



Glycolysis

Morad Elhady , Nesma Alasbah , Roaa Elhoudiry

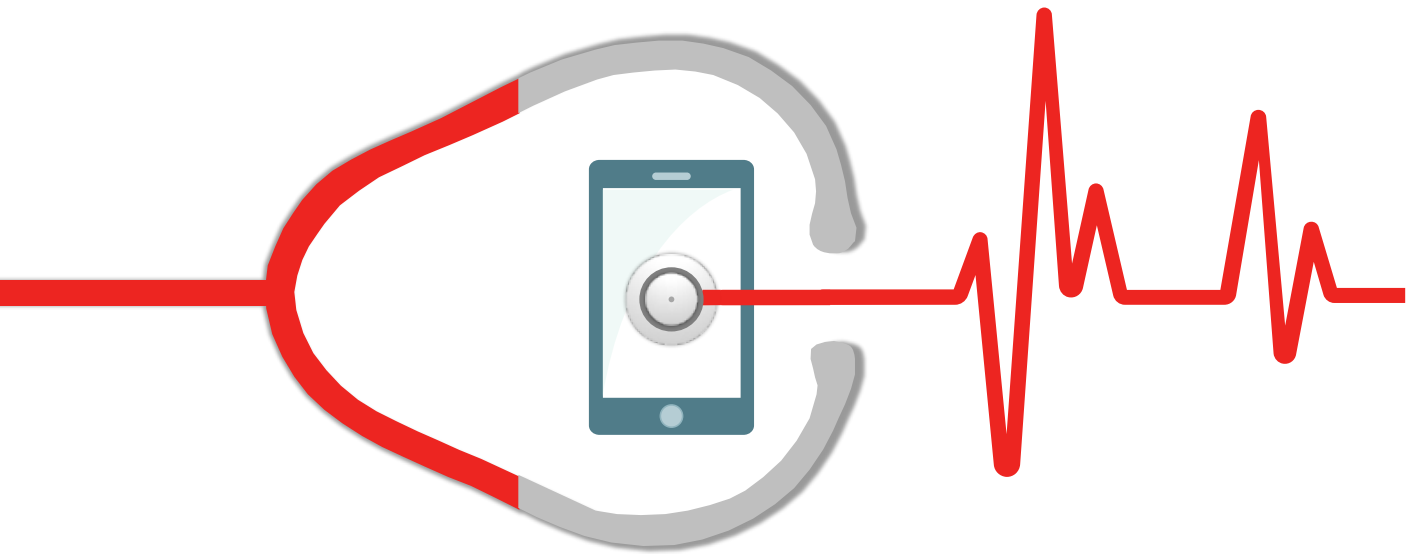
Second year student , factuality of pharmacy, limu



Objectives

- Define glycolysis
- Identify the site of glycolysis
- List types of glycolysis
- Explain functions of glycolysis
- Discuss the steps of glycolysis





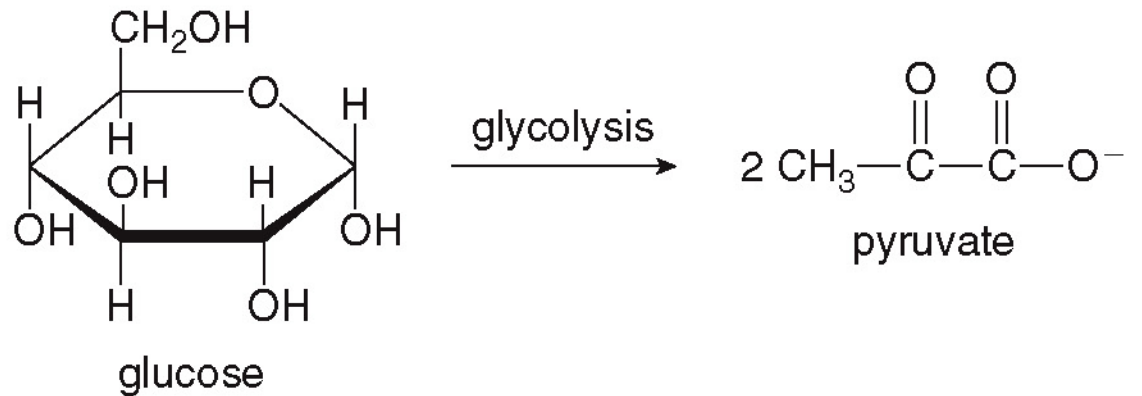
Glycolysis

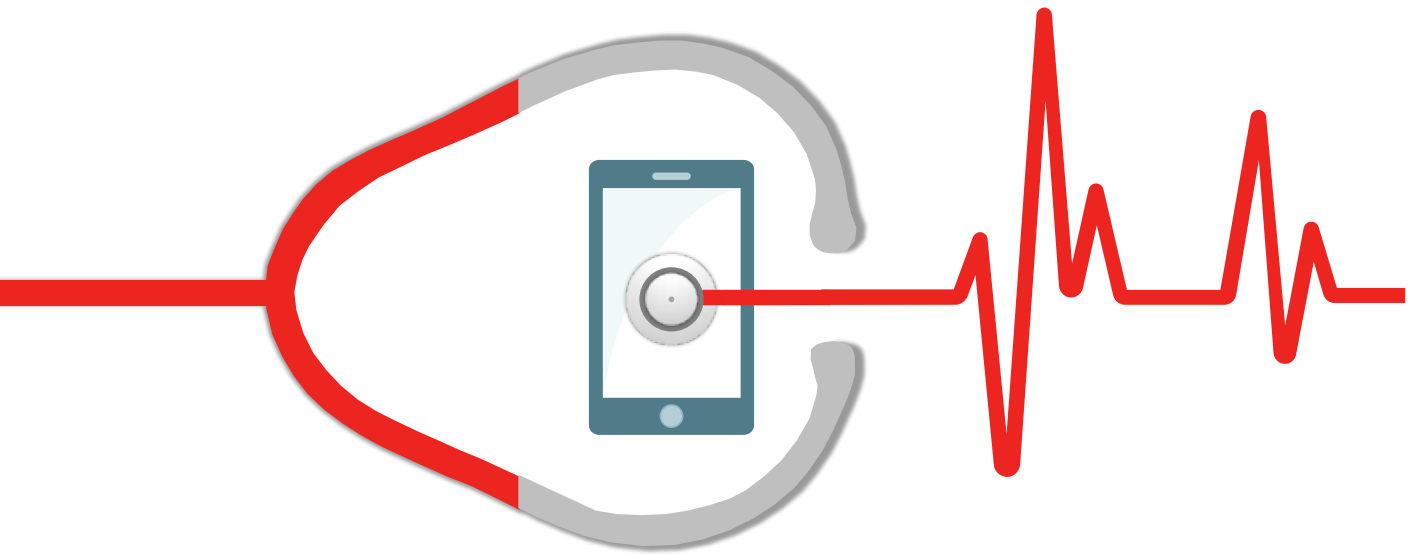




Glycolysis (Cellular Respiration)

- Is a metabolic pathway in which glucose is converted to two molecules of pyruvate
- Glycolysis consists of an energy-requiring phase followed by an energy-releasing phase.
- Glycolysis can occur in the presence of oxygen or without oxygen





Sites of Glycolysis



Sites of Glycolysis



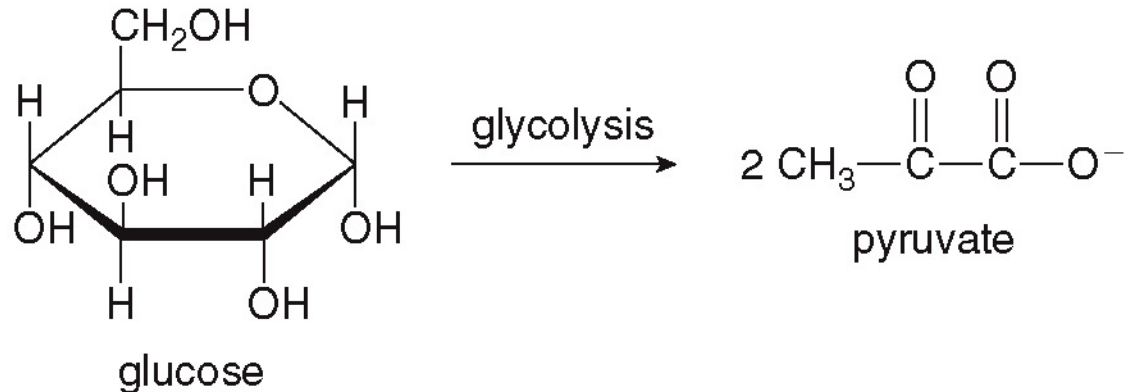
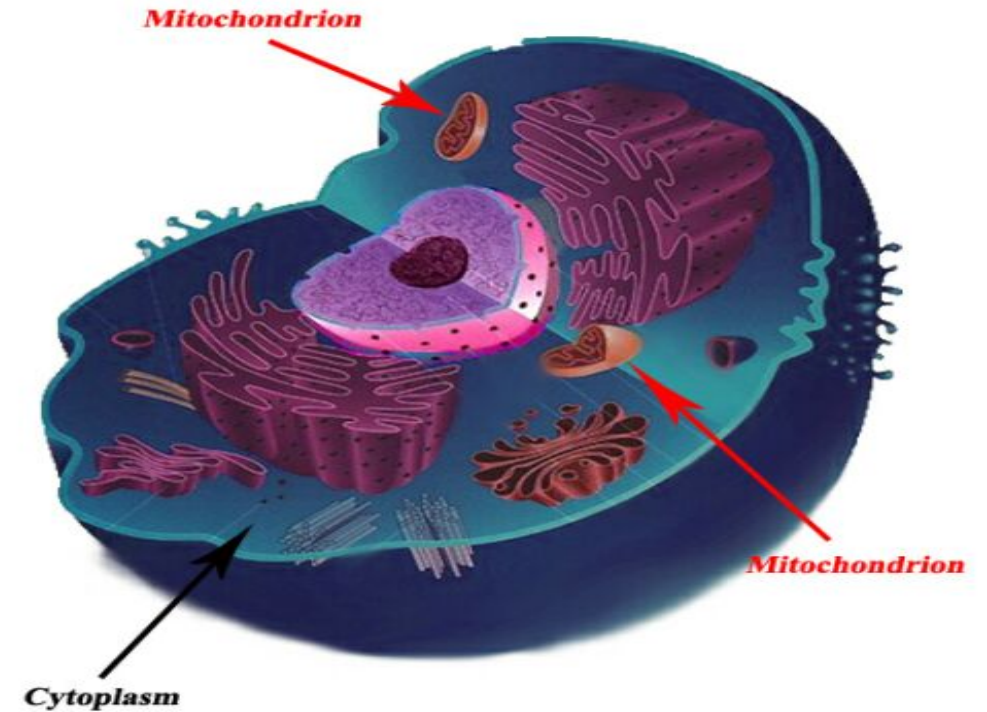
- **Subcellular Sites**

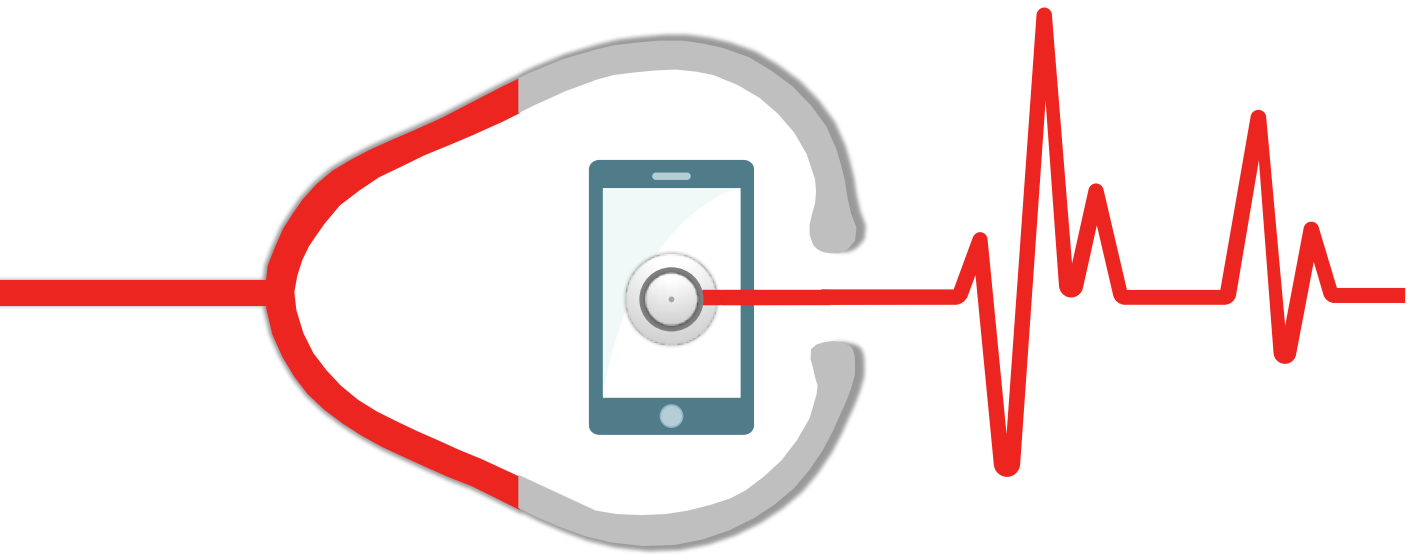
Within the cytoplasm of eukaryotic cells

- **Tissue Sites**

Occurs practically in all living cells

1. Tissue with no mitochondria (mature RBC)
2. Tissue with few mitochondria (testes-leucocytes)
3. In tissues that lack frequent oxygen frequently (skeletal muscle).





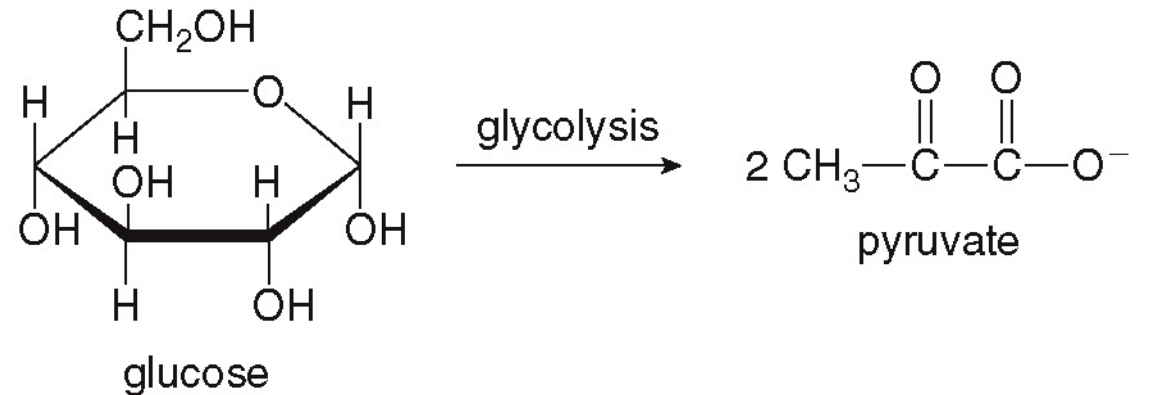
Types of Glycolysis

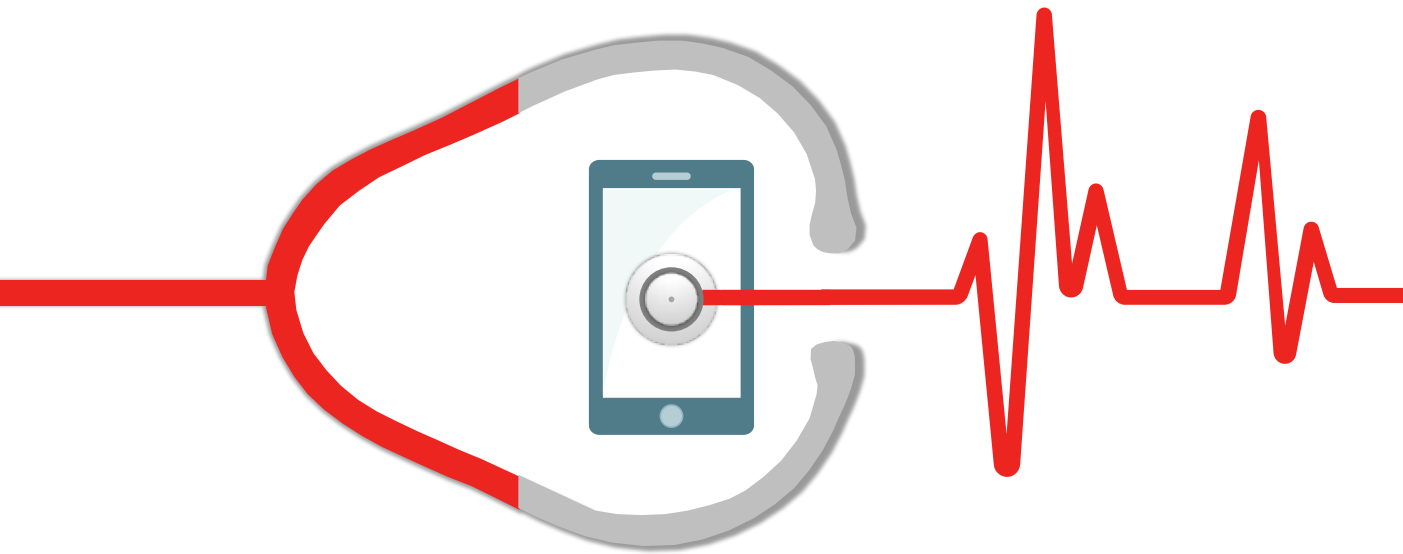




There are two types of glycolysis.

- **Aerobic Glycolysis:** It occurs when oxygen is plentiful. Final product is pyruvate along with the production of Eight ATP molecules.
- **Anaerobic Glycolysis:** It occurs when oxygen is scarce. Final product is lactate along with the production of two ATP molecules.





Functions of Glycolysis





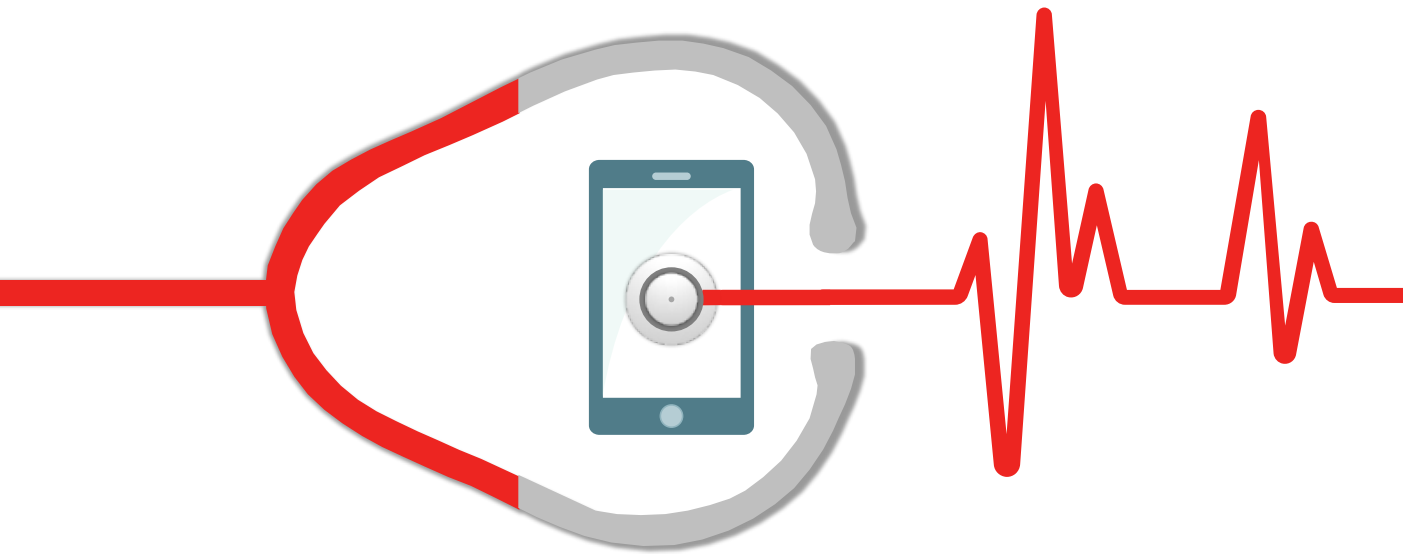
Functions of Glycolysis

- The main function of glycolysis is breakdown glucose to form NADH and ATP as a source of energy for tissues.
- As a part of aerobic respiration pyruvate is made available for the citric acid cycle (CAC).
- As a part of anaerobic respiration in the tissues that lacks mitochondria providing them with energy to perform their functions.



- In erythrocytes: the first step in glycolysis for the generation of ATP leading to the formation of 2,3-bisphosphoglycerate, which is important in decreasing the affinity of hemoglobin for O₂.

- Metabolism of glucose and ketone bodies in neuronal mitochondria. Ketone bodies do not undergo glycolysis and are able to enter the citric acid cycle (CAC) in fewer steps than glucose.

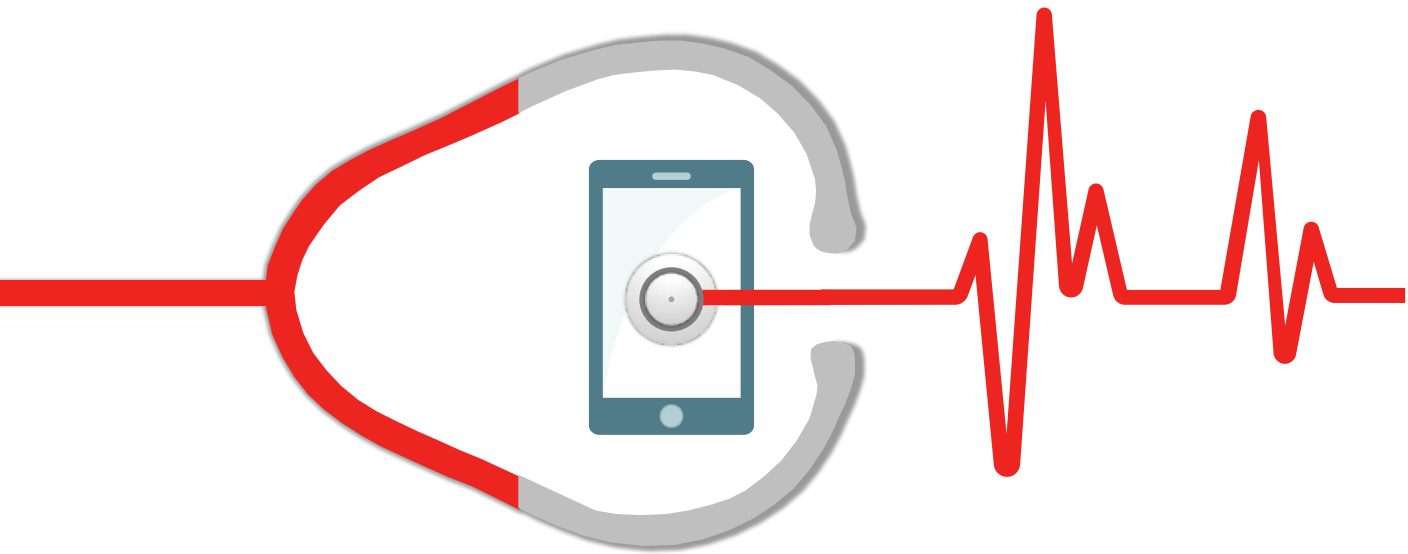


Steps of Glycolysis



GLYCOLYSIS





Summary





- IT is the sequence of reactions in order to breakdown Glucose to two molecules of pyruvic or lactate.
- Have tow type **Aerobic** and **Anaerobic** .
- **3 main function :**
 1. Synthetic function
 2. Red blood cell
 3. Produce energy
- Have 10 steps



Refernce :

1 . Murray, R. K. and Davis, J. C. (2003) Harper ' s Illustrated Biochemistry. twenty six.

2 . Pathway, P. P., Acid, F. and Degradation, A. A. (no date) lippincotts Illustrated reviews. 3rd editio.

3. https://www.google.com/search?q=glycolysis&sxsrf=ACYBGNRLV0v9OzTgbqfkbFRujBaJz2xA-w:1571831009608&source=Inms&tbm=isch&sa=X&ved=0ahUKEwjd1-XnprLIAhWDyKQKHZriAUYQ_AUIEigB&biw=1366&bih=657#imgrc=p-hip7Y2l4jl8M:

Thank You