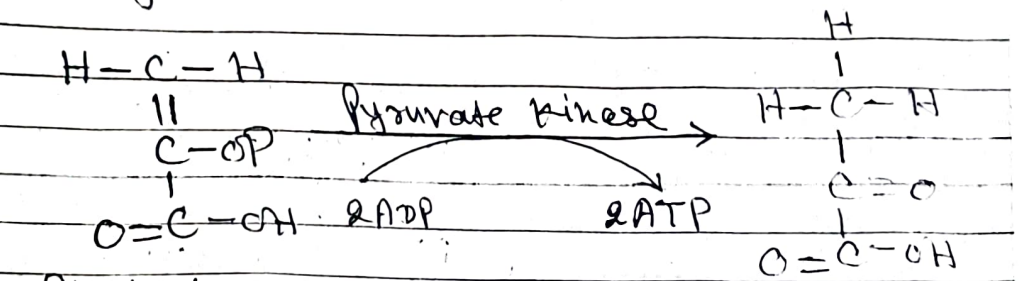
[9] ATP GENERATION :→ Phospho-enol-pyruvic acid converted into pyruvic acid in the presence of enzyme pyruvate kinase & Mg^{++}. Here ATP mole is formed.



2-Phosphopyruvic acid — Pyruvic acid

This Pyruvic acid either converted into ethyle Alcohol or lactic acid in anaerobic cells such as yeast and muscle cells or enter in the mitochondria of aerobic cells and oxidize into CO_2 & H_2O.

Regulation of Glycolysis :→

[1] Pasteur effect :→ It was first noted by Pasteur that if the supply of O_2 is lower in the cell the rate of glycolysis is faster and vice-versa.

[2] Effect of ATP-AMP System :→ The major key for control of glycolysis by means of the ATP-AMP system is that transformation fructose-6-phosphate to fructose-1,6-diphosphate. The enzyme phosphofructo kinase is strongly inhibited by ATP but it is stimulated by ADP & AMP.

[3] Effect of NAD :→ The ratio of oxidised to NAD is probably one of the most important factor in regulating the rate of which the pathway operates.

[4] Effect of Hormone :→ Recently it has been observed that several hormones influences the carbohydrate metabolism. Glucagon and Adrenaline stimulates the production of cyclic AMP. Insuline, Steroids, Thyroxine also influences the carbohydrate metabolism.

[5] Effect of Enzyme :→ Enzymes utilized in the pathway govern the pathway. This is determined by the rate of cellular enzyme synthesis & one of intracellular substances that may act as enzyme inhibitors.

Energetics of Glycolysis :—

LOSS OF ATP	GAIN OF ATP
1. Glucose → Glucose-6-Phosphate one mol. of ATP	Glyceral dehyde-3 Phosphate 1-3-diphosphoglyceric acid Two mol. of NAD.
2. Fructose-6-Phosphate → Fructose 1-6 Diphosphate 1 mol. ATP	1-3 diphosphoglyceric acid → 3 Phosphoglyceric acid. 2 mol. of ATP
	Phospho-enol-Pyruvic acid Pyruvic acid 2 mol. of ATP

∴ 1 mol of NAD gives 3 mol. of ATP

∴ 2 " " " = 6 " " "

∴ 2 " " ATP — 6 " " "
2 " " "
2 " " "
10 = mole of ATP

10 mole of ATP — 2 mol. of ATP
= 8 mole of ATP
Net gain.

CONCLUSION :→ So I see that :—

1)— One molecule of glucose give two molecules of pyruvic acid.

2)— Four ATP are liberated in which two is used as phosphorylation & two save for glycolysis.

3)— O_2 is not used & CO_2 is not form.

4)— At the result of glycolysis 4% part of energy in this process, $NADH_2$ have of 4% energy of sugar while pyruvic acid have 96% energy of sugar. This is shown by following equation :—

$$C_6H_{12}O_6 + 2NAD \longrightarrow 2CH_3COCOOH + 2NADH_2$$

glucose — pyruvic acid

—x— x—