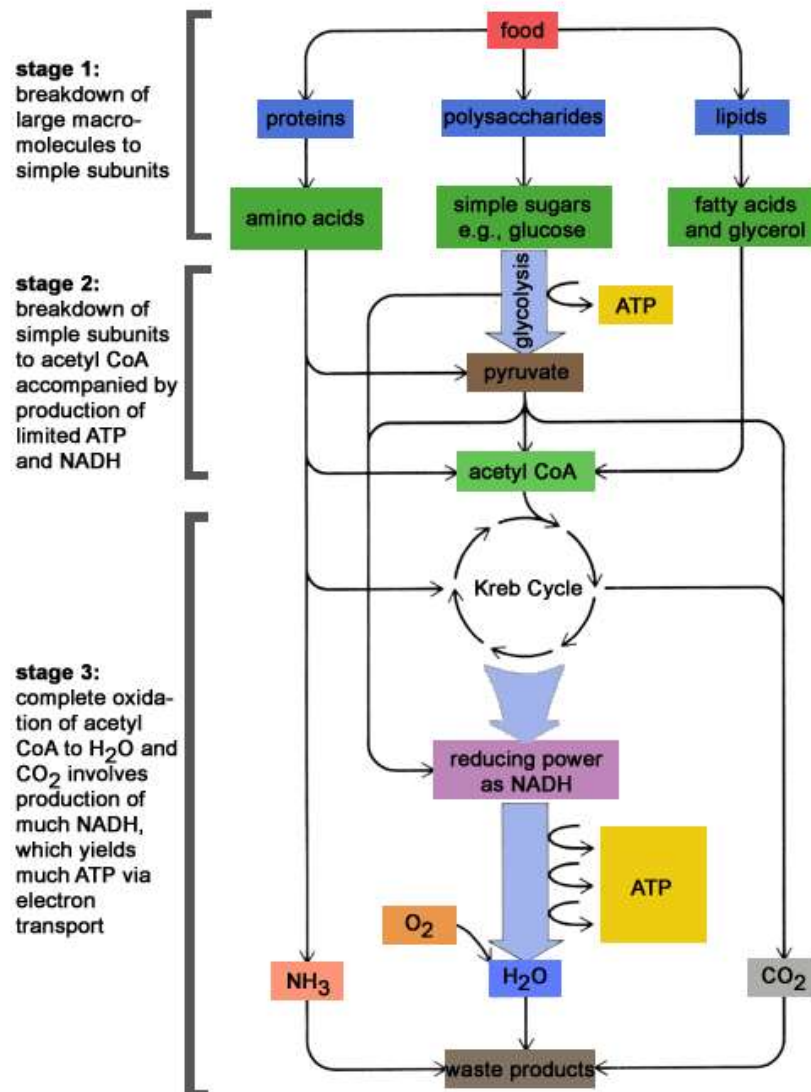


The model above reveals that 34 of 38 ATPs generated during cellular respiration are produced by **chemiosmosis**. **Substrate-level phosphorylation** accounts for the other 4 ATPs.

## A Diagram That Reveals Where Non-Carbohydrate Food Molecules Enter The Respiratory Pathways



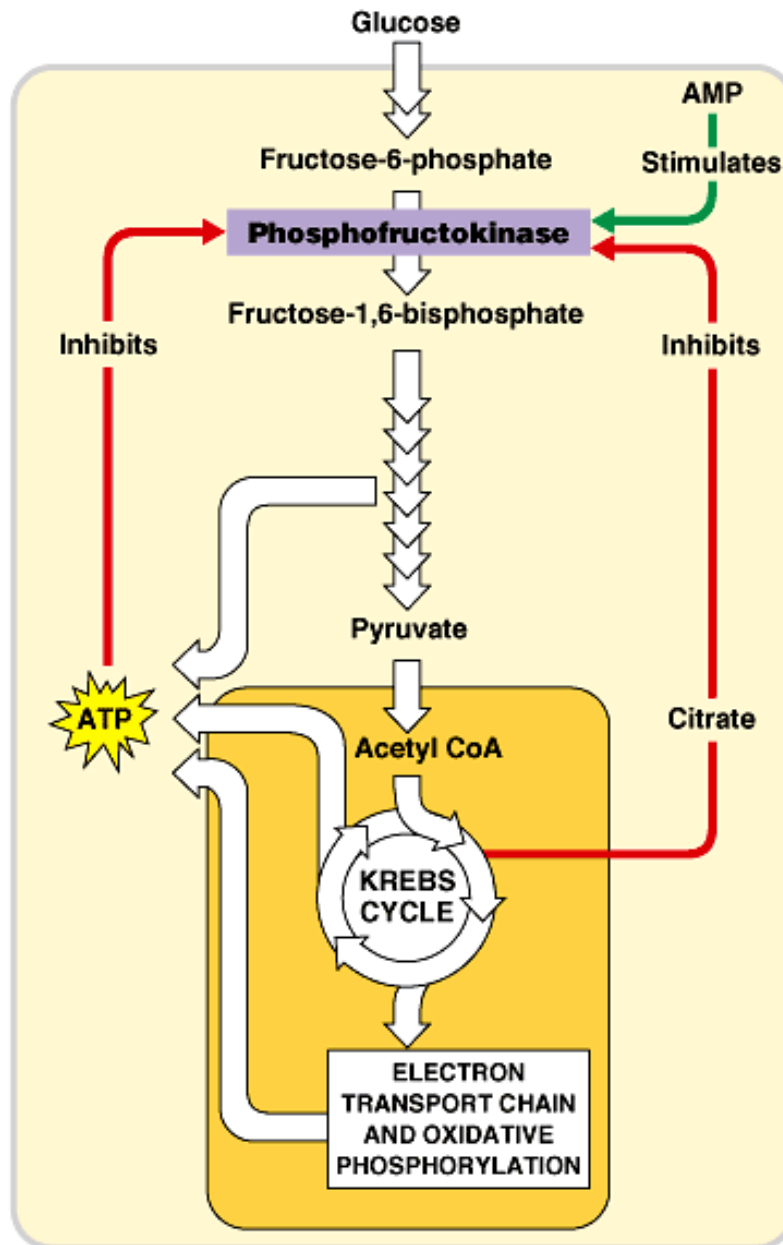
Not all the organic molecules of food are completely oxidized to make ATP.

**Intermediaries in glycolysis and the Krebs cycle can be diverted to anabolic pathways.**

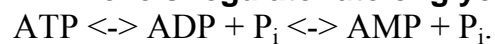
EX. a human cell can synthesize about half the 20 different amino acids by modifying compounds from the Krebs cycle.

Which macromolecules are poorly suited to energy extraction?

## ALLOSTERIC REGULATION OF PHOSPHOFRUCTOKINASE



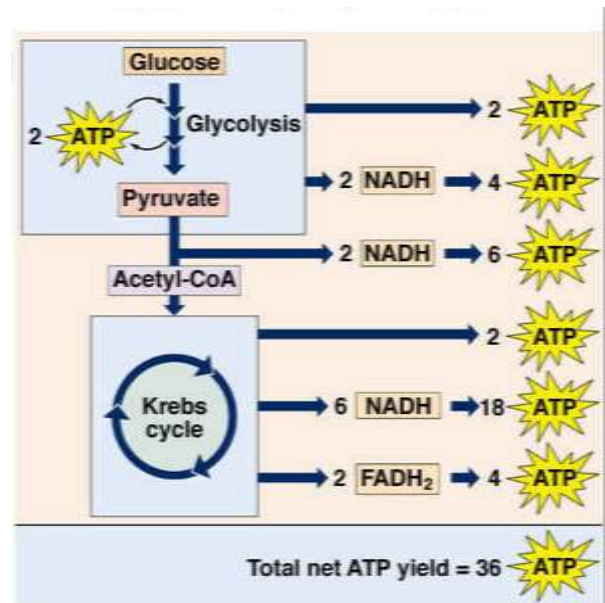
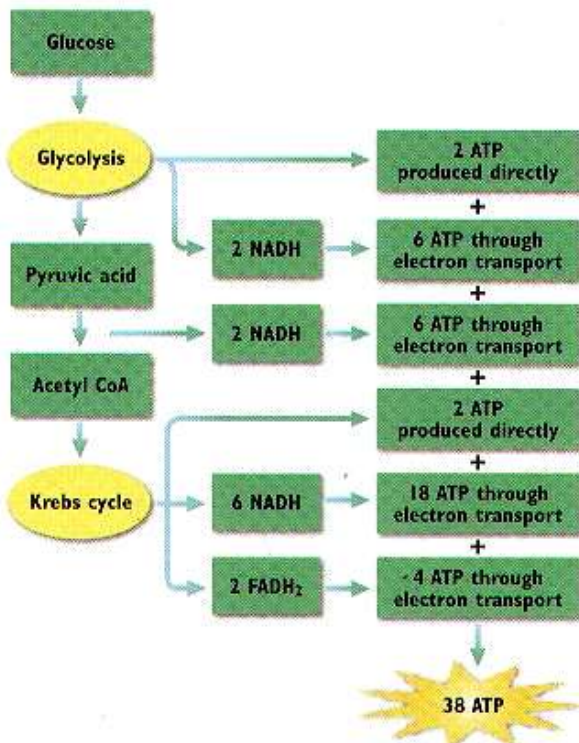
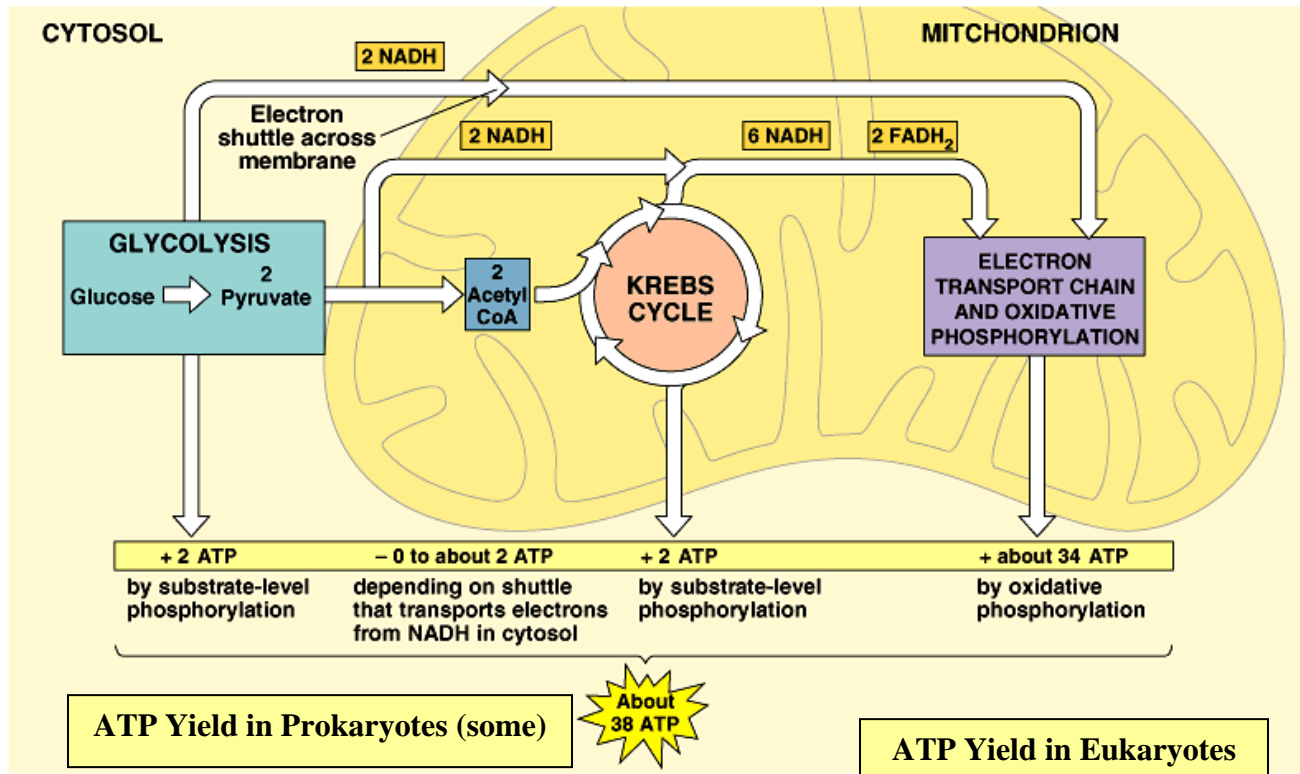
### ATP / AMP levels regulate rate of glycolysis



**CITRATE** (first product of \_\_\_\_\_ Cycle, duh) synchronizes rates of glycolysis and Krebs cycle.

Also, if intermediaries from the Krebs cycle are diverted to other uses (e.g., amino acid synthesis), glycolysis speeds up to replace these molecules

*Cells are thrifty, expedient, and responsive in their metabolism.*



38 ATP vs 36 ATP: WHY?