

# GLYCOLYSIS

- Cytoplasm
- Glucose  $\rightarrow$  2x Pyruvate
- Gained: 4 ATP
- Used: 2 ATP  $\rightarrow$  2 ATP (net)
- 2 NADH
- Anaerobic  $\rightarrow$  Lactic Acid

- oxy of glucose (10 steps)  
 $\rightarrow$  2 pyruvate

## Getting into cells:

- GLUT (transporter)

- Bidirectional
- I, II, III  $\rightarrow$  non Ins. Dep.
- IV  $\rightarrow$  Ins. Dep.

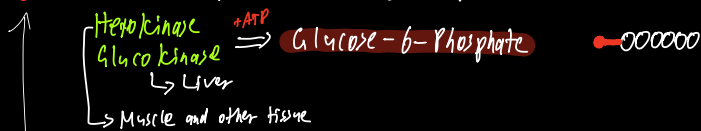
I - BBB  $\rightarrow$  Blood (RBC), Baby (Fetus), Blood Brain Barrier

II - Kids Lips  $\rightarrow$  Kidney, Liver, pancreas  
 are

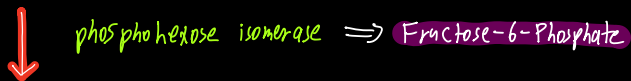
III - Pink  $\rightarrow$  Placenta, Nerves, Kidney

\* IV - Mother  $\rightarrow$  Muscle  
 Father  $\rightarrow$  Fat (adipose)  $\left. \vphantom{\begin{matrix} \text{Mother} \\ \text{Father} \end{matrix}} \right\}$  Insulin dependent

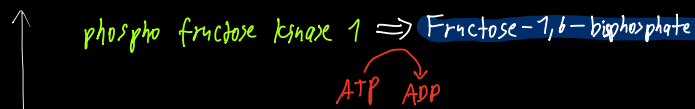
1 When in cell gets marked by phosphate:



2 Glucose-6-Phosphate changin form from Aldose to Ketone



3 Fructose-6-Phosphate adds Phosphate at C1  $\bullet\text{---}000000\bullet$



4 Fructose-1,6-bisphosphate getting split by



5 Dihydroxy Acetone phosphate: body can not use it. conversion to Glycer-aldehyde-3-Phosphate



2x Glycer-aldehyde-3-Phosphate gets Phosphate  $\bullet\text{---}000\bullet$



6 1,3 - Bisphosphoglycerate gets rid of 1 Phosphat  $\text{COO}^- \xrightarrow{+ADP \Rightarrow ATP}$

Phosphoglycerate kinase  $\Rightarrow$  3-phosphoglycerate  
 $2ADP \rightarrow 2ATP$

7 3-phosphoglycerate changes Phosphate place 3  $\rightarrow$  2

Phosphoglycerate mutase  $\Rightarrow$  2-phosphoglycerate  $\text{COO}^-$

8 2-phosphoglycerate changes structure:  $\text{C} \begin{matrix} \text{O}^- \text{PO}_3^{2-} \\ | \\ \text{C} = \text{C} \end{matrix}$

Enolase  $\Rightarrow$  Phosphoenol Pyruvate (PEP)

9 Phosphoenol Pyruvate gets rid of phosphate

Pyruvate kinase  $\xrightarrow{+P_i}$  Pyruvate  
 $2ADP \rightarrow 2ATP$

10 • Anaerobic: Pyruvate into Lactic Acid (Lactate dehydrogenase)  
 $2NADH \rightarrow 2NAD^+$   
 $\rightarrow$  Liver  $\rightarrow$  glucose

• Aerobic: Pyruvate into Acetyl CoA  $\text{COO}^-$