- sensitivity to include dishes according to likes and needs of every family member, and

- goal setting, planning, problem solving and decision making to save, time, energy and money to serve balanced meals.

3.7   FACTORS AFFECTING MEAL PLANNING

Every home maker along with using the above mentioned meal planning skills, has to consider many other important factors, such as:

Age: You would have seen that people eat according to their age. For example, a baby drinks only milk till about six months, a small child eats *dalia* and *khichri* in small quantities. Adolescents eat a variety of food and in more quantity as compared to children. Similarly old people eat soft and easy-to-digest food in small quantity. As the nutritional requirements vary with age so the type of food, its quantity and quality also change.

Sex: You must have noticed that your father can do more heavy physical work as compared to your mother. Do you know why? Yes, because a man's body is more muscular than a woman's body. Hence a man requires more protein and energy than

a woman. So, while planning a meal, it is important to keep in mind the sex of the family members.

Seasonal availability: Some vegetables like radish, fenugreek, carrot and peas are available in the winter season while other vegetables like bitter gourd, bottle gourd and ladys finger are available in summer. As you know seasonal food items are fresh, nutritious, less expensive and easily available than the off season food items. Therefore, seasonal food should be preferred while planning meals.

Weather: All of us eat more in winter than in summer. What do you think could be the reason? This is because in winters our body needs more energy to maintain the body temperature. We enjoy eating peanuts, peanut chikki, sesame chikki and dry fruits during winters. These are energy rich foods and help us maintain body temperature.

Occupation: Some people like labourers, rickshaw pullers, sports persons and farmers do more manual work as compared to people like businessmen, shopkeepers, and teachers. So they require more carbohydrates and proteins. We must consider the nature of occupation of each family member while planning meals.

Physiological needs: While planning a meal, physiological needs of individual family member should be kept in mind e.g. pregnant and lactating mothers require more nutrients. A growing adolescent needs more protein and energy rich food. An old person needs a diet which is light and easy to digest.

Economic considerations: Income of a family has a direct impact on meal planning. The amount of money available influences our choice of food quantity and quality in a meal. Do you know there are many ways in which one can plan balanced meals without increasing the budget. For example, use the less expensive nuts such as groundnuts instead of cashewnuts and almonds; soy nuggets instead of *paneer* and guava instead of an orange.
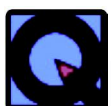
INTEXT QUESTIONS 3.3

1. Give one reason for the following statements :

    (i) Shyam needs more protein and energy than Reena

         because _____ .

    (ii) Nagma includes seasonal fruits and vegetables in her menu

         because _____ .

    (iii) Jenny's grandmother should eat mixed vegetable *upma* in breakfast

         because _____ .

(iv) Vijay is a farm labour. He needs more food as compared to Arun, who works in an office

because _____ .

(v) Seema is a mother of a two month old baby. She needs more food

because _____ .

2. Fill in the blanks with appropriate words indicating more healthy food practices.

1. Mary can eat _____ instead of an orange to get vitamin C.

2. Nagma can prepare stuffed _____ paratha instead of stuffed potato paratha.

3. Instead of cashewnut ladoos, Rita can prepare ladoos using _____ nuts.

4. Jaspreet can use _____ instead of sugar while making chikki.

5. Meera can prepare _____ curry instead of paneer curry for getting protein.

3.8 FAMILY MEALS

After learning about various factors affecting meal planning, you can now certainly list the factors affecting the meal planning of your family. These factors may vary from family to family. However, the most important point is that everyone needs a balanced meal. A meal which contains all the essential nutrients that are required by the body i.e. protein, carbohydrates, fats, vitamin A, B, C, D, iron, calcium and iodine. So, while planning a meal for your family, you will have to make sure that every meal has all essential nutrients in it. Now, you must be wondering, how you will do this. Yes, you are right. You can include one food item from each of the five food groups in every meal. Take an example of a sample menu for Sarita and Lalitha who are girls of the same age.

Table 3.3

S. No.	Five Food Groups	Meal 1 (Sarita)	Meal 2 (Lalitha)
(i)	cereals	chapati	rice
(ii)	pulses	arhar dal	urad dal
(iii)	milk, eggs and flesh foods	paneer curry	chicken curry

Food Groups

(iv)	fruits and vegetables	• potato and beans *sabji* • tomato and cucumber salad • guava	• potato and peas *sabji* • tomato and cucumber salad • Orange
(v)	oil, ghee and Sugar	used for cooking	used for cooking

Now, you can plan every meal of this type for your family. Do you know; this is known as **family meal** or the *thali* **meal** .

ACTIVITY 3.1

Make a list of different food items included in the meals consumed in your family yesterday. Categorize these food items into the five food groups. Analyse and discuss whether your family ate balanced meals or not.

Previous day's diet

	Food items	Food group	Remarks
early morning			
breakfast			
mid morning			
lunch			
evening			
dinner			
post dinner			

Consider Sarita's family having members in different age groups, that is, parents, grandparents, an eight year old sister and eighteen year old Sarita herself. Now, you can understand that all the family members have different nutritional requirements. It is good to suggest certain modifications or adjustments in the family meal to meet every member's requirements. These adjustments are –

Sarita and her sister should be given a nutritious snack in between lunch and dinner. As both of them are in a rapid growth and development phase, they need more nutrients. Example; mixed vegetable *poha*, mixed vegetable and *chana dal upma* or *dalia* with vegetable and peanuts etc.

Sarita's grandparents are aged so they require less carbohydrates and fat as compared to Sarita's parents although the requirements for protein and other nutrients remain the same for both. A soft and well cooked high fibre meal is ideal for her grandparents. High fibre food and lots of water are suitable for her parents.

Thus, you have learnt how to make modifications and adjustments in the same menu for various family members to suit their individual needs. We are sure this has helped you to learn how to make modifications in your family meals as per the needs and requirements of all the members.

WHAT YOU HAVE LEARNT

In this lesson you have learnt about

*   classification of foods into five food groups

*   characteristics and nutrients present in each food group

*   substituting one food for the other in the same group

*   use of food pyramid in planning a balanced diet

*   importance of meal planning

*   factors affecting meal planning - age, sex, seasonal availability, weather, occupation, physical need of each family member, economic consideration.

*   planning of balanced meals for the family to suit individual needs.

TERMINAL QUESTIONS

1. Explain the importance of classification of foods and list the five food groups.

2. Describe the term 'food exchange' with the help of examples.

3. Explain 'balanced diet' and 'meal planning' in your own words.

4. State the importance of meal planning.

5. Briefly explain three important factors that influence meal planning.

ANSWERS TO INTEXT QUESTIONS

3.1

1) 1.   (iii)
    2.   (i)
    3.   (v)
    4.   (ii)
    5.   (iv)

Notes

2)   (i)   True

because they are rich in carbohydrates .

(ii)   False

because whole cereals contain fibre and form the bulk of our meals

(iii)   True

because it is a good source of protein, fat, vitamin A and calcium.

(iv)   False

because quality of protein improves when we combine cereals and pulses together.

(v)   True

because pulses are a major source of protein in a vegetarian diet.

3.2

Jenita – Meal I because it has more protein rich food.

Jaspreet – Meal II because it is more nutritious (green leafy vegetable).

Victor – Meal I because it has more dietary fibre *(daliya)* and mixed vegetables.

3.3

1.   (i)   because men are more muscular than woman.

(ii)   because seasonal fruits and vegetables are more nutritious and less expensive.

(iii)   because aged person should eat soft and high fibre diet.

(iv)   Vijay does more physical activity than Arun.

(v)   because Seema is a lactating mother and she has to nurse the baby.

2.   1)   guava

2)   radish

3)   peanuts

4)   jaggery

5)   soya nuggets