

10



373en10

DIET AND NUTRITION



Note

In the above conversation, you come to know proper nutrition in every diet. The diet is very important for our health. This lesson is about diet and nutrition. Diet is the food, taken by living organism; and nutrition is the science which studies the usages of food by our body. You will also study how diet and nutrition plays a significant role in determining our health. Other things which you will come to know in this lesson are the types of nutrients, balanced diet as well as the yogic concept of diet.



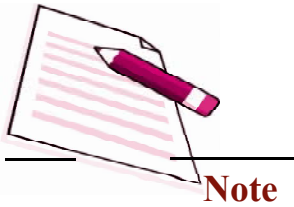
OBJECTIVES

After studying this lesson, you will be able to:

- explain the meaning and concept of diet and nutrition;
- classify the nutrients;
- explain the balanced diet and
- explain the yogic concept of diet.



10.1 MEANING AND CONCEPT OF DIET



Diet is the total amount of the food taken by individuals or any other organisms for their survival. Usually diet is referred as a ‘blend of specific nutritional food’ taken by a person for good health or weight management. We, the human beings are omnivores and due to diverse culture and society, each of us has different food preferences or food habits.

Food choices and habits play a crucial role in determination of health and durability of the individuals. Food is important for life. We require food for our survival and we cannot survive for a long period without food. Therefore, proper intake of food is necessary for all living beings. The food can be anything that we eat to satisfy our hunger. It comprises solids, semi-solids and liquid. Food also nourishes our body.

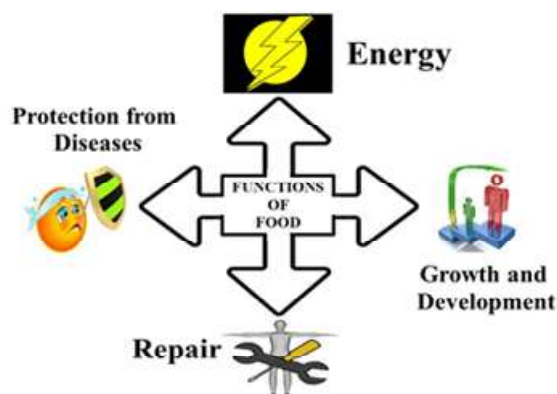
For obtaining quality of life, we should certainly have proper food intake. The foods we eat should also be safe and rich with all the nutrients that our body needs. Try to have a wide variety of foods in your diet and eat them on regular basis. It is also important that we should enjoy food while eating; the food should look, smell and taste good. Without nutritious food, no one can optimise his/her potential to the full extent, as well as adults will face difficulty in doing their best.

Diet is the sum of the food consumed by us for our survival. It refers to the use of specific intake of nutrition for health or weight management. Proper and timely intake of it is essential because it contains substances which perform important functions in our body.


As you have learnt the meaning of diet, now we are going to learn why food is required and what it does for us.


10.1.1 Functions of Food

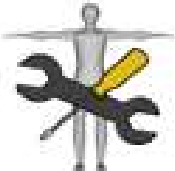
Food performs the following **four** important functions:

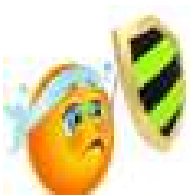


- Energy:** For performing any work, energy is a necessity. Our energy is spent when we are engaged in performing work. That is why, our body get tired after performing any work. Food is the major source of energy for our body. Therefore, food is important to regain lost energy. If our body does not get proper food in due time, it would become weak.

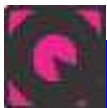

- Growth and Development:** The proper and nutritive food helps the growth and development of our body. Body stops growing if it does not get proper food. Proper nourishment from the food we eat increases the cells counts present in our body. Inadequate or wrong choice of food obstructs the healthy growth and development of our body.


- Repair:** You know, God created human beings in a self-repair mode. Lots of wear and tear in our body is happening due to regular work and movement. Our body get damaged by accidents or trauma. You might have seen if we get a cut or wound, it heals up automatically after some time. If our skin is damaged due to burn etc., it regains its shape in due time. For all these functions, our body requires proper food.


- Protection from Diseases:** Food also helps us to protect ourselves from many diseases. The food we eat has vitamins, mineral and salts. Vitamins do not provide energy or help in repair or replacement of the worn-out parts of the body. Vitamins are essential for protection from disease. Thus, the foodstuff, we consume, provides us the power to fight with germs and viruses. Therefore, we need food and vitamins to protect our body from illness and keep ourselves healthy.



Importance of food cannot be ignored. Our body requires food which can provide us all the elements needed. It is also important to have adequate amount of food. Too much food or lack of food, both are not good for health. Thus we should eat the appropriate amount of food containing the right amount of nutrients.



INTEXT QUESTIONS 10.1

1) Define 'diet'.

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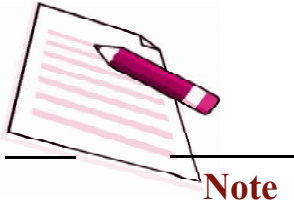
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Note





2) Explain the importance and role of food for our body.

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In the above section, you have learnt that we eat food for the nourishment of our body. Now, you will study about the meaning and concept of nutrition. It will help you to understand the meaning of nourishment.

10.2 MEANING AND CONCEPT OF NUTRITION

The food make us fit and healthy. Whatever we eat, undergoes through different processes. The science we study about the food and its usage by our body is called nutrition. Nutrition includes food intake, digestion, absorption, assimilation and excretion of waste. Basically, nutrition is the interaction of nutrients and other substances present in the food. It helps in the maintenance, growth, reproduction and health of an individual.

Nutrition is science to study the process of food intake and its utilization of by our body.

10.2.1 Nutrients

We have learnt that food nourishes our body and it also helps the proper growth of the body and its functioning. This growth and nourishment happens due to nutrients available in the food. The nutrients are molecular (chemical) substances in the food required by all living organisms to survive, grow, and reproduce. Nutrients are digested and then broken down into basic units to be used by the living organisms. Let us study about the type of nutrients.



DO YOU KNOW?

In India National Nutrition Week is celebrated each year from 1st to 7th September. The purpose is to make people aware about important tips of their health and well-being.

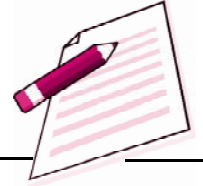
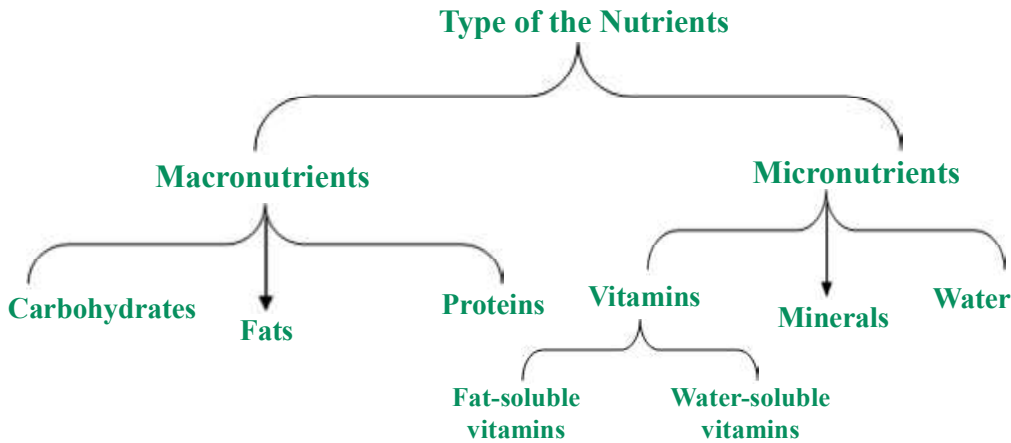
For more information you can visit <https://www.indiacelebrating.com/events/national-nutrition-week/>

10.2.2 Type of Nutrients

Our food constitutes hundreds of nutrients. These are mainly grouped into two types namely- (1) Macronutrients, and (2) Micronutrients.



Both nutrients are needed and equally help in maintaining better health. Each nutrient has important role in our body, but in a differently all manner.



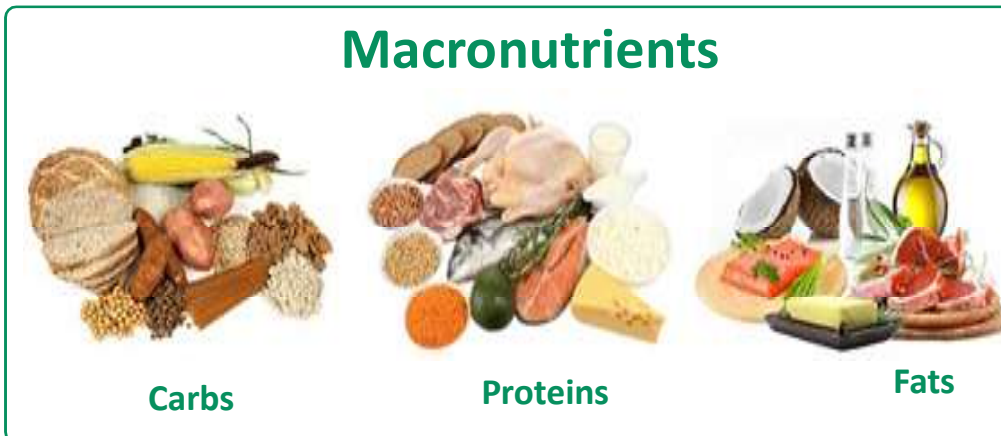
Note

Let us discuss, in detail, about the nutrients.

10.2.3 Macronutrients

Macronutrients are main source of energy for our body. They are available in big amount in the food and are also needed by the body in larger quantity.

Carbohydrates, fat and proteins are known macronutrients.

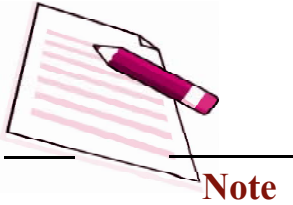


Now, we will study each nutrient in detail.

- Carbohydrates**

Carbohydrates are found in a wide variety of foods. Carbohydrates are treated as the body’s major source of energy. Its unit of measurement is kilo calories. Carbohydrates rich foods are easily available and consumed by all. The





foods like cereals, wheat, rice, bajra, maize, pulses, rajma, channa, potatoes, sweet potatoes, sugar, jaggery etc. are rich source of carbohydrates. We need to have about 45 to 65 percent of total calories from carbohydrates.

- **Fats**

Most of the people think that fat is bad for our health, but do you know, it is actually a key nutrient and very essential component of our healthy diet. Fat acts as an insulator for our body and allows us to maintain our body temperature. Fat helps us to protect our internal organs by acting as a cushion to the organs. The fat seems to be important, but more than required quantity of it is bad for our health. The fats are composed of fatty acids and its nature depends on the type of fatty acids. There are two types of fatty acids. One is saturated and the second one is unsaturated. Solid fats comprise saturated fatty acids. Unsaturated fatty acids are found in oil like products. It is recommended to take 20 to 35 percent of calories through fats.

- **Proteins**

Proteins help to build, maintain and repair the muscles and other body tissues. Proteins are composed of amino acids which is the smaller units. This amino acid is classified into “essential amino acids” and “non-essential amino acids” and their count is altogether 22. Out of which 8 amino acids, our body cannot yield are known as essential amino acids and they should be provided through the food. Rest of the 14, our body produces. They are known as non-essential amino acids. All dairy products, poultry, meat, fish, eggs, pulses, cereals, soybeans, nuts and oilseeds, groundnuts, etc. are rich source of proteins. It is suggested to consume 10-15% of total calories.



DO YOU KNOW?

- A **calorie** is the quantity of heat required to raise the temperature of 1gram (g) of water to 1 degree Celsius ($^{\circ}\text{C}$). A kilocalorie is the amount of heat required to raise the temperature of 1000g of water to 1°C .
- The energy yielded per gram by Macronutrients is as follows:
 - 1 g Carbohydrate = 4 Calories (kcal)
 - 1 g Fats = 9 Calories (kcal)
 - 1 g Protein = 4 Calories (kcal)





ACTIVITY 10.1

If you eat 200 grams of Rice then calculate how much calories you will get.



INTEXT QUESTIONS 10.2

1) Define nutrition.

.....

2) Explain the nutrients.

.....

3) Match the following nutrients in column I with the sources from which we get given in column II.

Nutrients	Food Sources
a) Carbohydrates	i) Cheese, Ghee
b) Fats	ii) Bajra, Potatoes
c) Proteins	iii) Butter
	iv) Paneer, Milk
	v) Wheat, Rice
	vi) Pulses, Meat

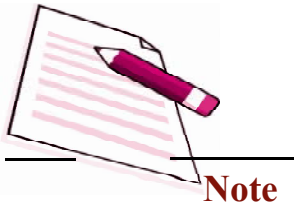
10.2.4 Micronutrients

Apart from the carbohydrates, proteins and fats, other important nutrients which we get from foods comprise vitamins and minerals. They are called micronutrients. These micronutrients are needed in very small amount. Both macronutrients and micronutrients are essential, but if we are not taking these micronutrients in required amounts, it may cause deficiency leading to several diseases.



Note





Now, we will study some of the important micronutrients.

Micronutrients



- **Vitamins**

Vitamins are present in our body in small quantity, however vitamins play significant roles in different chemical processes occurring in the body. Vitamins are responsible for the metabolism of carbohydrate, protein and fat. There are total 13 vitamins, categorized into two types:

- i) **Fat-soluble vitamins:** Includes vitamins A, D, E, and K.
By the name you can understand these vitamins need fat to be absorbed.
- ii) **Water-soluble vitamins:** Includes vitamin C and B vitamins. Vitamin B further include vitamin B-6, vitamin B-12, thiamine, niacin, folic acid, riboflavin, pantothenic acid and biotin.
These vitamins need water to dissolve, before entering in the bloodstream.



- **Minerals**

Minerals are also important for our body like vitamins. They comprise a small quantity of the total body tissue. These are required for lots of vigorous processes in the body as well as for proper growth and development of the body. Minerals can be divided into two categories based on the body's need. Our body demands the major minerals such as calcium, potassium, sodium, magnesium, phosphorus, sulfur and chloride – in larger quantities. On the other hand, the trace minerals are - iodine, copper, fluoride, zinc, iron, chromium, selenium, molybdenum and manganese are required in smaller quantity. There are about 19 minerals needed by the body in different quantities.



• **Water**

Water is known for quenching the thirst, but it is something more than that. Water is a major nutritional component. About two-third of our weight is water. It is available in all the cells. Water helps to regulate our body temperature and it also lubricates the joints and protects the organs and tissues from shocks. Water also helps in digestion, absorption and acts as a carrier to transport important substances. For example, oxygen in the whole body. On a regular basis, we need to have 6 to 8 glasses of water per day.



Note



ACTIVITY 10.2

Fill the following information in the given table:

- i) List the two main dishes you ate today.
- ii) Identify the food items (ingredients) used in both dishes
- iii) Also identify the macro and micro nutrients present in them.

S.No.	Dishes eaten	Ingredients	Nutrient	
			Macro	Micro
1				
2				



INTEXT QUESTIONS 10.3

1) Answer the following questions

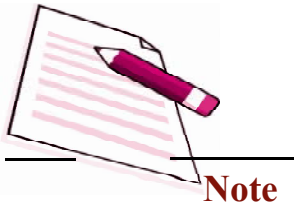
a) Define Vitamins

.....

b) Explain the functions of minerals.

.....





2) Right tick (✓) against each of the following vitamins whether they are Water soluble or Fat soluble

Vitamins	Water Soluble	Fat Soluble
A		
B		
C		
D		
E		
K		

After studying nutrition and nutrients, you may be able to understand the importance of each nutrient. In the next section, we will discuss about the balanced diet.

10.3 BALANCED DIET

As far as the balanced diet is concerned, the appropriate diet structure depends on the individual and one’s activity level. In fact, the criteria to determine the proper nutritional blend required by an individual is based on their age, gender, weight, height, and type of activity and level. The nutritional requirement of an adult is different from that of an infant. An infant needs more protein as compared to an adult. In the same manner nutritional requirement of a female is different from that of the male due to their physiological functioning. Each and every factor is important while deciding the nutritional requirement for an individual.

Hence, the balanced diet could be the consumption of appropriate variety and adequate quantity of foods as well as drinks. Balanced diet provides nutrition and energy for the maintenance of body organs and it also helps in the normal growth and development of individual.



Dietary Guidelines for Indians, A manual (2010) 2nd edition National Institute of Nutrition, Hyderabad, India



A balanced diet is the foods and drinks which contains the appropriate blend of all nutrients required for normal growth and development and function of an individual.

You may be aware of that diet is perceived in a different way in yog. Now, we will study about yogic concept of diet.

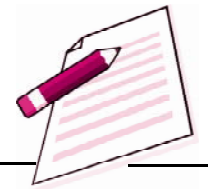
10.4 YOGIC CONCEPT OF DIET

You are familiar with the term diet. Here, we are going to study what the yogic diet is? As you know, yog has emerged very important in today's society. Yog significantly contributes in promotion of health of an individual or group in the society. Yog is the combination of physical, mental, and spiritual practices. It is believed that our body is made of *prana, mind, intellect, emotions and the spiritual dimensions*. The primary objective of doing yog is to gain control over the mind. So, any practices or habits that cause an imbalance of the mind are considered to be detrimental to progress in yog. Food is one of the important factors among them. In yog the diet is not based on the calorie count of foods or nutrients we get from the food. It focuses on the type and quality of food.

The 'Yogic diet' is defined as foods that are conducive to yogic practices and progress in spirituality.

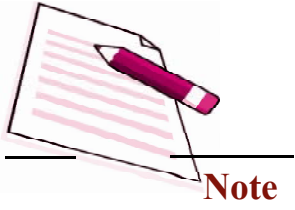
10.4.1 Classification of Yogic Diet

Yog classifies diet into three types namely- Sattvic, Rajasic and Tamasic diets.



Note





Sattvic Diet



The foods which are light for digestion and help in calming down the mind are regarded as **Sattvic diet**. It includes fresh fruits, veggies and other substances like mangoes, orange, apples, grapes, guavas, bananas, papaya, pomegranates, pears, pineapples, figs, cabbages, spinach, tomatoes, green leafy vegetables, pumpkin, cucumber, cauliflower, peaches, lady’s finger, dried peas, green pulse, red rice, almonds, oat-meal, raisins, unpolished rice, bengal gram, dried ginger, dates, green gram, groundnut, honey, lemon etc.

Rajasic Diet



The foods which stimulate the body and excite the desires, making the mind restless and uncontrollable are termed as **Rajasic diet**. This type of food also stimulates and activates the nervous system and speeds up metabolic function. This type of food is cooked for a longer duration to increase its taste appeal. It also includes chillies, sour foods, asafoetida, onion, garlic, tamarind, mustard, tea, coffee, cocoa, white sugar, turnips, fried food, salt, bitter food, fish, eggs, meat etc.

Tamasic Diet

The foods which are heavy for digestion and increase the laziness and anger in an individual are called as **Tamasic diet**. It includes foods cooked twice, fats, oils, fermented foods, containing foul odour, sugary food, food with preservatives, unclean food, stale and rotten foods, tobacco, alcohol and those which are not at all helpful to nourish our body or mind.



INTEXT QUESTIONS 10.4

- 1) Answer the following questions–
 - a) Define balanced diet.

.....

.....

.....



b) What are the major differences among Tamasic, Rajasic and Sattvic diet?

.....

2) Classify the following food items: under Tamsic, Rajasic and sttvic diet.

Tobacco, Bananas, Pickles, Hot things, Turnips, Spices, Onions, Coconut, Brinjals, Dates, Sugar-candy, Meat, Pomegranates, and Twice cooked things:

Tamasic

Rajasic

Sattvic

In the yogic concept, the ‘sattvic diet’ is considered to be the best diet. The reason is that the mind is often compared to an ape, which is usually restless and wandering all the time. For yog practisiers, it will take some time to control the restless mind. During such practice of yog, having foods, which are rajasic or tamasic in nature, can trigger the instability further. On the contrary, the sattvic foods help to calm down the mind. A relaxing mind is the first step towards achieving stability in life and progress in yog.

For health purpose, yogic diet focuses on availability of nutrition from food, not its taste. It is suggested in yogic diet that whatever you eat and drink should be in balance. As per yogic concept, self-control in selection of foods is important for your health. Although, yogic diet theories are very easy, yet they need higher level of dedication and willpower to follow.

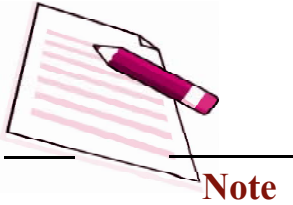
You have read about the concept of balanced diet, but a balanced diet in yog is something different. In yog it is based on the concept of **Mitahar** which claims that the final effect of intake of diet depends upon its quality, quantity and state of mind during food intake. The details of all these three factors are as follows:

- a) **Quality of food:** The food quality should be *sattvic* in nature and should be acquired in its natural form.
- b) **Quantity of food:** The stomach is divided into three parts and 50 percent of it should be filled with food, 25 percent with liquid and the rest 25 percent should be kept empty for the free flow of air (gases).
- c) **State of mind while taking food:** When you are taking your food, your mind should be in a state of peace and control, enjoy your food, as well as not be engaged in any form of intense thinking.



Note



**Note**

According to Yog a 'Balanced Diet' is that diet which restores balance at all levels and helps in a holistic way of living.



WHAT YOU HAVE LEARNT

- Diet is the sum of the food consumed by us for our survival.
- The food we consume performs four important functions such as (i) helps in growth and development, (ii) repair worn-out tissues, (iii) provide energy, and (iv) protect us from illness.
- Nutrition is a science in which the process of food intake and utilization of it by our body is studied.
- Nutrients are chemical substances in the food needed by all living organisms to survive, grow and reproduce. It is of two types namely (i) macronutrients, and (ii) micronutrients.
- Macronutrients are our main source of energy and they include carbohydrates, fat and proteins, whereas vitamins, minerals and water are the micronutrients.
- A balanced diet is that foods and drinks which contain the appropriate blend of all nutrients required for normal growth and function of an individual.
- The 'yogic diet' is that foods which are conducive to yogic practices and progress in spirituality. It is classified into three types namely- Tamasic, Rajasic and Sattvic.
- The foods which are heavy for digestion and increase the laziness, lethargy, dullness and anger are called as tamasic diet, rajasic diet is that foods which stimulate the body and excite the desires, making the mind restless; the foods which are light for digestion and help in calming down the mind are regarded as sattvic diet. The 'sattvic diet' is considered to be the best diet according to yogic concept.



TERMINAL QUESTIONS

- 1) Define food and explain its functions.
- 2) Write about the nutrition, nutrients and its types.
- 3) Explain the concept of balanced diet.



- 4) State any three functions of water.
- 5) What is the basic difference between macronutrients and micronutrients?
- 6) The nutritional requirements of each of your family members would be same or different? explain with the help of arguments.
- 7) Explain yogic concept of diet.
- 8) Differentiate between normal balanced diet and yogic balanced diet.



ANSWER OF INTEXT QUESTIONS

10.1

- 1) Diet is the sum of the food consumed by us for our survival.
- 2) Growth and Development, Repair, Energy, and Protection from Diseases

10.2

- 1) Nutrition is a science where the process of food intake and utilization of it by our body is studied.
- 2) Nutrients are chemical substances in the food needed by all living organisms to survive, grow, and reproduce.
- 3) a-ii & v, b- i & iii, c- iv & vi.

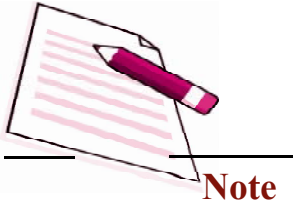
10.3

- 1) a) Vitamins are responsible for different chemical processes occurring in the body.
- b) Minerals are required for lots of vigorous processes in the body as well as for proper growth and development of the body.
- c) Water helps to regulate our body temperature, lubricates the joints, and acts as a carrier to transport of important substances.
- d) Macronutrients are required in large amount whereas micronutrients are required in less amount.
- 2) A-Fat soluble, B- Water soluble, C- Water soluble,
 D- Fat soluble, E- Fat soluble, K- Fat soluble



Note





10.4

- 1) a) A balanced diet is that foods and drinks which contain the appropriate blend of all nutrients required for normal growth and function of an individual.
 - b) The foods which are heavy for digestion and increase the laziness, lethargy, dullness and anger in an individual are called as Tamasic diet, the foods which stimulate the body and excite the desires, making the mind restless and uncontrollable are termed as Rajasic diet, and the foods which are light for digestion and help in calming down the mind are regarded as Sattvic diet.
- 2) Tamasic: Tobacco, Hot things, Sugar-candy, Twice cooked.
Rajasic: Pickles, Turnips, Spice, Onion, Meat.
Sattvic: Banana, Coconuts, Brinjals, Dates, Pomegranates.

