

# **Block 2**

# **Basic Concepts in Nutrition**

**By: Prof. Rekha Sharma Sen**



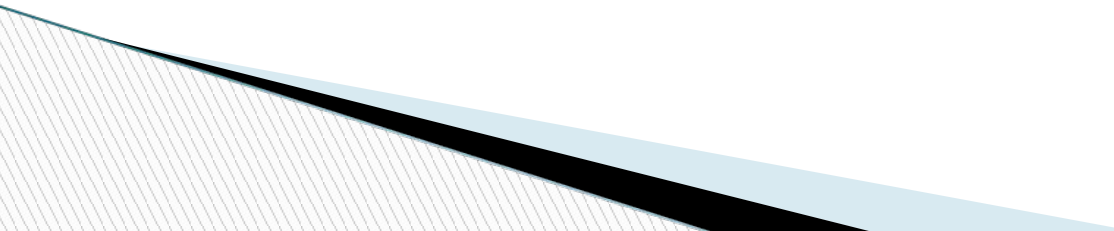
# *Unit 4*

## *The Macronutrients-1: Carbohydrates and Water*

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# Objectives

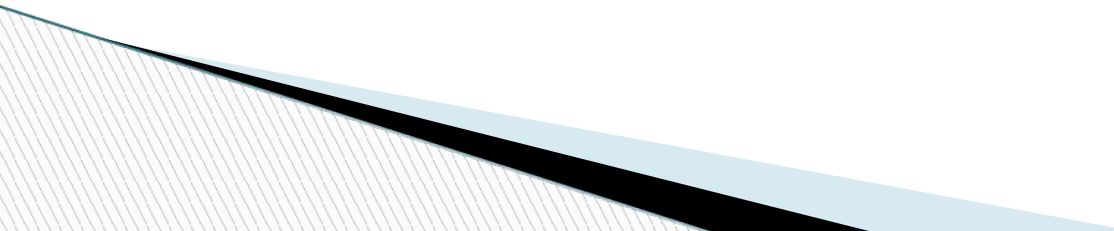
- **Describe the processes of digestion and absorption of food**
  - **Discuss the concept of utilization of food in simple terms**
  - **Distinguish between available and non-available carbohydrates**
  - **List the food sources of carbohydrates and water**
  - **State the role of carbohydrates and water in the body, and**
  - **Describe the processes of digestion, absorption and utilization of carbohydrates in the body.**
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# Carbohydrates

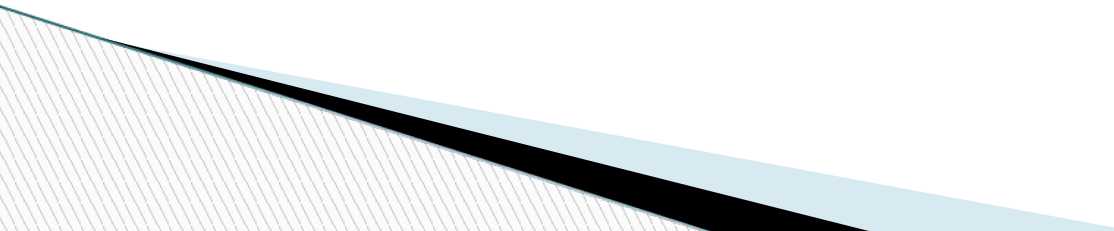
- ❑ **Carbohydrates are mainly present in the foods in form of sugars, starches and fibres.**
- ❑ **Starches and sugars are available carbohydrates.**
- ❑ **Fibres are cellulose present in plant foods and are non-available carbohydrates.**

**Food sources: Cereals, Millets, Roots and tubers, fruits like mango, banana and sapota, Cane sugar, jaggery and honey.**

# Functions of Carbohydrates

- ❑ **Energy-giving function: 1 g of carbohydrate provide 4 Kcal. Carbohydrates provide 60-70 percent of the total calories in our diets.**
  - ❑ **Protein-sparing action**
  - ❑ **Presence of carbohydrates in the diet prevents the body from breaking down too much fat for energy.**
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# Digestion, Absorption and Utilization

- ❑ **The digestion of carbohydrates begin in mouth. The principle site of carbohydrate digestion is small intestine.**
  - ❑ **In small intestine, the enzymes act on sugars and starch and convert them into glucose, fructose and galactose. These simple sugar units are taken to various body tissues through bloodstream and ultimately converted to glucose which is burnt to release energy. Most of the extra glucose is stored as fat in the body.**
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# **Non-Available Carbohydrates**

- ▣ **Fibre is non-available carbohydrate.**

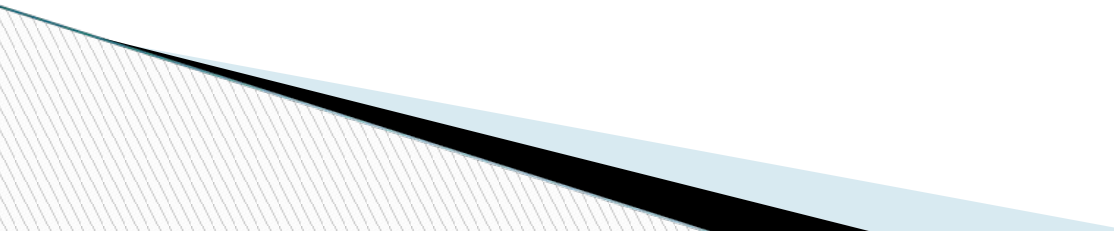
## **FOOD SOURCES:**

- **Fibre is present in the outer covering of whole cereals, pulses and most vegetables (GLV, ladyfinger, peas, beans) and fruits (guava, orange, amla). Animal foods do not contain fibre. Refined cereals (maida, suji) and washed dal have very little fibre.**

**Functions: has satiety value, helps in easy elimination of stools and also helps prevent diseases like cancer, diabetes and heart diseases.**

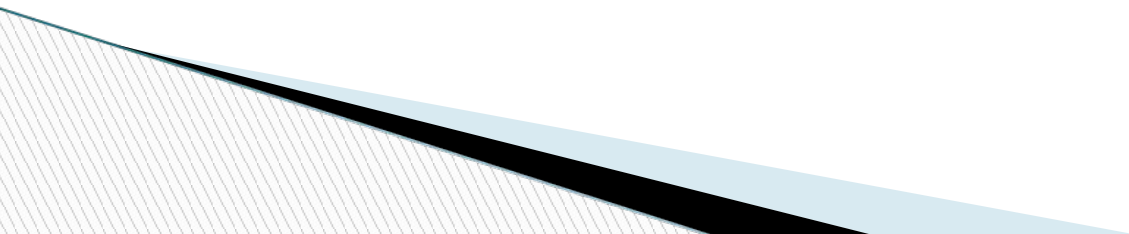
# Water

## **FUNCTIONS:**

- ❑ Major component of our body – 60% of weight of adult and 75% of weight of infant**
  - ❑ Water is the medium of all body fluids.**
  - ❑ Water plays an important role in the regulation of body temperature. It distributes the heat produced in the body due to burning of carbohydrates, fats and proteins. Loss of heat through sweat.**
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- ❑ **Water dissolves a variety of substances including all the products of digestion and carries them to various parts of the body via blood. It helps in the removal of the waste products from the body.**
- ❑ **Water bathes the body cells and keep them moist. It acts as lubricant for the joints as well.**



***THANK YOU***

