

Sources of Glucose for Glycolysis

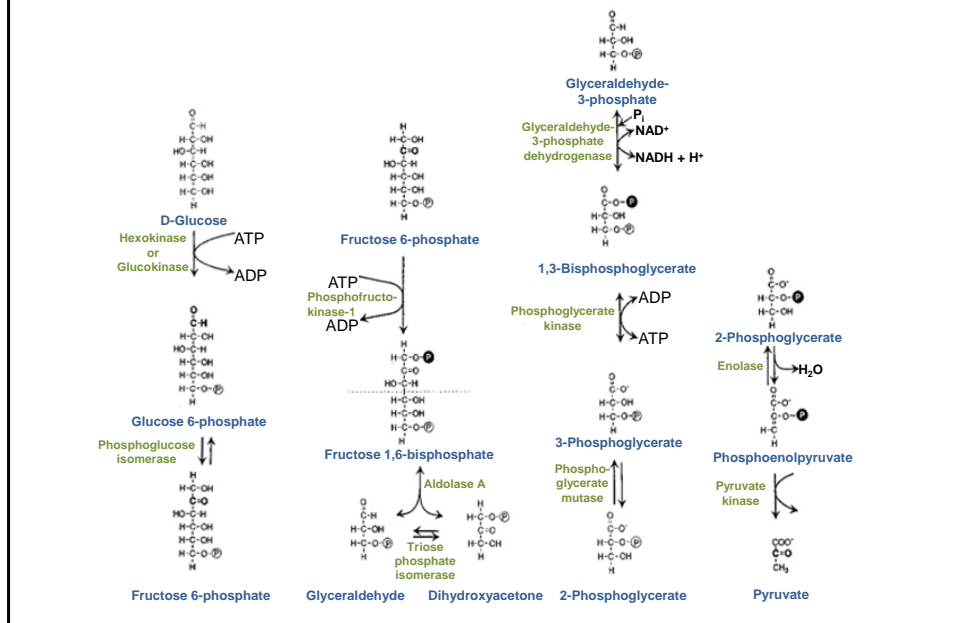
- Sugars & starch from diet
- Breakdown of stored glycogen from the liver
- Recycled glucose (from lactic acid or amino acids or glycerol)

Key Points

- **Definition:** glucose $C_6 \rightarrow 2$ pyruvate C_3
- **Location:** cytosol
(10 soluble enzymes)
- **Tissues:** all tissues
- **Functions:** 'energy' trapping
(ATP synthesis)

intermediates for fat synthesis
intermediates for amino acid

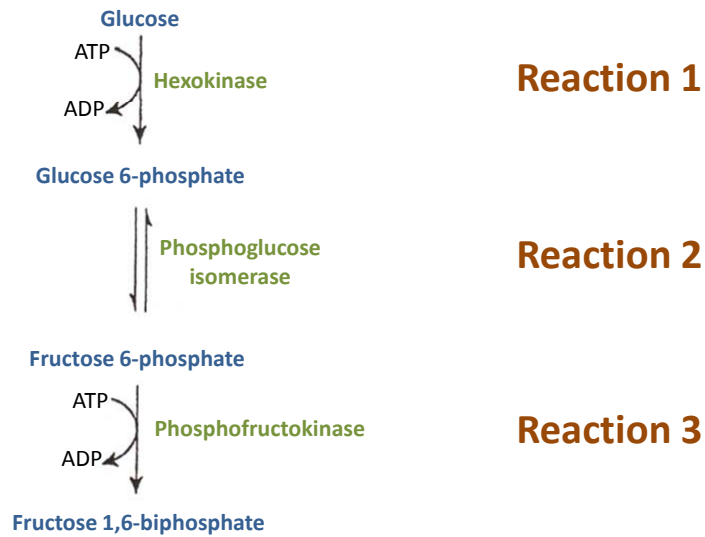
Summary Diagram of the Glycolysis Pathway



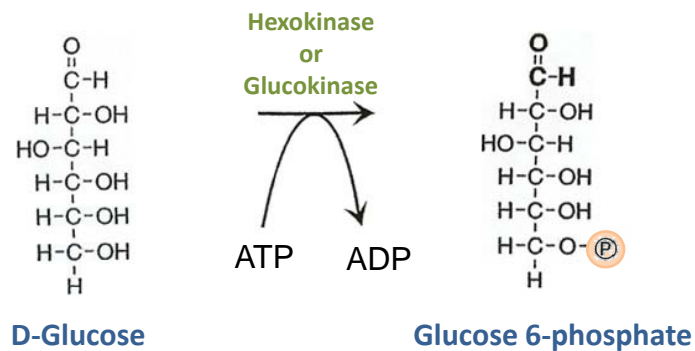
The 10 Reactions of Glycolysis can be grouped into 4 Stages:

- Activation (using up ATP)
- Splitting the 6 C sugar into half
- Oxidation (removing 2H atoms)
- Synthesis of ATP

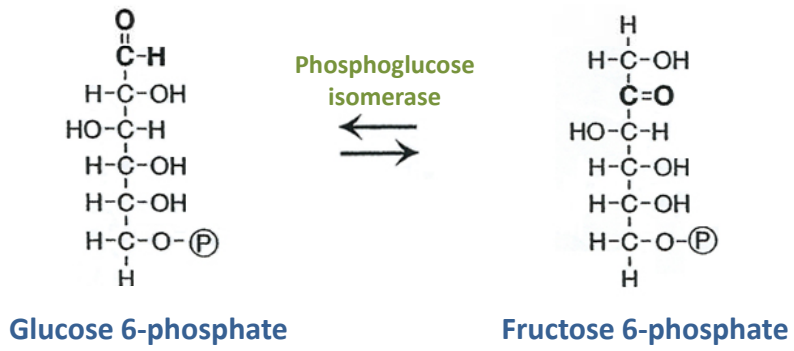
Activation stages of glycolysis



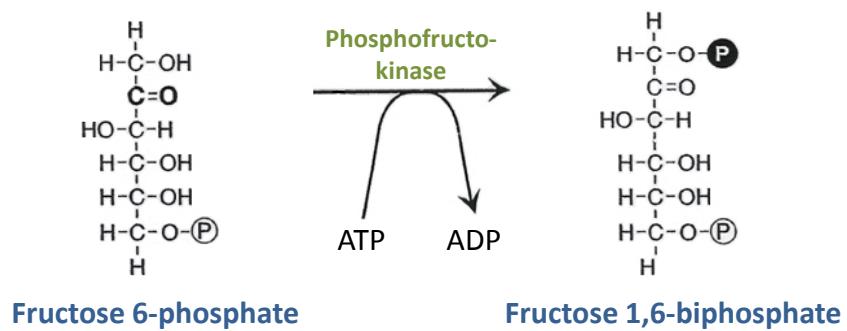
Reaction 1



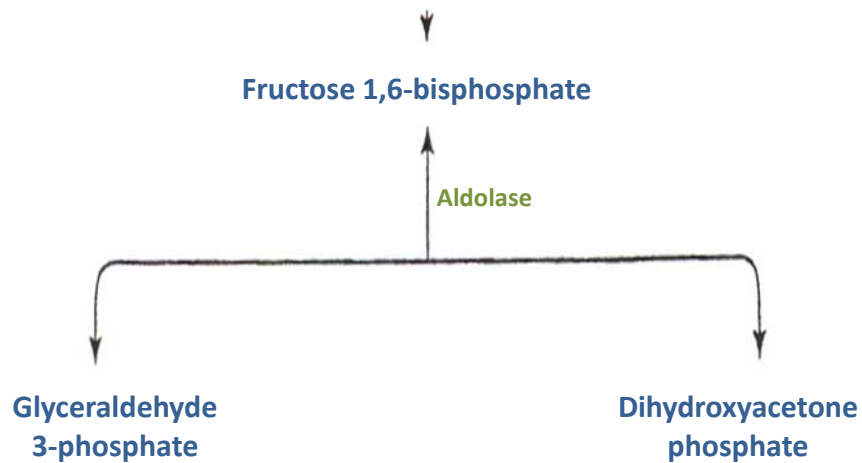
Reaction 2



Reaction 3



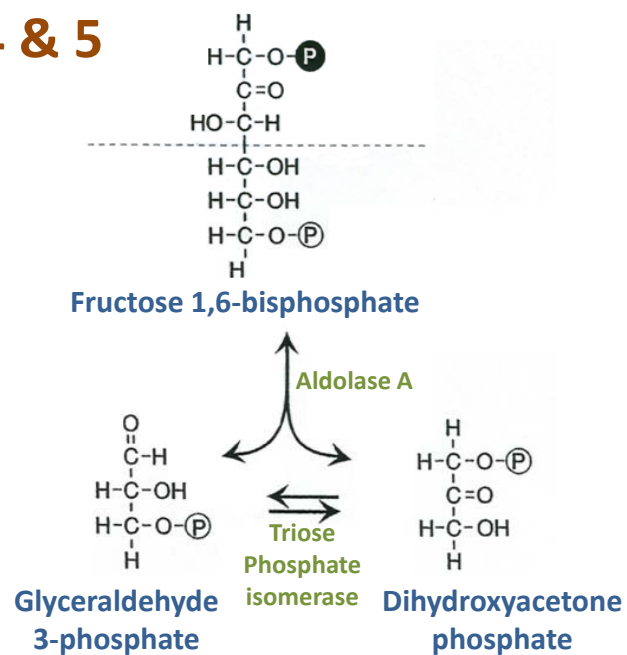
Splitting of 6C Sugar to 3C Units



Reactions 4 & 5

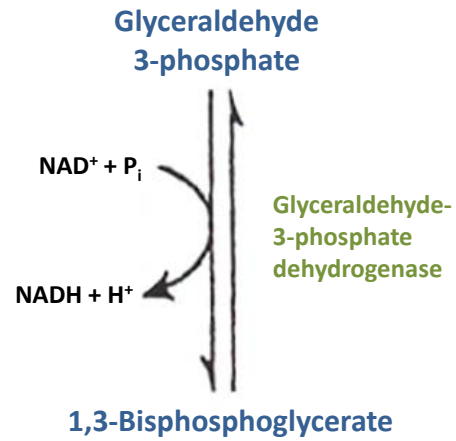
Reaction 4

Reaction 5

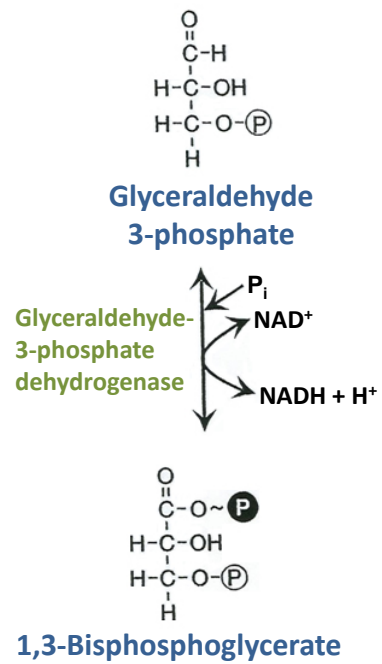


Oxidation step

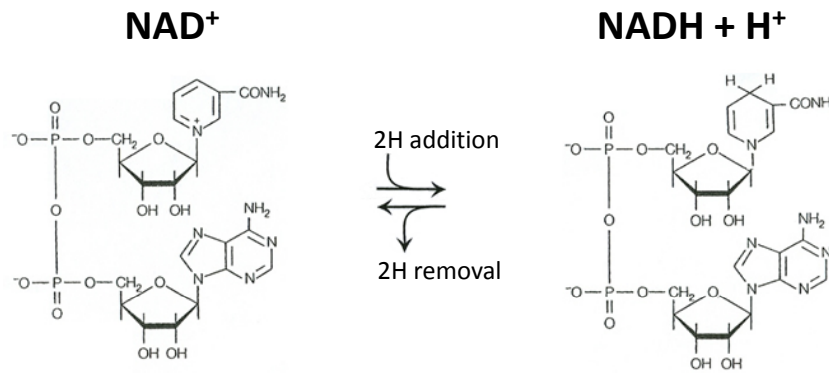
Reaction 6



Reaction 6

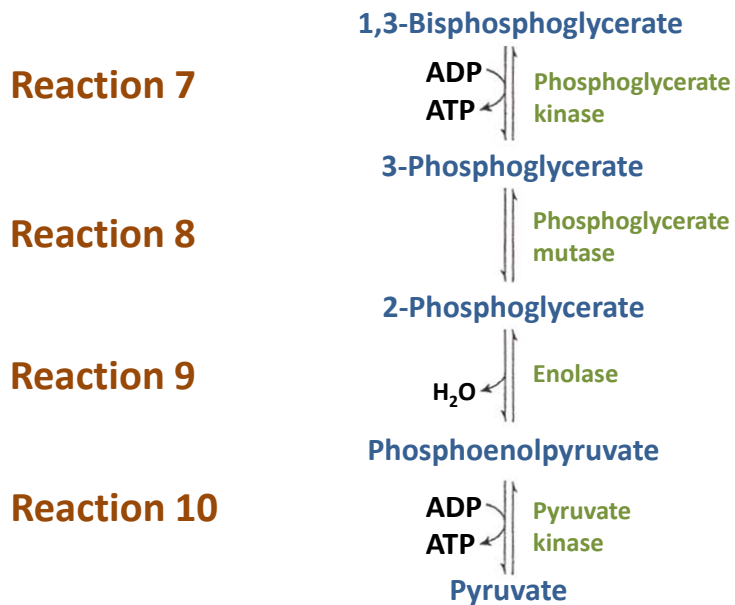


Role of NAD as H atom acceptor

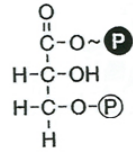


NAD = Nicotinamide Adenine Dinucleotide

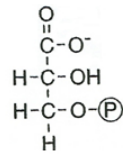
ATP synthesis stages



Reaction 7

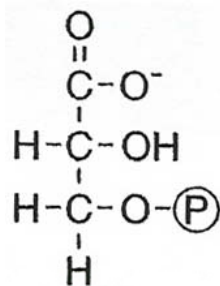


1,3-Bisphosphoglycerate



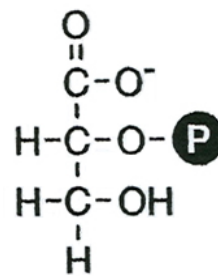
3-Phosphoglycerate

Reaction 8 - Isomerisation



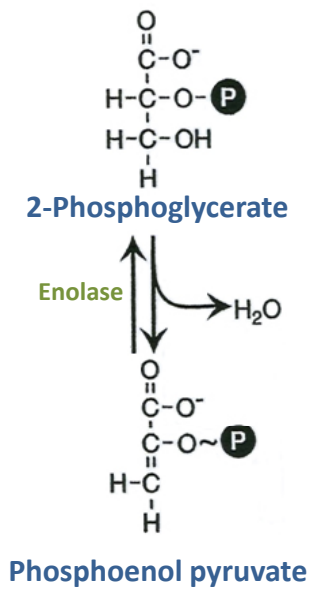
3-Phosphoglycerate

Phosphoglycerate mutase



2-Phosphoglycerate

Reaction 9



Reaction 10

