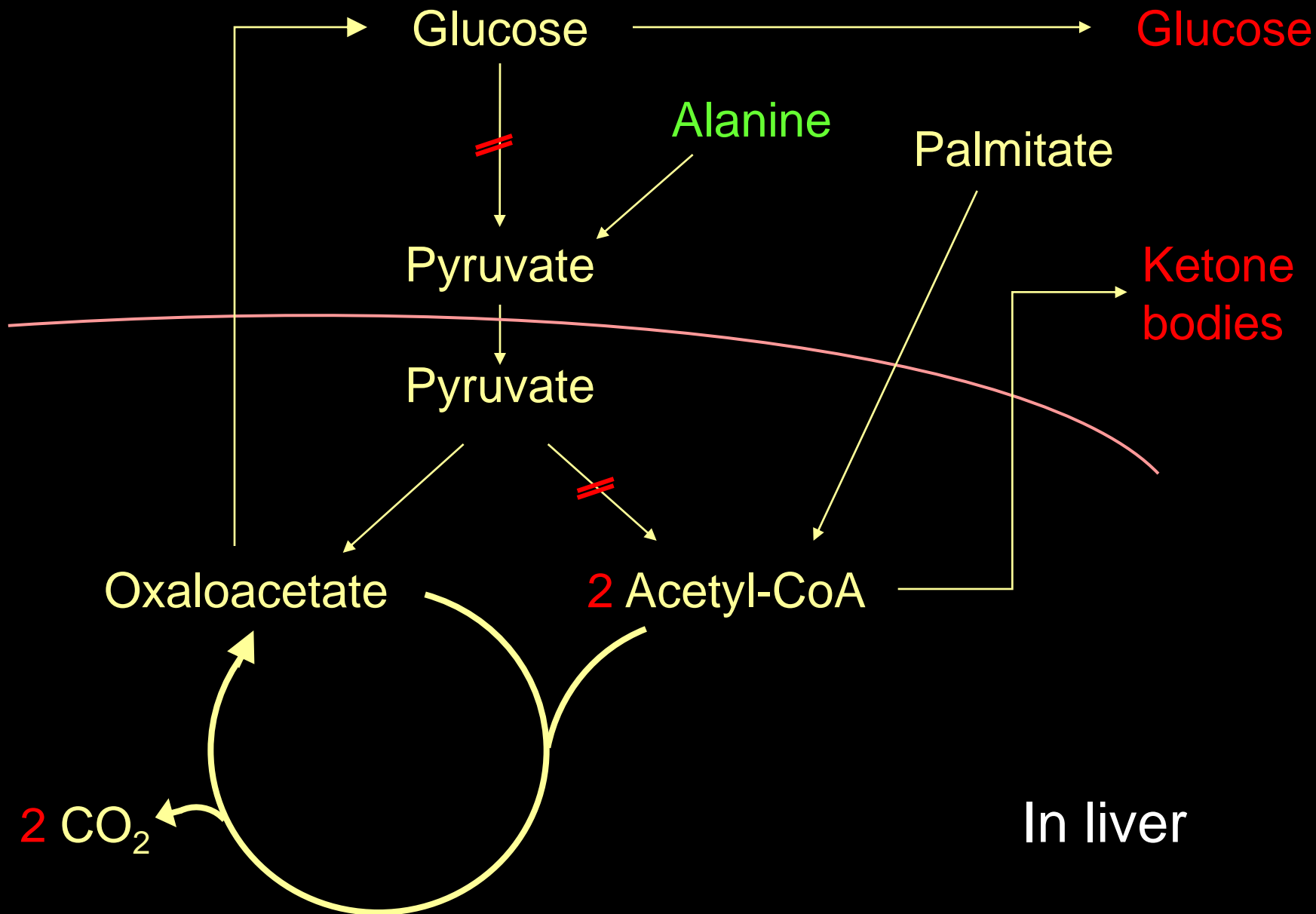
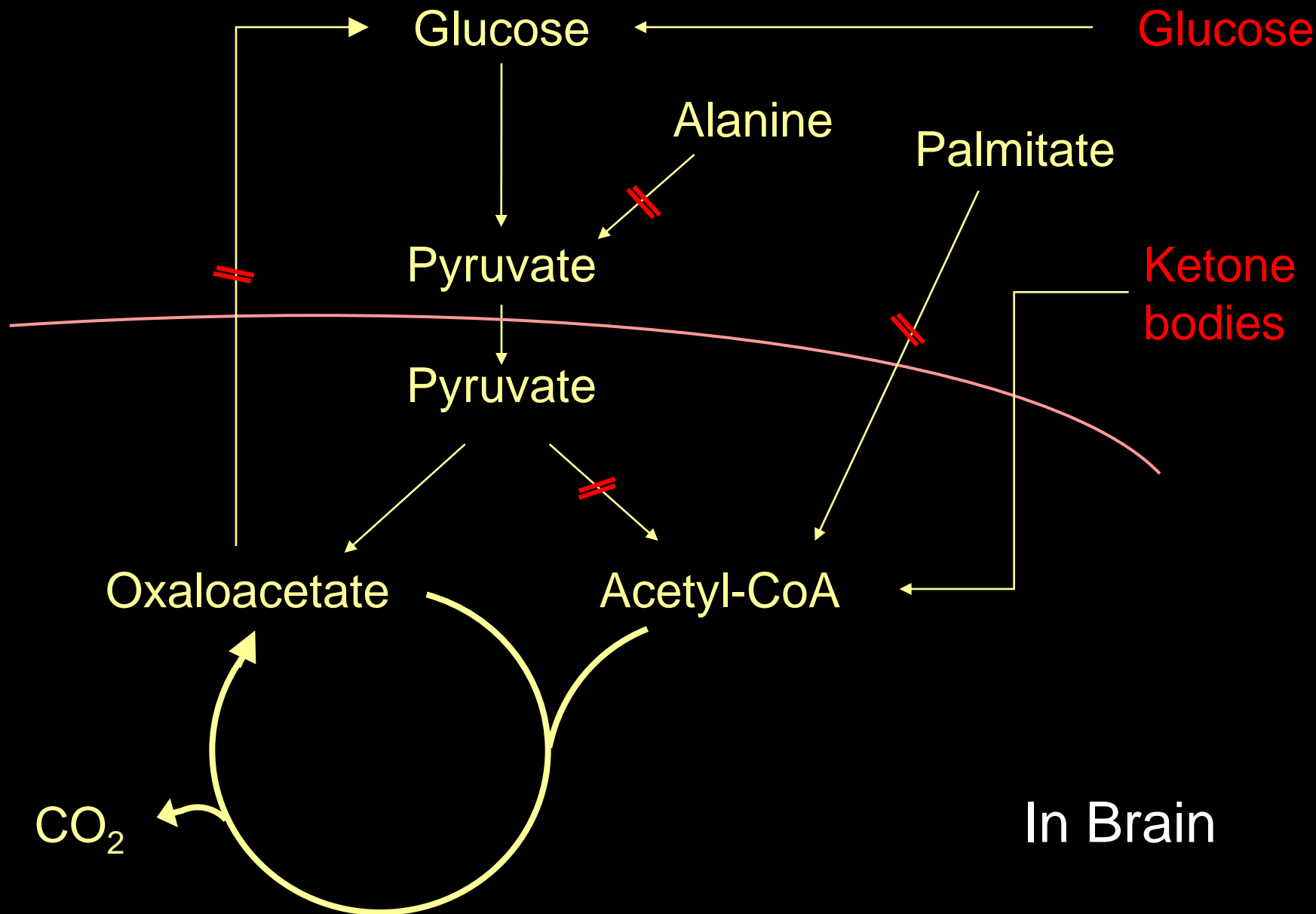
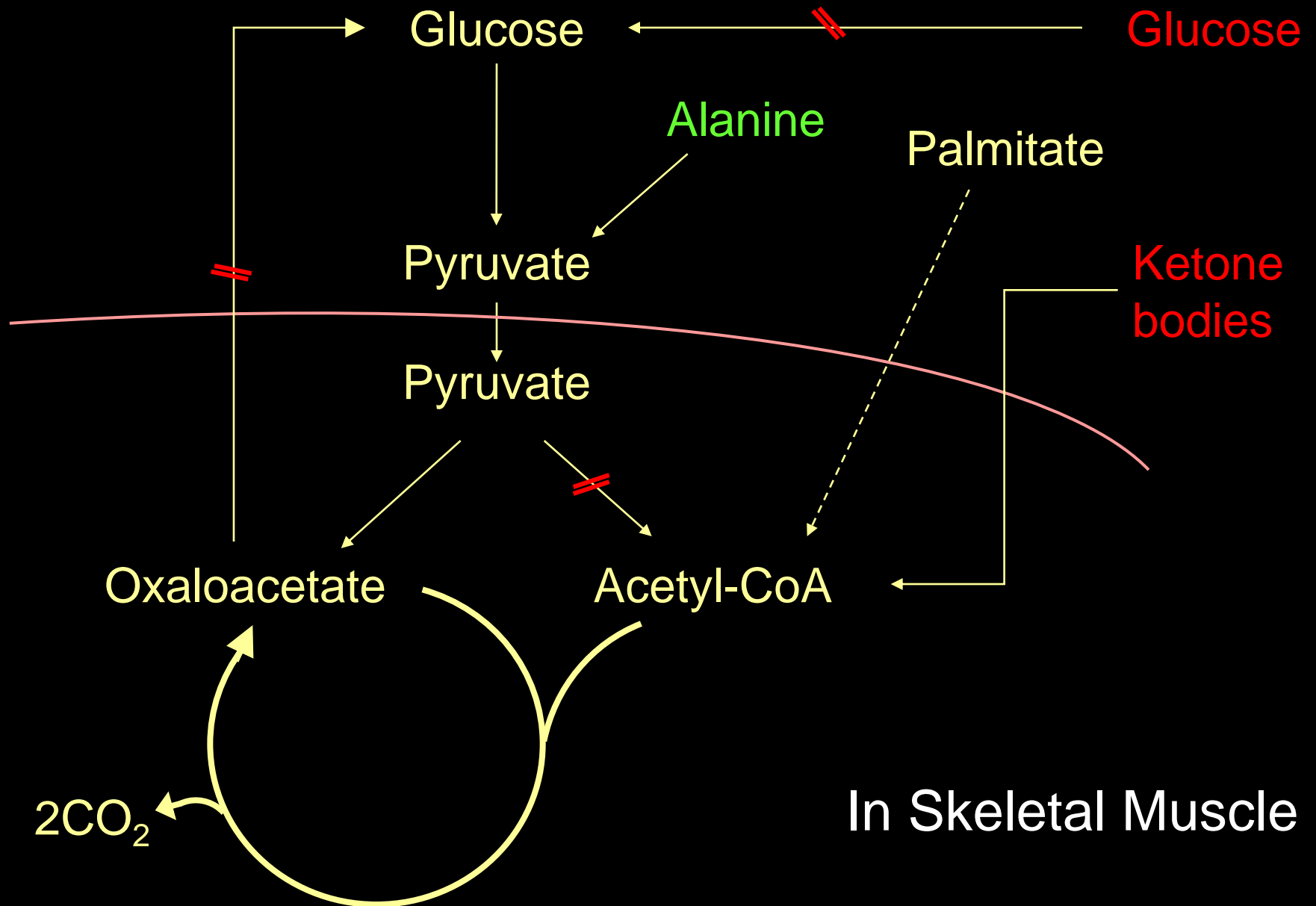


# Metabolic Consequences of Starvation





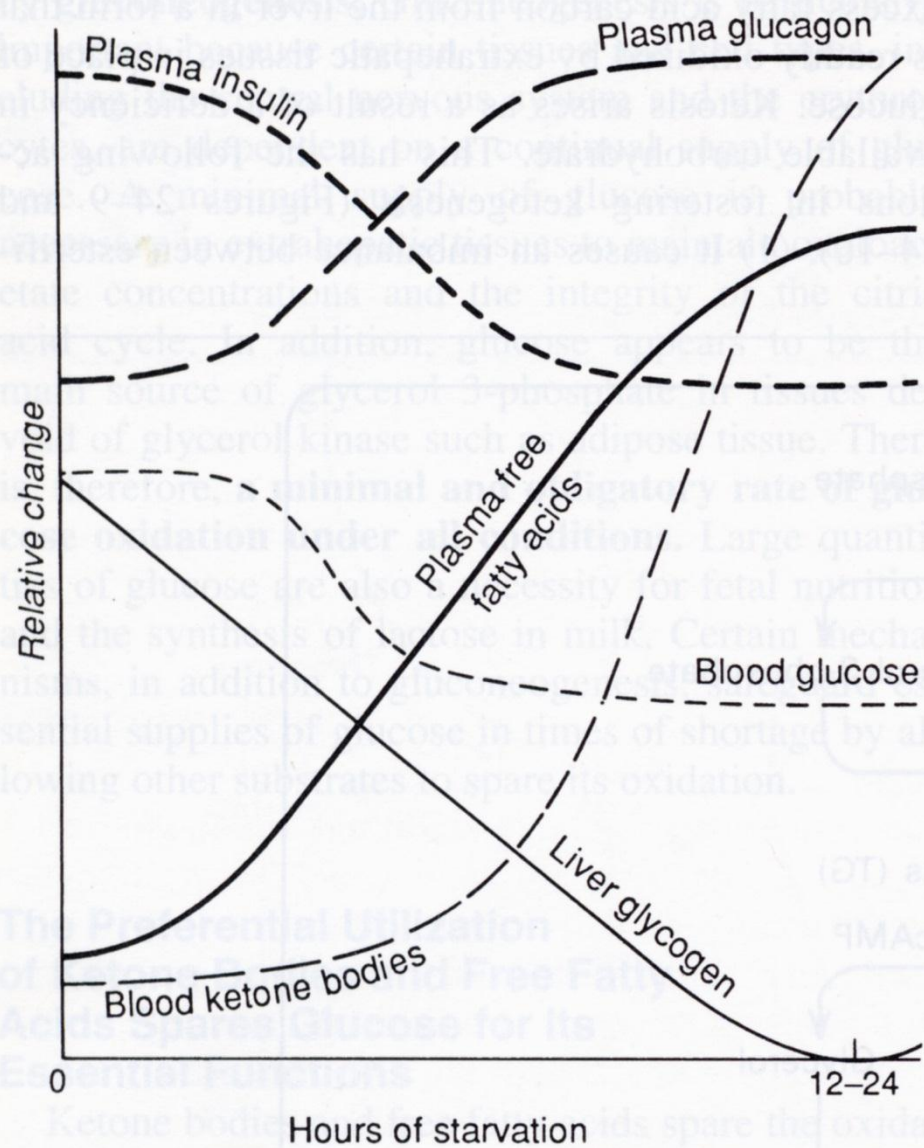


Oxidation of Fuels by Peripheral tissues (Skeletal Muscle & Heart) in order of preference:

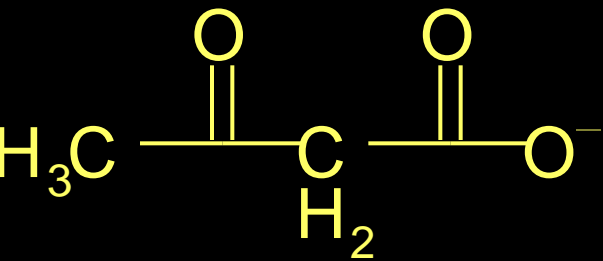
1. Ketone Bodies

2. FFA's

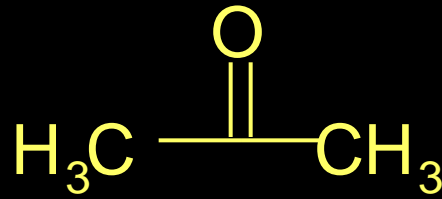
3. Glucose



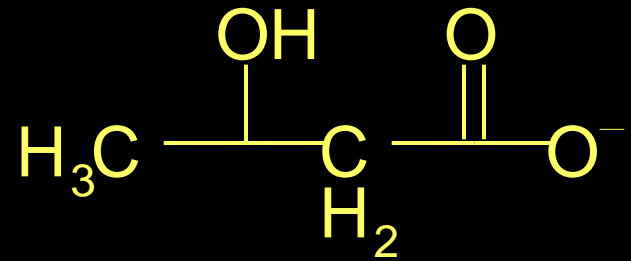
# Major Ketone Bodies



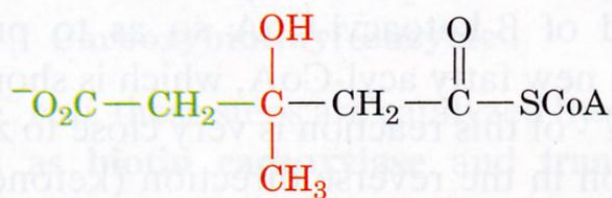
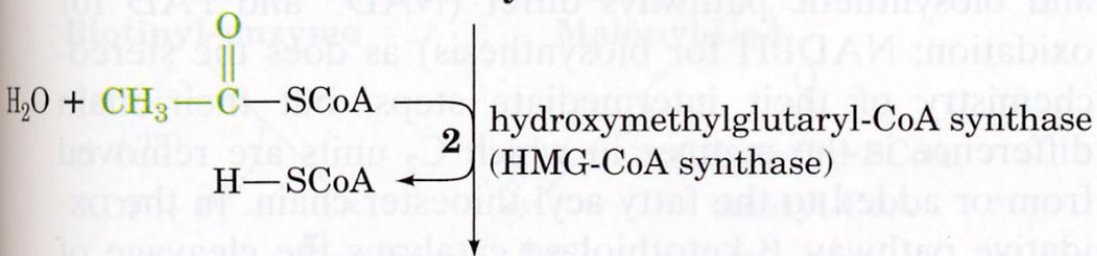
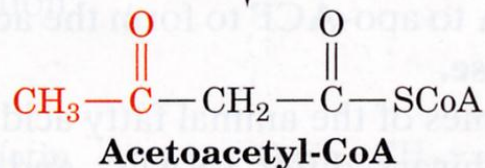
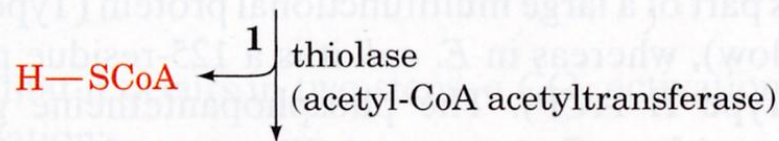
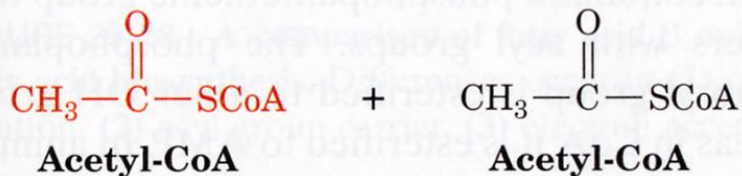
Acetoacetate



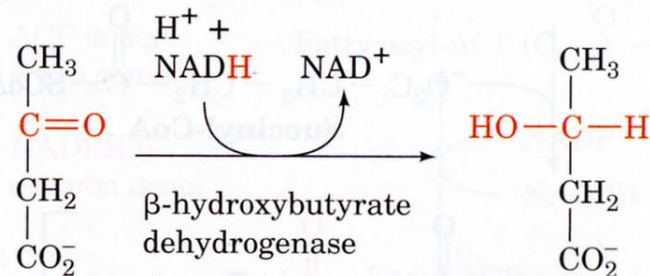
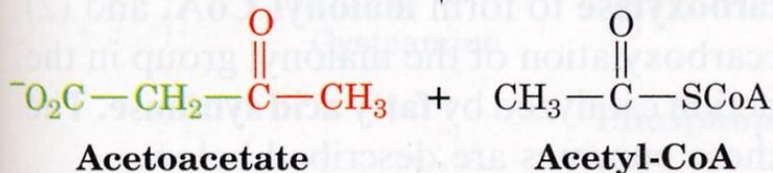
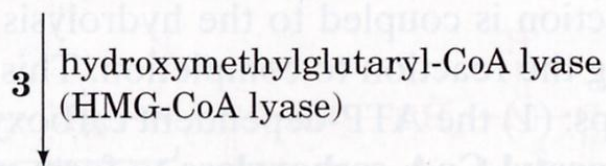
Acetone



B- OH butyrate



**β-Hydroxy-β-methylglutaryl-CoA (HMG-CoA)**



**Acetoacetate**

**D-β-Hydroxybutyrate**

## Enzymatic Pathway for Formation of Ketones in Humans

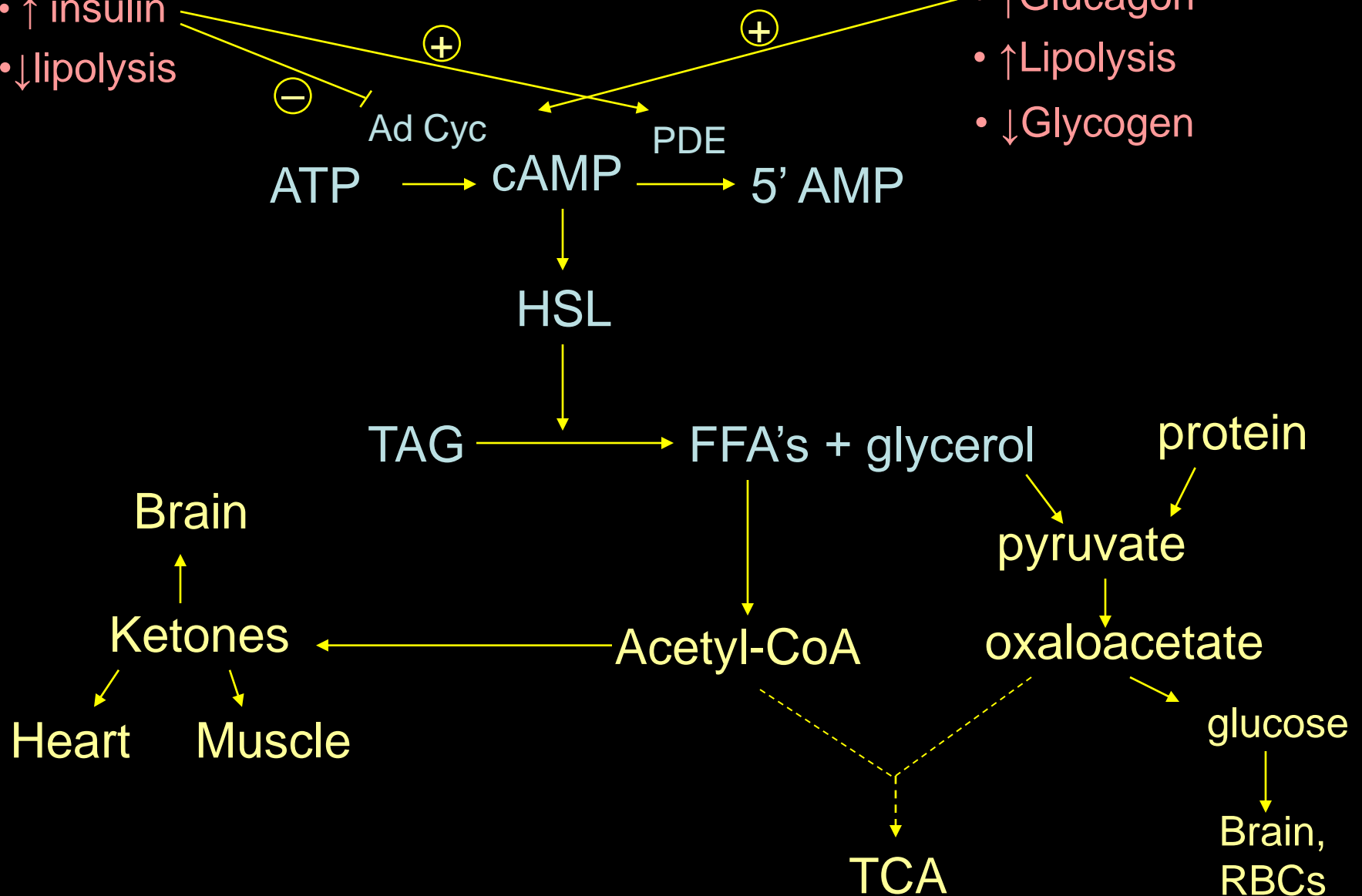


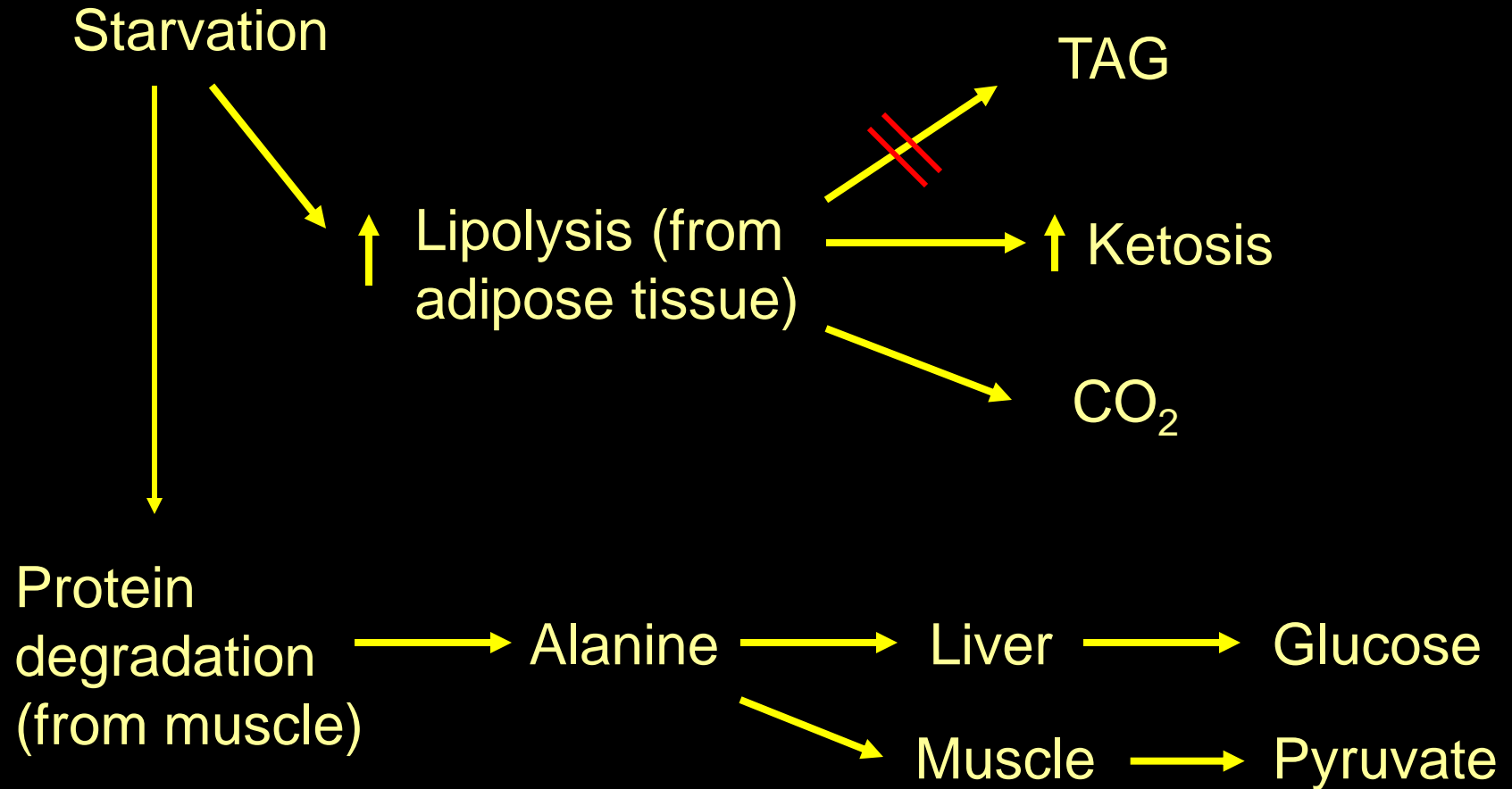
## In the Fed State:

- ↑ blood glucose
- ↑ insulin
- ↓ lipolysis

## 12-24 hrs fasting:

- ↓ Blood Glucose
- ↑ Glucagon
- ↑ Lipolysis
- ↓ Glycogen



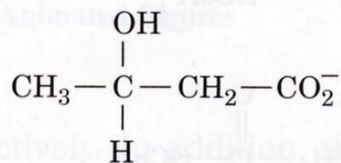


# Utilization of Ketone Bodies

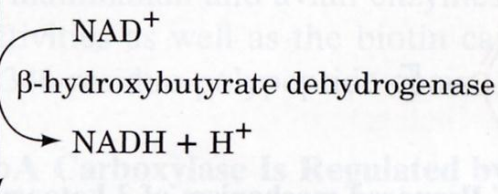


## Sources of Oxaloacetate:

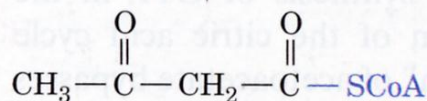
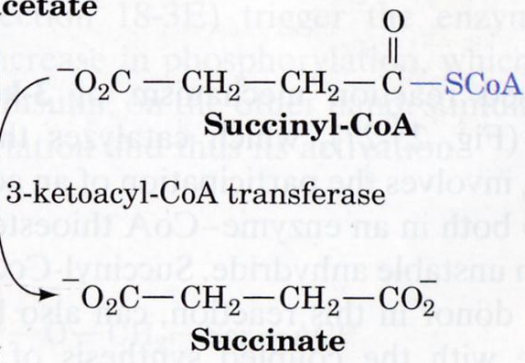
- Brain – blood glucose
- Heart – blood glucose
- Muscle – endogenous glycogen, protein



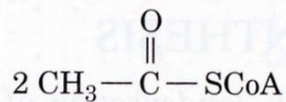
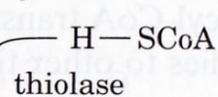
**D-β-Hydroxybutyrate**



**Acetoacetate**



**Acetoacetyl-CoA**



**Acetyl-CoA**