



# CARBOHYDRATES

---

SHAIMA BUKER 2610

MABROUKA ALZAWA 2102

# OBJECTIVES:

- Define carbohydrates
- Describe the structure of carbohydrates
- List types of carbohydrates
- Discuss the importance in our body
- Differentiate between simple and complex carbohydrate



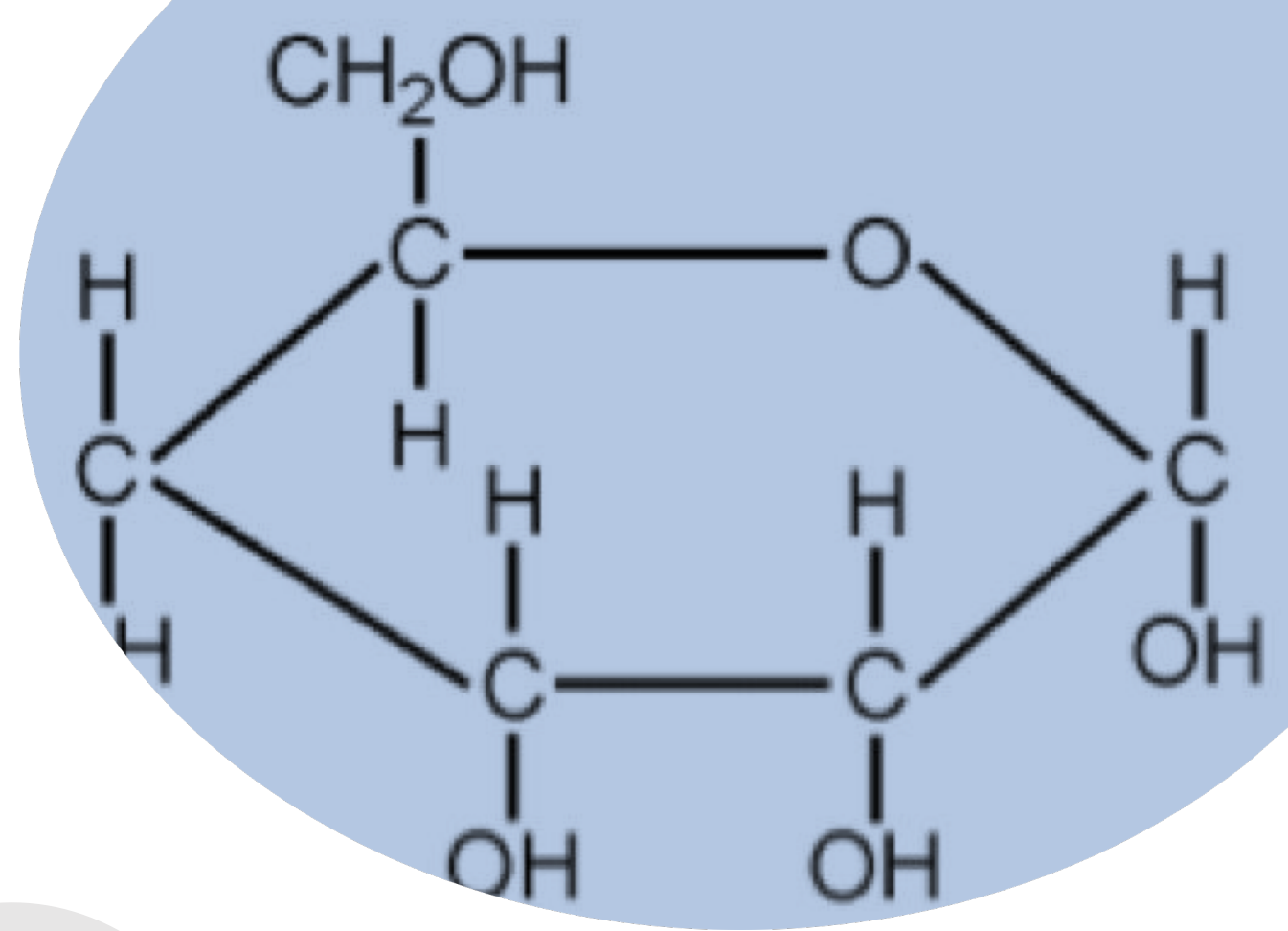
# WHAT ARE CARBOHYDRATES?

Carbohydrates are the sugars, starches and fibers found in fruits, grains, vegetables and milk products. Though often maligned in trendy diets, carbohydrates — one of the basic food groups — are important to a healthy diet.



# STRUCTURE OF CARBOHYDRATES

Carbohydrate is a biological molecule consisting of carbon (C), hydrogen (H) and oxygen (O) atoms, usually with a hydrogen : oxygen atom ratio of 2:1 (as in water); in other words, with the empirical formula  $C_m(H_2O)_n$



# TYPES OF CARBOHYDRATES



## MONOSACCHARIDES

Monosaccharides or simple sugars consist of one sugar unit that cannot be further broken down into simpler sugars, Examples of monosaccharides in foods are glucose, fructose and galactose.



## DISACCHARIDES

Disaccharides are sugars composed of 2 monosaccharides Disaccharides, along with monosaccharides, are called simple carbohydrates. The three most common disaccharides in foods are sucrose, lactose and maltose.



## OLIGOSACCHARIDES

oligosaccharides are carbohydrates composed of 3 to 9 monosaccharides examples of oligosaccharides in foods are Fructo-oligosaccharides (FOS) or oligofructose (Jerusalem artichokes, onions) .



## POLYSACCHARIDES

Polysaccharides are Three or more mono ccharide Examples for polysaccharides such as starch and glycogen, there are two types of polysaccharide, homoglycan heteroglycans.

# IMPORTANCE OF CARBOHYDRATES

Carbohydrates are macronutrients, meaning they are one of the three main ways the body obtains energy, or calories

The carbohydrates are the body's main source of energy. They are called carbohydrates because, at the chemical level, they contain carbon, hydrogen and oxygen.

Carbohydrates provide fuel for the central nervous system and energy for working muscles.

Also, "carbohydrates are important for brain function, they influence on the "mood, memory, etc.," as well as a quick energy source.



# DIFFERENCE BETWEEN SIMPLE AND COMPLEX CARBOHYDRATES

## SIMPLE CARBOHYDRATES



- Simple carbohydrates contain just one or two sugars
- Simple carbs are also in candy, soda and syrups these foods are made with processed and refined sugars and do not have vitamins, minerals or fiber
- Simple carbohydrates are considered as the simple sugars which contain a few carbon atoms. There are two types of simple carbohydrates, namely; monosaccharides and disaccharides.

- Complex carbohydrates have three or more sugars
- They are often referred to as starchy foods and include potatoes, corn, whole-grain breads and cereals.
- They are mainly divided into two sub categories; oligosaccharides and polysaccharides



## COMPLEX CARBOHYDRATES



Carbohydrates are found in foods you know are good for you (vegetables) and ones you know are not (doughnuts). This has led to the idea that some carbs are "good" and some are "bad."

# SUMMARY

- Carbohydrate consisting of carbon, hydrogen and oxygen atoms.
- The types are monosaccharides, disaccharides, Oligosaccharides and polysaccharides.

The formula is  $C_m(H_2O)_n$

- The importance of carbohydrate in the body, muscles and brain.
- Finally the examples of simple carbohydrates are monosaccharides and disaccharides
- complex carbohydrates are Oligosaccharide and polysaccharides.



**THANK YOU!**

# REFERENCES

<https://www.google.com.ly/amp/s/www.livescience.com/amp/51976-carbohydrates.html>

<https://www.diabetes.org/nutrition/understanding-carbs>

[basic biochemistry book](#)

<https://www.differencebetween.com/difference-between-simple-and-vs-complex-carbohydrates/>

<https://www.medicalnewstoday.com/articles/161547>