

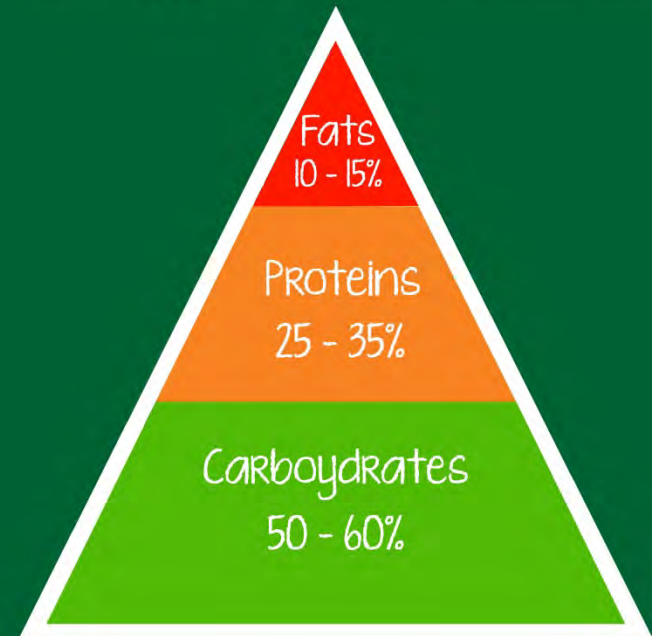
Carbohydrates



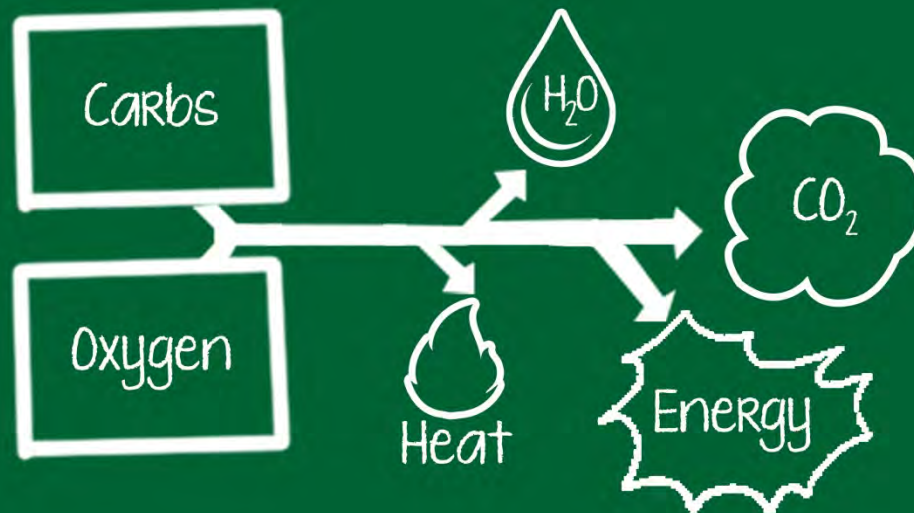
What are Carbohydrates?

- One of the macronutrient.
- Carbs are sugars, starches and fibres present in all food products.
- Biological molecules containing Carbon, Hydrogen and Oxygen.
- Works as a quick energy source.
- 50-60% of energy requirement to be met from Carbohydrates

Energy from Nutrients



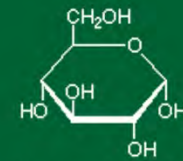
Carbohydrate Facts



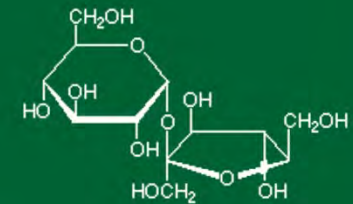
Energy	Heat	Respiratory Quotient
4kCal / g	6%	1.0

Classification of Carbs

Simple Carbs : Digested & absorbed more quickly

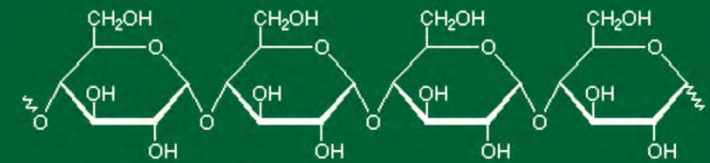


monosaccharide (glucose)



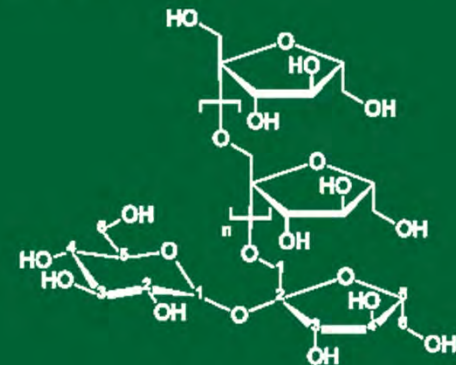
disaccharide (sucrose)

Complex Carbs : Takes longer time for digestion and also for absorption



polysaccharide (amylose starch)

Dietary Fibre: Form of complex carbohydrates that will not get digested



Classification of Carbs

Carbohydrates

Monosaccharide

molecule cannot be hydrolysed further



e.g., Glucose, galactose, fructose, xylose

Disaccharide

Combination of two monosaccharides



e.g., Sucrose, lactose, maltose, trehalose

Oligosaccharide

Combination of 3 to 9 monosaccharides



e.g., Maltodextrins, FOS, MOS

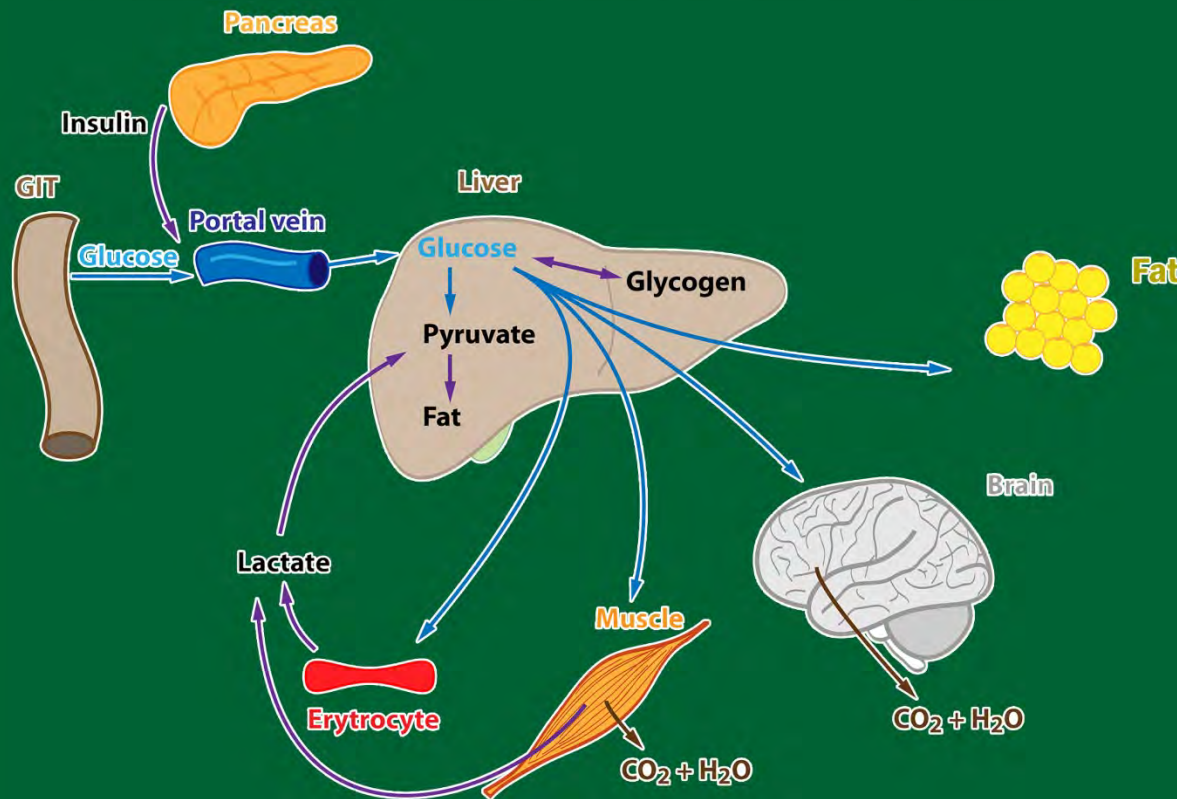
Polysaccharide

Combination of 10 or more monosaccharides



e.g., Amylose, amylopectin, Cellulose, Pectins

Metabolism of Carbohydrates



Metabolism of glucose and regulation of blood glucose levels controlled by sophisticated hormonal system.

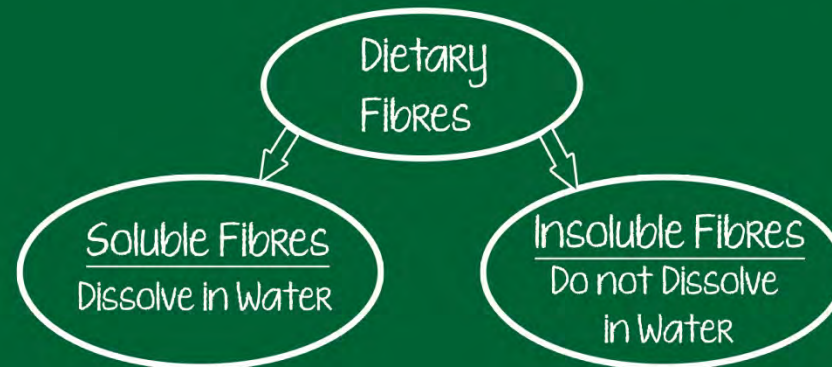
Functions of Carbs

- Major energy source among the macronutrients.
- Carbs provide fuel for CNS and energy for working muscles
- They prevent protein from being used as an energy source and enable fat metabolism



Dietary Fibre

Dietary Fibre OR roughage is the indigestible portion of food derived from plants. Fibre is a non-energy yielding nutrient.



e.g., Guar Gum, Inulin



e.g., Cellulose, Pectin

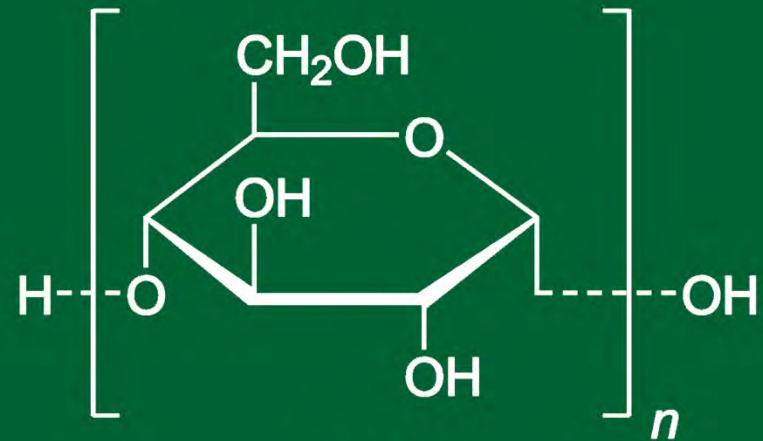
Functions of Dietary Fibre

- Increases satiety.
- Increases bulk, normalizes intestinal transit time.
- Delays gastric emptying and slows down the rate of digestion and thus improves GIT functions.
- Lowers serum cholesterol by 20%



Functions of Maltodextrin

- Chemically predigested starch, on further digestion yields simple glucose.
- Many molecules of glucose which is intact and sustained release of glucose molecules while structurally remain intact in GIT
- Prevent formation of heavy curd in infant stomachs.



α -1,4

$2 < n < 20$

Summary

- Prime macronutrient.
- Major source of energy.
- Fuel for Brain.
- Complex carbs are essential.