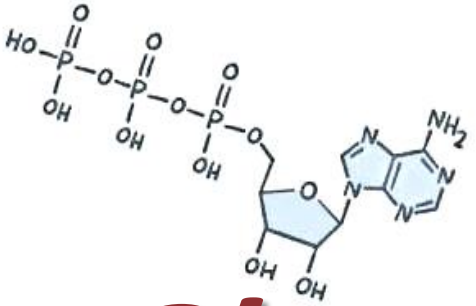
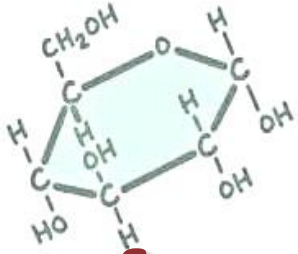
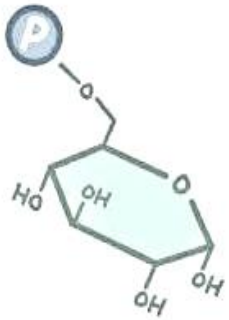
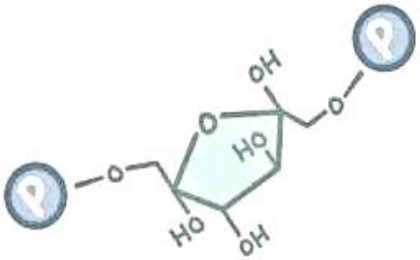


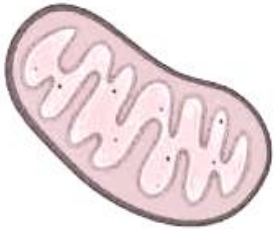


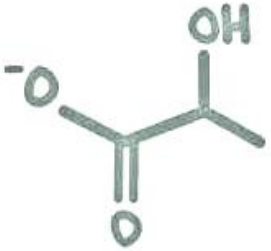
Glycolysis

By: Gilan Nazeh, Mahmoud Khaled and Khaled Alsheiky
The second year
pharmD









Intended iearning outcomes

By the end of this presentation you will be able to :

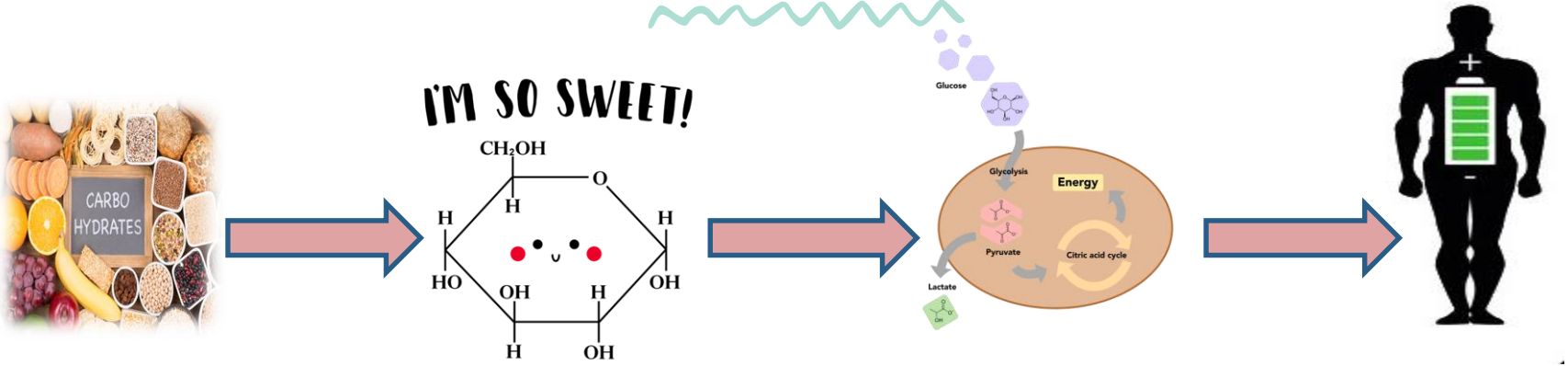
01 What is the Meaning of Glycolysis.

02 Pathway of Glycolysis.

03 Function of Glycolysis.

Glycolysis

oxidation of glucose to produce of **pyruvate** or **lactic acid** and energy stored in high-energy phosphate bonds of ATP



the Glycolysis Pathway

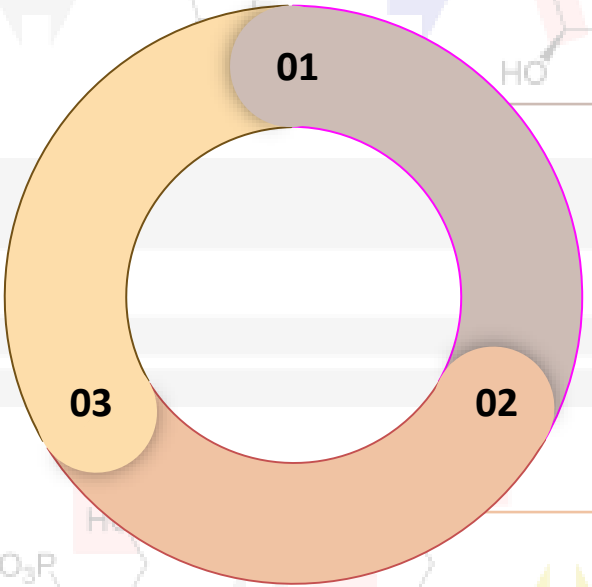
Aerobic Pathway

- **Pyruvate** is the end product of glycolysis.

Anaerobic Pathway

- **Lactate** is the end product of glycolysis.

Function of Glycolysis



Energy Production (ATP)

Synthetic Function

2,3 Bis phosphglycerate

Energy production (ATP)

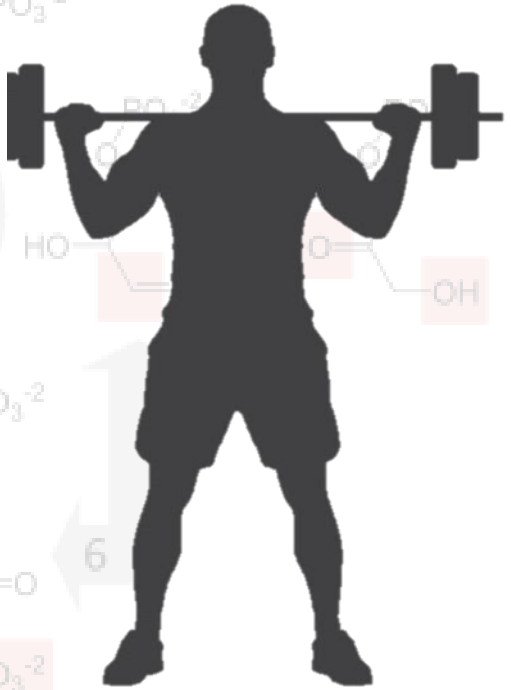
(Energy yield from glycolysis)

Anaerobic glycolysis:

Glucose → 2 ATP → 2 lactate

is a valuable source of energy under several conditions, including :

- **When the oxygen supply is limited (severe exercise).**
- **For tissues with few or no mitochondria**



Energy production

(Energy yield from glycolysis)

Aerobic glycolysis:

Glucose → **2 NADH**

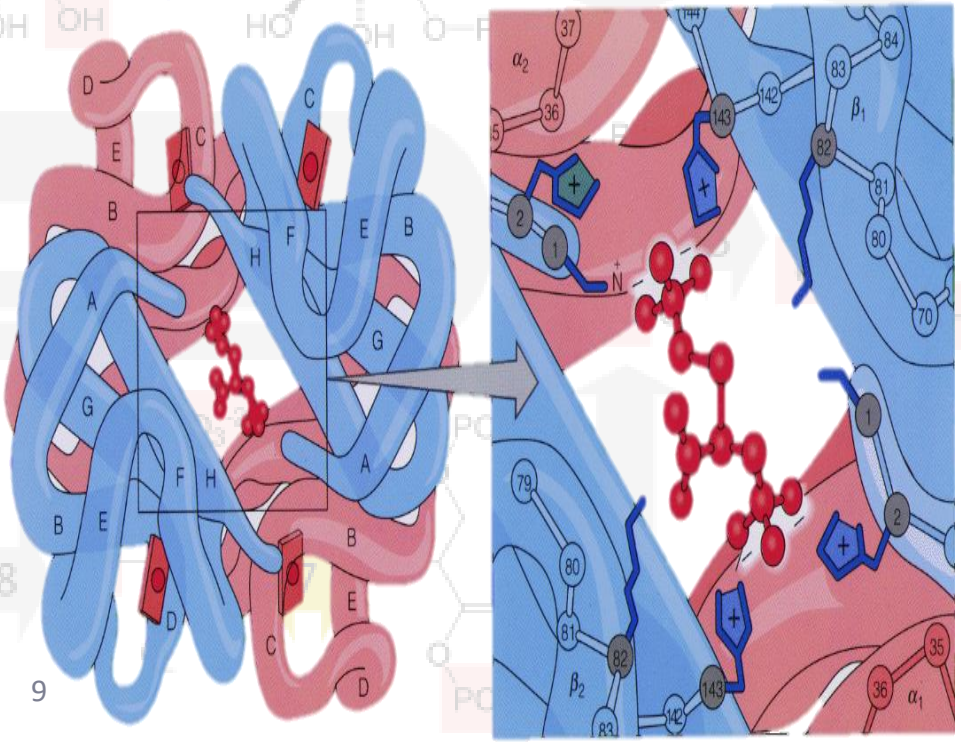
requires the oxidation of most of this NADH by the electron transport chain, producing three ATP for each NADH molecule entering the chain.

Synthetic Function

- Glycolysis occurs within mitochondria which gives acetyl CoA for CAC and for the synthesis with pyruvate of fatty acids, sterol and ketone bodies.
- Glycolysis gives dihydroxy acetone phosphate (DHAP) that may be converted to glycerol.
- Non-essential amino acid.

2,3 Bis phosphglycerate

Red Blood cell 2,3-BPG binds to Hb decreasing its affinity for O_2 and helps its availability to tissue.



Summary

Glycolysis is the oxidation of Glucose and converted to pyruvate or lactate depending on if it is aerobic or anaerobic pathway

it has three functions :

- ***Energy Production (ATP) .***
- ***Synthetic Function.***
- ***2,3 Bis phosphglycerate.***

References

- Lippincotts Illustrated Reviews Biochemistry 3rd Edition.


thank
you