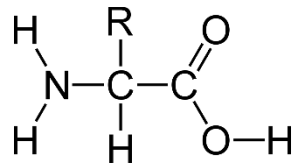


## Other Metabolites

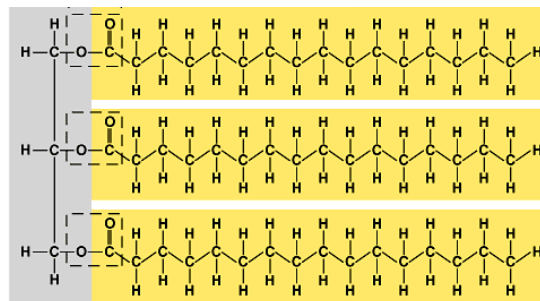
The main fuel molecule =

Other carbs:

Proteins:



Lipids



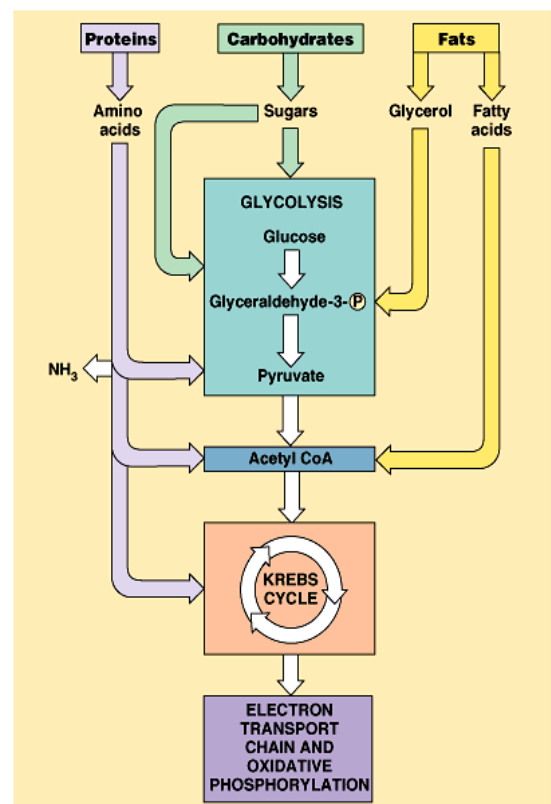
## Carbs vs. Fats

Fat generates 2x **ATP** vs. carbohydrate

- more **C** in gram of fat
  - more energy releasing bonds
- more **O** in gram of carbohydrate
  - already partly oxidized
  - less energy to release

## Digestion

- digestion of carbohydrates, fats & proteins
- all catabolized through same pathways
- enter at different points
- cell extracts energy from every source



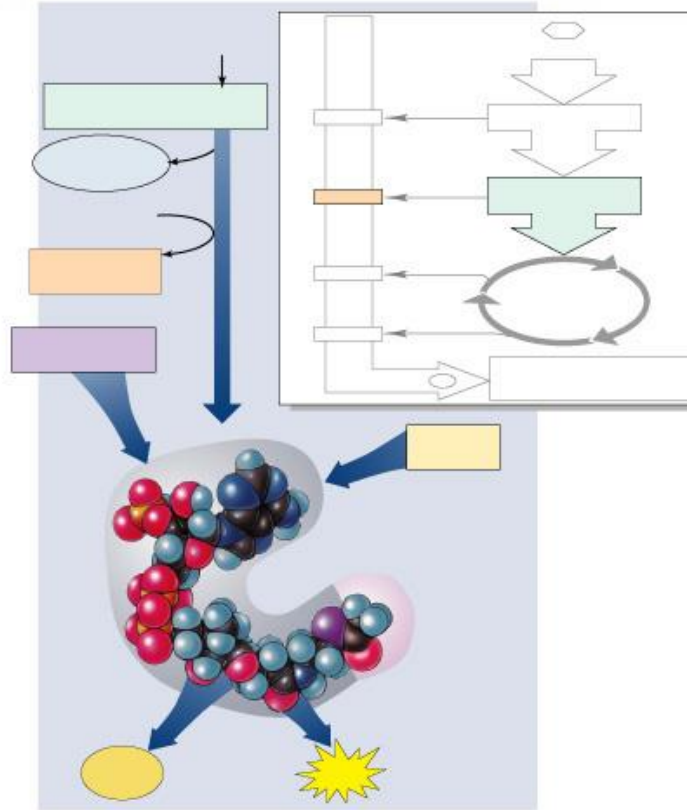
## Synthesis

- enough energy? build stuff!
- cell uses points in glycolysis & Krebs cycle as links to pathways for synthesis
- run pathways “backwards”
- have extra fuel, build fat!

Acetyl CoA is central to both energy production & biomolecule synthesis

Depending on organism's need

- build ATP
  - immediate use
- build fat
  - stored energy



## **Control of Cellular Respiration**

Feedback Inhibition

Regulation & coordination of production



Key point of control

\_\_\_\_\_ regulation of  
enzyme

“can’t turn back” step before splitting glucose

Why is regulation important?

Basic principles of supply & demand regulate  
metabolic economy

Balance the supply of raw materials with the  
products produced

become feedback regulators

control enzymes at strategic points in glycolysis & Krebs cycle

- levels of \_\_\_\_\_
  - regulation by \_\_\_\_\_ & \_\_\_\_\_
- levels of \_\_\_\_\_ in pathways
  - regulation of \_\_\_\_\_
- levels of \_\_\_\_\_ in body
  - regulates rate of siphoning off to \_\_\_\_\_

