

1. Details of Module and its structure

Module Detail	
Subject Name	Food, Nutrition for Healthy Living
Course Name	Food, Nutrition for Healthy Living
Module Name/Title	Meal Planning And Minimizing Food Wastage - II
Module Id	FNHL_101012
Pre-requisites	General knowledge about Meal Planning And Minimizing Food Wastage
Objectives	After going through this lesson, the learners will be able to understand the following : <ul style="list-style-type: none">To understand the concept of portion sizes and its applicationTo understand the role of meal planning in minimizing food wastage
Keywords	Resources, Meal appeal, Nutritional adequacy, Economic consideration, Age, Gender, Physical activity, Time, energy and skill considerations, Seasonal availability of foods

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1. Concept of Portion Size

Having understood what is meal planning and the factors that affect meal planning, let us try and understand the concept of portion size. Why is it important to select the right portion size? How can one judge the right portion size? Healthy eating is not just about eating healthy foods but also eating them in the right quantities.

The meals planned can be nutritionally adequate and prepared keeping in mind the various considerations already discussed in this chapter. But the amounts in which the prepared food item/items are consumed are of equal importance.

Portion size is the amount of food one chooses to eat from different food groups during a given meal. This could be the food items eaten at home, or eaten outside. Right portion size ensures the right amount of food is served.



Activity 6

Is there any one in your family who is allergic to any food? If yes, what is it? What alternative of the allergic food item is consumed to compensate for the nutrients provided by it?

The portion sizes of foods that should be consumed from different food groups during a day to obtain a balanced diet for an adult sedentary female have been shown Table 5.

The right portion size

The figure 4, below shows the right portion size for a dinner/lunch. You can divide your plate into four parts and let us see how much space each food should take.

- Cereals or starchy foods, should take up a little more than one-fourth of your plate
- The protein giving foods such as meat or another protein source such as dal should occupy a little less than one-fourth of your plate.
- The remaining half of your plate should be vegetables and fruits
- You can add one cup of milk or curd to your meal

Table 5: Portion sizes of different food groups to be consumed by an adult sedentary female to obtain a balanced diet.

(Source: Dietary guidelines for Indians, ICMR 2011)

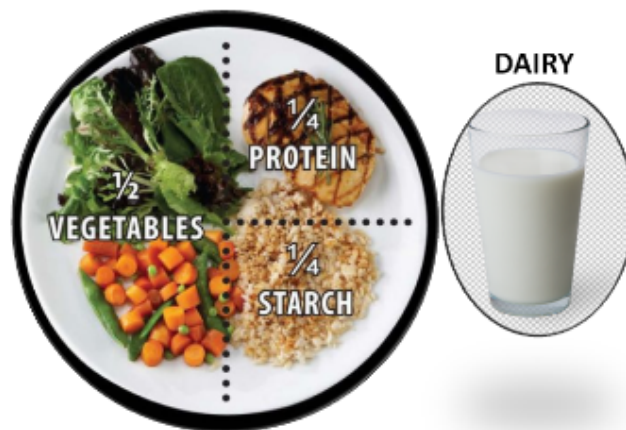


Figure 4: Portion size of different food items in a meal

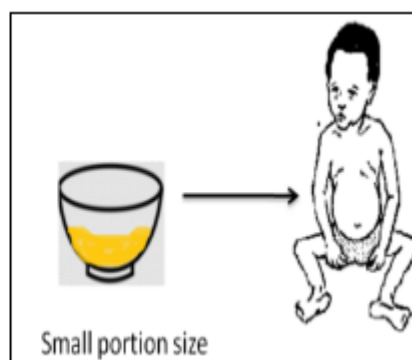
Source: <https://in.pinterest.com/pin/340584790547372965/>

✓ Eating a healthy, balanced meal requires the understanding of what is a healthy portion size of each of these food groups.

Portion size matters

- ◆ A right portion size is an important key to healthy eating.
- ◆ Not eating the right amount of food or eating small portion sizes can affect the proper growth and development of the body because the body does not get the nutrients in the right amounts.
- ◆ Especially during the period from 6 months to 2 years of age, also known as the complementary feeding period, children are at high risk of undernutrition. Sometimes due to lack of knowledge or food availability the amount of food given to the infant may be too small and not frequently enough. This can lead to insufficient energy and nutrient intake in infants and they may get undernourished. The amount of complementary foods given to the children must gradually increase month by month to meet the increased requirements of the growing baby.
- ◆ Specially during illness children might reject the food or consume small quantities of food which can lead to growth faltering. Therefore small, frequent feeding of the child may be required to ensure that the child gets the required quantity of foods.

- ◆ Portion control is important because it allows one to control the amount of calories one consumes during a given meal and avoids overeating which if continued for a long period of time can lead to undesirable weight gain consequently leading to the problem of overweight and obesity in individuals.
- ◆ When individuals are dining out, portion sizes can often be out of control. Large portions make you eat more. Sometimes you may get swayed by promotions offering more food or drinks for the same price and during such situations one tend to overeat which can affect adversely affect one's overall health.
- ◆ Sometimes larger portion sizes can upset the digestive system and cause bloating.



Some simple ways to estimate and control the portion size-

Table 3 describes the approximate amount of food items one must consume from the different food groups during a given day but how one does decides the amount of a cooked dish to be eaten at home or outside. Here are some ways, some simple things that can be followed to estimate and control the portion size while eating out or at home

- Small serving spoons or tablespoons can be used to serve food.
- While eating out if only large portions of the dishes are available, one can choose the snacks that are healthier. You have already studied in the previous chapter, how can one select healthier food from those that are available.
- In case there are only large serves available, make a point to share it instead or one can get the food packed which can be eaten later at home.
- One tends to overeat while watching televisions etc. Avoid distractions, while eating.
- Do not feel pressurized to eat the entire serve, one can freeze the leftover food and can consume it the next day
- Include a variety of foods from each of the food groups so that there is enough variety to try and one does not end up eating large quantities from just one or two food groups.

- Lean meats can be cut into small portions before placing them on the table to be served
- Select medium sized fruits. A medium sized fruit is one that you can easily hold in your palm.
- Babies have tiny small tummies will need to feed frequently with energy dense complementary foods. Table 6 shows the average amount of food for infants in household measures at each meal to meet their energy needs.




Table 6: Average portion size for children at each meal	
Age (months)	Average amount of each meal
6-8	Start with 2-3 tablespoonfuls increase to 1/2 250 ml cup 
9-11	1/2 of a 250 ml cup/bowl 
12-23	3/4 to one 250 ml cup/bowl 

Figure 5: Food exchanges to estimate portion size

The dietary guidelines for Indians as you have already studied helps in guiding our dietary behavior no matter to which region of the country we belong to. But quantifying standard portion sizes which are common to all the regions in India is difficult. The concept of food exchange can be helpful in deciding portion sizes (Figure 5).

Food Exchange

In food exchange foods are classified into different groups for exchange. Each “exchange list” includes a number of measured foods of similar nutritive value that can be substituted inter-changeably in meal plans.



Activity 7

Use your knowledge of portion size that you learnt in this chapter, in deciding the right portions when go for eating out next time? Share with friends your observations.

7. Minimizing Food Wastage

In the previous section you learnt about portion size and its importance. Selecting the right portions helps not only in healthy eating but it also helps in reducing food wastage.

Let us understand why it is important to reduce and stop food wastage and what steps can we take in our day to day life to reduce the amount of food that is consumable but usually goes waste.

Food waste is food that is discarded or lost uneaten. "Food waste is part of food loss and refers to discarding or alternative (non-food) use of food, that is safe and nutritious for human consumption along the entire food supply chain, from primary production to end household consumer level" (FAO, 2014).

Food is a valuable resource. It is one of the most basic human needs. Human beings cannot function and survive without food. Everyone needs food to grow, develop and sustain life. Yet a large population in our country does not get enough food to eat. Can you think of the reason, why is it so? Is it because we have a huge population to feed and we do not have enough food in our country to feed everyone or is there some other reason. Let us find out.

In the past few decades our country has achieved great economic growth. India is self sufficient in food production. This means we have enough food for everyone. Is it not surprising that despite having sufficient food a large number of people in India suffer from **chronic** hunger?

It is because of the unequal distribution of food in the population. This inequitable or unequal food distribution results in inadequate food consumption and thus leads to the problems of **undernutrition** and **overnutrition**. Wherein on one hand we have people who are undernourished due to deficiency of certain nutrients and on the other hand we have people who are overweight due to excess consumption of nutrients derived from food.

Loss of food or **food wastage** is another reason that results in the situation of food insecurity in the country.

FACT FILE 1

India has been ranked 100th among 119 developing countries on the Global Hunger Index (GHI). It is estimated that 35.7 % of children in India under the age of 5 years are still underweight (NFHS 2015-16).

Global Hunger Index (GHI): a tool designed to comprehensively measure and track hunger at the global, regional, and country levels.

The World Health Organization (WHO) defines, **Food security** as a situation in which all people at all times have physical and economic access to sufficient and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Why food gets wasted?

Food production is not an easy process. Cultivation of food involves the use of a lot of resources especially water. Look at the figure below (Figure 6). Can you understand what is it trying to depict?

The figure suggests that food production is a labour intensive activity, from sowing, to harvesting, reaping, threshing, winnowing, storing the food. Therefore wasting food means the wastage of all the resources and efforts that goes into it. It takes several months for the food to grow and reach your table and takes very less time to throw it. Food wastage affects the economy, the environment and the community.



Figure 6: The food production activity producing food is a lengthy process

Despite knowing the importance of food, a large amount of food is wasted in many ways on daily basis. What are the reasons for it? Let us understand

- ✓ Lack of inadequate storage facility and poor infrastructure leads to wastage of food. The cold storage capacity in the country is inadequate.
- ✓ Lack of adequate processing technology and poor transportation causes big loss of food before it reaches the consumers.
- ✓ At the household level, people tend to buy food in bulk as it seems to be cost effective. The quantity of food bought is more than the quantity of food required. Perishable foods especially vegetables and fruits have low shelf life and they get spoiled easily if not stored properly. Lack of proper storage leads to wastage of foods that are bought in bulk.
- ✓ Food that has passed its usage date goes waste as it is not fit for consumption and is eventually thrown.
- ✓ Some people simply waste because they can afford to. There is lack of awareness among the people on how food wastage can affect the economy and environment of the country.
- ✓ Improper meal planning can result in leftovers and lack of knowledge to utilize the leftovers which eventually goes waste leads to wastage of food.

Although a lot of food wastage occurs during actual handling, storage, transport of food grains and vegetables before they reach the consumers but the amount of food that goes waste during social events such as weddings, functions and parties cannot be neglected.

FACT FILE 2

According to a report on assessment of the extent of food wastage in the National capital region Delhi, about 20 % of the food is wasted in social gatherings such as weddings. Overstated expectations, inefficient meal planning, poor storage system are few of the reasons responsible for household food wastage.

Role of meal planning in minimizing food wastage

As you have already studied in the advantages of meal planning that meal planning helps in reducing food wastage, let us now study in detail how does it help in doing so.

- ❖ Wise and practical shopping is one of the simplest ways of minimizing food wastage. One must plan out exactly how much food one needs to buy keeping in mind the menu and the considerations such as the number individuals for whom meals are to be cooked so that one doesn't overbuy. This avoids impulsive shopping of food items.
- ❖ Practice FIFO: The acronym FIFO stands for First-in, First-out. This means consuming the perishable food items in order they have been purchased. Each food item has its own shelf life and therefore each food item should be consumed before its shelf life ends. While storing grocery items, move the older food items in front so that they can be consumed first and keep the new items behind. This increases the likelihood of using the older items first (as there is less chance of them being unnoticed) and eat them before they go bad.
- ❖ Buy in bulk only if there is a proper storage facility to store the food bought. Promptly refrigerating the food items that may spoil or rot, can reduce food wastage. Freeze excess food to prevent it from getting spoiled.
- ❖ Effective use of left over foods is another simple way of minimizing food losses at home



USING LEFTOVER FOODS

- ✓ Boiled rice can be mixed with curds and tempered to make curd rice.
- ✓ Left over rice can be stir fried with other left over vegetables to make a pulao instead of discarding it.
- ✓ Any extra leftover roasted chicken can be chopped and used in fried rice or making chicken sandwich.
- ✓ Left over fruits can be stewed and served with custard or made into smoothies and vegetables can be used to make soups, vegetable stocks.
- ✓ Over ripe fruits that can not be consumed as such and are discarded can be used for making jams and jellies.
- ✓ The steamed, roasted vegetables can be used for preparing soup for the next day.

Some simple habits that can be practiced, which can help to reduce the food waste

- ✓ Composting can help to reduce inedible or spoiled portion of food like, peelings of vegetables and fruits, egg shells, cooked stale food etc. to effective use. It creates a free, nutrition-rich natural fertilizer that can help make the soil more productive.
- ✓ Food wastage can be reduced through sharing. For example if one has got surplus food in a school tiffin and one does not want to eat the entire food, it can be shared with friends, instead of throwing away the food. Avoid wasting food during wedding or other functions; serve quantities you think you would be able to eat. Make finishing your plate a habit. This is another effective way of minimizing food wastage.
- ✓ While eating out if one is unable to eat the entire quantity, one can get it packed and eat later at home.
- ✓ There are certain organizations in our country that are working for the cause of hunger. These organizations use the excess leftover food in social gatherings and donate the collected food to the needy which would otherwise go waste. If one is in college or works in an office one can enquire about how excess is being managed there. One can check with NGOs who offers a facility to transport food the needy people.
- ✓ Donating food and feeding the needy has been a part of the Indian culture and feeding the poor and hungry is considered as serving good as God. You must be aware about the practice of holding 'langar'. In the Sikh culture there is a 24-hour 'langar' in their gurudwaras where anyone may come and eat. So one can always donate the extra food which is consumable and safe rather than throwing it.

- ✓ Change in consumer attitude is an essential step towards minimizing the large food wastage.
- ✓ Also every year October 16 is observed as the World food day in different countries of the world including India to raise awareness on crucial needs of food, achieving food security, ensuring sufficient availability of food. This day can be used as an opportunity to. Organize Melas or other educational events can in schools on World food day to raise awareness among students about the impact of food wastage on the environment and in their community.



Source: <https://graphiccompetitions.com/students-only/world-food-day-poster-contest-2017/>

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

The SDGs are a set of 17 global goals given by the World Health assembly (WHA) to ensure the peace and prosperity of the people of the world.

Out of the 17 SDGs, **goal 2** relates to poverty and hunger. This goal focuses on ending hunger and all form of malnutrition by ensuring better access to food specially the vulnerable sections of the society.



Source: <http://www.un.org/sustainabledevelopment/news/communicate-sdgs-easily>



Activity 8

Design a poster for World food day, to create awareness on the importance of reducing food wastage to address the problem of Hunger.

8. Terms for Reference

1. **Chronic:** continuing for a long time
2. **Over nutrition :** overconsumption of nutrients resulting from excess food consumption
3. **Overweight:** above body weight 10-19% desirable weight
4. **Sedentary:** involving little exercise or physical activity
5. **Shelf life:** the maximum length of time for which an item is fit for usage or consumption
6. **Under nutrition:** condition resulting from not consuming enough nutrients
7. **Underweight:** below body weight 10-19% a desirable weight