

Slide: Welcome back to our sessions again and all these previous classes we have seen what are the nutrients and their functions and roles. Now after having a knowledge about the various nutrients, let us know how to put them into our food planning and meal planning. So we start the next session of planning.

Slide 2: So let us see what is a balanced diet and food groups. You can see the figure here where it is given with the different types of foods where 70% of carbohydrates and 10% of calories should be from the other foods and 20% from the protein and fat.

Slide 3: So most of the people do not have an access to the food composition tables, we cannot see the food composition tables and decide what is the nutrient content that is present in each food or there is no time to look into the nutrient composition table and select the foods. So people need to be guided about balancing the intake of different nutrients in their diet and make their healthy food choices. So this is the role of a nutritionist.

Slide 4: Then food groups classify the foods into various categories depending upon their type and nutritional contribution and what functions they carry out in the body. So these food groups can be used for planning diets in which we can achieve the nutrient intakes as per the RDA.

Slide 5: What is a balance net? Let us see what is the concept of balance diet. So it is trying to balance the amount of foods or different types of foods eaten every day so that it becomes nutritionally adequate diet. So you should have all the foods which balance the nutrient intake in an individual. So a balanced diet is one which includes foods from all the food groups during the day, it is not as necessary that every meal should have foods from all the groups, but over the whole day it is better to include foods from all the food groups and the quantities and proportions of these foods needs to be such that they fulfill our daily requirements of nutrients.

Slide 6: And in addition to the nutrients it should be in such amounts that a little bit of the nutrients are stored in the body that means a little, we were talking about the safety factor. So a little bit of amount of nutrients should be excess in the body so that they are stored and these can be used in days where the food is insufficient, when the food is insufficient is when a individual suffers from fever or some type of illness where he is not able to take sufficient amount of food or he goes somewhere else where food is not properly available according to his taste. So under such conditions, these stored amounts will be of use. Now balanced diet usually provides 50 to 60 calories of energy from carbohydrates, 10 to 15 from proteins, and 20 to 30 from fats this is how the total energy requirement should be met from various food groups. And in addition the diet should provide macronutrients and other protective substances like phytochemicals. These phytochemicals are very useful in protecting us against various diseases so that we have optimum health.

Slide 7: So for this to know the balance diet, we are saying that you have to include foods from all the food groups. Now what are the various food groups? So we have different classifications one is the basic food group, where the food is group into categories based on the

type of nutrients they supply. So depending upon the type of nutrients they supply they are divided into three groups and this classification is based on the physiological role that is played by the each group of the food in our body.

Slide 8: So therefore according to this, the physiological role and the functions they play in the body, the foods are divided into energy giving foods, which include various foods like cereal grains, fats and oils, sugar and the products made of all these foods. So these give only energy to the body. Now the next classification according to their physiological role is bodybuilding foods, which include pulses, nuts, oil seeds, milk and milk products, meat, fish, poultry and the products that are made from these foods. So when we say bodybuilding foods it is required for the growth of an individual or for the repair of tissues or for wound healing and maintenance of tissues. Then the third classification of the basic food groups is the protective food which include our fruits and vegetables, which mainly supply the vitamins and minerals. These are not rich in carbohydrates, proteins or fat, but they are together rich in vitamins and minerals, so they have a protective action against illness.

Slide 9: Now there is another food group, which is a five food group, this is given by the ICMR and here we have five food groups like the cereals and grains, which supplies energy and protein and this is, the other nutrients that are supplied by this cereal grains and products are you have invisible fat. So the fat requirement from... for our body is got from visible fat, which is the actual oil or fat which we add to the food and every food has some amount of fat which is called as invisible fat and they contain B-complex vitamins, iron, calcium and fiber. Whereas pulses and legumes, they provide protein and energy. You can see the difference, cereal and grains they provide energy and protein, that means energy is the main nutrient and along with that it supplies some amount of protein. Whereas pulses and legumes, the protein is the main nutrient and at the same time it gives energy to the body also. And these also contain invisible fat, vitamins, iron, calcium and fiber, just like the cereal grains. And the third group is meat and may products, which is mainly for protein supply. So this is rich in fat the riboflavin milk is the main source for riboflavin, calcium, vitamin b12, which is got from the meat products and fat soluble vitamins. Then the fourth group is the fruits and vegetables, we were talking about the protective force there. So this supplies vitamins, minerals, and fiber. So these are the main nutrients that the fruits and vegetables supply. Apart from that they also have invisible fat in very small quantities, trace minerals, and vitamins. And the fifth group is the fats and sugars. So these fats and sugars, the main nutrient that supplies is energy and these are available in fats, oils, and the fat that is present in the meat, all these supply fat.

Slide 10: We can see the... here the cereal grains and products, you have five different types of cereals. All the cereal grains have including millets, they give us sufficient amount of energy and protein. Then since cereals are consumed in large quantities it is a staple food of an individual, the amount that is consumed gives a sufficient amount of protein, it can... I think almost 50% of the protein is met from cereals and grains. Then pulses and legumes you can see all the different types of pulses, they also provide protein mainly and meat and milk products are for protein and fruits and vegetables, you have different varieties of fruits and vegetables,

any fruit and vegetable you can eat, and fats and sugars these are pure sources of energy. I told you 1 gram of sugar will give you 4 kilo calories and 9 kilo calories from fat.

Slide 11: Now how the food group system is used or how it helps us to plan the meal. So it acts as a tool for nutritional assessment. So generally when we do nutritional assessment of a community, we take their dietary intake. So after they give us what they have eaten for over the 24 hours or the past three days, we assess what are the foods that are going into their diet and what is the lacuna that in their diet occurs and what is the, I mean probability of getting deficiency symptoms. So based on that it acts as a tool for nutrition education. Then we will educate the community saying that what foods they should include in everyday's diet and how they should improve their diet, based on the locally available foods, because at the same time we cannot expect them to spend more on food. Then planning diets for normal healthy people. So we can take the food groups and take different choices of foods from each group and plan a normal healthy diet for the whole family, so that the entire family gets sufficient amount of recommended dietary elements of nutrients. Then in providing variety to the diet. So each food group I have shown you, there are so many varieties of foods, you can select, every day you can change the cereal, every day you can change one pulse, you can select fruits and vegetables, so like that way you can give a variety in the diet. Then at the same time it also helps us in planning therapeutic diets. Suppose the person is suffering from constipation or diarrhea, what type of fruit or vegetable has to be taken, what cereal has to be taken, which food has to be avoided. So among the food groups, you can select the foods and prepare a therapeutic that and it is just modification of a normal diet and in formulation of nutrition labels. So after preparing the product, you can formulate depending upon what are the foods that have gone into the item, the nutrition label can be prepared by calculating the nutrients and labeled.

Slide 12: Now this is the food pyramid, which shows us what is the amount of various foods that we can eat in a meal. So the major part you can see, the base of the pyramid is made up of bread and cereal. So as I said we can get 50 to 60% of total calories from cereals and grains. So the major part we have to include in the diet is cereal, it can be in the form of bread, it can be in the form of various cereals rice, pasta, any cereal, cereal and cereal product, give us the same. And we have to include about 6 to 11 servings. Here each serving is about 30 grams. So when you include 6 to 11 servings, why we have said 6 to 11 servings is there are different age groups that are present in a family, so we have to take care and provide 6 to 11 servings. Then we have the fruit group, which has to be taken moderately and vegetable group, so you can give 2 to 4 servings, each serving is hundred grams. So this is for the entire day not for an individual meal. So on the whole day we can have up to 200 to 400 grams of fruits and vegetables put together. Then the, lesser than this is the milk yogurt and cheese group, where you have to have two to three servings, again each serving is 100 medical, so you can have about 200 to 300 ml of milk and meat poultry and fish so this can be again 2 to 3 servings, where the amount is again 30 grams, so 30 grams into about maximum it can be 100 grams, but here when you take pulses, the meat can be avoided and when there is pulse, pulse gives the protein, whereas when you have meat, you can avoid pulse. And fats and oils are the tip of the pyramid, that means imagine what is the amount you can eat, because these are concentrated

sources of energy and you cannot use any amount, because it will only store as adipose tissue in the body. So use sparingly, very less amount. So maximum you can use up to 20 grams per day. The balance diet ad food groups help us to plan a diet and implement it, though there are many number of members in the family, we can still plan a very good diet to keep the family healthy and even in institutions we can follow this and hospitals, anywhere, wherever the planning of diet is necessary, if you have an idea of what are the food groups, what foods are there in each group, it is very easy to plan a diet. Thank you.