

## Integration and Regulation of Metabolism

## Srere's ARB Figure

There are relatively few metabolites that connect with more than one or two others



## Tissue Function and Preferred Fuels

Brain- glucose only fuel except for starvation, when ketone bodies become important

Liver (recall "extrahepatic tissue")

Kidney- gluconeogenesis becomes important in fasting

Adipose- glucose needed for fat synthesis

Brown adipose- fatty acids used for thermogenesis

Muscle- fatty acids; glycogen stores are used for bursts of activity

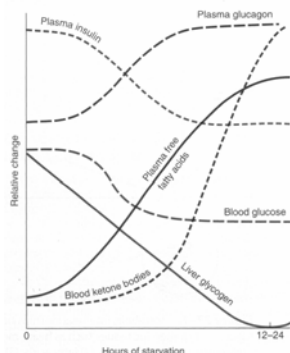
Heart- fatty acids; about 50% of cell volume is filled by mitochondria

## Fed State, Fasting, Starving and Refed State

- Fed State: preferred substrate for most tissues glucose
- Starvation is prolonged fasting: glucose is spared for CNS and erythrocytes

## Fasting Levels of Metabolites

Fig. 27-2, Harper's 26<sup>th</sup> Ed.



## Fed State, Fasting, Starving and Refed State

- Refed notable event: Liver stays in gluconeogenic state to replenish glycogen